

# Docker-Lab

First launch a Linux ec2-instance with security group allowing http port and login to that using putty.

The screenshot displays the AWS Management Console interface for an EC2 instance. At the top, a table lists instances, with 'Docker' (ID: i-016cadfeb1d07c8c5) highlighted. Below this, the 'Instance: i-016cadfeb1d07c8c5 (Docker)' details are shown, including its state (Running), type (t2.micro), and various addresses. A terminal window is open, showing the login process for 'ec2-user' on IP '172.31.1.87'. The terminal output includes the Amazon Linux 2 AMI logo and a message about system updates.

Name	Instance ID	Instance state	Instance type	Status check	Alarm status	Availability Zone	Public IPv4 D
Docker	i-016cadfeb1d07c8c5	Running	t2.micro	Initializing	No alarms	ap-south-1b	ec2-15-207-98

**Instance: i-016cadfeb1d07c8c5 (Docker)**

**Details** | Security | Networking | Storage | Status checks | Monitoring | Tags

**Instance summary** Info

Instance ID i-016cadfeb1d07c8c5 (Docker)	Public IPv4 address 15.207.98.53   <a href="#">open address</a>	Private IPv4 addresses 172.31.1.87
IPv6 address -	Instance state Running	Public IPv4 DNS ec2-15-207-98-53.ap-south-1.compute.amazonaws.com   <a href="#">open address</a>
Hostname type	Private IP DNS name (IPv4 only)	

```
ec2-user@ip-172-31-1-87:~  
Using username "ec2-user".  
Authenticating with public key "imported-openssh-key"  
  
  _ |  _ |  _ )  
  _ | (  _ | /   Amazon Linux 2 AMI  
  _ | \  _ | _ |  
  
https://aws.amazon.com/amazon-linux-2/  
5 package(s) needed for security, out of 14 available  
Run "sudo yum update" to apply all updates.  
[ec2-user@ip-172-31-1-87 ~]$
```

To install Docker

```
sudo su root
yum update -y
yum install docker -y
```

root@ip-172-31-1-87:/home/ec2-user

```
Running transaction check
Running transaction test
Transaction test succeeded
Running transaction
  Installing : runc-1.0.3-3.amzn2.x86_64                1/5
  Installing : containerd-1.4.13-3.amzn2.x86_64         2/5
  Installing : libcgrou-0.41-21.amzn2.x86_64            3/5
  Installing : pigz-2.3.4-1.amzn2.0.1.x86_64           4/5
  Installing : docker-20.10.13-2.amzn2.x86_64          5/5
  Verifying  : containerd-1.4.13-3.amzn2.x86_64         1/5
  Verifying  : pigz-2.3.4-1.amzn2.0.1.x86_64           2/5
  Verifying  : libcgrou-0.41-21.amzn2.x86_64            3/5
  Verifying  : runc-1.0.3-3.amzn2.x86_64                4/5
  Verifying  : docker-20.10.13-2.amzn2.x86_64          5/5

Installed:
  docker.x86_64 0:20.10.13-2.amzn2

Dependency Installed:
  containerd.x86_64 0:1.4.13-3.amzn2      libcgrou.x86_64 0:0.41-21.amzn2
  pigz.x86_64 0:2.3.4-1.amzn2.0.1        runc.x86_64 0:1.0.3-3.amzn2

Complete!
[root@ip-172-31-1-87 ec2-user]#
```

To run Basic commands first we have to start our docker service

```
systemctl status docker
systemctl start docker
systemctl enable docker
systemctl status docker
```

```
[root@ip-172-31-1-87 ec2-user]# systemctl status docker
● docker.service - Docker Application Container Engine
   Loaded: loaded (/usr/lib/systemd/system/docker.service; disabled; vendor preset: disabled)
   Active: inactive (dead)
     Docs: https://docs.docker.com
[root@ip-172-31-1-87 ec2-user]# systemctl start docker
[root@ip-172-31-1-87 ec2-user]# systemctl enable docker
Created symlink from /etc/systemd/system/multi-user.target.wants/docker.service to /usr/lib/systemd/system/docker.service.
[root@ip-172-31-1-87 ec2-user]# systemctl status docker
● docker.service - Docker Application Container Engine
   Loaded: loaded (/usr/lib/systemd/system/docker.service; enabled; vendor preset: disabled)
   Active: active (running) since Wed 2022-07-20 15:47:07 UTC; 19s ago
     Docs: https://docs.docker.com
  Main PID: 6654 (dockerd)
   CGroup: /system.slice/docker.service
           └─6654 /usr/bin/dockerd -H fd:// --containerd=/run/containerd/cont...

Jul 20 15:47:07 ip-172-31-1-87.ap-south-1.compute.internal dockerd[6654]: tim...
Jul 20 15:47:07 ip-172-31-1-87.ap-south-1.compute.internal dockerd[6654]: tim...
Jul 20 15:47:07 ip-172-31-1-87.ap-south-1.compute.internal dockerd[6654]: tim...
Jul 20 15:47:07 ip-172-31-1-87.ap-south-1.compute.internal dockerd[6654]: tim...
Jul 20 15:47:07 ip-172-31-1-87.ap-south-1.compute.internal dockerd[6654]: tim...
Jul 20 15:47:07 ip-172-31-1-87.ap-south-1.compute.internal dockerd[6654]: tim...
Jul 20 15:47:07 ip-172-31-1-87.ap-south-1.compute.internal dockerd[6654]: tim...
Jul 20 15:47:07 ip-172-31-1-87.ap-south-1.compute.internal dockerd[6654]: tim...
Jul 20 15:47:07 ip-172-31-1-87.ap-south-1.compute.internal systemd[1]: Starte...
Jul 20 15:47:07 ip-172-31-1-87.ap-south-1.compute.internal dockerd[6654]: tim...
Hint: Some lines were ellipsized, use -l to show in full.
[root@ip-172-31-1-87 ec2-user]#
```

