Docker Task

Task Description:

Install docker on EC2 and explore the docker commands (docker images, containers, volumes, network

```
ashok@WIN-N2O1DVEO1KC MINGW64 ~
$ cd downloads/\
> ^C
ashok@WIN-N2O1DVEO1KC MINGW64 ~
$ cd downloads/

ashok@WIN-N2O1DVEO1KC MINGW64 ~/downloads
$ ssh -i Docker.pem ubuntu@54.211.232.129
The authenticity of host '54.211.232.129 (54.211.232.129)' can't be established.
ED25519 key fingerprint is SHA256:iLre1ipFzLHXevCNB6doELu1wVi3kjnzC8RE2SePFg4.
This key is not known by any other names.
Are you sure you want to continue connecting (yes/no/[fingerprint])? y
Please type 'yes', 'no' or the fingerprint: tes
Please type 'yes', 'no' or the fingerprint: yes
Warning: Permanently added '54.211.232.129' (ED25519) to the list of known hosts
.
Welcome to Ubuntu 24.04.2 LTS (GNU/Linux 6.8.0-1029-aws x86_64)

 * Documentation:  https://help.ubuntu.com
 * Management:      https://landscape.canonical.com
 * Support:         https://ubuntu.com/pro

 System information as of Fri Jun 20 09:03:38 UTC 2025

   System load:  0.56              Processes:             106
   Usage of /:   25.4% of 6.71GB   Users logged in:       0
   Memory usage: 21%               IPv4 address for enX0: 172.31.83.201
   Swap usage:   0%

Expanded Security Maintenance for Applications is not enabled.

0 updates can be applied immediately.

Enable ESM Apps to receive additional future security updates.
See https://ubuntu.com/esm or run: sudo pro status


The list of available updates is more than a week old.
To check for new updates run: sudo apt update


The programs included with the Ubuntu system are free software;
the exact distribution terms for each program are described in the
individual files in /usr/share/doc/*/copyright.

Ubuntu comes with ABSOLUTELY NO WARRANTY, to the extent permitted by
applicable law.

To run a command as administrator (user "root"), use "sudo <command>".
See "man sudo_root" for details.
```

```
ubuntu@ip-172-31-83-201:~$ sudo yum update -y
sudo: yum: command not found
ubuntu@ip-172-31-83-201:~$ sudo yum update -y
sudo: yum: command not found
ubuntu@ip-172-31-83-201:~$ sudo yum update
```

```
ubuntu@ip-172-31-83-201:~$ sudo apt update
Hit:1 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble InRelease
Get:2 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates InRelease [12
6 kB]
Get:3 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-backports InRelease [
126 kB]
Get:4 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble/universe amd64 Packag
es [15.0 MB]
Get:5 http://security.ubuntu.com/ubuntu noble-security InRelease [126 kB]
Get:6 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble/universe Translation-
en [5982 kB]
Get:7 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble/universe amd64 Compon
ents [3871 kB]
Get:8 http://security.ubuntu.com/ubuntu noble-security/main amd64 Packages [896
kB]
Get:9 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble/universe amd64 c-n-f
Metadata [301 kB]
Get:10 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble/multiverse amd64 Pac
kages [269 kB]
Get:11 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble/multiverse Translati
on-en [118 kB]
Get:12 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble/multiverse amd64 Com
ponents [35.0 kB]
Get:13 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble/multiverse amd64 c-n
-f Metadata [8328 B]
Get:14 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 P
ackages [1144 kB]
Get:15 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates/main Transla
tion-en [242 kB]
Get:16 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 C
omponents [161 kB]
Get:17 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates/universe amd
64 Packages [1086 kB]
Get:18 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates/universe Tra
nslation-en [276 kB]
Get:19 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates/universe amd
64 Components [376 kB]
Get:20 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates/universe amd
64 c-n-f Metadata [26.0 kB]
Get:21 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates/restricted a
md64 Packages [1224 kB]
Get:22 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates/restricted T
ranslation-en [256 kB]
Get:23 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates/restricted a
md64 Components [212 B]
Get:24 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates/multiverse a
md64 Packages [21.7 kB]
Get:25 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates/multiverse T
ranslation-en [4788 B]
Get:26 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates/multiverse a
md64 Components [940 B]
Get:27 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates/multiverse a
md64 c-n-f Metadata [592 B]
Get:28 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-backports/main amd64
 Packages [39.2 kB]
Get:29 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-backports/main Trans
lation-en [8676 B]
```

```
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
23 packages can be upgraded. Run 'apt list --upgradable' to see them.
