Docker : docker-compose

Amine FERDJAOUI
amine.ferdjaoui@sogeti.com

Année universitaire 2024/2025

Why docker-compose

- Usually we run multiple applications : Frontend, Backend, Database, etc.
- The automatisation becomes difficult.
- Difficult to maintain multi-container applications.
- Difficult to update application in production.

Docker-compose file

- Uses **yml** (or **yaml**) file, usually used for configuration, it uses indentation (like python)
- The filename must be **docker-compose.yml** (or yaml)
- Automatisation of building and running images and containers
- Define services (applications), parameters (ports, volumes, etc.), networks, etc.

Installation

- If you are under **mac** or **windows**, docker-compose comes installed with Docker desktop
- For Linux : follow installation instructions on : https://docs.docker.com/compose/install/

▹ To verify that docker-compose is installed:

```
$ docker-compose --version
```

Docker-compose file

https://docs.docker.com/reference/compose-file/

- Start with compose version: version: “3.8”
- Define the services:

```
services:
    frontend:
    backend:
```

- Define configuration within each service:
    - Build file (Dockerfile)
    - Ports
    - Volumes

Docker-compose file

https://github.com/AmineFrj/docker-compose

docker-compose.yml

```
version:  “3.8”
services:
    backend:
        build: .
        ports:
            - “5000:5000”
        volumes:
            - ./templates:/templates    #<local>:<container>
volumes:
    templates:   #pour sauvegarder le volume même après la suppression
```

Docker-compose commands - build

All commands are the same as docker commands except that the docker-compose ones will be applied to the **hole** applications.

Build

Enter into the docker-compose file directory and run build command (without any flags)

Image will be named: <folder-name> _ <service-name>

```
$  docker compose build
```

```
$ docker compose build
$ docker images
```

Docker-compose commands - Start

Run

Once the image built, the *run* command starts the **new** container(s)

```
$ docker compose up
```

If the image is not built, you can build the image and then run it

```
$ docker compose up --build
```

```
$ docker compose up -d #detached mode
$ docker compose ps
```

Docker-compose commands - Stop and remove

Stop

To stop and remove containers (images are not removed)

```
$ docker compose down
```

```
$ docker compose down
$ docker compose ps
$ docker ps -a
$ docker images
```

Docker-compose - commands recap

Build docker image

```
$ docker compose build
$ docker images
```

Run container

```
$ docker compose up -d #in detached mode
$ docker ps -a
```

Stop and remove containers

```
$ docker compose down
$ docker ps -a
```