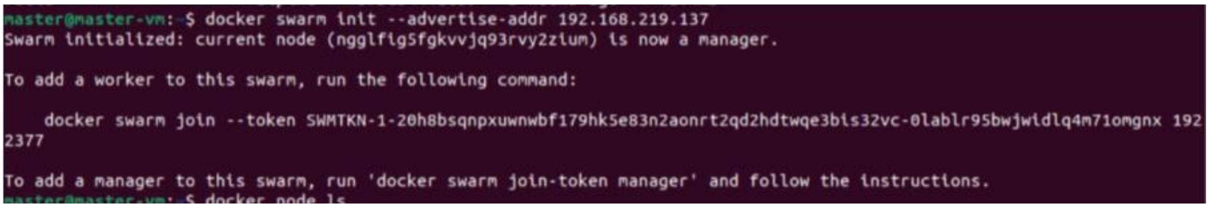
Assignment 3: Multi node Docker Swarm

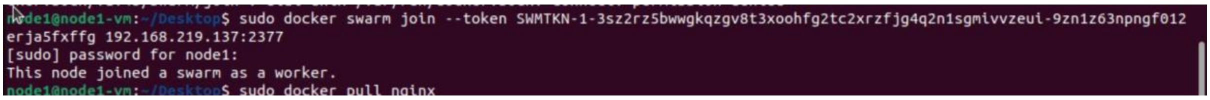
1. **Initialize the docker swarm**



```
master@master-vm:~$ docker swarm init --advertise-addr 192.168.219.137
Swarm initialized: current node (ngglfig5fgkvvjq93rvy2zium) is now a manager.

To add a worker to this swarm, run the following command:

    docker swarm join --token SWMTKN-1-20h8bsqnpxuwnwbf179hk5e83n2aonrt2qd2hdtwqe3bis32vc-0lablr95bwjwidlq4m71omgnx 192
2377

To add a manager to this swarm, run 'docker swarm join-token manager' and follow the instructions.
master@master-vm:~$ docker node ls
```

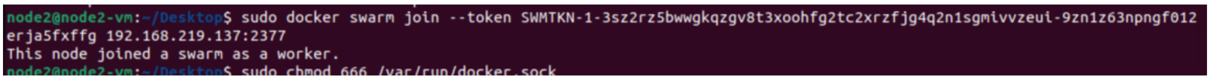
2. **Run the token in the nodes**

Node1:



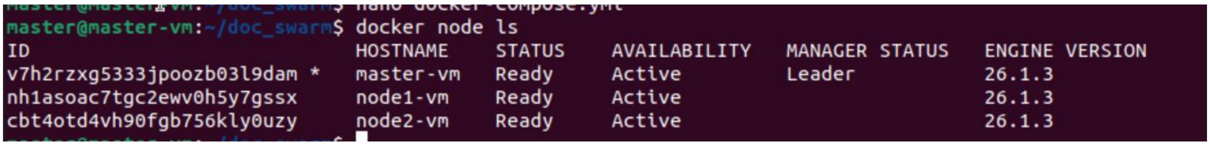
```
node1@node1-vm:~/Desktop$ sudo docker swarm join --token SWMTKN-1-3sz2rz5bwwgkqzgv8t3xoohfg2tc2xrzfjg4q2n1sgmivvzeui-9zn1z63npngf012
erja5fxffg 192.168.219.137:2377
[sudo] password for node1:
This node joined a swarm as a worker.
node1@node1-vm:~/Desktop$ sudo docker pull nginx
```

Node2:



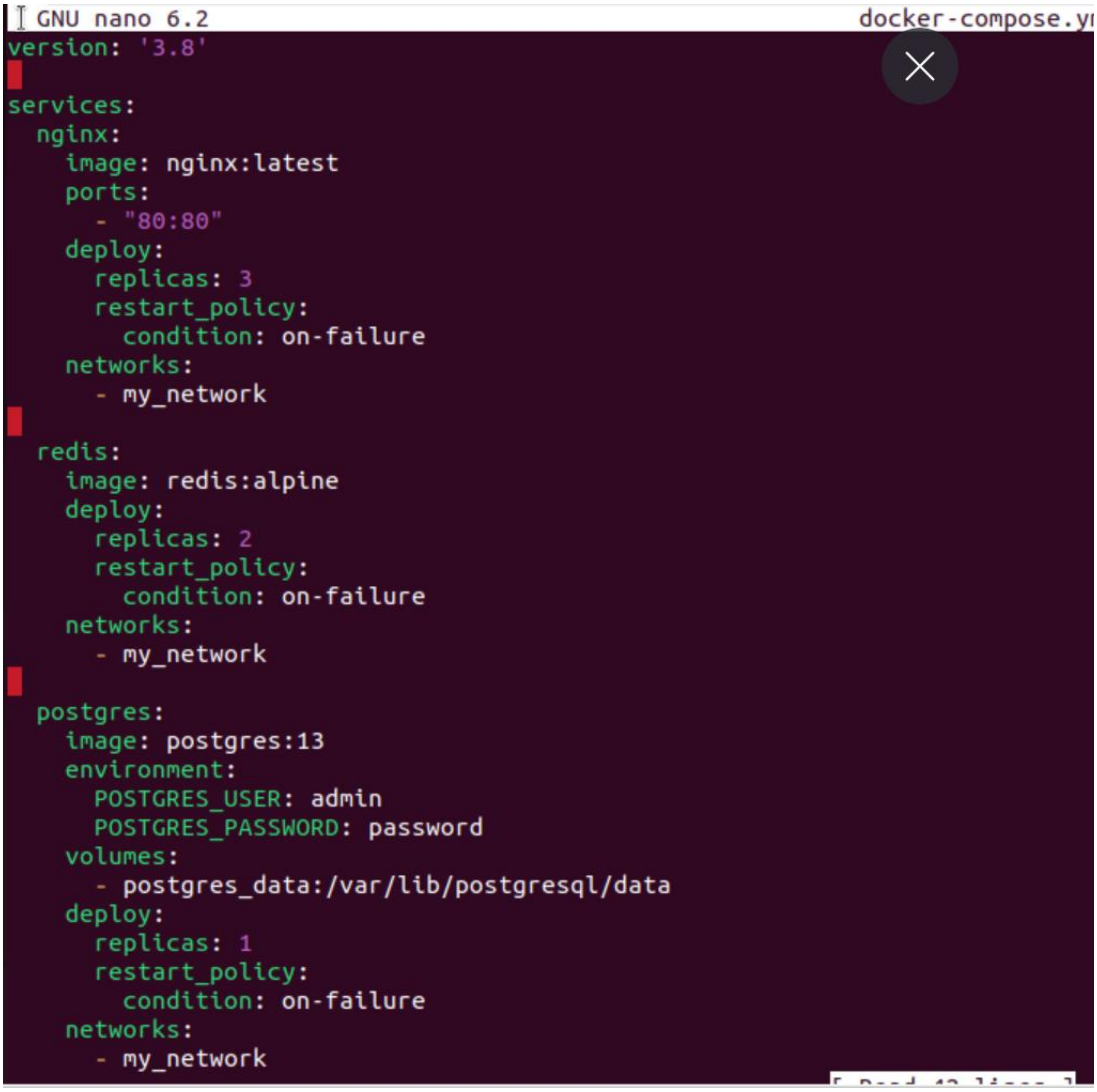
```
node2@node2-vm:~/Desktop$ sudo docker swarm join --token SWMTKN-1-3sz2rz5bwwgkqzgv8t3xoohfg2tc2xrzfjg4q2n1sgmivvzeui-9zn1z63npngf012
erja5fxffg 192.168.219.137:2377
This node joined a swarm as a worker.
node2@node2-vm:~/Desktop$ sudo chmod 666 /var/run/docker.sock
```