ubuntu@ip-172-31-83-201:~$ sudo apt install docker.io -y
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 23 not upgraded.
Need to get 79.2 MB of archives.
After this operation, 300 MB of additional disk space will be used.
Get:1 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble/universe amd64 pigz a
md64 2.8-1 [65.6 kB]
Get:2 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble/main amd64 bridge-uti
ls amd64 1.7.1-1ubuntu2 [33.9 kB]
Get:3 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 ru
nc amd64 1.2.5-0ubuntu1~24.04.1 [8043 kB]
Get:4 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 co
ntainerd amd64 1.7.27-0ubuntu1~24.04.1 [37.7 MB]
Get:5 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 dn
s-root-data all 2024071801~ubuntu0.24.04.1 [5918 B]
Get:6 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble/main amd64 dnsmasq-ba
se amd64 2.90-2build2 [375 kB]
Get:7 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates/universe amd6
4 docker.io amd64 27.5.1-0ubuntu3~24.04.2 [33.0 MB]
Get:8 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble/universe amd64 ubuntu
-fan all 0.12.16 [35.2 kB]
Fetched 79.2 MB in 1s (82.7 MB/s)
Preconfiguring packages ...
Selecting previously unselected package pigz.
(Reading database ... 70681 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) ...
Selecting previously unselected package runc.
Preparing to unpack .../2-runc_1.2.5-0ubuntu1~24.04.1_amd64.deb ...
Unpacking runc (1.2.5-0ubuntu1~24.04.1) ...
Selecting previously unselected package containerd.
Preparing to unpack .../3-containerd_1.7.27-0ubuntu1~24.04.1_amd64.deb ...
Unpacking containerd (1.7.27-0ubuntu1~24.04.1) ...
Selecting previously unselected package dns-root-data.
Preparing to unpack .../4-dns-root-data_2024071801~ubuntu0.24.04.1_all.deb ...
Unpacking dns-root-data (2024071801~ubuntu0.24.04.1) ...
Selecting previously unselected package dnsmasq-base.
Preparing to unpack .../5-dnsmasq-base_2.90-2build2_amd64.deb ...
Unpacking dnsmasq-base (2.90-2build2) ...
Selecting previously unselected package docker.io.
Preparing to unpack .../6-docker.io_27.5.1-0ubuntu3~24.04.2_amd64.deb ...
```

```
Unpacking docker.io (27.5.1-0ubuntu3~24.04.2) ...
Selecting previously unselected package ubuntu-fan.
Preparing to unpack .../7-ubuntu-fan_0.12.16_all.deb ...
Unpacking ubuntu-fan (0.12.16) ...
Setting up dnsmasq-base (2.90-2build2) ...
Setting up runc (1.2.5-0ubuntu1~24.04.1) ...
Setting up dns-root-data (2024071801~ubuntu0.24.04.1) ...
Setting up bridge-utils (1.7.1-1ubuntu2) ...
Setting up pigz (2.8-1) ...
Setting up containerd (1.7.27-0ubuntu1~24.04.1) ...
Created symlink /etc/systemd/system/multi-user.target.wants/containerd.service →
 /usr/lib/systemd/system/containerd.service.
Setting up ubuntu-fan (0.12.16) ...
Created symlink /etc/systemd/system/multi-user.target.wants/ubuntu-fan.service →
 /usr/lib/systemd/system/ubuntu-fan.service.
