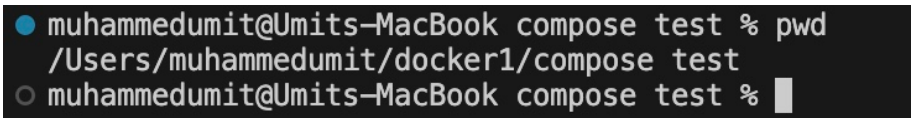
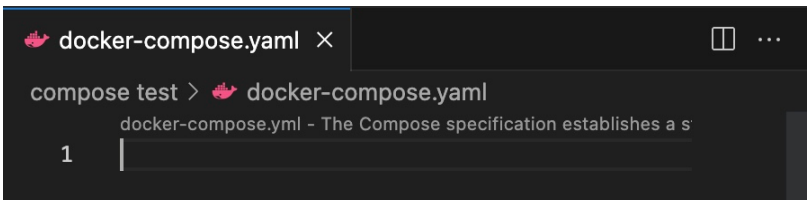
Docker Compose

Create a folder and a docker compose file

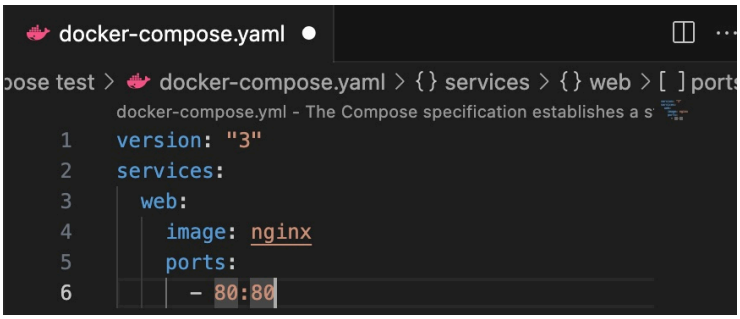
I create a project folder and cd into it by using ‘mkdir compose test’ and ‘cd compose test’



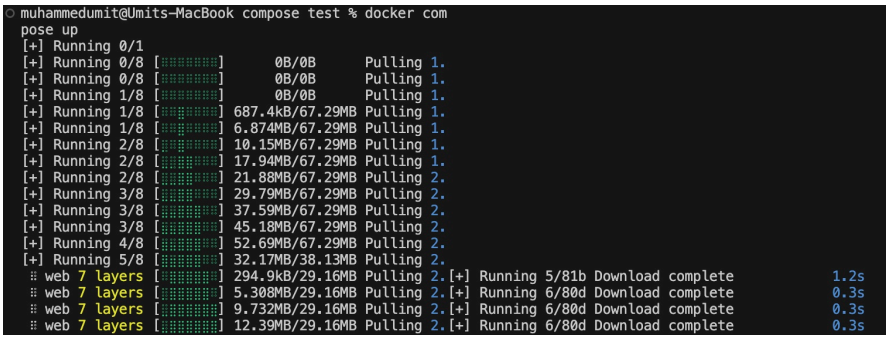
I create a docker-compose.yaml file



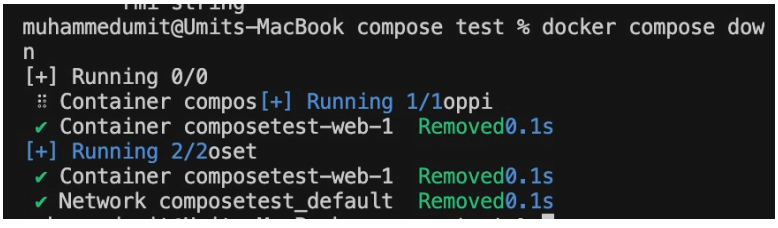
Version is 3, image Nginx, ports 80:80.



After creating yaml file, I use ‘docker compose up’ command. Compose codes define and run multi container applications with Docker.

