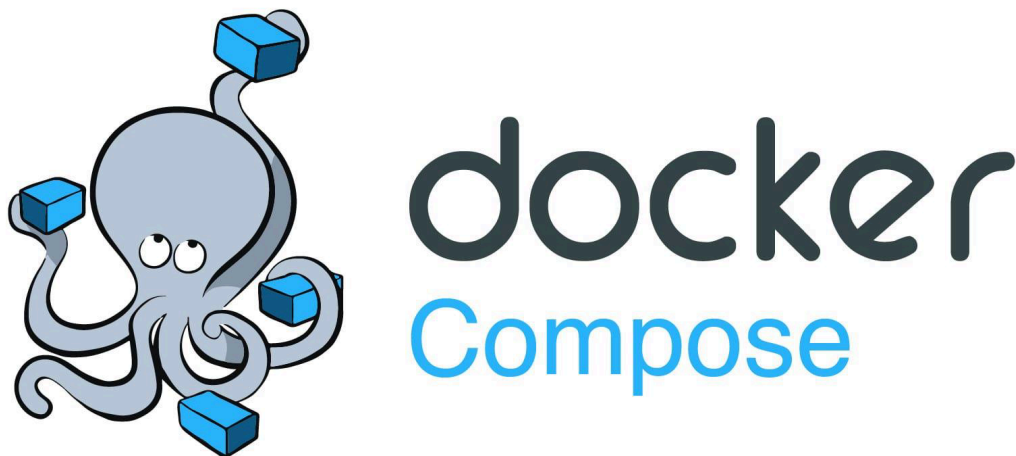


DOCKER-COMPOSE BASICS

Docker Compose is a tool for defining and managing multi-container Docker applications. Instead of running individual Docker commands for each container, We can specify everything in a single YAML file called “docker-compose.yml”. This file contains configuration details for each container, including:

- The services (containers) our app needs
- The networks they should communicate on
- The volumes for persistent data storage



WHY USE DOCKER COMPOSE:

1. **Simplicity:** Manage multiple containers with a single command, reducing the complexity of running each container manually.
2. **Configuration Management:** Store all your configurations in one place, making it easy to maintain and update.
3. **Environment Consistency:** Ensure that your application runs consistently across different environments (development, staging, production).
4. **Easier Collaboration:** Share the docker-compose.yml file with the team, so everyone can run the application in the same way.

➤ Docker-compose file:

```
ubuntu@ip-172-31-7-112: ~
services:
  nginx:
    image: nginx:latest
    ports:
      - "8080:80"
    volumes:
      - ./html:/usr/share/nginx/html
    restart: always

~
~
~

ubuntu@ip-172-31-7-112:~$ vim html/index.html
ubuntu@ip-172-31-7-112:~$ docker-compose up
WARN[0000] Found orphan containers ([ubuntu-web-1 ubuntu-db-1]) for this project. If you removed or renamed this service in your compose file, you can run this command with the --remove-orphans flag to clean it up.
[+] Running 1/0
✔ Container ubuntu-nginx-1 Created 0.0s
Attaching to nginx-1
nginx-1 | /docker-entrypoint.sh: /docker-entrypoint.d/ is not empty, will attempt to perform configuration
nginx-1 | /docker-entrypoint.sh: Looking for shell scripts in /docker-entrypoint.d/
nginx-1 | /docker-entrypoint.sh: Launching /docker-entrypoint.d/10-listen-on-ipv6-by-default.sh
nginx-1 | 10-listen-on-ipv6-by-default.sh: info: IPv6 listen already enabled
nginx-1 | /docker-entrypoint.sh: Sourcing /docker-entrypoint.d/15-local-resolvers.envsh
nginx-1 | /docker-entrypoint.sh: Launching /docker-entrypoint.d/20-envsubst-on-templates.sh
nginx-1 | /docker-entrypoint.sh: Launching /docker-entrypoint.d/30-tune-worker-processes.sh
nginx-1 | /docker-entrypoint.sh: Configuration complete; ready for start up
nginx-1 | 2024/10/16 04:19:02 [notice] 1#1: using the "epoll" event method
nginx-1 | 2024/10/16 04:19:02 [notice] 1#1: nginx/1.27.2
nginx-1 | 2024/10/16 04:19:02 [notice] 1#1: built by gcc 12.2.0 (Debian 12.2.0-14)
nginx-1 | 2024/10/16 04:19:02 [notice] 1#1: OS: Linux 6.8.0-1016-aws
nginx-1 | 2024/10/16 04:19:02 [notice] 1#1: getrlimit(RLIMIT_NOFILE): 1048576:1048576
nginx-1 | 2024/10/16 04:19:02 [notice] 1#1: start worker processes
nginx-1 | 2024/10/16 04:19:02 [notice] 1#1: start worker process 22
nginx-1 | 103.191.172.73 - - [16/Oct/2024:04:19:51 +0000] "GET / HTTP/1.1" 200 324 "-" "Mozilla/5.0 (Windows NT 10.0; win64; x64) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/129.0.0.0 Safari/537.36" "-"
nginx-1 | 103.191.172.73 - - [16/Oct/2024:04:19:52 +0000] "GET / HTTP/1.1" 304 0 "-" "Mozilla/5.0 (Windows NT 10.0; win64; x64) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/129.0.0.0 Safari/537.36" "-"
nginx-1 | 103.191.172.73 - - [16/Oct/2024:04:19:55 +0000] "GET / HTTP/1.1" 304 0 "-" "Mozilla/5.0 (Windows NT 10.0; win64; x64) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/129.0.0.0 Safari/537.36" "-"
```

➤ Accessing the web using port 8080



Hello, NGINX with Docker Compose!

