Use Cloud Volumes Service for Google Cloud

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Create and mount volumes

Cloud Manager enables you to create cloud volumes based on your Cloud Volumes Service for Google Cloud subscription. After you create a volume, get the relevant mount commands so that you can mount the volume to a client.

Create volumes

You can create NFS or SMB volumes in a new or existing Cloud Volumes Service for Google Cloud account. Cloud volumes currently support NFSv3 and NFSv4.1 for Linux and UNIX clients, and SMB 3.x for Windows clients.

Before you begin

- If you want to use SMB in GCP, you must have set up DNS and Active Directory.
- When planning to create an SMB volume, you must have a Windows Active Directory server available to which you can connect. You will enter this information when creating the volume. Also, make sure that the Admin user is able to create a machine account in the Organizational unit (OU) path specified.

Steps

1. Select the working environment and click **Add New Volume**.
2. In the Details & Location page, enter details about the volume:
   a. Enter a name for the volume.
   b. Specify a size within the range of 1 TiB (1024 GiB) to 100 TiB.

      Learn more about allocated capacity.

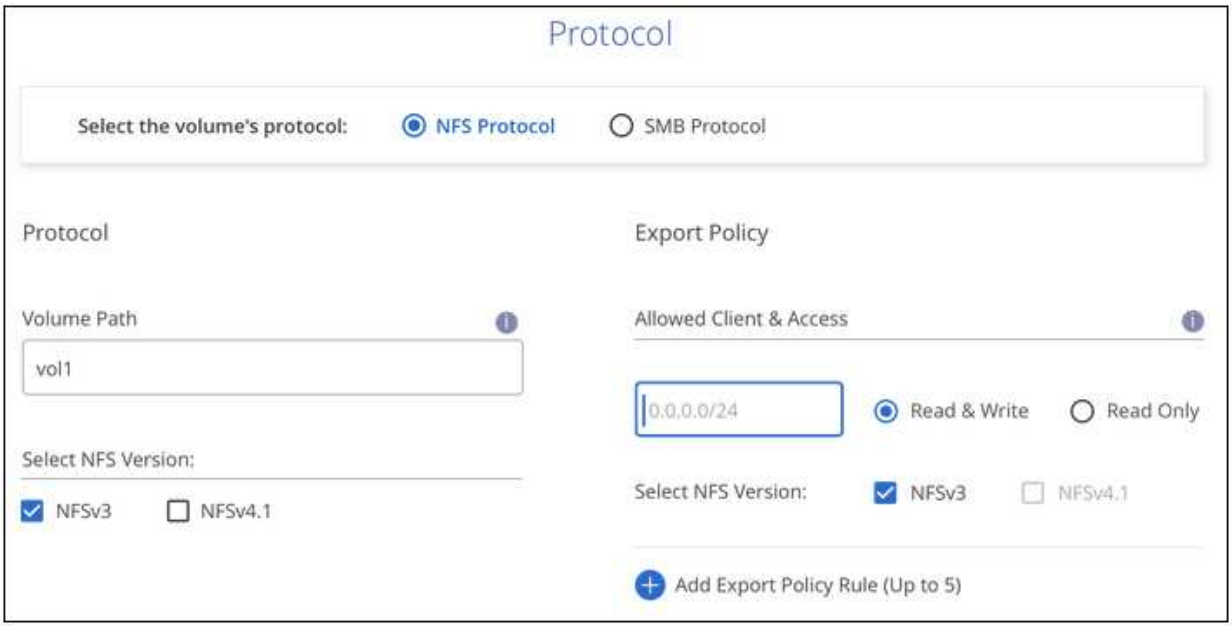
   c. Specify a service level: Standard, Premium, or Extreme.

      Learn more about service levels.

   d. Select the Google Cloud region.
   e. Select the VPC Network from which the volume will be accessible. Note that the VPC cannot be changed or edited after the volume is created.
   f. Click **Continue**.
3. In the Protocol page, select NFS or SMB and then define the details. Required entries for NFS and SMB are shown in separate sections below.
4. For NFS:
   a. In the Volume Path field, specify the name of the volume export you will see when you mount the volume.
   b. Select NFSv3, NFSv4.1, or both depending on your requirements.
   c. Optionally, you can create an export policy to identify the clients that can access the volume. Specify the:

- Allowed clients by using an IP address or Classless Inter-Domain Routing (CIDR).
- Access rights as Read & Write or Read Only.
- Access protocol (or protocols if the volume allows both NFSv3 and NFSv4.1 access) used for users.
- Click **+ Add Export Policy Rule** if you want to define additional export policy rules.

