Managing Data in Docker: Persistence Volumes and Mounting Best Practices

1. Create A Docker Server on EC2.

i-0cdf97a3bf4cd729a (Docker-Server)

PublicIPs: 43.205.144.209   PrivateIPs: 172.31.43.166

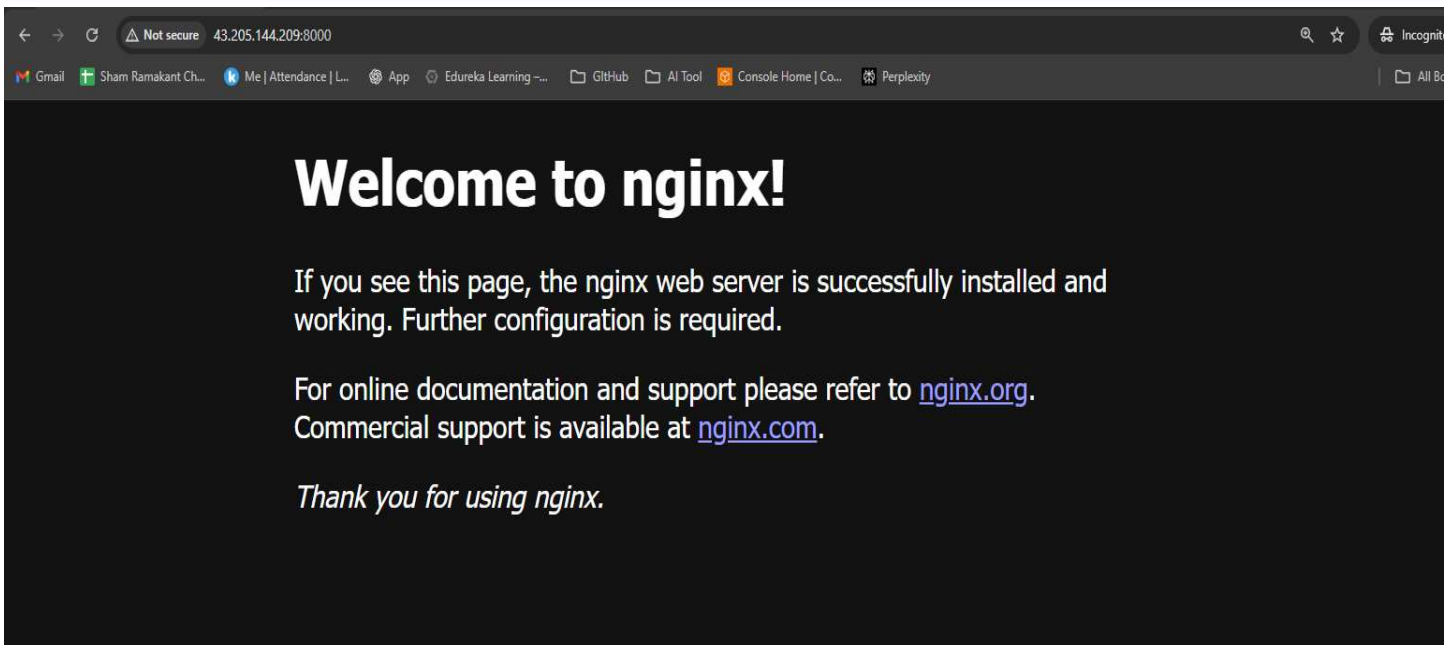## 2. Create A Docker Persistence Volume and Attached to Container.


```
root@ip-172-31-43-166:~# docker volume create my-volume
my-volume
root@ip-172-31-43-166:~# docker volume ls
DRIVER     VOLUME NAME
local      my-volume
root@ip-172-31-43-166:~#
```



```
root@ip-172-31-43-166:~# docker volume create my-volume
my-volume
root@ip-172-31-43-166:~# docker volume ls
DRIVER     VOLUME NAME
local      my-volume
root@ip-172-31-43-166:~# docker run -d -p 8000:80 -v my-volume:/usr/share/nginx/html nginx
Unable to find image 'nginx:latest' locally
latest: Pulling from library/nginx
8c7716127147: Pull complete
250b90fb2b9a: Pull complete
5d8ea9f4c626: Pull complete
58d144c4badd: Pull complete
b459da543435: Pull complete
8da8ed3552af: Pull complete
54e822d8ee0c: Pull complete
Digest: sha256:f79cde317d4d172a392978344034eed6dff5728a8e6d7a42f507504c23ecf8b8
Status: Downloaded newer image for nginx:latest
b3101cf313cba590eae511ee1494433ba2c3015db8f9166a21c818571155193c
root@ip-172-31-43-166:~# docker images
REPOSITORY    TAG       IMAGE ID       CREATED        SIZE
nginx         latest    07ccdb783875   13 hours ago   160MB
root@ip-172-31-43-166:~# docker ps
CONTAINER ID   IMAGE     COMMAND                  CREATED         STATUS         PORTS                                       NAMES
b3101cf313cb   nginx     "/docker-entrypoint.…"   11 seconds ago  Up 11 seconds  0.0.0.0:8000->80/tcp, [::]:8000->80/tcp     admiring_babbage
root@ip-172-31-43-166:~#
```
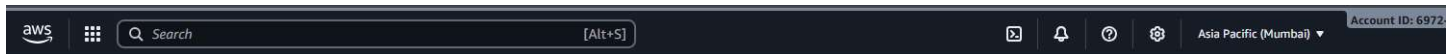
i-0cdf97a3bf4cd729a (Docker-Server)

PublicIPs: 43.205.144.209   PrivateIPs: 172.31.43.166

Welcome to nginx!

