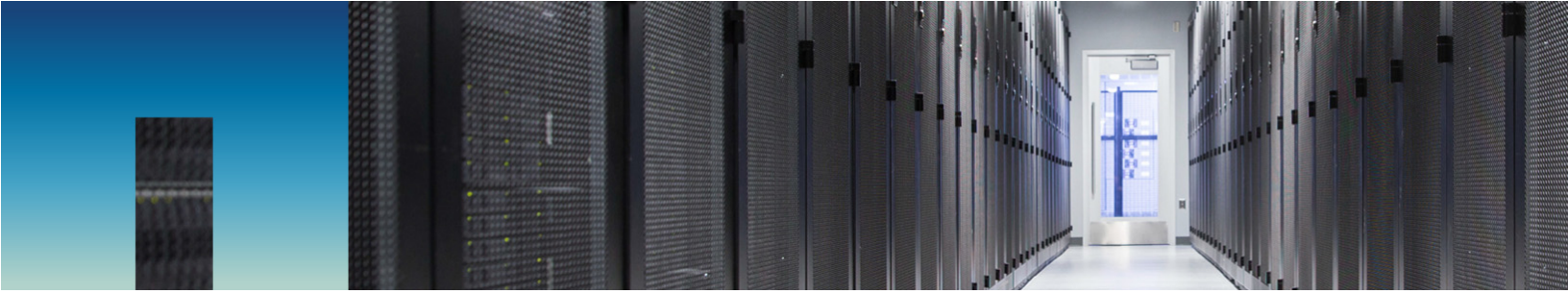


NetApp Cloud Volumes Service for AWS

AWS Account Setup

Cloud Volumes Team, NetApp, Inc.
December 2018

Abstract

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

NetApp®

CONTENTS

LIST OF FIGURES

1 Overview

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

2 Important Information

To 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 and to provide guidance.

3 Prerequisites

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)
  This EULA is presented as part of the AWS Marketplace subscription process.
- An active AWS account
  You should have your 12-digit AWS account ID available as you will need it 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 with an IPv4 Classless Inter-Domain Routing (CIDR) block when configuring the new VPC.
- You must have a second unused IPv4 CIDR block where the network must be a /28. The network must also fall within the ranges reserved for private networks (RFC 1918).

  Warning: Do not choose a network that overlaps your VPC CIDR allocations.
- Knowledge of your AWS network and connectivity settings and controls.
  If necessary, 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).

  Important: 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

The next two pages provide an overview of the setup steps you need to complete before you can create your first cloud volume. It is important that you understand the setup tasks. The actual steps begin in section 5.1 on page 7.

DO NOT click the **Subscribe** button from the AWS Marketplace until you have completed all the steps in section 5.

4.1 Virtual Private Gateways and Direct Connect Gateways

NetApp Cloud Volumes Service can be connected to either a Virtual Private Gateway or a Direct Connect Gateway. This provides options to best meet your needs. You need to decide which gateway you will use before completing the steps.

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:

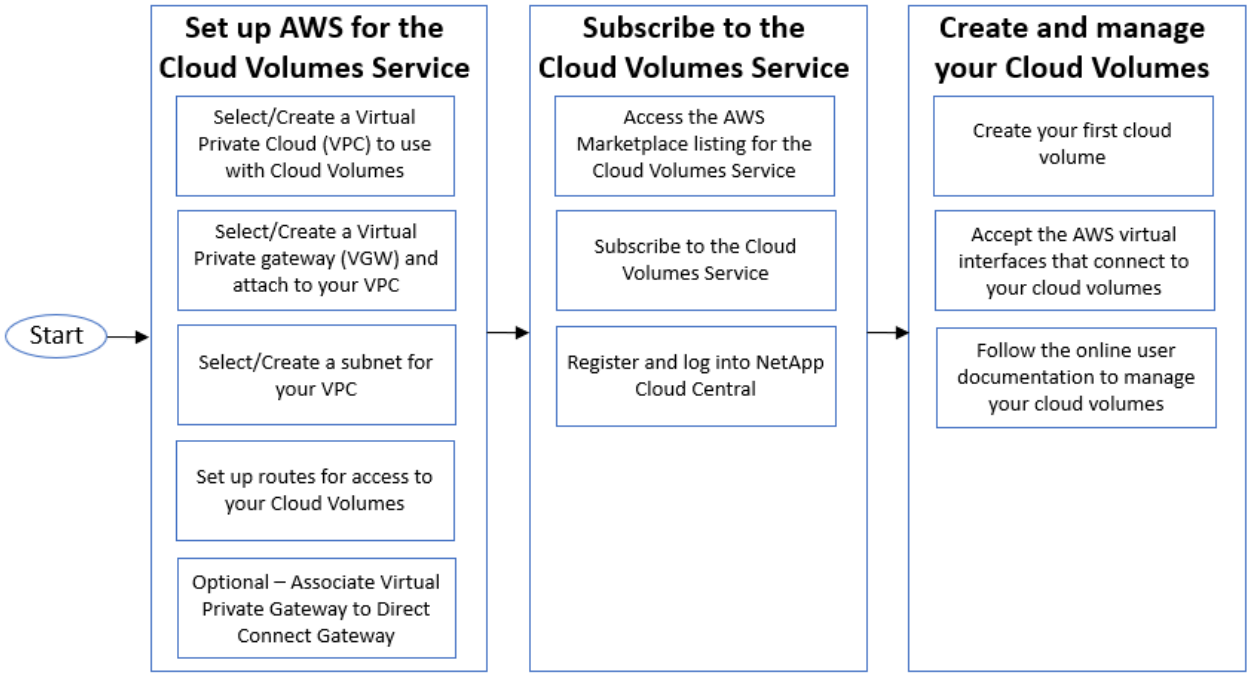
Direct Connect Gateways allow multiple VPCs to be added, however the CIDR ranges of the VPCs cannot overlap as the gateway effectively creates a single network. If you require VPCs that have the same CIDR range, then connect Virtual Private Gateways directly to your cloud volume Virtual Interfaces.

