Docker

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Docker

Docker Documentation

Home page for Docker's documentation

https://docs.docker.com/

Definisi

- Tools untuk membungkus aplikasi bersama dependencies menjadi 1 file dan menjalankannya dalam suatu environment yang terisolasi
- Berbasis Linux

Why Docker

- Conflict ENV (perbedaan Operating System, perbedaan versi Node JS) → Ini problem yang akan di-solve oleh Docker

Deploy APP with Docker

Keperluan deploy akan ditampung dalam suatu Container (aplikasi yang berjalan di Docker) berisi:

- App
- Web server

- Database
- Dependency & Library

Docker Terminologies

- Docker
- Images: Base tools yang digunakan di docker
- Container: Image yang sudah dijalankan
- Docker Hub: Hub untuk images-images di docker

Docker Hub

https://hub.docker.com/search?q=

Learning commands in Docker

No	Commands	Goals
	`docker images`	List images yang sudah pernah di-pull * Bisa dihapus kalo kepenuhan
	`docker pull redis:latest`	Pulling atau download image from docker
	`docker image rm [dockerID]`	Menghapus docker * Container yang pake image tsb harus di-delete dulu
	`docker container ps`	List container yang udah jalan (Keterangannya **Up**)
	`docker container ps -a`	Semua list container yang udah ataupun blm jalan (Kalo belum jalan ada keterangan **Created**)
	`docker container rm [containerName]`	Menghapus container
	`docker container create —name [containerName/ID] -p [localPort:containerPort] [imageName]` Contoh demo: docker container create —name mongodb docker -p 27018:27017 mongo:5	Membuat container mongodb docker Notes: - Container port : port yang ada di dockernya - Mongo:5 dicek pake command `docker images`, 5 itu version (TAG) dari image tersebut

Demo

1. Membuat Dockerfile untuk Node JS → Dockerfile mewarisi apa yang dimiliki Parent (Node)

Build your Node image

Now that we have a good overview of containers and the Docker platform, let's take a look at building our first image. An image includes everything you need to run an application - the code or binary, runtime, dependencies, and any other file system objects required.

https://docs.docker.com/language/nodejs/build-images/

```
// file Dockerfile
// set instruksi yang harus dilakukan Docker untuk membangun imagesnya
// declare images
FROM node:16.18.1

//environment (bisa tambahin ENV lain, contoh JWT)
ENV PORT=5000

// default path dimana docker berjalan
WORKDIR /app

// cache Docker di node modules
COPY ["package.json", "package-lock.json*", "./"]

// kalo pake "--production" itu khusus dependencies aja, tidak akan install devDependencies
RUN npm install
RUN npm install -g nodemon

// copy semua files di path app ke Docker images
COPY . .

// command supaya docker dapat menggunakan tools-tools yang ada di parentnya (node)
CMD [ "nodemon", "app.js" ]
```

2. Membuat file .dockerignore → ignore node modules saat membuat images

```
node_modules
```

3. Membuat Docker image di terminal

To-do	Command	Command Demo
Build docker image	docker build --tag nodemon-docker	docker build --tag app-service:1.0.0
Cek apakah image sudah masuk di list dalam docker	docker images	
Buat container	`docker container create —name [containerName/ID] -p [localPort:containerPort] [imageName]`	`docker container create —name app-service -p 6000:5000 app-service:1.0.0`
Cek list container	`docker container ps -a`	
Menjalankan container	`docker container start app-service`	
Cek list container	`docker container ps`	
Run localhost:6000 di Thunder Client		
Menjalankan container dengan binding volume → Bikin container dengan nama berbeda		`docker container run —name app-services-dev -p 3001:5000 -v $(pwd)` `:/app app-service:1.0.1` * pwd ini menunjukkan folder yang terminal sedang akses * app ini lokasi docker yang udah di-declare di CMD
Run localhost:3001		

4. Kalo ada adjustment di Dockerfile maka harus ulang step 3 lagi

```
cat Dockerfile
```

5. Deploy app-service di heroku

Building Docker Images with heroku.yml

The heroku.yml file is a manifest you can use to define your Heroku app. It allows you to: Build Docker images on Heroku Specify add-ons and config vars to create during app provisioning Take advantage of Review Apps when deploying Docker-based applications

https://devcenter.heroku.com/articles/build-docker-images-heroku-yml

Notes:

- Buat file heroku.yml

  ```
  build
    docker:
      web: Dockerfile
  ```

- Jangan lupa git push subtree seperti waktu deploy challenge 1

Use multiple FROM in Dockerfile

Try Docker Compose

Estimated reading time: 12 minutes This tutorial is designed to introduce the key concepts of Docker Compose whilst building a simple Python web application. The application uses the Flask framework and maintains a hit counter in Redis. The concepts demonstrated here should

https://docs.docker.com/compose/gettingstarted/

Docker bash

How to get bash or ssh into a running container in background mode?

Instantly share code, notes, and snippets. How to get bash or ssh into a running container in background mode? You can't perform that action at this time. You signed in with another tab or window. You signed out in another tab or window. Reload to refresh your session.

https://gist.github.com/jarek-przygodzki/ec00685edff055010160