



# **Storage VM administration**

## **Cloud Volumes ONTAP**

NetApp  
August 01, 2022

This PDF was generated from <https://docs.netapp.com/us-en/cloud-manager-cloud-volumes-ontap/gcp/task-managing-svms.html> on August 01, 2022. Always check docs.netapp.com for the latest.

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# Storage VM administration

## Manage storage VMs in Cloud Manager

A storage VM is a virtual machine running within ONTAP that provides storage and data services to your clients. You might know this as an *SVM* or a *vserver*. Cloud Volumes ONTAP is configured with one storage VM by default, but some configurations support additional storage VMs.

### Supported number of storage VMs

Multiple storage VMs are supported with certain configurations. Go to the [Cloud Volumes ONTAP Release Notes](#) to verify the supported number of storage VMs for your version of Cloud Volumes ONTAP.

### Work with multiple storage VMs

Cloud Manager supports any additional storage VMs that you create from System Manager or the CLI.

For example, the following image shows how you can choose a storage VM when you create a volume.



The screenshot shows a web form titled "Details & Protection". It contains three main sections: "Storage VM Name" with a dropdown menu showing "svm\_name1"; "Volume Name" and "Size (GiB)" with text input fields, the latter showing "Volume size"; and "Snapshot Policy" with a dropdown menu showing "default". There are information icons (i) next to the "Storage VM Name" and "Size (GiB)" labels. Below the "Snapshot Policy" dropdown, there is a link labeled "Default Policy" with an information icon.

And the following image shows how you can choose a storage VM when replicating a volume to another system.

Destination Volume Name

volume\_copy

Destination Storage VM Name

svm\_name1

Destination Aggregate

Automatically select the best aggregate

## Modify the name of the default storage VM

Cloud Manager automatically names the single storage VM that it creates for Cloud Volumes ONTAP. You can modify the name of the storage VM if you have strict naming standards. For example, you might want the name to match how you name the storage VMs for your ONTAP clusters.

If you created any additional storage VMs for Cloud Volumes ONTAP, then you can't rename the storage VMs from Cloud Manager. You'll need to do so directly from Cloud Volumes ONTAP by using System Manager or the CLI.

### Steps

1. From the working environment, click the menu icon, and then click **Information**.
2. Click the edit icon to the right of the storage VM name.



## Working Environment Information

### ONTAP

Serial Number:

[REDACTED]

System ID:

system-id-capacitytest

Cluster Name:

capacitytest

ONTAP Version:

9.7RC1

Date Created:

Jul 6, 2020 07:42:02 am

Storage VM Name:

svm\_capacitytest



3. In the Modify SVM Name dialog box, change the name, and then click **Save**.

## Manage storage VMs for disaster recovery

Cloud Manager doesn't provide any setup or orchestration support for storage VM disaster recovery. You must use System Manager or the CLI.

- [SVM Disaster Recovery Preparation Express Guide](#)
- [SVM Disaster Recovery Express Guide](#)

## Create data-serving storage VMs for Cloud Volumes ONTAP in Google Cloud

A storage VM is a virtual machine running within ONTAP that provides storage and data services to your clients. You might know this as an *SVM* or a *vserver*. Cloud Volumes ONTAP is configured with one storage VM by default, but some configurations support additional storage VMs.

### Supported number of storage VMs

Multiple storage VMs are supported with specific Cloud Volumes ONTAP configurations in Google Cloud starting with the 9.11.1 release. Go to the [Cloud Volumes ONTAP Release Notes](#) to verify the supported number of storage VMs for your version of Cloud Volumes ONTAP.

All other Cloud Volumes ONTAP configurations support one data-serving storage VM and one destination storage VM used for disaster recovery. You can activate the destination storage VM for data access if there's an outage on the source storage VM.

## Create a storage VM

If supported by your license, you can create multiple storage VMs on a single node system or on an HA pair. Note that you must use the Cloud Manager API to create a storage VM on an HA pair, while you can use the CLI or System Manager to create a storage VM on a single node system.

### Single node system

These steps create a new storage VM on a single node system using the CLI. One private IP address is required to create a data LIF and another optional private IP address is needed if you want to create a management LIF.

