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Lesson 02 Demo 01

Demonstrating Lifecycle of Containers

Objective: To demonstrate the lifecycle of containers for efficient management and optimization of Docker container orchestration

Tools required: Ubuntu

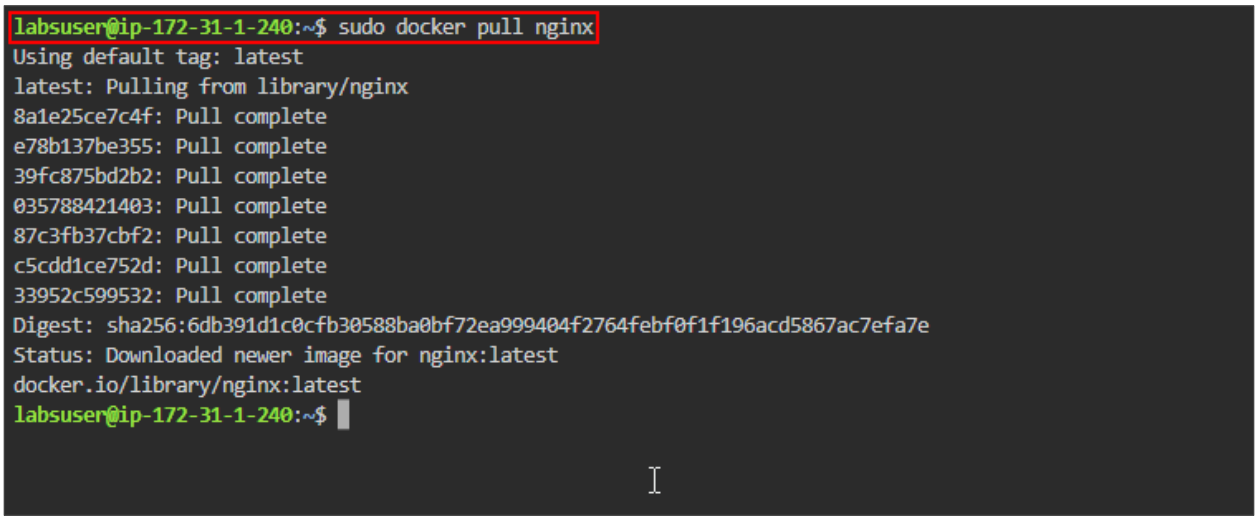
Prerequisites: None

Steps to be followed:

1. Demonstrate Docker container lifecycle management

Step 1: Demonstrate Docker container lifecycle management

1.1 Pull a Docker image from Docker hub using the following command:
sudo docker pull nginx



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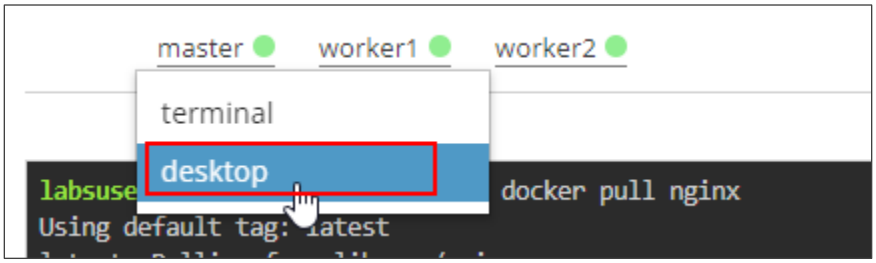
1.2 Execute the following command to run a container from the Nginx image:
sudo docker run -d --name my-nginx -p 8080:80 nginx

```
labsuser@ip-172-31-1-240:~$ sudo docker pull nginx
Using default tag: latest
latest: Pulling from library/nginx
8a1e25ce7c4f: Pull complete
e78b137be355: Pull complete
39fc875bd2b2: Pull complete
035788421403: Pull complete
87c3fb37cbf2: Pull complete
c5cdd1ce752d: Pull complete
33952c599532: Pull complete
Digest: sha256:6db391d1c0cfb30588ba0bf72ea999404f2764febf0f1f196acd5867ac7efa7e
Status: Downloaded newer image for nginx:latest
docker.io/library/nginx:latest
labsuser@ip-172-31-1-240:~$ sudo docker run -d --name my-nginx -p 8080:80 nginx
3f08374c93a13a17dfcc1a09b921da5011e7d26de6fc439455de3781eb8d838a
labsuser@ip-172-31-1-240:~$
```

1.3 Run the following command to list the running containers:
sudo docker ps

```
labsuser@ip-172-31-1-240:~$ sudo docker run -d --name my-nginx -p 8080:80 nginx
3f08374c93a13a17dfcc1a09b921da5011e7d26de6fc439455de3781eb8d838a
labsuser@ip-172-31-1-240:~$ sudo docker ps
CONTAINER ID   IMAGE     COMMAND                  CREATED              STATUS              PORTS                                       NAMES
3f08374c93a1   nginx     "/docker-entrypoint.…"   About a minute ago   Up About a minute   0.0.0.0:8080->80/tcp, :::8080->80/tcp   my-nginx
labsuser@ip-172-31-1-240:~$
```

