

# DOCKER TASK -1

## Install docker on EC2:

```
ec2-user@ip-172-31-10-59:~$ sudo yum install docker
Last metadata expiration check: 0:02:14 ago on Mon Jul  8 04:38:29 2024.
Dependencies resolved.
=====
Package                        Architecture      Version           Repository        Size
=====
Installing:
docker                        x86_64            25.0.3-1.amzn2023.0.1  amazonlinux      44 M
Installing dependencies:
containerd                    x86_64            1.7.11-1.amzn2023.0.1  amazonlinux      35 M
iptables-libs                 x86_64            1.8.8-3.amzn2023.0.2   amazonlinux      401 k
iptables-nft                  x86_64            1.8.8-3.amzn2023.0.2   amazonlinux      183 k
libcgroup                     x86_64            3.0-1.amzn2023.0.1     amazonlinux      75 k
libnetfilter_conntrack        x86_64            1.0.8-2.amzn2023.0.2   amazonlinux      58 k
libnftnl                      x86_64            1.0.1-19.amzn2023.0.2  amazonlinux      30 k
libnftnl                      x86_64            1.2.2-2.amzn2023.0.2   amazonlinux      84 k
pigz                          x86_64            2.5-1.amzn2023.0.3     amazonlinux      83 k
runc                          x86_64            1.1.11-1.amzn2023.0.1  amazonlinux      3.0 M
=====
Transaction Summary
=====
Install 10 Packages

Total download size: 83 M
Installed size: 313 M
Is this ok [y/N]: y
Downloading Packages:
(1/10): iptables-libs-1.8.8-3.amzn2023.0.2.x86_64.rpm           6.1 MB/s | 401 kB    00:00
(2/10): iptables-nft-1.8.8-3.amzn2023.0.2.x86_64.rpm           3.2 MB/s | 183 kB    00:00
(3/10): libcgroup-3.0-1.amzn2023.0.1.x86_64.rpm                2.8 MB/s | 75 kB     00:00
(4/10): libnetfilter_conntrack-1.0.8-2.amzn2023.0.2.x86_64.rpm 3.2 MB/s | 58 kB     00:00
(5/10): libnftnl-1.0.1-19.amzn2023.0.2.x86_64.rpm              951 kB/s | 30 kB     00:00
(6/10): libnftnl-1.2.2-2.amzn2023.0.2.x86_64.rpm               3.2 MB/s | 84 kB     00:00
(7/10): pigz-2.5-1.amzn2023.0.3.x86_64.rpm                     2.9 MB/s | 83 kB     00:00
(8/10): runc-1.1.11-1.amzn2023.0.1.x86_64.rpm                  19 MB/s | 3.0 MB     00:00
(9/10): containerd-1.7.11-1.amzn2023.0.1.x86_64.rpm            44 MB/s | 35 MB      00:00
(10/10): docker-25.0.3-1.amzn2023.0.1.x86_64.rpm              34 MB/s | 44 MB      00:01
-----
Total                                                                61 MB/s | 83 MB      00:01
Running transaction check
Transaction check succeeded.
Running transaction test
Transaction test succeeded.
Running transaction
```

