Why Docker Compose?

Till now we had seen how to create single container out of single image, but what: -

➔ if I want to run multiple container from a single image.
➔ If I want to run multiple container from multiple images.

Here docker compose comes into the scenario, we can do the above-mentioned activities with docker compose.

Docker compose is a third-party utility, with docker engine we won't get docker compose by default installed in our host machine, we need to install docker compose.

In docker compose we defines everything in declarative mode: -

Declarative mode means define everything in docker-compose.yml or docker-compose.yaml syntax

** Docker compose follows yaml syntaxing, YAML is "**YAML** Ain't Markup Language", it uses indentation methodology similar to python, those who worked on Ansible or kubernetes would be aware of YAML syntax, however in our later video of Ansible I will cover in detail what YAMl is.

** Note: dockerfile is used to create the images but docker compose is used to create the containers, many peoples get confuses over here so please note down this point.

First, we need to install docker compose, follow the steps to install docker compose: -

https://docs.docker.com/compose/install/

Either you can follow docker official website to download docker compose the link which I mentioned above or run below command: -

Step1: -

```
sudo curl -L
"https://github.com/docker/compose/releases/download/1.24.0/docker-compose-
$(uname -s)-$(uname -m)" -o /usr/local/bin/docker-compose
```

Step2: -

```
sudo chmod +x /usr/local/bin/docker-compose
```

Step3: -

```
docker-compose --version
```

```
[root@ip-172-31-24-2 ~]# sudo curl -L "https://github.com/docker/compose/releases/download/1.24.0/docker-compose-$(uname -s)-$(uname -m)" -o /usr/local/bin/docker-compose
  % Total    % Received % Xferd  Average Speed   Time    Time     Time  Current
                                 Dload  Upload   Total   Spent    Left  Speed
100   617    0   617    0     0   1957      0 --:--:-- --:--:-- --:--:--  1958
100 15.4M  100 15.4M    0     0   4149k      0  0:00:03  0:00:03 --:--:-- 6619k
[root@ip-172-31-24-2 ~]# sudo chmod +x /usr/local/bin/docker-compose
[root@ip-172-31-24-2 ~]# docker-compose --version
docker-compose version 1.24.0, build 0aa59064
[root@ip-172-31-24-2 ~]#
```

Now we will see how we can run any docker compose file: -

docker-compose -f compose_file_name.yml up –scale module_name=count_no. -d

If you can see in below snap when I had given app=3 I am getting error like no such service, but in next step you will see it runs fine, actually all the time we need to mention –scale when we run the services, which many peoples misses.

```
[root@ip-172-31-24-2 docker-compose]# ls
compose.yml  day2.txt  docker-compose1.yml  docker-compose2.yml  docker-compose-stack.yml
[root@ip-172-31-24-2 docker-compose]# cat compose.yml
version: '3'
services:
  web:
    image: nginx
    ports:
      - "80"
    volumes:
      - /home/dockerlabs/dockerfiles/:/var/www/html
  app:
    image: tomcat
    ports:
      - "8080"

[root@ip-172-31-24-2 docker-compose]# docker images
REPOSITORY            TAG                 IMAGE ID            CREATED            SIZE
[root@ip-172-31-24-2 docker-compose]# docker ps
CONTAINER ID        IMAGE               COMMAND             CREATED            STATUS
[root@ip-172-31-24-2 docker-compose]# docker-compose -f compose.yml up --scale web=2 app=3 -d
Creating network "docker-compose_default" with the default driver
ERROR: No such service: app=3
[root@ip-172-31-24-2 docker-compose]# docker-compose -f compose.yml up --scale web=2 -d
Pulling web (nginx:)...
latest: Pulling from library/nginx
fc7181108d40: Pull complete
c4277fc40ec2: Pull complete
780053e98559: Pull complete
Digest: sha256:bdbf36b7f1f77ffe7bd2a32e59235dff6ecf131e3b6b5b96061c652f30685f3a
Status: Downloaded newer image for nginx:latest
Pulling app (tomcat:)...
latest: Pulling from library/tomcat
6f2f362378c5: Pull complete
494c27a8a6b8: Pull complete
7596bb83081b: Pull complete
372744b62d49: Pull complete
```