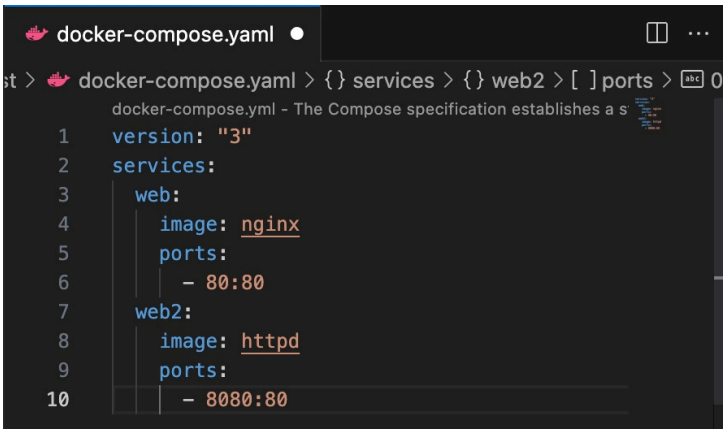


I use ‘docker compose down’ command. This command does containers, networks stop and remove.

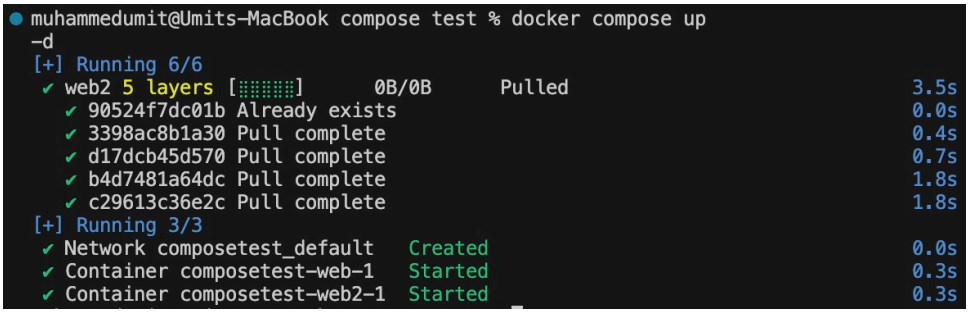


Modify Docker Compose File

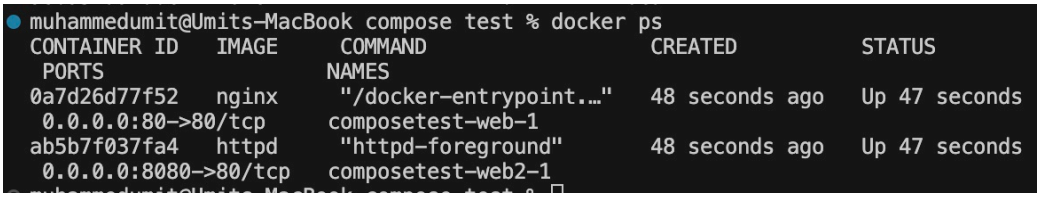
I modify docker-compose.yaml file. I add another service. The services should be on the same vertical line.
Image is httpd and ports 8080:80.



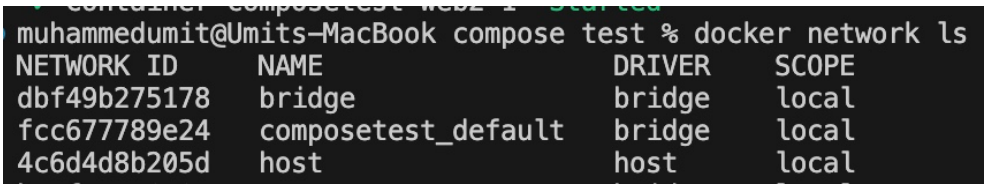
I bring up the services again by using ‘docker compose up -d’ command. -d is detached mode.



In order to check the running containers ‘docker ps’. 2 containers running.



In order to check the network list ‘docker network ls’. Docker compose creates its own network.