1.4 Click on the **master** dropdown and select the **desktop** option as shown in the screenshot below:



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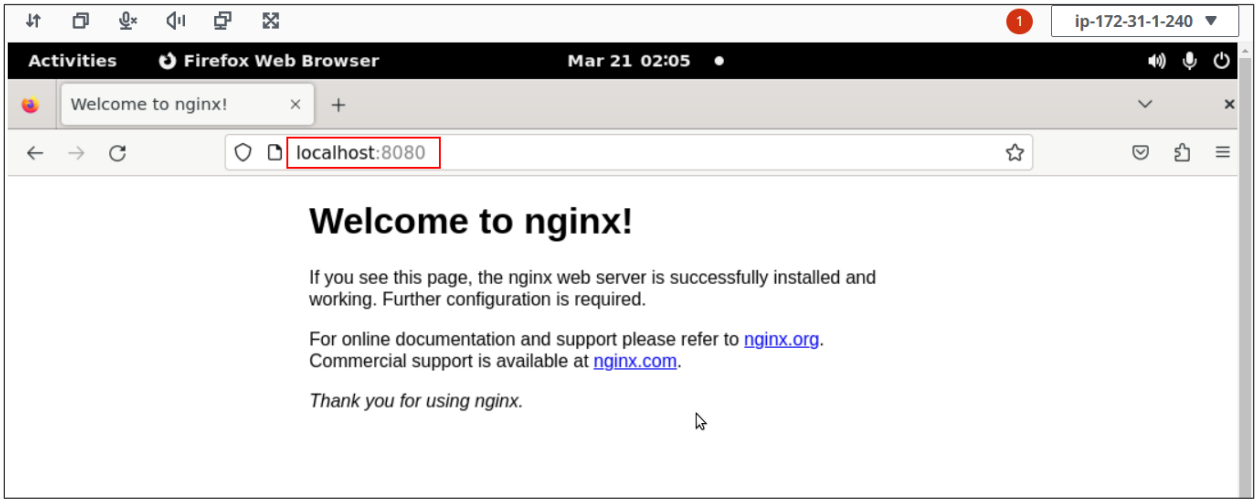
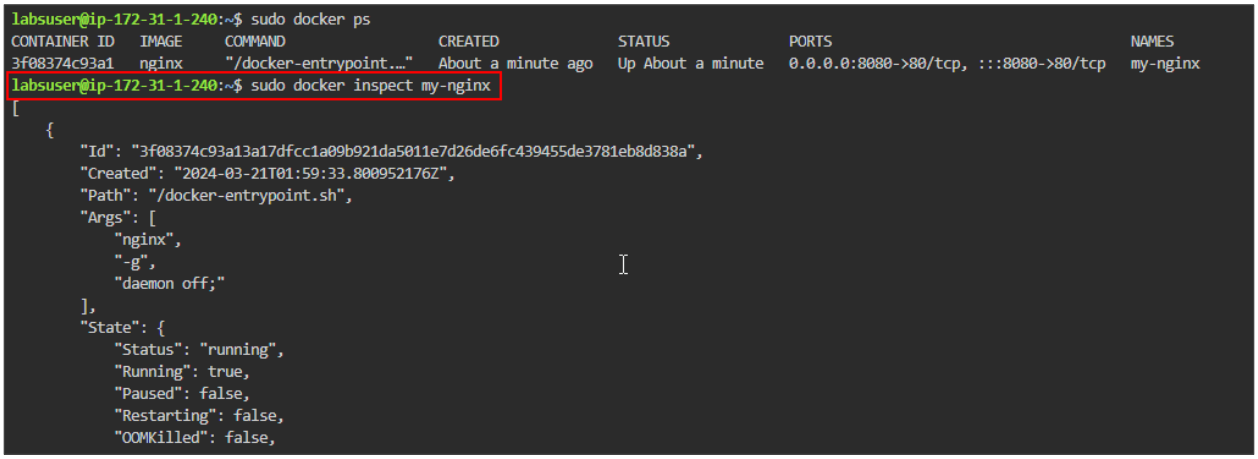
1.5 Open a web browser and navigate to **http://localhost:8080** to view the default Nginx welcome page



1.6 Execute the following command to inspect the details of the running container, including its configuration and networking information as shown in the screenshots below:
sudo docker inspect my-nginx



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1.7 Run the following command to stop the running container:
sudo docker stop my-nginx