Basic commands:

```
docker images # will show nothing no images is there
```



root@ip-172-31-1-87:/home/ec2-user

```
[root@ip-172-31-1-87 ec2-user]# docker images
REPOSITORY      TAG          IMAGE ID      CREATED      SIZE
[root@ip-172-31-1-87 ec2-user]#
```

```
docker pull centos:7 #will pull centos image version 7
docker images
```

```
[root@ip-172-31-1-87 ec2-user]# docker pull centos:7
7: Pulling from library/centos
2d473b07cdd5: Pull complete
Digest: sha256:c73f515d06b0fa07bb18d8202035e739a494ce760aa73129f60f4bf2bd22b407
Status: Downloaded newer image for centos:7
docker.io/library/centos:7
[root@ip-172-31-1-87 ec2-user]# docker images
REPOSITORY    TAG        IMAGE ID      CREATED       SIZE
centos         7          eeb6ee3f44bd  10 months ago 204MB
[root@ip-172-31-1-87 ec2-user]#
```

```
docker run -it centos:7 #will start os/container from centos image
```

```
root@ip-172-31-1-87 ec2-user]# docker run -it centos:7
root@42e2dac66484 /]#
```

```
date
cal
ls
exit #for coming out
```

```

[root@ip-172-31-1-87 ec2-user]# docker run -it centos:7
[root@42e2dac66484 /]# date
Wed Jul 20 15:52:05 UTC 2022
[root@42e2dac66484 /]# cal
      July 2022
Su Mo Tu We Th Fr Sa
                1  2
 3  4  5  6  7  8  9
10 11 12 13 14 15 16
17 18 19 20 21 22 23
24 25 26 27 28 29 30
31
[root@42e2dac66484 /]# ls
anaconda-post.log  dev  home  lib64  mnt  proc  run  srv  tmp  var
bin               etc  lib   media  opt  root  sbin  sys  usr
[root@42e2dac66484 /]# exit
exit
[root@ip-172-31-1-87 ec2-user]# 

```

docker ps #will show running container list  
 docker ps -a #will show running as well as stopped container list

```

[root@ip-172-31-1-87 ec2-user]# docker ps
CONTAINER ID   IMAGE     COMMAND                  CREATED    STATUS    PORTS    NAMES
[root@ip-172-31-1-87 ec2-user]# docker ps -a
CONTAINER ID   IMAGE     COMMAND                  CREATED    STATUS    PORTS    NAMES
42e2dac66484   centos:7  "/bin/bash"             3 minutes ago    Exited (0) 2 minutes ago
               nice_pare
[root@ip-172-31-1-87 ec2-user]# 

```

docker run -it --name kishanos centos:7  
 ctrl+p+q to exit without stopping container

```

[root@ip-172-31-1-87 ec2-user]# docker run -it --name kishanos centos:7
[root@39ee72ab893c /]# [root@ip-172-31-1-87 ec2-user]#
[root@ip-172-31-1-87 ec2-user]# docker ps
CONTAINER ID   IMAGE     COMMAND                  CREATED          STATUS          PORTS
NAMES
39ee72ab893c   centos:7  "/bin/bash"             11 seconds ago  Up 10 seconds
kishanos
[root@ip-172-31-1-87 ec2-user]# docker ps -a
CONTAINER ID   IMAGE     COMMAND                  CREATED          STATUS          PORTS
NAMES
39ee72ab893c   centos:7  "/bin/bash"             17 seconds ago  Up 16 seconds
kishanos
42e2dac66484   centos:7  "/bin/bash"             5 minutes ago   Exited (0) 4 minutes ago
o             nice_pare
[root@ip-172-31-1-87 ec2-user]#

```

docker stop kishanos #to stop the docker container  
 docker start kishanos #to start the docker container  
 docker attach kishanos #to go inside the container  
 exit

```

[root@ip-172-31-1-87 ec2-user]# docker stop kishanos
kishanos
[root@ip-172-31-1-87 ec2-user]# docker ps -a
CONTAINER ID   IMAGE     COMMAND                  CREATED          STATUS          PORTS
NAMES
39ee72ab893c   centos:7  "/bin/bash"             22 minutes ago   Exited (137) 9 seconds
ago           kishanos
42e2dac66484   centos:7  "/bin/bash"             27 minutes ago   Exited (0) 26 minutes ago
go           nice_pare
[root@ip-172-31-1-87 ec2-user]# docker start kishanos
kishanos
[root@ip-172-31-1-87 ec2-user]# docker ps -a
CONTAINER ID   IMAGE     COMMAND                  CREATED          STATUS          PORTS
NAMES
39ee72ab893c   centos:7  "/bin/bash"             22 minutes ago   Up 2 seconds
kishanos
42e2dac66484   centos:7  "/bin/bash"             27 minutes ago   Exited (0) 26 minutes ago
go           nice_pare
[root@ip-172-31-1-87 ec2-user]# docker attach kishanos
[root@39ee72ab893c /]#

```

docker --help #will show all the commands supported by docker

```
[root@ip-172-31-1-87 ec2-user]# docker --help
```

Usage: docker [OPTIONS] COMMAND

A self-sufficient runtime for containers

Options:

--config string	Location of client config files (default "/root/.docker")
-C, --context string	Name of the context to use to connect to the daemon (overrides DOCKER_HOST env var a
-D, --debug	Enable debug mode
-H, --host list	Daemon socket(s) to connect to
-l, --log-level string	Set the logging level ("debug" "info" "warn" "error" "fatal") (default "info")
--tls	Use TLS; implied by --tlsverify
--tlscacert string	Trust certs signed only by this CA (default "/root/.docker/ca.pem")
--tlscert string	Path to TLS certificate file (default "/root/.docker/cert.pem")
--tlskey string	Path to TLS key file (default "/root/.docker/key.pem")
--tlsverify	Use TLS and verify the remote
-V, --version	Print version information and quit

Management Commands:

builder	Manage builds
config	Manage Docker configs
container	Manage containers
context	Manage contexts
image	Manage images
manifest	Manage Docker image manifests and manifest lists
network	Manage networks
node	Manage Swarm nodes
plugin	Manage plugins
secret	Manage Docker secrets
service	Manage services
stack	Manage Docker stacks
swarm	Manage Swarm
system	Manage Docker
trust	Manage trust on Docker images
volume	Manage volumes

Commands:

attach	Attach local standard input, output, and error streams to a running container
build	Build an image from a Dockerfile
commit	Create a new image from a container's changes
cp	Copy files/folders between a container and the local filesystem
create	Create a new container
diff	Inspect changes to files or directories on a container's filesystem
events	Get real time events from the server
exec	Run a command in a running container
export	Export a container's filesystem as a tar archive

Management commands:

```
[root@ip-172-31-1-87 ec2-user]# docker --help
```

```
Usage:  docker [OPTIONS] COMMAND
```

```
A self-sufficient runtime for containers
```

```
Options:
```

--config string	Location of client config files (default "/root/.dock
-c, --context string	Name of the context to use to connect to the daemon
-D, --debug	Enable debug mode
-H, --host list	Daemon socket(s) to connect to
-l, --log-level string	Set the logging level ("debug" "info" "warn" "error")
--tls	Use TLS; implied by --tlsverify
--tlscacert string	Trust certs signed only by this CA (default "/root/.dock
--tlscert string	Path to TLS certificate file (default "/root/.dock
--tlskey string	Path to TLS key file (default "/root/.docker/key.p
--tlsverify	Use TLS and verify the remote
-v, --version	Print version information and quit

```
Management Commands:
```

builder	Manage builds
config	Manage Docker configs
container	Manage containers
context	Manage contexts
image	Manage images
manifest	Manage Docker image manifests and manifest lists
network	Manage networks
node	Manage Swarm nodes
plugin	Manage plugins
secret	Manage Docker secrets
service	Manage services
stack	Manage Docker stacks
swarm	Manage Swarm
system	Manage Docker
trust	Manage trust on Docker images
volume	Manage volumes

```
docker container ps -a
```

```
docker container run -it --name newos ubuntu:18.04 #will download the  
image and then start the container
```



```
[root@ip-172-31-1-87 ec2-user]# docker container ps -a
```

CONTAINER ID	IMAGE	COMMAND	CREATED	STATUS
39ee72ab893c	centos:7	"/bin/bash"	28 minutes ago	Exited (127) 4 minutes ago
42e2dac66484	centos:7	"/bin/bash"	33 minutes ago	Exited (0) 32 minutes ago

```
[root@ip-172-31-1-87 ec2-user]# docker container run -it --name newos ubuntu:18.04
Unable to find image 'ubuntu:18.04' locally
18.04: Pulling from library/ubuntu
09db6f815738: Pull complete
Digest: sha256:478caflbec1afd54a58435ec681c8755883b7eb843a8630091890130b15a79af
Status: Downloaded newer image for ubuntu:18.04
root@bbcb2dd2d272:/#
```

```
docker ps -a
docker rm kishanos #will remove the container kishanos
docker ps -a
```

```
[root@ip-172-31-1-87 ec2-user]# docker ps -a
```

CONTAINER ID	IMAGE	COMMAND	CREATED	STATUS
bbcb2dd2d272	ubuntu:18.04	"bash"	About a minute ago	Exited (0) About a minute ago
39ee72ab893c	centos:7	"/bin/bash"	30 minutes ago	Exited (127) 6 minutes ago
42e2dac66484	centos:7	"/bin/bash"	35 minutes ago	Exited (0) 34 minutes ago

```
[root@ip-172-31-1-87 ec2-user]# docker rm kishanos
kishanos
[root@ip-172-31-1-87 ec2-user]# docker ps -a
```

CONTAINER ID	IMAGE	COMMAND	CREATED	STATUS
bbcb2dd2d272	ubuntu:18.04	"bash"	2 minutes ago	Exited (0) About a minute ago
42e2dac66484	centos:7	"/bin/bash"	36 minutes ago	Exited (0) 35 minutes ago

```
[root@ip-172-31-1-87 ec2-user]#
```

```
docker ps -a
docker rm <containerid> #will remove the container having that id
docker ps -a
```

```

[root@ip-172-31-1-87 ec2-user]# docker ps -a
CONTAINER ID   IMAGE          COMMAND                  CREATED          STATUS
PORTS         NAMES
bbcb2dd2d272   ubuntu:18.04   "bash"                  3 minutes ago   Exited (0) 2 minute
s ago         newos
42e2dac66484   centos:7       "/bin/bash"            37 minutes ago   Exited (0) 36 minut
es ago         nice_pare
[root@ip-172-31-1-87 ec2-user]# docker rm bbcb2dd2d272
bbcb2dd2d272
[root@ip-172-31-1-87 ec2-user]# docker ps -a
CONTAINER ID   IMAGE          COMMAND                  CREATED          STATUS
PORTS         NAMES
42e2dac66484   centos:7       "/bin/bash"            37 minutes ago   Exited (0) 36 minutes a
go         nice_pare
[root@ip-172-31-1-87 ec2-user]# █

