

Docker Compose - Hands-On Notes

1. Starting Services with `docker-compose up`

Bash

```
docker-compose up
```

Purpose: Starts all services defined in `docker-compose.yml`.

Output:

Warning: `version` attribute is obsolete (safe to remove).

Network `microservices_currency-compose-network` created automatically.

Containers for `currency-exchange` and `currency-conversion` created.

Behavior: Runs in **foreground mode**, attaching logs to the terminal.

2. Running in Detached Mode

Bash

```
docker-compose up -d
```

Purpose: Starts services in the background (detached mode).

Output: Both containers started successfully.

Benefit: You can continue using the terminal while containers run.

3. Checking Running Containers

Bash

```
docker container ls
```

Shows both containers:

```
microservices-currency-exchange-1 → Port 8000.
```

```
microservices-currency-conversion-1 → Port 8100.
```

Names are **auto-prefixed** with the project name (microservices) + service name.

4. Networks Created by Compose

Bash

```
docker network ls
```

Confirms that **microservices_currency-compose-network** was created.

This is the **user-defined bridge network** specified in your Compose file.

Containers are attached to this network automatically.

5. Inspecting the Network

Bash

```
docker network inspect microservices_currency-compose-network
```

Shows details:

Subnet: 172.19.0.0/16.

Gateway: 172.19.0.1.

Containers:

currency-exchange → IP 172.19.0.2.

currency-conversion → IP 172.19.0.3.

Key Point: Containers can resolve each other by **service name** (currency-exchange) thanks to this network.

6. Stopping and Removing Services

Bash

```
docker-compose down
```

Purpose: **Stops** and **removes** containers, networks, and other resources created by Compose.

Output: Both containers removed, network deleted.

Difference from **stop**: `down` also removes the network, while `stop` only halts containers.

Additional Docker Compose Commands

Here's a quick reference for the commands you mentioned:

| Command | Purpose |
|-------------------------------------|---|
| <code>docker-compose events</code> | Stream real-time events from containers (like logs but at system level). Useful for debugging. |
| <code>docker-compose config</code> | Validates and prints the effective configuration (after resolving variables). Helps check YAML correctness. |
| <code>docker-compose images</code> | Lists images used by the services defined in the Compose file. |
| <code>docker-compose ps</code> | Shows running containers managed by Compose, similar to <code>docker ps</code> but scoped to the project. |
| <code>docker-compose top</code> | Displays running processes inside the containers. |
| <code>docker-compose pause</code> | Pauses all containers (freezes processes without stopping them). |
| <code>docker-compose unpause</code> | Resumes paused containers. |
| <code>docker-compose stop</code> | Stops containers but keeps them around (can be restarted with <code>docker-compose start</code>). |
| <code>docker-compose kill</code> | Forcefully stops containers immediately (sends SIGKILL). |