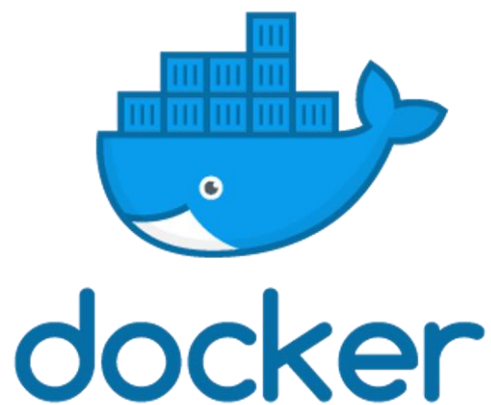
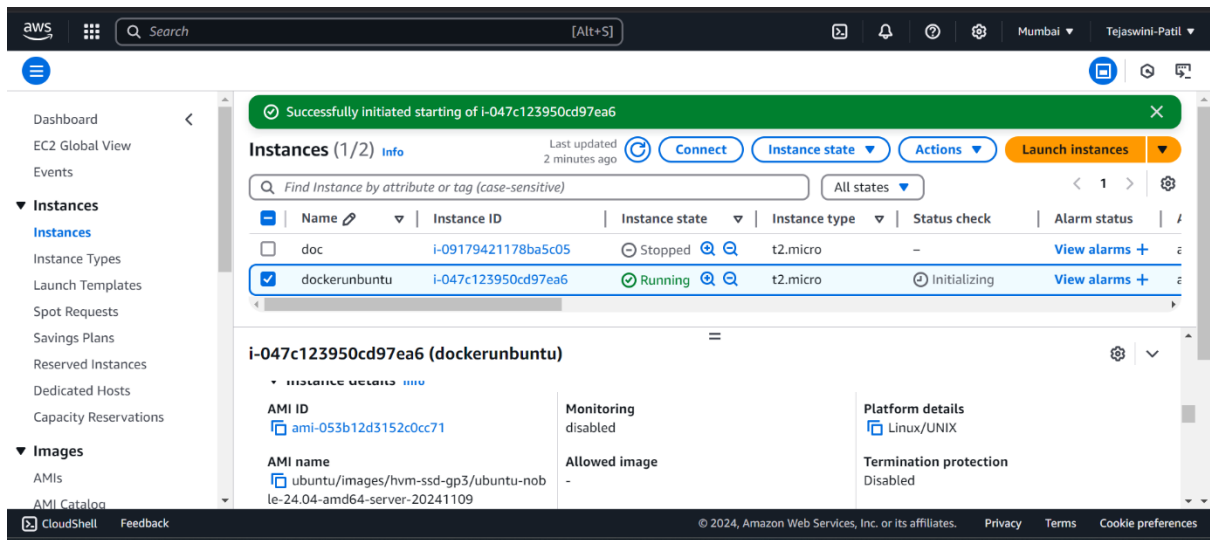


Using Docker CLI



#Create Ec2:



Install and start Docker :

