



# **Deploy Cloud Volumes ONTAP**

## **Cloud Manager 3.7**

NetApp  
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# Deploy Cloud Volumes ONTAP

## Before you create Cloud Volumes ONTAP systems

Before you use Cloud Manager to create and manage Cloud Volumes ONTAP systems, your Cloud Manager administrator should have prepared networking and installed and set up Cloud Manager.

The following conditions should exist before you start deploying Cloud Volumes ONTAP:

- Networking requirements were met for Cloud Manager and Cloud Volumes ONTAP.
- Cloud Manager has permissions to perform operations in your chosen cloud provider.
- For AWS, you subscribed to the appropriate AWS Marketplace page:
  - If you want to deploy a PAYGO system, or enable an add-on feature: [The Cloud Manager \(for Cloud Volumes ONTAP\) page](#).
  - If you want to deploy a BYOL system: [The single node or HA page in the AWS Marketplace](#).
- Cloud Manager was installed.

### Related links

- [Getting started in AWS](#)
- [Getting started in Azure](#)
- [Getting started in GCP](#)
- [Setting up Cloud Manager](#)

## Logging in to Cloud Manager

You can log in to Cloud Manager from any web browser that has a connection to the Cloud Manager system. You should log in using a [NetApp Cloud Central](#) user account.

### Steps

1. Open a web browser and log in to [NetApp Cloud Central](#).

This step should automatically direct you to the Fabric View. If it doesn't, then click **Fabric View**.

2. Select the Cloud Manager system that you want to access.

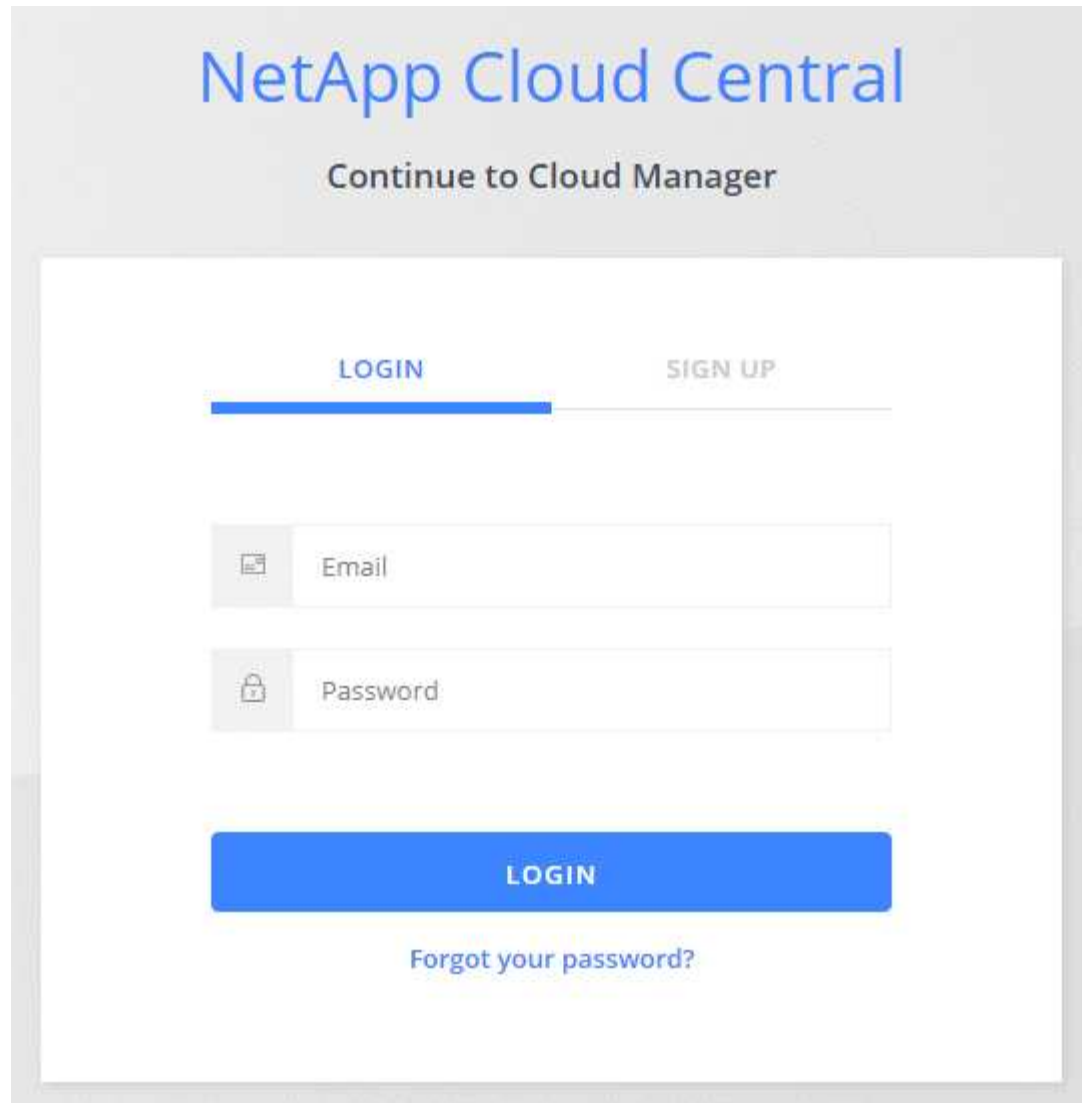


If you don't see any systems listed, make sure that the Account Admin added you to the Cloud Central Account associated with the Cloud Manager system.

3. Log in to Cloud Manager using your NetApp Cloud Central credentials.

# NetApp Cloud Central

Continue to Cloud Manager

The image shows a screenshot of the NetApp Cloud Central login page. At the top, the text "NetApp Cloud Central" is displayed in a large blue font. Below it, "Continue to Cloud Manager" is written in a smaller black font. The main content area is a white box with a light gray border. Inside, there are two tabs: "LOGIN" (which is selected and highlighted with a blue underline) and "SIGN UP". Below the tabs are two input fields: "Email" with an envelope icon and "Password" with a lock icon. A large blue "LOGIN" button is positioned below the input fields. At the bottom of the form, there is a link that says "Forgot your password?".

LOGIN SIGN UP

Email

Password

LOGIN

[Forgot your password?](#)

## Planning your Cloud Volumes ONTAP configuration

When you deploy Cloud Volumes ONTAP, you can choose a preconfigured system that matches your workload requirements, or you can create your own configuration. If you choose your own configuration, you should understand the options available to you.

### Choosing a license type

Cloud Volumes ONTAP is available in two pricing options: pay-as-you-go and Bring Your Own License (BYOL). For pay-as-you-go, you can choose from three licenses: Explore, Standard, or Premium. Each license provides different capacity and compute options.

- [Supported configurations for Cloud Volumes ONTAP 9.7 in AWS](#)
- [Supported configurations for Cloud Volumes ONTAP 9.7 in Azure](#)
- [Supported configurations for Cloud Volumes ONTAP 9.7 in GCP](#)

## Understanding storage limits

The raw capacity limit for a Cloud Volumes ONTAP system is tied to the license. Additional limits impact the size of aggregates and volumes. You should be aware of these limits as you plan your configuration.

- [Storage limits for Cloud Volumes ONTAP 9.7 in AWS](#)
- [Storage limits for Cloud Volumes ONTAP 9.7 in Azure](#)
- [Storage limits for Cloud Volumes ONTAP 9.7 in GCP](#)

## Choosing a write speed

Cloud Manager enables you to choose a write speed setting for single node Cloud Volumes ONTAP systems. Before you choose a write speed, you should understand the differences between the normal and high settings and risks and recommendations when using high write speed.

### Difference between normal write speed and high write speed

When you choose normal write speed, data is written directly to disk, thereby reducing the likelihood of data loss in the event of an unplanned system outage.

When you choose high write speed, data is buffered in memory before it is written to disk, which provides faster write performance. Due to this caching, there is the potential for data loss if an unplanned system outage occurs.

The amount of data that can be lost in the event of an unplanned system outage is the span of the last two consistency points. A consistency point is the act of writing buffered data to disk. A consistency point occurs when the write log is full or after 10 seconds (whichever comes first). However, AWS EBS volume performance can affect consistency point processing time.

### When to use high write speed

High write speed is a good choice if fast write performance is required for your workload and you can withstand the risk of data loss in the event of an unplanned system outage.

