



## Summary

### Session No – 9

- Launching a web server in a container
  - Step 1:-Installing Apache webserver

```
[root@413e37f08756 /]# yum install httpd
Loaded plugins: fastestmirror, ovl
Determining fastest mirrors
```

- Step 2:-Creating a web page

```
[root@413e37f08756 /]# cd /var/www/html/
[root@413e37f08756 html]# ls
[root@413e37f08756 html]# cat > vimal.html
vimal daga
[root@413e37f08756 html]# ls
vimal.html
[root@413e37f08756 html]#
```

- Step 3:- Starting services

```
[root@413e37f08756 html]# httpd
AH00558: httpd: Could not reliably determine the server's fully qualified domain name, using 172.17.0.2. Set the 'ServerName' directive globally to suppress this message
[root@413e37f08756 html]#
[root@413e37f08756 html]# ps aux
USER      PID %CPU %MEM    VSZ   RSS TTY      STAT START   TIME COMMAND
root         1  0.2  0.3  11844  2968 pts/0    Ss   15:43   0:00 /bin/bash
root        70  0.0  0.6 224096  6100 ?        Ss   15:44   0:00 httpd
apache     71  0.0  0.6 224096  5940 ?        S    15:44   0:00 httpd
apache     72  0.0  0.6 224096  5940 ?        S    15:44   0:00 httpd
apache     73  0.0  0.6 224096  5940 ?        S    15:44   0:00 httpd
apache     74  0.0  0.6 224096  5940 ?        S    15:44   0:00 httpd
apache     75  0.0  0.6 224096  5940 ?        S    15:44   0:00 httpd
root       76  0.0  0.3  51748  3436 pts/0    R+   15:44   0:00 ps aux
[root@413e37f08756 html]# hi
```

- Three ways to set up an Apache web server in a container
  - Using a pre-created image
  - Using some base images and configuring a web server
  - Creating the custom image for a web server
- Two ways to create a custom way
  - Commit command
  - Code (Docker file)
- If we want to create a custom image one of the way is to launch a container add the required software and from the entire running setup create a custom image with the commit command

- Creating container & installing software

```
[root@ip-172-31-46-75 ~]# docker run -it --name myos1 centos:7
[root@44ce0a218573 /]# mkdir /lw
[root@44ce0a218573 /]# touch /lw/a
[root@44ce0a218573 /]# ls
anaconda-post.log bin dev etc home lib lib64 lw media mnt opt proc root run sbin srv sys usr
[root@44ce0a218573 /]# cd lw/
[root@44ce0a218573 lw]# ls
a
[root@44ce0a218573 lw]# cd
[root@44ce0a218573 ~]# yum install net-tools
Loaded plugins: fastestmirror, ovl
Determining fastest mirrors
```

- Creating an image from a container

- Command:- docker commit (container name) (Image name: version name)

```
[root@ip-172-31-46-75 ~]# docker commit myos1 lwimage:v1
sha256:3631c09bfd6768ab9c50de999f1232f567152fe376a4a65ef89b34b36b72818b
[root@ip-172-31-46-75 ~]# docker images
REPOSITORY TAG IMAGE ID CREATED SIZE
lwimage v1 3631c09bfd67 13 seconds ago 387MB
centos 7 eeb6ee3f44bd 13 months ago 204MB
[root@ip-172-31-46-75 ~]#
```

- **FORM** is a keyword in the code file to tell about the base image
- **RUN** is a keyword in the code file for running the commands

```
FROM centos:7

RUN mkdir /lwdir
RUN touch /lwdir/bb

RUN yum install net-tools -y
```

