

EXPERIMENT NO.9

Aim: To study and implement containerization using Docker

Theory:

Docker and it's architecture:

Docker is a platform designed to make it easier to create, deploy, and run applications using containers. Containers allow developers to package an application with all of its dependencies into a standardized unit for software development. Docker's architecture is based on a client-server model and consists of the following components:

Docker Daemon: The Docker daemon, dockerd, is a persistent process that manages Docker containers and handles container lifecycle operations. It listens for Docker API requests and manages Docker objects such as images, containers, networks, and volumes.

Docker Client: The Docker client, docker, is a command-line interface (CLI) tool that allows users to interact with the Docker daemon through Docker commands. Users can use the Docker client to build, manage, and monitor Docker containers and services.

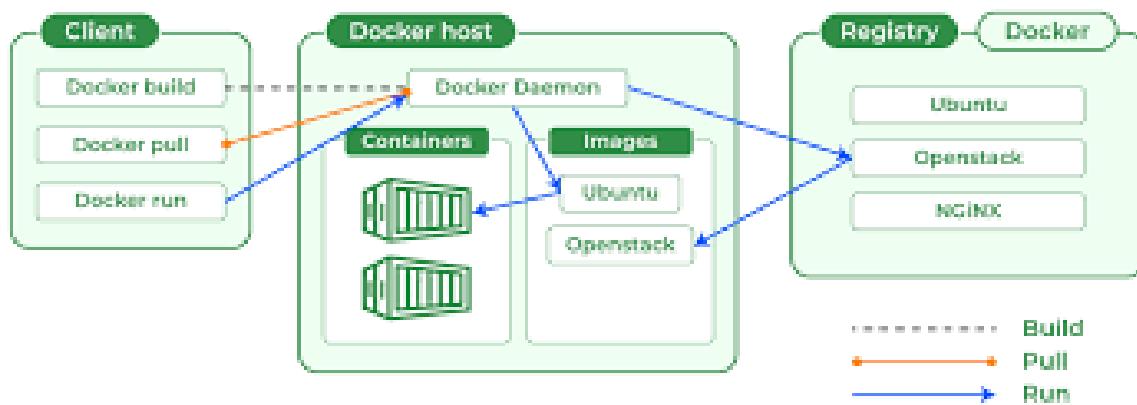
Docker Registries: Docker registries are repositories for Docker images. Docker Hub is the default public registry where users can find and share Docker images. Organizations can also set up private registries to store and distribute custom Docker images internally.

Docker Images: Docker images are read-only templates used to create Docker containers. Images contain everything needed to run an application, including the code, runtime, libraries, and dependencies. Docker images are built using Dockerfiles and can be stored and versioned in Docker registries.

Docker Containers: Docker containers are lightweight, portable, and isolated runtime environments that run applications based on Docker images. Each container encapsulates an application and its dependencies, making it easy to deploy and scale applications across different environments.

Docker Networking: Docker provides networking capabilities to connect containers to each other and to external networks. Docker networking allows containers to communicate with each other and with other services running on the same host or on remote hosts.

Docker Volumes: Docker volumes are persistent storage mechanisms used to store data generated by Docker containers. Volumes enable data sharing and data persistence between containers and can be managed and backed up independently of containers.



Benefits of Containerization:

1. **Portability:** Containers encapsulate applications and their dependencies, making them highly portable across different environments, such as development, testing, and production.
2. **Isolation:** Containers provide lightweight, isolated runtime environments, ensuring that applications and their dependencies do not interfere with each other.
3. **Resource Efficiency:** Containers share the host operating system kernel, which reduces overhead and resource utilization compared to virtual machines.
4. **Consistency:** Containers ensure consistency between development, testing, and production environments by packaging applications and dependencies into standardized units.
5. **Scalability:** Containers make it easy to scale applications horizontally by replicating containers across multiple hosts or vertically by increasing resource allocations for individual containers.

- Flexibility: Containers support microservices architectures and enable developers to modularize and deploy applications as smaller, independent components.

Container: A container is a lightweight, portable, and isolated runtime environment that encapsulates an application and its dependencies. Containers share the host operating system kernel but are isolated from each other, providing consistency and resource efficiency.

Images: Docker images are read-only templates used to create Docker containers. Images contain everything needed to run an application, including the code, runtime, libraries, and dependencies. Images are built using Dockerfiles and can be stored and versioned in Docker registries.

Dockerfile: A Dockerfile is a text file that contains instructions for building a Docker image. Dockerfiles define the steps required to assemble an image layer by layer, including specifying the base image, installing dependencies, copying files, and configuring the runtime environment. Dockerfiles enable developers to automate the image-building process and ensure consistency across environments.

