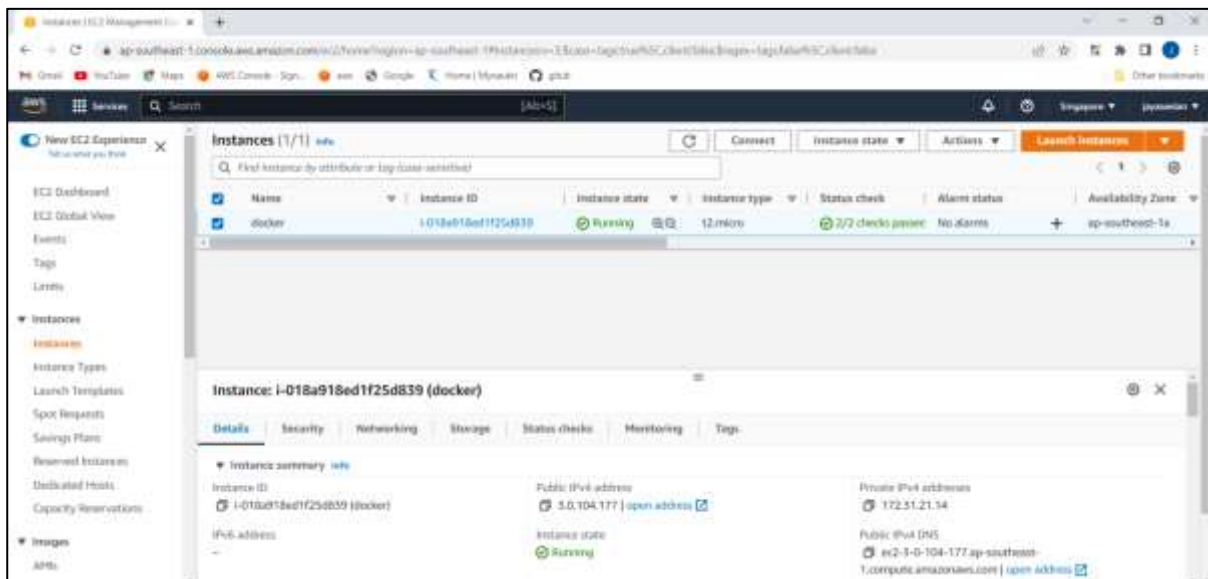


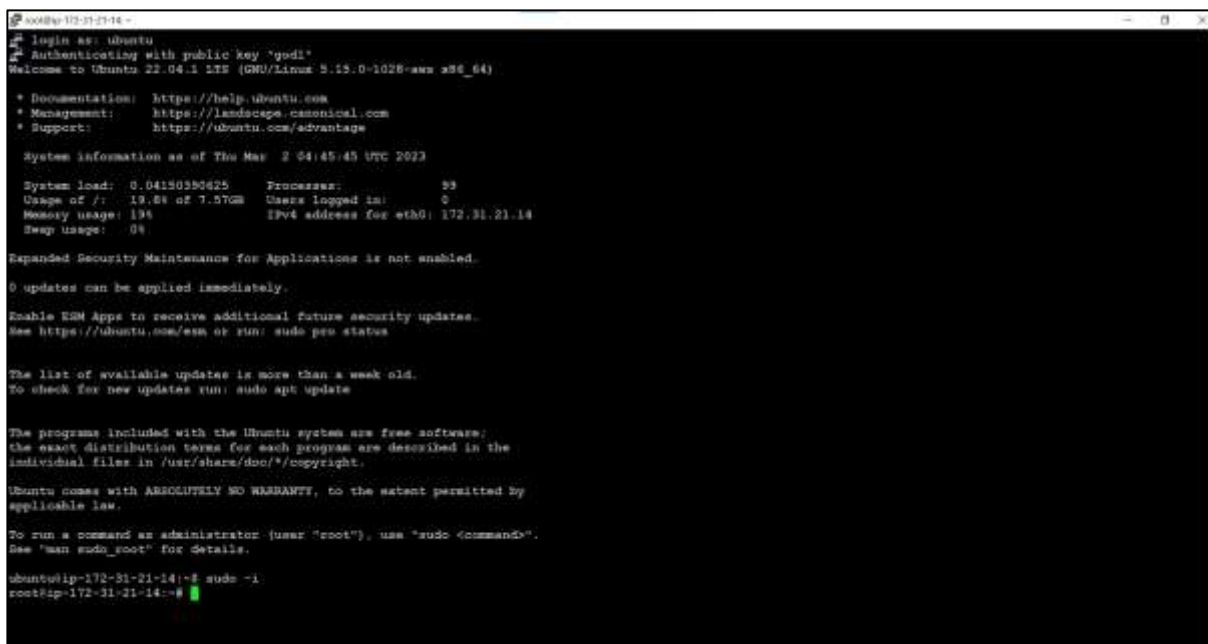
# DOCKER CLASS2

## 1.Container Backup

**Step1:**create ec2 ubuntu server



Login server and change root user



## Step2:Install Docker

#apt-get update

#apt-get install docker.io -y

#docker --version

```
Setting up bridge-utils (1.7-ubuntu3) ...
Setting up pigz (2.6-1) ...
Setting up containerd (1.5.9-0ubuntu3.1) ...
Created symlink /etc/systemd/system/multi-user.target.wants/containerd.service - /lib/systemd/system/containerd.service.
Setting up ubuntu-fan (0.12.16) ...
Created symlink /etc/systemd/system/multi-user.target.wants/ubuntu-fan.service - /lib/systemd/system/ubuntu-fan.service.
Setting up docker.io (20.10.12-0ubuntu4) ...
Adding group 'docker' (GID 122) ...
Done.
Created symlink /etc/systemd/system/multi-user.target.wants/docker.service - /lib/systemd/system/docker.service.
Created symlink /etc/systemd/system/sockets.target.wants/docker.socket - /lib/systemd/system/docker.socket.
Processing triggers for dbus (1.12.20-2ubuntu4.1) ...
Processing triggers for man-db (2.10.2-1) ...
Scanning processes...
Scanning linux images...

Running kernel seems to be up-to-date.

No services need to be restarted.

No containers need to be restarted.

No user sessions are running outdated binaries.

No VM guests are running outdated hypervisor (qemu) binaries on this host.
root@ip-172-31-21-14:~# docker --version
Docker version 20.10.12, build 20.10.12-0ubuntu4
root@ip-172-31-21-14:~#
```

## Step3:create httpd image

#docker pull httpd

#docker images

```
root@ip-172-31-21-14:~# docker pull httpd
Using default tag: latest
latest: Pulling from library/httpd
3f9582a2cbe7: Pull complete
9423d659c3be7: Pull complete
d1f584c02b5d: Pull complete
8f73a485e312: Pull complete
b7697f8af320: Pull complete
