

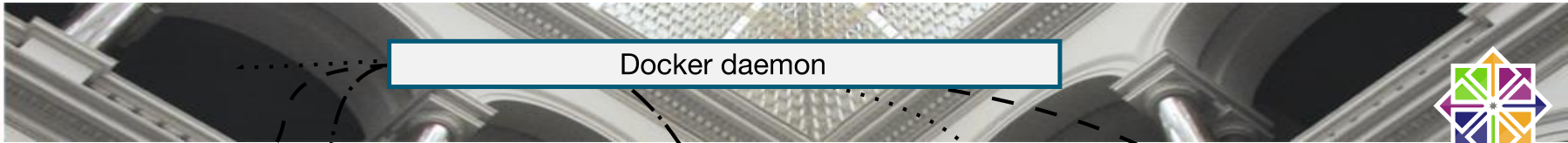


Introduction to Docker



Why we need it ?

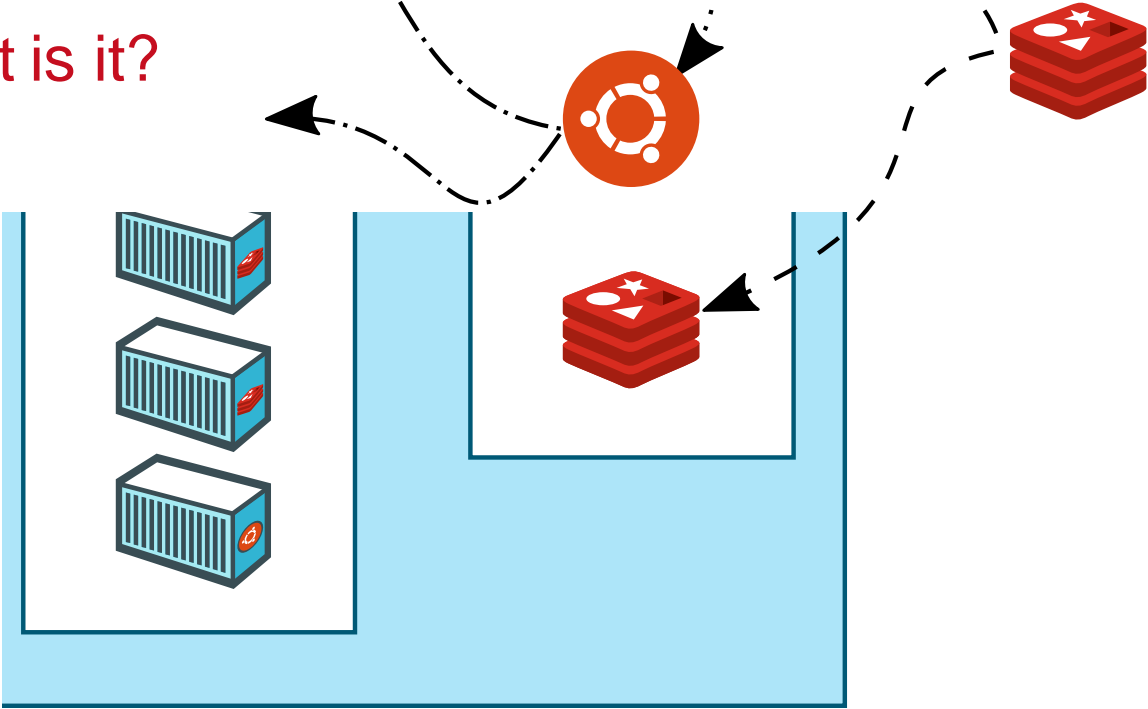
- Hassle of environment setup
- Hassle of managing dependencies for different projects
- Conflicts caused by different operating systems/environments/dependencies
- very lightweight compared to virtual machines



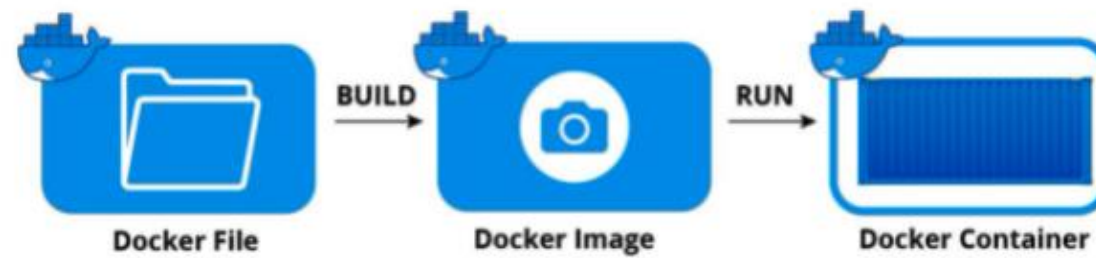
Docker daemon



What is it?