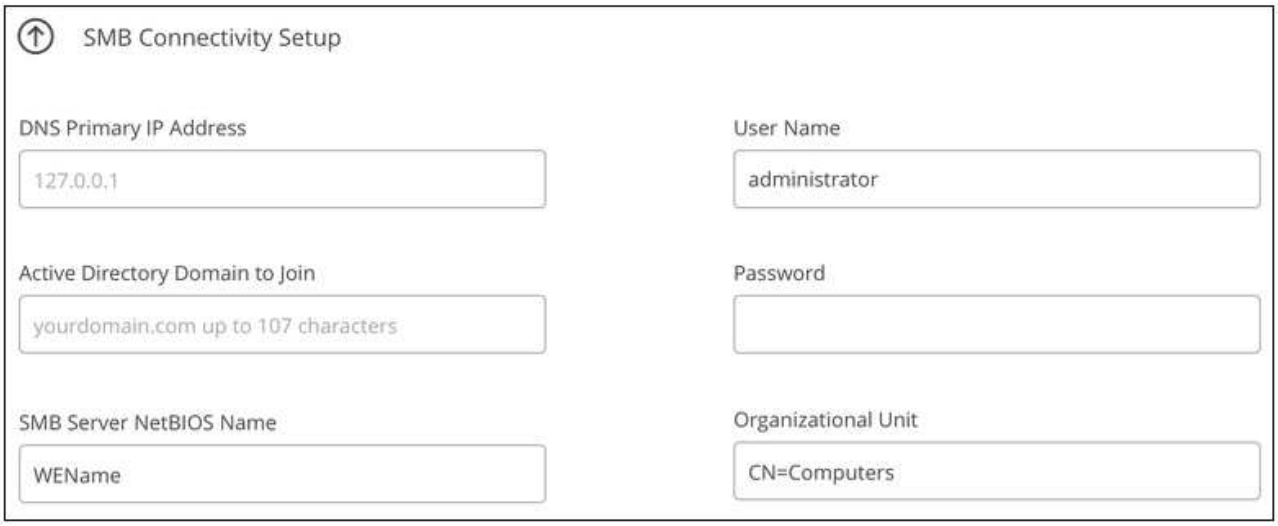
  The following image shows the Volume page filled out for the NFS protocol:



5. For SMB:
   a. In the Volume Path field, specify the name of the volume export you will see when you mount the volume and click **Continue**.
   b. If Active Directory has been set up, you see the configuration. If it is the first volume being set up and no Active Directory has been set up, you can enable SMB session encryption in the SMB Connectivity Setup page:

Field	Description
DNS Primary IP Address	The IP addresses of the DNS servers that provide name resolution for the SMB server. Use a comma to separate the IP addresses when referencing multiple servers, for example, 172.31.25.223, 172.31.2.74..
Active Directory Domain to join	The FQDN of the Active Directory (AD) domain that you want the SMB server to join.
SMB Server NetBIOS name	A NetBIOS name for the SMB server that will be created.
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.
Organizational Unit	The organizational unit within the AD domain to associate with the SMB server. The default is CN=Computers for connections to your own Windows Active Directory server.

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



6. Click **Continue**.
7. If you want to create the volume based on a snapshot of an existing volume, select the snapshot from the Snapshot Name drop-down list. Otherwise just click **Continue**.
8. In the Snapshot Policy page, you can enable Cloud Volumes Service to create snapshot copies of your volumes based on a schedule. You can do this now by moving the selector to the right, or you can edit the volume later to define the snapshot policy.

   See Creating a snapshot policy for more information about snapshot functionality.

9. Click **Add Volume**.

The new volume is added to the working environment.

Continue with Mounting the cloud volume.

Mount cloud volumes

Access mounting instructions from within Cloud Manager so you can mount the volume to a host.

Use the highlighted protocol/dialect supported by your client.

