# Migrate volumes

08%2015:24%0ASHA:%20ca6e2fb1fb74150680bff605a241947fc88ddd51%0ASource:%20https://git.openstack.org/cgit/openstack/cinder/tree/doc/source/admin/blockstorage-volume-migration.rst%0AURL: https://docs.openstack.org/cinder/queens/admin/blockstorage-volume-migration.html&field.tags=doc)

UPDATED: 2018-03-08 15:24

OpenStack has the ability to migrate volumes between back ends which support its volume-type. Migrating a volume transparently moves its data from the current back end for the volume to a new one. This is an administrator function, and can be used for functions including storage evacuation (for maintenance or decommissioning), or manual optimizations (for example, performance, reliability, or cost).

These workflows are possible for a migration:

- 1. If the storage can migrate the volume on its own, it is given the opportunity to do so. This allows the Block Storage driver to enable optimizations that the storage might be able to perform. If the back end is not able to perform the migration, the Block Storage uses one of two generic flows, as follows.
- 2. If the volume is not attached, the Block Storage service creates a volume and copies the data from the original to the new volume.

#### Note

While most back ends support this function, not all do. See the <u>driver documentation (https://docs.openstack.org/cinder/latest/configuration/block-storage/volume-drivers.html)</u> in the OpenStack Configuration Reference for more details.

3. If the volume is attached to a VM instance, the Block Storage creates a volume, and calls Compute to copy the data from the original to the new volume. Currently this is supported only by the Compute libvirt driver.

As an example, this scenario shows two LVM back ends and migrates an attached volume from one to the other. This scenario uses the third migration flow.

First, list the available back ends:

## Note

Only Block Storage V2 API supports cinder get-pools.

You can also get available back ends like following:

```
# cinder-manage host list
server1@lvmstorage-1 zone1
server2@lvmstorage-2 zone1
```

But it needs to add pool name in the end. For example, **server1@lvmstorage-1#zone1**.

Next, as the admin user, you can see the current status of the volume (replace the example ID with your own):

\$ openstack volume show 6088f80a-f116-4331-ad48-9afb0dfb196c Value Field attachments [] zone1 availability\_zone bootable false consistencygroup\_id None created\_at 2013-09-01T14:53:22.000000 description test encrypted False 6088f80a-f116-4331-ad48-9afb0dfb196c id | migration status None multiattach False test os-vol-host-attr:host server1@lvmstorage-1#lvmstorage-1 | os-vol-mig-status-attr:migstat | None os-vol-mig-status-attr:name id | None os-vol-tenant-attr:tenant\_id d88310717a8e4ebcae84ed075f82c51e properties readonly='False' replication\_status disabled size 1 snapshot id I None source\_volid None status in-use None type updated at 2016-07-31T07:22:19.000000 user\_id d8e5e5727f3a4ce1886ac8ecec058e83

#### Note these attributes:

- os-vol-host-attr:host the volume's current back end.
- os-vol-mig-status-attr:migstat the status of this volume's migration (None means that a migration is not currently in progress).
- os-vol-mig-status-attr:name\_id the volume ID that this volume's name on the back end is based on. Before a volume is ever migrated, its name on the back end storage may be based on the volume's ID (see the volume\_name\_template configuration parameter). For example, if volume\_name\_template is kept as the default value (volume-%s), your first LVM back end has a logical volume named volume-6088f80a-f116-4331-ad48-9afb0dfb196c. During the course of a migration, if you create a volume and copy over the data, the volume get the new name but keeps its original ID. This is exposed by the name\_id attribute.

# Note

If you plan to decommission a block storage node, you must stop the **cinder** volume service on the node after performing the migration.

On nodes that run CentOS, Fedora, openSUSE, Red Hat Enterprise Linux, or SUSE Linux Enterprise, run:

- # service openstack-cinder-volume stop
- # chkconfig openstack-cinder-volume off

On nodes that run Ubuntu or Debian, run:

- # service cinder-volume stop
- # chkconfig cinder-volume off

Stopping the cinder volume service will prevent volumes from being allocated to the node.

Migrate this volume to the second LVM back end:

```
$ cinder migrate 6088f80a-f116-4331-ad48-9afb0dfb196c \
server2@lvmstorage-2#lvmstorage-2
```

Request to migrate volume 6088f80a-f116-4331-ad48-9afb0dfb196c has been accepted.