4.2 Cloud Volumes Service Setup 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 steps for creating your Cloud Volumes Service for AWS account, see section 5 and section 6.

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



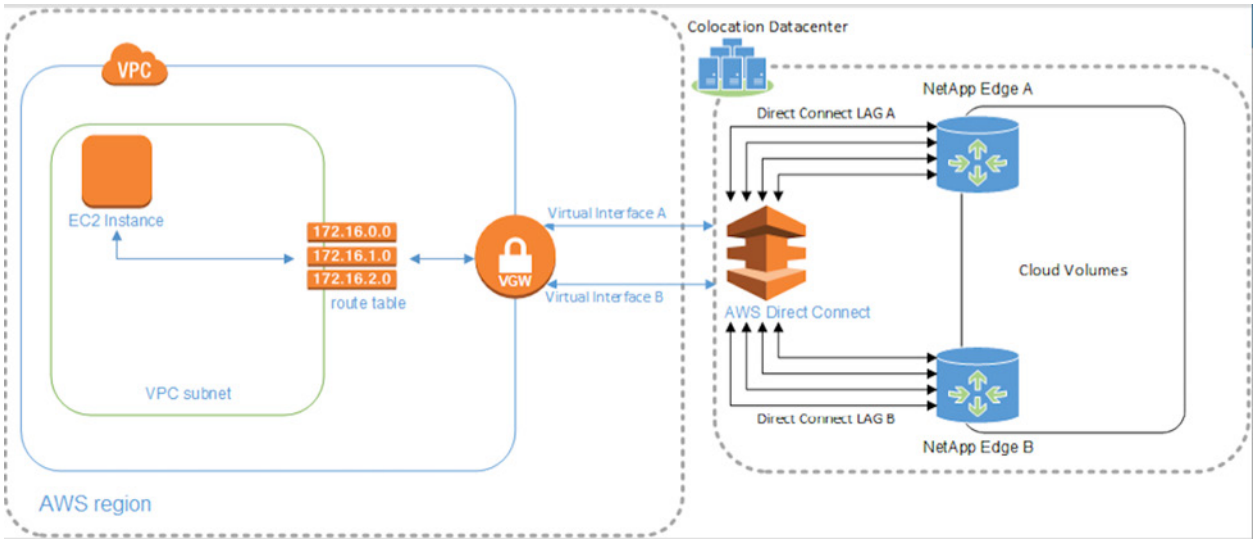
5 Set Up your AWS Account for the Cloud Volumes Service

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 (section 5.1)
- Select/create a Virtual Private Gateway (section 5.2)
- Select/create a subnet for the VPC (section 5.3)
- Set up routes to include the Cloud Volumes network (section 5.4)
- Optionally, select/create a Direct Connect Gateway (section 5.5)

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

Figure 2) Cloud Volumes Service Architecture for AWS.



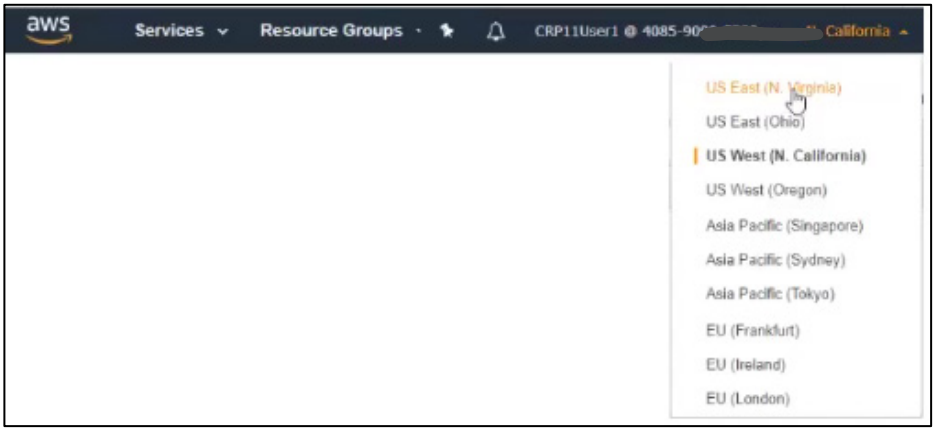
If you already have a VPC and Virtual Private Gateway (and optionally a Direct Connect Gateway) configured, and you plan to use these components to connect to CVS, jump to section 5.6

5.1 Create a VPC to use with Cloud Volumes

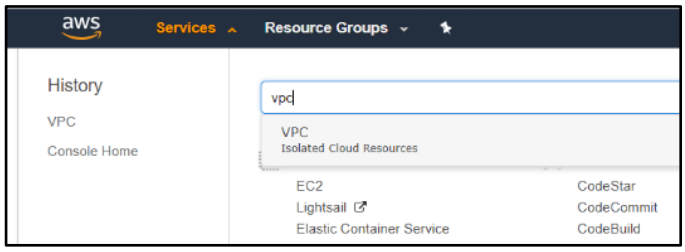
It is not mandatory that you create a new Amazon Virtual Private Cloud (VPC); however, you might need a new VPC to isolate instances associated with the Cloud Volumes project from work in other VPCs.

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

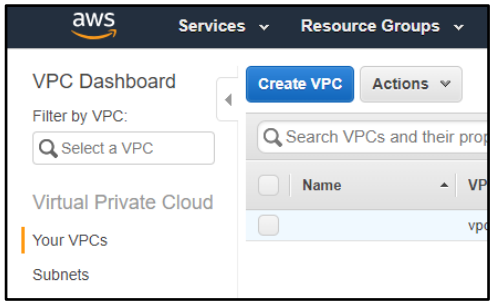
1. Log in to the AWS Management Console using your login credentials, and then select the AWS region in which you plan to deploy cloud volumes.