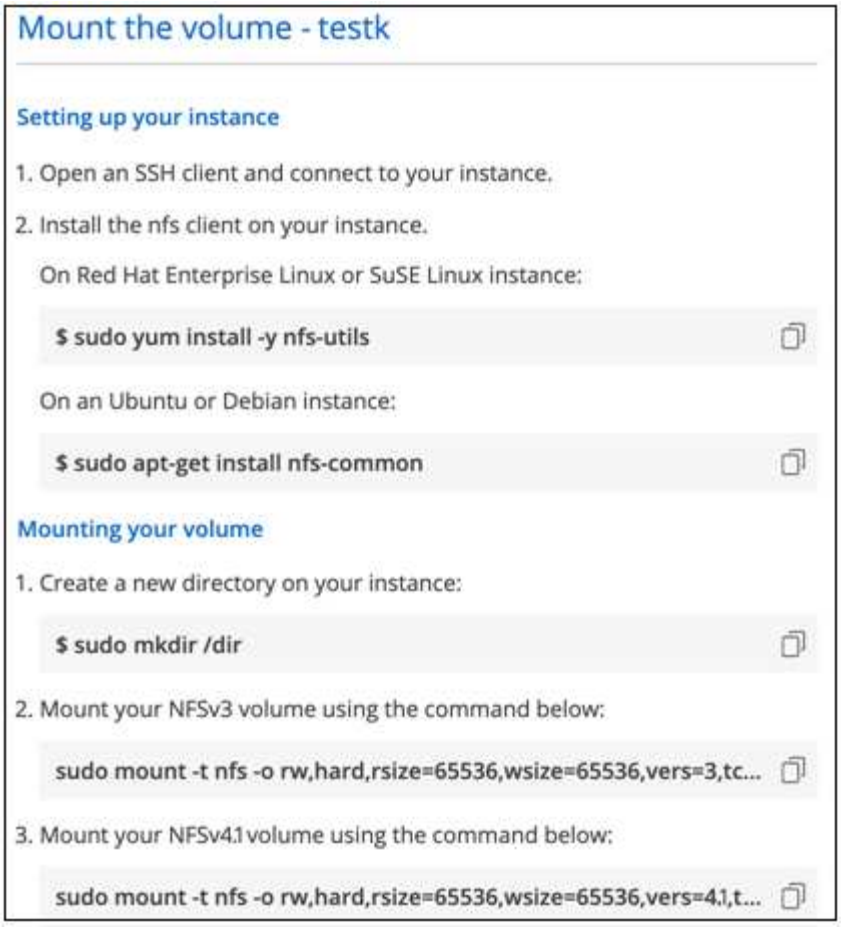
Steps

1. Open the working environment.
2. Hover over the volume and click **Mount the volume**.

   NFS and SMB volumes display mount instructions for that protocol.

3. Hover over the commands and copy them to your clipboard to make this process easier. Just add the destination directory/mount point at the end of the command.

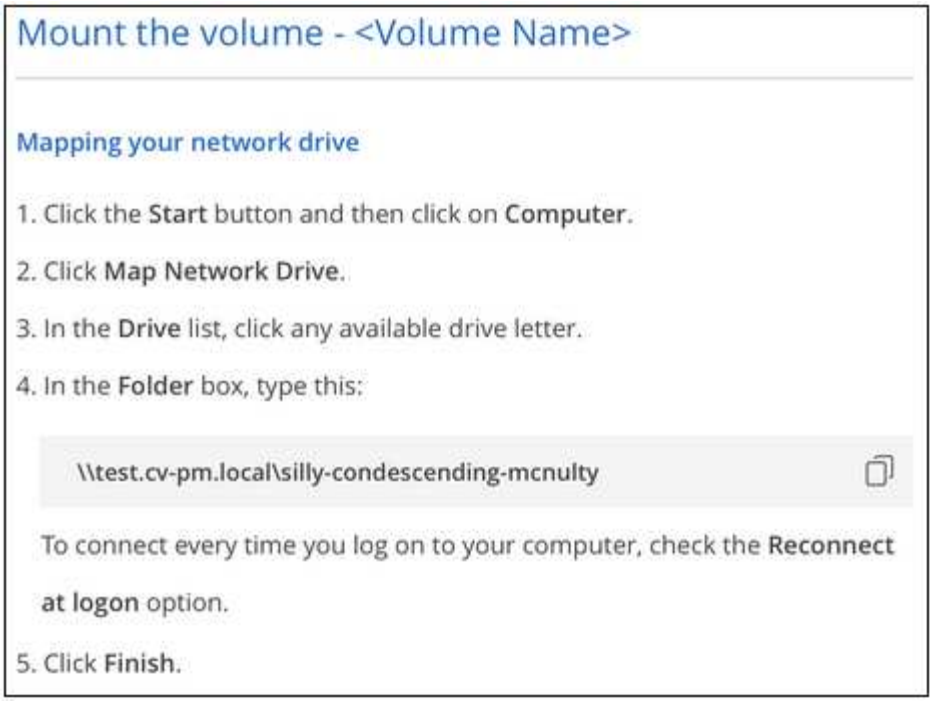
   NFS example:



