White Paper

Using Amazon WorkSpaces with NetApp Cloud Volumes Service for AWS

Introduction and How-To Guide

Graham Smith, NetApp
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Abstract

This document is an overview of Amazon WorkSpaces and how to integrate it with NetApp® Cloud Volumes Service to provide a compelling shared storage solution for thousands of desktop users.

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1 Amazon Workspaces

Amazon WorkSpaces is a managed, desktop-as-a-service (DaaS) solution that can provision Windows or Linux desktops in minutes and scale to provide thousands of desktops to workers around the globe.

Amazon WorkSpaces helps eliminate the complexity of managing hardware inventory, OS versions, patches, and virtual desktop infrastructures. With Amazon WorkSpaces, users get a fast, responsive desktop of their choice that they can access anywhere, anytime, from any supported device.

2 Introducing NetApp Cloud Volumes Service for AWS

NetApp® Cloud Volumes Service for AWS is the ideal solution to meet your Amazon WorkSpaces shared storage needs. Cloud Volumes is a fully managed cloud service that delivers scalable storage with high performance to meet demanding file share access requirements.

Cloud Volumes Service for AWS delivers managed file services for NFS and SMB protocols with dual-protocol access to the same shared files when needed. This means that multiple Linux users can access data using NFS, and Windows users can conveniently access data using SMB.

Cloud Volumes Service for AWS offers a number of advantages over other cloud storage solutions:

- **High performance.** High throughput and IOPS with low latency file access meets the demands of thousands of desktop and I/O intensive applications such as software builds, video rendering and transcoding, and financial modeling.
- **Lower cost.** Cloud Volumes Service for AWS is significantly less expensive to deploy and manage than other DaaS solutions. Because you can adjust performance levels on the fly, it's possible to optimize performance for peak periods without overpaying during off-peak times.
- **Fully managed.** NetApp configures and manages your storage, so you don't have to.
- **Easy to deploy.** You can deploy a 100TB Cloud Volume in just 8 seconds and begin working immediately.
- **Enterprise features.** Cloud Volumes Service offers enterprise features like snapshots, instant copies, and synchronization that facilitate data management.
- **Guaranteed SLAs.** NetApp service level agreements (SLAs) for performance, availability, and durability allow you to be certain that your cloud operations satisfy the needs of your workloads.

3 Creating a Directory Service

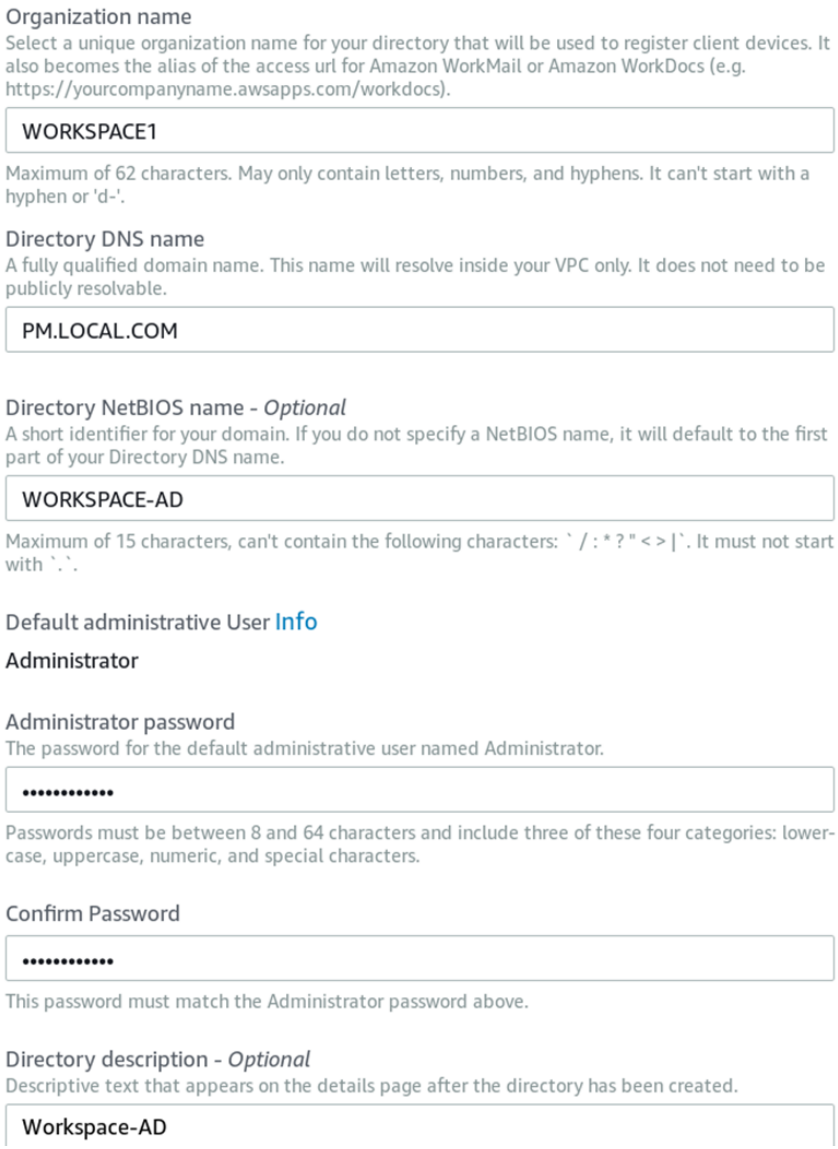
1. Open the AWS console for your account, choose the WorkSpaces service, and select a region.