```

To delete all container in a single go

```

docker ps -a
docker container ls -a -q #will give only id of all the container
docker rm -f $(docker container ls -a -q) # will remove/delete all the
container
docker ps -a

```

```
[root@ip-172-31-1-87 ec2-user]# docker ps -a
```

CONTAINER ID	IMAGE	COMMAND	CREATED	STATUS
e3fda1fa0f55	centos:7	"/bin/bash"	8 seconds ago	Exited (0) 5 second
s ago	intelligent_khorana			
b64e837f1804	ubuntu:18.04	"bash"	18 seconds ago	Exited (0) 15 secon
ds ago	suspicious_ride			
098b08de06a6	centos:7	"/bin/bash"	32 seconds ago	Exited (0) 29 secon
ds ago	strange_pascal			
42e2dac66484	centos:7	"/bin/bash"	41 minutes ago	Exited (0) 40 minut
es ago	nice_pare			

```
[root@ip-172-31-1-87 ec2-user]# docker container ls -a -q
e3fda1fa0f55
b64e837f1804
098b08de06a6
42e2dac66484
[root@ip-172-31-1-87 ec2-user]# docker rm -f $(docker container ls -a -q)
e3fda1fa0f55
b64e837f1804
098b08de06a6
42e2dac66484
[root@ip-172-31-1-87 ec2-user]# docker ps -a
```

CONTAINER ID	IMAGE	COMMAND	CREATED	STATUS	PORTS	NAMES
--------------	-------	---------	---------	--------	-------	-------

```
[root@ip-172-31-1-87 ec2-user]#
```

docker run -it centos:7 cal #will run the cal command and then it will stop the container

```
[root@ip-172-31-1-87 ec2-user]# docker run -it centos:7 cal
July 2022
Su Mo Tu We Th Fr Sa
          1  2
 3  4  5  6  7  8  9
10 11 12 13 14 15 16
17 18 19 20 21 22 23
24 25 26 27 28 29 30
31
[root@ip-172-31-1-87 ec2-user]# docker ps -a
```

CONTAINER ID	IMAGE	COMMAND	CREATED	STATUS	PORTS	NAMES
550a10f10a87	centos:7	"cal"	5 seconds ago	Exited (0) 4 seconds ago		nice_mestorf

```
[root@ip-172-31-1-87 ec2-user]#
```

To create a custom Image:

using commit:

```
docker run -it --name kishanos centos:7
ifconfig
wget
yum install net-tools -y
yum install wget -y
ifconfig
wget
exit
```

```
[root@ip-172-31-1-87 ec2-user]# docker run -it --name kshanos centos:7
[root@04db9482c2eb /]# ifocnfig
bash: ifocnfig: command not found
[root@04db9482c2eb /]# wget
bash: wget: command not found
[root@04db9482c2eb /]# yum install net-tools
Loaded plugins: fastestmirror, ovl
Determining fastest mirrors
 * base: download.cf.centos.org
 * extras: download.cf.centos.org
 * updates: download.cf.centos.org
base | 3.6 kB 00:00
extras | 2.9 kB 00:00
updates | 2.9 kB 00:00
(1/4): base/7/x86_64/group_gz | 153 kB 00:00
(2/4): base/7/x86_64/primary_db | 6.1 MB 00:00
(3/4): extras/7/x86_64/primary_db | 247 kB 00:00
(4/4): updates/7/x86_64/primary_db | 16 MB 00:01
Resolving Dependencies
--> Running transaction check
---> Package net-tools.x86_64 0:2.0-0.25.20131004git.el7 will be installed
--> Finished Dependency Resolution

Dependencies Resolved

=====
Package Arch Version Repository Size
=====
Installing:
net-tools x86_64 2.0-0.25.20131004git.el7 base 306 k

Transaction Summary
=====
Install 1 Package

Total download size: 306 k
Installed size: 917 k
Is this ok [y/d/N]: y
```

```
[root@04db9482c2eb /]# yum install wget -y
Loaded plugins: fastestmirror, ovl
Loading mirror speeds from cached hostfile
 * base: download.cf.centos.org
 * extras: download.cf.centos.org
 * updates: download.cf.centos.org
Resolving Dependencies
--> Running transaction check
--> Package wget.x86_64 0:1.14-18.el7_6.1 will be installed
--> Finished Dependency Resolution

Dependencies Resolved

=====
Package            Arch             Version           Repository        Size
=====
Installing:
wget               x86_64           1.14-18.el7_6.1   base              547 k

Transaction Summary
=====
Install 1 Package

Total download size: 547 k
Installed size: 2.0 M
Downloading packages:
wget-1.14-18.el7_6.1.x86_64.rpm | 547 kB 00:00
Running transaction check
Running transaction test
Transaction test succeeded
Running transaction
  Installing : wget-1.14-18.el7_6.1.x86_64 1/1
install-info: No such file or directory for /usr/share/info/wget.info.gz
  Verifying : wget-1.14-18.el7_6.1.x86_64 1/1

[root@04db9482c2eb /]# ifconfig
eth0: flags=4163<UP,BROADCAST,RUNNING,MULTICAST> mtu 1500
    inet 172.17.0.2 netmask 255.255.0.0 broadcast 172.17.255.255
    ether 02:42:ac:11:00:02 txqueuelen 0 (Ethernet)
    RX packets 2409 bytes 25070070 (23.9 MiB)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 1733 bytes 121793 (118.9 KiB)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

lo: flags=73<UP,LOOPBACK,RUNNING> mtu 65536
    inet 127.0.0.1 netmask 255.0.0.0
    loop txqueuelen 1000 (Local Loopback)
    RX packets 0 bytes 0 (0.0 B)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 0 bytes 0 (0.0 B)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

[root@04db9482c2eb /]# wget
wget: missing URL
Usage: wget [OPTION]... [URL]...

Try 'wget --help' for more options.
[root@04db9482c2eb /]#
```

```
docker ps -a
docker commit kishanos myos:v1
docker images
```

```
[root@ip-172-31-1-87 ec2-user]# docker ps -a
CONTAINER ID   IMAGE          COMMAND                  CREATED        STATUS          PORTS          NAMES
04db9482c2eb   centos:7      "/bin/bash"             4 minutes ago   Exited (127)    About a minute ago   kshihanos
[root@ip-172-31-1-87 ec2-user]# docker commit kshihanos myos:v1
sha256:b5164748e91177b41c46b203af6f70c42f7b98ca78bf48904e8b0a366416c7cd
[root@ip-172-31-1-87 ec2-user]# docker images
REPOSITORY    TAG          IMAGE ID          CREATED          SIZE
myos          v1          b5164748e911    4 seconds ago   381MB
ubuntu       18.04      ad080923604a    6 weeks ago     63.1MB
centos        7          eeb6ee3f44bd    10 months ago   204MB
[root@ip-172-31-1-87 ec2-user]#
```

```
docker run -it --name os1 myos:v1
ifconfig
wget
```

```
[root@ip-172-31-1-87 ec2-user]# docker run -it --name os1 myos:v1
[root@9429738a0f7c /]# ifconfig
eth0: flags=4163<UP,BROADCAST,RUNNING,MULTICAST> mtu 1500
    inet 172.17.0.2 netmask 255.255.0.0 broadcast 172.17.255.255
    ether 02:42:ac:11:00:02 txqueuelen 0 (Ethernet)
    RX packets 7 bytes 650 (650.0 B)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 0 bytes 0 (0.0 B)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

lo: flags=73<UP,LOOPBACK,RUNNING> mtu 65536
    inet 127.0.0.1 netmask 255.0.0.0
    loop txqueuelen 1000 (Local Loopback)
    RX packets 0 bytes 0 (0.0 B)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 0 bytes 0 (0.0 B)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

[root@9429738a0f7c /]# wget
wget: missing URL
Usage: wget [OPTION]... [URL]...

Try 'wget --help' for more options.
[root@9429738a0f7c /]#
```