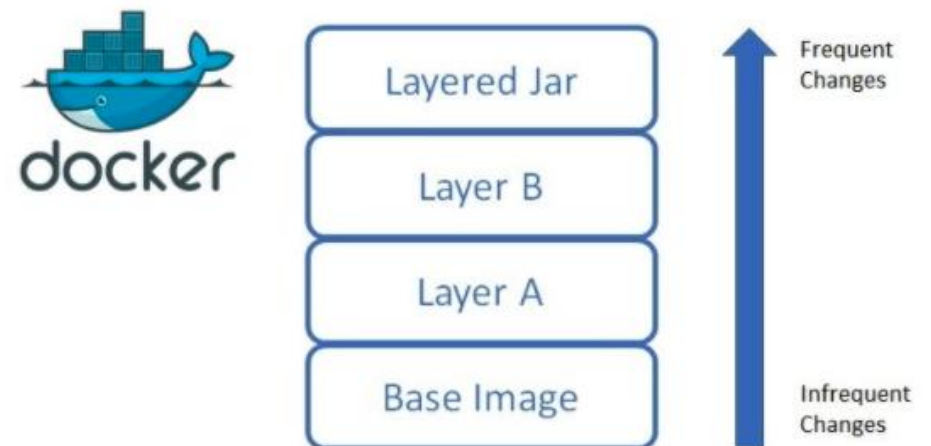
Docker file/image/container



Dockerfile anatomy

```
FROM python:3.7-slim    You, 17 hours ago
WORKDIR /source
COPY . /source/
RUN pip install --upgrade pip
RUN pip install -r requirements.txt
EXPOSE 5001
CMD ["python", "app.py"]
```

Each line corresponds to
a layer.





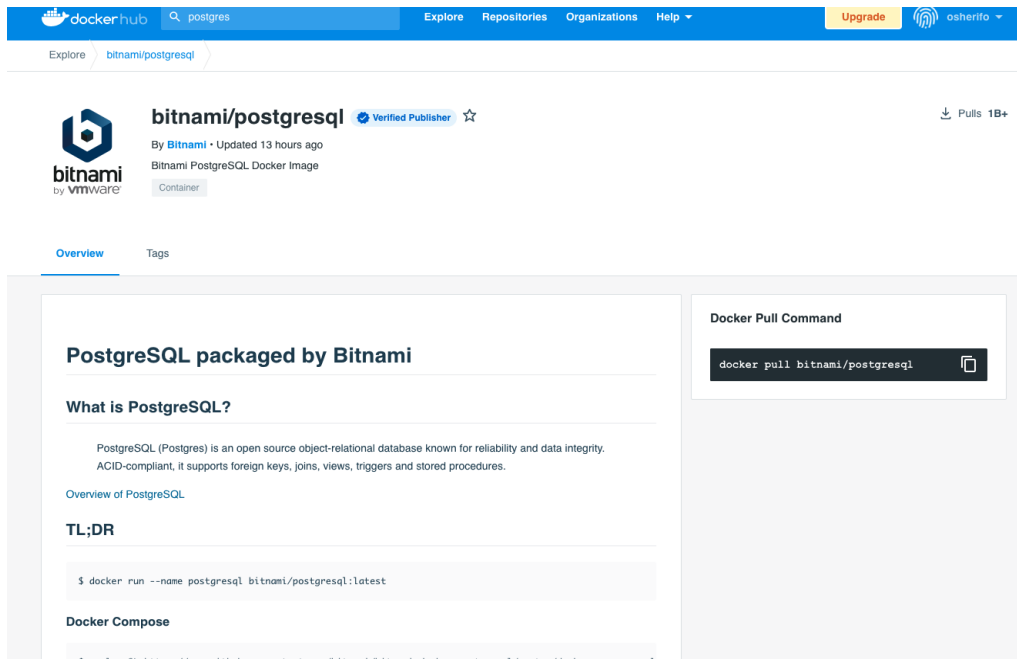
List of important commands

- `docker run` – Runs a command in a new container.
- `docker start` – Starts one or more stopped containers
- `docker stop` – Stops one or more running containers
- `docker build` – Builds an image from a Docker file
- `docker pull` – Pulls an image or a repository from a registry
- `docker push` – Pushes an image or a repository to a registry
- `docker exec` – Runs a command in a run-time container
- `docker search` – Searches the Docker Hub for images
- `docker ps` – list all running containers