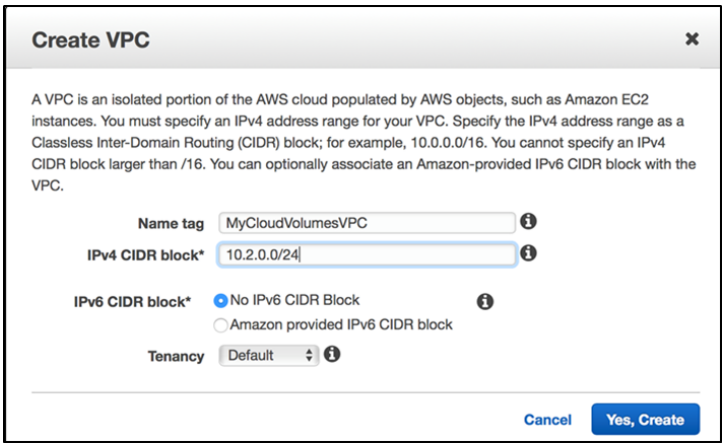
2. Click **Services** from the menu bar, type `vpc` in the search bar, and select **VPC (Isolated Cloud Resources)** to display the VPC dashboard.



The VPC dashboard is displayed.



3. Click **Your VPCs** on the navigation pane to the left. Then click **Create VPC** to display the Create VPC page.



4. 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. Check with your network administrator if you need assistance for selecting the CIDR range.

      Note: The VPC CIDR range and the storage CIDR range, which you will enter when creating your first cloud volume, cannot overlap.

   c. Do not change the default values in the IPv6 CIDR block or Tenancy fields.
   d. Click **Yes, Create**. A new VPC is created.
5. Click **Close** to close the window.

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:

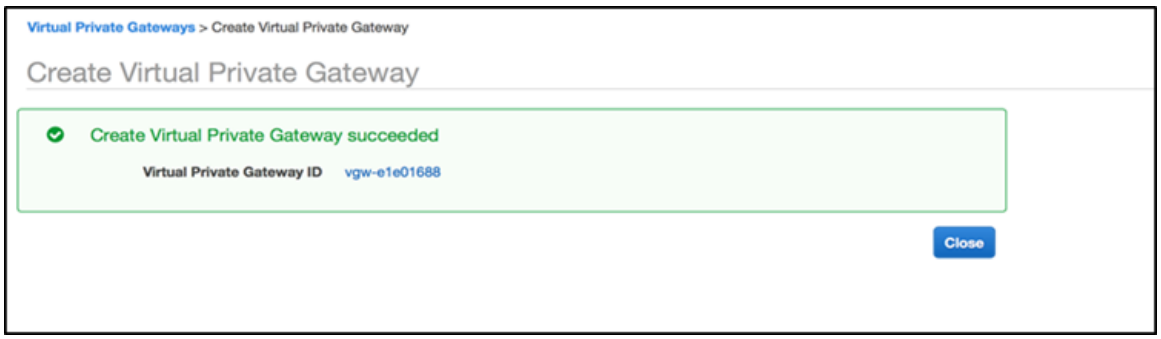
1. On the VPC page of the AWS console, select **Virtual Private Gateway**.
2. At the top of the page, select **Create Virtual Private Gateway** and the Create Virtual Private Gateway page is displayed.

3. On the Create Virtual Private Gateway page, complete these tasks:
   a. Provide an appropriate name tag for the VGW.

b. 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.

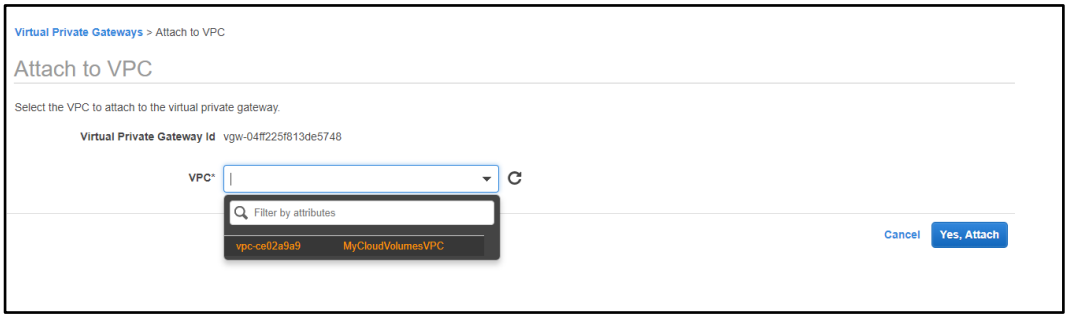
Note: Make a note of the ASN as you will need to enter this information when setting up your first cloud volume in an AWS region.

c. Click **Create Virtual Private Gateway** and the VGW is created.



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

5. Select the box next to the new Virtual Private Gateway and press **Actions** (above the table).
6. Click **Attach to VPC** and the Attach to VPC page is displayed.



7. Click in the VPC field and select the newly created VPC to attach to the VGW, and then click **Yes, Attach**.

You are returned to the Virtual Private Gateway page.

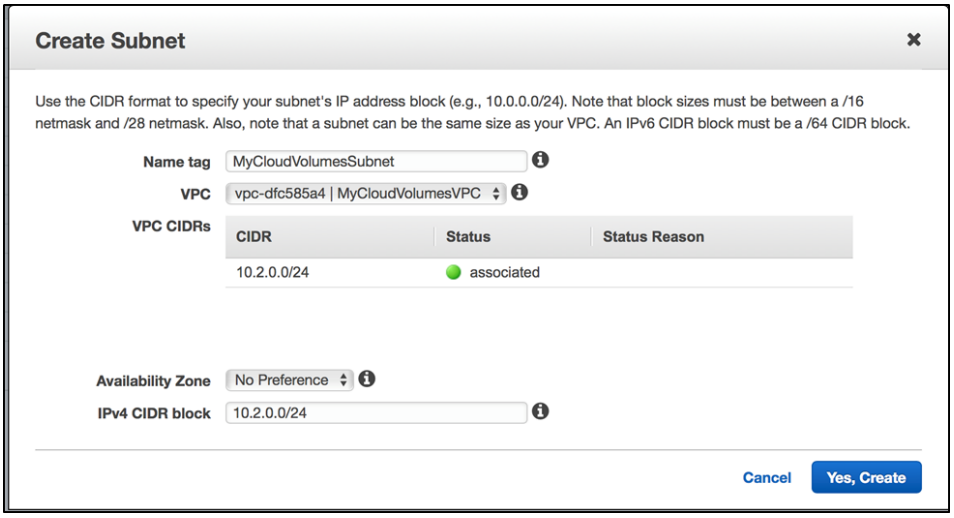
Note: You may have to wait several minutes for the VGW to transition from the `attaching` state to the `attached` state.