#### Steps

1. In Google Cloud, go to the Cloud Volumes ONTAP instance and add an IP address to nic0 for each LIF.

**Edit network interface**

Network \*  
default

Subnetwork \*  
default IPv4 (10.138.0.0/20)

**i** To use IPv6, you need an IPv6 subnet range. [LEARN MORE](#)

**IP stack type**

☒ IPv4 (single-stack)  
☐ IPv4 and IPv6 (dual-stack)

Primary internal IP  
gcpcvo-vm-ip-nic0-nodemgmt (10.138.0.46)

**Alias IP ranges**

Subnet range 1 Primary (10.138.0.0/20)	Alias IP range 1 * 10.138.0.25/32
Subnet range 2 Primary (10.138.0.0/20)	Alias IP range 2 * 10.138.0.23/32
Subnet range 3 Primary (10.138.0.0/20)	Alias IP range 3 * 10.138.0.21/32
Subnet range 4 Primary (10.138.0.0/20)	Alias IP range 4 * 10.138.0.31/32

**+ ADD IP RANGE**

External IPv4 address  
None

You need one IP address for a data LIF and another optional IP address if you want to create a management LIF on the storage VM.

2. Create the storage VM and a route to the storage VM.

```
vserver create -vserver <svm-name> -subtype default -rootvolume <root-volume-name> -rootvolume-security-style unix
```

```
network route create -destination 0.0.0.0/0 -vserver <svm-name> -gateway <ip-of-gateway-server>
```

3. Create a data LIF by specifying the IP address that you added in Google Cloud.

#### **iSCSI**

```
network interface create -vserver <svm-name> -home-port e0a -address <iscsi-ip-address> -lif <lif-name> -home-node <name-of-node1> -data -protocol iscsi
```

#### **NFS or SMB**

```
network interface create -vserver <svm-name> -lif <lif-name> -role data -data-protocol cifs,nfs -address <nfs-ip-address> -netmask -length <length> -home-node <name-of-node1> -status-admin up -failover-policy disabled -firewall-policy data -home-port e0a -auto -revert true -failover-group Default
```

4. Optional: Create a storage VM management LIF by specifying the IP address that you added in Google Cloud.

```
network interface create -vserver <svm-name> -lif <lif-name> -role data -data-protocol none -address <svm-mgmt-ip-address> -netmask-length <length> -home-node <name-of-node1> -status-admin up -failover-policy system-defined -firewall-policy mgmt -home-port e0a -auto-revert false -failover-group Default
```

5. Assign one or more aggregates to the storage VM.

```
vserver add-aggregates -vserver <svm-name> -aggregates <aggr1,aggr2>
```

This step is required because the new storage VM needs access to at least one aggregate before you can create volumes on the storage VM.

## HA pair

You must use the Cloud Manager API to create a storage VM on a Cloud Volumes ONTAP system in Google Cloud. Using the API (and not System Manager or the CLI) is required because Cloud Manager configures the storage VM with the required LIF services, as well as an iSCSI LIF that's required for outbound SMB/CIFS communication.

Note that Cloud Manager allocates the required IP addresses in Google Cloud and creates the storage VM with a data LIF for SMB/NFS access and an iSCSI LIF for outbound SMB communication.

### Required Google Cloud permissions

Starting with the 3.9.19 release, the Connector requires the following permissions to create and manage storage VMs for Cloud Volumes ONTAP HA pairs:

- `compute.instanceGroups.get`
- `compute.addresses.get`

These permissions are included in [the policies provided by NetApp](#).

### Steps

1. Use the following API call to create a storage VM:

```
POST /occm/api/gcp/ha/working-environments/{WE_ID}/svm/
```

The request body should include the following:

```
{ "svmName": "myNewSvm1" }
```

## Manage storage VMs on HA pairs

The Cloud Manager API also supports renaming and deleting storage VMs on HA pairs.

### Rename a storage VM

If needed, you can change the name of a storage VM at any time.

### Steps

1. Use the following API call to rename a storage VM:

```
PUT /occm/api/gcp/ha/working-environments/{WE_ID}/svm
```

The request body should include the following:

```
{
  "svmNewName": "newSvmName",
  "svmName": "oldSvmName"
}
```



## Delete a storage VM

If you no longer need a storage VM, you can delete it from Cloud Volumes ONTAP.

### Steps

1. Use the following API call to delete a storage VM:

```
DELETE /occm/api/gcp/ha/working-environments/{WE_ID}/svm/{SVM_NAME}
```

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