See in below snap when I had given –scale with app as well then, I am not getting error of no such services, so please keep in mind when running any no. of images.

```
[root@ip-172-31-24-2 docker-compose]# cat compose.yml
version: '3'
services:
  web:
    image: nginx
    ports:
      - "80"
    volumes:
      - /home/dockerlabs/dockerfiles/:/var/www/html
  app:
    image: tomcat
    ports:
      - "8080"

[root@ip-172-31-24-2 docker-compose]# docker images
REPOSITORY          TAG            IMAGE ID          CREATED          SIZE
tomcat              latest         5377fd8533c3      39 hours ago     506MB
nginx               latest         719cd2e3ed04      5 days ago       109MB
[root@ip-172-31-24-2 docker-compose]# docker ps
CONTAINER ID        IMAGE          COMMAND          CREATED          STATUS          PORTS                NAMES
[root@ip-172-31-24-2 docker-compose]# docker-compose -f compose.yml up --scale web=2 --scale app=3 -d
Creating docker-compose_app_1 ... done
Creating docker-compose_app_2 ... done
Creating docker-compose_app_3 ... done
Creating docker-compose_web_1 ... done
Creating docker-compose_web_2 ... done
[root@ip-172-31-24-2 docker-compose]# docker ps
CONTAINER ID        IMAGE          COMMAND                  CREATED          STATUS          PORTS                     NAMES
005156c51b33        nginx          "nginx -g 'daemon ..."   9 seconds ago    Up 6 seconds    0.0.0.0:32774->80/tcp     docker-comp
ose_web_2
556e09b6cdbb        nginx          "nginx -g 'daemon ..."   9 seconds ago    Up 6 seconds    0.0.0.0:32775->80/tcp     docker-comp
ose_web_1
3c344374df48        tomcat         "catalina.sh run"        9 seconds ago    Up 6 seconds    0.0.0.0:32772->8080/tcp   docker-comp
ose_app_1
f4906f7035c5        tomcat         "catalina.sh run"        9 seconds ago    Up 7 seconds    0.0.0.0:32773->8080/tcp   docker-comp
ose_app_2
12e8ba15e39e        tomcat         "catalina.sh run"        9 seconds ago    Up 7 seconds    0.0.0.0:32771->8080/tcp   docker-comp
ose_app_3
```

We can bring down all containers or desired containers by running the command down or –scale to the desired count.

```
[root@ip-172-31-24-2 docker-compose]# docker ps
CONTAINER ID        IMAGE          COMMAND                  CREATED          STATUS          PORTS                     NAMES
62b892814dce        tomcat         "catalina.sh run"        32 seconds ago   Up 30 seconds   0.0.0.0:32770->8080/tcp   docker-comp
ose_app_1
0c5bf0b07802        nginx          "nginx -g 'daemon ..."   32 seconds ago   Up 31 seconds   0.0.0.0:32769->80/tcp     docker-comp
ose_web_1
68dd187134ff        nginx          "nginx -g 'daemon ..."   32 seconds ago   Up 30 seconds   0.0.0.0:32768->80/tcp     docker-comp
ose_web_2
[root@ip-172-31-24-2 docker-compose]# docker-compose -f compose.yml down
Stopping docker-compose_app_1 ... done
Stopping docker-compose_web_1 ... done
Stopping docker-compose_web_2 ... done
Removing docker-compose_app_1 ... done
Removing docker-compose_web_1 ... done
Removing docker-compose_web_2 ... done
Removing network docker-compose_default
[root@ip-172-31-24-2 docker-compose]# docker ps
CONTAINER ID        IMAGE          COMMAND          CREATED          STATUS          PORTS                NAMES
[root@ip-172-31-24-2 docker-compose]#
```