

DOCKER VOLUME

What is Docker Volume

1. When we create a container then by default volume will be created
2. Volume is a directory inside of our container
3. If we stop the container then also, we can access the volume
4. Volume can be created in one container
5. While creating the container only we can attach the created volume to that container

How many ways to map the volumes

There are two ways to map the volumes

1. Container ---Container
2. Host ---Container

➤ There are two ways to create volumes

1. Automation
2. Manual

Automation process

1. Install the docker

- `yum install docker -y` ---To install docker packages
- `systemctl start docker` ----To start docker service
- `systemctl status docker`---To check status of docker

2. Create Dockerfile

`vi Dockerfile`

```
# FROM ubuntu
#VOLUME ["/volume"]
:wq!
```

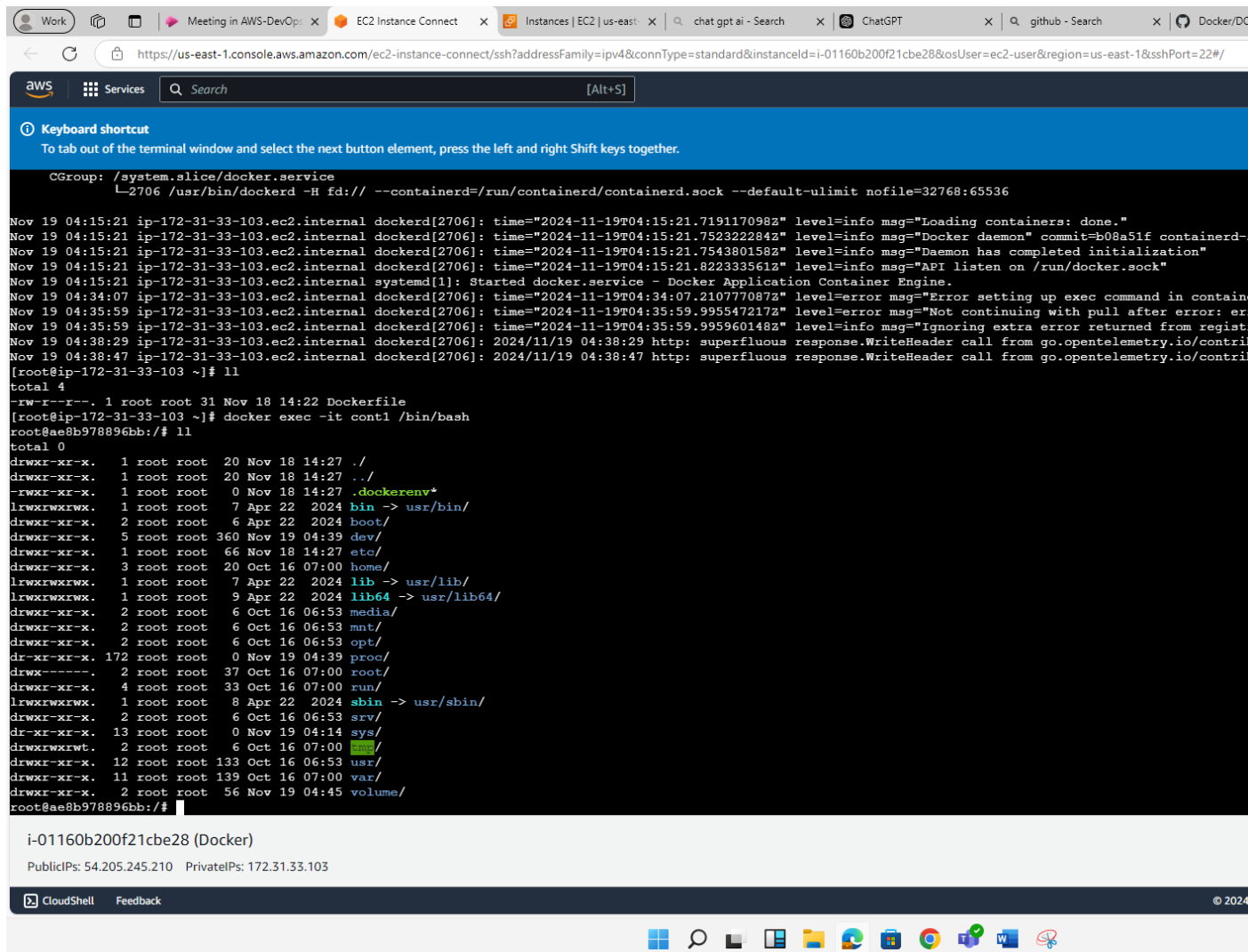
3. Build the image by command **Docker build -t image1** It is used to build the image