- sudo apt-get update
- sudo apt-get install docker.io
- sudo service docker start
- sudo service docker status

```
ubuntu@ip-172-31-2-155: ~  
Try 'install --help' for more information.  
ubuntu@ip-172-31-2-155:~$ sudo apt-get install docker.io  
Reading package lists... Done  
Building dependency tree... Done  
Reading state information... Done  
The following additional packages will be installed:  
  bridge-utils containerd dns-root-data dnsmasq-base pigz runc ubuntu-fan  
Suggested packages:  
  ifupdown aufs-tools cgroupfs-mount | cgroup-lite debootstrap docker-buildx docker-compose-v2 docker-doc rinse zfs-fuse | zfsutils  
The following NEW packages will be installed:  
  bridge-utils containerd dns-root-data dnsmasq-base docker.io pigz runc ubuntu-fan  
0 upgraded, 8 newly installed, 0 to remove and 4 not upgraded.  
Need to get 80.1 MB of archives.  
After this operation, 304 MB of additional disk space will be used.  
Do you want to continue? [Y/n] y  
Get:1 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu noble/universe amd64 pigz amd64 2.8-1 [65.6 kB]  
Get:2 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu noble/main amd64 bridge-utils amd64 1.7.1-1ubuntu2 [33.9 kB]  
Get:3 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 runc amd64 1.1.12-0ubuntu3.1 [8599 kB]  
Get:4 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 containerd amd64 1.7.19+really1.7.12-0ubuntu4.2 [38.6 MB]  
Get:5 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu noble/main amd64 dns-root-data all 2023112702-willsync1 [4450 B]  
Get:6 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu noble/main amd64 dnsmasq-base amd64 2.90-2build2 [375 kB]  
Get:7 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu noble-updates/universe amd64 docker.io amd64 26.1.3-0ubuntu1-24.04.1 [32.4 MB]  
Get:8 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu noble/universe amd64 ubuntu-fan all 0.12.16 [35.2 kB]  
Fetched 80.1 MB in 1s (73.9 MB/s)  
Preconfiguring packages ...  
Selecting previously unselected package pigz.  
(Reading database ... 101205 files and directories currently installed.)  
Preparing to unpack .../0-pigz_2.8-1_amd64.deb ...  
Unpacking pigz (2.8-1) ...  
Selecting previously unselected package bridge-utils.  
Preparing to unpack .../1-bridge-utils_1.7.1-1ubuntu2_amd64.deb ...  
Unpacking bridge-utils (1.7.1-1ubuntu2) ...
```

```
ubuntu@ip-172-31-2-155: ~  
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.  
ubuntu@ip-172-31-2-155:~$ sudo service docker start  
ubuntu@ip-172-31-2-155:~$ sudo service docker status  
Warning: The unit file, source configuration file or drop-ins of docker.service changed on disk. Run 'systemctl daemon-reload' to re  
● docker.service - Docker Application Container Engine  
   Loaded: loaded (/usr/lib/systemd/system/docker.service; enabled; preset: enabled)  
   Active: active (running) since Mon 2024-12-30 08:30:08 UTC; 56s ago  
TriggeredBy: ● docker.socket  
   Docs: https://docs.docker.com  
  Main PID: 2224 (dockerd)  
    Tasks: 8  
  Memory: 34.7M (peak: 34.8M)  
    CPU: 235ms  
   CGroup: /system.slice/docker.service  
           └─2224 /usr/bin/dockerd -H fd:// --containerd=/run/containerd/containerd.sock  
  
Dec 30 08:30:08 ip-172-31-2-155 systemd[1]: Starting docker.service - Docker Application Container Engine...  
Dec 30 08:30:08 ip-172-31-2-155 dockerd[2224]: time="2024-12-30T08:30:08.474345432Z" level=info msg="Starting up"  
Dec 30 08:30:08 ip-172-31-2-155 dockerd[2224]: time="2024-12-30T08:30:08.476268573Z" level=info msg="detected 127.0.0.53 nameserver"  
Dec 30 08:30:08 ip-172-31-2-155 dockerd[2224]: time="2024-12-30T08:30:08.646115151Z" level=info msg="Loading containers: start."  
Dec 30 08:30:08 ip-172-31-2-155 dockerd[2224]: time="2024-12-30T08:30:08.899079350Z" level=info msg="Loading containers: done."  
Dec 30 08:30:08 ip-172-31-2-155 dockerd[2224]: time="2024-12-30T08:30:08.917112406Z" level=info msg="Docker daemon" commit="26.1.3-0  
Dec 30 08:30:08 ip-172-31-2-155 dockerd[2224]: time="2024-12-30T08:30:08.917741631Z" level=info msg="Daemon has completed initializa  
Dec 30 08:30:08 ip-172-31-2-155 dockerd[2224]: time="2024-12-30T08:30:08.956448512Z" level=info msg="API listen on /run/docker.sock"  
Dec 30 08:30:08 ip-172-31-2-155 systemd[1]: Started docker.service - Docker Application Container Engine.  
lines 1-22/22 (END)  
ubuntu@ip-172-31-2-155:~$ sudo docker --version  
Docker version 26.1.3, build 26.1.3-0ubuntu1~24.04.1  
ubuntu@ip-172-31-2-155:~$
```

Root user and pull nginx :