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.
2. Click **Create Subnet** and the Create Subnet page is displayed.



3. 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.

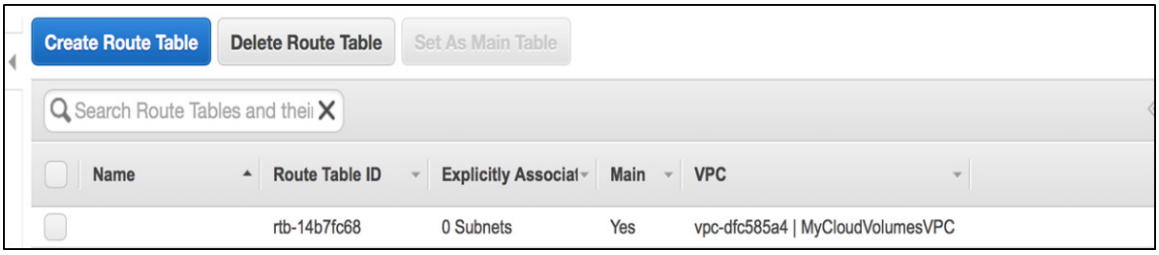
   Note: This process can take a several minutes.
4. Click **Close** to close the window.

5.4 Set Up Routes

To set up routes, complete the following steps:

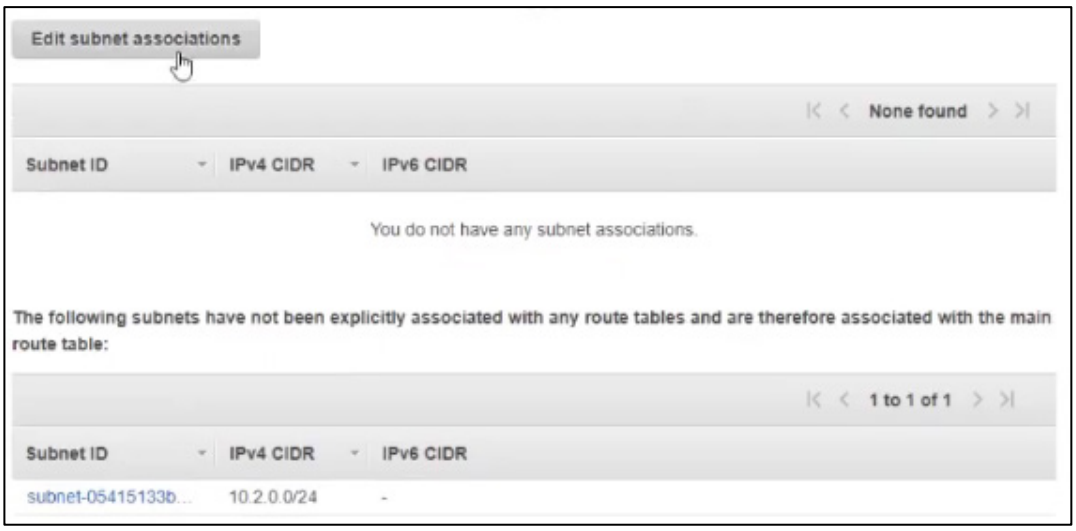
1. On the VPC dashboard, select **Route Tables** from the navigation pane on the left.

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

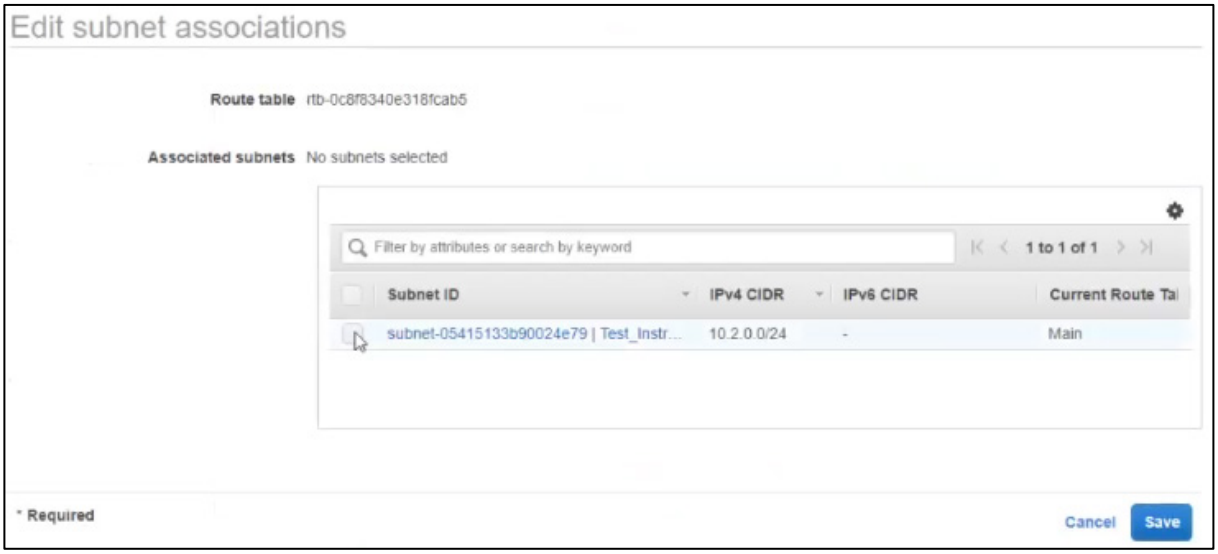


2. Select the route table that corresponds with the VPC you created, and the details are displayed at the bottom of the page.

