



NetApp Cloud Volumes Service for AWS

AWS Account Setup

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Abstract

This document provides instructions to set up the initial environment for using NetApp® Cloud Volumes Service for Amazon Web Services (AWS).

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1 Overview

This document guides users through the required steps to (1) Subscribe to NetApp Cloud Volumes Service (CVS) on the AWS Marketplace, (2) Setup a user account in Cloud Volumes Service, and (3) how to setup your network connections from your AWS account to your Cloud Volumes Service account.

2 Important Information

To fully activate your Cloud Volumes Service, you will need to follow these instructions carefully to ensure that your AWS account is set up to accept and connect to the CVS service through the Virtual interfaces that will be published to your account from NetApp, as part of this setup procedure.

Before proceeding with the subscription, you may need to first consult with your AWS administrator, and/or your network security and administration team to review these setup instructions.

3 Requirements

This section details the requirements to access Cloud Volumes Service for AWS.

Administrative

The following administrative tasks are required to access Cloud Volumes Service for AWS:

- Willingness to accept the NetApp End-User License Agreement (EULA)
Note: This EULA is presented as part of the AWS Marketplace subscription process.
- An active AWS account
Note: Please take note of your AWS account ID, a 12-digit number. You will need this during the setup process.

Skills and Knowledge

The following skills and information are required to access Cloud Volumes Service for AWS:

- Access to and knowledge of the AWS Marketplace.
- You must be prepared to enter an IPv4 Classless Inter-Domain Routing (CIDR) for the AWS region in the /28 range when setting up your route table. This CIDR must only contain RFC 1918 (private) addresses.
- Knowledge of your AWS network and connectivity settings and controls.
Note: If necessary, please consult with your AWS and network team prior to completing these setup instructions.

Compute Resources

The following compute resources are required to access Cloud Volumes Service for AWS:

- A valid AWS subscription (with permissions to subscribe to new Marketplace listings).
Note: All AWS compute and other resources used are the sole responsibility of the user.
- A Virtual Private Cloud (VPC) that has been configured and running prior to the setup of Cloud Volumes Service for AWS.
- An Internet browser.

4 Workflow Overview

4.1 Virtual Private Gateways and Direct Connect Gateways

NetApp Cloud Volumes Service can be connected to either a Virtual Private Gateway or Direct Connect Gateway. This provides options to best meet your needs.

Virtual Private Gateways

Virtual Private Gateways allow only one VPC to be connected to the Cloud Volumes Service. This can be useful to further enhance security by isolating data access to a single VPC.

Direct Connect Gateways

Direct Connect Gateways provide additional flexibility, such as the ability to connect EC2 instances from up to 10 VPCs to a cloud volume and for the VPCs to be in different regions. It enables cloud volumes from multiple regions to be connected via the same Direct Connect Gateway.

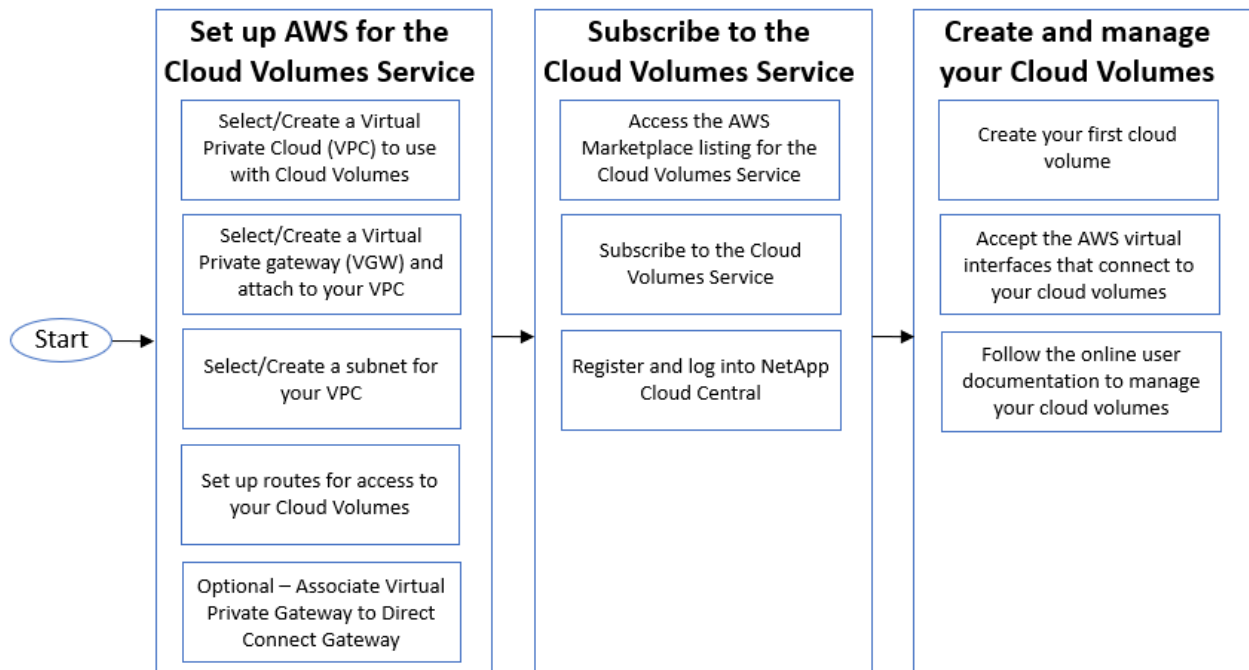
Important: Direct Connect Gateways allow multiple VPCs to be added, however the CIDR ranges of the VPCs cannot overlap as the gateway effectively creates a single network. If you require VPCs that have the same CIDR range, then connect Virtual Private Gateways directly to your cloud volume Virtual Interfaces.

