

Docker Assignment 01 Asad Shaikh 10-01-2024

1. **Docker installation:** Install Docker on your local system (Windows, macOS, or Linux). Verify the installation by running the docker --version and docker info commands.

→

```
root@ASAD-PC-3313:~# docker -v
Docker version 24.0.7, build afdd53b
```

```
root@ASAD-PC-3313:~# docker info
Client: Docker Engine - Community
Version: 24.0.7
Context: default
Debug Mode: false
Plugins:
WARNING: Plugin "/usr/local/lib/docker/cli-plugins/docker-buildx" is not valid: failed to fetch metadata: fork/exec /usr/local/lib/docker/cli-plugins/docker-buildx: no such file or directory
WARNING: Plugin "/usr/local/lib/docker/cli-plugins/docker-compose" is not valid: failed to fetch metadata: fork/exec /usr/local/lib/docker/cli-plugins/docker-compose: no such file or directory
WARNING: Plugin "/usr/local/lib/docker/cli-plugins/docker-dev" is not valid: failed to fetch metadata: fork/exec /usr/local/lib/docker/cli-plugins/docker-dev: no such file or directory
WARNING: Plugin "/usr/local/lib/docker/cli-plugins/docker-extension" is not valid: failed to fetch metadata: fork/exec /usr/local/lib/docker/cli-plugins/docker-extension: no such file or directory
WARNING: Plugin "/usr/local/lib/docker/cli-plugins/docker-init" is not valid: failed to fetch metadata: fork/exec /usr/local/lib/docker/cli-plugins/docker-init: no such file or directory
WARNING: Plugin "/usr/local/lib/docker/cli-plugins/docker-sbom" is not valid: failed to fetch metadata: fork/exec /usr/local/lib/docker/cli-plugins/docker-sbom: no such file or directory
WARNING: Plugin "/usr/local/lib/docker/cli-plugins/docker-scan" is not valid: failed to fetch metadata: fork/exec /usr/local/lib/docker/cli-plugins/docker-scan: no such file or directory
WARNING: Plugin "/usr/local/lib/docker/cli-plugins/docker-scout" is not valid: failed to fetch metadata: fork/exec /usr/local/lib/docker/cli-plugins/docker-scout: no such file or directory

Server:
Containers: 2
  Running: 0
  Paused: 0
  Stopped: 2
Images: 1
Server Version: 24.0.7
Storage Driver: overlay2
  Backing Filesystem: extfs
  Supports d_type: true
  Using metacopy: false
  Native Overlay Diff: true
  userxattr: false
Logging Driver: json-file
Cgroup Driver: cgroupfs
Cgroup Version: 1
Plugins:
  Volume: local
  Network: bridge host ipvlan macvlan null overlay
  Log: awslogs fluentd gcplogs gelf journald json-file local logentries splunk syslog
Swarm: inactive
Runtimes: io.containerd.runc.v2 runc
Default Runtime: runc
Init Binary: docker-init
containerd version: d8f19844ed8892c764191ef7b3b06d8a2eeb5c7f
runc version: v1.1.10-0-g18a0cb0
init version: de40ad0
Security Options:
  seccomp
   Profile: builtin
Kernel Version: 5.15.133.1-microsoft-standard-WSL2
Operating System: Ubuntu 20.04.6 LTS
OSType: linux
Architecture: x86_64
CPUs: 8
Total Memory: 9.641GiB
Name: ASAD-PC-3313
ID: 8d6a14e2-29ba-40e8-8a6b-ac9134fb8bd0
Docker Root Dir: /var/lib/docker
Debug Mode: false
Experimental: false
Insecure Registries:
  127.0.0.0/8
Live Restore Enabled: false
```

2. **Working with Docker images:** Search for the official Ubuntu image on Docker Hub, pull it to your local system using docker pull, and list all available images on your system using docker images.

→

```
root@ASAD-PC-3313:~# docker pull ubuntu
Using default tag: latest
latest: Pulling from library/ubuntu
a48641193673: Pull complete
Digest: sha256:6042500cf4b44023ea1894effe7890666b0c5c7871ed83a97c36c76ae560bb9b
Status: Downloaded newer image for ubuntu:latest
docker.io/library/ubuntu:latest
root@ASAD-PC-3313:~# docker images
REPOSITORY    TAG       IMAGE ID       CREATED        SIZE
ubuntu        latest    174c8c134b2a   4 weeks ago    77.9MB
root@ASAD-PC-3313:~#
```

3. **Creating a Docker container:** Run a Docker container using the Ubuntu image, and execute a command inside the container (e.g., echo "Hello, Docker!").

→

```
1798da778b06 ubuntu echo "Hello Docker!" 46 seconds ago Exited (0) 46 seconds ago
root@ASAD-PC-3313:~# docker run -it ubuntu echo "Hello Docker!"
Hello Docker!
root@ASAD-PC-3313:~# docker
```

4. Inspect the Ubuntu Docker container to ensure it is in the "created" state only.

→

```
root@ASAD-PC-3313:~# docker container create ubuntu
0592ff7b63ff1a66993ab68de54ed8d5f2f139aeca2bd7b74175c235706388f1
root@ASAD-PC-3313:~# docker container ls -a
```

CONTAINER ID	IMAGE	COMMAND	CREATED	STATUS	PORTS	NAMES
0592ff7b63ff	ubuntu	"/bin/bash"	8 seconds ago	Created		interesting_knuth
798a59ad6e5b	ubuntu	"echo 'Hello Docker!'"	4 minutes ago	Exited (0) 4 minutes ago		gracious_raman
1798da778b06	ubuntu	"echo 'Hello Docker!'"	5 minutes ago	Exited (0) 5 minutes ago		magical_zhukovsky

```
root@ASAD-PC-3313:~#
```