Digest: sha256:83e99e7c437898cb564hbd3cbea7flea3f2d86e1cbd7a5324940086e59092f2b
Status: Downloaded newer image for httpd:latest
docker.io/library/httpd:latest
root@ip-172-31-21-14:~# docker images
REPOSITORY   TAG       IMAGE ID   CREATED   SIZE
httpd        latest   b304753f3b6e   21 hours ago   145MB
root@ip-172-31-21-14:~#
```

## Step4:create container

#docker run -itd --name httpdcontainer -p "8010:80" httpd

# docker ps -a

# docker exec -it <cont ID> /bin/bash

```

root@ip-172-31-21-14:~# docker run -itd --name httpdcontainer -p '8010:80' httpd
b4875ee059f2e3c8f32c7118f5901173deea37abc9ca4cbd9ffa46de893407d7
root@ip-172-31-21-14:~# docker ps -a
CONTAINER ID   IMAGE     COMMAND                  CREATED        STATUS        PORTS                               NAMES
b4875ee059f2   httpd     "httpd-foreground"      7 seconds ago Up 6 seconds  0.0.0.0:8010->80/tcp, :::8010->80/tcp httpdcontainer
root@ip-172-31-21-14:~# docker exec -it b4875ee059f2 /bin/bash
root@b4875ee059f2:/usr/local/apache2# ls
bin  build  cgi-bin  conf  error  htdocs  icons  include  logs  modules
root@b4875ee059f2:/usr/local/apache2#

```

Note: container already have linux os and httpd , now install vim

#apt-get update

#apt-get install vim

#cd htdocs

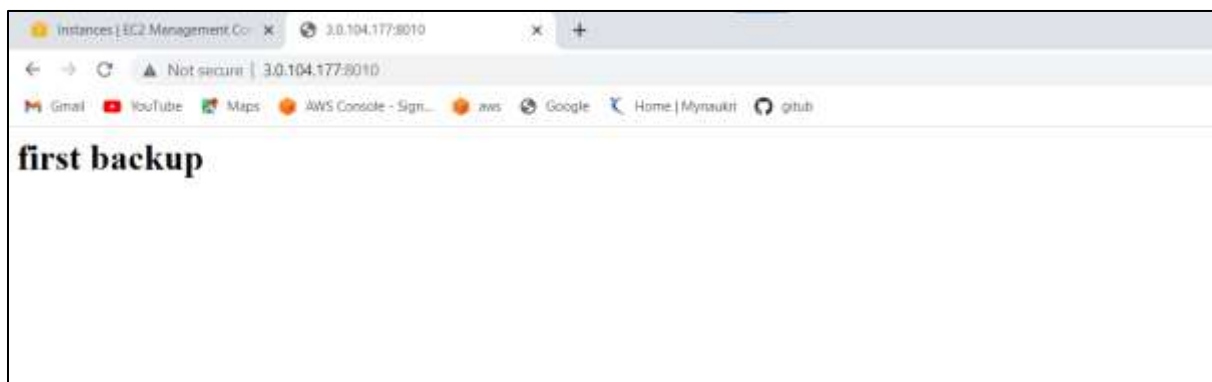
#vi index.html --->any write -->save:wq!

```

root@ip-172-31-21-14:~#
root@b4875ee059f2:/usr/local/apache2# ls
bin  build  cgi-bin  conf  error  htdocs  icons  include  logs  modules
root@b4875ee059f2:/usr/local/apache2# cd htdocs
root@b4875ee059f2:/usr/local/apache2/htdocs# ls
index.html
root@b4875ee059f2:/usr/local/apache2/htdocs# vi index.html
root@b4875ee059f2:/usr/local/apache2/htdocs# cat index.html
<html><body><h1>first backup</h1></body></html>
root@b4875ee059f2:/usr/local/apache2/htdocs#

