Dockers - Quick Start

A short-guide focused on implementing custom Dockerfiles

2020-10-30 Mirek Jaros

1. What is a Docker?

- Docker is an **eco-system** to allow us to **configure**, **deploy** and **run applications** on production systems.
  - *eg. Apache Tomcat Web Server + Java Enterprise Application*

- As a **tool, helps** engineers to **easily run applications locally**.
  - *eg. Oracle Database Express Edition for local development*

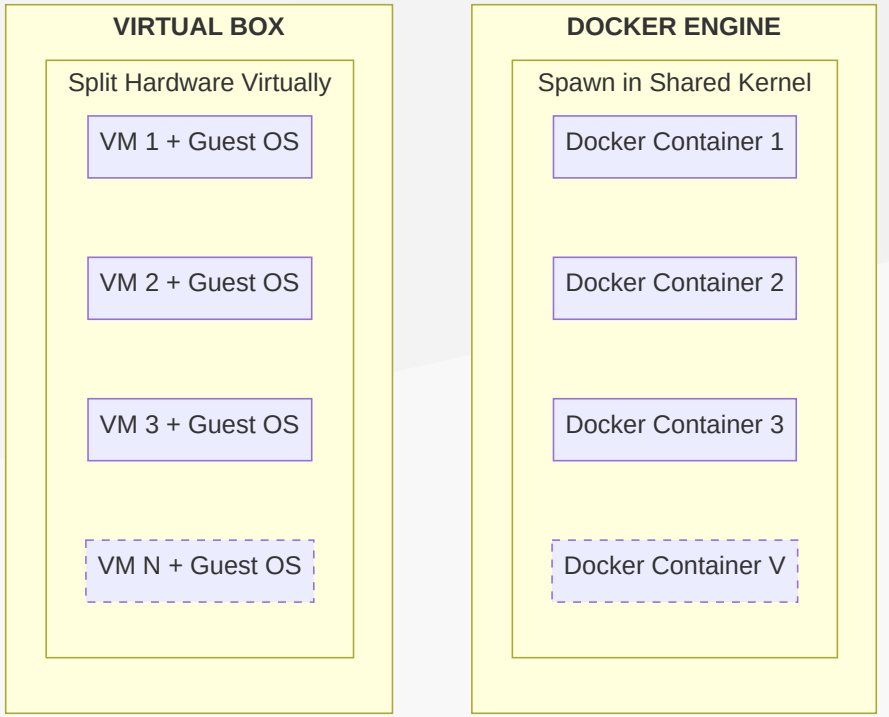
2. Comparison to VMs

- Comparison between Docker Engine and Hypervisors (Hyper-V, ESXi, VBox,..)

- You can run limited N instances of VMs

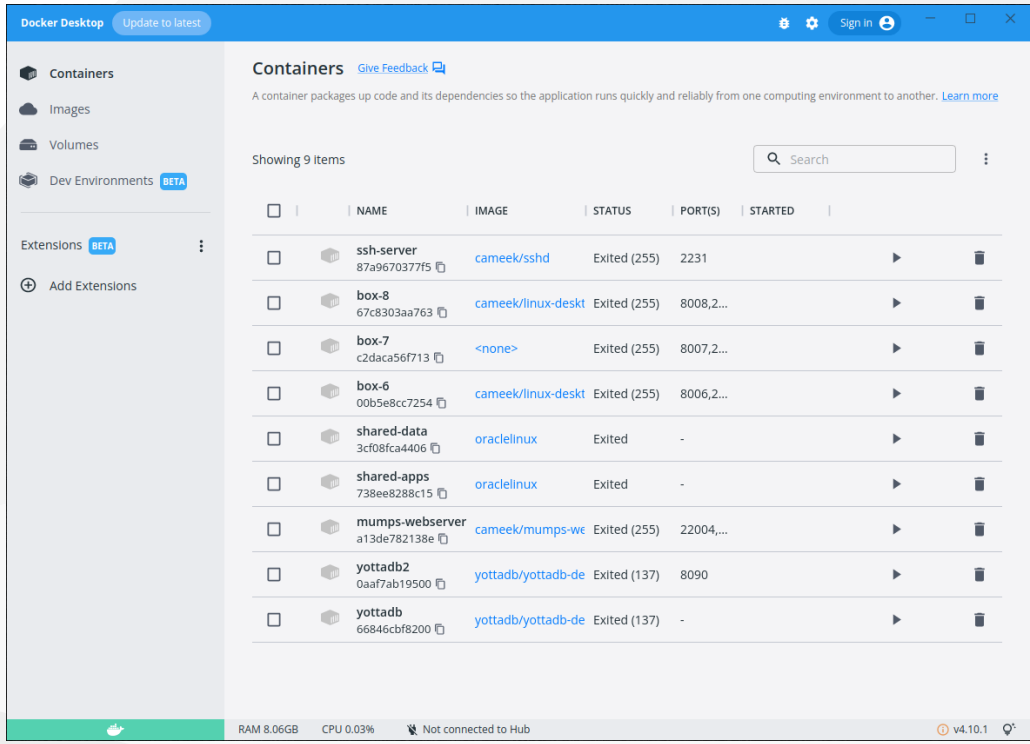
  vs.