### Recommendations when using high write speed

If you enable high write speed, you should ensure write protection at the application layer.

## Choosing a volume usage profile

ONTAP includes several storage efficiency features that can reduce the total amount of storage that you need. When you create a volume in Cloud Manager, you can choose a profile that enables these features or a profile that disables them. You should learn more about these features to help you decide which profile to use.

NetApp storage efficiency features provide the following benefits:

### Thin provisioning

Presents more logical storage to hosts or users than you actually have in your physical storage pool. Instead of preallocating storage space, storage space is allocated dynamically to each volume as data is written.

### Deduplication

Improves efficiency by locating identical blocks of data and replacing them with references to a single

shared block. This technique reduces storage capacity requirements by eliminating redundant blocks of data that reside in the same volume.

## Compression

Reduces the physical capacity required to store data by compressing data within a volume on primary, secondary, and archive storage.

## AWS planning

Plan your deployment of Cloud Volumes ONTAP in AWS by sizing your system and reviewing the network information that you need to enter.

- [Sizing your system in AWS](#)
- [AWS network information worksheet](#)

### Sizing your system in AWS

Sizing your Cloud Volumes ONTAP system can help you meet requirements for performance and capacity. You should be aware of a few key points when choosing an instance type, disk type, and disk size:

#### Instance type

- Match your workload requirements to the maximum throughput and IOPS for each EC2 instance type.
- If several users write to the system at the same time, choose an instance type that has enough CPUs to manage the requests.
- If you have an application that is mostly reads, then choose a system with enough RAM.
  - [AWS Documentation: Amazon EC2 Instance Types](#)
  - [AWS Documentation: Amazon EBS–Optimized Instances](#)

#### EBS disk type

General Purpose SSDs are the most common disk type for Cloud Volumes ONTAP. To view the use cases for EBS disks, refer to [AWS Documentation: EBS Volume Types](#).

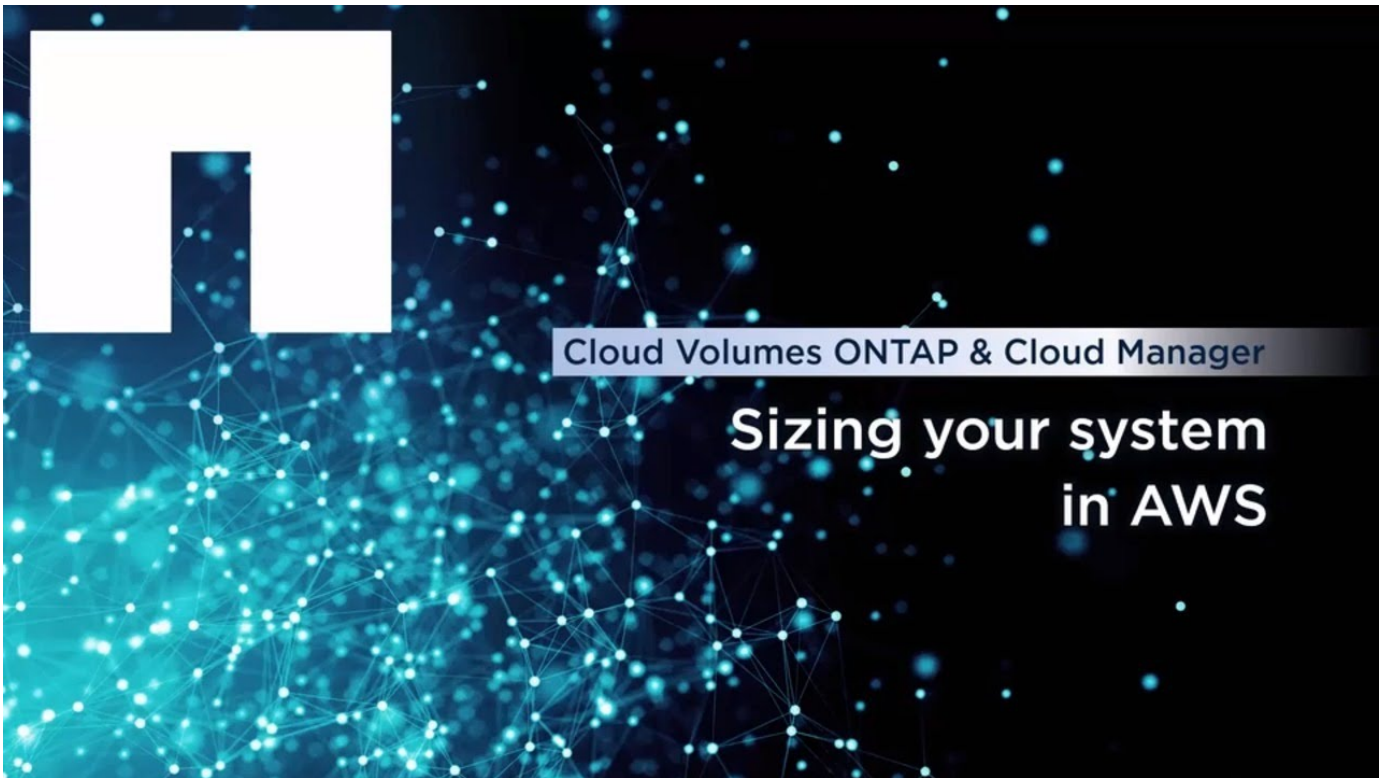
#### EBS disk size

You need to choose an initial disk size when you launch a Cloud Volumes ONTAP system. After that, you can [let Cloud Manager manage a system's capacity for you](#), but if you want to [build aggregates yourself](#), be aware of the following:

- All disks in an aggregate must be the same size.
- The performance of EBS disks is tied to disk size. The size determines the baseline IOPS and maximum burst duration for SSD disks and the baseline and burst throughput for HDD disks.
- Ultimately, you should choose the disk size that gives you the *sustained performance* that you need.
- Even if you do choose larger disks (for example, six 4 TB disks), you might not get all of the IOPS because the EC2 instance can reach its bandwidth limit.

For more details about EBS disk performance, refer to [AWS Documentation: EBS Volume Types](#).

Watch the following video for more details about sizing your Cloud Volumes ONTAP system in AWS:



### AWS network information worksheet

When you launch Cloud Volumes ONTAP in AWS, you need to specify details about your VPC network. You can use a worksheet to collect the information from your administrator.

#### Network information for Cloud Volumes ONTAP

AWS information	Your value
Region	
VPC	
Subnet	
Security group (if using your own)	

#### Network information for an HA pair in multiple AZs

AWS information	Your value
Region	
VPC	
Security group (if using your own)	
Node 1 availability zone	
Node 1 subnet	
Node 2 availability zone	

AWS information	Your value
Node 2 subnet	
Mediator availability zone	
Mediator subnet	
Key pair for the mediator	
Floating IP address for cluster management port	
Floating IP address for data on node 1	
Floating IP address for data on node 2	
Route tables for floating IP addresses	

## Azure planning

Plan your deployment of Cloud Volumes ONTAP in Azure by sizing your system and reviewing the network information that you need to enter.

- [Sizing your system in Azure](#)
- [Azure network information worksheet](#)

### Sizing your system in Azure

Sizing your Cloud Volumes ONTAP system can help you meet requirements for performance and capacity. You should be aware of a few key points when choosing a VM type, disk type, and disk size:

#### Virtual machine type

Look at the supported virtual machine types in the [Cloud Volumes ONTAP Release Notes](#) and then review details about each supported VM type. Be aware that each VM type supports a specific number of data disks.

- [Azure documentation: General purpose virtual machine sizes](#)
- [Azure documentation: Memory optimized virtual machine sizes](#)

#### Azure disk type

When you create volumes for Cloud Volumes ONTAP, you need to choose the underlying cloud storage that Cloud Volumes ONTAP uses as a disk.

HA systems use Premium page blobs. Meanwhile, single node systems can use two types of Azure Managed Disks:

- *Premium SSD Managed Disks* provide high performance for I/O-intensive workloads at a higher cost.
- *Standard SSD Managed Disks* provide consistent performance for workloads that require low IOPS.
- *Standard HDD Managed Disks* are a good choice if you don't need high IOPS and want to reduce your costs.



For additional details about the use cases for these disks, see [Microsoft Azure Documentation: Introduction to Microsoft Azure Storage](#).