I tear down the service by using ‘docker compose down’ command.

```
muhammedumit@Umits-MacBook compose test % docker compose down
[+] Running 3/2
 ✔ Container composetest-web2-1  Removed                                  1.1s
 ✔ Container composetest-web-1   Removed                                  0.1s
 ✔ Network composetest_default   Removed                                  0.0s
```

The containers and network is gone as well.

```
muhammedumit@Umits-MacBook compose test % docker ps
CONTAINER ID   IMAGE     COMMAND   CREATED   STATUS    PORTS     NAMES
muhammedumit@Umits-MacBook compose test % docker ps -a
CONTAINER ID   IMAGE     COMMAND   CREATED   STATUS    PORTS     NAMES
muhammedumit@Umits-MacBook compose test % docker network ls
NETWORK ID     NAME      DRIVER    SCOPE
dbf49b275178   bridge    bridge    local
4c6d4d8b205d   host      host      local
b70fee996c84   mongo     bridge    local
980957a92d0c   none      null      local
```

Modify Docker Compose file for Networks

I add networks to the docker-compose.yaml file. This way, docker compose creates user-defined network.

docker-compose.yaml

```
compose test > docker-compose.yaml > {} services > {} web2 > [ ] networks > 0
      docker-compose.yml - The Compose specification establishes a standard for the definition of mu
1   version: "3"
2   services:
3     web:
4       image: nginx
5       networks:
6         - web-net
7       ports:
8         - 80:80
9     web2:
10      image: httpd
11      networks:
12        - web-net
13      ports:
14        - 8080:80
15  networks:
16    web-net:
```

I bring up the services by using ‘docker compose up -d’ command.

```
muhammedumit@Umits-MacBook compose test % docker compose up -d
 [+] Running 3/3
  ✔ Network composetest_web-net   Created                                  0.0s
  ✔ Container composetest-web2-1  Started                                  0.2s
  ✔ Container composetest-web-1   Started                                  0.2s
```

I check the network names by using ‘docker network ls’ command.

```
muhammedumit@Umits-MacBook compose test % docker ps
CONTAINER ID   IMAGE     COMMAND                  CREATED          STATUS
 PORTS                  NAMES
418b12a8f6da   nginx     "/docker-entrypoint.…"   33 seconds ago   Up 32 seconds
 0.0.0.0:80->80/tcp     composetest-web-1
21ad949fa402   httpd     "httpd-foreground"       33 seconds ago   Up 32 seconds
 0.0.0.0:8080->80/tcp   composetest-web2-1
muhammedumit@Umits-MacBook compose test % docker network ls
NETWORK ID     NAME                   DRIVER    SCOPE
8c622c7c8ef5   bridge                 bridge    local
60f616fe2433   composetest_web-net    bridge    local
4c6d4d8b205d   host                   host      local
980957a92d0c   none                   null      local
```

I check the containers by using ‘docker compose ps’ command.

```
muhammedumit@Umits-MacBook compose test % docker compose ps
  NAME                IMAGE               COMMAND                  SERVICE
      CREATED             STATUS              PORTS
  composetest-web-1   nginx               "/docker-entrypoint.…"   web
      20 hours ago        Up 19 hours         0.0.0.0:80->80/tcp
  composetest-web2-1  httpd               "httpd-foreground"       web2
      20 hours ago        Up 19 hours         0.0.0.0:8080->80/tcp
```

Check Network Connectivity

I connect to one of the containers by using ‘docker exec -it containerID’ command.

```
muhammedumit@Umits-MacBook compose test % docker exec -it composetest-web-1 sh
# 
```

I used curl for making HTTP requests by using ‘curl containerName’ command.

```
muhammedumit@Umits-MacBook compose test % docker exec -it composetest-web-1 sh
# curl composetest-web2-1
<html><body><h1>It works!</h1></body></html>
# 
```

I notice that with user defined network and docker compose, services can communicate with each other using their names.

I tear down the service by using ‘docker compose down’ command.

```
muhammedumit@Umits-MacBook compose test % docker compose down
  [+] Running 3/3
   ✔ Container composetest-web-1   Removed                                0.2s
   ✔ Container composetest-web2-1  Removed                                1.2s
   ✔ Network composetest_web-net   Removed                                0.0s
```