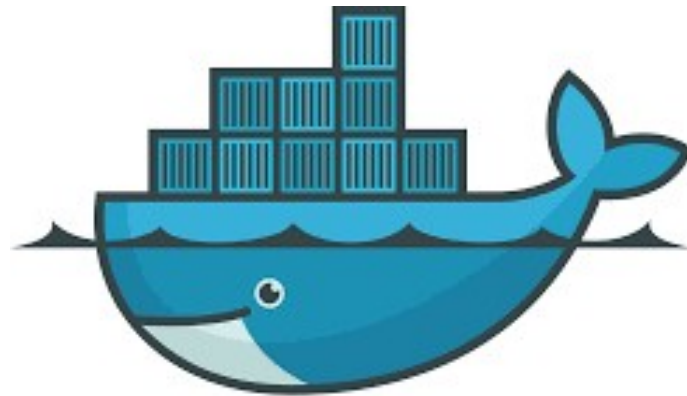


T6 - DevOps

T-DOP-600

DevOps - Docker

Bootstrap



DevOps - Docker



- The totality of your source files, except all useless files (binary, temp files, obj files,...), must be included in your delivery.
- All the bonus files (including a potential specific Makefile) should be in a directory named *bonus*.
- Error messages have to be written on the error output, and the program should then exit with the 84 error code (0 if there is no error).

DOCKER CONTAINERS

+ SHIPPING BIG BOXES ON BOATS ?

Not exactly, we are doing software engineering here. ;)

- Search about Docker
- What is the difference between Virtual Machines and Docker Container ?
- What kind of isolation for 2 Docker containers, running on the same machine ?
- Does it works in BSD environment ?
- What is the difference between a Docker container and a Docker image ?

+ SETUP TIME

Install Docker + Compose.

For this bootstrap, you will also need a client to PostgreSQL:

- REPL => `dnf install postgresql`
- or GUI => `dnf install pgadmin3`

Create an account on Docker.io.



+ HELLO WORLD

Docker Inc provides official images of popular softwares on [Docker Hub](#). Some (less popular) things are distributed by community on the same platform.

1. Find the PostgreSQL image
2. Import it on your machine
3. Show how many images you have on your machine
4. And run PostgreSQL container !
5. Show containers running on your machines. Do you see container ID of PostgreSQL ?



`docker -help`

+ RUN FOREST, RUN !

1. Is your previous PostgreSQL container still running ? Ok, stop it and remove it. ;)
2. Oops, we have some technical debts, our application is only compatible with PostgreSQL 9.4.
3. I would like to list tables, but I can't connect to this PostgreSQL instance from your host. Looks like port is not exposed on my machine. How to fix that ?
4. In PostgreSQL Docker image, default username/password/db are: `postgres/postgres/postgres`. That's not very safe ! Find how to change PostgreSQL password (when executing `docker run`).
5. In this step, data is not persisted on hard drive (you loose data when container is removed). Please fix that !
6. Can you tell how long this container has been running ? Please execute the command `uptime` into this running PostgreSQL container.
7. Let's display logs of this PostgreSQL container !



PostgreSQL client => `psql postgres://username:password@hostname:port/dbname`

+ DIY

In the previous exercices you used an official Docker image.

Your next mission (should you choose to accept it...) is to Docker-ize the NodeJS application provided into this bootstrap.

Your Docker container should be based on official `debian:buster` image.

Few things you should do in your Dockerfile:

- Install NodeJS and dependencies



- Send your source code into the container
- A command to describe how to launch app when Docker starts
- Whatever seems relevant...



For debugging, you can run your container with bash => `docker run -it <my-image> /bin/bash` or execute a command inside a running container with => `docker exec -it <my-image> /bin/bash`

+ SPREAD THE WORLD

Well done, you built a Docker image. Can you publish it on Docker Hub ?

+ INFRA AS CODE

`docker run` commands are a bit long. Write your own `docker-compose.yml`, in order to start PostgreSQL and NodeJS apps with a simple `docker-compose up`.