



Docker Certified Associate (DCA)

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Session 2

- Inspect images and report specific attributes using filter and format+ **Lab**
- Show the main parts of a Dockerfile+ **Lab**
- Apply a file to create a Docker image+ **Lab**
- Display layers of a Docker image
- Use CLI commands such as list, delete, prune, rmi, etc to manage images+ **Lab**

Docker Command

Docker Get Image from Dockerhub.

Run : docker run hello-world

Docker Command

View Docker image (hello-world) from Dockerhub.

Run : docker image ls **OR** docker images

Switch:

docker images -a > show all images

docker images -q > show ONLY Image ID

Docker Command

Docker Container Execute and Input to Container .

Run : docker run -it IMAGE:TAG

Run : docker run -it centos:latest

Switch:

docker images -a > show all images

docker images -q > show ONLY Image ID

Docker Command

Docker Container Process Info

Run : docker ps

Switch:

docker ps -a

Docker Command

- Docker Container Execute Without Input to Container
- **Run :** docker run -it -d centos:latest /bin/bash

Switch:

Docker Command

- Docker Container Process ONLY UP
- **Run :** docker run -it -d centos:latest

Switch:

Docker Command

- Docker Container Process ONLY UP and Image Size
- **Run :** docker ps -s

Switch:

Docker Command

- Docker Container Process Number of LAST Create Container (UP or Down)
- **Run :** docker ps -n=3

Switch:

Docker Command

- Docker Container Remove if Down Container
- **Run :** docker rm container_id

Switch:

Docker Command

- Docker Container Remove if UP Container
- **Run :** docker rm -f 21439f50a158

Switch:

Docker Command

- For Remove Container Use Container ID or Container Name
- **Run :** docker rm -f modest_kilby

Switch:

Docker Command

- For Remove ALL Container UP or Down
- **Run :** docker rm -f \$(docker ps -aq)

Switch:

Docker Command

- Copy File Docker to Container :
 - **Run** : docker run -it centos:latest /bin/bash
 - **Run** : touch ali
 - **Run** : docker cp ali container_id:/root

Switch:

Docker Command

- Copy Folder and SubFolder Docker to Container
- **Run :** docker cp folder1/ 6e7bb89e0f03:/root/

Switch:

Docker Command

- Copy Files Docker to Container With Archive mode (copy all uid/gid information) :

Run : adduser ali

Run : chown ali. file1

Run : cat /etc/passwd | grep ali

Run : docker cp -a file1 6e7bb89eof03:/root/

Switch:

Docker Command

- Docker Stop , Start and Attach Container

Run : docker stop f75ef67694e2 **Stop Container Without Delete Container ID**

Run : docker start f75ef67694e2 **Start OLD Stop Container ID**

Run : docker attach f75ef67694e2 **attach = execute OLD Container ID Started**

Switch:

Docker Command

- Assign CPUs to Docker Container and RUN.

Run : docker run -it --cpuset-cpus=1 centos:latest

Run : yes > /dev/null &

Run : top + 1

Switch:

Docker Command

- Assign CPUs to Docker Container and RUN

Run : docker run -it --cpuset-cpus="1,2" centos:latest

Run : docker run -it --cpuset-cpus="0-2" centos:latest

Switch:

Docker Command

- Remove shutdown container :

Run : docker rm \$(docker ps -a -q -f status=exited)

Run : docker run -it --cpuset-cpus="0-2" centos:latest

Switch:

Docker Command

- -e or --env=Variable ↗ Run with Set Environment Variable

Run : export VAR1=val1

Run : docker run -it --env VAR1 centos:latest

RUN in Container: echo \$VAR1

Switch:

Docker Command

- Set Name To Container

Run : docker run -it --name MyContainer centos:latest

NOTE 1 : Do Not Change Container HostName in Path :

Run : cat
/var/lib/docker/containers/b6ff0agoda1033a0039615a6d57d522622d02625988
d98163f6a9c4f1f82dd47/hostname

Switch:

Docker Command

- Connect to Container UP and Run in Background with option exec

Run : docker exec -it test /bin/bash

Run docker exec -it 335a5485795b /bin/bash

Switch:

Docker Command

- Start Docker Container with name and Running top command startup ?