```

Now put public ip:8010 in chrome



Container exit

## Step5:Container Convert Image

use commit command to convert container to image

```
#docker ps -a
```

```
#docker commit <container ID> <Image name to create>
```

```
#docker commit b4875ee059f2 jayabackup
```

#docker images --->it shown jayabackup size 200mb because vim will install(already linux os and httpd have)

```
root@ip-172-31-21-14:~# docker ps -a
CONTAINER ID   IMAGE          COMMAND                  CREATED        STATUS        PORTS                               NAMES
b4875ee059f2   httpd         "httpd-foreground"      10 minutes ago Up 10 minutes 0.0.0.0:8010->80/tcp, :::8010->80/tcp httpdcontainer

root@ip-172-31-21-14:~# docker commit b4875ee059f2 jayabackup
sha256:568f1ddfd4f4a95b33f4ef736db9b02a91da3538b64c5758af96d4b1b39bf

root@ip-172-31-21-14:~# docker images
REPOSITORY    TAG       IMAGE ID       CREATED        SIZE
jayabackup    latest   568f1ddfd4f4   15 seconds ago 200MB
httpd         latest   b3b4753f7b6e   22 hours ago   145MB

root@ip-172-31-21-14:~#
```

Now create container using jayabacup image

```
#docker run -itd --name httpdcontainer1 -p "8020:80" jayabackup
```

```
# docker ps -a
```

```
# docker exec -it <cont ID> /bin/bash
```

```
root@ip-172-31-21-14:~# docker run -itd --name httpdcontainer1 -p "8020:80" jayabackup
03f354ac1089d39fe48376710fa1364b397ece4a8e768635aa384e174567564

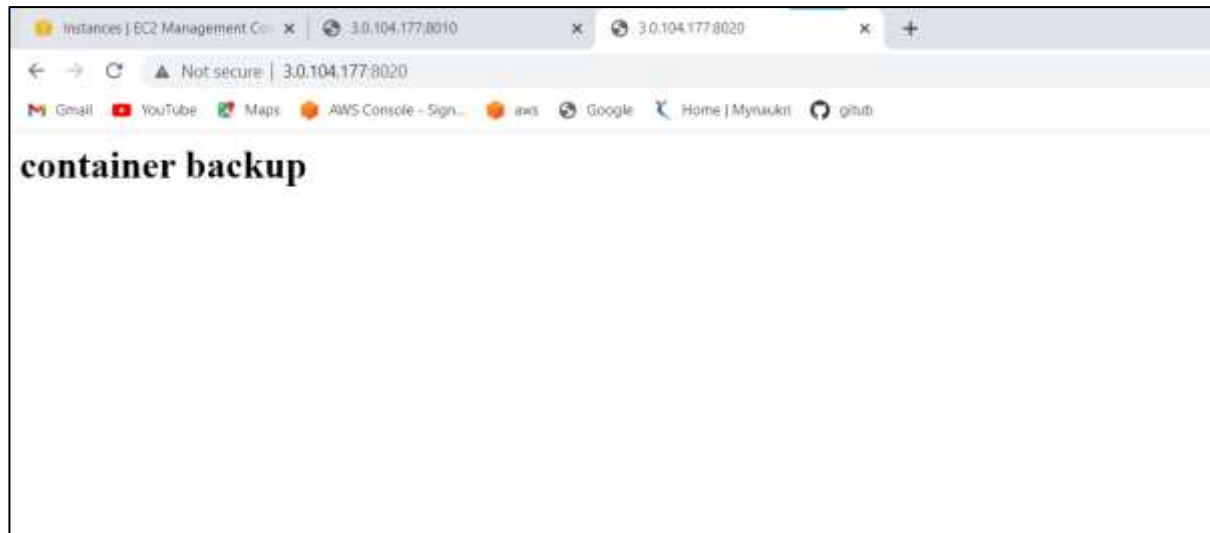
root@ip-172-31-21-14:~# docker ps -a
CONTAINER ID   IMAGE          COMMAND                  CREATED        STATUS        PORTS                               NAMES
03f354ac1089   jayabackup    "httpd-foreground"      8 seconds ago Up 6 seconds  0.0.0.0:8020->80/tcp, :::8020->80/tcp httpdcontainer1
b4875ee059f2   httpd         "httpd-foreground"      14 minutes ago Up 14 minutes  0.0.0.0:8010->80/tcp, :::8010->80/tcp httpdcontainer

root@ip-172-31-21-14:~# docker exec -it 03f354ac1089 /bin/bash
root@03f354ac1089:/usr/local/apache2# ls
bin  build  cgi-bin  conf  error htdocs  icons  include  logs  modules
root@03f354ac1089:/usr/local/apache2# cd htdocs
root@03f354ac1089:/usr/local/apache2/htdocs# ls
index.html
root@03f354ac1089:/usr/local/apache2/htdocs#
```

```
#cd htdocs
```