5. Execute the Ubuntu Docker container and confirm that the container's state is "running."

→

```
root@ASAD-PC-3313:~# docker container run -itd ubuntu
3b1f6ea22eb1aefd1860dd5e6edf2839e44acb8dfc70a5350712cf454ad95d60
root@ASAD-PC-3313:~# docker container ls -a
```

CONTAINER ID	IMAGE	COMMAND	CREATED	STATUS	PORTS	NAMES
3b1f6ea22eb1	ubuntu	"/bin/bash"	35 seconds ago	Up 33 seconds		practical_hodgkin

```
root@ASAD-PC-3313:~#
```

6. Launch an HTTP container, verify its state, and then remove the container and image from your local system.

→

```
root@ASAD-PC-3313:~# docker run -itd httpd
Unable to find image 'httpd:latest' locally
latest: Pulling from library/httpd
af107e978371: Pull complete
eba4da411ea0: Pull complete
4f4fb700ef54: Pull complete
ed4d6291a6c2: Pull complete
b42c390e1de9: Pull complete
eafe388a0bb8: Pull complete
Digest: sha256:f0a93744d8006e6f7ee5086c9ddccdcfa33d1091f15269a00547b4c382459c1f
Status: Downloaded newer image for httpd:latest
87f46a16f2055f299d789a350f211a32b5fb3edf4773705e547a6314add533ca
root@ASAD-PC-3313:~# docker ps
```

CONTAINER ID	IMAGE	COMMAND	CREATED	STATUS	PORTS	NAMES
87f46a16f205	httpd	"httpd-foreground"	10 seconds ago	Up 8 seconds	80/tcp	quizzical_knuth
3b1f6ea22eb1	ubuntu	"/bin/bash"	23 minutes ago	Up 23 minutes		practical_hodgkin

```
root@ASAD-PC-3313:~# docker images
```

REPOSITORY	TAG	IMAGE ID	CREATED	SIZE
ubuntu	latest	174c8c134b2a	4 weeks ago	77.9MB
httpd	latest	6fd77d7e5eb7	2 months ago	167MB

```
root@ASAD-PC-3313:~#
```

```

root@ASAD-PC-3313:~# docker ps -a
CONTAINER ID   IMAGE     COMMAND                  CREATED          STATUS              PORTS          NAMES
87f46a16f205   httpd     "httpd-foreground"      About a minute ago   Exited (0) 9 seconds ago              quizzical_knuth
3b1f6ea22eb1   ubuntu   "/bin/bash"             24 minutes ago     Up 24 minutes                    practical_hodgkin
fd0bea98875e   ubuntu   "/bin/bash"             26 minutes ago     Exited (137) 25 minutes ago          laughing_kapitsa
root@ASAD-PC-3313:~# docker rm 87f46a16f205
87f46a16f205
root@ASAD-PC-3313:~# docker images
REPOSITORY    TAG       IMAGE ID       CREATED        SIZE
ubuntu        latest    174c8c134b2a   4 weeks ago   77.9MB
httpd         latest    6fd77d7e5eb7   2 months ago   167MB
root@ASAD-PC-3313:~# docker rmi httpd
Untagged: httpd:latest
Untagged: httpd@sha256:f0a93744d8006e6f7ee5086c9ddccdcfa33d1091f15269a00547b4c382459c1f
Deleted: sha256:6fd77d7e5eb732dacab601d4556c04a6c312928fb8989fe3b0a47d82db772441
Deleted: sha256:182c1af747d0a2ececd86c81cf1a0a6b0fde0b1fc82f43bc6d08b9424704bee6
Deleted: sha256:e54e0c05fe4f251ec22da736ce53230922f53122eb277ed4340b13d2fb33b7ee
Deleted: sha256:919f2fe845437e6aafaeff643bf2989b31c06851746e46651d0dc93294c6d499
Deleted: sha256:1ad6aa5d8466f1d57283c01a6db9ead817ef489c57c6a5fd89353f99d0d05526
Deleted: sha256:bbbcf99e6e47545823c0b9aea2dca8f8f2d50808c3b27219e8d99bf3ceb1d0c9e
Deleted: sha256:7292cf786aa89399bca4e3edd105d3b2ee0683a46ef1f5ff436c0f9d1d49e765
root@ASAD-PC-3313:~# docker images
REPOSITORY    TAG       IMAGE ID       CREATED        SIZE
ubuntu        latest    174c8c134b2a   4 weeks ago   77.9MB
root@ASAD-PC-3313:~# docker ps -a
CONTAINER ID   IMAGE     COMMAND                  CREATED          STATUS              PORTS          NAMES
3b1f6ea22eb1   ubuntu   "/bin/bash"             25 minutes ago     Up 25 minutes                    practical_hodgkin
fd0bea98875e   ubuntu   "/bin/bash"             27 minutes ago     Exited (137) 26 minutes ago          laughing_kapitsa
root@ASAD-PC-3313:~#

```

- Execute a command to display a filtered list of containers, showing only their short container IDs.

→

```

root@ASAD-PC-3313:~# docker container ls -a
CONTAINER ID   IMAGE     COMMAND                  CREATED          STATUS              PORTS          NAMES
3b1f6ea22eb1   ubuntu   "/bin/bash"             30 minutes ago     Up 30 minutes                    practical_hodgkin
fd0bea98875e   ubuntu   "/bin/bash"             32 minutes ago     Exited (137) 31 minutes ago          laughing_kapitsa
root@ASAD-PC-3313:~# docker container ls -aq
3b1f6ea22eb1
fd0bea98875e
root@ASAD-PC-3313:~#

```