Using Dockerfile:

```

mkdir /pythonDockerfile
cd /pythonDockerfile
vi Dockerfile
FROM centos:7
RUN yum install python36 -y

cat Dockerfile
docker build -t testpython:v1 /pythonDockerfile/

```

```

[root@ip-172-31-1-87 ec2-user]# mkdir /pythonDockerfile
[root@ip-172-31-1-87 ec2-user]# cd /pythonDockerfile/
[root@ip-172-31-1-87 pythonDockerfile]# vi Dockerfile
[root@ip-172-31-1-87 pythonDockerfile]# cat Dockerfile
FROM centos:7
RUN yum install python36 -y
[root@ip-172-31-1-87 pythonDockerfile]# docker build -t testpython:v1 /pythonDockerfile/
Sending build context to Docker daemon 2.048kB
Step 1/2 : FROM centos:7
--> eeb6ee3f44bd
Step 2/2 : RUN yum install python36 -y
--> Running in c5afd0a87030
Loaded plugins: fastestmirror, ovl
Determining fastest mirrors
 * base: download.cf.centos.org
 * extras: download.cf.centos.org
 * updates: download.cf.centos.org
Resolving Dependencies
--> Running transaction check
--> Package python3.x86_64 0:3.6.8-18.el7 will be installed
--> Processing Dependency: python3-libs(x86-64) = 3.6.8-18.el7 for package: python3-3.6.8-18.el7.x86_64
--> Processing Dependency: python3-setuptools for package: python3-3.6.8-18.el7.x86_64
--> Processing Dependency: python3-pip for package: python3-3.6.8-18.el7.x86_64
--> Processing Dependency: libpython3.6m.so.1.0()(64bit) for package: python3-3.6.8-18.el7.x86_64
--> Running transaction check
--> Package python3-libs.x86_64 0:3.6.8-18.el7 will be installed
--> Processing Dependency: libtirpc.so.1()(64bit) for package: python3-libs-3.6.8-18.el7.x86_64
--> Package python3-pip.noarch 0:9.0.3-8.el7 will be installed
--> Package python3-setuptools.noarch 0:39.2.0-10.el7 will be installed
--> Running transaction check
--> Package libtirpc.x86_64 0:0.2.4-0.16.el7 will be installed
--> Finished Dependency Resolution

Dependencies Resolved

=====
Package                Arch          Version           Repository        Size
=====
Installing:
python3                 x86_64        3.6.8-18.el7      updates           70 k
Installing for dependencies:
libtirpc                x86_64        0.2.4-0.16.el7    base              89 k
python3-libs            x86_64        3.6.8-18.el7      updates          6.9 M
python3-pip             noarch        9.0.3-8.el7       base             1.6 M
python3-setuptools      noarch        39.2.0-10.el7     base             629 k
Transaction Summary
=====