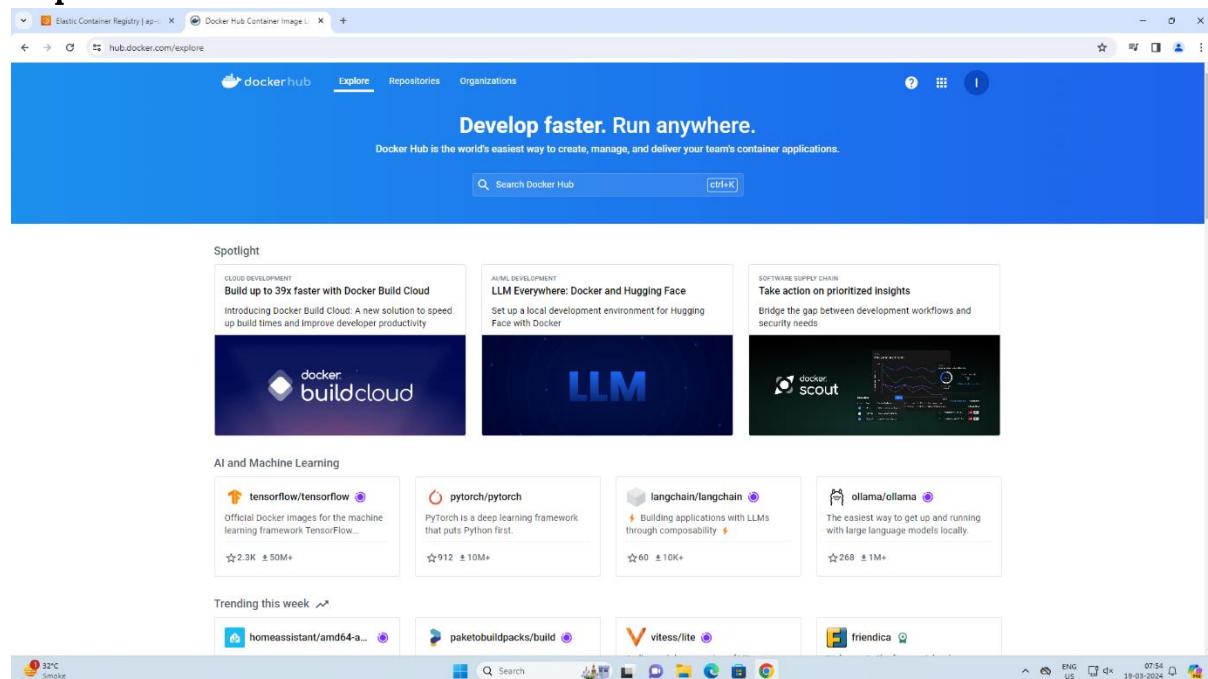
Container and Virtual Machine

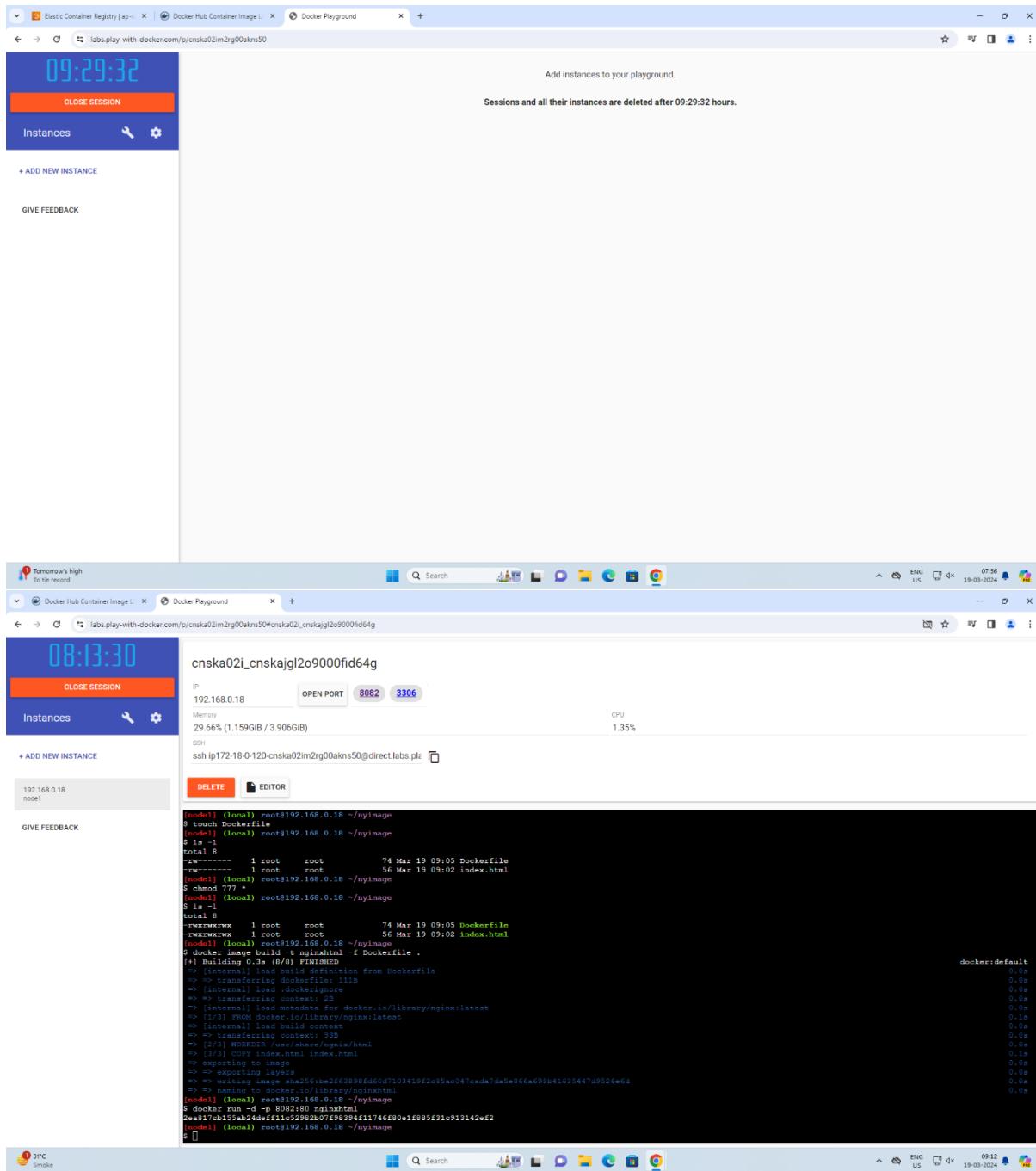
Aspect	Container	Virtual Machine
Technology	Containers use OS-level virtualization	Virtual machines use hardware-level virtualization
Isolation	Containers share the host OS kernel	Virtual machines have their own guest OS running on a hypervisor
Resource Usage	Lightweight, minimal overhead	Heavier, greater resource overhead
Startup Time	Almost instantaneous	Longer startup time due to booting a guest OS
Performance	Better performance due to shared kernel	Performance may be lower due to overhead of virtualization
Scalability	Easily scalable horizontally and vertically	Scalable but with more resource overhead
Deployment	Rapid deployment and scaling	Longer deployment time due to booting guest OS
Portability	Highly portable across different environments	Less portable due to dependencies on guest OS
Maintenance	Easier maintenance and updates	More complex maintenance and updates due to guest OS
Use Cases	Ideal for microservices architectures	Suitable for running multiple different OSes on the same hardware

Docker Image and Docker Container

Aspect	Docker Image	Docker Container
Definition	Read-only template for creating containers.	Runnable instance of a Docker image.
Content	Contains everything needed to run an app.	Encapsulates app and its runtime.
Mutability	Immutable; changes require building a new image.	Mutable; state can be modified.
Storage	Stored in registries or locally on disk.	Temporary; exists while container is running.
Lifecycle	Created, updated, and versioned.	Started, paused, stopped, and removed.
Relationship	Basis for container creation.	Instance of an image running as a process.
Usage	Built using Dockerfiles or pulled from registries.	Created from images for application execution.
Size	Generally larger due to containing dependencies.	Smaller as it includes only runtime components.
Persistence	Immutable; can be versioned and shared.	Temporary; any changes are lost when container stops.
Example	Dockerfile builds an image.	Container created from an image via <code>docker run</code> .

Implementation:





The screenshot shows a Docker playground session titled "cnska02i_cnskajgl2o9000fid64g". The session details are as follows:

- IP: 192.168.0.18
- Memory: 0.96% (38.58MiB / 3.906GiB)
- CPU: 0.57%
- SSH: ssh ip172-18-0-120-cnska02im2rg00akns50@direct.labs.pt

The terminal window displays a root shell on the node1 instance. The user has run the command "nodeinfo version" which outputs the following information:

```
# This is a sandbox environment. Using personal credentials is HIGHLY discouraged. Any consequences of doing so are completely the user's responsibility.
# The EWD team.
(node1) (local) root@192.168.0.18 ~
$ nodeinfo version
Client:
  Version: 24.0.7
  API version: 1.41
  Go version: go1.20.10
  Git commit: afdd53b
  Built: Thu Oct 26 09:04:00 2023
  OS/Arch: linux/amd64
  Context: default

Server: Docker Engine - Community
Engine:
  Version: 24.0.7
  API version: 1.43 (minimum version 1.12)
  Go version: go1.20.10
  Git commit: 311b9ff
  Built: Thu Oct 26 09:05:28 2023
  OS/Arch: linux/amd64
  Experimental: true
  containerd:
    Version: v1.7.6
    GitCommit: 091922f03c2762540fd057fba91260237ff86acb
  runc:
    Version: 1.1.9
    GitCommit: v1.1.9-0-gccaaecfc
  docker-init:
    Version: 0.19.0
    GitCommit: de40ad0
(node1) (local) root@192.168.0.18 ~
$ docker --version
Docker version 24.0.7, build afdd53b
(node1) (local) root@192.168.0.18 ~
$
```