## Azure disk size

When you launch Cloud Volumes ONTAP instances, you must choose the default disk size for aggregates. Cloud Manager uses this disk size for the initial aggregate, and for any additional aggregates that it creates when you use the simple provisioning option. You can create aggregates that use a disk size different from the default by [using the advanced allocation option](#).



All disks in an aggregate must be the same size.

When choosing a disk size, you should take several factors into consideration. The disk size impacts how much you pay for storage, the size of volumes that you can create in an aggregate, the total capacity available to Cloud Volumes ONTAP, and storage performance.

The performance of Azure Premium Storage is tied to the disk size. Larger disks provide higher IOPS and throughput. For example, choosing 1 TB disks can provide better performance than 500 GB disks, at a higher cost.

There are no performance differences between disk sizes for Standard Storage. You should choose disk size based on the capacity that you need.

Refer to Azure for IOPS and throughput by disk size:

- [Microsoft Azure: Managed Disks pricing](#)
- [Microsoft Azure: Page Blobs pricing](#)

## Azure network information worksheet

When you deploy Cloud Volumes ONTAP in Azure, you need to specify details about your virtual network. You can use a worksheet to collect the information from your administrator.

Azure information	Your value
Region	
Virtual network (VNet)	
Subnet	
Network security group (if using your own)	

## GCP planning

Plan your deployment of Cloud Volumes ONTAP in Google Cloud Platform by sizing your system and reviewing the network information that you need to enter.

- [Sizing your system in GCP](#)
- [GCP network information worksheet](#)

## Sizing your system in GCP

Sizing your Cloud Volumes ONTAP system can help you meet requirements for performance and capacity. You should be aware of a few key points when choosing a machine type, disk type, and disk size:

### Machine type

Look at the supported machine types in the [Cloud Volumes ONTAP Release Notes](#) and then review details from Google about each supported machine type. Match your workload requirements to the number of vCPUs and memory for the machine type. Note that each CPU core increases networking performance.

Refer to the following for more details:

- [Google Cloud documentation: N1 standard machine types](#)
- [Google Cloud documentation: Performance](#)

### GCP disk type

When you create volumes for Cloud Volumes ONTAP, you need to choose the underlying cloud storage that Cloud Volumes ONTAP uses for a disk. The disk type can be either *Zonal SSD persistent disks* or *Zonal standard persistent disks*.

SSD persistent disks are best for workloads that require high rates of random IOPS, while Standard persistent disks are economical and can handle sequential read/write operations. For more details, see [Google Cloud documentation: Zonal Persistent disks \(Standard and SSD\)](#).

### GCP disk size

You need to choose an initial disk size when you deploy a Cloud Volumes ONTAP system. After that you can let Cloud Manager manage a system's capacity for you, but if you want to build aggregates yourself, be aware of the following:

- All disks in an aggregate must be the same size.
- Determine the space that you need, while taking performance into consideration.
- The performance of persistent disks scales automatically with disk size and the number of vCPUs available to the system.

Refer to the following for more details:

- [Google Cloud documentation: Zonal Persistent disks \(Standard and SSD\)](#)
- [Google Cloud documentation: Optimizing Persistent Disk and Local SSD Performance](#)

### GCP network information worksheet

When you deploy Cloud Volumes ONTAP in GCP, you need to specify details about your virtual network. You can use a worksheet to collect the information from your administrator.

GCP information	Your value
Region	
Zone	
VPC network	
Subnet	

GCP information	Your value
Firewall policy (if using your own)	

## Finding your Cloud Manager system ID

To help you get started, your NetApp representative might ask you for your Cloud Manager system ID. The ID is typically used for licensing and troubleshooting purposes.

### Steps

1. In the upper right of the Cloud Manager console, click the Settings icon.



2. Click **Support Dashboard**.

Your system ID appears in the top right.

### Example



## Enabling Flash Cache on Cloud Volumes ONTAP

Some Cloud Volumes ONTAP configurations in AWS and Azure include local NVMe storage, which Cloud Volumes ONTAP uses as *Flash Cache* for better performance.

### What's Flash Cache?

Flash Cache speeds access to data through real-time intelligent caching of recently read user data and NetApp metadata. It is effective for random read-intensive workloads, including databases, email, and file services.

### Limitations

- Compression must be disabled on all volumes to take advantage of the Flash Cache performance improvements.
- Cache rewarming after a reboot is not supported with Cloud Volumes ONTAP.

## Enabling Flash Cache on Cloud Volumes ONTAP in AWS

Flash Cache is supported with Cloud Volumes ONTAP Premium and BYOL in AWS.

### Steps

1. Select one of the following EC2 instance types with a new or existing Cloud Volumes ONTAP Premium or BYOL system:
  - c5d.4xlarge
  - c5d.9xlarge
  - r5d.2xlarge
2. Disable compression on all volumes to take advantage of the Flash Cache performance improvements.

Choose no storage efficiency when creating a volume from Cloud Manager, or create a volume and then [disable data compression by using the CLI](#).

## Enabling Flash Cache on Cloud Volumes ONTAP in Azure

Flash Cache is supported with Cloud Volumes ONTAP BYOL on single node systems.

### Steps

1. Select the Standard\_L8s\_v2 VM type with a single node Cloud Volumes ONTAP BYOL system in Azure.
2. Disable compression on all volumes to take advantage of the Flash Cache performance improvements.

Choose no storage efficiency when creating a volume from Cloud Manager, or create a volume and then [disable data compression by using the CLI](#).

## Launching Cloud Volumes ONTAP in AWS

You can launch Cloud Volumes ONTAP in a single-system configuration or as an HA pair in AWS.

### Subscribing from the AWS Marketplace

Subscribe from the AWS Marketplace to pay for Cloud Volumes ONTAP as you go or so you can deploy Cloud Volumes ONTAP BYOL.

### Subscribing for PAYGO

[Subscribe from the AWS Marketplace](#) to ensure that there's no disruption of service after your free trial of Cloud Volumes ONTAP ends. You'll be charged from this subscription for every Cloud Volumes ONTAP 9.6 and later PAYGO system that you create and each add-on feature that you enable.

The following video shows the subscription process:


► [https://docs.netapp.com/us-en/occm37//media/video\\_subscribing\\_aws.mp4](https://docs.netapp.com/us-en/occm37//media/video_subscribing_aws.mp4) (video)



If multiple IAM users work in the same AWS account, then each user needs to subscribe. After the first user subscribes, AWS shows subsequent users that they're already subscribed, as shown in the image below. While a subscription is in place for the AWS account, each IAM user needs to associate themselves with the subscription. If you see the message shown below, click the **click here** link to go to Cloud Central and complete the process.

### Cloud Manager (for Cloud Volumes ONTAP)

You are currently subscribed to this product and will be charged for your accumulated usage at the end of your next billing cycle, based on the costs listed in Pricing information on the right.

**Having issues signing up for your product?**

If you were unable to complete the set-up process for this software, please [click here](#) to be taken to the product's registration area.

[Subscribe](#)

You are already subscribed to this product

#### Pricing Details

Software Fees

## Subscribing for BYOL

If you're launching Cloud Volumes ONTAP by bringing your own license (BYOL), [then you'll need to subscribe to that offering in the AWS Marketplace](#).

[Learn more about each AWS Marketplace page](#).

## Launching a single Cloud Volumes ONTAP system in AWS

If you want to launch Cloud Volumes ONTAP in AWS, you need to create a new working environment in Cloud Manager.

### Before you begin

- You should have prepared by choosing a configuration and by obtaining AWS networking information from your administrator. For details, see [Planning your Cloud Volumes ONTAP configuration](#).
- If you want to launch a BYOL system, you must have the 20-digit serial number (license key).
- If you want to use CIFS, you must have set up DNS and Active Directory. For details, see [Networking requirements for Cloud Volumes ONTAP in AWS](#).

### About this task

Immediately after you create the working environment, Cloud Manager launches a test instance in the specified VPC to verify connectivity. If successful, Cloud Manager immediately terminates the instance and then starts deploying the Cloud Volumes ONTAP system. If Cloud Manager cannot verify connectivity, creation of the working environment fails. The test instance is either a t2.nano (for default VPC tenancy) or m3.medium (for dedicated VPC tenancy).