#vi index.html --->any write -->save:wq!(already vim install in first container this container is backup so can't install vim)

Now put public ip:8020 in chrome



One backup image use to create many container

# Image

## 2.BACKUP

- Local backup
- Cloud backup

### 2.1 Local backup:

#docker images

#docker save -o /root/jayabackup.tar <Image name to take local backup>

O ---> output path to save

# docker save -o /root/jayabackup.tar jayabackup

#ls -larth

```
root@ip-172-31-21-14:~# docker save -o /root/jayabackup.tar jayabackup
root@ip-172-31-21-14:~# ls -larth
total 196M
-rw-r--r--  1 root root 161 Jul  9  2019 .profile
-rw-r--r--  1 root root 3.1K Oct 15  2021 .bashrc
drwxr-xr-x 19 root root 4.0K Mar  2 04:42 ..
drwx-----  2 root root 4.0K Mar  2 04:42 .ssh
drwx-----  4 root root 4.0K Mar  2 04:43 snap
-rw-----  1 root root 196M Mar  2 05:32 jayabackup.tar
drwx-----  4 root root 4.0K Mar  2 05:32 .
root@ip-172-31-21-14:~#
```

Now remover container

#docker ps -a

#docker rm -f (container id)

# docker rm -f 03f354ac1089

# docker rm -f b4875ee059f2

```
root@ip-172-31-21-14:~# docker ps -a
CONTAINER ID   IMAGE      COMMAND                  CREATED        STATUS        PORTS                               NAMES
03f354ac1089   jayabackup "httpd-foreground"      33 minutes ago Up 33 minutes 0.0.0.0:8020->80/tcp, :::8020->80/tcp httpdcontainer1
b4875ee059f2   httpd      "httpd-foreground"      48 minutes ago Up 48 minutes 0.0.0.0:8010->80/tcp, :::8010->80/tcp httpdcontainer
root@ip-172-31-21-14:~# docker rm -f 03f354ac1089
03f354ac1089
root@ip-172-31-21-14:~# docker rm -f b4875ee059f2
b4875ee059f2
root@ip-172-31-21-14:~# docker ps -a
CONTAINER ID   IMAGE      COMMAND                  CREATED        STATUS        PORTS                               NAMES
root@ip-172-31-21-14:~#
```

Two container removed.

Now Remove the available image

#docker images --->shown two image 1.httpd, 2.jayabackup

# docker rmi (image id)

# docker rmi b304753f3b6e

# docker rmi 568f1ddf1df4

```
root@ip-172-31-21-14:~# docker images
REPOSITORY    TAG       IMAGE ID       CREATED        SIZE
jayabackup    latest    568f1ddf1df4   40 minutes ago 200MB
httpd         latest    b304753f3b6e   22 hours ago   145MB
root@ip-172-31-21-14:~# docker rmi 568f1ddf1df4
Untagged: jayabackup:latest
Deleted: sha256:568f1ddf1df4fa95b33f4ef7566b9b02a91da3538be9c5758af96de4ab1b99bf
Deleted: sha256:fe955ab69adf2da09307de79160a94d4ae9f93d8a47eca07e490e83ef61fca2a
root@ip-172-31-21-14:~# docker rmi b304753f3b6e
Untagged: httpd:latest
Deleted: sha256:b304753f3b6e299fe2b6a0fa21f85d299675d9a89b9295c3bf76be44fb7c3655
Deleted: sha256:b396464d5ed02db88c001eafb8736d6d6ef14d54775e171a915da05429fc4faf
Deleted: sha256:56f61fbadc425dbb5dae6d7e37c2ed3295f750e1d3cd007e87418cd4bbb22ca1
Deleted: sha256:fca3788b555f943203b16a18dbcf000cb9d45e63aec5822fe765df6a1528ba39
Deleted: sha256:34d48bd6f8c2df806a7e17b671565d429802fd0ca17flae6b676393a952faalb
Deleted: sha256:650abce4b096b06ac8bac2046d821d66d801af34f1fd4c5e272ad030c7873db
root@ip-172-31-21-14:~# docker images
REPOSITORY    TAG       IMAGE ID       CREATED        SIZE
root@ip-172-31-21-14:~#
```