Screenshot 1 (09:26:24): Docker Container Overview

```

09:26:24
CLOSE SESSION
Instances 192.168.0.18
+ ADD NEW INSTANCE
GIVE FEEDBACK
192.168.0.18 node1
IP: 192.168.0.18 OPEN PORT
Memory: 1.08% (43.36MB / 3.906GB) CPU: 0.58%
SSH: ssh ip172-18-0-120-cnska02im2rg0akns50@direct.labs.pls [REDACTED]
[REDACTED] [DELETED] [EDITOR]
Docker version 24.0.7, build afd53b
[models] (local) root@192.168.0.18 ~
$ 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
build Build an image from a Dockerfile
pull Download an image from a registry
push Upload an image to a registry
images List images
login Log in to a registry
logout Log out from a registry
search Search for images
version Show the Docker version information
info Display system-wide information

Management Commands:
builder Manage builds
buildx Docker Builds (Docker Inc., v0.11.2)
checkpoint Manage checkpoints
context Manage contexts (Docker Inc., v2.23.0)
container Manage containers
context Manage contexts
image Manage images
manifest Manage Docker image manifests and manifest lists
network Manage networks
plugin Manage plugins
scout Docker Scout (Docker Inc., v1.0.9)
system Manage Docker
trust Manage trust on Docker images

```

Screenshot 2 (09:26:05): Docker Container Overview

```

09:26:05
CLOSE SESSION
Instances 192.168.0.18
+ ADD NEW INSTANCE
GIVE FEEDBACK
192.168.0.18 node1
IP: 192.168.0.18 OPEN PORT
Memory: 1.10% (44.02MB / 3.906GB) CPU: 0.30%
SSH: ssh ip172-18-0-120-cnska02im2rg0akns50@direct.labs.pls [REDACTED]
[REDACTED] [DELETED] [EDITOR]
-D, --host-list Daemon socket to connect to
--log-level string Set the logging level ("debug", "info", "warn", "error", "fatal") (default "info")
--tls Use TLS; implied by --tlscacert
--tlscert string Path to TLS certificate file (default "/root/.docker/cert.pem")
--tlscipher string Path to TLS key file (default "/root/.docker/key.pem")
--tlsv1 string Use TLS and verify the remote
--tlsv1.2 string
--tlsv1.3 string
--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/
[models] (local) root@192.168.0.18 ~
$ docker image --help
Usage: docker image COMMAND
Manage images

Commands:
build Build an image from a Dockerfile
history Show the history of an image
import Import the contents from a tarball to create a filesystem image
inspect Display detailed information on one or more images
load Load an image from a tar archive or STDIN
ls List images
prune Remove unused images
pull Download an image from a registry
push Upload an image to a registry
rm Remove one or more images
save Save one or more images to a tar archive (streamed to STDOUT by default)
tag Create a tag TARGET_IMAGE that refers to SOURCE_IMAGE

Run 'docker image COMMAND --help' for more information on a command.
[models] (local) root@192.168.0.18 ~

```

```

09:24:27
CLOSE SESSION
Instances 192.168.0.18 GIVE FEEDBACK + ADD NEW INSTANCE

cnska02i_cnskajgl2o9000fid64g
IP: 192.168.0.18 OPEN PORT
Memory: 1.12% (44.63MB / 3.906GB) CPU: 1.26%
SSH: ssh ip172-18-0-120-cnska02i2m2rg0akns50@direct.labs.pls [REDACTED]
[DELETED] [EDITOR]

For more help on how to use Docker, head to https://docs.docker.com/go/guides/
(node:1) [local] root@192.168.0.18 ~
$ docker image --help

Usage: docker image COMMAND

Manage images

Commands:
  build          Build an image from a Dockerfile
  history        Show the history of an image
  import         Import the contents from a tarball to create a filesystem image
  inspect       Display detailed information on one or more images
  load          Load an image from a tar archive or STDIN
  ls            List images
  prune         Remove unused images
  pull          Download an image from a registry
  push          Upload an image to a registry
  rm            Remove one or more images
  save          Save one or more images to a tar archive (streamed to STDOUT by default)
  tag           Create a tag TARGET_IMAGE that refers to SOURCE_IMAGE

Run 'docker image COMMAND --help' for more information on a command.
(node:1) [local] root@192.168.0.18 ~
$ docker ls
docker: 'ls' is not a docker command.
See 'docker --help'.
(node:1) [local] root@192.168.0.18 ~
$ docker images ls
REPOSITORY TAG IMAGE ID CREATED SIZE
(node:1) [local] root@192.168.0.18 ~
$ docker image ls -a
REPOSITORY TAG IMAGE ID CREATED SIZE
(node:1) [local] root@192.168.0.18 ~
$ [REDACTED]

```

We'd love to hear about your usage of Play with Docker. [TAKE SURVEY](#) [NOT NOW](#)


```

09:23:54
CLOSE SESSION
Instances 192.168.0.18 GIVE FEEDBACK + ADD NEW INSTANCE

cnska02i_cnskajgl2o9000fid64g
IP: 192.168.0.18 OPEN PORT
Memory: 1.12% (44.82MB / 3.906GB) CPU: 3.41%
SSH: ssh ip172-18-0-120-cnska02i2m2rg0akns50@direct.labs.pls [REDACTED]
[DELETED] [EDITOR]

$ docker image --help

Usage: docker image COMMAND

Manage images

Commands:
  build          Build an image from a Dockerfile
  history        Show the history of an image
  import         Import the contents from a tarball to create a filesystem image
  inspect       Display detailed information on one or more images
  load          Load an image from a tar archive or STDIN
  ls            List images
  prune         Remove unused images
  pull          Download an image from a registry
  push          Upload an image to a registry
  rm            Remove one or more images
  save          Save one or more images to a tar archive (streamed to STDOUT by default)
  tag           Create a tag TARGET_IMAGE that refers to SOURCE_IMAGE

Run 'docker image COMMAND --help' for more information on a command.
(node:1) [local] root@192.168.0.18 ~
$ docker ls
docker: 'ls' is not a docker command.
See 'docker --help'.
(node:1) [local] root@192.168.0.18 ~
$ docker images ls
REPOSITORY TAG IMAGE ID CREATED SIZE
(node:1) [local] root@192.168.0.18 ~
$ docker image ls -a
REPOSITORY TAG IMAGE ID CREATED SIZE
(node:1) [local] root@192.168.0.18 ~
$ docker ps
CONTAINER ID IMAGE COMMAND CREATED STATUS PORTS NAMES
(node:1) [local] root@192.168.0.18 ~
$ [REDACTED]