### Steps

1. On the Working Environments page, click **Create Cloud Volumes ONTAP** and follow the prompts.
2. **Define Your Working Environment:** Select **Amazon Web Services** and **Cloud Volumes ONTAP**.
3. **Details and Credentials:** Optionally change the AWS account and marketplace subscription, enter a working environment name, add tags if needed, and then enter a password.

Some of the fields in this page are self-explanatory. The following table describes fields for which you might

need guidance:

Field	Description
Account	You can choose a different account if you <a href="#">added additional AWS accounts to Cloud Manager</a> .
Marketplace Subscription	Select a different subscription if you want to change the AWS account from which you get charged. To add a new subscription, <a href="#">go to the offering in the AWS Marketplace</a> .
Working Environment Name	Cloud Manager uses the working environment name to name both the Cloud Volumes ONTAP system and the Amazon EC2 instance. It also uses the name as the prefix for the predefined security group, if you select that option.
Add tags	<p>AWS tags are metadata for your AWS resources. Cloud Manager adds the tags to the Cloud Volumes ONTAP instance and each AWS resource associated with the instance.</p> <p>You can add up to four tags from the user interface when creating a working environment, and then you can add more after its created. Note that the API does not limit you to four tags when creating a working environment.</p> <p>For information about tags, refer to <a href="#">AWS Documentation: Tagging your Amazon EC2 Resources</a>.</p>
Credentials	These are the credentials for the Cloud Volumes ONTAP cluster admin account. You can use these credentials to connect to Cloud Volumes ONTAP through OnCommand System Manager or its CLI.

- Services:** Keep the services enabled or disable the individual services that you don't want to use with this Cloud Volumes ONTAP system.
  - [Learn more about Backup to S3](#).
  - [Learn more about Cloud Compliance](#).

- Location & Connectivity:** Enter the network information that you recorded in the AWS worksheet.

The following image shows the page filled out:

The image shows a configuration page with two main sections: Location and Connectivity. The Location section has three dropdown menus: AWS Region (US West | Oregon), VPC (vpc-3a01e05f - 172.31.0.0/16), and Subnet (172.31.5.0/24 (OCCM subnet)). The Connectivity section has two radio button options: Security Group (Generated security group selected, Use existing security group) and SSH Authentication Method (Password selected, Key Pair).

- Data Encryption:** Choose no data encryption or AWS-managed encryption.

For AWS-managed encryption, you can choose a different Customer Master Key (CMK) from your account

or another AWS account.



You can't change the AWS data encryption method after you create a Cloud Volumes ONTAP system.

[Learn how to set up the AWS KMS for Cloud Volumes ONTAP.](#)

[Learn more about supported encryption technologies.](#)

7. **License and Support Site Account:** Specify whether you want to use pay-as-you-go or BYOL, and then specify a NetApp Support Site account.

To understand how licenses work, see [Licensing](#).

A NetApp Support Site Account is optional for pay-as-you-go, but required for BYOL systems. [Learn how to add NetApp Support Site accounts.](#)

8. **Preconfigured Packages:** Select one of the packages to quickly launch Cloud Volumes ONTAP, or click **Create my own configuration**.

If you choose one of the packages, you only need to specify a volume and then review and approve the configuration.

9. **IAM Role:** You should keep the default option to let Cloud Manager create the role for you.

If you prefer to use your own policy, it must meet [policy requirements for Cloud Volumes ONTAP nodes](#).

10. **Licensing:** Change the Cloud Volumes ONTAP version as needed, select a license, an instance type, and the instance tenancy.

If your needs change after you launch the instance, you can modify the license or instance type later.



If a newer Release Candidate, General Availability, or patch release is available for the selected version, then Cloud Manager updates the system to that version when creating the working environment. For example, the update occurs if you select Cloud Volumes ONTAP 9.4 RC1 and 9.4 GA is available. The update does not occur from one release to another—for example, from 9.3 to 9.4.

11. **Underlying Storage Resources:** Choose settings for the initial aggregate: a disk type, a size for each disk, and whether S3 tiering should be enabled.

The disk type is for the initial volume. You can choose a different disk type for subsequent volumes.

The disk size is for all disks in the initial aggregate and for any additional aggregates that Cloud Manager creates when you use the simple provisioning option. You can create aggregates that use a different disk size by using the advanced allocation option.

For help choosing a disk type and size, see [Sizing your system in AWS](#).

12. **Write Speed & WORM:** Choose **Normal** or **High** write speed, and activate write once, read many (WORM) storage, if desired.

[Learn more about write speed.](#)

[Learn more about WORM storage.](#)

13. **Create Volume:** Enter details for the new volume or click **Skip**.

You might skip this step if you want to create a volume for iSCSI. Cloud Manager sets up volumes for NFS and CIFS only.

Some of the fields in this page are self-explanatory. The following table describes fields for which you might need guidance:

Field	Description
Size	The maximum size that you can enter largely depends on whether you enable thin provisioning, which enables you to create a volume that is bigger than the physical storage currently available to it.
Access control (for NFS only)	An export policy defines the clients in the subnet that can access the volume. By default, Cloud Manager enters a value that provides access to all instances in the subnet.
Permissions and Users / Groups (for CIFS only)	These fields enable you to control the level of access to a share for users and groups (also called access control lists or ACLs). You can specify local or domain Windows users or groups, or UNIX users or groups. If you specify a domain Windows user name, you must include the user's domain using the format domain\username.
Snapshot Policy	A Snapshot copy policy specifies the frequency and number of automatically created NetApp Snapshot copies. A NetApp Snapshot copy is a point-in-time file system image that has no performance impact and requires minimal storage. You can choose the default policy or none. You might choose none for transient data: for example, tempdb for Microsoft SQL Server.

The following image shows the Volume page filled out for the CIFS protocol:

### Details & Protection

Volume Name:  Size (GB):

Snapshot Policy:

Default Policy

### Protocol

NFS Protocol  CIFS Protocol

Share name:  Permissions:

Users / Groups:

Valid users and groups separated by a semicolon

14. **CIFS Setup:** If you chose the CIFS protocol, set up a CIFS server.

Field	Description
DNS Primary and Secondary IP Address	The IP addresses of the DNS servers that provide name resolution for the CIFS server. The listed DNS servers must contain the service location records (SRV) needed to locate the Active Directory LDAP servers and domain controllers for the domain that the CIFS server will join.



Field	Description
Active Directory Domain to join	The FQDN of the Active Directory (AD) domain that you want the CIFS server to join.
Credentials authorized to join the domain	The name and password of a Windows account with sufficient privileges to add computers to the specified Organizational Unit (OU) within the AD domain.
CIFS server NetBIOS name	A CIFS server name that is unique in the AD domain.
Organizational Unit	The organizational unit within the AD domain to associate with the CIFS server. The default is CN=Computers. If you configure AWS Managed Microsoft AD as the AD server for Cloud Volumes ONTAP, you should enter <b>OU=Computers,OU=corp</b> in this field.
DNS Domain	The DNS domain for the Cloud Volumes ONTAP storage virtual machine (SVM). In most cases, the domain is the same as the AD domain.
NTP Server	Select <b>Use Active Directory Domain</b> to configure an NTP server using the Active Directory DNS. If you need to configure an NTP server using a different address, then you should use the API. See the <a href="#">Cloud Manager API Developer Guide</a> for details.

15. **Usage Profile, Disk Type, and Tiering Policy:** Choose whether you want to enable storage efficiency features and edit the S3 tiering policy, if needed.

For more information, see [Understanding volume usage profiles](#) and [Data tiering overview](#).

16. **Review & Approve:** Review and confirm your selections.
- Review details about the configuration.
  - Click **More information** to review details about support and the AWS resources that Cloud Manager will purchase.
  - Select the **I understand...** check boxes.
  - Click **Go**.

## Result

Cloud Manager launches the Cloud Volumes ONTAP instance. You can track the progress in the timeline.

If you experience any issues launching the Cloud Volumes ONTAP instance, review the failure message. You can also select the working environment and click Re-create environment.

For additional help, go to [NetApp Cloud Volumes ONTAP Support](#).

## After you finish

- If you provisioned a CIFS share, give users or groups permissions to the files and folders and verify that those users can access the share and create a file.
- If you want to apply quotas to volumes, use System Manager or the CLI.

Quotas enable you to restrict or track the disk space and number of files used by a user, group, or qtree.

## Launching a Cloud Volumes ONTAP HA pair in AWS

If you want to launch a Cloud Volumes ONTAP HA pair in AWS, you need to create an HA working environment in Cloud Manager.