   Note: For details, review Get Started with Amazon WorkSpaces Quick Setup.
2. Click Launch WorkSpaces.
3. Choose a directory or click Create a New Directory.

   If you already have a directory service configured, skip to section 4, "Creating WorkSpaces".
4. Select the directory type and click Next.
5. Depending on the type selected, choose the directory size.

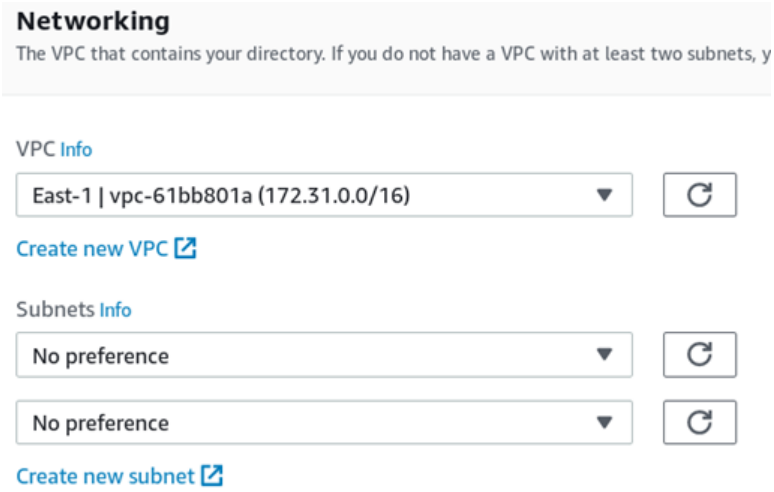
   Note: For sizing, refer to Get Started with Amazon WorkSpaces Quick Setup.
6. Enter an organization name, a DNS name, and a NetBIOS name.
7. Enter an administrator password and confirm. You have the option to provide a description.

   For example:

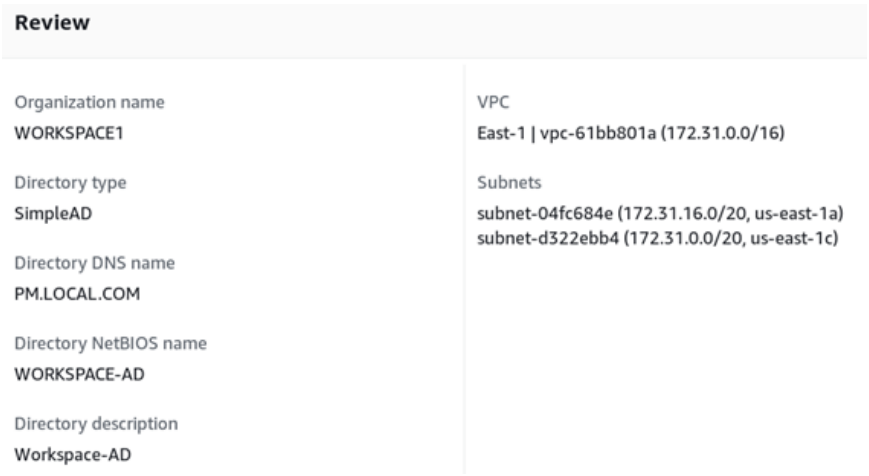


8. Click Next and then select an existing VPC or create a new one. You can optionally choose which Subnets to use.

   Note: You can select a VPC with existing connections to the NetApp Cloud Volumes Service or create a new VPC and configure the routing to Cloud Volumes Service. See the Cloud Volumes Service AWS Account Setup Guide.