```

We'd love to hear about your usage of Play with Docker. [TAKE SURVEY](#) [NOT NOW](#)

Elastic Container Registry | ap-| Docker Hub Container Image | Docker Playground

Instances

+ ADD NEW INSTANCE

192.168.0.18
node1

GIVE FEEDBACK

09:20:13

CLOSE SESSION

IP: 192.168.0.18 OPEN PORT

Memory: 3.64% (145.6MB / 3.906GB) CPU: 0.40%

SSH: ssh ip172-18-0-120-cnska02im2rg0akns50@direct.labs.pls

DELETED

```

push      Upload an image to a registry
pull     Pull an image from a registry
save    Save one or more images to a tar archive (streamed to STDOUT by default)
tag     Create a tag TARGET_IMAGE that refers to SOURCE_IMAGE

run 'docker image COMMAND --help' for more information on a command.
(node) [local] root@192.168.0.18 ~
$ docker ls
docker: 'ls' is not a docker command.
See 'docker --help'.
(node) [local] root@192.168.0.18 ~
$ docker images
REPOSITORY TAG IMAGE ID CREATED SIZE
(node) [local] root@192.168.0.18 ~
$ docker images -a
REPOSITORY TAG IMAGE ID CREATED SIZE
(node) [local] root@192.168.0.18 ~
$ docker ps
CONTAINER ID IMAGE COMMAND CREATED STATUS PORTS NAMES
(node) [local] root@192.168.0.18 ~
$ docker container ps -a
CONTAINER ID IMAGE COMMAND CREATED STATUS PORTS NAMES
(node) [local] root@192.168.0.18 ~
$ docker pull ubuntu
Using default tag: latest
latest: Pulling from library/ubuntu
Digest: sha25e77790d4a9cb0595ce12215807090eb327e7386c8fafb5402369e+21f44eff17e
Status: Downloaded newer image for ubuntu:latest
docker.io/library/ubuntu:latest
(node) [local] root@192.168.0.18 ~
$ docker image ls
REPOSITORY TAG IMAGE ID CREATED SIZE
ubuntu latest cabb0f2964c 2 weeks ago 77.9MB
(node) [local] root@192.168.0.18 ~

```

We'd love to hear about your usage of Play with Docker. [TAKE SURVEY](#) [NOT NOW](#)

Elastic Container Registry | ap-| Docker Hub Container Image | Docker Playground

Instances

+ ADD NEW INSTANCE

192.168.0.18
node1

GIVE FEEDBACK

09:15:15

CLOSE SESSION

IP: 192.168.0.18 OPEN PORT

Memory: 21.95% (877.9MB / 3.906GB) CPU: 0.12%

SSH: ssh ip172-18-0-120-cnska02im2rg0akns50@direct.labs.pls

DELETED

```

docker.io/library/ubuntu:latest
(node) [local] root@192.168.0.18 ~
$ docker image ls
REPOSITORY TAG IMAGE ID CREATED SIZE
ubuntu latest cabb0f2964c 2 weeks ago 77.9MB
(node) [local] root@192.168.0.18 ~
$ docker pull ubuntu:latest
latest: Pulling from library/ubuntu
Digest: sha25e77790d4a9cb0595ce12215807090eb327e7386c8fafb5402369e+21f44eff17e
status: Image is up to date for ubuntu:latest
docker.io/library/ubuntu:latest
(node) [local] root@192.168.0.18 ~
$ docker pull ubuntu:20.04
20.04: Pulling from library/ubuntu
17d0386cff: Full complete
Digest: sha25e77790d4a9cb0595ce12215807090eb327e7386c8fafb5402369e+21f44eff17e
status: Image is up to date for ubuntu:20.04
docker.io/library/ubuntu:20.04
(node) [local] root@192.168.0.18 ~
$ docker pull mysql:latest
latest: Pulling from library/mysql
9e5c7778efc31ff: Full complete
9e77c3a95b2: Full complete
882f7a20860: Full complete
882f7a20860: Full complete
d35b074bd9ec: Full complete
beea50146af: Full complete
dc371a61558: Full complete
dc3223a61558: Full complete
7E73931aa49b: Full complete
8d2f04b207ee: Full complete
Digest: sha256:9d1c923e5f6a89607285ee2641fa5a53430a1cccd5e4a62b35eb8a40b74b9ff40
Status: Image is up to date for mysql:latest
docker.io/library/mysql:latest
(node) [local] root@192.168.0.18 ~

```

-0.05%

Screenshot 1 (Top): Docker Playground Session

```

09:13:21
CLOSE SESSION
Instances
+ ADD NEW INSTANCE
192.168.0.18
GIVE FEEDBACK
DELETED EDITOR
IP: 192.168.0.18 OPEN PORT
Memory: 28.87% (1.128GB / 3.906GB) CPU: 0.63%
SSH: ssh ip172-18-0-120-cnska02im2rg00akns50@direct.labs.pls
[REDACTED]
8d2f04b287ea: Full complete
Digest: sha256:216036d25dab5903808211f1e9ba63dc7825ac20cb975e34cfcae
Status: Downloaded newer image for mysql:latest
docker.io/library/mysql:latest
[none] (local) root@192.168.0.18 ~
$ docker pull mysql:5.6
Error response from daemon: manifest for mysql:5.6 not found: manifest unknown: manifest unknown
[none] (local) root@192.168.0.18 ~
$ docker pull mysql:5.6
5.6: Pulling from library/mysql
5bb223c20874: Pull complete
fc55c00e4822: Pull complete
03040510e03: Pull complete
01424050111: Pull complete
1c7e2723938a: Pull complete
f57e69817b6: Pull complete
f5bb295269c0: Pull complete
4cbb9a856d3: Pull complete
27a7fa856d4: Pull complete
6470cc0c86145: Pull complete
1f6637f4600d: Pull complete
Digest: sha256:216036d25dab5903808211f1e9ba63dc7825ac20cb975e34cfcae
Status: Downloaded newer image for mysql:5.6
docker.io/library/mysql:5.6
[none] (local) root@192.168.0.18 ~
$ docker images ls
REPOSITORY TAG IMAGE ID CREATED SIZE
[none] (local) root@192.168.0.18 ~
$ docker images
REPOSITORY TAG IMAGE ID CREATED SIZE
ubuntu latest 546d22964c 2 weeks ago 77.9MB
ubuntu 20.04 34ff1cfcf37e 4 weeks ago 72.8MB
mysql latest 01981493c7a 2 months ago 632MB
mysql 5.6 dd5b2a5dcb48 2 years ago 303MB
[none] (local) root@192.168.0.18 ~
$ [REDACTED]

