BLOCK DEVICE COMMANDS

The rbd command enables you to create, list, introspect and remove block device images. You can also use it to clone images, create snapshots, rollback an image to a snapshot, view a snapshot, etc. For details on using the rbd command, see RBD – Manage RADOS Block Device (RBD) Images for details.

Important: To use Ceph Block Device commands, you must have access to a running Ceph cluster.

CREATE A BLOCK DEVICE POOL

1. On the admin node, use the ceph tool to create a pool.
2. On the admin node, use the rbd tool to initialize the pool for use by RBD:

```
rbd pool init <pool-name>
```

Note: The rbd tool assumes a default pool name of 'rbd' when not provided.

CREATE A BLOCK DEVICE USER

Unless specified, the rbd command will access the Ceph cluster using the ID admin. This ID allows full administrative access to the cluster. It is recommended that you utilize a more restricted user wherever possible.

To create a Ceph user, with ceph specify the auth get-or-create command, user name, monitor caps, and OSD caps:

```
ceph auth get-or-create client.{ID} mon 'profile rbd' osd 'profile {profile name} [pool={pool
```

For example, to create a user ID named qemu with read-write access to the pool vms and read-only access to the pool images, execute the following:

```
ceph auth get-or-create client.qemu mon 'profile rbd' osd 'profile rbd pool=vms, profile rbd-
```

The output from the ceph auth get-or-create command will be the keyring for the specified user, which can be written to /etc/ceph/ceph.client.{ID}.keyring.

Note: The user ID can be specified when using the rbd command by providing the --id {id} optional argument.

CREATING A BLOCK DEVICE IMAGE

Before you can add a block device to a node, you must create an image for it in the Ceph Storage Cluster first. To create a block device image, execute the following:

```
rbd create --size {megabytes} {pool-name}/{image-name}
```

For example, to create a 1GB image named bar that stores information in a pool named swimmingpool, execute the following:

```
rbd create --size 1024 swimmingpool/bar
```

If you don't specify pool when creating an image, it will be stored in the default pool rbd. For example, to create a 1GB image named foo stored in the default pool rbd, execute the following:

```
rbd create --size 1024 foo
```

Note: You must create a pool first before you can specify it as a source. See Storage Pools for details.

LISTING BLOCK DEVICE IMAGES

To list block devices in the `rbd` pool, execute the following (i.e., `rbd` is the default pool name):

```
rbd ls
```

To list block devices in a particular pool, execute the following, but replace `{poolname}` with the name of the pool:

```
rbd ls {poolname}
```

For example:

```
rbd ls swimmingpool
```

To list deferred delete block devices in the `rbd` pool, execute the following:

```
rbd trash ls
```

To list deferred delete block devices in a particular pool, execute the following, but replace `{poolname}` with the name of the pool:

```
rbd trash ls {poolname}
```

For example:

```
rbd trash ls swimmingpool
```

RETRIEVING IMAGE INFORMATION

To retrieve information from a particular image, execute the following, but replace `{image-name}` with the name for the image:

```
rbd info {image-name}
```

For example:

```
rbd info foo
```

To retrieve information from an image within a pool, execute the following, but replace `{image-name}` with the name of the image and replace `{pool-name}` with the name of the pool:

```
rbd info {pool-name}/{image-name}
```

For example:

```
rbd info swimmingpool/bar
```

RESIZING A BLOCK DEVICE IMAGE

Ceph Block Device images are thin provisioned. They don't actually use any physical storage until you begin saving data to them. However, they do have a maximum capacity that you set with the `--size` option. If you want to increase (or decrease) the maximum size of a Ceph Block Device image, execute the following:

```
rbd resize --size 2048 foo (to increase)
rbd resize --size 2048 foo --allow-shrink (to decrease)
```

REMOVING A BLOCK DEVICE IMAGE

To remove a block device, execute the following, but replace `{image-name}` with the name of the image you want to remove:

```
rbd rm {image-name}
```

For example:

```
rbd rm foo
```

To remove a block device from a pool, execute the following, but replace `{image-name}` with the name of the image to remove and replace `{pool-name}` with the name of the pool:

```
rbd rm {pool-name}/{image-name}
```

For example:

```
rbd rm swimmingpool/bar
```

To defer delete a block device from a pool, execute the following, but replace `{image-name}` with the name of the image to move and replace `{pool-name}` with the name of the pool:

```
rbd trash mv {pool-name}/{image-name}
```

For example:

```
rbd trash mv swimmingpool/bar
```

To remove a deferred block device from a pool, execute the following, but replace `{image-id}` with the id of the image to remove and replace `{pool-name}` with the name of the pool:

```
rbd trash rm {pool-name}/{image-id}
```

For example:

```
rbd trash rm swimmingpool/2bf4474b0dc51
```

Note:

- You can move an image to the trash even it has shapshot(s) or actively in-use by clones, but can not be removed from trash.
- You can use *–delay* to set the defer time (default is 0), and if its deferment time has not expired, it can not be removed unless you use force.

RESTORING A BLOCK DEVICE IMAGE

To restore a deferred delete block device in the rbd pool, execute the following, but replace `{image-id}` with the id of the image:

```
rbd trash restore {image-d}
```

For example:

```
rbd trash restore 2bf4474b0dc51
```

To restore a deferred delete block device in a particular pool, execute the following, but replace `{image-id}` with the id of the image and replace `{pool-name}` with the name of the pool:

```
rbd trash restore {pool-name}/{image-id}
```

For example:

```
rbd trash restore swimmingpool/2bf4474b0dc51
```

Also you can use *–image* to rename the iamge when restore it, for example:

```
rbd trash restore swimmingpool/2bf4474b0dc51 --image new-name
```