4. Create the container to the image1

**Docker run -it --name cont-1
image1**

It can create the container
with the volume

Volume is created in container as shown in below figure



```
aws
Services
Search
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Keyboard shortcut
To tab out of the terminal window and select the next button element, press the left and right Shift keys together.

CGroup: /system.slice/docker.service
L2706 /usr/bin/dockerd -H fd:// --containerd=/run/containerd/containerd.sock --default-ulimit nfile=32768:65536

Nov 19 04:15:21 ip-172-31-33-103.ec2.internal dockerd[2706]: time="2024-11-19T04:15:21.719117098Z" level=info msg="Loading containers: done."
Nov 19 04:15:21 ip-172-31-33-103.ec2.internal dockerd[2706]: time="2024-11-19T04:15:21.752322284Z" level=info msg="Docker daemon" commit=b08a51f containerd-
Nov 19 04:15:21 ip-172-31-33-103.ec2.internal dockerd[2706]: time="2024-11-19T04:15:21.754380158Z" level=info msg="Daemon has completed initialization"
Nov 19 04:15:21 ip-172-31-33-103.ec2.internal dockerd[2706]: time="2024-11-19T04:15:21.822333561Z" level=info msg="API listen on /run/docker.sock"
Nov 19 04:15:21 ip-172-31-33-103.ec2.internal systemd[1]: Started docker.service - Docker Application Container Engine.
Nov 19 04:34:07 ip-172-31-33-103.ec2.internal dockerd[2706]: time="2024-11-19T04:34:07.210777087Z" level=error msg="Error setting up exec command in contain
Nov 19 04:35:59 ip-172-31-33-103.ec2.internal dockerd[2706]: time="2024-11-19T04:35:59.995547217Z" level=error msg="Not continuing with pull after error: er
Nov 19 04:38:29 ip-172-31-33-103.ec2.internal dockerd[2706]: time="2024-11-19T04:38:29.995960148Z" level=info msg="Ignoring extra error returned from regist
Nov 19 04:38:47 ip-172-31-33-103.ec2.internal dockerd[2706]: 2024/11/19 04:38:29 http: superfluous response.WriteHeader call from go.opentelemetry.io/contril
[root@ip-172-31-33-103 ~]# ll
total 4
-rwxr-xr-x. 1 root root 31 Nov 18 14:22 Dockerfile
[root@ip-172-31-33-103 ~]# docker exec -it cont1 /bin/bash
root@a8b978896bb:/# ll
total 0
drwxr-xr-x. 1 root root 20 Nov 18 14:27 ./
drwxr-xr-x. 1 root root 20 Nov 18 14:27 ../
-rwxr-xr-x. 1 root root 0 Nov 18 14:27 .dockerenv*
lrwxrwxrwx. 1 root root 7 Apr 22 2024 bin -> usr/bin/
drwxr-xr-x. 2 root root 6 Apr 22 2024 boot/
drwxr-xr-x. 5 root root 360 Nov 19 04:39 dev/
drwxr-xr-x. 1 root root 66 Nov 18 14:27 etc/
drwxr-xr-x. 3 root root 20 Oct 16 07:00 home/
lrwxrwxrwx. 1 root root 7 Apr 22 2024 lib -> usr/lib/
lrwxrwxrwx. 1 root root 9 Apr 22 2024 lib64 -> usr/lib64/
drwxr-xr-x. 2 root root 6 Oct 16 06:53 media/
drwxr-xr-x. 2 root root 6 Oct 16 06:53 mnt/
drwxr-xr-x. 2 root root 6 Oct 16 06:53 opt/
dr-xr-xr-x. 172 root root 0 Nov 19 04:39 proc/
drwx----- 2 root root 37 Oct 16 07:00 root/
drwxr-xr-x. 4 root root 33 Oct 16 07:00 run/
lrwxrwxrwx. 1 root root 8 Apr 22 2024 sbin -> usr/sbin/
drwxr-xr-x. 2 root root 6 Oct 16 06:53 srv/
dr-xr-xr-x. 13 root root 0 Nov 19 04:14 sys/
drwxrwxrwt. 2 root root 6 Oct 16 07:00 tmp/
drwxr-xr-x. 12 root root 133 Oct 16 06:53 usr/
drwxr-xr-x. 11 root root 139 Oct 16 07:00 var/
drwxr-xr-x. 2 root root 56 Nov 19 04:45 volume/
root@a8b978896bb:/#

i-01160b200f21cbe28 (Docker)
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CloudShell Feedback
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```

➤ To share that created volume for container to container we are having the command

```
#docker run -it --name cont2 --privileged=true --volumes-from cont1 ubuntu
```