The maximum I/O size defined by the `rsize` and `wsize` options is 1048576, however 65536 is the recommended default for most use cases.

Note that Linux clients will default to NFSv4.1 unless the version is specified with the `vers=<nfs_version>` option.

SMB example:



4. Map your network drive by following the mount instructions for your instance.

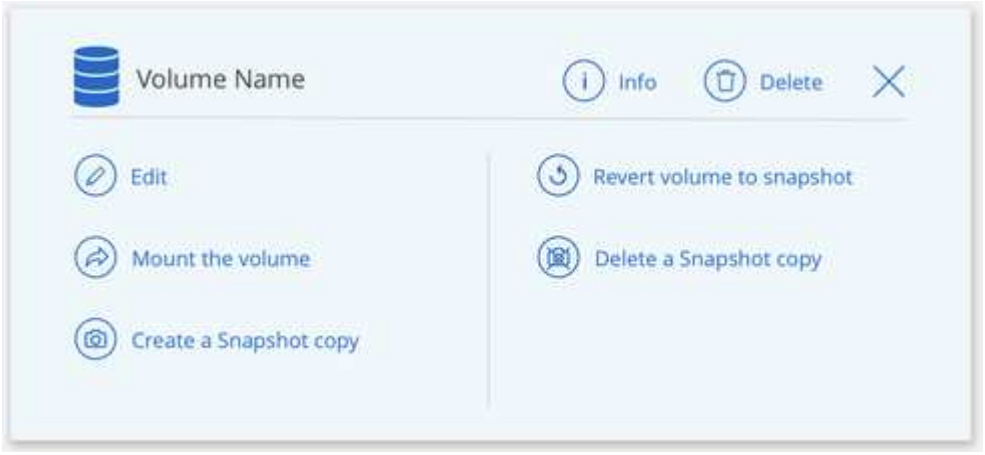
   After completing the steps in the mount instructions, you have successfully mounted the cloud volume to your GCP instance.

Manage existing volumes

You can manage existing volumes as your storage needs change. You can view, edit, restore, and delete volumes.

Steps

1. Open the working environment.
2. Hover over the volume.



3. Manage your volumes:

Task	Action
View information about a volume	Click **Info**.
Edit a volume (including snapshot policy)	a. Click **Edit**. b. Modify the volume's properties and then click **Update**.
Get the NFS or SMB mount command	a. Click **Mount the volume**. b. Click **Copy** to copy the command(s).
Create a Snapshot copy on demand	a. Click **Create a Snapshot copy**. b. Change the name, if needed, and then click **Create**.
Replace the volume with the contents of a Snapshot copy	a. Click **Revert volume to snapshot**. b. Select a Snapshot copy and click **Restore**.
Delete a Snapshot copy	a. Click **Delete a Snapshot copy**. b. Select the snapshot and click **Delete**. c. Click **Delete** again when prompted to confirm.
Delete a volume	a. Unmount the volume from all clients: ◦ On Linux clients, use the `umount` command. ◦ On Windows clients, click **Disconnect network drive**. b. Select a volume, and then click **Delete**. c. Click **Delete** again to confirm.

