Monday, 7 November 2022 9.22

DOCKER STORAGE

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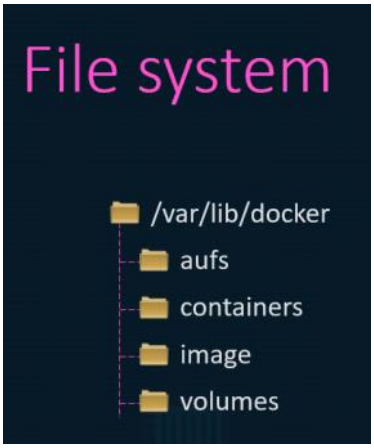
STORAGE DRIVERS

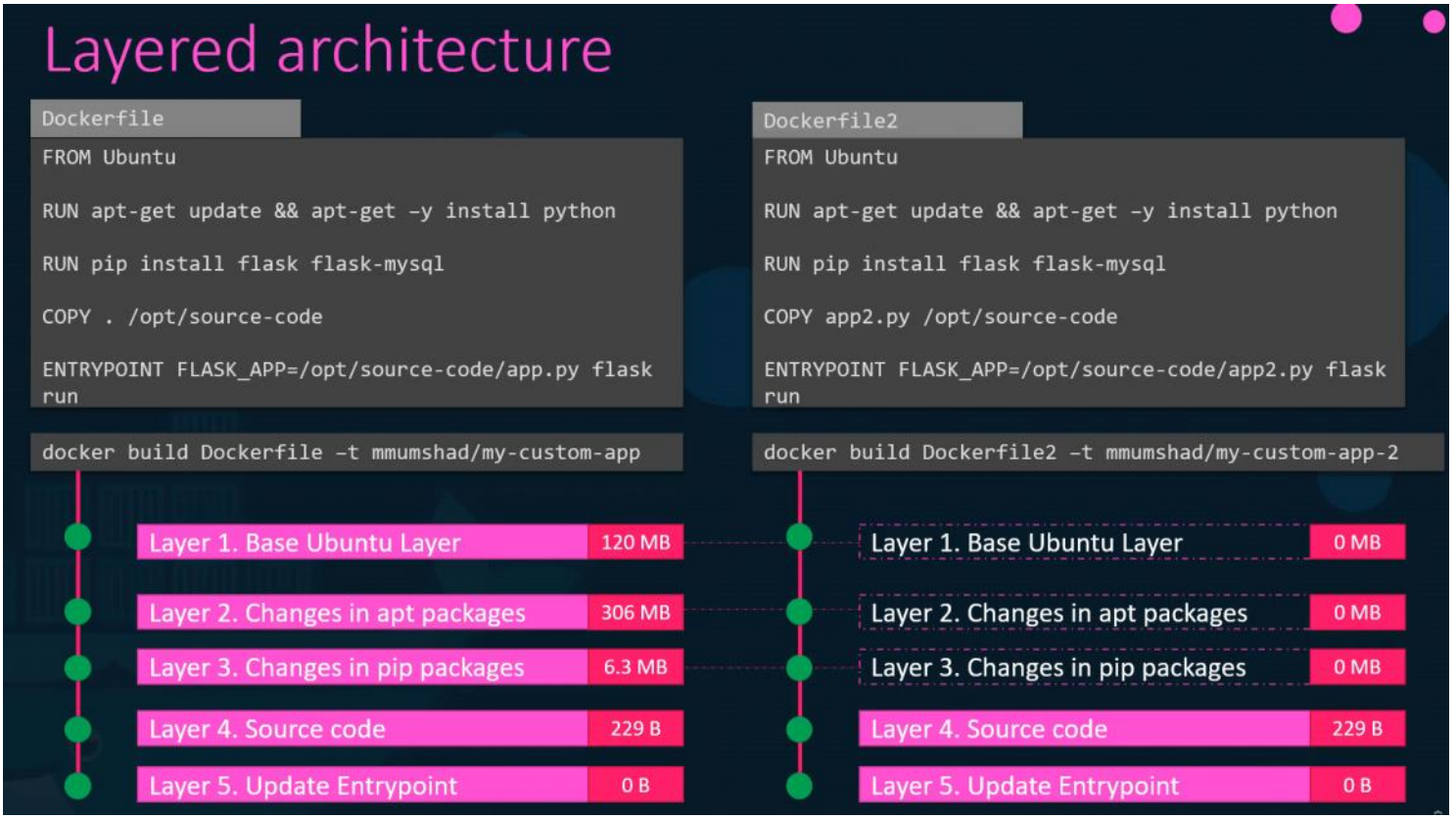
VOLUME DRIVERS

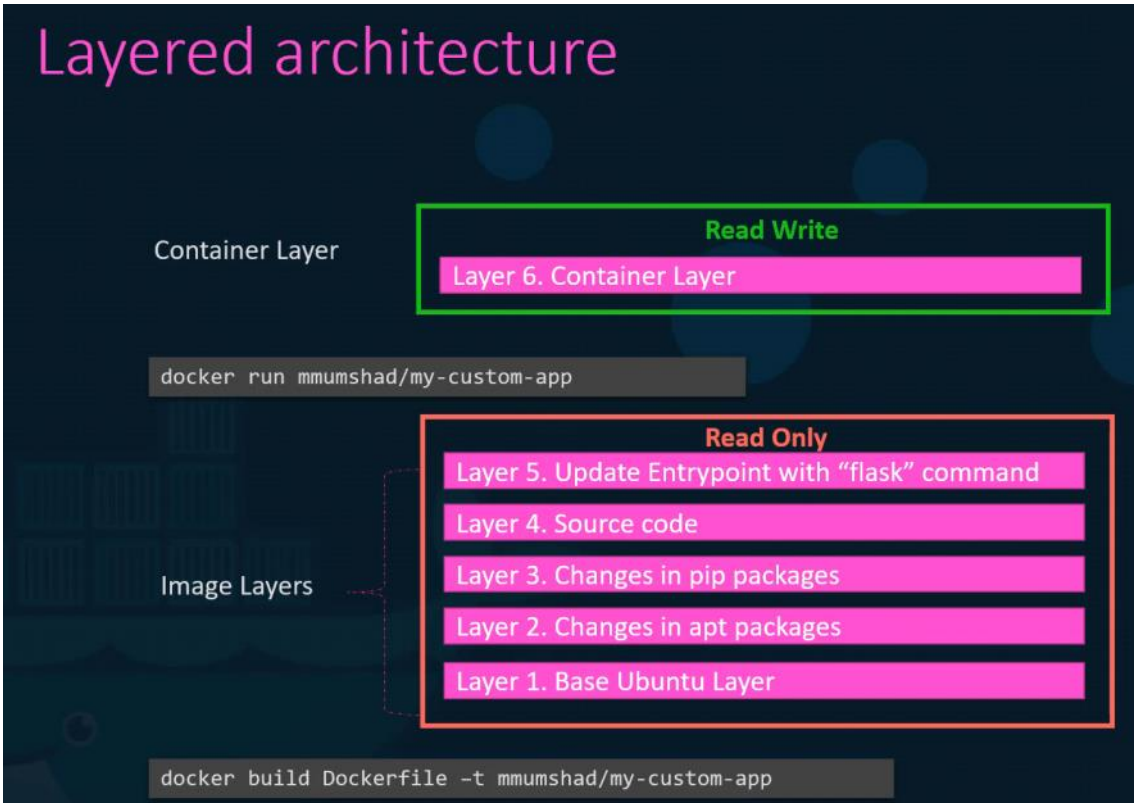
When you install Docker on a system