4.2 Workflow

Figure 1 is a high-level workflow diagram illustrating how to set up your Cloud Volumes Service for AWS account, and how to subscribe to the Cloud Volumes Service for AWS.

For detailed information about creating your Cloud Volumes Service for AWS account, see section 5 and section 6.

Figure 1) Workflow diagram: Cloud Volumes Service for AWS account.



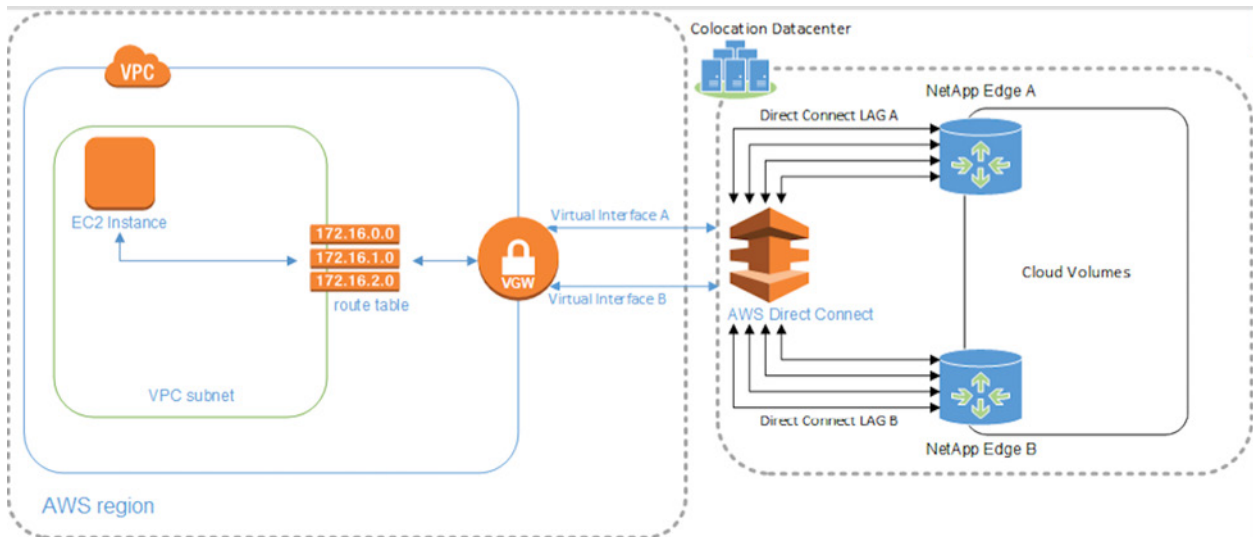
5 Set Up your AWS Account for the Cloud Volumes Service

IMPORTANT: **Before you subscribe to NetApp Cloud Volumes Service for AWS**, you must complete or verify that your AWS account is correctly configured by completing these tasks:

- Select/create a VPC to use with Cloud Volumes
- Select/create a Virtual Private Gateway (VGW)
- Select/create a subnet for the VPC
- Set up routes to include the Cloud Volumes network
- Optionally, select/create a Direct Connect Gateway (DCG)

Figure 2 illustrates the connectivity and setup for the Cloud Volumes Service for AWS.

Figure 2) Cloud Volumes Service Architecture for AWS.