**Now Launch a new image using backup file**

#ls -larth --->shown backup file

#docker load -i <backup imagefile>

#docker load -i jayabackup.tar

#docker images

```
root@ip-172-31-21-14:~# ls -larth
total 196M
-rw-r--r-- 1 root root 161 Jul  9 2019 .profile
-rw-r--r-- 1 root root 3.1K Oct 15 2021 .bashrc
drwxr-xr-x 19 root root 4.0K Mar  2 04:42 .
drwx----- 2 root root 4.0K Mar  2 04:42 .ssh
drwx----- 4 root root 4.0K Mar  2 04:43 snap
-rw----- 1 root root 196M Mar  2 05:32 jayabackup.tar
drwx----- 4 root root 4.0K Mar  2 05:32 .
root@ip-172-31-21-14:~# docker load -i jayabackup.tar
650abce4b096: Loading Layer [=====>] 84MB/84MB
2309cdaf4afb: Loading Layer [=====>] 3.072kB/3.072kB
849b101b0e3b: Loading Layer [=====>] 5.103MB/5.103MB
b6cbcb6ad69: Loading Layer [=====>] 60.4MB/60.4MB
3efeedc37c80: Loading Layer [=====>] 3.584kB/3.584kB
2d8e28f5e8cf: Loading Layer [=====>] 55.92MB/55.92MB
Loaded image: jayabackup:latest
root@ip-172-31-21-14:~# docker images
REPOSITORY    TAG       IMAGE ID       CREATED        SIZE
jayabackup    latest    568f1ddf1df4   44 minutes ago 200MB
root@ip-172-31-21-14:~#
```

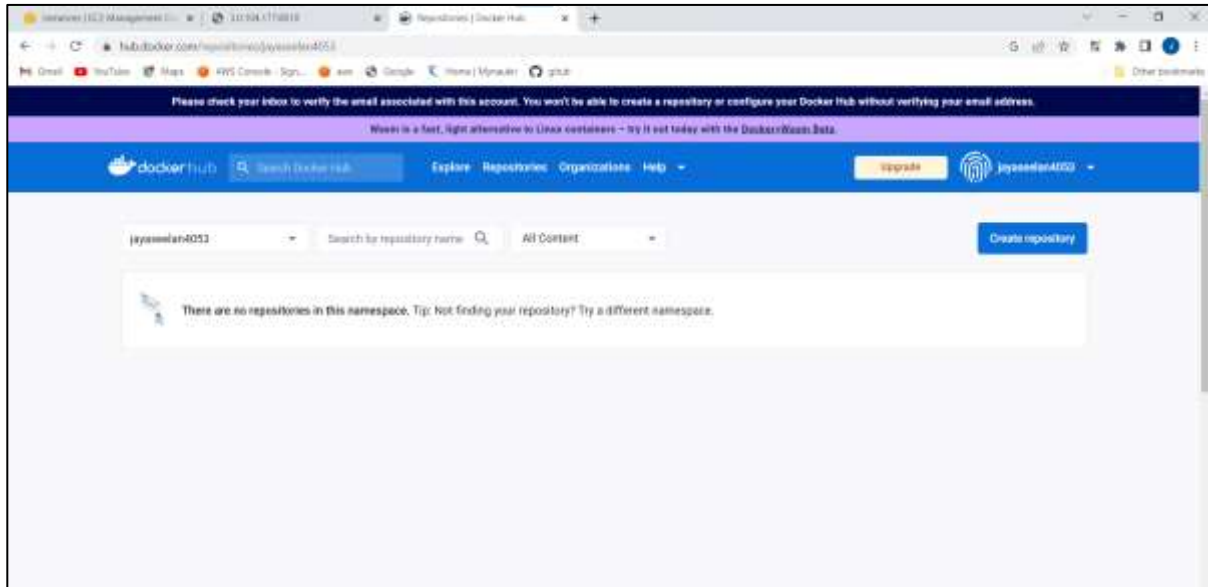


## 2.2.Cloud backup:

Open dockerhub application

Username:jayaseelan4053

Password:Jaya4053\*



#docker login --->give username and password

```
root@ip-172-31-21-14:~# docker login
Login with your Docker ID to push and pull images from Docker Hub. If you don't have a Docker ID, head over to https://hub.docker.com to create one.
Username: jayaseelan4053
Password:
WARNING! Your password will be stored unencrypted in /root/.docker/config.json.
Configure a credential helper to remove this warning. See
https://docs.docker.com/engine/reference/commandline/login/#credentials-store
```