- Very high number V of Docker Containers within same hardware



3. Prerequisite

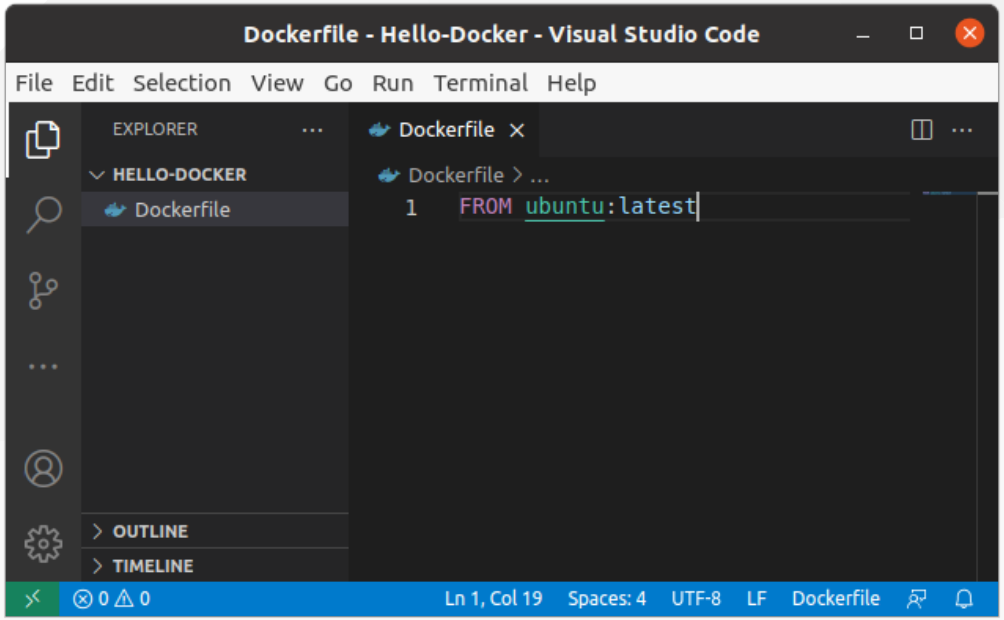
- Before next steps **make sure your Docker Desktop is running** https://docs.docker.com/desktop/
- It's possible to have only Docker Engine, however, you would have to use CLI
- And installation of just engine is usually performed under high-priviledged account, requires deeper knowledge around security



4. First Dockerfile

- Create dedicated directory like "Hello-Docker"
- Inside the directory create new file "Dockerfile" with following content:

```
FROM ubuntu:latest
```