If you see this page, the nginx web server is successfully installed and working. Further configuration is required.

For online documentation and support please refer to nginx.org.
Commercial support is available at nginx.com.

Thank you for using nginx.

## 3. Made The Changes in Persistence Volume and Verify with Container.

```
root@ip-172-31-43-166:/# cd /var/lib/docker/volumes/my-volume/
root@ip-172-31-43-166:/var/lib/docker/volumes/my-volume# ls
_data
root@ip-172-31-43-166:/var/lib/docker/volumes/my-volume# cd _data/
root@ip-172-31-43-166:/var/lib/docker/volumes/my-volume/_data# ls
50x.html  index.html
root@ip-172-31-43-166:/var/lib/docker/volumes/my-volume/_data# vi index.html
root@ip-172-31-43-166:/var/lib/docker/volumes/my-volume/_data# cat index.html
<!DOCTYPE html>
<html>
<head>
<title>Welcome to nginx!</title>
<style>
html { color-scheme: light dark; }
body { width: 35em; margin: 0 auto;
font-family: Tahoma, Verdana, Arial, sans-serif; }
</style>
</head>
<body>
<h1>Welcome to nginx!</h1>
<p> output come from volume </p>

<p><em>Thank you for using nginx.</em></p>
</body>
</html>
root@ip-172-31-43-166:/var/lib/docker/volumes/my-volume/_data#
```

i-0cdf97a3bf4cd729a (Docker-Server)
PublicIPs: 43.205.144.209 PrivateIPs: 172.31.43.166

Welcome to nginx!

output come from volume

Thank you for using nginx.
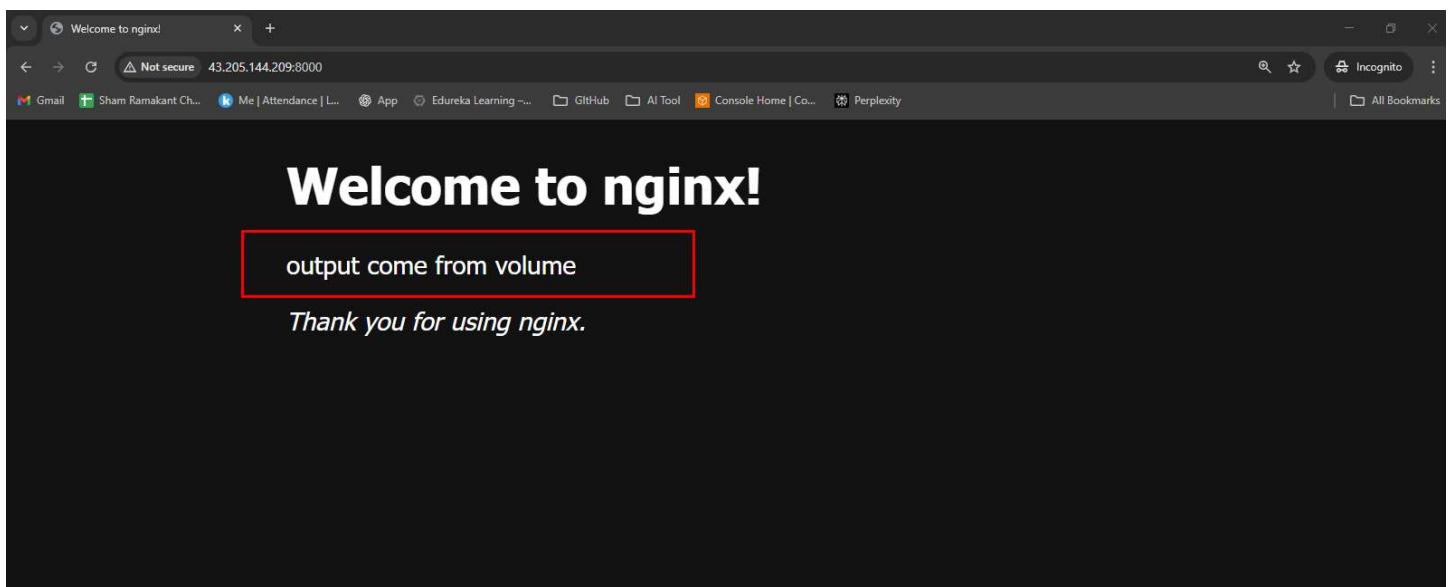
4. Create A Mount Volume and Attached to Container.

```
root@ip-172-31-43-166:~# mkdir Mount-volume
root@ip-172-31-43-166:~# ls
Mount-volume  snap
root@ip-172-31-43-166:~# ls -ltr
total 8
drwx------ 3 root root 4096 Oct  8 09:36 snap
drwxr-xr-x 2 root root 4096 Oct  8 09:59 Mount-volume
root@ip-172-31-43-166:~#
```