it creates this folder structure at /var/lib/docker/

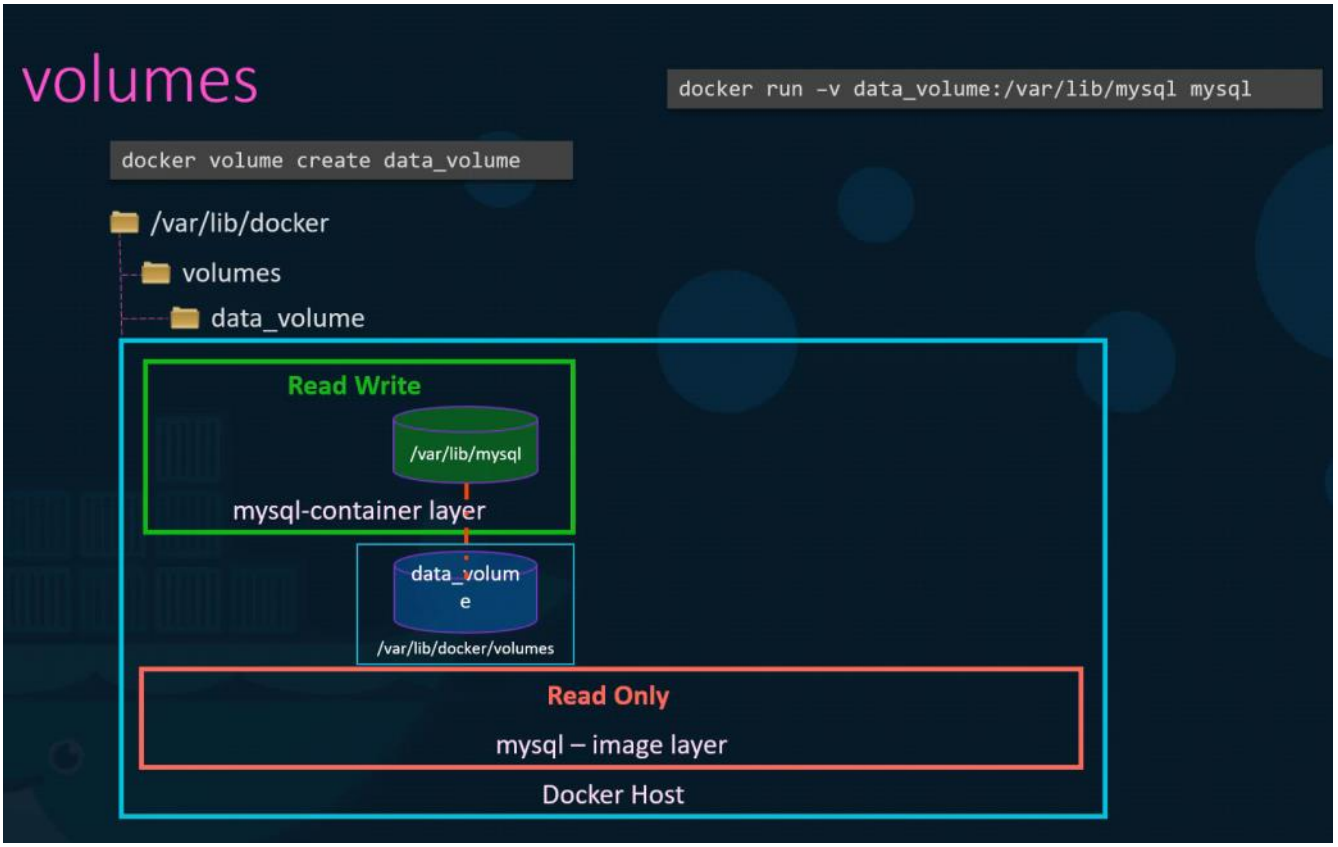
This is where docker stores all its data by default.