```

Screenshot 2 (Middle): Docker Playground Session

```

09:11:20
CLOSE SESSION
Instances
+ ADD NEW INSTANCE
192.168.0.18
GIVE FEEDBACK
DELETED EDITOR
IP: 192.168.0.18 OPEN PORT
Memory: 28.88% (1.128GB / 3.906GB) CPU: 0.64%
SSH: ssh ip172-18-0-120-cnska02im2rg00akns50@direct.labs.pls
[REDACTED]
f57e69817b6: Full complete
f5bb295269c0: Full complete
4cbb9a856d3: Full complete
27a7fa856d4: Full complete
6470cc0c86145: Full complete
1f6637f4600d: Full complete
Digest: sha256:216036d25dab5903808211f1e9ba63dc7825ac20cb975e34cfcae
Status: Downloaded newer image for mysql:5.6
docker.io/library/mysql:5.6
[none] (local) root@192.168.0.18 ~
$ docker images ls
REPOSITORY TAG IMAGE ID CREATED SIZE
[none] (local) root@192.168.0.18 ~
$ docker images
REPOSITORY TAG IMAGE ID CREATED SIZE
ubuntu latest 546d22964c 2 weeks ago 77.9MB
ubuntu 20.04 34ff1cfcf37e 4 weeks ago 72.8MB
mysql latest 01981493c7a 2 months ago 632MB
mysql 5.6 dd5b2a5dcb48 2 years ago 303MB
[none] (local) root@192.168.0.18 ~
$ docker container ls
CONTAINER ID IMAGE COMMAND CREATED STATUS PORTS NAMES
[none] (local) root@192.168.0.18 ~
$ docker container ls -a
CONTAINER ID IMAGE COMMAND CREATED STATUS PORTS NAMES
[none] (local) root@192.168.0.18 ~
$ docker run ubuntu
[none] (local) root@192.168.0.18 ~
$ docker run -it ubuntu
CONTAINER ID IMAGE COMMAND CREATED STATUS PORTS NAMES
[none] (local) root@192.168.0.18 ~
$ docker container ls -a
CONTAINER ID IMAGE COMMAND CREATED STATUS PORTS NAMES
[none] (local) root@192.168.0.18 ~
$ docker container rm keen_mayer
CONTAINER ID IMAGE COMMAND CREATED STATUS PORTS NAMES
[none] (local) root@192.168.0.18 ~
$ [REDACTED]

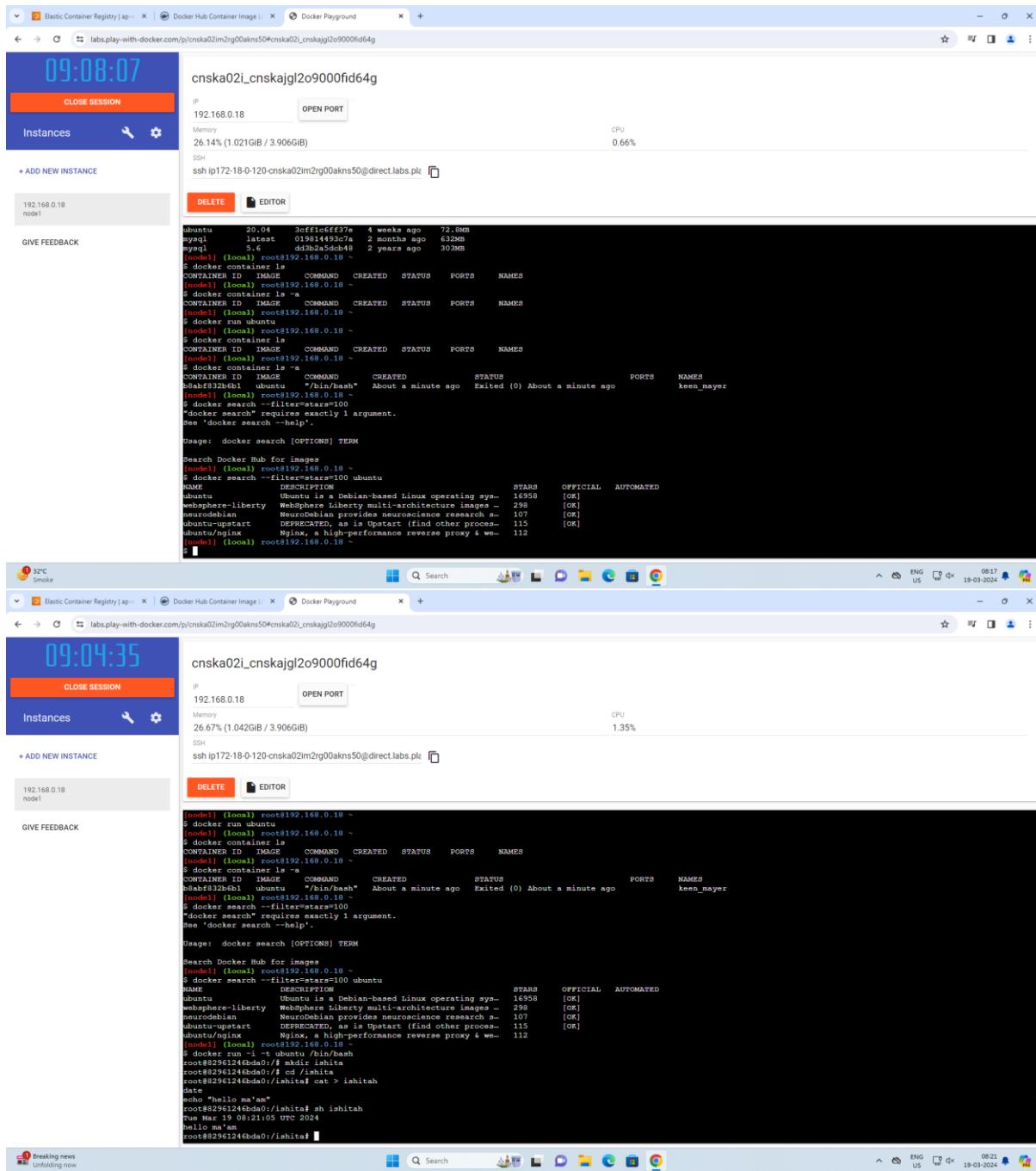
```