### Before you begin

- You should have prepared by choosing a configuration and by obtaining AWS networking information from your administrator. For details, see [Planning your Cloud Volumes ONTAP configuration](#).
- If you purchased BYOL licenses, you must have a 20-digit serial number (license key) for each node.
- If you want to use CIFS, you must have set up DNS and Active Directory. For details, see [Networking requirements for Cloud Volumes ONTAP in AWS](#).

### About this task

Immediately after you create the working environment, Cloud Manager launches a test instance in the specified VPC to verify connectivity. If successful, Cloud Manager immediately terminates the instance and then starts deploying the Cloud Volumes ONTAP system. If Cloud Manager cannot verify connectivity, creation of the working environment fails. The test instance is either a t2.nano (for default VPC tenancy) or m3.medium (for dedicated VPC tenancy).

### Steps

1. On the Working Environments page, click **Create Cloud Volumes ONTAP** and follow the prompts.
2. **Define Your Working Environment:** Select **Amazon Web Services** and **Cloud Volumes ONTAP HA**.
3. **Details and Credentials:** Optionally change the AWS account and marketplace subscription, enter a working environment name, add tags if needed, and then enter a password.

Some of the fields in this page are self-explanatory. The following table describes fields for which you might need guidance:

Field	Description
Account	You can choose a different account if you <a href="#">added additional AWS accounts to Cloud Manager</a> .
Marketplace Subscription	Select a different subscription if you want to change the AWS account from which you get charged. To add a new subscription, <a href="#">go to the offering in the AWS Marketplace</a> .
Working Environment Name	Cloud Manager uses the working environment name to name both the Cloud Volumes ONTAP system and the Amazon EC2 instance. It also uses the name as the prefix for the predefined security group, if you select that option.
Add tags	<p>AWS tags are metadata for your AWS resources. Cloud Manager adds the tags to the Cloud Volumes ONTAP instance and each AWS resource associated with the instance.</p> <p>You can add up to four tags from the user interface when creating a working environment, and then you can add more after its created. Note that the API does not limit you to four tags when creating a working environment.</p> <p>For information about tags, refer to <a href="#">AWS Documentation: Tagging your Amazon EC2 Resources</a>.</p>

Field	Description
Credentials	These are the credentials for the Cloud Volumes ONTAP cluster admin account. You can use these credentials to connect to Cloud Volumes ONTAP through OnCommand System Manager or its CLI.

4. **Services:** Keep the services enabled or disable the individual services that you don't want to use with this Cloud Volumes ONTAP system.
  - [Learn more about Backup to S3.](#)
  - [Learn more about Cloud Compliance.](#)

5. **HA Deployment Models:** Choose an HA configuration.

For an overview of the deployment models, see [Cloud Volumes ONTAP HA for AWS](#).

6. **Region & VPC:** Enter the network information that you recorded in the AWS worksheet.

The following image shows the page filled out for a multiple AZ configuration:

The screenshot displays the configuration interface for Cloud Volumes ONTAP. At the top, there are three main sections: 'AWS Region' (set to US West Oregon), 'VPC' (set to vpc-3a01e05f with CIDR 172.31.0.0/16), and 'Security group' (set to 'Use a generated security group'). Below these are three columns representing different components: 'Node 1', 'Node 2', and 'Mediator'. Each component has its own 'Availability Zone' and 'Subnet' dropdowns. Node 1 is in us-west-2a with subnet 172.31.16.0/20. Node 2 is in us-west-2b with subnet 172.31.32.0/20. The Mediator is in us-west-2c with subnet 172.31.0.0/20 and a 'Key Pair' set to 'newKey'.

7. **Connectivity and SSH Authentication:** Choose connection methods for the HA pair and the mediator.
8. **Floating IPs:** If you chose multiple AZs, specify the floating IP addresses.

The IP addresses must be outside of the CIDR block for all VPCs in the region. For additional details, see [AWS networking requirements for Cloud Volumes ONTAP HA in multiple AZs](#).

9. **Route Tables:** If you chose multiple AZs, select the route tables that should include routes to the floating IP addresses.

If you have more than one route table, it is very important to select the correct route tables. Otherwise, some clients might not have access to the Cloud Volumes ONTAP HA pair. For more information about route tables, refer to [AWS Documentation: Route Tables](#).

10. **Data Encryption:** Choose no data encryption or AWS-managed encryption.

For AWS-managed encryption, you can choose a different Customer Master Key (CMK) from your account or another AWS account.



You can't change the AWS data encryption method after you create a Cloud Volumes ONTAP system.

[Learn how to set up the AWS KMS for Cloud Volumes ONTAP.](#)

[Learn more about supported encryption technologies.](#)

11. **License and Support Site Account:** Specify whether you want to use pay-as-you-go or BYOL, and then specify a NetApp Support Site account.

To understand how licenses work, see [Licensing](#).

A NetApp Support Site Account is optional for pay-as-you-go, but required for BYOL systems. [Learn how to add NetApp Support Site accounts.](#)

12. **Preconfigured Packages:** Select one of the packages to quickly launch a Cloud Volumes ONTAP system, or click **Create my own configuration**.

If you choose one of the packages, you only need to specify a volume and then review and approve the configuration.

13. **IAM Role:** You should keep the default option to let Cloud Manager create the roles for you.

If you prefer to use your own policy, it must meet [policy requirements for Cloud Volumes ONTAP nodes and the HA mediator](#).

14. **Licensing:** Change the Cloud Volumes ONTAP version as needed, select a license, an instance type, and the instance tenancy.

If your needs change after you launch the instances, you can modify the license or instance type later.



If a newer Release Candidate, General Availability, or patch release is available for the selected version, then Cloud Manager updates the system to that version when creating the working environment. For example, the update occurs if you select Cloud Volumes ONTAP 9.4 RC1 and 9.4 GA is available. The update does not occur from one release to another—for example, from 9.3 to 9.4.

15. **Underlying Storage Resources:** Choose settings for the initial aggregate: a disk type, a size for each disk, and whether S3 tiering should be enabled.

The disk type is for the initial volume. You can choose a different disk type for subsequent volumes.

The disk size is for all disks in the initial aggregate and for any additional aggregates that Cloud Manager creates when you use the simple provisioning option. You can create aggregates that use a different disk size by using the advanced allocation option.

For help choosing a disk type and size, see [Sizing your system in AWS](#).

16. **WORM:** Activate write once, read many (WORM) storage, if desired.

[Learn more about WORM storage.](#)

17. **Create Volume:** Enter details for the new volume or click **Skip**.

You might skip this step if you want to create a volume for iSCSI. Cloud Manager sets up volumes for NFS

and CIFS only.

Some of the fields in this page are self-explanatory. The following table describes fields for which you might need guidance:

Field	Description
Size	The maximum size that you can enter largely depends on whether you enable thin provisioning, which enables you to create a volume that is bigger than the physical storage currently available to it.
Access control (for NFS only)	An export policy defines the clients in the subnet that can access the volume. By default, Cloud Manager enters a value that provides access to all instances in the subnet.
Permissions and Users / Groups (for CIFS only)	These fields enable you to control the level of access to a share for users and groups (also called access control lists or ACLs). You can specify local or domain Windows users or groups, or UNIX users or groups. If you specify a domain Windows user name, you must include the user's domain using the format domain\username.
Snapshot Policy	A Snapshot copy policy specifies the frequency and number of automatically created NetApp Snapshot copies. A NetApp Snapshot copy is a point-in-time file system image that has no performance impact and requires minimal storage. You can choose the default policy or none. You might choose none for transient data: for example, tempdb for Microsoft SQL Server.

The following image shows the Volume page filled out for the CIFS protocol:

#### Details & Protection

Volume Name:  Size (GB):

Snapshot Policy:

Default Policy

#### Protocol

NFS Protocol  CIFS Protocol

Share name:  Permissions:

Users / Groups:

Valid users and groups separated by a semicolon

18. **CIFS Setup:** If you selected the CIFS protocol, set up a CIFS server.

Field	Description
DNS Primary and Secondary IP Address	The IP addresses of the DNS servers that provide name resolution for the CIFS server. The listed DNS servers must contain the service location records (SRV) needed to locate the Active Directory LDAP servers and domain controllers for the domain that the CIFS server will join.
Active Directory Domain to join	The FQDN of the Active Directory (AD) domain that you want the CIFS server to join.