3. **Verify the nodes that are part of swarm**



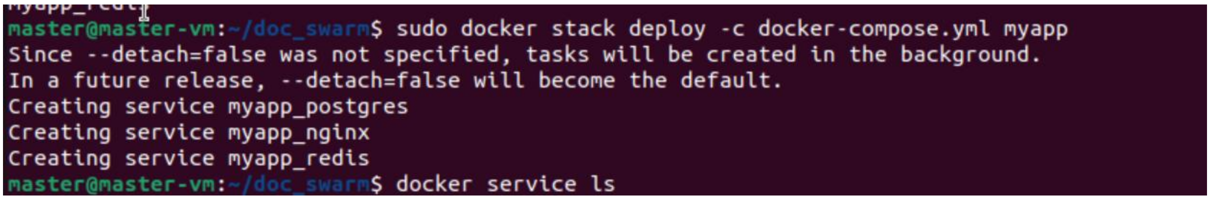
```
master@master-vm:~/doc_swarm$ nano docker-compose.yml
master@master-vm:~/doc_swarm$ docker node ls
ID                            HOSTNAME    STATUS    AVAILABILITY   MANAGER STATUS   ENGINE VERSION
v7h2rzxg5333jpoozb03l9dam *   master-vm   Ready     Active         Leader           26.1.3
nh1asoac7tgc2ewv0h5y7gssx     node1-vm    Ready     Active                          26.1.3
cbt4otd4vh90fgb756kly0uzy     node2-vm    Ready     Active                          26.1.3
master@master-vm:~/doc_swarm$
```

4. **Create a directory and create docker-compose.yml file**



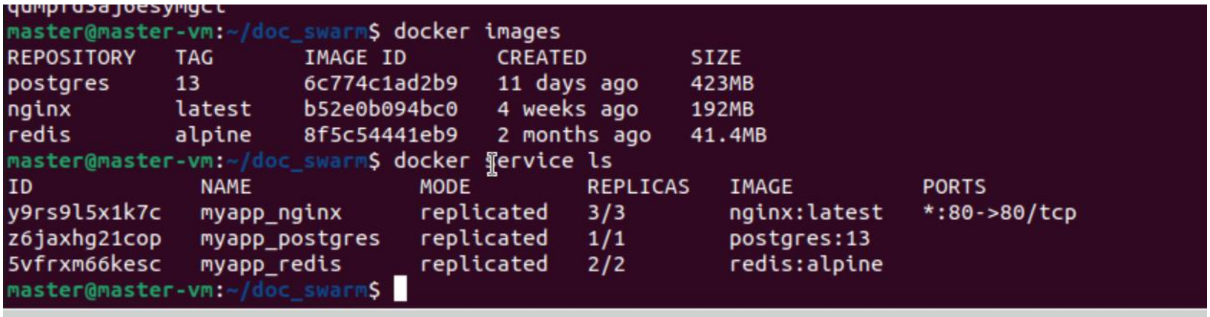
```
GNU nano 6.2                                                docker-compose.y
version: '3.8'

services:
  nginx:
    image: nginx:latest
    ports:
      - "80:80"
    deploy:
      replicas: 3
      restart_policy:
        condition: on-failure
    networks:
      - my_network

  redis:
    image: redis:alpine
    deploy:
      replicas: 2
      restart_policy:
        condition: on-failure
    networks:
      - my_network

  postgres:
    image: postgres:13
    environment:
      POSTGRES_USER: admin
      POSTGRES_PASSWORD: password
    volumes:
      - postgres_data:/var/lib/postgresql/data
    deploy:
      replicas: 1
      restart_policy:
        condition: on-failure
    networks:
      - my_network
                                                          [ Read 42 lines ]
```

5. **Run the compose file**



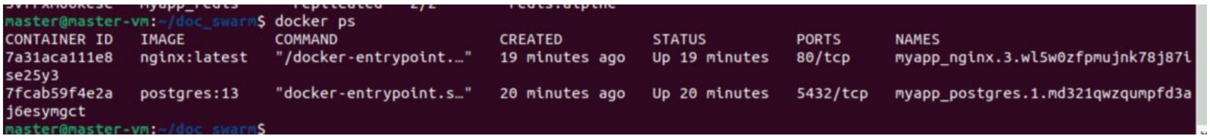
```
master@master-vm:~/doc_swarm$ sudo docker stack deploy -c docker-compose.yml myapp
Since --detach=false was not specified, tasks will be created in the background.
In a future release, --detach=false will become the default.
Creating service myapp_postgres
Creating service myapp_nginx
Creating service myapp_redis
master@master-vm:~/doc_swarm$ docker service ls
```