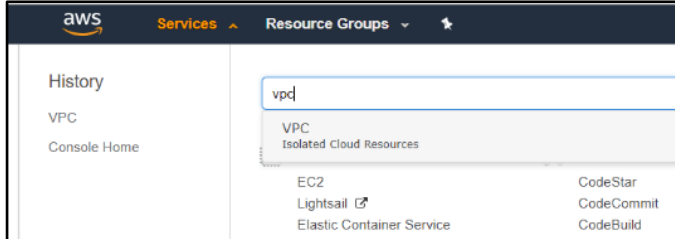
If you already have a VPC and virtual gateway (and optionally a Direct Connect Gateway) configured, and you plan to use these components to connect to CVS, jump to section 5.5

5.1 Create a VPC to use with Cloud Volumes

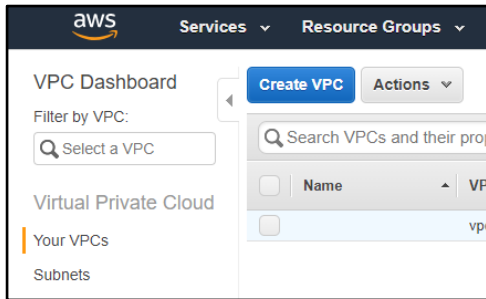
It is not mandatory that you create a new Amazon Virtual Private Cloud (VPC); however, you might need a new VPC to isolate instances associated with the Cloud Volumes project from work in other VPCs.

To create a VPC to use with Cloud Volumes you can use the VPC wizard, or you can follow the configuration steps shown below:

1. Log in to your AWS account and navigate to the VPC dashboard.



2. Click **Your VPCs** on the navigation pane to the left. Then click **Create VPC**.



3. On the Create VPC page, complete these tasks:
 - a. Enter a unique name to help you identify this VPC to use for Cloud Volumes.
 - b. Enter a private range Classless Inter-Domain Routing (CIDR) block that works for your environment. It doesn't matter what it is, you can select from any private class range. A /24 CIDR block is sufficient. In this example, the CIDR block name is 10.2.0.0/24.

Note: The VPC CIDR range and the storage CIDR range, which you will enter later, cannot overlap.
 - c. Click **Yes, Create**. A new VPC is created.

Create VPC

A VPC is an isolated portion of the AWS cloud populated by AWS objects, such as Amazon EC2 instances. You must specify an IPv4 address range for your VPC. Specify the IPv4 address range as a Classless Inter-Domain Routing (CIDR) block; for example, 10.0.0.0/16. You cannot specify an IPv4 CIDR block larger than /16. You can optionally associate an Amazon-provided IPv6 CIDR block with the VPC.

Name tag

IPv4 CIDR block*

IPv6 CIDR block*
☒ No IPv6 CIDR Block
☐ Amazon provided IPv6 CIDR block

Tenancy

5.2 Create a Virtual Private Gateway and Attach it to Your VPC

The VGW is a network gateway that provides a route to NetApp Cloud Volumes.

To create a VGW and attach it to your VPC, complete the following steps:

1. On the VPC page of the AWS console, select **Virtual Private Gateway**.
2. At the top of the page, select **Create Virtual Private Gateway**.
3. Provide an appropriate name tag for the VGW.
4. In the ASN field, NetApp recommends selecting **Amazon default ASN**, in which case your VGW will be assigned an ASN of 64512. You can select the Custom ASN option and assign any valid private ASN.

Note: Make a note of the ASN as you will need to enter this information when setting up your first cloud volume in an AWS region.

5. Click **Create Virtual Private Gateway**.

Virtual Private Gateways > Create Virtual Private Gateway

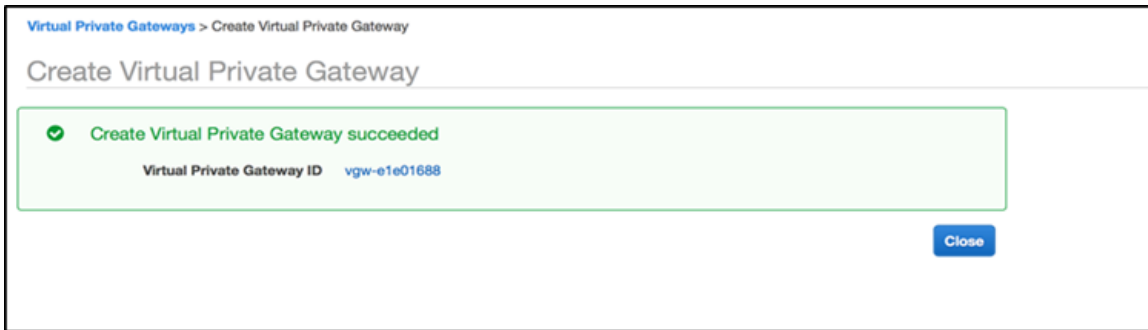
Create Virtual Private Gateway

A virtual private gateway is the router on the Amazon side of the VPN tunnel.