```

docker images

```
[root@ip-172-31-1-87 pythonDockerfile]# docker images
```

REPOSITORY	TAG	IMAGE ID	CREATED	SIZE
testpython	v1	fac68888b4dd	7 seconds ago	430MB
myos	v1	b5164748e911	6 minutes ago	381MB
ubuntu	18.04	ad080923604a	6 weeks ago	63.1MB
centos	7	eeb6ee3f44bd	10 months ago	204MB

```
[root@ip-172-31-1-87 pythonDockerfile]#
```

```
docker run -it --name pythonos testpython:v1
```

```
[root@ip-172-31-1-87 pythonDockerfile]# docker run -it --name pythonos testpython:v1
[root@e34c21e4ba4d /]# python3
Python 3.6.8 (default, Nov 16 2020, 16:55:22)
[GCC 4.8.5 20150623 (Red Hat 4.8.5-44)] on linux
Type "help", "copyright", "credits" or "license" for more information.
>>>
```

Create a version 2 of this dockerfile in which direct python3 will open

```
vi Dockerfile
FROM centos:7
RUN yum install python36 -y
CMD python3

docker build -t testpython:v2 /pythonDockerfile
docker images
```



```
[root@ip-172-31-1-87 pythonDockerfile]# vi Dockerfile
[root@ip-172-31-1-87 pythonDockerfile]# cat Dockerfile
FROM centos:7
RUN yum install python36 -y
CMD python3
[root@ip-172-31-1-87 pythonDockerfile]# docker build -t testpython:v2 /pythonDockerfile/
Sending build context to Docker daemon 2.048kB
Step 1/3 : FROM centos:7
--> eeb6ee3f44bd
Step 2/3 : RUN yum install python36 -y
--> Using cache
--> fac68888b4dd
Step 3/3 : CMD python3
--> Running in 35dfa6d5d307
Removing intermediate container 35dfa6d5d307
--> 1f1a0964cb6a
Successfully built 1f1a0964cb6a
Successfully tagged testpython:v2
[root@ip-172-31-1-87 pythonDockerfile]# docker images
```

REPOSITORY	TAG	IMAGE ID	CREATED	SIZE
testpython	v2	1f1a0964cb6a	7 seconds ago	430MB
testpython	v1	fac68888b4dd	23 minutes ago	430MB
myos	v1	b5164748e911	29 minutes ago	381MB
ubuntu	18.04	ad080923604a	6 weeks ago	63.1MB
centos	7	eeb6ee3f44bd	10 months ago	204MB

```
[root@ip-172-31-1-87 pythonDockerfile]#
```

```
docker run -it --name pythonos1 testpython:v2
exit()
```

```
[root@ip-172-31-1-87 pythonDockerfile]# docker run -it --name pythonos1 testpython:v2
Python 3.6.8 (default, Nov 16 2020, 16:55:22)
[GCC 4.8.5 20150623 (Red Hat 4.8.5-44)] on linux
Type "help", "copyright", "credits" or "license" for more information.
>>> 2+3
5
>>>
```

## Create a webserver docker Image and upload that to dockerhub

1. create a dockerhub account

<https://hub.docker.com/signup>



## Create a Docker ID.

Already have an account? [Sign In](#)

☐ Send me occasional product updates and announcements.

☐ I agree to the [Subscription Service Agreement](#), [Privacy Policy](#) and [Data Processing Terms](#).

Sign Up

## 2. Login to dockerhub account



## Enter Your Password

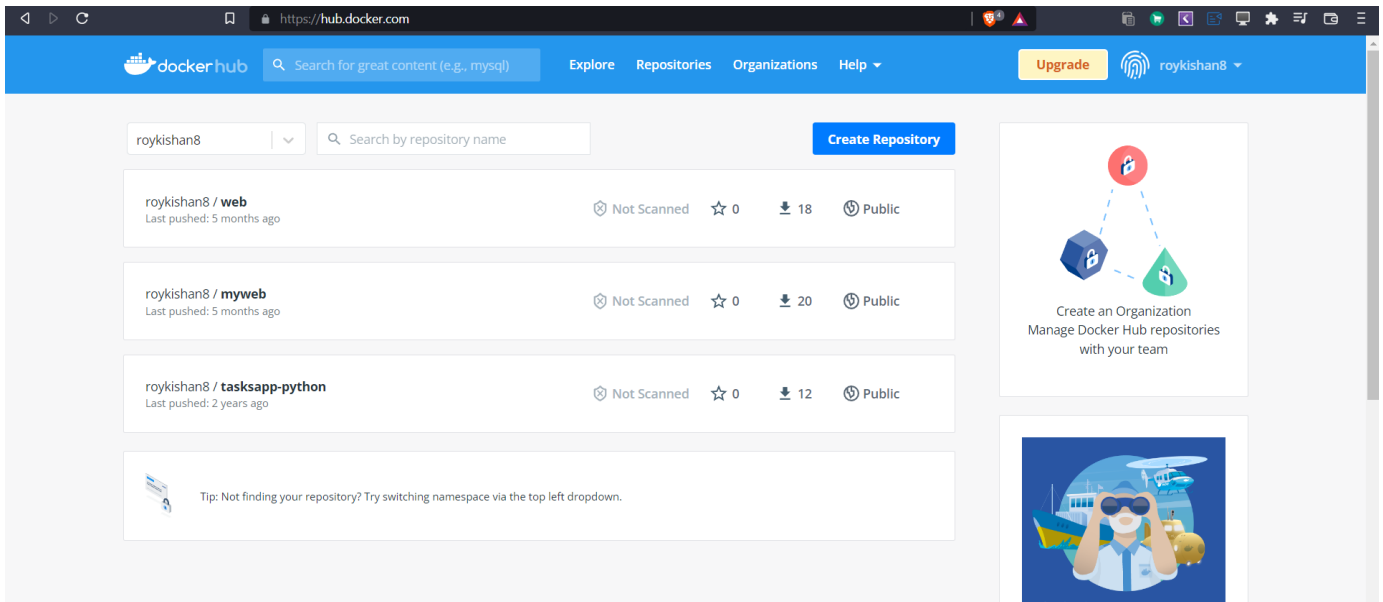
Edit

.....