Manage cloud volumes snapshots

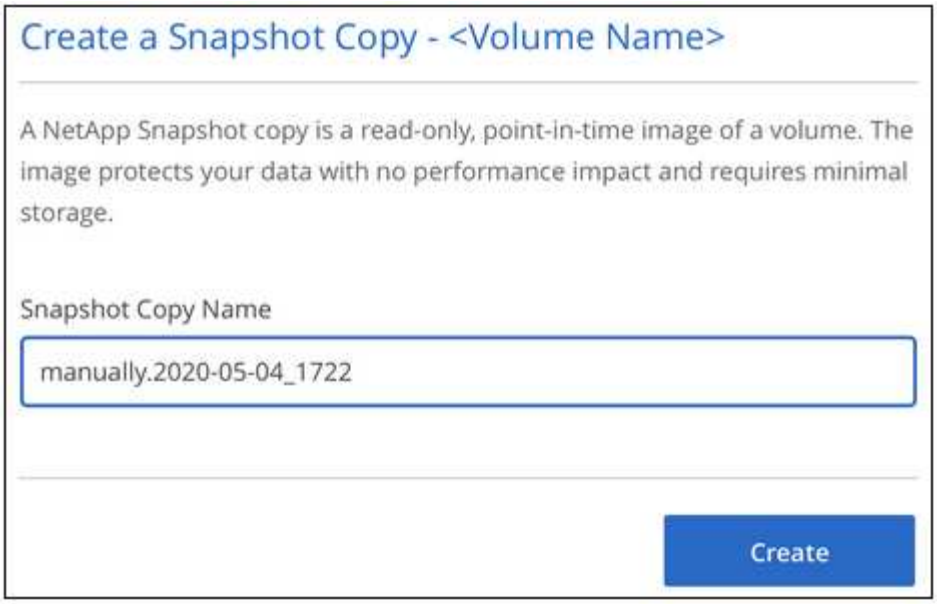
You can create a snapshot policy for each volume so that you can recover or restore the entire contents of a volume from an earlier time. You can also create an on-demand snapshot of a cloud volume when needed.

Create an on-demand snapshot

You can create an on-demand snapshot of a cloud volume if you want to create a snapshot with the current volume state.

Steps

1. Open the working environment.
2. Hover over the volume and click **Create a snapshot copy**.
3. Enter a name for the snapshot, or use the automatically generated name, and click **Create**.



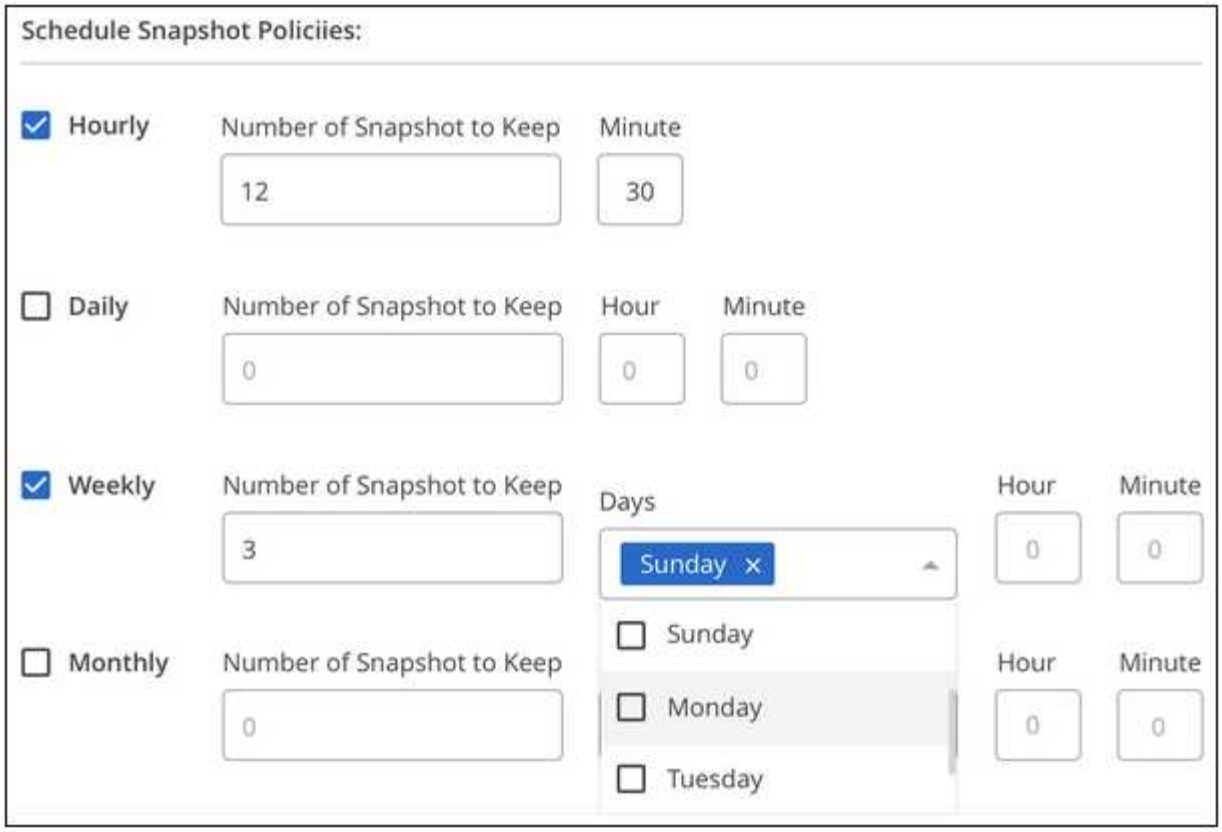
The snapshot is created.