Name tag

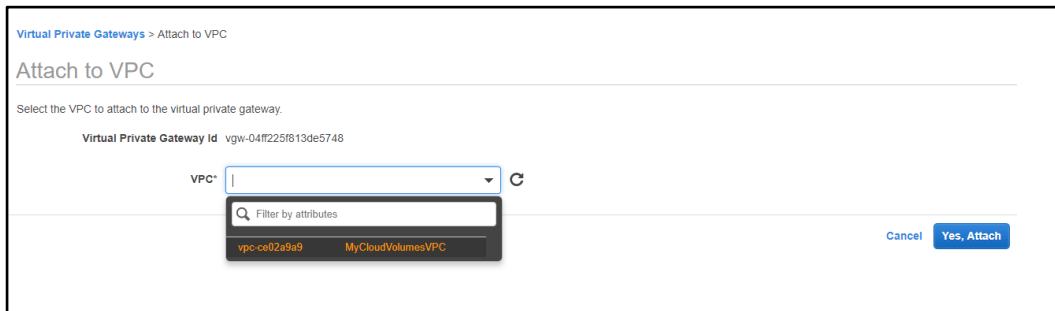
ASN
☒ Amazon default ASN
☐ Custom ASN

6. Make a note of the VGW ID and click **Close**. The new VGW is displayed in the detached state.



7. Click the button next to the new Virtual Private Gateway and press **Actions** (above the table).
8. Click **Attach to VPC**.
9. Select the newly created VPC to attach to the VGW, and then click **Yes, Attach**.

Note: You are returned to the Virtual Private Gateway page.



It can take a minute or two for the VGW to transition from the Attaching state to Attached.

Note: Use the Refresh button in the upper-right corner of the page to refresh the status.

5.3 Create a Subnet for the VPC

To create a subnet for the VPC, complete the following steps:

1. On the VPC dashboard, select **Subnets** from the navigation pane on the left. A list of existing subnets is displayed. Click **Create Subnet**.
2. On the Create Subnet page, complete these steps:
 - a. Enter an appropriate name tag for your environment.
 - b. Select the newly created VPC.
 - c. Unless you want to select a specific availability zone, leave the No Preference default value and the system will select the availability zone for you.
 - d. Unless you need to divide the VPC into multiple subnets, use the CIDR block for the entire VPC.

In this example, the `10.2.0.0/24` CIDR block was used—it represents the entire VPC CIDR block.

- e. Click **Yes, Create**. The new subnet will reside in the VPC you selected.

Note: This process can take a few minutes.

Create Subnet

Use the CIDR format to specify your subnet's IP address block (e.g., 10.0.0.0/24). Note that block sizes must be between a /16 netmask and /28 netmask. Also, note that a subnet can be the same size as your VPC. An IPv6 CIDR block must be a /64 CIDR block.

Name tag

VPC

VPC CIDRs

CIDR	Status	Status Reason
10.2.0.0/24	● associated	

Availability Zone

IPv4 CIDR block

Cancel
Yes, Create

5.4 Set Up Routes

To set up routes, complete the following steps:

- On the VPC dashboard, select **Route Tables** from the navigation pane on the left.

Note: A route table is automatically assigned as part of the VPC creation.

Create Route Table Delete Route Table Set As Main Table

<input type="checkbox"/>	Name	Route Table ID	Explicitly Associat	Main	VPC
<input type="checkbox"/>		rtb-14b7fc68	0 Subnets	Yes	vpc-dfc585a4 MyCloudVolumesVPC

- Select the route table and the details are displayed at the bottom of the page.

rtb-14b7fc68

Summary

Routes

Subnet Associations

Route Propagation

Tags

Route Table ID: rtb-14b7fc68

Explicitly Associated With: 0 Subnets

Main: yes

VPC: vpc-dfc585a4 | MyCloudVolumesVPC

- Select the **Subnet Associations** tab and associate the newly created subnet with this route table.

rtb-14b7fc68

Summary Routes **Subnet Associations** Route Propagation Tags

Edit

Subnet	IPv4 CIDR	IPv6 CIDR
You do not have any subnet associations.		
The following subnets have not been explicitly associated with any route tables and are therefore associated with the main route table:		
Subnet	IPv4 CIDR	IPv6 CIDR
subnet-68424257 MyCloudVolumesSubnet	10.2.0.0/24	-

4. Click **Save**.

rtb-14b7fc68

Summary Routes **Subnet Associations** Route Propagation Tags

Cancel **Save**

Associate	Subnet	IPv4 CIDR	IPv6 CIDR	Current Route Table
<input checked="" type="checkbox"/>	subnet-68424257 MyCloudVolumesSubnet	10.2.0.0/24	-	Main

5. Select the **Routes** tab if you want to configure a static route or select the **Route Propagation** tab if you want to propagate the routes.
- To configure a static route, in the Routes tab click **Edit** routes. Then enter the destination CIDR block for Destination and select a target for Target, and **Save** the configuration.

The CIDR block must be an IPv4 range for the region in the /28 range. This CIDR must only contain RFC 1918 (private) addresses.