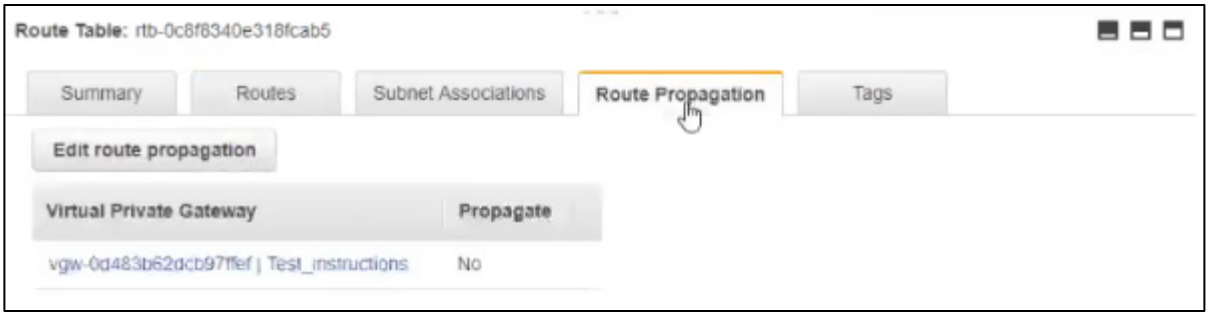
3. Select the **Subnet Associations** tab.



4. Click the **Edit subnet associations** button to associate the newly created subnet with this route table and the Edit subnet associations page is displayed.



5. In the Edit subnet associations page, select the subnet and click **Save**.
6. Select the **Route Propagation** tab to propagate the routes.



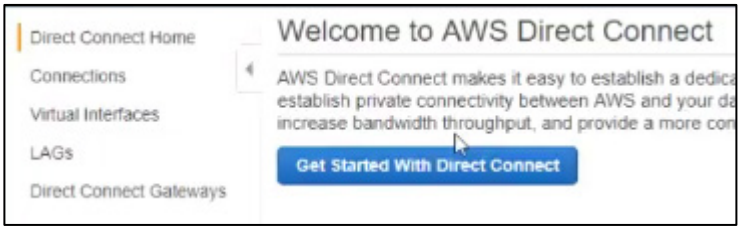
7. Click the **Edit route propagation** button to propagate the routes to the Virtual Private Gateway.

8. In the Edit route propagation page, check the Propagate box to the right of the VGW name, and then click **Save**.

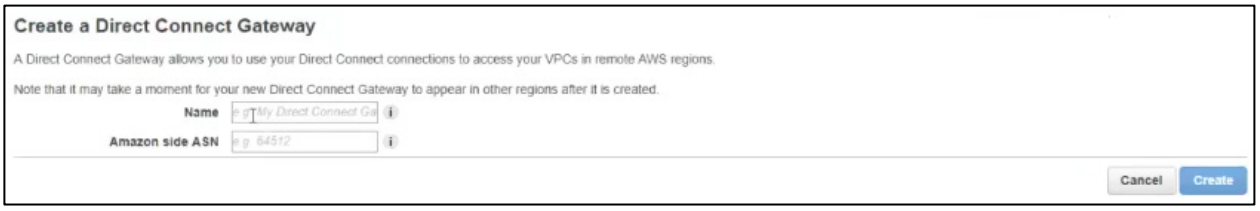
5.5 Create a Direct Connect Gateway and associate it with the Virtual Private Gateway (optional)

If you have decided to use a Direct Connect Gateway (DCG) in your configuration, create the Direct Connect Gateway and associate it with the Virtual Private Gateway:

1. From the AWS console for your account, navigate to **Services** and type **`direct connect`** in the search bar. The Direct Connect Home page appears.



2. From the left navigation, click **Direct Connect Gateways**, then click the **Create Direct Connect Gateway** button from the next page, and the Create a Direct Connect Gateway page is displayed.

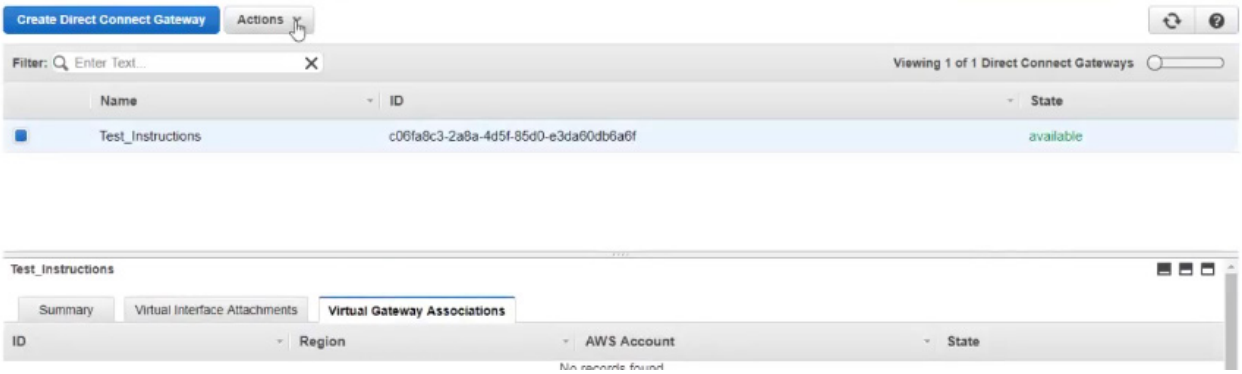


3. On the Create a Direct Connect Gateway page, complete these tasks:
   a. Provide an appropriate name for the DCG.

b. In the ASN field, you can enter the same ASN as you used when creating your VGW or you use a different ASN. Check with your networking team if you are not sure what number to use here.