[Forgot password?](#)

Continue



Now to create a webserver image

```
mkdir /webserver
cd /webserver
vi index.php
<pre>
<?php
echo "<body style='background-color:orange'>";
print "welcome to test webserver!!!!<br />";
print `/usr/sbin/ifconfig`;
?>
</pre>
```

```
[root@ip-172-31-1-87 webserver]# ls
Dockerfile  index.php
[root@ip-172-31-1-87 webserver]# cat index.php
<pre>
<?php
echo "<body style='background-color:orange'>";
print "welcome to test webserver!!!!<br />";
print `/usr/sbin/ifconfig`;
?>
</pre>
[root@ip-172-31-1-87 webserver]#
```

```
vi Dockerfile
```

```
FROM centos:7  
RUN yum install httpd php net-tools -y  
COPY index.php /var/www/html/  
EXPOSE 80  
CMD /usr/sbin/httpd -DFOREGROUND
```

```
[root@ip-172-31-1-87 webserver]# ls  
Dockerfile  index.php  
[root@ip-172-31-1-87 webserver]# cat Dockerfile  
FROM centos:7  
RUN yum install httpd php net-tools -y  
COPY index.php /var/www/html/  
EXPOSE 80  
CMD /usr/sbin/httpd -DFOREGROUND  
  
[root@ip-172-31-1-87 webserver]#
```

```
docker build -t <docker-hub username>:lates <dockerfilelocation>
```

```
docker build -t roykishan8/kishanwebserver:latest /webserver/ #example
```

```
[root@ip-172-31-1-87 webserver]# docker build -t roykishan8/kishanwebserver:latest /webserver/
Sending build context to Docker daemon 3.072kB
Step 1/5 : FROM centos:7
--> eeb6ee3f44bd
Step 2/5 : RUN yum install httpd php net-tools -y
--> Running in 1b84b31d3c92
Loaded plugins: fastestmirror, ovl
Determining fastest mirrors
 * base: download.cf.centos.org
 * extras: download.cf.centos.org
 * updates: download.cf.centos.org
Resolving Dependencies
--> Running transaction check
--> Package httpd.x86_64 0:2.4.6-97.el7.centos.5 will be installed
--> Processing Dependency: httpd-tools = 2.4.6-97.el7.centos.5 for package: httpd-2.4.6-97.el7.centos.5.x86_64
--> Processing Dependency: system-logos >= 7.92.1-1 for package: httpd-2.4.6-97.el7.centos.5.x86_64
--> Processing Dependency: /etc/mime.types for package: httpd-2.4.6-97.el7.centos.5.x86_64
--> Processing Dependency: libaprutil-1.so.0()(64bit) for package: httpd-2.4.6-97.el7.centos.5.x86_64
--> Processing Dependency: libapr-1.so.0()(64bit) for package: httpd-2.4.6-97.el7.centos.5.x86_64
--> Package net-tools.x86_64 0:2.0-0.25.20131004git.el7 will be installed
--> Package php.x86_64 0:5.4.16-48.el7 will be installed
--> Processing Dependency: php-common(x86-64) = 5.4.16-48.el7 for package: php-5.4.16-48.el7.x86_64
--> Processing Dependency: php-cli(x86-64) = 5.4.16-48.el7 for package: php-5.4.16-48.el7.x86_64
--> Running transaction check
--> Package apr.x86_64 0:1.4.8-7.el7 will be installed
--> Package apr-util.x86_64 0:1.5.2-6.el7 will be installed
--> Package centos-logos.noarch 0:70.0.6-3.el7.centos will be installed
--> Package httpd-tools.x86_64 0:2.4.6-97.el7.centos.5 will be installed
--> Package mailcap.noarch 0:2.1.41-2.el7 will be installed
--> Package php-cli.x86_64 0:5.4.16-48.el7 will be installed
--> Processing Dependency: libedit.so.0()(64bit) for package: php-cli-5.4.16-48.el7.x86_64
--> Package php-common.x86_64 0:5.4.16-48.el7 will be installed
--> Processing Dependency: libzip.so.2()(64bit) for package: php-common-5.4.16-48.el7.x86_64
--> Running transaction check
--> Package libedit.x86_64 0:3.0-12.20121213cvs.el7 will be installed
--> Package libzip.x86_64 0:0.10.1-8.el7 will be installed
--> Finished Dependency Resolution

Dependencies Resolved

=====
Package Arch Version Repository Size
=====
Installing:
httpd x86_64 2.4.6-97.el7.centos.5 updates 2.7 M
net-tools x86_64 2.0-0.25.20131004git.el7 base 306 k
=====
```

