

✅ What is Docker Compose?

Docker Compose is a tool used to **define and run multi-container Docker applications** using a YAML file (docker-compose.yml). Instead of manually running multiple containers and linking them, Compose lets you define everything in a single file and bring it up with one command.

✅ Why Use Docker Compose?

- Simplifies container orchestration (especially for multi-service apps like web + db + backend).
 - Easy to configure networking and volumes.
 - One command to start/stop all services (docker-compose up/down).
 - Great for development and testing environments.
-

✅ Basic docker-compose.yml File Example

```
version: '3'
```

```
services:
```

```
  web:
```

```
    image: nginx
```

```
    ports:
```

```
      - "8080:80"
```

```
  app:
```

```
    build: .
```

```
    ports:
```

```
      - "5000:5000"
```

```
    volumes:
```

```
      - ./app
```

```
  db:
```

```
    image: mysql:5.7
```

```
    environment:
```

```
      MYSQL_ROOT_PASSWORD: rootpass
```

```
      MYSQL_DATABASE: mydb
```

✓ Common Docker Compose Commands

Command	Purpose
docker-compose up	Build, (re)create, start containers
docker-compose up -d	Run containers in background (detached mode)
docker-compose down	Stop and remove all containers and networks defined
docker-compose build	Build images based on Dockerfile
docker-compose ps	Show running containers
docker-compose logs	View output logs from all containers
docker-compose exec <service> bash	Execute a shell inside a container

✓ Dockerfile vs Docker Compose

Dockerfile	Docker Compose
Defines how to build an image	Defines how to run one or more containers
Used for single container setup	Best for multi-container setup (e.g., app + DB)
No service orchestration	Orchestrates services together