Push always with a tag

#docker tag <image name to tag> dockerhub\_user\_name/backupname\_save

# docker tag jayabackup jayaseelan4053/seelanbackup

#docker images --->shown seelanbackup

```
root@ip-172-31-21-14:~# docker images
REPOSITORY    TAG       IMAGE ID       CREATED        SIZE
jayabackup    latest    568f1ddfd4     51 minutes ago 200MB
root@ip-172-31-21-14:~# docker tag jayabackup jayaseelan4053/seelanbackup
root@ip-172-31-21-14:~# docker images
REPOSITORY          TAG       IMAGE ID       CREATED        SIZE
jayaseelan4053/seelanbackup  latest    568f1ddfd4     53 minutes ago 200MB
jayabackup          latest    568f1ddfd4     53 minutes ago 200MB
root@ip-172-31-21-14:~#
```



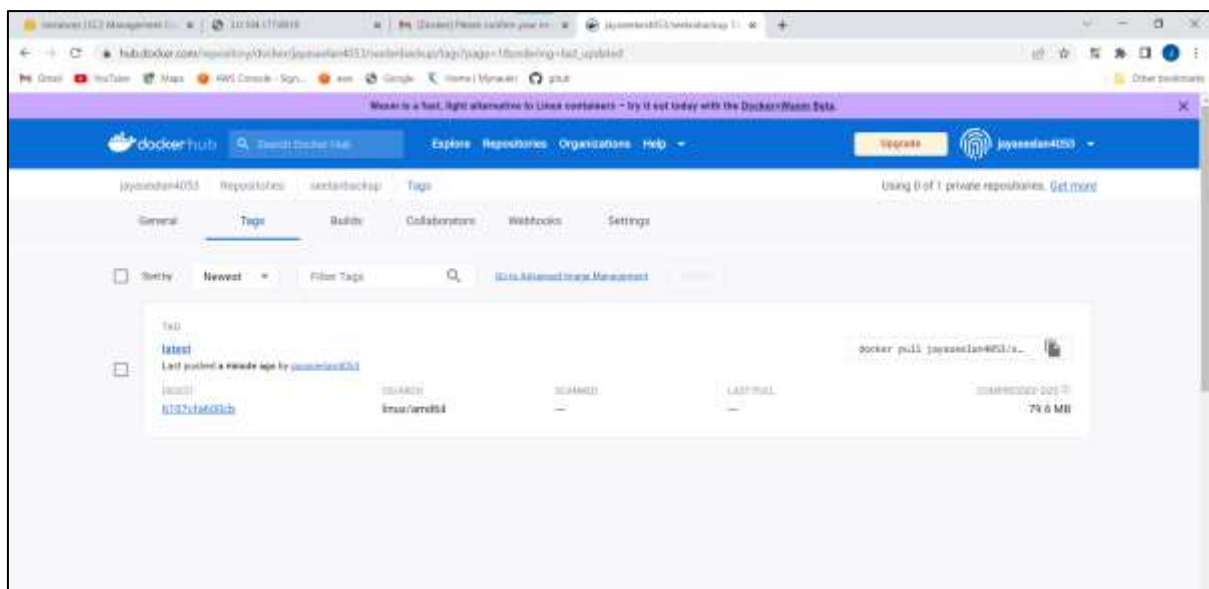
## Push to dockerhub

```
# docker push dockerhub_user_name/backupname_save
```

```
# docker push jayaseelan4053/ seelanbackup
```

```
root@ip-172-31-21-14:~# docker push jayaseelan4053/seelanbackup
Using default tag: latest
The push refers to repository [docker.io/jayaseelan4053/seelanbackup]
2d8e28f5e8cf: Pushed
3e6eedc37c80: Mounted from library/httpd
b6cbc8b6ad69: Mounted from library/httpd
849b101b0e3b: Mounted from library/httpd
2309cdaf4afb: Mounted from library/httpd
650abce4b096: Mounted from library/httpd
latest: digest: sha256:6107cfa600cbe92254371f2fb7a464c0ba2206db7cc5b43ecadd09138e724920 size: 1578
root@ip-172-31-21-14:~#
```

Now check dockerhub



### 3.Create Dockerfile

#mkdir mydockerfile

#cd mydockerfile

#vi Dockerfile

Open visual studio code install docker --->create code

```
FROM centos:7
MAINTAINER jayaseelan
RUN yum install wget -y
RUN yum install vim -y
```



#Vi dockerfile --->put code and save :wq!