Setting up docker.io (27.5.1-0ubuntu3~24.04.2) ...
info: Selecting GID from range 100 to 999 ...
info: Adding group `docker' (GID 113) ...
Created symlink /etc/systemd/system/multi-user.target.wants/docker.service → /us
r/lib/systemd/system/docker.service.
Created symlink /etc/systemd/system/sockets.target.wants/docker.socket → /usr/li
b/systemd/system/docker.socket.
Processing triggers for dbus (1.14.10-4ubuntu4.1) ...
Processing triggers for man-db (2.12.0-4build2) ...
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.
ubuntu@ip-172-31-83-201:~$ sudo systemctl start docker
ubuntu@ip-172-31-83-201:~$ sudo usermod -aG docker ubuntu
ubuntu@ip-172-31-83-201:~$ exit
logout
Connection to 54.211.232.129 closed.

ashok@WIN-N2O1DVEO1KC MINGW64 ~/downloads
$ ssh -i Docker.pem ubuntu@54.211.232.129
Welcome to Ubuntu 24.04.2 LTS (GNU/Linux 6.8.0-1029-aws x86_64)

 * Documentation:  https://help.ubuntu.com
 * Management:     https://landscape.canonical.com
 * Support:        https://ubuntu.com/pro

 System information as of Fri Jun 20 09:07:25 UTC 2025

  System load:  0.25              Processes:             111
  Usage of /:   33.0% of 6.71GB   Users logged in:       0
  Memory usage: 27%               IPv4 address for enX0: 172.31.83.201
  Swap usage:   0%
```

```
Expanded Security Maintenance for Applications is not enabled.

23 updates can be applied immediately.
22 of these updates are standard security updates.
To see these additional updates run: apt list --upgradable

1 additional security update can be applied with ESM Apps.
Learn more about enabling ESM Apps service at https://ubuntu.com/esm


Last login: Fri Jun 20 09:03:39 2025 from 157.48.122.163
ubuntu@ip-172-31-83-201:~$ docker version
Client:
 Version:           27.5.1
 API version:       1.47
 Go version:        go1.22.2
 Git commit:        27.5.1-0ubuntu3~24.04.2
 Built:             Mon Jun  2 11:51:53 2025
 OS/Arch:           linux/amd64
 Context:           default

Server:
 Engine:
  Version:          27.5.1
  API version:      1.47 (minimum version 1.24)
  Go version:       go1.22.2
  Git commit:       27.5.1-0ubuntu3~24.04.2
  Built:            Mon Jun  2 11:51:53 2025
  OS/Arch:          linux/amd64
  Experimental:     false
 containerd:
  Version:          1.7.27
  GitCommit:
 runc:
  Version:          1.2.5-0ubuntu1~24.04.1
  GitCommit:
 docker-init:
  Version:          0.19.0
  GitCommit:
ubuntu@ip-172-31-83-201:~$ docker info
Client:
 Version:    27.5.1
 Context:    default
 Debug Mode: false

Server:
 Containers: 0
  Running: 0
  Paused: 0
  Stopped: 0
 Images: 0
 Server Version: 27.5.1
 Storage Driver: overlay2
  Backing Filesystem: extfs
  Supports d_type: true
  Using metacopy: false
  Native Overlay Diff: true
  userxattr: false
```

```
  Volume: local
  Network: bridge host ipvlan macvlan null overlay
  Log: awslogs fluentd gcplogs gelf journald json-file local splunk syslog
 Swarm: inactive
 Runtimes: io.containerd.runc.v2 runc
 Default Runtime: runc
 Init Binary: docker-init
 containerd version:
 runc version:
 init version:
 Security Options:
  apparmor
  seccomp
   Profile: builtin
  cgroupns
 Kernel Version: 6.8.0-1029-aws
 Operating System: Ubuntu 24.04.2 LTS
 OSType: linux
 Architecture: x86_64
 CPUs: 1
 Total Memory: 957.4MiB
 Name: ip-172-31-83-201
 ID: b9cae9be-66fa-4030-bd96-09de11f48524
 Docker Root Dir: /var/lib/docker
 Debug Mode: false
 Experimental: false
 Insecure Registries:
  127.0.0.0/8
 Live Restore Enabled: false

