

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Warning: `version` attribute is obsolete (safe to remove).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