Create or modify a snapshot policy

You can create or modify a snapshot policy as necessary for a cloud volume. You define the snapshot policy from the *Snapshot Policy* tab either when creating a volume or when editing a volume.

Steps

1. Open the working environment.
2. Hover over the volume and click **Edit**.
3. From the *Snapshot Policy* tab, move the enable snapshots slider to the right.
4. Define the schedule for snapshots:
    a. Select the frequency: **Hourly**, **Daily**, **Weekly**, or **Monthly**
    b. Select the number of snapshots you want to keep.
    c. Select the day, hour, and minute when the snapshot should be taken.



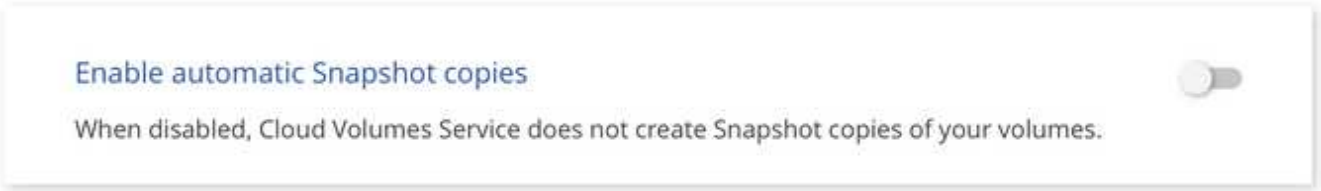
5. Click **Add volume** or **Update volume** to save your policy settings.

Disable a snapshot policy

You can disable a snapshot policy to stop snapshots from being created for a short period of time while retaining your snapshot policy settings.

Steps

1. Open the working environment.
2. Hover over the volume and click **Edit**.
3. From the *Snapshot Policy* tab, move the enable snapshots slider to the left.



4. Click **Update volume**.

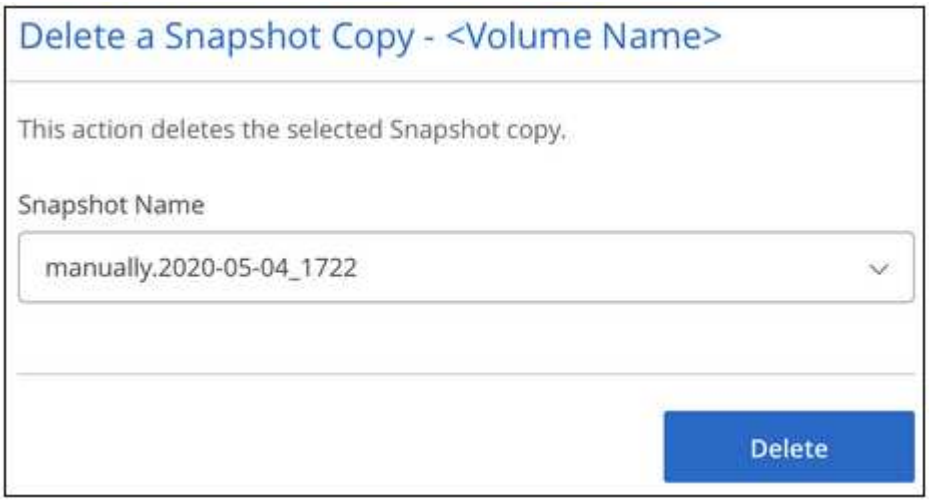
When you want to re-enable the snapshot policy, move the enable snapshots slider to the right and click **Update volume**.

Delete a snapshot

You can delete a snapshot if it is no longer needed.