Docker file will be created --->now convert images

#docker build -t <NewImageName> .

#docker build -t seelanimage .

#docker images

```
root@ip-172-31-21-14:~/mydockerfile# docker images
groff-base.x86_64 0:1.22.2-8.el7
perl.x86_64 4:5.16.3-299.el7_9
perl-Carp.noarch 0:1.34-244.el7
perl-Encode.x86_64 0:2.51-7.el7
perl-Exporter.noarch 5:5.68-3.el7
perl-File-Path.noarch 0:2.09-2.el7
perl-File-Temp.noarch 0:0.23.01-3.el7
perl-Filter.x86_64 0:1.49-3.el7
perl-Getopt-Long.noarch 0:2.40-3.el7
perl-HTTP-Tiny.noarch 0:0.033-9.el7
perl-PathTools.x86_64 0:3.40-5.el7
perl-Pod-Escapes.noarch 1:1.04-299.el7_9
perl-Pod-Perldoc.noarch 0:3.20-4.el7
perl-Pod-Simple.noarch 1:3.28-4.el7
perl-Pod-Usage.noarch 0:1.63-3.el7
perl-Scalar-List-Utils.x86_64 0:1.27-248.el7
perl-Socket.x86_64 0:2.010-5.el7
perl-Storable.x86_64 0:2.45-3.el7
perl-Test-FatalWarnings.noarch 0:3.25-4.el7
perl-Timer-Hires.x86_64 4:1.9725-3.el7
perl-Time-Local.noarch 0:1.2300-2.el7
perl-constant.noarch 0:1.27-2.el7
perl-libs.x86_64 4:5.16.3-299.el7_9
perl-macros.x86_64 4:5.16.3-299.el7_9
perl-parent.noarch 1:0.225-244.el7
perl-podlators.noarch 0:2.5.1-3.el7
perl-thread.x86_64 0:1.07-4.el7
perl-threads-shared.x86_64 0:1.43-6.el7
vim-common.x86_64 2:7.4.629-8.el7_9
vim-filesyntax.x86_64 2:7.4.629-8.el7_9
which.x86_64 0:2.20-7.el7

Complete!
Removing intermediate container b843328022fa
--> achf03baa5a3
Successfully built achf03baa5a3
Successfully tagged seelanimage:latest
root@ip-172-31-21-14:~/mydockerfile# docker images
REPOSITORY    TAG       IMAGE ID       SIZE
seelanimage    latest    achf03baa5a3   39 seconds ago  636MB
jayasee        latest    348f1ddfd4     2 hours ago    200MB
centos         7         aab3a3f44bd    17 months ago  204MB
root@ip-172-31-21-14:~/mydockerfile#
```

Now this image to change container

#docker run -itd --name jayasee -p "8090:80" <Image name>

# docker run -itd --name jayasee -p "8090:80" seelanimage

```
root@ip-172-31-21-14:~/mydockerfile# docker run -itd --name jayasee -p "8090:80" seelanimage
3a20cead287968f89a3314541247c7b35a7f24d265aa1f2a92cadc4850118c98
root@ip-172-31-21-14:~/mydockerfile# docker ps -a
CONTAINER ID   IMAGE          COMMAND                  CREATED        STATUS        PORTS                               NAMES
3a20cead2879   seelanimage    "/bin/bash"             12 seconds ago Up 10 seconds  0.0.0.0:8090->80/tcp, :::8090->80/tcp  jayasee
root@ip-172-31-21-14:~/mydockerfile#
```

#docker exec -it <container ID> /bin/bash

# docker exec -it 3a20cead2879 /bin/bash

```
root@ip-172-31-21-14:~/mydockerfile# docker exec -it 3a20cead2879 /bin/bash
[root@3a20cead2879 /]# ls
anaconda-post.log bin dev etc home lib lib64 media mnt opt proc root run sbin srv sys usr var
[root@3a20cead2879 /]# ll
total 56
-rw-r--r-- 1 root root 12114 Nov 13 2020 anaconda-post.log
```

### **3.1.Rebuild**

#vi dockerfile --->:%d -->remove and add this code

```
FROM seelanimage
MAINTAINER jayaseelan
RUN yum install git -y
```

A screenshot of a terminal window with a black background and white text. The terminal title bar shows 'root@ip-172-31-21-14: ~/mydockerfile'. The content of the terminal is a Dockerfile with three lines: 'FROM vimimage', 'MAINTAINER Mohan', and 'RUN yum install git -y'. A green cursor is visible at the end of the third line.

```
root@ip-172-31-21-14: ~/mydockerfile
FROM vimimage
MAINTAINER Mohan
RUN yum install git -y
```

#docker images

#docker build -t <imagename> .

#docker build -t gitimage .