Route Table: rtb-0d74b797ffa16f9d7

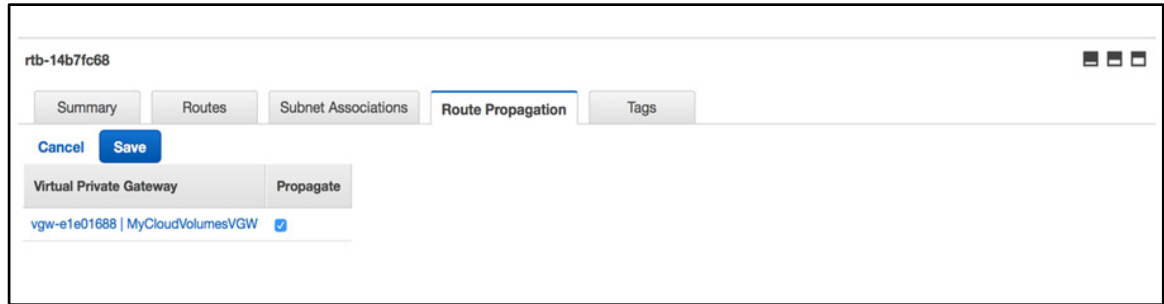
Summary **Routes** Subnet Associations Route Propagation Tags

Edit routes

View All routes

Destination	Target	Status	Propagated
172.16.0.0/28	vgw-046a2494bd9460f64	active	No

- To propagate a route, in the Route Propagation tab, click **Edit** and enable the toggle button to the right of the VGW name, and then click **Save**.



5.5 Gather required AWS configuration information

You are now ready to subscribe to NetApp Cloud Volumes in the AWS Marketplace. When subscribing, be prepared to provide the following information:

- AWS account number
- Regions required
- Private network CIDR preference you entered in the routing section (for example, Class A, B, or C network in RFC 1918)
- ASN: When using a Virtual Private Gateway, use that ASN. When using a Direct Connect Gateway, use that ASN.

6 Enable AWS Subscription and Cloud Volumes Service

6.1 Access AWS Marketplace Listing for Cloud Volumes Service

Locate the **NetApp Cloud Volumes Service** listing on the AWS Marketplace.

Complete the following steps:

1. Go to the [AWS marketplace page](#) and sign in to your AWS account.
2. Type “NetApp Cloud Volumes” in the search bar to view these NetApp products.
3. Select the **NetApp Cloud Volumes Service for AWS** product.
4. Review the content on that page to fully understand the solutions the product provides, and click on the documentation links to identify the prerequisites tasks you must perform before creating your first cloud volume.
5. Click **Continue to Subscribe**.
6. Select the quantity of TB of capacity you wish to subscribe to.
7. Select or unselect the Auto Renew option for the contract.
8. Review the quantity and price of your contract. The Contract Signup page is displayed.
9. Select the quantity of bundles and then click **Create Contract**.

Note: Only select the quantity that matches your total terabyte subscription. In this example, a 5TB is a quantity of 1 (1x 5TB).

[TEST ONLY] Cloud Volumes for AWS Trial Subscription 5TB

Configure your Software Contract

Choose the contract that suits your needs. You're charged for your purchase on your AWS bill. After you purchase a contract, you're directed to the vendor's site to complete setup and begin using this software. For any software use beyond your contract limit, you're charged consumption pricing.

Contract Duration

☒ 1 month

Renewal Settings

Auto Renew when this contract ends on - Thu Dec 27 2018?

☒ Yes

☐ No

I understand that when I renew, the seller's pricing terms and end user license agreement (EULA) might have changed. On the renewal date, I will be billed based on the price and EULA applicable on that date, which I can find on the Your Marketplace Software page.

Contract Options

Create Contract

By subscribing to this software, you agree to the pricing terms and the seller's [end user license agreement \(EULA\)](#). Your use of AWS services is subject to the [AWS Customer Agreement](#).

Total Contract Price	\$0.00
Due Today	
Auto Renew - Yes	
Trial Bundle 5TB X 1 Units	\$0.00

10. The Pay Now pop up window displays. If all is OK, click **Pay now**.

Confirm contract purchase
✕

You're purchasing the following contract. When you choose Pay now, your AWS account ID is invoiced. Payment is due when your AWS bill is due. If your usage exceeds your contract, additional usage costs apply.

[TEST ONLY] Cloud Volumes for AWS Trial Subscription 5TB - 1MONTHS Contract

\$0.00 - Due Today

Auto Renew - Yes

Cancel
Pay now

Need to replace all these screenshots with the real pages for the full service.

11. When the congratulations message is displayed, click **Setup Your Account**. Ensure you turn off any ad blocker or pop up blocker on your browser before you select Setup Your Account.

Confirm contract purchase
✕

✔
Congratulations! You're now subscribed.

[TEST ONLY] Cloud Volumes for AWS Trial Subscription 5TB - 1MONTHS Contract

\$0 - Due Today

Auto Renew - Yes

To complete registration and start using your software, choose Set up your account. If you don't want to complete registration right now, you can return to the [Your Software page](#) on AWS Marketplace at any time to complete registration.