## check the docker status:

```
[root@ip-172-31-10-59 ~]# systemctl status docker
○ docker.service - Docker Application Container Engine
   Loaded: loaded (/usr/lib/systemd/system/docker.service; disabled; preset: disabled)
   Active: inactive (dead)
   TriggeredBy: ○ docker.socket
   Docs: https://docs.docker.com
[root@ip-172-31-10-59 ~]# systemctl start docker

[root@ip-172-31-10-59 ~]# systemctl status docker
● docker.service - Docker Application Container Engine
   Loaded: loaded (/usr/lib/systemd/system/docker.service; disabled; preset: disabled)
   Active: active (running) since Mon 2024-07-08 04:58:16 UTC; 4s ago
   TriggeredBy: ● docker.socket
   Docs: https://docs.docker.com
   Process: 27033 ExecStartPre=/bin/mkdir -p /run/docker (code=exited, status=0/SUCCESS)
   Process: 27034 ExecStartPre=/usr/libexec/docker/docker-setup-runtimes.sh (code=exited, status=0/SUCCESS)
   Main PID: 27036 (dockerd)
   Tasks: 8
   Memory: 31.9M
   CPU: 323ms
   CGroup: /system.slice/docker.service
           └─27036 /usr/bin/dockerd -H fd:// --containerd=/run/containerd/containerd.sock --default-ulimit nofile=32768:65536

Jul 08 04:58:15 ip-172-31-10-59.us-east-2.compute.internal systemd[1]: Starting docker.service - Docker Application Container Engine...
Jul 08 04:58:15 ip-172-31-10-59.us-east-2.compute.internal dockerd[27036]: time="2024-07-08T04:58:15.930475458Z" level=info msg="Starting up"
Jul 08 04:58:15 ip-172-31-10-59.us-east-2.compute.internal dockerd[27036]: time="2024-07-08T04:58:15.989057518Z" level=info msg="Loading containers: start."
Jul 08 04:58:16 ip-172-31-10-59.us-east-2.compute.internal dockerd[27036]: time="2024-07-08T04:58:16.373545515Z" level=info msg="Loading containers: done."
Jul 08 04:58:16 ip-172-31-10-59.us-east-2.compute.internal dockerd[27036]: time="2024-07-08T04:58:16.397042105Z" level=info msg="Docker daemon" commit=f4175
Jul 08 04:58:16 ip-172-31-10-59.us-east-2.compute.internal dockerd[27036]: time="2024-07-08T04:58:16.397311716Z" level=info msg="Daemon has completed initializ
Jul 08 04:58:16 ip-172-31-10-59.us-east-2.compute.internal dockerd[27036]: time="2024-07-08T04:58:16.439073802Z" level=info msg="API listen on /run/docker.s
Jul 08 04:58:16 ip-172-31-10-59.us-east-2.compute.internal systemd[1]: Started docker.service - Docker Application Container Engine.
lines 1-22/22 (END)
```

## Creating a docker image:

```
[root@ip-172-31-10-59 ~]# docker build . -t web
[+] Building 5.8s (9/9) FINISHED
=> [internal] load build definition from dockerfile                                docker:default 0.0s
=> => transferring dockerfile: 344B                                              0.0s
=> [internal] load metadata for docker.io/library/httpd:latest                  0.1s
=> [internal] load .dockerignore                                                 0.0s
=> => transferring context: 2B                                                  0.0s
=> [1/5] FROM docker.io/library/httpd:latest@sha256:fad0c8311b35c689cf1b94fc4783e735a8e3086aebfe318c4e8e0fa224e9 0.0s
=> CACHED [2/5] RUN apt-get update ; apt-get upgrade -y                        0.0s
=> [3/5] RUN apt-get install wget ; apt-get install unzip -y                  3.1s
=> [4/5] RUN wget https://www.free-css.com/assets/files/free-css-templates/download/page259/digitco.zip 1.7s
=> [5/5] RUN unzip digitco.zip                                                  0.5s
=> exporting to image                                                           0.3s
=> => exporting layers                                                          0.3s
=> => writing image sha256:91ff9850bed80fb30ddb276a3b7fc7b1f77b4df83651b1f1116fa66afe07a559 0.0s
=> => naming to docker.io/library/web                                          0.0s
[root@ip-172-31-10-59 ~]# |
```

```
[root@ip-172-31-10-59 ~]# docker image ls
REPOSITORY    TAG       IMAGE ID       CREATED        SIZE
web           latest    91ff9850bed8   48 seconds ago 177MB
[root@ip-172-31-10-59 ~]# |
```

created image.