# docker run -itd --name besant gitimage

#docker exec -it <cont id> /bin/bash

```

root@ip-172-31-21-14:~/mydockerfile# docker images
REPOSITORY          TAG             IMAGE ID         CREATED          SIZE
gitimage            latest          15a9fd2554cd    11 seconds ago  871MB
seelanimage         latest          acbf03baa5a3    26 minutes ago  656MB
jayabackup          latest          568f1ddf1df4    3 hours ago     200MB
centos               7              eeb6ee3f44bd    17 months ago   204MB
root@ip-172-31-21-14:~/mydockerfile# docker run -itd --name besant gitimage
f88210bbbf28075fc3a4be2cb4a4bc148391b8576991e386d5c1344644de933c
root@ip-172-31-21-14:~/mydockerfile# docker exec -it f88210b /bin/bash

```

Now check git version

#git - -version

```

[root@f88210bbbf28 /]# git --version
git version 1.8.3.1
[root@f88210bbbf28 /]# █

```

### **3.2. Timezone change for a container with python install:**

```

FROM ubuntu:18.04
ENV TZ=Europe/Kiev
RUN ln -snf /usr/share/zoneinfo/$TZ /etc/localtime && echo $TZ > /etc/timezone
RUN apt update && apt install -y python-pip python-dev ssh python-boto3

```

Before check time

#date

```

root@ip-172-31-21-14: ~# date
Thu Mar  2 07:55:53 UTC 2023
root@ip-172-31-21-14: ~# █

```

#vi dockerfile --->:%d remove --->add code --->save:wq!

```
root@ip-172-31-21-14:~/mydockerfile
FROM ubuntu:18.04
ENV TZ=Europe/Kiev
RUN ln -srf /usr/share/zoneinfo/ETC /etc/localtime && echo $TZ > /etc/timezone
RUN apt update && apt install -y python-pip python-dev ssh python-boto3
```

#docker build -t <imagename> .

# docker build -t datezone .

#docker images --->shown datezone image

```
Setting up python-s3transfer (0.3.3-1ubuntu0.18.04.1) ...
Setting up python-boto3 (1.4.2-1) ...
Processing triggers for ca-certificates (20211016ubuntu0.18.04.1) ...
Updating certificates in /etc/ssl/certs...
0 added, 0 removed; done.
Running hooks in /etc/ca-certificates/update.d...
done.
Removing intermediate container 33580ab2de40
--> 554d24d1b6cc
Successfully built 554d24d1b6cc
Successfully tagged datezone:latest
root@ip-172-31-21-14:~/mydockerfile# docker images
```

REPOSITORY	TAG	IMAGE ID	CREATED	SIZE
datezone	latest	554d24d1b6cc	43 seconds ago	578MB
gitimage	latest	15a9fd2554cd	28 minutes ago	871MB
seelanimage	latest	acbf03baa5a3	55 minutes ago	656MB
jayabackup	latest	568f1ddfd4	3 hours ago	200MB
ubuntu	18.04	b89fba62bc15	29 hours ago	63.1MB
centos	7	eeb6ee3f44bd	17 months ago	204MB

```
root@ip-172-31-21-14:~/mydockerfile#
```

#docker run -itd --name python -P datezone

#docker ps -a

#docker exec -it <cont id> /bin/bash

#docker exec -it 87b0f6316164 /bin/bash

Check #date

#python -version

#python2 -version

#python3 --version

```
root@ip-172-31-21-14:~/mydockerfile# docker run --itd --name python -F datadome
87b0f6316164103724aa6849161bd8cf32aa5cb9fa7829737a9b8ddc15df7dca
root@ip-172-31-21-14:~/mydockerfile# docker ps -a
CONTAINER ID   IMAGE          COMMAND                  CREATED        STATUS        PORTS                    NAMES
87b0f6316164   datadome      "/bin/bash"             3 seconds ago Up 4 seconds             python
88210bbbc20    gitimage      "/bin/bash"             28 minutes ago Up 28 minutes             basant
3a20caad879    amlanimage    "/bin/bash"             33 minutes ago Up 33 minutes    0.0.0.0:8090->80/tcp, :::8090->80/tcp jayasee
root@ip-172-31-21-14:~/mydockerfile# docker exec -it 87b0f6316164 /bin/bash
Error: No such container: -it
root@ip-172-31-21-14:~/mydockerfile# docker exec -it 87b0f6316164 /bin/bash
root@87b0f6316164:/# ls
bin boot dev etc home lib lib64 media mnt opt proc root run sbin srv sys var
root@87b0f6316164:/# date
Thu Mar 2 10:09:04 EST 2023
root@87b0f6316164:/# python --version
Python 2.7.17
root@87b0f6316164:/# python2 --version
Python 2.7.17
root@87b0f6316164:/# python3 --version
Python 3.6.9
root@87b0f6316164:/#
```