- sudo su
- docker pull nginx

Show containers : (old command)

- docker ps
- docker ps -a

Show containers : (new command)

- docker container ls
- docker container ls -a

Show list of images :

- docker images
- docker image ls

```

ubuntu@ip-172-31-2-155:~$ sudo su
root@ip-172-31-2-155:/home/ubuntu# docker pull nginx
Using default tag: latest
latest: Pulling from library/nginx
fd674058ff8f: Pull complete
566e42bceelc: Pull complete
2b99b9c5d9e5: Pull complete
bd98674871f5: Pull complete
1e109dd2a0d7: Pull complete
da8cc133ff82: Pull complete
c44f27309eal: Pull complete
Digest: sha256:42e917aaab5bb40dd0f6f74f857490ac7747d7ef73b391c774a41a8b994f15
Status: Downloaded newer image for nginx:latest
docker.io/library/nginx:latest
root@ip-172-31-2-155:/home/ubuntu# docker images
REPOSITORY TAG IMAGE ID CREATED SIZE
nginx latest f876bfc1cc63 4 weeks ago 192MB
root@ip-172-31-2-155:/home/ubuntu# docker ps
CONTAINER ID IMAGE COMMAND CREATED STATUS PORTS NAMES
root@ip-172-31-2-155:/home/ubuntu# docker ps -a
CONTAINER ID IMAGE COMMAND CREATED STATUS PORTS NAMES

```

Run command :

- docker run command is combination of docker pull , docker create , docker start .
- docker run nginx (runs nginx)
- docker run -d -p80:80 nginx (to run nginx in background)
- docker run -d -p80:80 --name mywebsite nginx (to run docker in background on port 80 of ec2 and port 80 of docker and give name to container)

Create command:

- docker create only creates container from image but the container is in stoped condition.
- docker run -d httpd (to get apache image) or
- docker create httpd
- docker start httpd (to start httpd)
- docker run -d -p80:80 --name containername imagename (to create new container)

To execute Container :

- docker exec -it containerid/name /bin/bash

```

root@ip-172-31-2-155:/home/ubuntu# docker run -d -p 80:80 --name myweb nginx
4602d94d025b586beb15d4862b529a3f10504fae2a43f3cb34d9af313d725500
root@ip-172-31-2-155:/home/ubuntu# docker ps
CONTAINER ID IMAGE COMMAND CREATED STATUS PORTS NAMES
4602d94d025b nginx "/docker-entrypoint...." 27 seconds ago Up 26 seconds 0.0.0.0:80->80/tcp, :::80->80/tcp myweb
root@ip-172-31-2-155:/home/ubuntu# docker exec -it myweb /bin/bash
root@4602d94d025b:/# ls
bin dev docker-entrypoint.sh home lib64 mnt proc run srv tmp var
boot docker-entrypoint.d etc lib media opt root sbin sys usr
root@4602d94d025b:/# cd /usr/share/nginx/html
root@4602d94d025b:/usr/share/nginx/html# apt install nano -y