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.

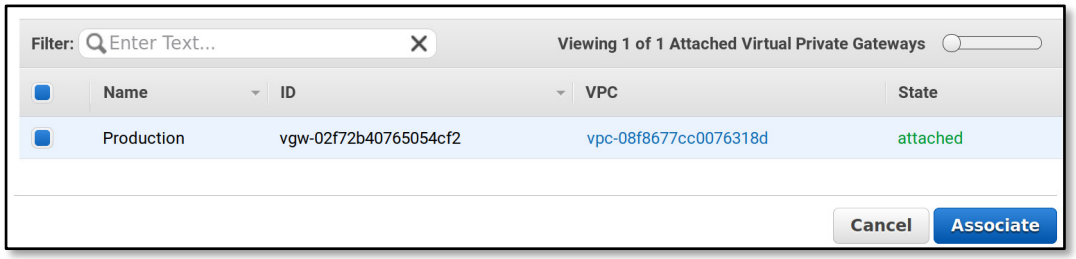
c. Click **Create** and the new DCG is displayed.



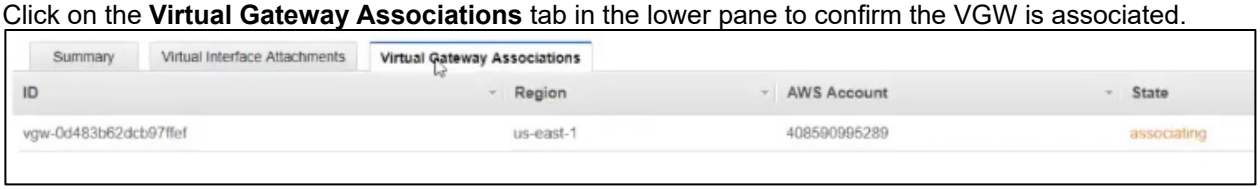
4. Select the Direct Connect Gateway and then click the **Actions** button.

5. Select **Associate Virtual Private Gateway** and the Associate Virtual Private Gateways page displays.

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



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



8. Wait until the gateway State transitions from the `associating` to `associated`.
   This can take several minutes.

5.6 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:

12-digit Amazon account identifier with no dashes	
AWS region that you just configured	
Classless Inter-Domain Routing (CIDR) Block An unused IPv4 CIDR block. The network must be a /28. The network must also fall within the ranges reserved for private networks (RFC 1918).	
Autonomous System Number (ASN) When using a Virtual Private Gateway only, use that ASN. When using a Direct Connect Gateway, use that ASN.	

6 Enable AWS Subscription and Cloud Volumes Service

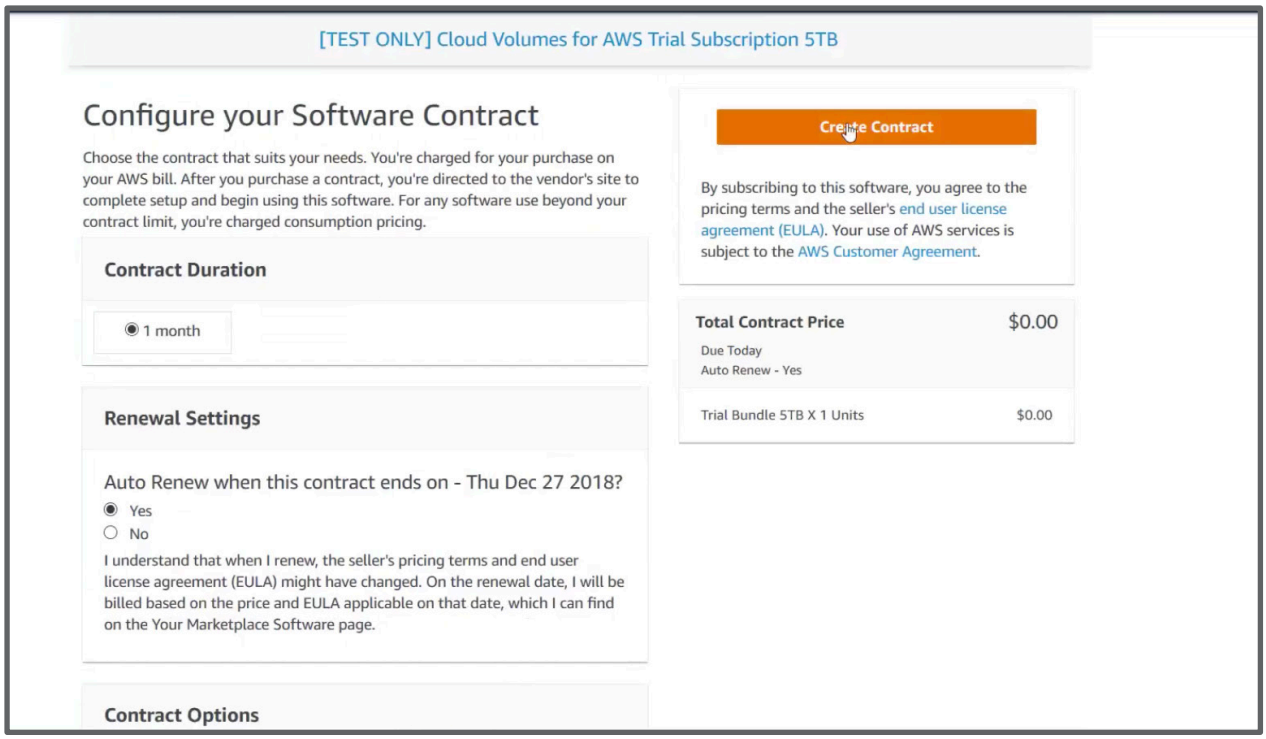
6.1 Access AWS Marketplace Listing for Cloud Volumes Service

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

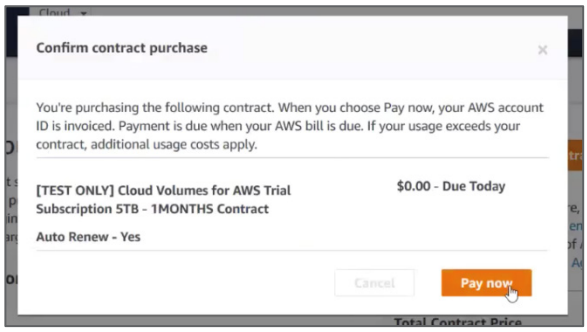
Complete the following steps:

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).

