In docker swarm we have two types of node

Manager Node
Worker Node

Manager nodes manages the task we need to execute
Worker Node is used to execute task

Manager nodes need to have full access of worker node

Worker node connect with master node using api via HTTP

Docker Swarm Working -

Services can be deployed and accessed by any node of the same cluster
While creating a service a user has to specify which container image to use

Here a service is either global or replicated.

A global service is run on every swarm node

In a replicated service, the manager node distributes to worker nodes.

A service is a description of task
We can also define a service when to start task
It is possible to have multiple manager nodes or swarm, but there will be primary manager node which get elected by the other manager nodes.

Manager Node

API - based on CLI command a service is created
Orchestration Node - Create task for service
Task allocation - allocates IP address of worker node
Dispatch and scheduler - assign and instructs worker node on tasks

Worker Node connect to manager node
Check the tasks and execute the tasks

Create two server one manager and one worker

Install docker in manager and worker node

Default Port No. 2377. However open all port for test purpose

Step 1: Initialize the Swarm on the Manager Node

Log in to the machine you want to make the Swarm manager and run:

docker swarm init --advertise-addr <MANAGER-IP>

Use public IP

```
ubuntu@ip-172-31-86-70:~$ docker swarm init --advertise-addr 34.238.243.154
permission denied while trying to connect to the Docker daemon socket at unix:///var/run/docker.s
ock: Post "http://%2Fvar%2Frun%2Fdocker.sock/v1.45/swarm/init": dial unix /var/run/docker.sock: c
onnect: permission denied
ubuntu@ip-172-31-86-70:~$ sudo docker swarm init --advertise-addr 34.238.243.154
Swarm initialized: current node (isjvhj6qlypxevcv619fmsby7) is now a manager.

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

    docker swarm join --token SWMTKN-1-5b0esx2oeoqxj115c8viz3vunywz8124cgcfccimpmpslh0nvy-5cigtfy
csp9zyb6sjqhd7pkqe 34.238.243.154:2377

To add a manager to this swarm, run 'docker swarm join-token manager' and follow the instructions
.

ubuntu@ip-172-31-86-70:~$
```

Run the command on worker node

```
ubuntu@ip-172-31-88-22:~$ sudo docker swarm join --token SWMTKN-1-5b0esx2oeoqxj115c8viz3vunywz8124
cgcfccimpmpslh0nvy-5cigtfycsp9zyb6sjqhd7pkqe 34.238.243.154:2377
This node joined a swarm as a worker.
ubuntu@ip-172-31-88-22:~$
```

On master node

Run the command to check sudo docker node ls

```
ubuntu@ip-172-31-86-70:~$ sudo docker node ls
ID                            HOSTNAME          STATUS    AVAILABILITY   MANAGER STATUS   ENGINE
VERSION
isjvhj6qlypxevcv619fmsby7 *   ip-172-31-86-70   Ready     Active         Leader           26.1.3
qfynje9rey990egvszs4ahx9l     ip-172-31-88-22   Ready     Active                          26.1.3
ubuntu@ip-172-31-86-70:~$
```

To test master node run command

sudo docker service create --name myweb --replicas 3 -p 80:80 nginx

```
ubuntu@ip-172-31-86-70:~$ sudo docker service create --name myweb --replicas 3 -p 80:80 nginx
ovm2kobdbz0b1ookfoblzs1k5
overall progress: 3 out of 3 tasks
1/3: running
2/3: running
3/3: running
verify: Service ovm2kobdbz0b1ookfoblzs1k5 converged
ubuntu@ip-172-31-86-70:~$
```

Execution will be done on worker node

```
ubuntu@ip-172-31-88-22:~$ sudo docker ps -a
CONTAINER ID   IMAGE          COMMAND                  CREATED              STATUS              PO
RTS     NAMES
59fb5741561e   nginx:latest   "/docker-entrypoint.…"   About a minute ago   Up About a minute   80
/tcp    myweb.2.cz8lm3ghwqmr22mn83v9ps0o9
3944e6becf4c   nginx:latest   "/docker-entrypoint.…"   About a minute ago   Up About a minute   80
/tcp    myweb.3.k5vztx3tn89fi3z9pdhcfx6mr
ubuntu@ip-172-31-88-22:~$
```