Run : docker run -d --name topdemo centos:latest /usr/bin/top –b

Run docker attach topdemo

Switch:

Docker Command

- Docker Create and Run

Run : docker create -t -i centos:latest bash

Run docker ps -a

Run docker start -ai 694f29658210

Switch:

Docker Command

- Docker Create and Run With / Storage 120GB

Run : docker create -t -i --storage-opt size=120G centos:latest bash

Run docker start -ai e69268cee881

Switch:

Docker Command

- Docker Create and Run With /dev/shm Storage 128M

Run : docker create -t -i --shm-size 128M centos:latest bash

Switch:

Docker Command

- ONLY Download Container Images from DockerHub

Run : docker pull ubuntu

Switch:

Docker Command

- Remove Container Images

Run docker rmi ubuntu

Switch:

Docker Command

- Remove Container Images in Used

Run docker rm -f 5740ecfdd66f

Run docker rmi centos

Switch:

Docker Command

- Change Container Images and Commit Status

Run docker commit bbo4fo6o2188 centos:myversion

Run docker run -it centos:myversion

Switch:

Docker Command

- Change Container Images and Save Status For Other Docker Machine:

Run docker save -o centos_file.tar.gz 84684fbb5ff5

OR

Run docker save -o centos_file.tar.gz centos:myversion

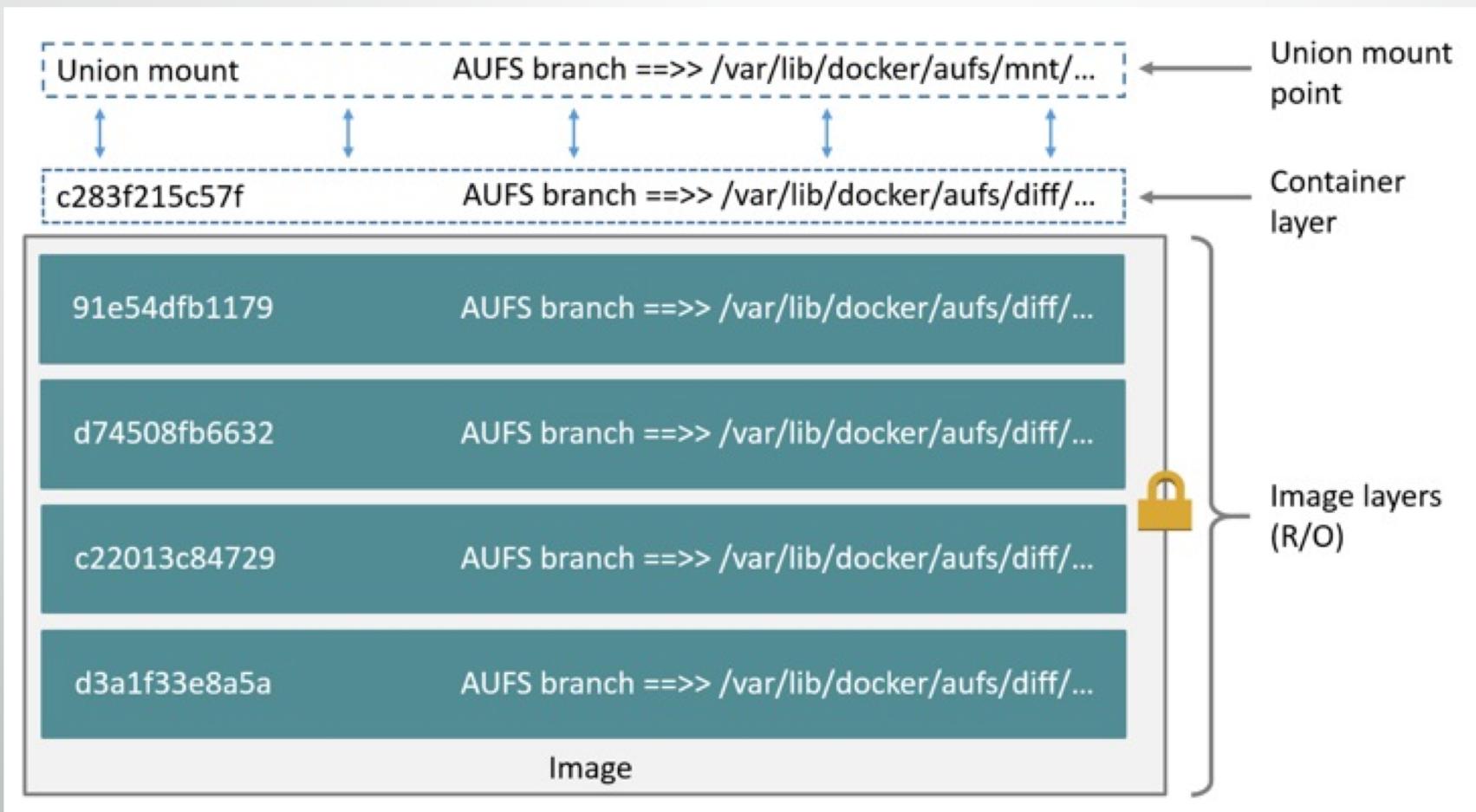
Run docker load -i centos_file.tar.gz

OR

Run docker load < centos_file.tar.gz

Switch:

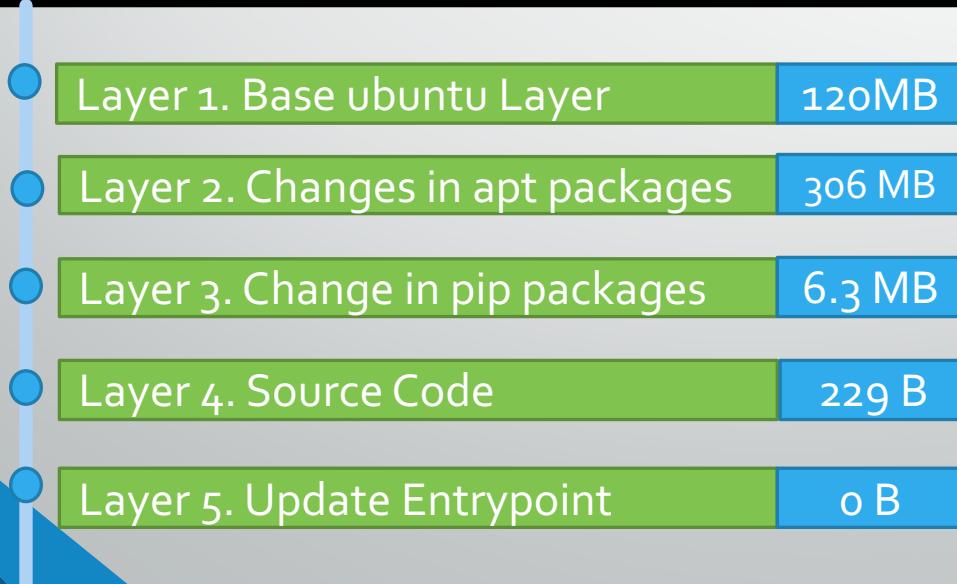
Aufs



Layered Architecture

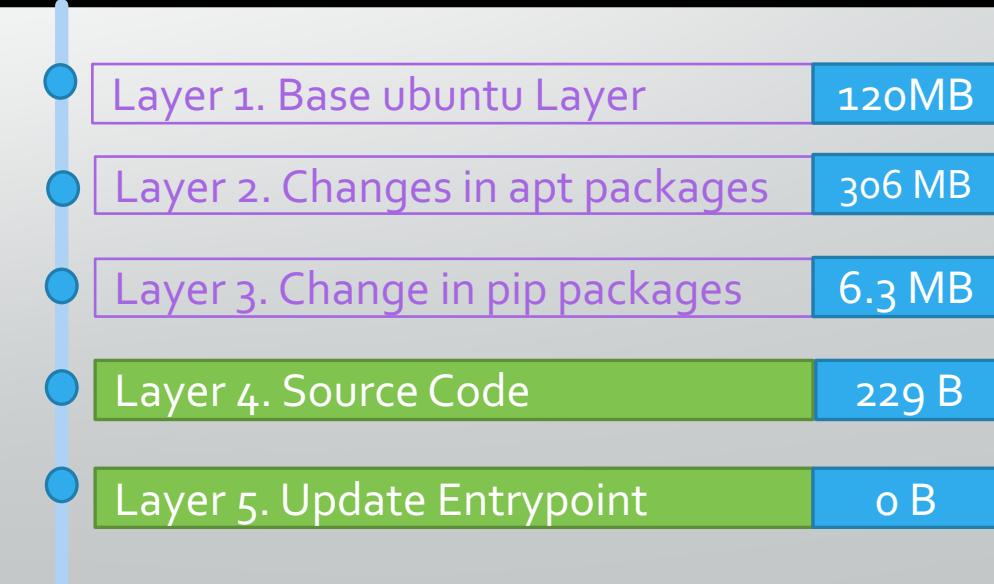
```
FROM ubuntu  
  
RUN apt-get update && apt-get -y install python  
  
RUN pip install flask flask-mysql  
  
COPY . /opt/source-code  
  
ENTRYPOINT FLASK_APP=/opt/source-code/app.py flask run
```

```
Docker build Dockerfile –t htayanloo/myapp
```



```
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/app2.py flask run
```

```
Docker build Dockerfile –t htayanloo/myapp-2
```



Layered Architecture

Container Layers

Read Write

Layer 6. Container Layer

Docker run htayanloo/myapp

Image Layers

Read Only

Layer 1. Base ubuntu Layer

Layer 2. Changes in apt packages

Layer 3. Change in pip packages

Layer 4. Source Code

Layer 5. Update Entrypoint

Docker build Dockerfile -t htayanloo/myapp

Image Layers

Container Layers

Read Write

App.py

temp.txt

Read Only

App.py