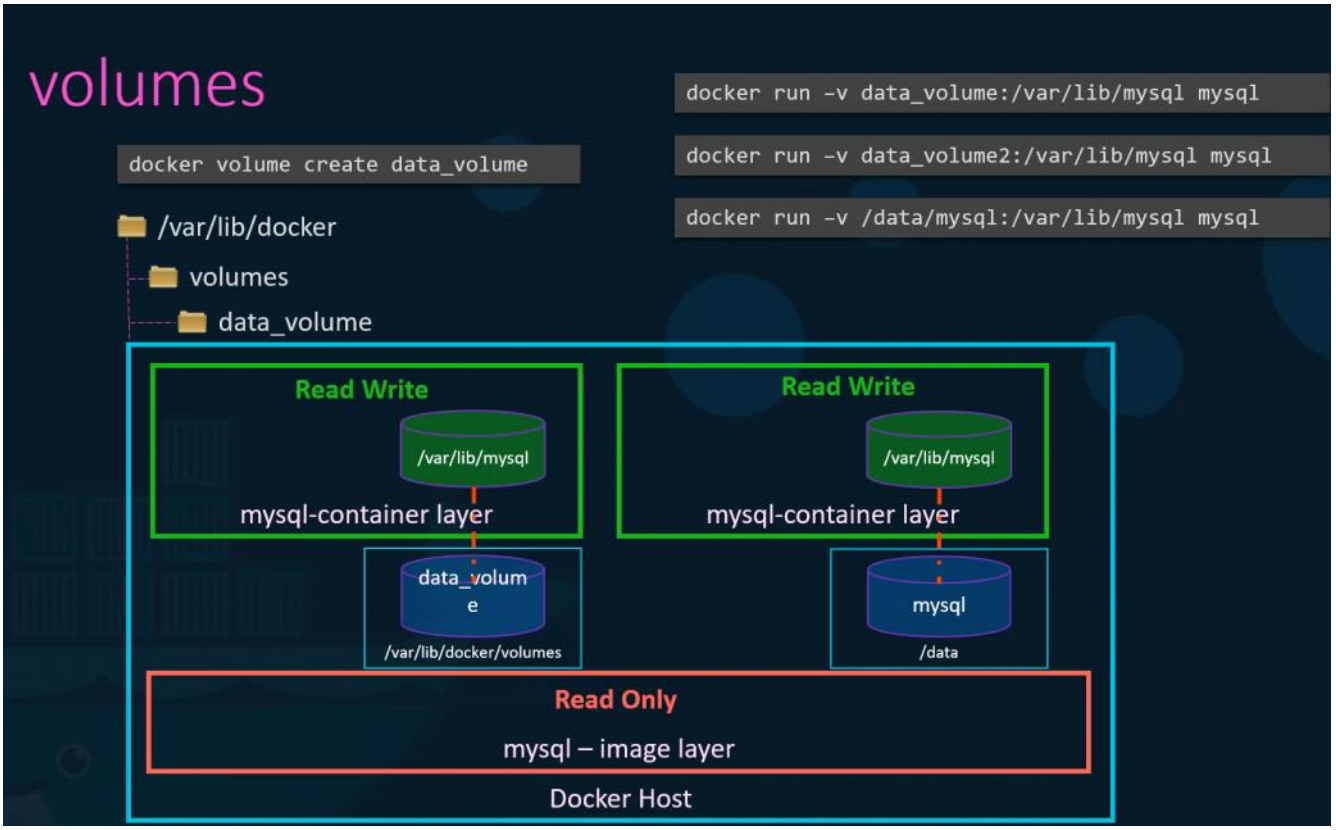



Layered architecture
Dockerfile
FROM Ubuntu
RUN apt-get update && apt-get -y install python
RUN pip install flask flask-mysql
COPY . /opt/source-code
ENTRYPOINT FLASK_APP=/opt/source-code/app.py flask run
Dockerfile2
FROM Ubuntu
RUN apt-get update && apt-get -y install python
RUN pip install flask flask-mysql
COPY app2.py /opt/source-code
ENTRYPOINT FLASK_APP=/opt/source-code/app2.py flask run
docker build Dockerfile -t mmumshad/my-custom-app
docker build Dockerfile2 -t mmumshad/my-custom-app-2
Layer 1. Base Ubuntu Layer 120 MB
Layer 2. Changes in apt packages 306 MB
Layer 3. Changes in pip packages 6.3 MB
Layer 4. Source code 229 B
Layer 5. Update Entrypoint 0 B
Layer 1. Base Ubuntu Layer 0 MB
Layer 2. Changes in apt packages 0 MB
Layer 3. Changes in pip packages 0 MB
Layer 4. Source code 229 B
Layer 5. Update Entrypoint 0 B

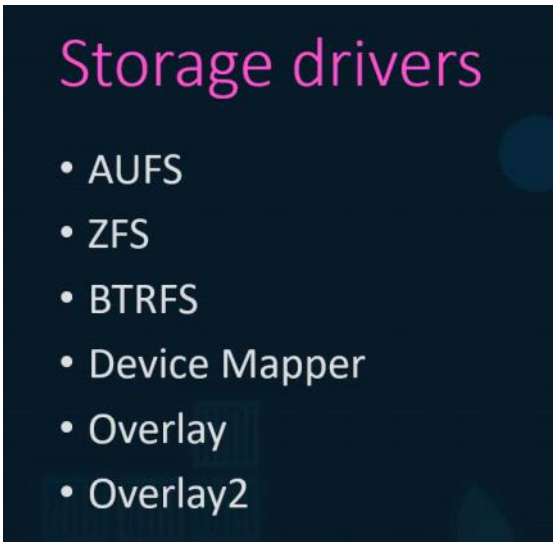

Layered architecture
Container Layer
Read Write
Layer 6. Container Layer
docker run mmumshad/my-custom-app
Read Only
Image Layers
Layer 5. Update Entrypoint with "flask" command
Layer 4. Source code
Layer 3. Changes in pip packages
Layer 2. Changes in apt packages
Layer 1. Base Ubuntu Layer
docker build Dockerfile -t mmumshad/my-custom-app


volumes
docker run -v data_volume:/var/lib/mysql mysql
docker volume create data_volume
/var/lib/docker
volumes
data_volume
data_volum
e
