

Deploying webapp Service on Docker Swarm

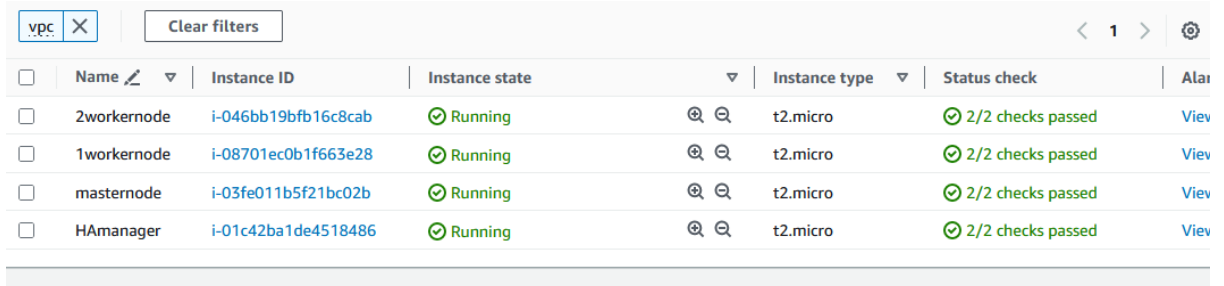
- 1) Setup Docker Swarm cluster by deploying 1 Manager, 1 manager HA and 2 nodes.
- 2) Make sure Swarm is initialized.
- 3) 1 HA manager is configured.
- 4) Now stop Manager1 EC2 instance and make sure HA manager takes up role of Manager and try to deploy Docker service now.
- 5) Now make HA manager also down.
- 6) One of node should become manager as both manager and HA manager are down.
- 7) Try to deploy Docker service now and check if it is successful.

NOTE – For all scenarios Student need to take screenshot and attached in their attachments

Scenario 1 – 1 manager node, 1 manager HA node , 2 worker node

Steps to follow –

1. Create ec2 instance

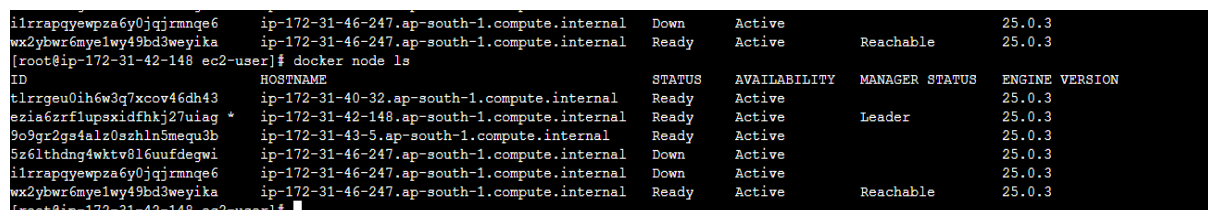


<input type="checkbox"/>	Name	Instance ID	Instance state	Instance type	Status check	Alarm
<input type="checkbox"/>	2workernode	i-046bb19bfb16c8cab	Running	t2.micro	2/2 checks passed	View
<input type="checkbox"/>	1workernode	i-08701ec0b1f663e28	Running	t2.micro	2/2 checks passed	View
<input type="checkbox"/>	masternode	i-03fe011b5f21bc02b	Running	t2.micro	2/2 checks passed	View
<input type="checkbox"/>	HAmanger	i-01c42ba1de4518486	Running	t2.micro	2/2 checks passed	View

Allow port -2377

2. Install docker on all ec2 instances
3. Cmd for manager –
Docker swarm init
4. You can join as a node or manger –
docker swarm join-token worker/manager

scenario 1- all the 2 nodes and manger is up and running and manager ha is also reachable



ID	HOSTNAME	STATUS	AVAILABILITY	MANAGER STATUS	ENGINE VERSION
tlrrgeu0ih6w3q7xcov46dh43	ip-172-31-40-32.ap-south-1.compute.internal	Ready	Active		25.0.3
ezia6zrflupsxidfhkj27uiag *	ip-172-31-42-148.ap-south-1.compute.internal	Ready	Active	Leader	25.0.3
9o9gr2gs4alz0szhln5mequ3b	ip-172-31-43-5.ap-south-1.compute.internal	Ready	Active		25.0.3
5z6lthdng4wktv8l6uufdegwi	ip-172-31-46-247.ap-south-1.compute.internal	Down	Active		25.0.3
ilrrapqyewpza6y0jqjrmnge6	ip-172-31-46-247.ap-south-1.compute.internal	Down	Active		25.0.3
wx2ybwrmeyelwy49bd3weyika	ip-172-31-46-247.ap-south-1.compute.internal	Ready	Active	Reachable	25.0.3