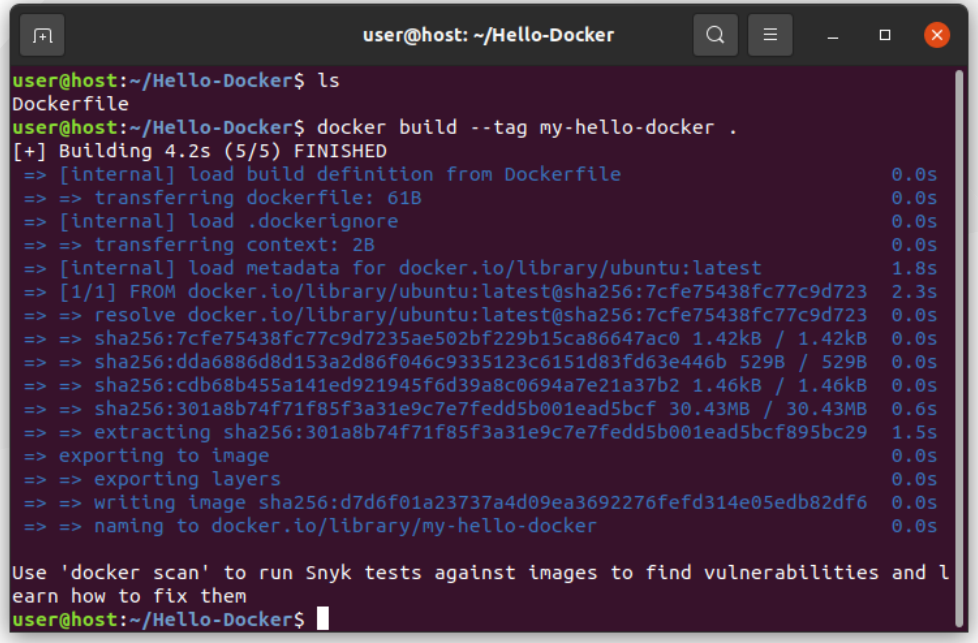


- You can use Vi, Notepad,.. or some IDE like VSCode

5. Build Dockerfile into Image

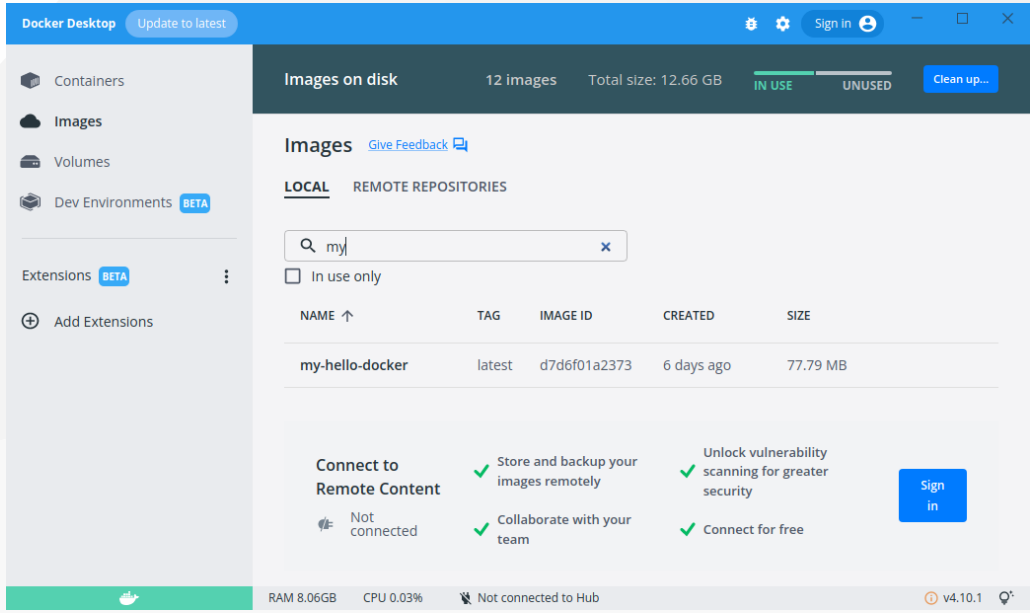
- Open a command line or shell, navigate to project "Hello-Docker"
- Execute the build, don't forget to put there the dot:

```
docker build --tag my-hello-docker .
```



6. Check Images via GUI

- In Docker Desktop click on Images
- The new image name "my-hello-docker" should be there
- You can use search filtering