Field	Description
Credentials authorized to join the domain	The name and password of a Windows account with sufficient privileges to add computers to the specified Organizational Unit (OU) within the AD domain.
CIFS server NetBIOS name	A CIFS server name that is unique in the AD domain.
Organizational Unit	The organizational unit within the AD domain to associate with the CIFS server. The default is CN=Computers. If you configure AWS Managed Microsoft AD as the AD server for Cloud Volumes ONTAP, you should enter <b>OU=Computers,OU=corp</b> in this field.
DNS Domain	The DNS domain for the Cloud Volumes ONTAP storage virtual machine (SVM). In most cases, the domain is the same as the AD domain.
NTP Server	Select <b>Use Active Directory Domain</b> to configure an NTP server using the Active Directory DNS. If you need to configure an NTP server using a different address, then you should use the API. See the <a href="#">Cloud Manager API Developer Guide</a> for details.

19. **Usage Profile, Disk Type, and Tiering Policy:** Choose whether you want to enable storage efficiency features and edit the S3 tiering policy, if needed.

For more information, see [Understanding volume usage profiles](#) and [Data tiering overview](#).

20. **Review & Approve:** Review and confirm your selections.
- Review details about the configuration.
  - Click **More information** to review details about support and the AWS resources that Cloud Manager will purchase.
  - Select the **I understand...** check boxes.
  - Click **Go**.

### Result

Cloud Manager launches the Cloud Volumes ONTAP HA pair. You can track the progress in the timeline.

If you experience any issues launching the HA pair, review the failure message. You can also select the working environment and click Re-create environment.

For additional help, go to [NetApp Cloud Volumes ONTAP Support](#).

### After you finish

- If you provisioned a CIFS share, give users or groups permissions to the files and folders and verify that those users can access the share and create a file.
- If you want to apply quotas to volumes, use System Manager or the CLI.

Quotas enable you to restrict or track the disk space and number of files used by a user, group, or qtree.

## Launching Cloud Volumes ONTAP in Azure

You can launch a single node system or an HA pair in Azure by creating a Cloud Volumes ONTAP working environment in Cloud Manager.

## Before you begin

- Make sure that your Azure account has the required permissions, especially if you upgraded from a previous release and are deploying an HA system for the first time.

The latest permissions are in the [NetApp Cloud Central policy for Azure](#).

- You should have chose a configuration and obtained Azure networking information from your administrator. For details, see [Planning your Cloud Volumes ONTAP configuration](#).
- To deploy a BYOL system, you need the 20-digit serial number (license key) for each node.

## About this task

When Cloud Manager creates a Cloud Volumes ONTAP system in Azure, it creates several Azure objects, such as a resource group, network interfaces, and storage accounts. You can review a summary of the resources at the end of the wizard.

## Steps

1. On the Working Environments page, click **Create Cloud Volumes ONTAP** and follow the prompts.
2. **Define Your Working Environment:** Select **Microsoft Azure** and then choose a single node or HA pair.
3. **Details and Credentials:** Optionally change the Azure account or subscription, specify a cluster name and resource group name, add tags if needed, and then specify credentials.

The following table describes fields for which you might need guidance:

Field	Description
Switch Account	You can choose a different account or subscription if you <a href="#">set them up and added them to Cloud Manager</a> .
Working Environment Name	Cloud Manager uses the working environment name to name both the Cloud Volumes ONTAP system and the Azure virtual machine. It also uses the name as the prefix for the predefined security group, if you select that option.
Resource Group Name	If you uncheck <b>Use Default</b> , you can enter the name of a new resource group. If you want to use an existing resource group, then you must use the API.
Tags	<p>Tags are metadata for your Azure resources. Cloud Manager adds the tags to the Cloud Volumes ONTAP system and each Azure resource associated with the system.</p> <p>You can add up to four tags from the user interface when creating a working environment, and then you can add more after its created. Note that the API does not limit you to four tags when creating a working environment.</p> <p>For information about tags, refer to <a href="#">Microsoft Azure Documentation: Using tags to organize your Azure resources</a>.</p>
Credentials	These are the credentials for the Cloud Volumes ONTAP cluster admin account. You can use these credentials to connect to Cloud Volumes ONTAP through OnCommand System Manager or its CLI.

4. **Services:** Keep Cloud Compliance enabled or disable it if you don't want to use it with this Cloud Volumes ONTAP system.

[Learn more about Cloud Compliance.](#)

5. **Location & Connectivity:** Select a location and security group and select the checkbox to confirm network connectivity between Cloud Manager and the target location.
6. **License and Support Site Account:** Specify whether you want to use pay-as-you-go or BYOL, and then specify a NetApp Support Site account.

To understand how licenses work, see [Licensing](#).

A NetApp Support Site Account is optional for pay-as-you-go, but required for BYOL systems. [Learn how to add NetApp Support Site accounts](#).

7. **Preconfigured Packages:** Select one of the packages to quickly deploy a Cloud Volumes ONTAP system, or click **Create my own configuration**.

If you choose one of the packages, you only need to specify a volume and then review and approve the configuration.

8. **Licensing:** Change the Cloud Volumes ONTAP version as needed, select a license, and select a virtual machine type.

If your needs change after you launch the system, you can modify the license or virtual machine type later.



If a newer Release Candidate, General Availability, or patch release is available for the selected version, then Cloud Manager updates the system to that version when creating the working environment. For example, the update occurs if you select Cloud Volumes ONTAP 9.5 RC1 and 9.5 GA is available. The update does not occur from one release to another—for example, from 9.4 to 9.5.

9. **Subscribe from the Azure Marketplace:** Follow the steps if Cloud Manager could not enable programmatic deployments of Cloud Volumes ONTAP.
10. **Underlying Storage Resources:** Choose settings for the initial aggregate: a disk type, a size for each disk, and whether data tiering to Blob storage should be enabled.

The disk type is for the initial volume. You can choose a different disk type for subsequent volumes.

The disk size is for all disks in the initial aggregate and for any additional aggregates that Cloud Manager creates when you use the simple provisioning option. You can create aggregates that use a different disk size by using the advanced allocation option.

For help choosing a disk type and size, see [Sizing your system in Azure](#).

11. **Write Speed & WORM:** Choose **Normal** or **High** write speed, and activate write once, read many (WORM) storage, if desired.



Choosing a write speed is supported with single node systems only.

[Learn more about write speed.](#)

[Learn more about WORM storage.](#)

12. **Create Volume:** Enter details for the new volume or click **Skip**.

You should skip this step if you want to use iSCSI. Cloud Manager enables you to create volumes for NFS and CIFS only.



Some of the fields in this page are self-explanatory. The following table describes fields for which you might need guidance:

Field	Description
Size	The maximum size that you can enter largely depends on whether you enable thin provisioning, which enables you to create a volume that is bigger than the physical storage currently available to it.
Access control (for NFS only)	An export policy defines the clients in the subnet that can access the volume. By default, Cloud Manager enters a value that provides access to all instances in the subnet.
Permissions and Users / Groups (for CIFS only)	These fields enable you to control the level of access to a share for users and groups (also called access control lists or ACLs). You can specify local or domain Windows users or groups, or UNIX users or groups. If you specify a domain Windows user name, you must include the user's domain using the format domain\username.
Snapshot Policy	A Snapshot copy policy specifies the frequency and number of automatically created NetApp Snapshot copies. A NetApp Snapshot copy is a point-in-time file system image that has no performance impact and requires minimal storage. You can choose the default policy or none. You might choose none for transient data: for example, tempdb for Microsoft SQL Server.

The following image shows the Volume page filled out for the CIFS protocol:

### Details & Protection

Volume Name:  Size (GB):

Snapshot Policy:

Default Policy

### Protocol

NFS Protocol  CIFS Protocol

Share name:  Permissions:

Users / Groups:

Valid users and groups separated by a semicolon

13. **CIFS Setup:** If you chose the CIFS protocol, set up a CIFS server.

Field	Description
DNS Primary and Secondary IP Address	The IP addresses of the DNS servers that provide name resolution for the CIFS server. The listed DNS servers must contain the service location records (SRV) needed to locate the Active Directory LDAP servers and domain controllers for the domain that the CIFS server will join.
Active Directory Domain to join	The FQDN of the Active Directory (AD) domain that you want the CIFS server to join.
Credentials authorized to join the domain	The name and password of a Windows account with sufficient privileges to add computers to the specified Organizational Unit (OU) within the AD domain.