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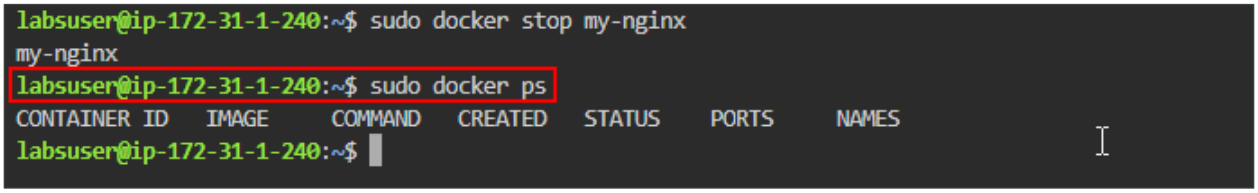
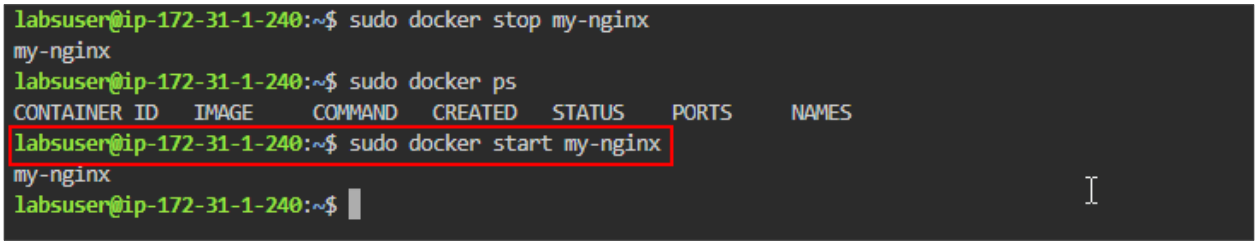
1.8 Run the following command to list the running containers:

sudo docker ps



1.9 Use the following command to start the container as shown in the screenshot below:

sudo docker start my-nginx

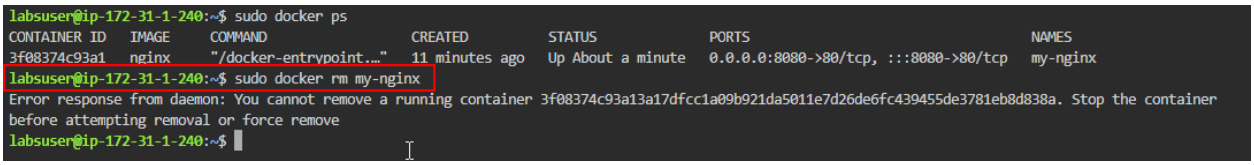


1.10 Run the following command to list the running containers:

sudo docker ps

1.11 Run the following command to remove the running container:

sudo docker rm my-nginx



Note: You need to first stop the running container and then remove it as shown in the next steps.

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1.12 Run the following command to stop the running container:
sudo docker stop my-nginx

```
labsuser@ip-172-31-1-240:~$ sudo docker rm my-nginx
Error response from daemon: You cannot remove a running container 3f08374c93a13a17dfcc1a09b921da5011e7d26de6fc439455de3781eb8d838a. Stop the container
before attempting removal or force remove
labsuser@ip-172-31-1-240:~$ sudo docker stop my-nginx
my-nginx
labsuser@ip-172-31-1-240:~$
```

1.13 Use the following command to remove the running container:
sudo docker rm my-nginx

```
labsuser@ip-172-31-1-240:~$ sudo docker stop my-nginx
my-nginx
labsuser@ip-172-31-1-240:~$ sudo docker rm my-nginx
my-nginx
labsuser@ip-172-31-1-240:~$
```

1.14 Check the list of running and stopped containers to ensure that the running container has been removed using the following command:
sudo docker ps -a

```
labsuser@ip-172-31-1-240:~$ sudo docker stop my-nginx
my-nginx
labsuser@ip-172-31-1-240:~$ sudo docker ps
CONTAINER ID   IMAGE     COMMAND   CREATED   STATUS    PORTS     NAMES
labsuser@ip-172-31-1-240:~$ sudo docker start my-nginx
my-nginx
labsuser@ip-172-31-1-240:~$ sudo docker ps
CONTAINER ID   IMAGE     COMMAND                  CREATED          STATUS          PORTS                                   NAMES
3f08374c93a1   nginx     "/docker-entrypoint.…"   11 minutes ago   Up About a minute   0.0.0.0:8080->80/tcp, :::8080->80/tcp   my-nginx
labsuser@ip-172-31-1-240:~$ sudo docker rm my-nginx
Error response from daemon: You cannot remove a running container 3f08374c93a13a17dfcc1a09b921da5011e7d26de6fc439455de3781eb8d838a. Stop the container
before attempting removal or force remove
labsuser@ip-172-31-1-240:~$ sudo docker stop my-nginx
my-nginx
labsuser@ip-172-31-1-240:~$ sudo docker rm my-nginx
my-nginx
labsuser@ip-172-31-1-240:~$ sudo docker ps -a
CONTAINER ID   IMAGE     COMMAND   CREATED   STATUS    PORTS     NAMES
labsuser@ip-172-31-1-240:~$
```

By following these steps, you have successfully demonstrated the lifecycle of containers for efficient management and optimization of Docker container orchestration.