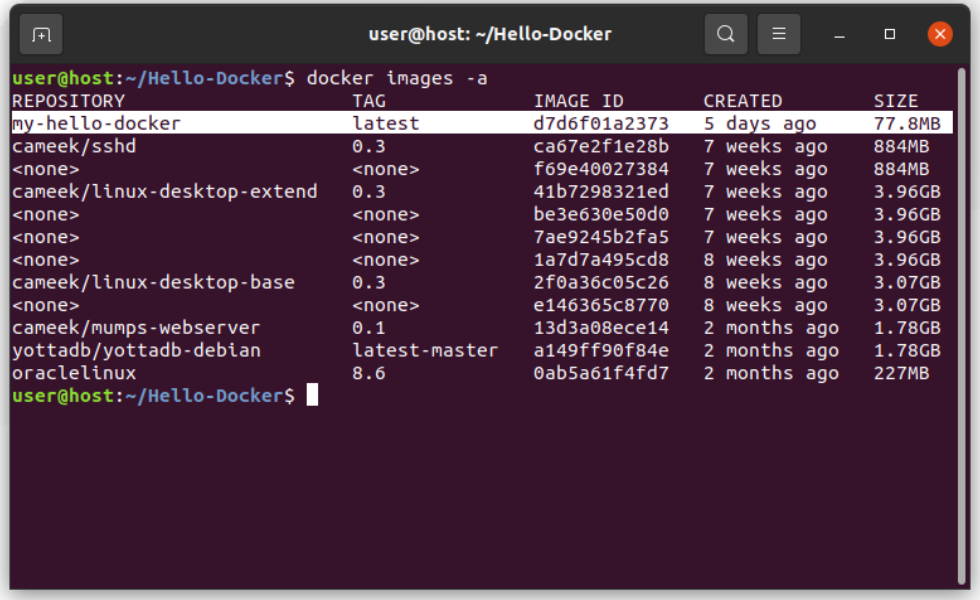


7. Check Images via CLI

- In shell/command line run following:

```
docker images -a
```

- The switch "-a" displays also inactive images

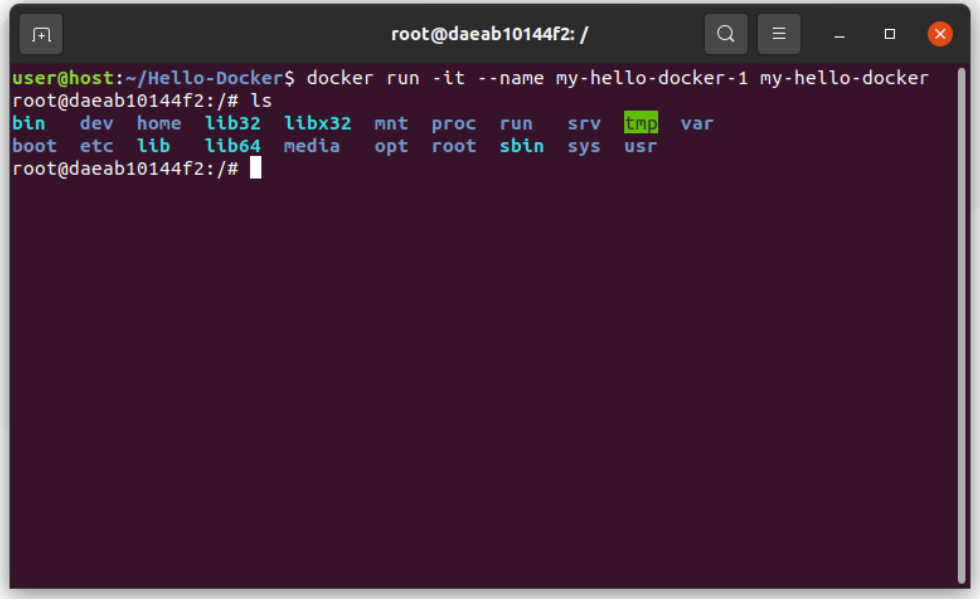


8. Run New Container

- Using CLI execute command:

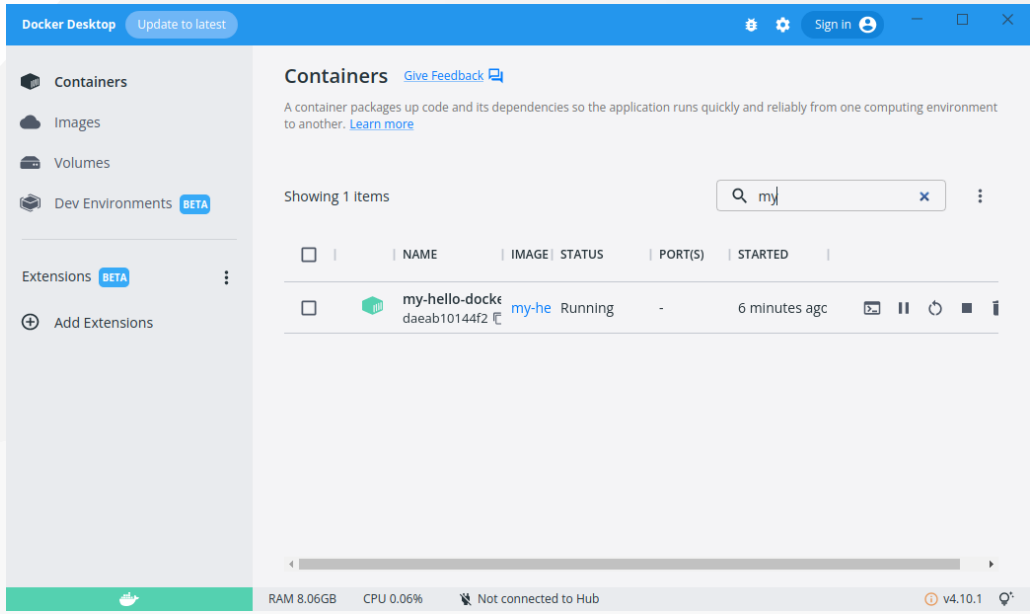
```
docker run -it --name my-hello-docker-1 my-hello-docker
```

- You should get immediately interactive terminal inside that container with Bash shell
- You can try commands like *ls*



9. Check Containers via GUI

- In Docker Desktop click on Containers
- The new created container "my-hello-docker-1" should be there
- You can use search filtering

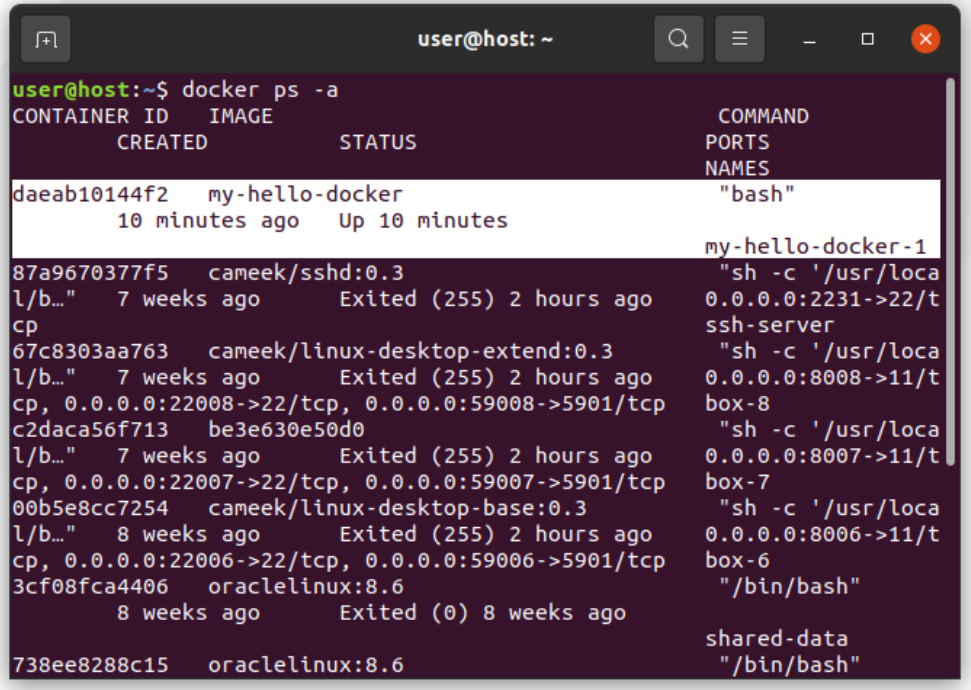


10. Check Containers via CLI

- In shell/command line run following:

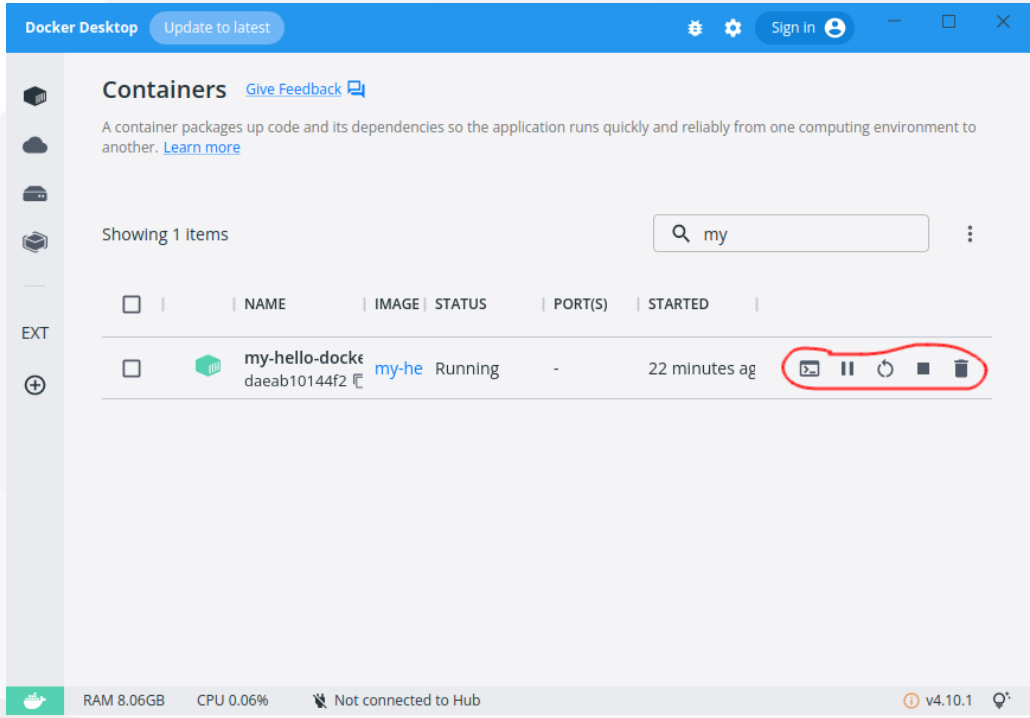
```
docker ps -a
```

- The switch "-a" displays also inactive images



11. Start / Stop / Remove via GUI

- Once you have a container created you can perform on it with control buttons:
  - Start / Stop
  - Delete
  - Open in Terminal
  - Open in Browser
    (for containers with HTTP srv.)