- **Docker build** command is used to create the image from the code file

- **-t** to tag image
- **-f** for file name
- **.** for the current directory or path

```
[root@ip-172-31-46-75 code]# docker build -t mylwnew:mytag1 -f myc /code/
Sending build context to Docker daemon 2.048kB
Step 1/4 : FROM centos:7
--> eeb6ee3f44bd
Step 2/4 : RUN mkdir /lwdir
--> Using cache
--> d81a9ee4345b
Step 3/4 : RUN touch /lwdir/bb
--> Using cache
--> ce8370300d80
Step 4/4 : RUN yum install net-tools -y
--> Running in 8231128bc811
Loaded plugins: fastestmirror, ovl
Determining fastest mirrors
* base: download.cf.centos.org
* extras: download.cf.centos.org
* updates: download.cf.centos.org
```

- Launching container from custom image

```
[root@ip-172-31-46-75 code]# docker run -it mylwnew:mytag1
[root@92f1b64b7068 /]#
[root@92f1b64b7068 /]#
[root@92f1b64b7068 /]# cd /
[root@92f1b64b7068 /]# ls
anaconda-post.log  bin  dev  etc  home  lib  lib64  lwdi  media  mnt  opt  proc  root  run  sbin  srv  sys  usr
var
```

- Docker file is a special file whenever we run the build command it looks for it
- **WORKDIR** is a keyword in the docker file to set the current working directory
- **Docker cp** command is used to copy files from the base system to the container
  - Command:- **docker cp (file name ) (Container name: Path )**

```
[root@ip-172-31-46-75 ~]# cat > linux.txt
linux world
[root@ip-172-31-46-75 ~]# ls
Dockerfile  linux.txt
[root@ip-172-31-46-75 ~]# docker cp  linux.txt  os1:/tmp
[root@ip-172-31-46-75 ~]# docker attach  os1
[root@34c6c2572853 /]#
[root@34c6c2572853 /]# cd /tmp/
[root@34c6c2572853 tmp]# ls
ks-script-DrRL8A  linux.txt  yum.log
[root@34c6c2572853 tmp]#
```

- **COPY** keyword is used for copying the files from the base system to the image
- Creating a custom image for the Apache web server
  - Docker file

```
FROM  centos:7

RUN yum  install httpd -y

WORKDIR /var/www/html

COPY data/linux.txt  home.html

RUN echo vimal daga >  hi.html
```

- Building the image

```
[root@ip-172-31-46-75 webcode]# docker build -t myweb:v1 /webcode/
Sending build context to Docker daemon  2.048kB
Step 1/4 : FROM  centos:7
--> eeb6ee3f44bd
Step 2/4 : RUN yum  install httpd -y
--> Using cache
--> 4e9a75e79adf
Step 3/4 : WORKDIR /var/www/html
--> Running in 1ad52ac24dbe
Removing intermediate container 1ad52ac24dbe
--> 096cc73024eb
Step 4/4 : RUN echo vimal daga >  hi.html
--> Running in 404d43a86460
```

- If we launch the container from the image automatically, we will be landed at the /var/www/html directory

```
[root@ip-172-31-46-75 webcode]# docker run -it myweb:v1
[root@2a33bd613ec4 html]#
[root@2a33bd613ec4 html]# pwd
/var/www/html
[root@2a33bd613ec4 html]#
```

- In the docker file, we can run two types of commands at build time & run time
- Commands running at the time of building the image are called build time command
- Commands running while launching the container from an image are called run-time commands
- If we have to run the command at build time we have to use the **RUN** keyword in the docker file
- If we have to run the command at run time we have to use **CMD / ENTRYPOINT** keyword in the docker file

```
FROM centos:7
RUN yum install httpd -y
I
WORKDIR /var/www/html
COPY data/linux.txt home.html
RUN echo vimal daga > hi.html
CMD httpd
```

- Building the image from the docker file

```
[root@ip-172-31-46-75 webcode]# docker build -t myweb:v1 /webcode/
Sending build context to Docker daemon 3.584kB
```

- Now if we launch the container from the image automatically httpd command will run

```
[root@ip-172-31-46-75 webcode]# docker run -it --name os4 myweb:v1
AH00558: httpd: Could not reliably determine the server's fully qualified domain name, using 172.17.0.5. Set the 'ServerName' directive globally to suppress this message
[root@ip-172-31-46-75 webcode]#
```