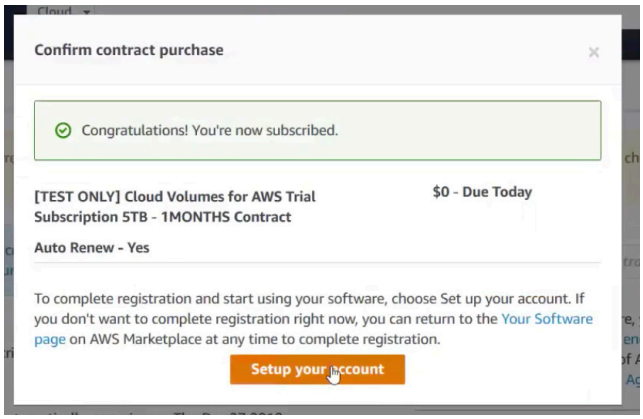


10. The Pay Now pop up window displays. If all is OK, click **Pay now**.



11. When the congratulations message is displayed, click **Setup your account**.

    Note: Ensure you turn off any ad blocker or pop up blocker on your browser before you select **Setup your account**.



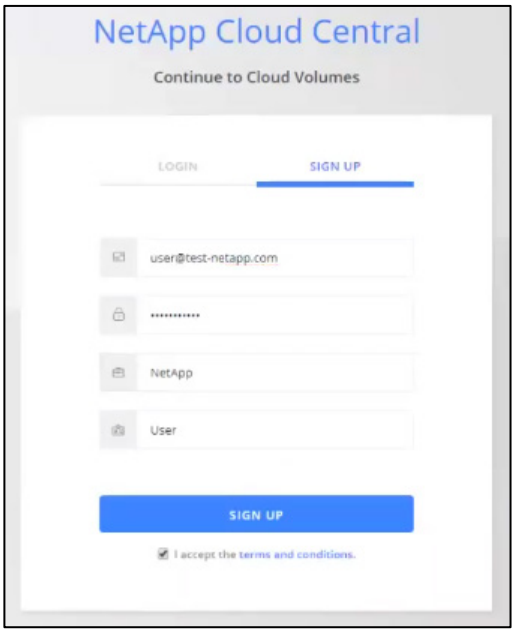
12. You will be redirected to the NetApp Cloud Central page. Complete the steps in the next section to register and log into NetApp Cloud Central.

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. Check the box to accept the terms and conditions and then click **Sign Up**.



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

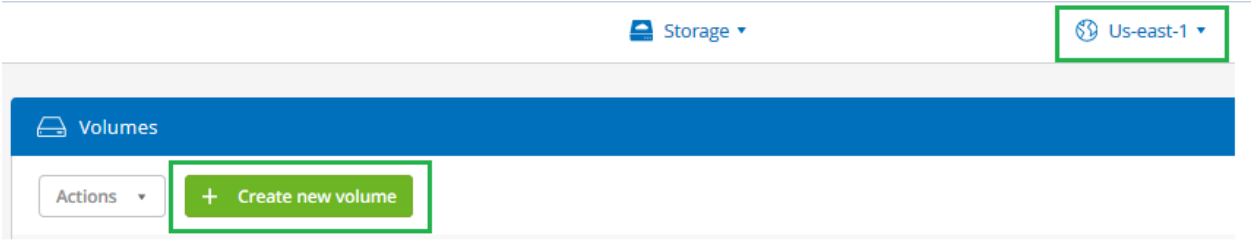
6.3 Create your first Cloud Volume

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.

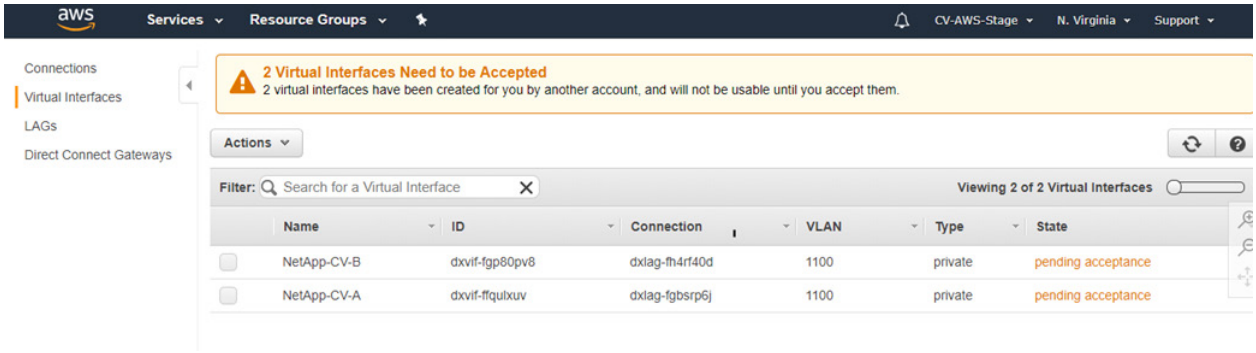
6.4 Accept the Direct Connect Virtual Interfaces

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.