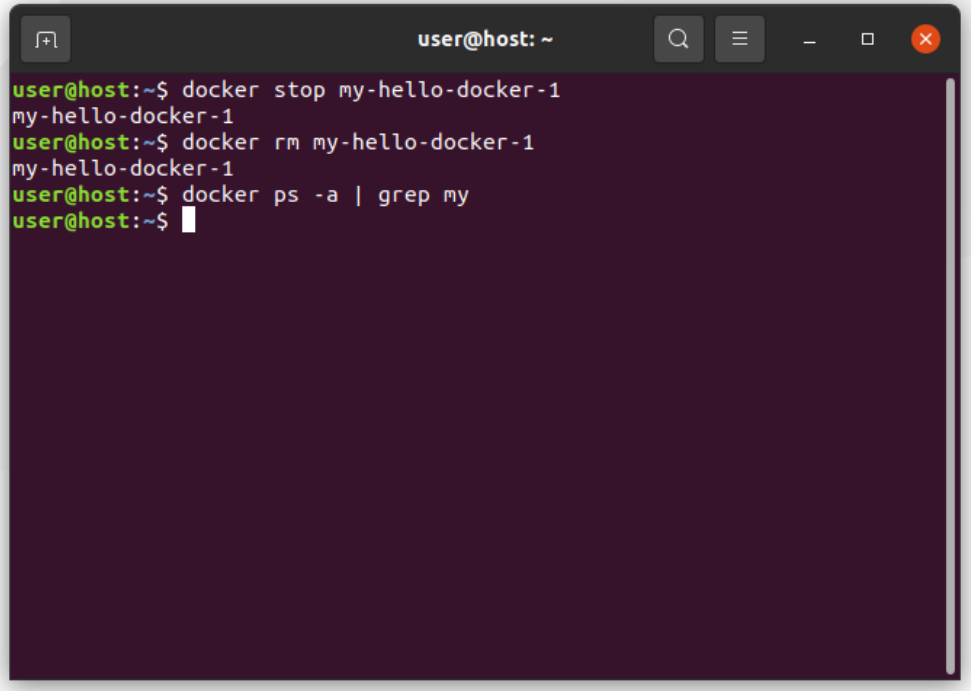
12. Stop / Remove via CLI

- Stop container:

```
docker stop my-hello-docker-1
```

- Remove container:

```
docker rm my-hello-docker-1
```



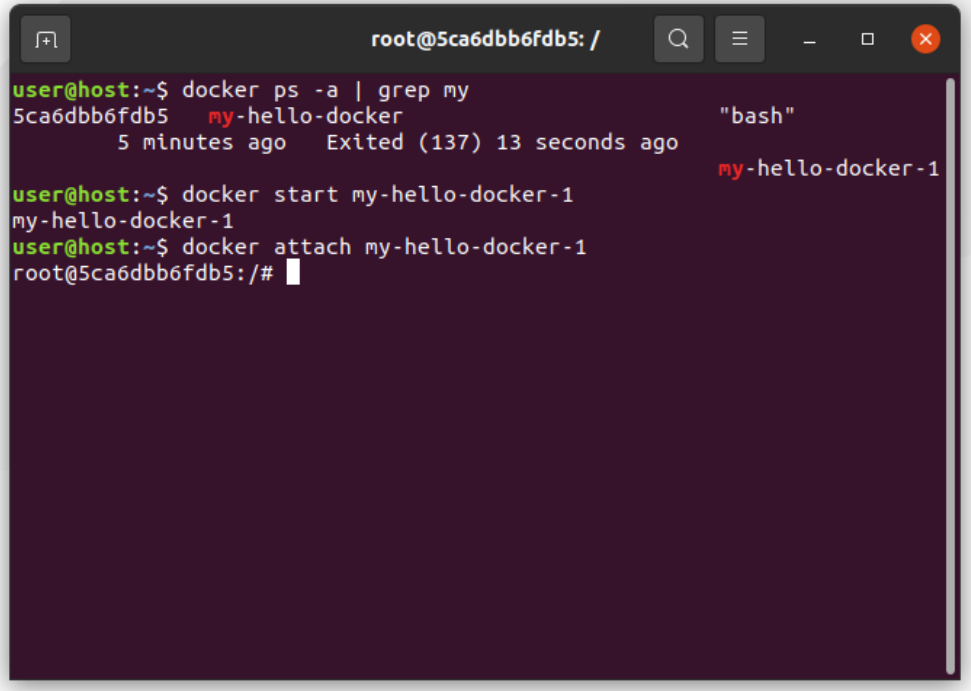
13. Start and Attach via CLI

- Start container:

```
docker start my-hello-docker-1
```

- Attach to terminal of the container:

```
docker attach my-hello-docker-1
```



14. CLI Reference Help

- CLI root reference help is on URL:

https://docs.docker.com/engine/reference/commandline/docker/