Field	Description
CIFS server NetBIOS name	A CIFS server name that is unique in the AD domain.
Organizational Unit	<p>The organizational unit within the AD domain to associate with the CIFS server. The default is CN=Computers.</p> <p>To configure Azure AD Domain Services as the AD server for Cloud Volumes ONTAP, you should enter <b>OU=AADDCC Computers</b> or <b>OU=AADDCC Users</b> in this field.</p> <p><a href="#">Azure Documentation: Create an Organizational Unit (OU) in an Azure AD Domain Services managed domain</a></p>
DNS Domain	The DNS domain for the Cloud Volumes ONTAP storage virtual machine (SVM). In most cases, the domain is the same as the AD domain.
NTP Server	Select <b>Use Active Directory Domain</b> to configure an NTP server using the Active Directory DNS. If you need to configure an NTP server using a different address, then you should use the API. See the <a href="#">Cloud Manager API Developer Guide</a> for details.

14. **Usage Profile, Disk Type, and Tiering Policy:** Choose whether you want to enable storage efficiency features and change the tiering policy, if needed.

For more information, see [Understanding volume usage profiles](#) and [Data tiering overview](#).

15. **Review & Approve:** Review and confirm your selections.
- Review details about the configuration.
  - Click **More information** to review details about support and the Azure resources that Cloud Manager will purchase.
  - Select the **I understand...** check boxes.
  - Click **Go**.

## Result

Cloud Manager deploys the Cloud Volumes ONTAP system. You can track the progress in the timeline.

If you experience any issues deploying the Cloud Volumes ONTAP system, review the failure message. You can also select the working environment and click **Re-create environment**.

For additional help, go to [NetApp Cloud Volumes ONTAP Support](#).

## After you finish

- If you provisioned a CIFS share, give users or groups permissions to the files and folders and verify that those users can access the share and create a file.
- If you want to apply quotas to volumes, use System Manager or the CLI.

Quotas enable you to restrict or track the disk space and number of files used by a user, group, or qtree.

# Launching Cloud Volumes ONTAP in GCP

You can launch a single node Cloud Volumes ONTAP system in GCP by creating a

working environment.

### Before you begin

- You should have chosen a configuration and obtained GCP networking information from your administrator. For details, see [Planning your Cloud Volumes ONTAP configuration](#).
- To deploy a BYOL system, you need the 20-digit serial number (license key) for each node.

### Steps


1. On the Working Environments page, click **Create Cloud Volumes ONTAP** and follow the prompts.
2. **Define Your Working Environment:** Click **Continue**.
3. **Subscribe to Cloud Volumes ONTAP:** If you're prompted, subscribe to Cloud Volumes ONTAP in the GCP Marketplace.

The following video shows the subscription process:

► [https://docs.netapp.com/us-en/occm37//media/video\\_subscribing\\_gcp.mp4](https://docs.netapp.com/us-en/occm37//media/video_subscribing_gcp.mp4) (video)

4. **Details & Credentials:** Select a project, specify a cluster name, optionally add labels, and then specify credentials.

The following table describes fields for which you might need guidance:

Field	Description
Google Cloud Project	<p>Select the project where you want Cloud Volumes ONTAP to reside. The default project is the project where Cloud Manager resides.</p> <p>If you don't see any additional projects in the drop-down list, then you haven't yet associated the Cloud Manager service account with other projects. Go to the Google Cloud console, open the IAM service, and select the project. Add the service account with the Cloud Manager role to that project. You'll need to repeat this step for each project.</p> <p> This is the service account that you set up for Cloud Manager, <a href="#">as described in step 4b on this page</a>.</p>
Working Environment Name	<p>Cloud Manager uses the working environment name to name both the Cloud Volumes ONTAP system and the GCP VM instance. It also uses the name as the prefix for the predefined security group, if you select that option.</p>
Add Labels	<p>Labels are metadata for your GCP resources. Cloud Manager adds the labels to the Cloud Volumes ONTAP system and GCP resources associated with the system.</p> <p>You can add up to four labels from the user interface when creating a working environment, and then you can add more after its created. Note that the API does not limit you to four labels when creating a working environment.</p> <p>For information about labels, refer to <a href="#">Google Cloud Documentation: Labeling Resources</a>.</p>

Field	Description
Credentials	These are the credentials for the Cloud Volumes ONTAP cluster admin account. You can use these credentials to connect to Cloud Volumes ONTAP through System Manager or its CLI.

- Location & Connectivity:** Select a location, choose a firewall policy, and select the checkbox to confirm network connectivity to Google Cloud storage for data tiering.

If you want to tier cold data to a Google Cloud Storage bucket, the subnet in which Cloud Volumes ONTAP resides must be configured for Private Google Access. For instructions, refer to [Google Cloud Documentation: Configuring Private Google Access](#).

- License & Support Site Account:** Specify whether you want to use pay-as-you-go or BYOL, and then specify a NetApp Support Site account.

To understand how licenses work, see [Licensing](#).

A NetApp Support Site Account is optional for pay-as-you-go, but required for BYOL systems. [Learn how to add NetApp Support Site accounts](#).

- Preconfigured Packages:** Select one of the packages to quickly deploy a Cloud Volumes ONTAP system, or click **Create my own configuration**.

If you choose one of the packages, you only need to specify a volume and then review and approve the configuration.

- Licensing:** Change the Cloud Volumes ONTAP version as needed, select a license, and select a virtual machine type.

If your needs change after you launch the system, you can modify the license or virtual machine type later.



If a newer Release Candidate, General Availability, or patch release is available for the selected version, then Cloud Manager updates the system to that version when creating the working environment. For example, the update occurs if you select Cloud Volumes ONTAP 9.5 RC1 and 9.5 GA is available. The update does not occur from one release to another—for example, from 9.4 to 9.5.

- Underlying Storage Resources:** Choose settings for the initial aggregate: a disk type, a size for each disk, and whether data tiering should be enabled.

The disk type is for the initial volume. You can choose a different disk type for subsequent volumes.

The disk size is for all disks in the initial aggregate and for any additional aggregates that Cloud Manager creates when you use the simple provisioning option. You can create aggregates that use a different disk size by using the advanced allocation option.

For help choosing a disk type and size, see [Sizing your system in GCP](#).

- Write Speed & WORM:** Choose **Normal** or **High** write speed, and activate write once, read many (WORM) storage, if desired.

[Learn more about write speed](#).

[Learn more about WORM storage](#).

11. **Create Volume:** Enter details for the new volume or click **Skip**.

You should skip this step if you want to use iSCSI. Cloud Manager enables you to create volumes for NFS and CIFS only.

Some of the fields in this page are self-explanatory. The following table describes fields for which you might need guidance:

Field	Description
Size	The maximum size that you can enter largely depends on whether you enable thin provisioning, which enables you to create a volume that is bigger than the physical storage currently available to it.
Access control (for NFS only)	An export policy defines the clients in the subnet that can access the volume. By default, Cloud Manager enters a value that provides access to all instances in the subnet.
Permissions and Users / Groups (for CIFS only)	These fields enable you to control the level of access to a share for users and groups (also called access control lists or ACLs). You can specify local or domain Windows users or groups, or UNIX users or groups. If you specify a domain Windows user name, you must include the user's domain using the format domain\username.
Snapshot Policy	A Snapshot copy policy specifies the frequency and number of automatically created NetApp Snapshot copies. A NetApp Snapshot copy is a point-in-time file system image that has no performance impact and requires minimal storage. You can choose the default policy or none. You might choose none for transient data: for example, tempdb for Microsoft SQL Server.

The following image shows the Volume page filled out for the CIFS protocol:

The image shows a configuration page for a volume. It is divided into two main sections: 'Details & Protection' and 'Protocol'.

**Details & Protection:**

- Volume Name:** Input field containing 'vol1'.
- Size (GB):** Input field containing '50'.
- Snapshot Policy:** Dropdown menu showing 'default'. Below it is a link for 'Default Policy'.

**Protocol:**

- Radio buttons for 'NFS Protocol' and 'CIFS Protocol'. 'CIFS Protocol' is selected.
- Share name:** Input field containing 'vol1\_share'.
- Permissions:** Dropdown menu showing 'Full Control'.
- Users / Groups:** Input field containing 'engineering'. Below it is a note: 'Valid users and groups separated by a semicolon'.