Steps

1. Open the working environment.
2. Hover over the volume and click **Delete a Snapshot copy**.
3. Select the snapshot from the drop-down list and click **Delete**.



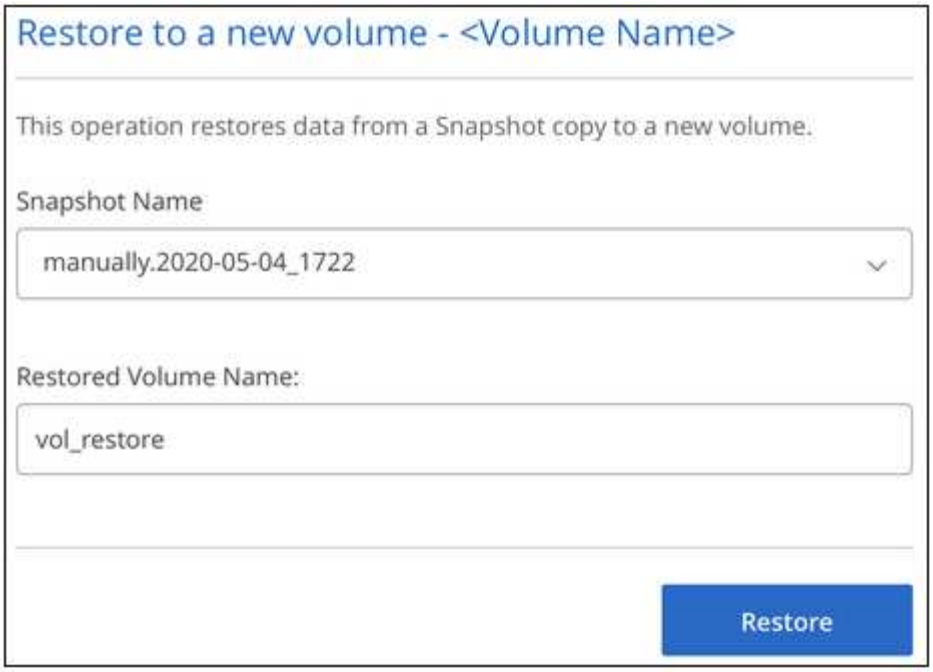
4. In the confirmation dialog box, click **Delete**.

Restore a snapshot to a new volume

You can restore a snapshot to a new volume as necessary.

Steps

1. Open the working environment.
2. Hover over the volume and click **Restore to a new volume**.
3. Select the snapshot that you want to use to create the new volume from the drop-down list.
4. Enter a name for the new volume and click **Restore**.



The volume is created in the working environment.

5. If you need to change any of the volume attributes, such as volume path or service level:
   a. Hover over the volume and click **Edit**.
   b. Make your changes and click **Update volume**.

After you finish

Continue with Mounting the cloud volume.

Manage your Active Directory configuration

If you changed your DNS servers or Active Directory domain, you need to modify the SMB server in Cloud Volumes Service so that it can continue to serve storage to clients.

Steps

1. Open the working environment.
2. Click the button at the top of the page and click **Manage Active Directory**.

   If no Active Directory is configured, you can add one now. If one is configured, you can modify or delete the settings using the button.
3. Specify the settings for the SMB server:

Field	Description
DNS Primary IP Address	The IP addresses of the DNS servers that provide name resolution for the SMB server. Use a comma to separate the IP addresses when referencing multiple servers, for example, 172.31.25.223, 172.31.2.74.

Field	Description
Active Directory Domain to join	The FQDN of the Active Directory (AD) domain that you want the SMB server to join.
SMB Server NetBIOS name	A NetBIOS name for the SMB server that will be created.
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.
Organizational Unit	The organizational unit within the AD domain to associate with the SMB server. The default is CN=Computers for connections to your own Windows Active Directory server.

4. Click **Save** to save your settings.

Remove Cloud Volumes Service from Cloud Manager

You can remove a Cloud Volumes Service for Google Cloud subscription and all existing volumes from Cloud Manager. The volumes are not deleted, they are just removed from the Cloud Manager interface.

Deleting your Cloud Volumes Service for Google Cloud subscription from Cloud Manager isn't supported. You can do this only through the Google Cloud Console.

Steps

1. Open the working environment.
2. Click the button at the top of the page and click **Remove Cloud Volumes Service**.
3. In the confirmation dialog box, click **Remove**.

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