docker images

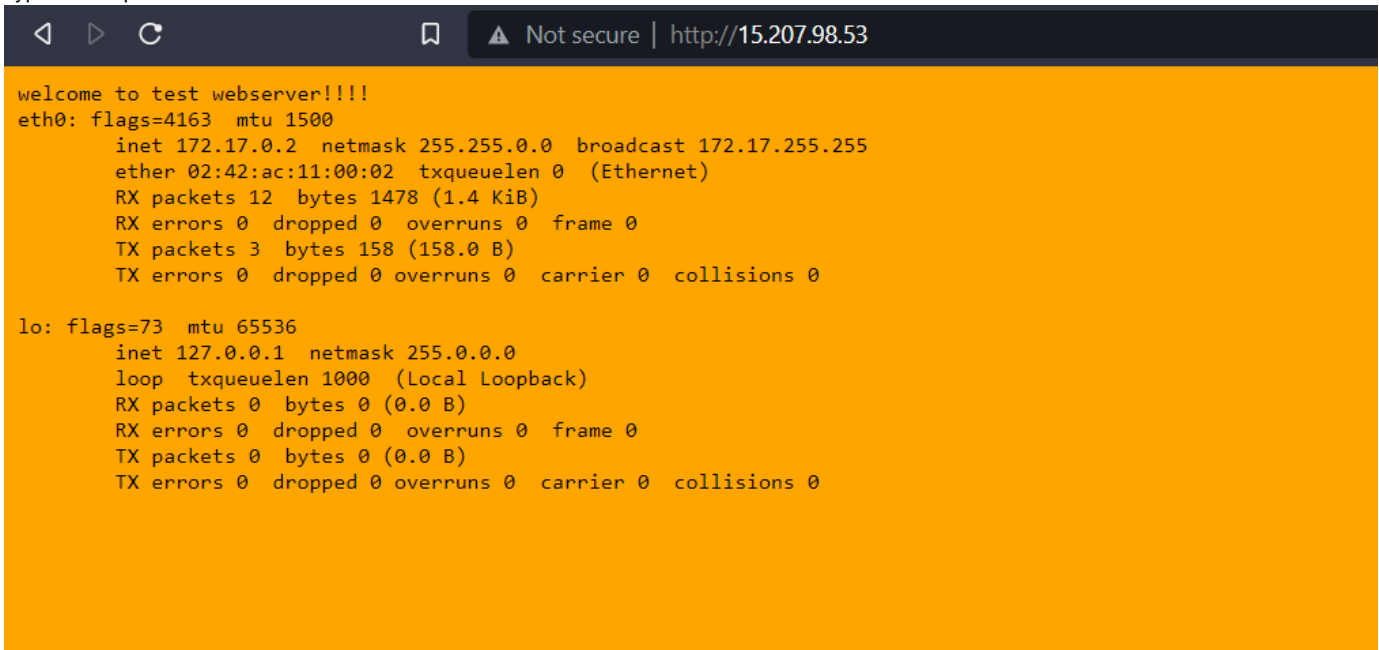
```
Successfully built b0aaa1c66c7d
Successfully tagged roykishan8/kishanwebserver:latest
[root@ip-172-31-1-87 webserver]# docker images
REPOSITORY TAG IMAGE ID CREATED SIZE
roykishan8/kishanwebserver latest b0aaa1c66c7d 9 seconds ago 431MB
testpython v2 1f1a0964cb6a 21 minutes ago 430MB
testpython v1 fac68888b4dd 44 minutes ago 430MB
myos v1 b5164748e911 51 minutes ago 381MB
ubuntu 18.04 ad080923604a 6 weeks ago 63.1MB
roykishan8/web v2 4ece7bcaa306 5 months ago 350MB
centos 7 eeb6ee3f44bd 10 months ago 204MB
centos latest 5d0da3dc9764 10 months ago 231MB
roykishan8/myweb v1 6f9667690fac 13 months ago 469MB
```

docker run -dit --name test -p 80:80 roykishan8/kishanwebserver

#-p is used here for port mapping

```
[root@ip-172-31-1-87 webserver]# docker run -dit --name test -p 80:80 roykishan8/kishanwebserver
a2963557de868e1ecd23e61c0f5dcaa661270c697944699f08458e654682a2d9
[root@ip-172-31-1-87 webserver]# ls
Dockerfile  index.php
[root@ip-172-31-1-87 webserver]# cat index.php
```

Type Public ip of ec2-instance in browser



Now webserver is up and running. To push this docker image to central repo dockerhub use following command

```
docker login
#username
#password of dockerhub
```

```
[root@ip-172-31-1-87 webserver]# 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://docs.docker.com/engine/reference/commandline/login/#credentials-store
Username: roykishan8
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

Login Succeeded
```

```
docker images
```

```
[root@ip-172-31-1-87 webserver]# docker images
```

REPOSITORY	TAG	IMAGE ID	CREATED	SIZE
roykishan8/kishanwebserver	latest	b0aaa1c66c7d	15 minutes ago	431MB
testpython	v2	1f1a0964cb6a	36 minutes ago	430MB
testpython	v1	fac68888b4dd	About an hour ago	430MB
myos	v1	b5164748e911	About an hour ago	381MB
ubuntu	18.04	ad080923604a	6 weeks ago	63.1MB
roykishan8/web	v2	4ece7bcaa306	5 months ago	350MB
centos	7	eeb6ee3f44bd	10 months ago	204MB
centos	latest	5d0da3dc9764	10 months ago	231MB
roykishan8/myweb	v1	6f9667690fac	13 months ago	469MB

```
docker push roykishan8/kishanwebserver
```

```
[root@ip-172-31-1-87 webserver]# docker push roykishan8/kishanwebserver
Using default tag: latest
The push refers to repository [docker.io/roykishan8/kishanwebserver]
73507d73808e: Pushed
5502c154eab8: Pushed
174f56854903: Mounted from library/centos
latest: digest: sha256:f699c396399b5114ecde83d5ef84303f57f49661a50903af00149e02325f21fa size: 948
[root@ip-172-31-1-87 webserver]#
```

The screenshot shows the Docker Hub web interface. At the top, there's a navigation bar with the Docker Hub logo, a search bar, and links for Explore, Repositories, Organizations, and Help. Below this, a search bar contains 'roykishan8' and a dropdown menu. To the right of the search bar is a 'Create Repository' button. The main content area displays the repository 'roykishan8 / kishanwebserver'. It shows the repository is 'Not Scanned', has 0 stars, 0 downloads, and is 'Public'. The last push was 'a few seconds ago'.

over.....