6. **See the list of services running in multiple nodes**



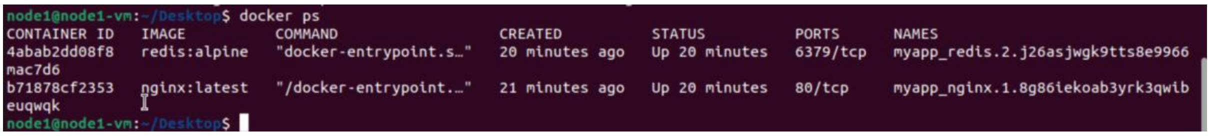
```
master@master-vm:~/doc_swarm$ docker images
REPOSITORY   TAG       IMAGE ID       CREATED        SIZE
postgres     13        6c774c1ad2b9   11 days ago    423MB
nginx        latest    b52e0b094bc0   4 weeks ago    192MB
redis        alpine    8f5c54441eb9   2 months ago   41.4MB
master@master-vm:~/doc_swarm$ docker service ls
ID             NAME             MODE         REPLICAS   IMAGE           PORTS
y9rs9l5x1k7c   myapp_nginx      replicated   3/3        nginx:latest    *:80->80/tcp
z6jaxhg21cop   myapp_postgres   replicated   1/1        postgres:13
5vfrxm66kesc   myapp_redis      replicated   2/2        redis:alpine
master@master-vm:~/doc_swarm$
```

MASTER NODE:



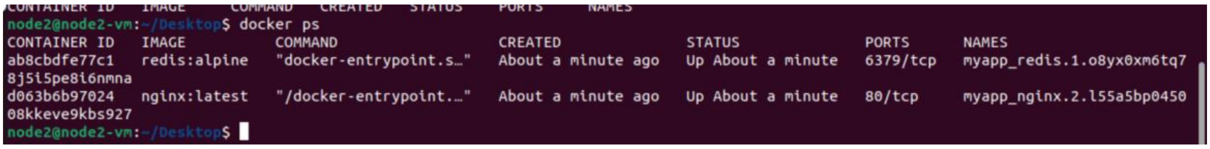
```
master@master-vm:~/doc_swarm$ docker ps
CONTAINER ID   IMAGE          COMMAND                  CREATED          STATUS          PORTS      NAMES
7a31aca111e8   nginx:latest   "/docker-entrypoint.…"   19 minutes ago   Up 19 minutes   80/tcp     myapp_nginx.3.wl5w0zfpmujnk78j87i
se25y3
7fcab59f4e2a   postgres:13    "docker-entrypoint.s…"   20 minutes ago   Up 20 minutes   5432/tcp   myapp_postgres.1.md321qwzqumpfd3a
j6esymgct
master@master-vm:~/doc_swarm$
```

NODE 1:



```
node1@node1-vm:~/Desktop$ docker ps
CONTAINER ID   IMAGE          COMMAND                  CREATED          STATUS          PORTS      NAMES
4abab2dd08f8   redis:alpine   "docker-entrypoint.s…"   20 minutes ago   Up 20 minutes   6379/tcp   myapp_redis.2.j26asjwgk9tts8e9966
mac7d6
b71878cf2353   nginx:latest   "/docker-entrypoint.…"   21 minutes ago   Up 20 minutes   80/tcp     myapp_nginx.1.8g86iekoab3yrk3qwib
euqwqk
node1@node1-vm:~/Desktop$
```

NODE 2:



```
node2@node2-vm:~/Desktop$ docker ps
CONTAINER ID   IMAGE          COMMAND                  CREATED              STATUS              PORTS      NAMES
ab8cbdfe77c1   redis:alpine   "docker-entrypoint.s…"   About a minute ago   Up About a minute   6379/tcp   myapp_redis.1.o8yx0xm6tq7
8j5i5pe8i6nmna
d063b6b97024   nginx:latest   "/docker-entrypoint.…"   About a minute ago   Up About a minute   80/tcp     myapp_nginx.2.l55a5bp0450
08kkeve9kbs927
node2@node2-vm:~/Desktop$
```