5. Running Multiple Container and Mapping with Mount Volume.


```
root@ip-172-31-43-166:~# ls
Mount-volume  snap
root@ip-172-31-43-166:~# cd Mount-volume
root@ip-172-31-43-166:~/Mount-volume# ls
root@ip-172-31-43-166:~/Mount-volume# pwd
/root/Mount-volume
root@ip-172-31-43-166:~/Mount-volume# docker run -d -p 8001:80 -v /root/Mount-volume:/usr/share/nginx/html nginx
9d608e5c407cbdd531f73f18479cf174f5f687156a47325ecfec45f91b3a0e8e
root@ip-172-31-43-166:~/Mount-volume# docker run -d -p 8002:80 -v /root/Mount-volume:/usr/share/nginx/html nginx
fcb89bb2c7222688a68f9bc048f95179344f01eb432711599e3c79e17b6c366e
root@ip-172-31-43-166:~/Mount-volume# docker run -d -p 8003:80 -v /root/Mount-volume:/usr/share/nginx/html nginx
501a9cbec391835516092d29002cd867d5d033b8739a9d6328b359fa8ed831ff
root@ip-172-31-43-166:~/Mount-volume# docker ps
CONTAINER ID   IMAGE      COMMAND                CREATED          STATUS          PORTS                                         NAMES
501a9cbec391   nginx      "/docker-entrypoint.…"  4 seconds ago    Up 4 seconds    0.0.0.0:8003->80/tcp, [::]:8003->80/tcp      funny_nightingale
fcb89bb2c722   nginx      "/docker-entrypoint.…"  12 seconds ago   Up 12 seconds   0.0.0.0:8002->80/tcp, [::]:8002->80/tcp      unruffled_hopper
9d608e5c407c   nginx      "/docker-entrypoint.…"  22 seconds ago   Up 22 seconds   0.0.0.0:8001->80/tcp, [::]:8001->80/tcp      sweet_stonebraker
b3101cf313cb   nginx      "/docker-entrypoint.…"  17 minutes ago   Up 17 minutes   0.0.0.0:8000->80/tcp, [::]:8000->80/tcp      admiring_babbage
root@ip-172-31-43-166:~/Mount-volume#
```

i-0cdf97a3bf4cd729a (Docker-Server)

PublicIPs: 43.205.144.209   PrivateIPs: 172.31.43.166
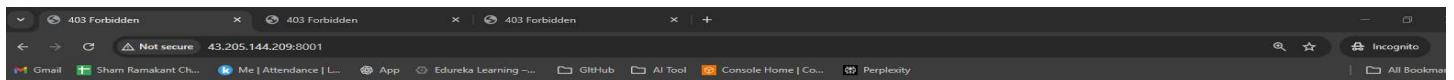
403 Forbidden

nginx/1.29.2

6. Transferring Data to Mount Volume.


```
root@ip-172-31-43-166:~/Mount-volume# git clone https://github.com/sham9394/Electric-extra.git
Cloning into 'Electric-extra'...
remote: Enumerating objects: 5, done.
remote: Counting objects: 100% (5/5), done.
remote: Compressing objects: 100% (5/5), done.
remote: Total 5 (delta 0), reused 5 (delta 0), pack-reused 0 (from 0)
Receiving objects: 100% (5/5), 10.45 KiB | 2.61 MiB/s, done.
root@ip-172-31-43-166:~/Mount-volume# ls
Electric-extra
root@ip-172-31-43-166:~/Mount-volume# pwd
/root/Mount-volume
root@ip-172-31-43-166:~/Mount-volume# cp -r /root/Mount-volume/Electric-extra/* /root/Mount-volume/
root@ip-172-31-43-166:~/Mount-volume# ls
Electric-extra  index.html  templatemo-electric-scripts.js  templatemo-electric-xtra.css
root@ip-172-31-43-166:~/Mount-volume# ls -ltr
total 60
drwxr-xr-x 3 root root  4096 Oct  8 10:13 Electric-extra
-rw-r--r-- 1 root root 13850 Oct  8 10:14 index.html
-rw-r--r-- 1 root root  7677 Oct  8 10:14 templatemo-electric-scripts.js
-rw-r--r-- 1 root root 30473 Oct  8 10:14 templatemo-electric-xtra.css
root@ip-172-31-43-166:~/Mount-volume#
```

i-0cdf97a3bf4cd729a (Docker-Server)

PublicIPs: 43.205.144.209   PrivateIPs: 172.31.43.166

7. Verify All Running Container.