Setup your account

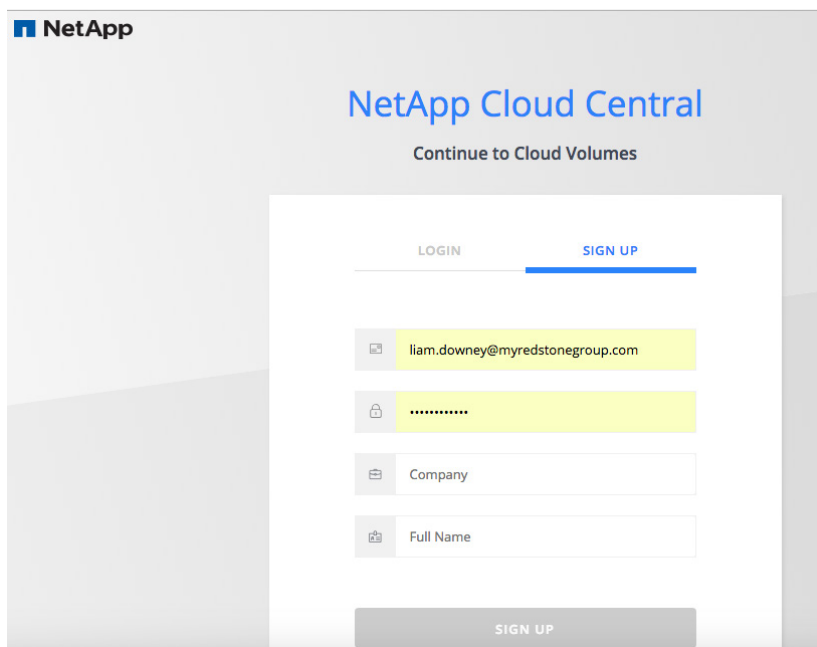
12. You will be redirected to the NetApp Cloud Central page. Complete the steps in the next section to register and log into NetApp Cloud Central.

6.2 Register and Log into NetApp Cloud Central

You may already have a NetApp Cloud Central account. If you do, and this is the account you want to use for CVS, select the “LOGIN” tab and enter your existing User ID and Password.

If this is your first time registering with NetApp Cloud Central, or if you wish to set up an additional account, you will need to register a new account. Select the “SIGN UP” tab.

1. Enter a valid email address.
2. Enter a Password.
3. Enter your company name.
4. Enter your full name.
5. Click Sign Up.

The screenshot shows the NetApp Cloud Central registration interface. At the top left is the NetApp logo. The main heading is "NetApp Cloud Central" in blue, with the subtitle "Continue to Cloud Volumes" below it. There are two tabs: "LOGIN" and "SIGN UP", with "SIGN UP" being the active tab. Below the tabs are four input fields: "Email" (containing "liam.downey@myredstonegroup.com"), "Password" (masked with dots), "Company", and "Full Name". At the bottom is a large "SIGN UP" button.

You have completed the initial process for creating Cloud Volumes Service for AWS. The Cloud Volumes user interface is displayed.

6.3 Create your first Cloud Volume

Create your first cloud volume using the Cloud Volumes user interface.

Note: It is recommended that you [activate your NetApp support entitlement](#) so that you can access technical support if you run into any issues.

1. Go to the [Creating a cloud volume topic](#) in the NetApp Cloud Volumes Service for AWS documentation and follow the steps to create your first cloud volume.

Note: Make sure you select the same AWS region that you created on AWS from the top of the Cloud Volumes user interface before creating the cloud volume.



2. At the end of the process when you select **Create Volume** there will be some network configuration that is completed automatically for the first cloud volume in an AWS region. When prompted, follow the steps below to accept the two virtual interface that will be used in this AWS region to connect all your cloud volumes.

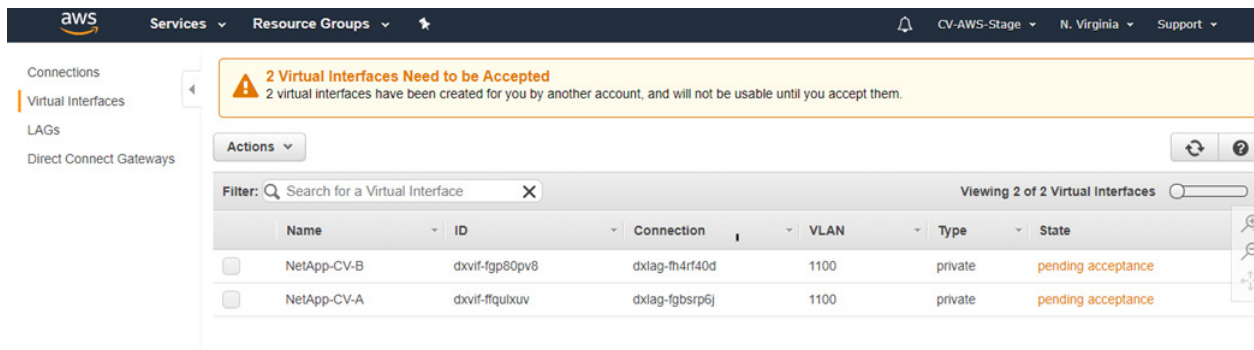
6.4 Accept the Direct Connect Virtual Interfaces