Screenshot 3 (Bottom): Docker Playground Session

```

32°C Air Poor
09:14
ENG US 19-03-2024
Elastic Container Registry | ap-... Docker Hub Container Image | ap-... Docker Playground | ap-...
[REDACTED]
8d2f04b287ea: Full complete
Digest: sha256:216036d25dab5903808211f1e9ba63dc7825ac20cb975e34cfcae
Status: Downloaded newer image for mysql:latest
docker.io/library/mysql:latest
[none] (local) root@192.168.0.18 ~
$ docker pull mysql:5.6
5.6: Pulling from library/mysql
5bb223c20874: Pull complete
fc55c00e4822: Pull complete
03040510e03: Pull complete
01424050111: Pull complete
1c7e2723938a: Pull complete
f57e69817b6: Pull complete
f5bb295269c0: Pull complete
4cbb9a856d3: Pull complete
27a7fa856d4: Pull complete
6470cc0c86145: Pull complete
1f6637f4600d: Pull complete
Digest: sha256:216036d25dab5903808211f1e9ba63dc7825ac20cb975e34cfcae
Status: Downloaded newer image for mysql:5.6
docker.io/library/mysql:5.6
[none] (local) root@192.168.0.18 ~
$ docker images ls
REPOSITORY TAG IMAGE ID CREATED SIZE
[none] (local) root@192.168.0.18 ~
$ docker images
REPOSITORY TAG IMAGE ID CREATED SIZE
ubuntu latest 546d22964c 2 weeks ago 77.9MB
ubuntu 20.04 34ff1cfcf37e 4 weeks ago 72.8MB
mysql latest 01981493c7a 2 months ago 632MB
mysql 5.6 dd5b2a5dcb48 2 years ago 303MB
[none] (local) root@192.168.0.18 ~
$ docker container ls
CONTAINER ID IMAGE COMMAND CREATED STATUS PORTS NAMES
[none] (local) root@192.168.0.18 ~
$ docker container ls -a
CONTAINER ID IMAGE COMMAND CREATED STATUS PORTS NAMES
[none] (local) root@192.168.0.18 ~
$ docker run ubuntu
[none] (local) root@192.168.0.18 ~
$ docker run -it ubuntu
CONTAINER ID IMAGE COMMAND CREATED STATUS PORTS NAMES
[none] (local) root@192.168.0.18 ~
$ docker container rm keen_mayer
CONTAINER ID IMAGE COMMAND CREATED STATUS PORTS NAMES
[none] (local) root@192.168.0.18 ~
$ [REDACTED]

```



09:04:21

cnska02i_cnskajgl2o9000fid64g

CLOSE SESSION

Instances

+ ADD NEW INSTANCE

192.168.0.18
node1

GIVE FEEDBACK

IP 192.168.0.18 **OPEN PORT**

Memory 26.68% (1.042GB / 3.906GB) **CPU** 0.33%

SSH ssh ip172-18-0-120-cnska02im2rg00akns50@direct.labs.pls

DELETED

```

$ docker container ls
CONTAINER ID        IMAGE               COMMAND      CREATED     STATUS      PORTS     NAMES
(cnska)  (local)   root@192.168.0.18 ~

$ docker container ls -a
CONTAINER ID        IMAGE               COMMAND      CREATED     STATUS      PORTS     NAMES
6abaf812b5hi      ubuntu              "/bin/bash"  "About a minute ago"   Exited (0)  About a minute ago   keen_mayer

$ docker search --filter=stars=100
$ docker search --filter=stars=100
"docker search" requires exactly 1 argument.
See "docker search --help".

Usage: docker search [OPTIONS] TERM

Search Docker Hub for images
$ docker search --filter=stars=100 ubuntu
NAME                           DESCRIPTION          STARS   OFFICIAL   AUTOMATED
ubuntu                         Debian-based Linux operating system          16998   [OK]       [OK]
ubports                        Ubuntu ports: multi-architecture images          107    [OK]       [OK]
neurodebian                     NeuroDebian provides neuroscience research software          115    [OK]

$ docker run -i -t ubuntu /bin/bash
root@829612464bda0:/# mkdir ishitah
root@829612464bda0:/# cd /ishitah
root@829612464bda0:/ishitah$ cat > ishitah
date
echo "Hello ma'm"
root@829612464bda0:/ishitah$ sh ishitah
root@829612464bda0:/ishitah: 08:21:05 UTC 2024
Hello ma'm
root@829612464bda0:/ishitah$ ls -l
total 4
drwxr-x--- 1 root root 24 Mar 19 08:20 ishitah
root@829612464bda0:/ishitah$ 

```

09:01:09

cnska02i_cnskajgl2o9000fid64g

CLOSE SESSION

Instances

+ ADD NEW INSTANCE

192.168.0.18
node1

GIVE FEEDBACK

IP 192.168.0.18 **OPEN PORT**

Memory 26.33% (1.029GB / 3.906GB) **CPU** 0.68%

SSH ssh ip172-18-0-120-cnska02im2rg00akns50@direct.labs.pls

DELETED

```

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 default)
start  Start one or more 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 a pseudo-terminal for 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 codes

Global Options:
  --config string          Location of client config files (default "/root/.docker")
  --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")
  -c, --config string       Enable debug mode
  -D, --debug               Enable debug mode
  -H, --host list           Docker socket to connect to
  -l, --log-level string   Set the logging level ("debug", "info", "warn", "error", "fatal") (default "info")
  --tls                      Use TLS; implied by --tlscacert
  --tlscacert string        Trust certs signed only by this CA (default "/root/.docker/cacert.pem")
  --tlscert string          Path to TLS cert file (default "/root/.docker/cert.pem")
  --tlskey string           Path to TLS key file (default "/root/.docker/key.pem")
  --tlsv1                   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/

$ docker container ls -a
CONTAINER ID        IMAGE               COMMAND      CREATED     STATUS      PORTS     NAMES
6abaf812b5hi      ubuntu              "/bin/bash"  5 minutes ago   Exited (130)  36 seconds ago   objective_tharp
6abaf812b5hi      ubuntu              "/bin/bash"  11 minutes ago  Exited (0)   11 minutes ago   keen_mayer

$ docker container ls

```

32°C Smoke

08:56:25

cnska02i_cnskajgl2o9000fid64g

CLOSE SESSION

Instances

+ ADD NEW INSTANCE

192.168.0.18
node1

GIVE FEEDBACK

DELETED

```
--tlsverify      Use TLS; implied by --tlscacert
--tlscacert string Path to CA certificate file (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
--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/

[node1] (local) root@192.168.0.18 ~
$ docker container ls -a
CONTAINER ID IMAGE COMMAND CREATED STATUS PORTS NAMES
82961246d00 ubuntu "/bin/bash" 5 minutes ago Exited (130) 36 seconds ago objective_tharp
b5abf832b61 ubuntu "/bin/bash" 11 minutes ago Exited (0) 11 minutes ago keen_mayer
[node1] (local) root@192.168.0.18 ~
$ docker rename keen_mayer ishita
[node1] (local) root@192.168.0.18 ~
$ docker container ls
CONTAINER ID IMAGE COMMAND CREATED STATUS PORTS NAMES
82961246d00 ubuntu "/bin/bash" 6 minutes ago Exited (130) About a minute ago objective_tharp
b5abf832b61 ubuntu "/bin/bash" 11 minutes ago Exited (0) 11 minutes ago ishita
[node1] (local) root@192.168.0.18 ~
$ docker container ls
CONTAINER ID IMAGE COMMAND CREATED STATUS PORTS NAMES
82961246d00 ubuntu "/bin/bash" 5 minutes ago Exited (130) 36 seconds ago objective_tharp
b5abf832b61 ubuntu "/bin/bash" 11 minutes ago Exited (0) 11 minutes ago ishita
[node1] (local) root@192.168.0.18 ~
$ docker run -it ubuntu sleep 10;echo hello
sleep: invalid time interval `10;echo'
sleep: invalid time interval `hello'
try `sleep --help' for more information.
[node1] (local) root@192.168.0.18 ~
$ docker run -it ubuntu sleep 10;echo hello
hello
[node1] (local) root@192.168.0.18 ~
$
```