```

```
root@ip-172-31-2-155: /home x + v
update-alternatives: warning: skip creation of /usr/share/man/man1/editor.1.gz because associated file /usr/share/man/man1/nano.1.gz
(of link group editor) doesn't exist
update-alternatives: using /bin/nano to provide /usr/bin/pico (pico) in auto mode
update-alternatives: warning: skip creation of /usr/share/man/man1/pico.1.gz because associated file /usr/share/man/man1/nano.1.gz (o
f link group pico) doesn't exist
Processing triggers for libc-bin (2.36-9+deb12u9) ...
root@4602d94d025b:/usr/share/nginx/html# nano application.html
root@4602d94d025b:/usr/share/nginx/html# curl http://localhost
<!DOCTYPE html>
<html>
<head>
<title>Welcome to nginx!</title>
<style>
html { color-scheme: light dark; }
body { width: 35em; margin: 0 auto;
font-family: Tahoma, Verdana, Arial, sans-serif; }
</style>
</head>
<body>
<h1>Welcome to nginx!</h1>
<p>If you see this page, the nginx web server is successfully installed and
working. Further configuration is required.</p>

<p>For online documentation and support please refer to
<a href="http://nginx.org/">nginx.org</a>.<br/>
Commercial support is available at
<a href="http://nginx.com/">nginx.com</a>.</p>

<p><em>Thank you for using nginx.</em></p>
</body>
</html>
root@4602d94d025b:/usr/share/nginx/html# nano /etc/nginx/nginx.conf
root@4602d94d025b:/usr/share/nginx/html#
```

```
GNU nano 7.2 /etc/nginx/nginx.conf *
access_log /var/log/nginx/access.log main;

sendfile on;
#tcp_nopush on;

keepalive_timeout 65;

#gzip on;

include /etc/nginx/conf.d/*.conf;
server {
    listen 80;
    listen [::]:80;
    server_name _;
    root /usr/share/nginx/html;

    # Load configuration files for the default server block.
    include /etc/nginx/default.d/*.conf;

    error_page 404 /404.html;
    location = /404.html {
    }

    error_page 500 502 503 504 /50x.html;
    location = /50x.html {
    }
}

^G Help ^O Write Out ^W Where Is ^K Cut ^T Execute ^G Location ^U Undo ^M-A Set Mark
^X Exit ^R Read File ^A Replace ^V Paste ^J Justify ^_ Go To Line ^E Redo ^M-E Copy
```

52.66.251.189/application.html x +

← → ↻ 52.66.251.189/application.html ☆ 📄 📄 📄

First name:

Last name:

Choose a Language You Like:
☐ HTML
☐ CSS
☐ JavaScript

Submit

Stop container :

- docker container stop containerid/name
- docker stop \$(docker ps -a)

Remove container:

- docker rm containerid/name (to remove one container)
- docker rm \$(docker ps -aq) (to remove all stoped container which are stoped at once)

Remove image :

- docker rmi imageid (remove one image)
- docker image rm imageid (remove one image)
- docker image prune (remove all unused images)

```
root@ip-172-31-2-155: /home x + v
</html>
root@4602d94d025b: /usr/share/nginx/html# nano /etc/nginx/nginx.conf
root@4602d94d025b: /usr/share/nginx/html# ls
50x.html application.html index.html
root@4602d94d025b: /usr/share/nginx/html# nano /etc/nginx/nginx.conf
root@4602d94d025b: /usr/share/nginx/html# root@4602d94d025b: /usr/share/nginx/html# nano application.html
root@4602d94d025b: /usr/share/nginx/html# nano application.html
root@4602d94d025b: /usr/share/nginx/html# nano application.html
root@4602d94d025b: /usr/share/nginx/html# exit
exit
root@ip-172-31-2-155: /home/ubuntu# docker container stop myweb
myweb
root@ip-172-31-2-155: /home/ubuntu# docker ps -a
CONTAINER ID   IMAGE     COMMAND                  CREATED        STATUS        PORTS   NAMES
4602d94d025b   nginx    "/docker-entrypoint..." 40 minutes ago Exited (0) 8 seconds ago          myweb
root@ip-172-31-2-155: /home/ubuntu# docker ps
CONTAINER ID   IMAGE     COMMAND                  CREATED        STATUS        PORTS   NAMES
root@ip-172-31-2-155: /home/ubuntu# docker rm myweb
myweb
root@ip-172-31-2-155: /home/ubuntu# docker container ls
CONTAINER ID   IMAGE     COMMAND                  CREATED        STATUS        PORTS   NAMES
root@ip-172-31-2-155: /home/ubuntu# docker images
REPOSITORY    TAG       IMAGE ID       CREATED        SIZE
nginx         latest   f876bfc1cc63   4 weeks ago   192MB
root@ip-172-31-2-155: /home/ubuntu# docker image prune
WARNING! This will remove all dangling images.
Are you sure you want to continue? [y/N] y
Total reclaimed space: 0B
root@ip-172-31-2-155: /home/ubuntu#
```

Logs :