ubuntu@ip-172-31-83-201:~$ docker pull nginx
Using default tag: latest
latest: Pulling from library/nginx
dad67da3f26b: Pull complete
3b00567da964: Pull complete
56b81cfa547d: Pull complete
1bc5dc8b475d: Pull complete
979e6233a40a: Pull complete
d2a7ba8dbfee: Pull complete
32e44235e1d5: Pull complete
Digest: sha256:6784fb0834aa7dbbe12e3d7471e69c290df3e6ba810dc38b34ae33d3c1c05f7d
Status: Downloaded newer image for nginx:latest
docker.io/library/nginx:latest
ubuntu@ip-172-31-83-201:~$ docker images
REPOSITORY    TAG      IMAGE ID       CREATED        SIZE
nginx         latest   1e5f3c5b981a   2 months ago   192MB
ubuntu@ip-172-31-83-201:~$ docker ru -d -p 80:80 nginx
unknown shorthand flag: 'd' in -d
See 'docker --help'.

Usage:  docker [OPTIONS] COMMAND

A self-sufficient runtime for containers

Common Commands:
  run        Create and run a new container from an image
  exec       Execute a command in a running container
  ps         List containers
```

```
Commands:
  attach       Attach local standard input, output, and error streams to a runnin
g container
  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 filesyste
m
  events       Get real time events from the server
  export       Export a container's filesystem as a tar archive
  history      Show the history of an image
  import       Import the contents from a tarball to create a filesystem image
  inspect      Return low-level information on Docker objects
  kill         Kill one or more running containers
  load         Load an image from a tar archive or STDIN
  logs         Fetch the logs of a container
  pause        Pause all processes within one or more containers
  port         List port mappings or a specific mapping for the container
  rename       Rename a container
  restart      Restart one or more containers
  rm           Remove one or more containers
  rmi          Remove one or more images
  save         Save one or more images to a tar archive (streamed to STDOUT by de
fault)
  start        Start one or more stopped containers
  stats        Display a live stream of container(s) resource usage statistics
  stop         Stop one or more running containers
  tag          Create a tag TARGET_IMAGE that refers to SOURCE_IMAGE
  top          Display the running processes of a container
  unpause      Unpause all processes within one or more containers
  update       Update configuration of one or more containers
  wait         Block until one or more containers stop, then print their exit cod
es

Global Options:
      --config string      Location of client config files (default
                           "/home/ubuntu/.docker")
  -c, --context string     Name of the context to use to connect to the
                           daemon (overrides DOCKER_HOST env var and
                           default context set with "docker context use")
  -D, --debug              Enable debug mode
  -H, --host list          Daemon socket 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
                           "/home/ubuntu/.docker/ca.pem")
      --tlscert string     Path to TLS certificate file (default
                           "/home/ubuntu/.docker/cert.pem")
      --tlskey string      Path to TLS key file (default
                           "/home/ubuntu/.docker/key.pem")
      --tlsverify          Use TLS and verify the remote
  -v, --version            Print version information and quit

Run 'docker COMMAND --help' for more information on a command.