/var/lib/docker/volumes
Read Only
mysql – image layer
Docker Host


volumes
docker run -v data_volume:/var/lib/mysql mysql
docker volume create data_volume
/var/lib/docker
volumes
data_volume
Read Write
/var/lib/mysql
mysql-container layer
data_volum
e
/var/lib/docker/volumes
Read Only
mysql – image layer
Docker Host




```
docker run \
--mount type=bind,source=/data/mysql,target=/var/lib/mysql mysql
```



Docker Volume Behaviours

No	Situation	Behaviour
1	If there is no target directory.	The target directory is created and files inside volume are copied to this directory.
2	If there is a target directory, but it is empty.	The files in the volume are copied to the target directory.
3	If there is a target directory and it is not empty, but volume is empty.	The files in the target directory are copied to volumes.
4	If the volume is not empty.	There will be just the files inside volume regardless of the target directory is full or empty.

DOCKER VOLUMES

STORAGE DRIVERS

AUFS | ZFS | BTRFS | DEVICE MAPPER | OVERLAY

VOLUME DRIVERS

Local | Azure File Storage | Convoy | DigitalOcean Block Storage | Flocker | gce-docker | GlusterFS | NetApp | RexRay | Portworx | VMware vSphere Storage

https://docs.docker.com/engine/extend/legacy_plugins/

VOLUME DRIVERS

```
docker run -it \
     --name mysql
     --volume-driver rexray/ebs
     --mount src=ebs-vol,target=/var/lib/mysql
     mysql
```