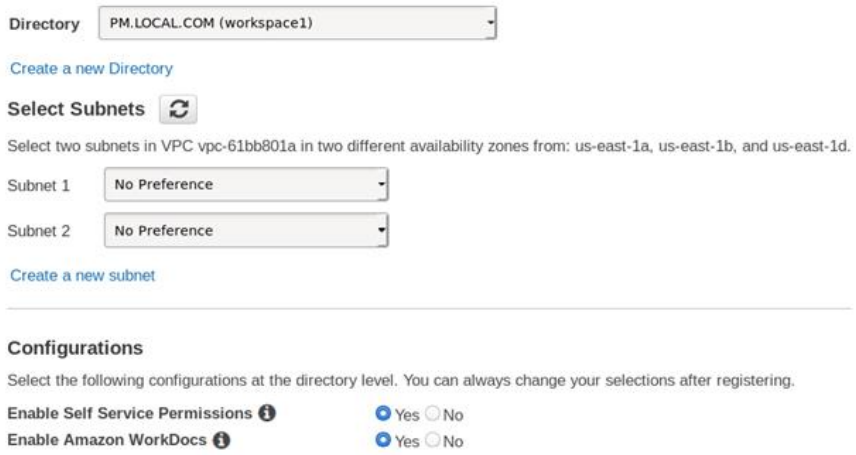
9. Review the settings and then click Create Directory. It may take several minutes to create the directory service.



10. After the directory is active, note the DNS IP addresses and names.

4 Creating WorkSpaces

1. Click WorkSpaces on the left side, then click Launch WorkSpaces and choose the directory created in section 3.
2. (Optional) Select subnets and enable or disable Self Service and WorkDocs.



3. Click Next Step.
4. Add and/or select users to use WorkSpaces and then click Next Step.
5. Select a bundle, such as Value with Amazon Linux 2 or Value with Windows 10 and then click Next Step. Edit the bundle configuration if needed and then click Next Step.
6. Review the configuration and then click Launch WorkSpaces.

   It can take several minutes for the WorkSpace to be created.
7. Select the WorkSpace, click Actions, and then click and Invite User to send an email with the next steps, such as installing the WorkSpaces client and setting a password.
8. To create additional bundles, click Bundle, create or select a user, and select a bundle.

5 Joining Your Cloud Volumes Service to the WorkSpaces Directory

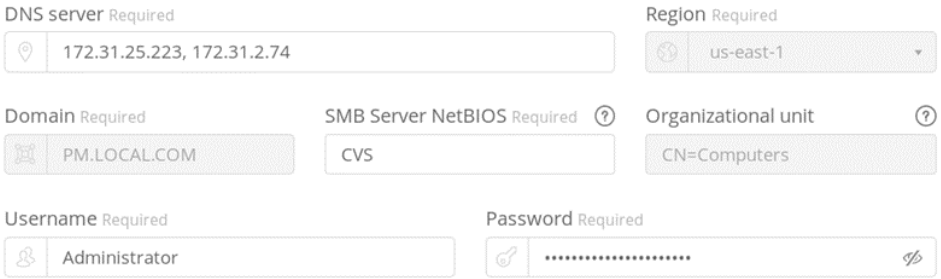
1. Log in to Cloud Volumes Service and select the region for your WorkSpaces.
2. Click Active Directory and then click Join Active Directory.

   Note: For an overview of creating cloud volumes and joining Active Directory, see Creating a Cloud Volume.
3. Enter the values for the directory created for WorkSpace, including the IP for the directory, domain, username (typically Administrator), and password.

   Note: If necessary, refer to the AWS directory service.
4. Enter the NetBios name for the Cloud Volumes SMB server.

   Note: This is the NetBios name of the SMB server, not the AD directory.

   For example:



5. Click Join Active Directory.

6 Creating a Cloud Volume for Linux WorkSpaces

1. Log in to Cloud Volumes Service and select Create New Volume.
2. Select NFS as the protocol and enter a name for the volume.
3. (Optional) Change the volume path, allocated capacity, and service level, and choose encryption if required.
4. Click Create Volume.
5. After the volume is created, note the export path and click for instructions on how to mount the NFS share to Linux.