NetApp provides virtual interfaces for connectivity to the Cloud Volumes Service. These virtual interfaces must be accepted before they can be used. You must accept the interfaces within 10 minutes after clicking the Create Volume button or the system may time out.

If the interfaces do not appear within 10 minutes there may be a configuration issue; in which case you should contact support.

To accept the virtual interfaces, complete the following steps:

1. From the AWS console for your account, navigate to the Direct Connect service and click **Virtual Interfaces**.



2. Select one of the virtual interfaces, check the box that you understand how you will be charged for this service, and click **Accept Virtual Interface**.

Connections
Virtual Interfaces
LAGs
Direct Connect Gateways



2 Virtual Interfaces Need to be Accepted

2 virtual interfaces have been created for you by another account, and will not be usable until you accept them.

Actions ▾

Filter: X

	Name ▾	ID ▾	Connection
<input checked="" type="checkbox"/>	NetApp-CV-B	dxvif-fgp80pv8	dxlag-fh4rf40d
<input type="checkbox"/>	NetApp-CV-A	dxvif-ffqulxuv	dxlag-fgbsrp6j

NetApp-CV-B

Summary

Peerings

Name	NetApp-CV-B
ID	dxvif-fgp80pv8
AWS Account	436376711722
Type	private
State	pending acceptance
Connection	dxlag-fh4rf40d

Before this virtual interface can be active and used, you must accept it.

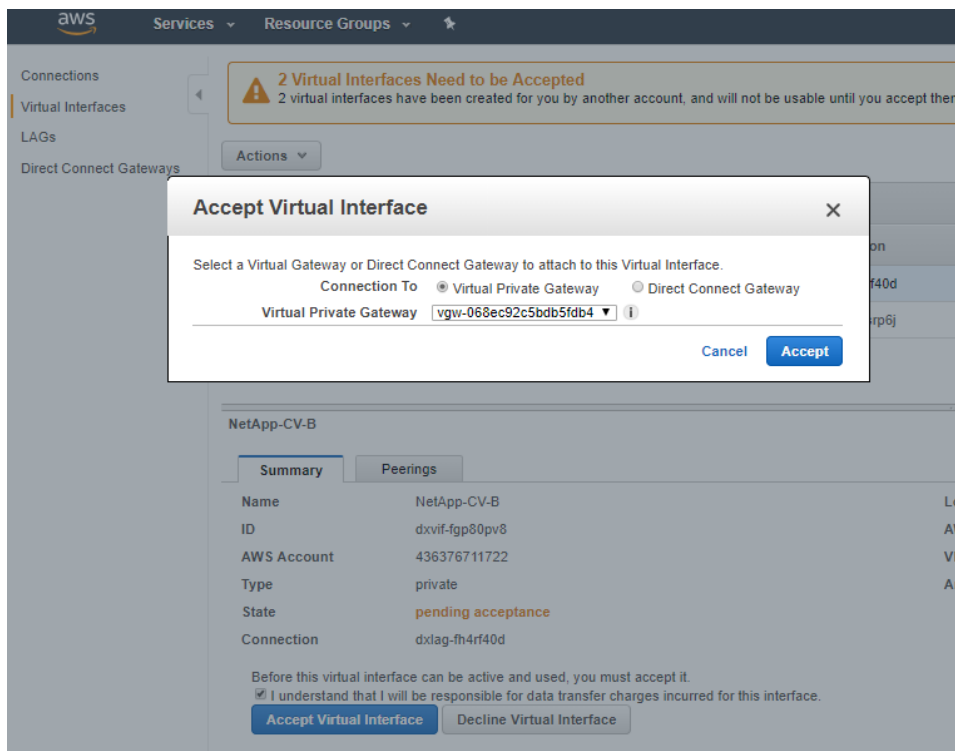
☒ I understand that I will be responsible for data transfer charges incurred for this interface.

Accept Virtual Interface

Decline Virtual Interface

- From the drop-down menu, select whether you will connect the interfaces to the **Virtual Private Gateway** or **Direct Connect Gateway** and click **Accept**.

Note: Section 4.1 describes why you may choose to use a Virtual Private Gateway or a Direct Connect Gateway.