Tomorrow's high
To break record

08:53:45

cnska02i_cnskajgl2o9000fid64g

CLOSE SESSION

Instances

+ ADD NEW INSTANCE

192.168.0.18
node1

GIVE FEEDBACK

DELETED

```
--tlsverify      Use TLS; implied by --tlscacert
--tlscacert string Path to CA certificate file (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
--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/

[node1] (local) root@192.168.0.18 ~
$ docker container ls -a
CONTAINER ID IMAGE COMMAND CREATED STATUS PORTS NAMES
82961246d00 ubuntu "/bin/bash" 5 minutes ago Exited (130) 36 seconds ago objective_tharp
b5abf832b61 ubuntu "/bin/bash" 11 minutes ago Exited (0) 11 minutes ago keen_mayer
[node1] (local) root@192.168.0.18 ~
$ docker rename keen_mayer ishita
[node1] (local) root@192.168.0.18 ~
$ docker container ls
CONTAINER ID IMAGE COMMAND CREATED STATUS PORTS NAMES
82961246d00 ubuntu "/bin/bash" 6 minutes ago Exited (130) About a minute ago objective_tharp
b5abf832b61 ubuntu "/bin/bash" 11 minutes ago Exited (0) 11 minutes ago ishita
[node1] (local) root@192.168.0.18 ~
$ docker container ls
CONTAINER ID IMAGE COMMAND CREATED STATUS PORTS NAMES
82961246d00 ubuntu "/bin/bash" 5 minutes ago Exited (130) 36 seconds ago objective_tharp
b5abf832b61 ubuntu "/bin/bash" 11 minutes ago Exited (0) 11 minutes ago ishita
[node1] (local) root@192.168.0.18 ~
$ docker run -it ubuntu sleep 10;echo hello
sleep: invalid time interval `10;echo'
sleep: invalid time interval `hello'
try `sleep --help' for more information.
[node1] (local) root@192.168.0.18 ~
$ docker run -it ubuntu sleep 10;echo hello
hello
[node1] (local) root@192.168.0.18 ~
$ docker run -dit ubuntu sleep 10;echo hello
87d13dd2d703
[node1] (local) root@192.168.0.18 ~
$ docker container stop 87d13dd2d703
[node1] (local) root@192.168.0.18 ~
$ docker container ls -a
CONTAINER ID IMAGE COMMAND CREATED STATUS PORTS NAMES
82961246d00 ubuntu "/bin/bash" About a minute ago Exited (0) About a minute ago admiring_williams
87d13dd2d703 ubuntu "sleep 10" 2 minutes ago Exited (0) 2 minutes ago gifted_allen
b0b14909f317 ubuntu "sleep 10" 3 minutes ago Exited (1) 3 minutes ago strange_cham
b5f7de1691f1 ubuntu "sleep 10;echo hello" 13 minutes ago Exited (130) 8 minutes ago objective_tharp
b5abf832b61 ubuntu "/bin/bash" 18 minutes ago Exited (0) 18 minutes ago ishita
[node1] (local) root@192.168.0.18 ~
$
```

32°C Smoke

Screenshot 1 (Top): Docker Playground Session 1

```

08:43:54
CLOSE SESSION
Instances
+ ADD NEW INSTANCE
192.168.0.18
GIVE FEEDBACK
DELETED EDITOR
IP: 192.168.0.18 OPEN PORT: 3306
Memory: 24.42% (976.9MB / 3.906GB) CPU: 0.44%
SSH: ssh ip172-18-0-120-cnska02im2rg00akns50@direct.labs.pls

$ docker rmi ubuntu
Error response from daemon: conflict: unable to remove repository reference "ubuntu" (must force) - container 87d13d2d2703 is using its referenced image ca2b0f26964c
$ docker rmi ubuntu
Error response from daemon: conflict: unable to remove repository reference "ubuntu" (must force) - container ea7e78810588 is using its referenced image ca2b0f26964c
$ docker rmi ubuntu
Error response from daemon: conflict: unable to remove repository reference "ubuntu" (must force) - container b0f7de1691f5 is using its referenced image ca2b0f26964c
$ docker rmi ubuntu
Error response from daemon: conflict: unable to remove repository reference "ubuntu" (must force) - container 80ea7738c934 is using its referenced image ca2b0f26964c
$ docker rmi ubuntu
Error response from daemon: conflict: unable to remove repository reference "ubuntu" (must force) - container 82961246bda0 is using its referenced image ca2b0f26964c
$ docker container ls
CONTAINER ID IMAGE COMMAND CREATED STATUS PORTS NAMES
$ docker container ls
CONTAINER ID IMAGE COMMAND CREATED STATUS PORTS NAMES
$ docker rmi ubuntu:latest
Error response from daemon: conflict: unable to remove repository reference "ubuntu:latest" (must force) - container ea7e78810588 is using its referenced image ca2b0f26964c
$ docker images
REPOSITORY TAG IMAGE ID CREATED SIZE
ubuntu latest ca2b0f26964c 2 weeks ago 77.9MB
ubuntu 20.04 30ff1ccff37e 4 weeks ago 72.8MB
mysql latest 019814493c7a 2 months ago 632MB
mysql 5.6 dd3b2a5dcb48 2 years ago 303MB
$ docker rmi ubuntu:latest
Error response from daemon: conflict: unable to remove repository reference "ubuntu:latest" (must force) - container ea7e78810588 is using its referenced image ca2b0f26964c
$ docker images
REPOSITORY TAG IMAGE ID CREATED SIZE
ubuntu latest ca2b0f26964c 2 weeks ago 77.9MB
ubuntu 20.04 30ff1ccff37e 4 weeks ago 72.8MB
mysql latest 019814493c7a 2 months ago 632MB
mysql 5.6 dd3b2a5dcb48 2 years ago 303MB

```

Screenshot 2 (Middle): Docker Playground Session 2

```

08:37:47
CLOSE SESSION
Instances
+ ADD NEW INSTANCE
192.168.0.18
GIVE FEEDBACK
DELETED EDITOR
IP: 192.168.0.18 OPEN PORT: 3306
Memory: 27.44% (1.072GB / 3.906GB) CPU: 1.00%
SSH: ssh ip172-18-0-120-cnska02im2rg00akns50@direct.labs.pls

$ docker run --name tsec server -d -p 3306:3306 -- MYSQL_ROOT_PASSWORD=123 mysql:latest
$ docker run --name tsec server -d -p 3306:3306 -- MYSQL_ROOT_PASSWORD=123 mysql:latest
$ docker run --name tsecserver -d -p 3306:3306 -- MYSQL_ROOT_PASSWORD=123 mysql:latest
$ docker exec -it tsecserver /bin/bash
bash-4.4# 