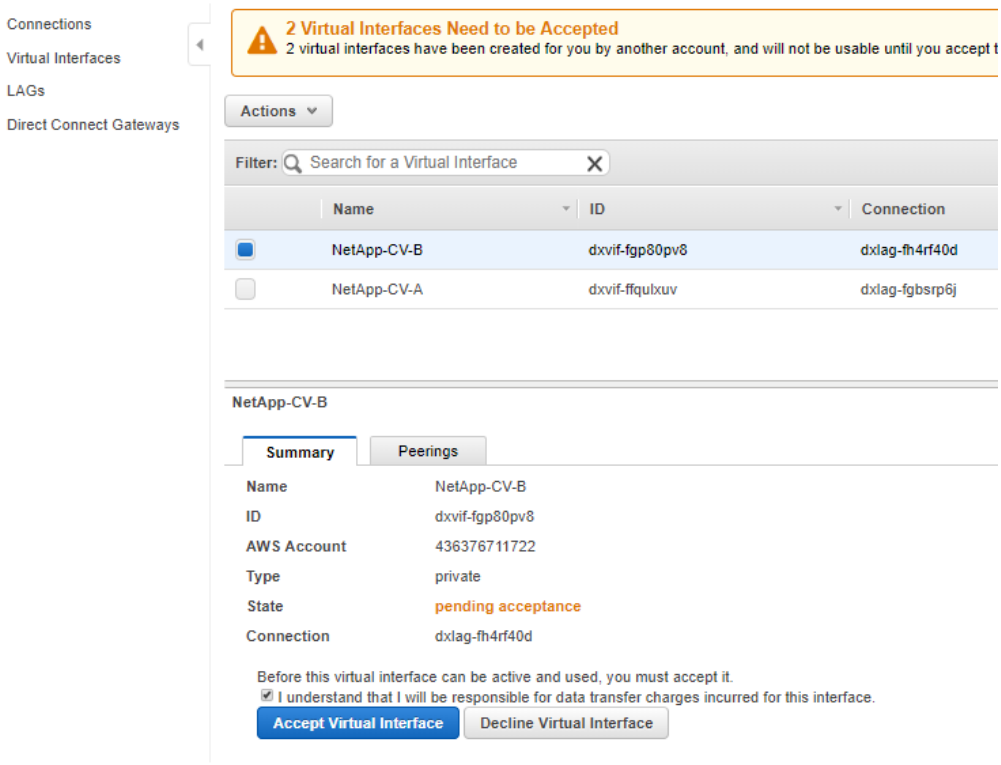
If the interfaces do not appear within 10 minutes there may be a configuration issue; in which case you should contact support.

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**.

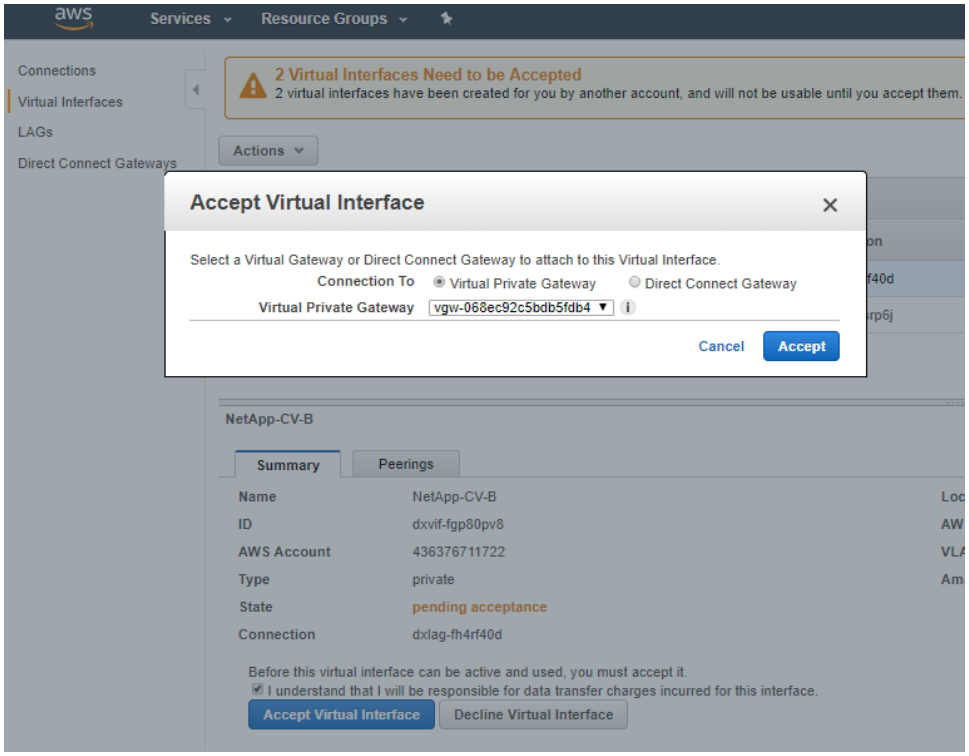


2. Select one of the virtual interfaces, check the box that you understand how you will be charged for this service, and click **Accept Virtual Interface**.



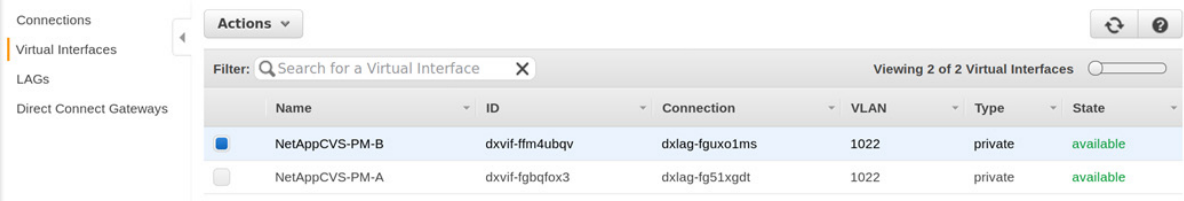
3. From the drop-down menu, select whether you will connect the interfaces to the **Virtual Private Gateway** or **Direct Connect Gateway** and click **Accept**.

   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`.



7. Return to the Cloud Volumes Service user interface to mount the volume and to perform other tasks.

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.