This page is served by NGINX inside a Docker container.

Basic Commands:

- Run Docker Compose in detached mode: “docker-compose up -d”
- View the status of your containers: “docker-compose ps”
- View logs of the running containers: “docker-compose logs”
- Stop the containers: “docker-compose down”

```
ubuntu@ip-172-31-7-112:~$ docker-compose up -d
WARN[0000] Found orphan containers ([ubuntu-web-1 ubuntu-db-1]) for this project.
e file, you can run this command with the --remove-orphans flag to clean it up.
[+] Running 1/1
✓ Container ubuntu-nginx-1 started
```

```
ubuntu@ip-172-31-7-112:~$ docker-compose down
[+] Running 2/2
✓ Container ubuntu-nginx-1 Removed
✓ Network ubuntu_default Removed
ubuntu@ip-172-31-7-112:~$
```

➤ To create a Docker Compose setup for Nginx using multiple containers, using Nginx as a reverse proxy that routes requests to backend service Nodejs.

```
my-app/
|
|---nodejs
|
|---app.js
|
|---package.json
|
|---Dockerfile
|
|---public/
|
|---index.html
|
|---nginx/
|
|---default.conf
|
|
|---docker-compose.yml
```

ubuntu@ip-172-31-5-21: ~/my-app

```
services:
  nodejs:
    build: ./nodejs
    networks:
      - my-network

  nginx:
    image: nginx:alpine
    volumes:
      - ./nginx/default.conf:/etc/nginx/conf.d/default.conf
    ports:
      - "80:80"
    networks:
      - my-network

networks:
  my-network:
    driver: bridge
```

~
~
~
~
~

ubuntu@ip-172-31-5-21: ~/my-app

```
server {
    listen 80;

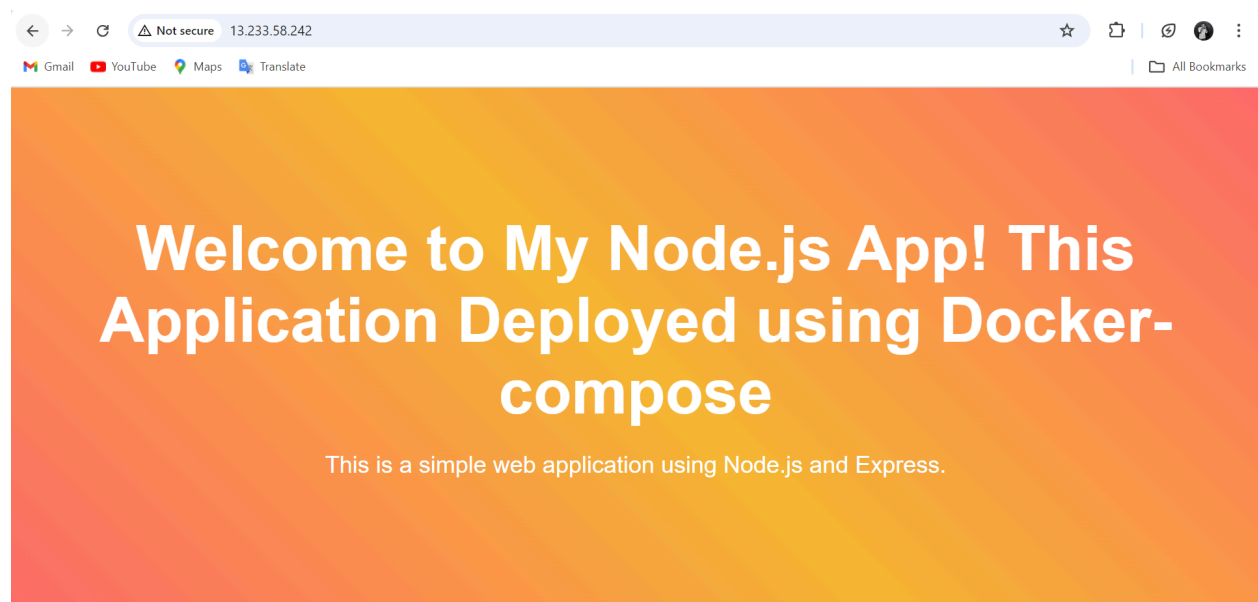
    location / {
        proxy_pass http://nodejs:3000;
        proxy_http_version 1.1;
        proxy_set_header Upgrade $http_upgrade;
        proxy_set_header Connection 'upgrade';
        proxy_set_header Host $host;
        proxy_cache_bypass $http_upgrade;
    }
}
```

~
~
~
~

```
ubuntu@ip-172-31-5-21:~/my-app$ docker-compose up --build -d
Building nodejs
DEPRECATED: The legacy builder is deprecated and will be removed in a future release.
             Install the buildx component to build images with Buildkit:
             https://docs.docker.com/go/buildx/

Sending build context to Docker daemon  6.656kB
Step 1/7 : FROM node:14
--> 1d12470fa662
Step 2/7 : WORKDIR /usr/src/app
--> Using cache
--> 7be12f6f4354
Step 3/7 : COPY package.json ./
--> Using cache
--> ee8f2ca7f54a
Step 4/7 : RUN npm install
--> Using cache
--> c4b731d60ec4
Step 5/7 : COPY . .
--> 119515e30a4b
Step 6/7 : EXPOSE 3000
--> Running in 62887b354cc6
ubuntu@ip-172-31-5-21:~/my-app$ ls
docker-compose.yml  nginx  nodejs
ubuntu@ip-172-31-5-21:~/my-app$ vim nginx/default.conf
ubuntu@ip-172-31-5-21:~/my-app$
```

Output:



Github repo: <https://github.com/safuvanh/my-app>

Give out a follow and Do connect to gain insights to Devops

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