```

lrwxrwxrwx. 1 root root 7 Apr 22 2024 bin -> usr/bin/
drwxr-xr-x. 2 root root 6 Apr 22 2024 boot/
drwxr-xr-x. 11 root root 2820 Nov 19 04:49 dev/
drwxr-xr-x. 1 root root 66 Nov 19 04:49 etc/
drwxr-xr-x. 3 root root 20 Oct 16 07:00 home/
lrwxrwxrwx. 1 root root 7 Apr 22 2024 lib -> usr/lib/
lrwxrwxrwx. 1 root root 9 Apr 22 2024 lib64 -> usr/lib64/
drwxr-xr-x. 2 root root 6 Oct 16 06:53 media/
drwxr-xr-x. 2 root root 6 Oct 16 06:53 mnt/
drwxr-xr-x. 2 root root 6 Oct 16 06:53 opt/
dr-xr-xr-x. 174 root root 0 Nov 19 04:49 proc/
drwxr-xr-x. 2 root root 37 Oct 16 07:00 root/
drwxr-xr-x. 4 root root 33 Oct 16 07:00 run/
lrwxrwxrwx. 1 root root 8 Apr 22 2024/sbin -> usr/sbin/
drwxr-xr-x. 2 root root 6 Oct 16 06:53 srv/
dr-xr-xr-x. 13 root root 0 Nov 19 04:14 sys/
drwxrwxrwt. 2 root root 6 Oct 16 07:00 tmp/
drwxr-xr-x. 12 root root 133 Oct 16 06:53 usr/
drwxr-xr-x. 11 root root 139 Oct 16 07:00 var/
drwxr-xr-x. 2 root root 56 Nov 19 04:45 volume/
root@eda44741500d:/# cd volume
root@eda44741500d:/volume# ll
total 0
drwxr-xr-x. 2 root root 56 Nov 19 04:45 ./
drwxr-xr-x. 1 root root 20 Nov 19 04:49 ../
-rw-r--r--. 1 root root 0 Nov 19 04:45 a1
-rw-r--r--. 1 root root 0 Nov 19 04:45 a2
-rw-r--r--. 1 root root 0 Nov 19 04:45 a3
-rw-r--r--. 1 root root 0 Nov 19 04:45 a4
-rw-r--r--. 1 root root 0 Nov 19 04:45 a5
root@eda44741500d:/volume#

```

i-01160b200f21cbe28 (Docker)

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```

Main PID: 2706 (dockerd)
Tasks: 10
Memory: 117.3M
CPU: 2.787s
CGroup: /system.slice/docker.service
└─2706 /usr/bin/dockerd -H fd:// --containerd=/run/containerd/containerd.sock --default-ulimit nofile=1048576
Nov 19 04:15:21 ip-172-31-33-103.ec2.internal dockerd[2706]: time="2024-11-19T04:15:21.719117098Z" level=info msg="Starting dockerd"
Nov 19 04:15:21 ip-172-31-33-103.ec2.internal dockerd[2706]: time="2024-11-19T04:15:21.752322284Z" level=info msg="API listen on /var/lib/docker/docker.sock"
Nov 19 04:15:21 ip-172-31-33-103.ec2.internal dockerd[2706]: time="2024-11-19T04:15:21.754380158Z" level=info msg="API listen on /var/lib/docker/docker.sock"
Nov 19 04:15:21 ip-172-31-33-103.ec2.internal systemd[1]: Started docker.service - Docker Application Container Engine.
Nov 19 04:34:07 ip-172-31-33-103.ec2.internal dockerd[2706]: time="2024-11-19T04:34:07.210777087Z" level=error msg="failed to mount overlay: error: mount failed: exit status 1"
Nov 19 04:35:59 ip-172-31-33-103.ec2.internal dockerd[2706]: time="2024-11-19T04:35:59.995547217Z" level=error msg="failed to mount overlay: error: mount failed: exit status 1"
Nov 19 04:35:59 ip-172-31-33-103.ec2.internal dockerd[2706]: time="2024-11-19T04:35:59.995960148Z" level=info msg="Attempting to start without overlay2"
Nov 19 04:38:29 ip-172-31-33-103.ec2.internal dockerd[2706]: 2024/11/19 04:38:29 http: superfluous response.WriteHeaderFromRequest
Nov 19 04:38:47 ip-172-31-33-103.ec2.internal dockerd[2706]: 2024/11/19 04:38:47 http: superfluous response.WriteHeaderFromRequest
root@ip-172-31-33-103 ~]# docker ps
CONTAINER ID   IMAGE          COMMAND                  CREATED        STATUS        PORTS       NAMES
eda44741500d   ubuntu        "/bin/bash"             3 hours ago    Up 3 hours                   cont2
e8b978896bb   imagevolume   "/bin/bash"             18 hours ago   Up 3 hours                   cont1
root@ip-172-31-33-103 ~]#

```

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Manual process

- To create volume manually for the container by using command

#docker run -it --name new cont name -v/volume name image name

Host to container

create the volume in host by using command

```
#docker volume create volume name
```

. If we want to add files in host volume we need to inspect the volume, there you see the path

`var/lib/docker/volume/_data` This is path to add files

To share the host volume to the container the command is

```
docker run -it --name new cont name --mount  
source=volume name,destination=new volume name  
image name
```