

Docker Lab Part 1

1. Explain what is meant by a docker image and container.

An image includes everything needed to run an application - the code or binary, runtimes, dependencies, and any other file system objects required. An image is essentially built from the instructions for a complete and executable version of an application, which relies on the host OS kernel. When the Docker user runs an image, it can become one or multiple instances of that container. A Docker image is roughly equivalent to a "snapshot" in other virtual machine environments. It is a record of a Docker virtual machine, or Docker container, at a point in time.

Docker images have the special characteristic of being immutable. They can't be modified, but they can be duplicated and shared or deleted. The immutability is useful when testing new software or configurations because no matter what happens, the image will still be there, as usable as ever.

A container is nothing but a running process, with some added encapsulation features applied to it in order to keep it isolated from the host and from other containers.

3. What is the purpose of the 'TAG' column?

Shows the TARGET_IMAGE that refers to SOURCE_IMAGE

4. Where is the docker image downloaded from when you execute the command above?

It pulls the prebuilt nginx image from the Docker Hub Registry

6. Visit <http://localhost:8080> in your browser. What do you observe in the docker console?

It did not connect to localhost as it is. But it did connect when I ran it as <http://127.0.0.1:8080>

It did not show anything in my docker console with the `-d`. But when it is removed it showed some messages with an ip address and a timestamp. It showed the time we logged into the localhost through the browser.

7. Explain what the `-p` option in the docker run command in (5) does.

The publish flag publishes port 80 in the container (the default port for nginx), via port 8080 on our host.

10. Verify the container is stopped by looking at the "status" column of the following command. What is the effect of the `-a` switch to the docker ps command?

`docker container ps -a`

Command	Description
<code>docker container ps</code>	Shows only the container which are running at that time
<code>docker container ps -a</code>	Shows all the containers which are created, running or exited

11. How do you list the logs of a stopped container?

`docker container logs <name_of_the_stopped_container>`

12. How do you restart the nginx container that was stopped in (8)?

`docker container restart <name_of_the_stopped_container>`

13. How do you delete the nginx docker image?

```
docker rmi <nginx_image_id>
```

Or we can force remove in case there are large number of containers using that image_id (we have to first stop all the containers before removing the image)

```
docker rmi -f <nginx_image_id>
```

14. What happens if you try to delete the image of a running container?

In that case it gives an error message saying that the image cannot be deleted, because its image_id is being used by some other container.