You can use the **openstack volume show** command to see the status of the migration. While migrating, the **migrat** attribute shows states such as **migrating** or **completing**. On error, **migstat** is set to None and the host attribute shows the original **host**. On success, in this example, the output looks like:

\$ openstack volume show 6088f80a-f116-4331-ad48-9afb0dfb196c Value Field attachments [] availability\_zone zone1 bootable false consistencygroup\_id None created\_at 2013-09-01T14:53:22.000000 description test encrypted False 6088f80a-f116-4331-ad48-9afb0dfb196c id | migration status None multiattach False test os-vol-host-attr:host server2@lvmstorage-2#lvmstorage-2 os-vol-mig-status-attr:migstat | completing os-vol-mig-status-attr:name id | None os-vol-tenant-attr:tenant\_id d88310717a8e4ebcae84ed075f82c51e properties readonly='False' replication\_status disabled size 1 snapshot id I None source\_volid None in-use None type updated at 2017-02-22T02:35:03.000000 user\_id d8e5e5727f3a4ce1886ac8ecec058e83

Note that migstat is None, host is the new host, and name\_id holds the ID of the volume created by the migration. If you look at the second LVM back end, you find the logical volume volume-133d1f56-9ffc-4f57-8798-d5217d851862.

#### Note

The migration is not visible to non-admin users (for example, through the volume **status**). However, some operations are not allowed while a migration is taking place, such as attaching/detaching a volume and deleting a volume. If a user performs such an action during a migration, an error is returned.

## Note

Migrating volumes that have snapshots are currently not allowed.



(https://creativecommons.org/licenses/by/3.0/)

Except where otherwise noted, this document is licensed under <u>Creative Commons Attribution 3.0 License (https://creativecommons.org/licenses/by/3.0/)</u>. See all <u>OpenStack Legal Documents (http://www.openstack.org/legal)</u>.

**Q**UESTIONS? (HTTP://ASK.OPENSTACK.ORG)



OpenStack Documentation •

# Cinder 12.0.1

(../index.html)

Installation Guide (../install/index.html)

Upgrade Process (../upgrade.html)

Cinder Administration (index.html)

Increase Block Storage API service throughput (blockstorage-api-throughput.html)

Manage volumes (blockstorage-manage-volumes.html)

Troubleshoot your installation (blockstorage-troubleshoot.html)

Generalized filters (generalized\_filters.html)

Back up Block Storage service disks (blockstorage-backup-disks.html)

Boot from volume (blockstorage-boot-from-volume.html)

Consistency groups (blockstorage-consistency-groups.html)

Configure and use driver filter and weighing for scheduler (blockstorage-driver-filter-weighing.html)

Get capabilities (blockstorage-get-capabilities.html)

Generic volume groups (blockstorage-groups.html)

Image-Volume cache (blockstorage-image-volume-cache.html)

Use LIO iSCSI support (blockstorage-lio-iscsi-support.html)

Configure multiple-storage back ends (blockstorage-multi-backend.html)

Configure an NFS storage back end (blockstorage-nfs-backend.html)

Oversubscription in thin provisioning (blockstorage-over-subscription.html)

Rate-limit volume copy bandwidth (blockstorage-ratelimit-volume-copy-bandwidth.html)

Volume-backed image (blockstorage-volume-backed-image.html)

Export and import backup metadata (blockstorage-volume-backups-export-import.html)

Back up and restore volumes and snapshots (blockstorage-volume-backups.html)

Migrate volumes

Volume multi-attach: Enable attaching a volume to multiple servers (blockstorage-volume-multiattach.html)

Configure and use volume number weigher (blockstorage-volume-number-weigher.html)

Report backend state in service list (blockstorage-report-backend-state.html)

Cinder Service Configuration (../configuration/index.html)

Sample Configuration File (../sample\_config.html)

Sample Policy File (../sample\_policy.html)

Available Drivers (../drivers.html)

Command-Line Interface Reference (../cli/index.html)

cinder-manage Usage (../man/cinder-manage.html)

Contributor Guide (../contributor/index.html)

Glossary (../common/glossary.html)

# OpenStack

- Projects (http://openstack.org/projects/)
- OpenStack Security (http://openstack.org/projects/openstack-security/)
- Common Questions (http://openstack.org/projects/openstack-faq/)
- Blog (http://openstack.org/blog/)
- News (http://openstack.org/news/)

## Community

- User Groups (http://openstack.org/community/)
- Events (http://openstack.org/community/events/)
- Jobs (http://openstack.org/community/jobs/)
- Companies (http://openstack.org/foundation/companies/)
- Contribute (http://docs.openstack.org/infra/manual/developers.html)

## Documentation

- OpenStack Manuals (http://docs.openstack.org)
- Getting Started (http://openstack.org/software/start/)
- API Documentation (http://developer.openstack.org)
- Wiki (https://wiki.openstack.org)

# Branding & Legal

- Logos & Guidelines (http://openstack.org/brand/)
- Trademark Policy (http://openstack.org/brand/openstack-trademark-policy/)
- Privacy Policy (http://openstack.org/privacy/)
- OpenStack CLA (https://wiki.openstack.org/wiki/How\_To\_Contribute#Contributor\_License\_Agreement)

Stay In Touch