

MOUNT A DISK

1. In the terminal, run `lsblk` command to list the disks attached with the VM instance.

```
hadoop@itb-hdp-1:~$ lsblk
NAME        MAJ:MIN RM  SIZE RO TYPE MOUNTPOINT
loop0       7:0      0  54.9M 1 loop /snap/google-cloud-sdk/65
loop1       7:1      0   52M 1 loop /snap/lxd/9886
loop2       7:2      0  89.5M 1 loop /snap/core/6130
sda         8:0      0   30G  0 disk
├─sda1      8:1      0  29.9G  0 part /
├─sda14     8:14     0    4M  0 part
└─sda15     8:15     0  106M  0 part /boot/efi
sdb         8:16     0  200G  0 disk
hadoop@itb-hdp-1:~$
```

In the above example, `sdb` is the device id for the new disk which needs to be mounted. In the screenshot `/` is mounted on `sda`.

2. Format the disk. You can use any file format that you need, but the simplest method is to format the entire disk with a single `ext4` file system and no partition table. If you resize the persistent disk later, you can resize the file system without having to modify disk partitions.

Format the disk using the `mkfs` tool. This command **deletes** all data from the specified disk, so make sure that you specify the disk device correctly. To maximize disk performance, use the recommended formatting options in the `-E` flag. It is not necessary to reserve space for root on this secondary disk, so specify `-m 0` to use all the available disk space.

```
$ sudo mkfs.ext4 -m 0 -F -E
lazy_itable_init=0,lazy_journal_init=0,discard /dev/[DEVICE_ID]
```

where `[DEVICE_ID]` is the device ID of the persistent disk that you are formatting. For this example, specify `sdb` to format the entire disk with no partition table.

3. Create a directory that serves as the mount point for the new disk. You can use any directory that you like, but this example creates a new directory under `/mnt/disks/`.

```
sudo mkdir -p /mnt/disks/[MNT_DIR]
```

Where `[MNT_DIR]` above is the directory where you want to mount the disk. For our cluster, to keep it uniform across nodes, use `disk1`.

4. Use the `mount` tool to mount the disk to the instance with the `discard` option enabled:

```
$ sudo mount -o discard,defaults /dev/[DEVICE_ID]
/mnt/disks/[MNT_DIR]
```

where:

- `[DEVICE_ID]` is the device ID of the persistent disk that you are mounting.
- `[MNT_DIR]` is the directory where you will mount your persistent disk.

5. Configure read and write permissions on the device. For this example, grant write access to the device for all users.

```
$ sudo chmod a+w /mnt/disks/[MNT_DIR]
```

where: [MNT_DIR] is the directory where you mounted your persistent disk.

6. Create a backup of your current `/etc/fstab` file.

```
$ sudo cp /etc/fstab /etc/fstab.backup
```

7. The following command creates an entry in `/etc/fstab` to mount the `/dev/sdb` persistent disk at `/mnt/disks/disk1` using its UUID.

```
$ echo UUID=`sudo blkid -s UUID -o value /dev/sdb` /mnt/disks/disk-1  
ext4 discard,defaults,nofail 0 2 | sudo tee -a /etc/fstab  
UUID=c994cf26-1853-48ab-a6a5-9d7c0250fed4 /mnt/disks/disk-1 ext4 discard,defaults,nofail 0 2
```

8. Use the `cat` command to verify that your `/etc/fstab` entries are correct:

```
$ cat /etc/fstab
```

```
LABEL=cloudimg-rootfs / ext4 defaults 0 0
```

```
UUID=d761bdc5-7e2a-4529-a393-b9aefdb623b6 /mnt/disks/disk-1 ext4 discard,defaults,nofail 0
```