```

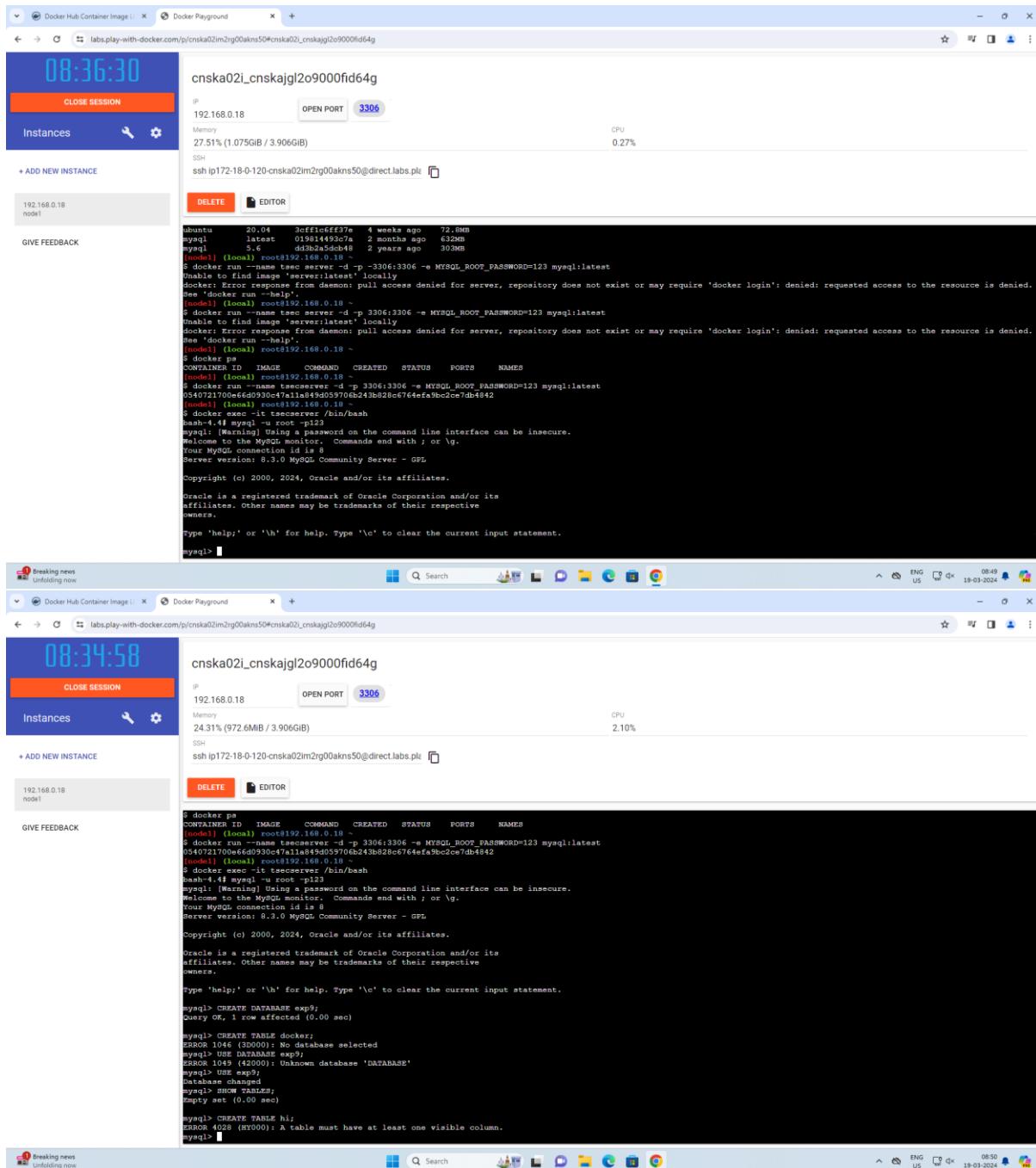
Screenshot 3 (Bottom): Docker Playground Session 3

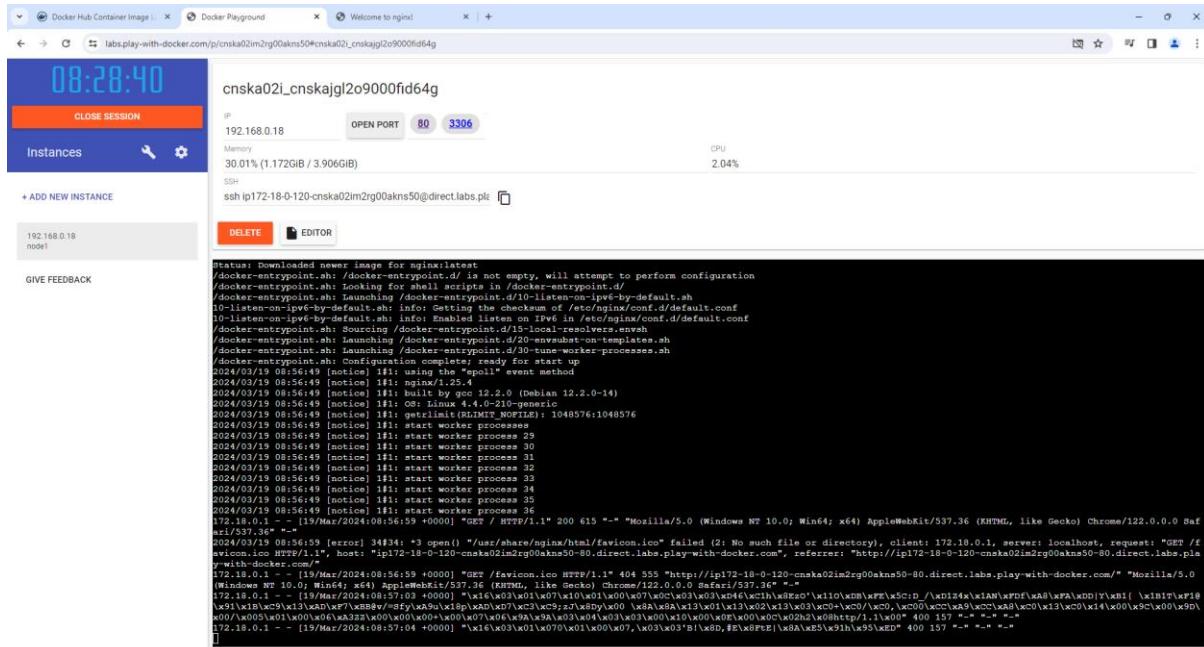
```

08:47
CLOSE SESSION
Instances
+ ADD NEW INSTANCE
192.168.0.18
GIVE FEEDBACK
DELETED EDITOR
IP: 192.168.0.18 OPEN PORT: 3306
Memory: 27.44% (1.072GB / 3.906GB) CPU: 1.00%
SSH: ssh ip172-18-0-120-cnska02im2rg00akns50@direct.labs.pls

$ docker run --name tsec server -d -p 3306:3306 -- MYSQL_ROOT_PASSWORD=123 mysql:latest
$ docker run --name tsec server -d -p 3306:3306 -- MYSQL_ROOT_PASSWORD=123 mysql:latest
$ docker run --name tsecserver -d -p 3306:3306 -- MYSQL_ROOT_PASSWORD=123 mysql:latest
$ docker exec -it tsecserver /bin/bash
bash-4.4# 

```





Welcome to nginx!

If you see this page, the nginx web server is successfully installed and working. Further configuration is required.

For online documentation and support please refer to nginx.org.
Commercial support is available at nginx.com.

Thank you for using nginx.