12. **CIFS Setup:** If you chose the CIFS protocol, set up a CIFS server.

Field	Description
DNS Primary and Secondary IP Address	The IP addresses of the DNS servers that provide name resolution for the CIFS server. The listed DNS servers must contain the service location records (SRV) needed to locate the Active Directory LDAP servers and domain controllers for the domain that the CIFS server will join.

Field	Description
Active Directory Domain to join	The FQDN of the Active Directory (AD) domain that you want the CIFS server to join.
Credentials authorized to join the domain	The name and password of a Windows account with sufficient privileges to add computers to the specified Organizational Unit (OU) within the AD domain.
CIFS server NetBIOS name	A CIFS server name that is unique in the AD domain.
Organizational Unit	The organizational unit within the AD domain to associate with the CIFS server. The default is CN=Computers.
DNS Domain	The DNS domain for the Cloud Volumes ONTAP storage virtual machine (SVM). In most cases, the domain is the same as the AD domain.
NTP Server	Select <b>Use Active Directory Domain</b> to configure an NTP server using the Active Directory DNS. If you need to configure an NTP server using a different address, then you should use the API. See the <a href="#">Cloud Manager API Developer Guide</a> for details.

13. **Usage Profile, Disk Type, and Tiering Policy:** Choose whether you want to enable storage efficiency features and change the tiering policy, if needed.

For more information, see [Understanding volume usage profiles](#) and [Data tiering overview](#).

14. **Google Cloud Platform Account for Data Tiering:** Set up data tiering by providing interoperable storage access keys for a Google Cloud Platform account. Click **Skip** to disable data tiering.

The keys enable Cloud Manager to set up a Cloud Storage bucket for data tiering. For more details, see [Setting up and adding GCP accounts to Cloud Manager](#).

15. **Review & Approve:** Review and confirm your selections.

- a. Review details about the configuration.
- b. Click **More information** to review details about support and the GCP resources that Cloud Manager will purchase.
- c. Select the **I understand...** check boxes.
- d. Click **Go**.

## Result

Cloud Manager deploys the Cloud Volumes ONTAP system. You can track the progress in the timeline.

If you experience any issues deploying the Cloud Volumes ONTAP system, review the failure message. You can also select the working environment and click **Re-create environment**.

For additional help, go to [NetApp Cloud Volumes ONTAP Support](#).

## After you finish

- If you provisioned a CIFS share, give users or groups permissions to the files and folders and verify that those users can access the share and create a file.
- If you want to apply quotas to volumes, use System Manager or the CLI.

Quotas enable you to restrict or track the disk space and number of files used by a user, group, or qtree.

# Registering pay-as-you-go systems

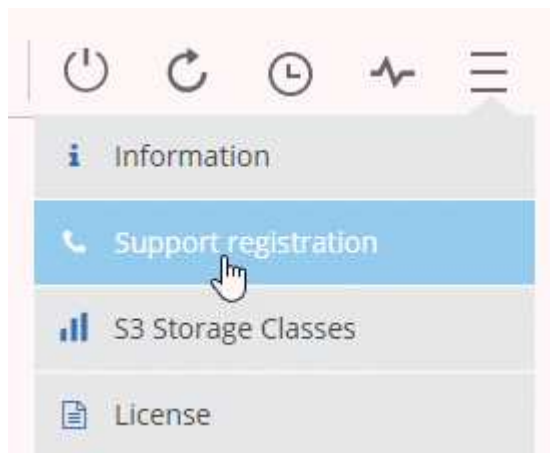
Support from NetApp is included with Cloud Volumes ONTAP Explore, Standard, and Premium systems, but you must first activate support by registering the systems with NetApp.

## Steps

1. If you have not yet added your NetApp Support Site account to Cloud Manager, go to **Account Settings** and add it now.

[Learn how to add NetApp Support Site accounts.](#)

2. On the Working Environments page, double-click the name of the system that you want to register.
3. Click the menu icon and then click **Support registration**:



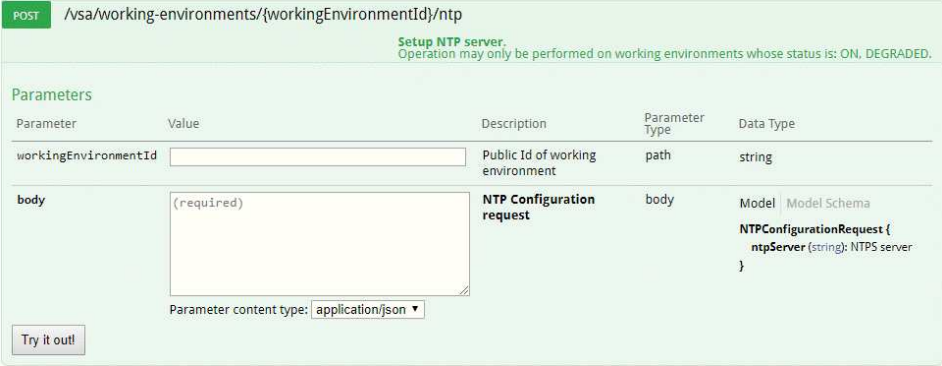
4. Select a NetApp Support Site account and click **Register**.

## Result

Cloud Manager registers the system with NetApp.

# Setting up Cloud Volumes ONTAP

After you deploy Cloud Volumes ONTAP, you can set it up by synchronizing the system time using NTP and by performing a few optional tasks from either System Manager or the CLI.

Task	Description
<p>Synchronize the system time using NTP</p>	<p>Specifying an NTP server synchronizes the time between the systems in your network, which can help prevent issues due to time differences.</p> <p>Specify an NTP server using the Cloud Manager API or from the user interface when you set up a CIFS server.</p> <ul style="list-style-type: none"> <li>• <a href="#">Modifying the CIFS server</a></li> <li>• <a href="#">Cloud Manager API Developer Guide</a></li> </ul> <p>For example, here's the API for a single-node system in AWS:</p> 
<p>Optional: Configure AutoSupport</p>	<p>AutoSupport proactively monitors the health of your system and automatically sends messages to NetApp technical support by default.</p> <p>If the Account Admin added a proxy server to Cloud Manager before you launched your instance, Cloud Volumes ONTAP is configured to use that proxy server for AutoSupport messages.</p> <p>You should test AutoSupport to ensure that it can send messages. For instructions, see the System Manager Help or the <a href="#">ONTAP 9 System Administration Reference</a>.</p>
<p>Optional: Configure EMS</p>	<p>The Event Management System (EMS) collects and displays information about events that occur on Cloud Volumes ONTAP systems. To receive event notifications, you can set event destinations (email addresses, SNMP trap hosts, or syslog servers) and event routes for a particular event severity.</p> <p>You can configure EMS using the CLI. For instructions, see the <a href="#">ONTAP 9 EMS Configuration Express Guide</a>.</p>



Task	Description
<p>Optional: Create an SVM management network interface (LIF) for HA systems in multiple AWS Availability Zones</p>	<p>A storage virtual machine (SVM) management network interface (LIF) is required if you want to use SnapCenter or SnapDrive for Windows with an HA pair. The SVM management LIF must use a <i>floating</i> IP address when using an HA pair across multiple AWS Availability Zones.</p> <p>Cloud Manager prompts you to specify the floating IP address when you launch the HA pair. If you did not specify the IP address, you can create the SVM Management LIF yourself from System Manager or the CLI. The following example shows how to create the LIF from the CLI:</p> <pre data-bbox="548 495 1481 751">network interface create -vserver svm_cloud -lif svm_mgmt -role data -data-protocol none -home-node cloud-01 -home-port e0a -address 10.0.2.126 -netmask 255.255.255.0 -status-admin up -firewall -policy mgmt</pre>
<p>Optional: Change the backup location of configuration files</p>	<p>Cloud Volumes ONTAP automatically creates configuration backup files that contain information about the configurable options that it needs to operate properly.</p> <p>By default, Cloud Volumes ONTAP backs up the files to the Cloud Manager host every eight hours. If you want to send the backups to an alternate location, you can change the location to an FTP or HTTP server in your data center or in AWS. For example, you might already have a backup location for your FAS storage systems.</p> <p>You can change the backup location using the CLI. See the <a href="#">ONTAP 9 System Administration Reference</a>.</p>

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