- docker logs containerid (see to any problem and error)
- docker inspect containerid (setting used to create container)

```
root@ip-172-31-2-155: /home  X + v
root@ip-172-31-2-155:/home/ubuntu# docker run -d -p80:80 --name myweb nginx
4d283ba8ac95971b9cdd428420d17a08915680d841dfe31fb8d4d3ed38ad9f91
root@ip-172-31-2-155:/home/ubuntu# docker ps
CONTAINER ID   IMAGE     COMMAND                  CREATED        STATUS        PORTS                               NAMES
4d283ba8ac95   nginx    "/docker-entrypoint..." 43 seconds ago Up 42 seconds  0.0.0.0:80->80/tcp, :::80->80/tcp  myweb
root@ip-172-31-2-155:/home/ubuntu# docker images
REPOSITORY    TAG       IMAGE ID       CREATED        SIZE
nginx         latest   f876bfc1cc63   4 weeks ago   192MB
root@ip-172-31-2-155:/home/ubuntu# docker inspect myweb
[
  {
    "Id": "4d283ba8ac95971b9cdd428420d17a08915680d841dfe31fb8d4d3ed38ad9f91",
    "Created": "2024-12-30T09:39:56.551152768Z",
    "Path": "/docker-entrypoint.sh",
    "Args": [
      "nginx",
      "-g",
      "daemon off;"
    ],
    "State": {
      "Status": "running",
      "Running": true,
      "Paused": false,
      "Restarting": false,
      "OOMKilled": false,
      "Dead": false,
      "Pid": 3766,
      "ExitCode": 0,
      "Error": "",
      "StartedAt": "2024-12-30T09:39:56.937052506Z",
      "FinishedAt": "0001-01-01T00:00:00Z"
    },
    "Image": "sha256:f876bfc1cc63d905bb9c8ebc5adc98375bb8e22920959719d1a96e8f594868fa",
  }
]
```

```
root@ip-172-31-2-155: /home x + v
    "IPAddress": "172.17.0.2",
    "IPPrefixLen": 16,
    "IPv6Gateway": "",
    "GlobalIPv6Address": "",
    "GlobalIPv6PrefixLen": 0,
    "DriverOpts": null,
    "DNSNames": null
  }
}
}
]
root@ip-172-31-2-155:/home/ubuntu# docker log myweb
docker: 'log' is not a docker command.
See 'docker --help'
root@ip-172-31-2-155:/home/ubuntu# docker logs myweb
/docker-entrypoint.sh: /docker-entrypoint.d/ is not empty, will attempt to perform configuration
/docker-entrypoint.sh: Looking for shell scripts in /docker-entrypoint.d/
/docker-entrypoint.sh: Launching /docker-entrypoint.d/10-listen-on-ipv6-by-default.sh
10-listen-on-ipv6-by-default.sh: info: Getting the checksum of /etc/nginx/conf.d/default.conf
10-listen-on-ipv6-by-default.sh: info: Enabled listen on IPv6 in /etc/nginx/conf.d/default.conf
/docker-entrypoint.sh: Sourcing /docker-entrypoint.d/15-local-resolvers.envsh
/docker-entrypoint.sh: Launching /docker-entrypoint.d/20-envsubst-on-templates.sh
/docker-entrypoint.sh: Launching /docker-entrypoint.d/30-tune-worker-processes.sh
/docker-entrypoint.sh: Configuration complete; ready for start up
2024/12/30 09:39:56 [notice] 1#1: using the "epoll" event method
2024/12/30 09:39:56 [notice] 1#1: nginx/1.27.3
2024/12/30 09:39:56 [notice] 1#1: built by gcc 12.2.0 (Debian 12.2.0-14)
2024/12/30 09:39:56 [notice] 1#1: OS: Linux 6.8.0-1021-aws
2024/12/30 09:39:56 [notice] 1#1: getrlimit(RLIMIT_NOFILE): 1048576:1048576
2024/12/30 09:39:56 [notice] 1#1: start worker processes
2024/12/30 09:39:56 [notice] 1#1: start worker process 29
root@ip-172-31-2-155:/home/ubuntu#
```

Types of Volume for Container :

- one volume can be assigned to multiple container.
- 1) Host path (Bind Mount):
- 2) Named Volume :
- 3) Anonymous Volume :

Allocate CPU and memory to container :

docker run --CPU 0.5 --memory 512mb -d