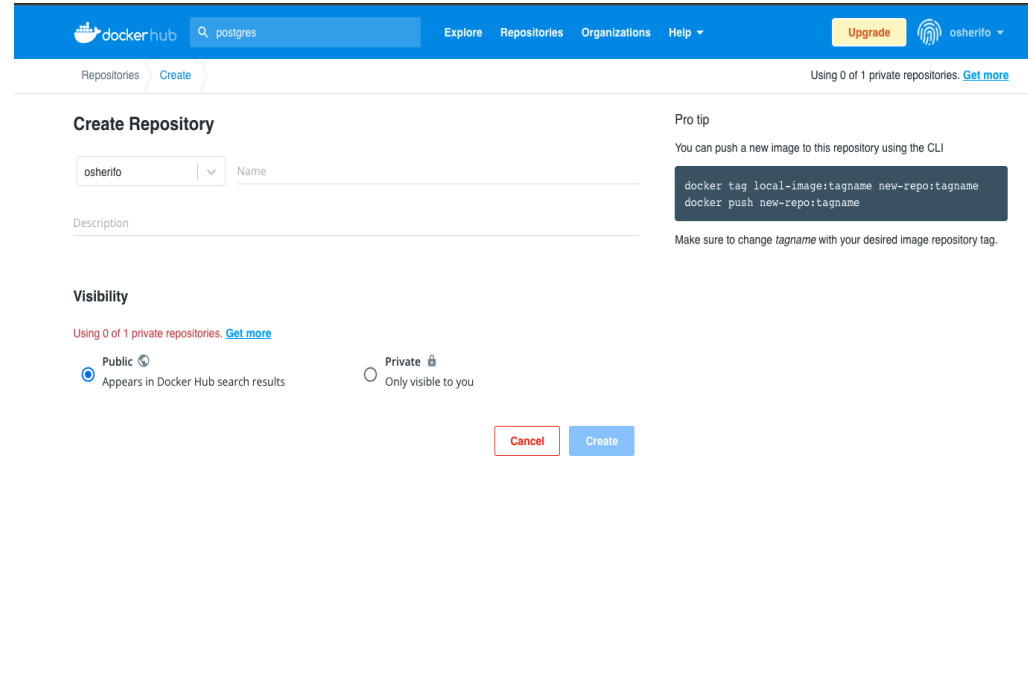
Docker Registry (Docker Hub)

Registry for housing docker images

<https://hub.docker.com>



The screenshot shows the Docker Hub page for the `bitnami/postgresql` repository. The page header includes the Docker Hub logo, a search bar with "postgres" entered, and navigation links for Explore, Repositories, Organizations, and Help. A yellow "Upgrade" button and a user profile icon for "osherifo" are also visible. The main content area features the repository name "bitnami/postgresql" with a "Verified Publisher" badge and a star icon. Below this, it says "By Bitnami • Updated 13 hours ago" and "Bitnami PostgreSQL Docker Image". A "Container" label is present. The "Overview" tab is selected, showing a description of PostgreSQL and a "Docker Pull Command" box with the command `docker pull bitnami/postgresql`. The "Tags" tab is also visible.



The screenshot shows the "Create Repository" form on Docker Hub. The header is identical to the previous screenshot. The form has a "Repositories" tab and a "Create" button. Below the header, it says "Using 0 of 1 private repositories. [Get more](#)". The "Create Repository" section has a dropdown menu for the repository name (currently "osherifo") and a "Name" field. The "Description" field is empty. The "Visibility" section has two options: "Public" (selected) and "Private". The "Public" option is described as "Appears in Docker Hub search results". The "Private" option is described as "Only visible to you". A "Pro tip" section on the right says "You can push a new image to this repository using the CLI" and provides the commands `docker tag local-image:tagname new-repo:tagname` and `docker push new-repo:tagname`. At the bottom, there are "Cancel" and "Create" buttons.

Docker-compose

```
version: "3.9"
services:
  backend:
    container_name: sbe-backend
    build: ./backend
    ports:
      - 5001:5001
    volumes:
      - ./backend:/source
  database:
    container_name: sbe-database
    image: postgres:latest
    env_file: db.conf
    ports:
      - 5432:5432
    volumes:
      - postgres_data:/var/lib/postgresql
  # frontend:
  camunda:
    container_name: sbe-camunda
    # TODO :replace with our own
    image: camunda/camunda-bpm-platform:latest
    ports:
      - 8080:8080
  # camunda-simulator

volumes:
  postgres_data:
```

Docker-compose.yaml



cheat sheet

<https://dockerlabs.collabnix.com/docker/cheatsheet/>



Questions?