7 Creating a Cloud Volume for Windows WorkSpaces

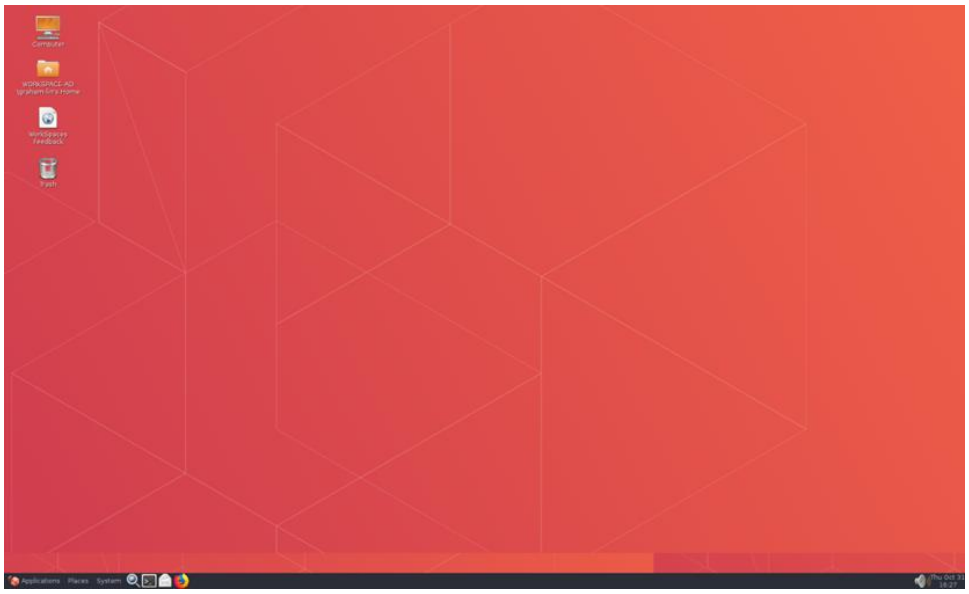
1. Log in to Cloud Volumes Service and select Create New Volume.
2. Select SMB as the protocol and enter a name for the volume.
3. (Optional) Change the volume path, allocated capacity, and service level, and choose encryption if required.
4. In the Active Direct section, select the Active Directory configuration from the drop-down menu.
5. Click Create Volume.
6. After the volume is created, note the export path and click for instructions on how to map the SMB share to Windows.

8 Connecting to WorkSpaces

1. From the AWS console, select WorkSpaces, select the WorkSpaces ID to connect to, and copy the registration code.
2. Download and install the latest WorkSpaces client application from Amazon WorkSpaces Client Downloads.

   Note: For more information, review Get Started with Amazon WorkSpaces Quick Setup.
3. Run the WorkSpaces client application from your device (PC, Mac, iPad, Android, web browser, and so on), enter the registration code, and click Register.

4. Enter the user name and password to connect the desktop.

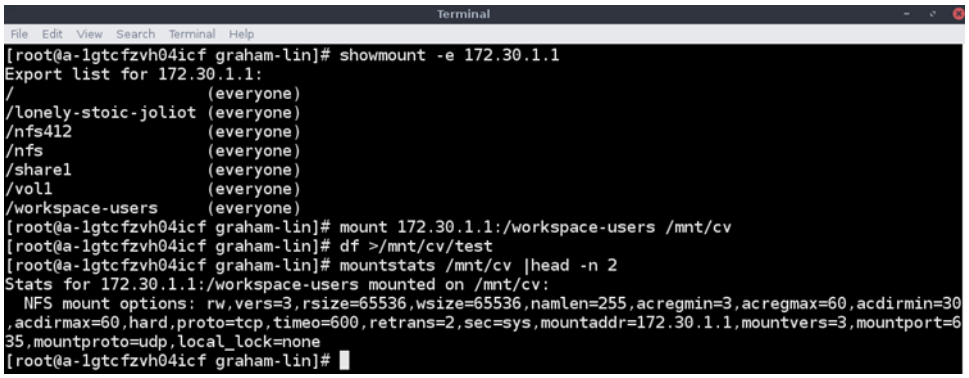


9 Mounting a Cloud Volume to Linux WorkSpaces

1. Connect to the WorkSpace (see section 5, “Joining Your Cloud Volumes Service to the WorkSpaces Directory) and open a terminal.
2. See the Cloud Volumes web UI for mounting instructions for the volume.
3. As a superuser or by using sudo, mount the volume:

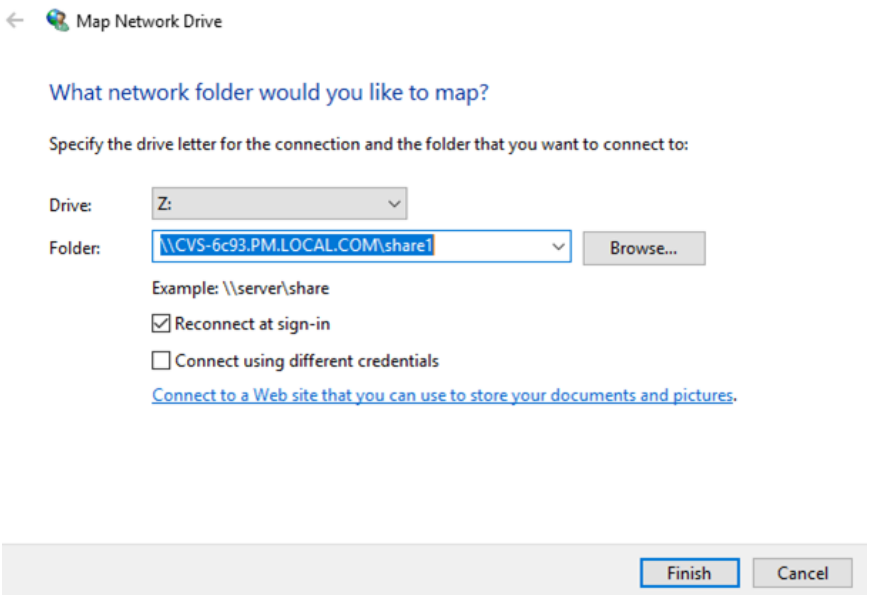
```
# mount -o <options> <ip>:/<path> <mountpoint>
```

4. Use df or mountstats to confirm that the volume is mounted.



10 Mapping a Cloud Volume to Windows WorkSpace

1. Connect to the WorkSpace (see section 5, “Joining Your Cloud Volumes Service to the WorkSpaces Directory”) and click the File Explorer icon.
2. See the Cloud Volumes UI for mounting instructions.
3. In File Explorer, click Network and select Map Network Drive.
4. Choose a drive letter, enter the path, and click Finish.



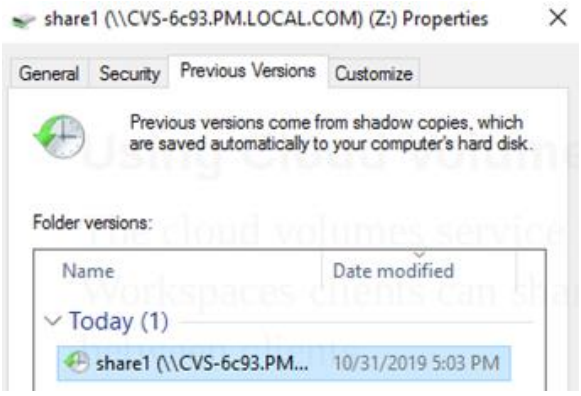
5. The share is mapped to the chosen drive letter.

11 Using the Advanced Features of Cloud Volumes Service

Cloud Volumes Service provides high-performance, scalable shared storage over NFS and/or SMB.

WorkSpaces clients can share access to the same cloud volume for fast and efficient sharing of data, including between multiple Windows and Linux clients. Cloud Volumes Service also enables snapshots of cloud volumes that can be leveraged by WorkSpaces clients.

1. From Windows clients, right-click the share, select Properties, and then select Previous Versions.



2. From Linux clients, access the snapshots through the `.snapshot` directory.

```
# ls -a
.  ..  .snapshot  test
[root@ip-172-31-55-197 cv]# ls .snapshot/
snapshot_20191031_171600_548
```

Where to Find Additional Information

To learn more about the information that is described in this document, review the following websites:

- NetApp Cloud Volumes Service for AWS documentation
  https://docs.netapp.com/us-en/cloud_volumes/aws/index.html
- NetApp Cloud Central
  https://cloud.netapp.com/home
- NetApp Product Documentation
  https://docs.netapp.com

Version History

Version	Date	Document Version History
Version 1.0	December 2019	Initial release.

Refer to the Interoperability Matrix Tool (IMT) on the NetApp Support site to validate that the exact product and feature versions described in this document are supported for your specific environment. The NetApp IMT defines the product components and versions that can be used to construct configurations that are supported by NetApp. Specific results depend on each customer's installation in accordance with published specifications.

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