## creating the docker container:

```
[root@ip-172-31-10-59 ~]# docker run web -d
docker: Error response from daemon: failed to create task for container: failed to create shim task: OCI runtime create failed: runc create failed: unable to start container process: exec: "-d": executable file not found in $PATH: unknown.
[root@ip-172-31-10-59 ~]# docker run web
AH00558: httpd: Could not reliably determine the server's fully qualified domain name, using 172.17.0.3. Set the 'ServerName' directive globally to suppress this message
AH00558: httpd: Could not reliably determine the server's fully qualified domain name, using 172.17.0.3. Set the 'ServerName' directive globally to suppress this message
[Mon Jul 08 05:47:41.138587 2024] [mpm_event:notice] [pid 7:tid 7] AH00489: Apache/2.4.61 (Unix) configured -- resuming normal operations
[Mon Jul 08 05:47:41.139028 2024] [core:notice] [pid 7:tid 7] AH00094: Command Line: 'httpd -D FOREGROUND'
```

## currently running containers:

```
[root@ip-172-31-10-59 ~]# docker image ls
REPOSITORY    TAG       IMAGE ID       CREATED        SIZE
web           latest    91ff9850bed8   10 minutes ago 177MB
[root@ip-172-31-10-59 ~]# docker container ls
CONTAINER ID   IMAGE     COMMAND                  CREATED        STATUS        PORTS          NAMES
820e3085897d   web      "/bin/sh -c \"httpd-f...\"  About a minute ago Up About a minute 80/tcp        youthful_elgamal
268f84bc884a   web      "/bin/sh -c \"httpd-f...\"   6 minutes ago  Up 6 minutes  80/tcp        friendly_Lewin
[root@ip-172-31-10-59 ~]# |
```

## volume :

```
[root@ip-172-31-10-59 ~]# docker volume create myvolume
myvolume
[root@ip-172-31-10-59 ~]# |
```

## creating the new myvolume

```
[root@ip-172-31-10-59 ~]# docker volume inspect myvolume
[
  {
    "CreatedAt": "2024-07-08T05:52:38Z",
    "Driver": "local",
    "Labels": null,
    "Mountpoint": "/var/lib/docker/volumes/myvolume/_data",
    "Name": "myvolume",
    "Options": null,
    "Scope": "local"
  }
]
```

## Network

```
[root@ip-172-31-10-59 ~]# docker network ls
NETWORK ID          NAME                DRIVER              SCOPE
14774f297da6        bridge             bridge              local
fad45defff41        host               host                local
be3f1639afa3        none               null                local
[root@ip-172-31-10-59 ~]# |
```

new docker network:

```
[root@ip-172-31-10-59 ~]# docker network create mynetwork
8af86427cb1e04059e1cb0b745eddf875394bea4eedbc0d55bc4ef5131eec900
[root@ip-172-31-10-59 ~]# docker network inspect mynetwork
[
  {
    "Name": "mynetwork",
    "Id": "8af86427cb1e04059e1cb0b745eddf875394bea4eedbc0d55bc4ef5131eec900",
    "Created": "2024-07-08T05:55:41.719552482Z",
    "Scope": "local",
    "Driver": "bridge",
    "EnableIPv6": false,
    "IPAM": {
      "Driver": "default",
      "Options": {},
      "Config": [
        {
          "Subnet": "172.18.0.0/16",
          "Gateway": "172.18.0.1"
        }
      ]
    },
    "Internal": false,
    "Attachable": false,
    "Ingress": false,
    "ConfigFrom": {
      "Network": ""
    },
    "ConfigOnly": false,
    "Containers": {},
    "Options": {},
    "Labels": {}
  }
]
```

```
[root@ip-172-31-10-59 ~]# docker run -it --network=mynetwork ubuntu /bin/bash
Unable to find image 'ubuntu:latest' locally
latest: Pulling from library/ubuntu
9c704ecd0c69: Pull complete
Digest: sha256:2e863c44b718727c860746568e1d54afd13b2fa71b160f5cd9058fc436217b30
Status: Downloaded newer image for ubuntu:latest
root@3d06bcc25e81:/#
```