Working with volumes

1: This command creates a volume for you.

docker volume create <volume_name>

```
ubuntu@ip-172-31-83-79:~$ sudo su
root@ip-172-31-83-79:/home/ubuntu# docker volume create new-vol
new-vol
root@ip-172-31-83-79:/home/ubuntu#
```

2: This command gives a list of available Volumes

docker volume ls

```
root@ip-172-31-83-79:/home/ubuntu# docker volume ls
DRIVER      VOLUME NAME
local       new-vol
root@ip-172-31-83-79:/home/ubuntu#
```

3: To inspect a volume, we can use this command.

docker volume inspect <volume_name>

```
root@ip-172-31-83-79:/home/ubuntu# docker volume inspect new-vol
[
    {
        "CreatedAt": "2024-04-24T07:34:00Z",
        "Driver": "local",
        "Labels": null,
        "Mountpoint": "/var/lib/docker/volumes/new-vol/_data",
        "Name": "new-vol",
        "Options": null,
        "Scope": "local"
    }
]
root@ip-172-31-83-79:/home/ubuntu#
```

4: This command is used to remove a volume.

docker volume rm <volume_name>

```
root@ip-172-31-83-79:/home/ubuntu# docker volume rm new-vol
new-vol
root@ip-172-31-83-79:/home/ubuntu# docker volume ls
DRIVER      VOLUME NAME
root@ip-172-31-83-79:/home/ubuntu#
```

5: This command is used to run a container attached to a volume using the '--mount' flag.

docker run -d --name <container_name> --mount source=<volume_name>,target=<target_path> <image_name>

```
root@ip-172-31-83-79:/home/ubuntu# docker run -d --name box --mount source=volume,target=/app nginx:latest
Unable to find image 'nginx:latest' locally
latest: Pulling from library/nginx
13808c22b207: Pull complete
ad34559c894f: Pull complete
e871086e0ba8: Pull complete
1cdf2e0600bb: Pull complete
c791c3089e36: Pull complete
5941304296e7: Pull complete
c7cbceefe40c: Pull complete
Digest: sha256:d1c3a4e634ab6b7089dfc0b1e70a401972493e9e16a65b3f655b3a07955571f7
Status: Downloaded newer image for nginx:latest
5f7fa4600b132d7472d7767a5085ff8db8296f9bd6726d6c8da5a416b70689f8
root@ip-172-31-83-79:/home/ubuntu#
```

This will create container named box and It will create volume named volume

```
root@ip-172-31-83-79:/home/ubuntu# docker images
REPOSITORY              TAG        IMAGE ID        CREATED        SIZE
nginx                   latest     03861782bd3b    10 hours ago   188MB
new_image               latest     0e07440c997f    18 hours ago   237MB
rahulverma/grape-image  latest     54b9cde34584    21 hours ago   237MB
ubuntu                  latest     7af9ba4f0a47    13 days ago    77.9MB
root@ip-172-31-83-79:/home/ubuntu# docker ps
CONTAINER ID   IMAGE          COMMAND                 CREATED           STATUS          PORTS     NAMES
5f7fa4600b13   nginx:latest   "/docker-entrypoint.…"  About a minute ago  Up About a minute  80/tcp   box
root@ip-172-31-83-79:/home/ubuntu# docker volume ls
DRIVER      VOLUME NAME
local       new-vol
local       new-vol2
local       volume
root@ip-172-31-83-79:/home/ubuntu#
```

6: This command is used to run a container attached to a volume using the '--volume' flag.

docker run -d --name <container_name> --volume <volume_name>:<target_path> <image_name>

```
root@ip-172-31-83-79:/home/ubuntu# docker run -d --name black-box --volume box-vol:/app nginx:latest
6a3c9b03f54d48f33a812484bdada40da18836d0dff25683cfebbd028daf6f05
root@ip-172-31-83-79:/home/ubuntu# docker volume ls
DRIVER    VOLUME NAME
local     box-vol
local     new-vol
local     new-vol2
local     volume
root@ip-172-31-83-79:/home/ubuntu# docker ps
CONTAINER ID  IMAGE          COMMAND                CREATED            STATUS             PORTS     NAMES
6a3c9b03f54d  nginx:latest   "/docker-entrypoint.…" About a minute ago Up About a minute  80/tcp    black-box
5f7fa4600b13  nginx:latest   "/docker-entrypoint.…" 9 minutes ago      Up 9 minutes       80/tcp    box
root@ip-172-31-83-79:/home/ubuntu#
```

It has created one container named black-box and a volume named box-vol

7: This command is used to create a read-only volume

docker run -d --name <container_name> --mount source= <volume_name>,target=<target_path>,readonly <image_name>

```
root@ip-172-31-83-79:/home/ubuntu# docker run -d --name readonly-coinatiner-volume --mount source=rovol,target=/app,readonly nginx:latest
9b010b4b0e35be18ffd221d635a844b6bbf4b4ade58bd2a8c82cf1493c7f5e04
root@ip-172-31-83-79:/home/ubuntu# docker volume ls
DRIVER    VOLUME NAME
local     box-vol
local     new-vol
local     new-vol2
local     rovol
local     volume
root@ip-172-31-83-79:/home/ubuntu# docker ps
CONTAINER ID  IMAGE          COMMAND                CREATED            STATUS             PORTS     NAMES
9b010b4b0e35  nginx:latest   "/docker-entrypoint.…" About a minute ago Up About a minute  80/tcp    readonly-coinatiner-volume
6a3c9b03f54d  nginx:latest   "/docker-entrypoint.…" 9 minutes ago      Up 9 minutes       80/tcp    black-box
5f7fa4600b13  nginx:latest   "/docker-entrypoint.…" 17 minutes ago     Up 17 minutes      80/tcp    box
root@ip-172-31-83-79:/home/ubuntu# docker exec -it 9b010b4b0e35 bash
root@9b010b4b0e35:/#
```

Now will access our container

```
root@ip-172-31-83-79:/home/ubuntu# docker exec -it 9b010b4b0e35 bash
root@9b010b4b0e35:/# ls
app  bin  boot  dev  docker-entrypoint.d  docker-entrypoint.sh  etc  home  lib  lib64  media  mnt  opt  proc  root  run  sbin  srv  sys  tmp  usr  var
root@9b010b4b0e35:/# cd app
root@9b010b4b0e35:/app# ls
root@9b010b4b0e35:/app# touch hello.txt
touch: cannot touch 'hello.txt': Read-only file system
root@9b010b4b0e35:/app#
```