For more help on how to use Docker, head to https://docs.docker.com/go/guides/
```

```
ubuntu@ip-172-31-83-201:~$ docker ps
CONTAINER ID   IMAGE     COMMAND     CREATED     STATUS     PORTS     NAMES
ubuntu@ip-172-31-83-201:~$ docker ps -a
CONTAINER ID   IMAGE     COMMAND     CREATED     STATUS     PORTS     NAMES
ubuntu@ip-172-31-83-201:~$ docker stop <container_id>
-bash: syntax error near unexpected token `newline'
ubuntu@ip-172-31-83-201:~$ docker rm <container_id>
-bash: syntax error near unexpected token `newline'
ubuntu@ip-172-31-83-201:~$ docker volume create myvol
myvol
ubuntu@ip-172-31-83-201:~$ docker volume ls
DRIVER    VOLUME NAME
local     myvol
ubuntu@ip-172-31-83-201:~$ docker run -d -p 8080:80 -v myvol:/usr/share/nginx/ht
ml nginx
344c1ebfc8322ab201ee36e7d3ca4fe14b7b80888c5cbac92400120a7bf83374
ubuntu@ip-172-31-83-201:~$ docker network ls
NETWORK ID    NAME      DRIVER     SCOPE
c66e2415989a  bridge    bridge     local
d7a1659d3f48  host      host       local
65b296eaf39e  none      null       local
ubuntu@ip-172-31-83-201:~$ docker network create mynet
ef0773e1c722033d2ae21cc6ac4a2829dc9d840202082621a20fb4ce593f0e72
ubuntu@ip-172-31-83-201:~$ docker run -d --network=mynet --name=web nginx
ab4a0b7c55c4320c97b18a0515ce3cf90ada03ec2ecc6eefb138581b6d761f53
ubuntu@ip-172-31-83-201:~$ docker inspect mynet
[
    {
        "Name": "mynet",
        "Id": "ef0773e1c722033d2ae21cc6ac4a2829dc9d840202082621a20fb4ce593f0e72",
,
        "Created": "2025-06-20T09:12:21.32583487Z",
        "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": {
            "ab4a0b7c55c4320c97b18a0515ce3cf90ada03ec2ecc6eefb138581b6d761f53": {
                "Name": "web",
                "EndpointID": "968665c29709d0b390340fe95cb602d4f0e0977259cb6c067
1443a8af3d74749",
```

```
ubuntu@ip-172-31-83-201:~$ docker stop $(docker ps -q)
ab4a0b7c55c4
344c1ebfc832
ubuntu@ip-172-31-83-201:~$ docker rm $(docker ps -q)
"docker rm" requires at least 1 argument.
See 'docker rm --help'.

Usage:  docker rm [OPTIONS] CONTAINER [CONTAINER...]

Remove one or more containers
ubuntu@ip-172-31-83-201:~$ docker rm $(docker ps -a -q)
ab4a0b7c55c4
344c1ebfc832
ubuntu@ip-172-31-83-201:~$ docker volume prune -f
Total reclaimed space: 0B
ubuntu@ip-172-31-83-201:~$ docker network prune -f
Deleted Networks:
mynet

ubuntu@ip-172-31-83-201:~$ docker image prune -a -f
Deleted Images:
untagged: nginx:latest
untagged: nginx@sha256:6784fb0834aa7dbbe12e3d7471e69c290df3e6ba810dc38b34ae33d3c
1c05f7d
deleted: sha256:1e5f3c5b981a9f91ca91cf13ce87c2eedfc7a083f4f279552084dd08fc477512
deleted: sha256:aaf04d5578cafbc01630c4306d4fbdab214997b9ae3d164cb99da9525f3dcd19
deleted: sha256:8cdc3eb3bcc52ea1893b6927fba109341a6e98c2a65bf7743531b70170d5e9ec
deleted: sha256:215150029c82178816457ecdf59553e0820cca221b337a04a98ef920487ba1ef
deleted: sha256:096bb5d97e340a79e6e74dceb0d161c83ee8c31183df1830590774c4b10f2c71
deleted: sha256:d22469ccf279e115f1ac71db49c6b6ccf68363dc6e79455159fccdb013c53d8c
deleted: sha256:3bfe8a4b43599a1aaf326475a1ddd8dc66ef4447f6d444f7d3cbabd311263547
deleted: sha256:7fb72a7d1a8e984ccd01277432de660162a547a00de77151518dc9033cfb8cb4

Total reclaimed space: 192.5MB
ubuntu@ip-172-31-83-201:~$
```