4. Repeat steps 1 through 3 for each interface.
5. The state of the virtual interface initially goes to **down**, changes to **up**, and finally to **available**.
Note: It can take several minutes before the virtual interfaces become available.
6. Verify that the virtual interfaces are available.

Name	ID	Connection	VLAN	Type	State
NetAppCVS-PM-B	dxvif-ffm4ubqv	dxlag-fguxo1ms	1022	private	available
NetAppCVS-PM-A	dxvif-fgbqfox3	dxlag-fg51xgdt	1022	private	available

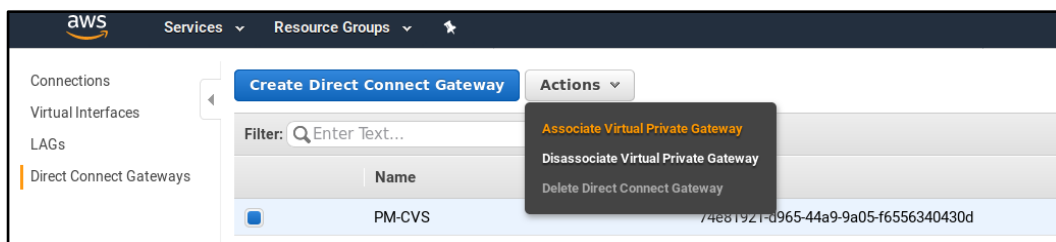
7. If you accepted the Virtual Interfaces to a Virtual Private Gateway, return to the Cloud Volumes Service UI to mount the volume and to perform other tasks.

If you accepted the Virtual Interfaces to a Direct Connect Gateway, follow the steps in the next section.

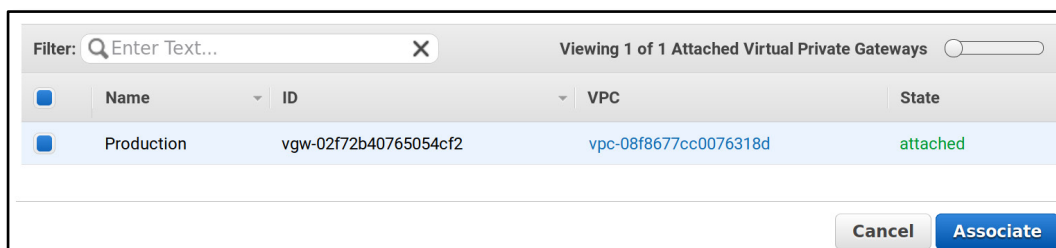
6.5 Associate the Virtual Private Gateway to the Direct Connect Gateway (optional)

If you have chosen to use a Direct Connect Gateway, associate the Virtual Private Gateway to the Direct Connect Gateway:

1. From the AWS console for your account, navigate to the Direct Connect service and click **Direct Connect Gateways**.
2. Highlight the Direct Connect Gateway and select **Associate Virtual Private Gateway**.



3. Select the Virtual Private Gateway and click **Associate**.



4. Click on **Virtual Gateway Associations** tab in the lower pane to confirm the VGW is associated.

Summary Virtual Interface Attachments Virtual Gateway Associations				
Viewing 5 of 5 Virtual Gateway Associations				
ID	Region	AWS Account	State	
vgw-039e04165e7810f75	us-west-2	695990169366	associated	
vgw-044edc8eba6fc49b1	us-west-2	695990169366	associated	
vgw-0f40d33f254e5fc0d	us-east-1	695990169366	associated	
vgw-0289a35d9e8c2d706	us-east-1	695990169366	associated	
vgw-001fc37ae85456a7d	us-west-1	695990169366	associated	

Important: Direct Connect Gateways allow multiple VPCs to be added, however the CIDR ranges of the VPCs cannot overlap as the gateway effectively creates a single network. If you require VPCs that have the same CIDR range, then connect Virtual Private Gateways directly to your cloud volume Virtual Interfaces.

7 Manage Cloud Volumes

To create and manage Cloud Volumes Service for AWS, follow the instructions on [NetApp Cloud Volumes Service for AWS Documentation](#). For example, you can create a cloud volume, mount the volume, and create a NetApp Snapshot™ copy of the volume.

Support

For support information, see [Activating support entitlement and accessing support](#), or send email to aws-bundles-support@netapp.com.

Where to Find Additional Information

To learn more about the information described in this document, refer to the following documents and/or websites:

- NetApp Cloud Volumes product page
<https://www.netapp.com/us/products/cloud-storage/cloud-volumes/index.aspx>

- NetApp Cloud Volumes Service for AWS documentation
https://docs.netapp.com/us-en/cloud_volumes/aws/
- NetApp Cloud Documentation
<https://docs.netapp.com/us-en/cloud/>
- NetApp Product Documentation page
<http://docs.netapp.com>

Version History

Version	Date	Document Version History
Version 1.0	December 2018	Initial release for self-subscription.

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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