Scenario 2 – now turning off manager

Now manager HA performing the manger work

```
It could be a YUM plugin command, try: "yum install 'dnf-command(docker)'"
[root@ip-172-31-46-247 ec2-user]# yum install docker
Last metadata expiration check: 2:46:56 ago on Wed Apr 17 12:16:40 2024.
Package docker-25.0.3-1.amzn2023.0.1.x86_64 is already installed.
Dependencies resolved.
Nothing to do.
Complete!
[root@ip-172-31-46-247 ec2-user]# service docker start
Redirecting to /bin/systemctl start docker.service
[root@ip-172-31-46-247 ec2-user]#
[root@ip-172-31-46-247 ec2-user]# docker node ls
Error response from daemon: rpc error: code = Unknown desc = The swarm does not have a leader. It's possible that too few managers are online.
ke sure more than half of the managers are online.
[root@ip-172-31-46-247 ec2-user]# docker node ls


| ID                          | HOSTNAME                                     | STATUS | AVAILABILITY | MANAGER STATUS | ENGINE VERSION |
|-----------------------------|----------------------------------------------|--------|--------------|----------------|----------------|
| tlrrgeu0ih6w3q7xcov46dh43   | ip-172-31-40-32.ap-south-1.compute.internal  | Ready  | Active       |                | 25.0.3         |
| ezia6zrflupaxidfhkj27uiag   | ip-172-31-42-148.ap-south-1.compute.internal | Ready  | Active       | Reachable      | 25.0.3         |
| 9o9gr2gs4al20szhln5mequ3b   | ip-172-31-43-5.ap-south-1.compute.internal   | Ready  | Active       |                | 25.0.3         |
| 5z6lthdng4wktv8l6uufdegwi   | ip-172-31-46-247.ap-south-1.compute.internal | Down   | Active       |                | 25.0.3         |
| ilrrapqyewpza6y0jqrmmqe6    | ip-172-31-46-247.ap-south-1.compute.internal | Down   | Active       |                | 25.0.3         |
| wx2ybwrmeyelwy49bd3weyika * | ip-172-31-46-247.ap-south-1.compute.internal | Ready  | Active       | Leader         | 25.0.3         |


[root@ip-172-31-46-247 ec2-user]#
```

```
Last login: Wed Apr 17 14:32:48 2024 from 13.233.177.5
[ec2-user@ip-172-31-42-148 ~]$ sudo su -
Last login: Wed Apr 17 14:33:22 UTC 2024 on pts/1
[root@ip-172-31-42-148 ~]# docker node ls


| ID                          | HOSTNAME                                     | STATUS  | AVAILABILITY | MANAGER STATUS | ENGINE VERSION |
|-----------------------------|----------------------------------------------|---------|--------------|----------------|----------------|
| tlrrgeu0ih6w3q7xcov46dh43   | ip-172-31-40-32.ap-south-1.compute.internal  | Ready   | Active       |                | 25.0.3         |
| ezia6zrflupaxidfhkj27uiag * | ip-172-31-42-148.ap-south-1.compute.internal | Unknown | Active       |                | 25.0.3         |
| 9o9gr2gs4al20szhln5mequ3b   | ip-172-31-43-5.ap-south-1.compute.internal   | Ready   | Active       | Reachable      | 25.0.3         |
| 5z6lthdng4wktv8l6uufdegwi   | ip-172-31-46-247.ap-south-1.compute.internal | Down    | Active       |                | 25.0.3         |
| ilrrapqyewpza6y0jqrmmqe6    | ip-172-31-46-247.ap-south-1.compute.internal | Down    | Active       |                | 25.0.3         |
| wx2ybwrmeyelwy49bd3weyika * | ip-172-31-46-247.ap-south-1.compute.internal | Unknown | Active       | Leader         | 25.0.3         |


[root@ip-172-31-42-148 ~]#
```

Deployed webapp1 service using manager HA

```
Error response from daemon: rpc error: code = Unknown desc = The swarm does not have a leader. It's possible that too few managers are online. Ma
ke sure more than half of the managers are online.
[root@ip-172-31-46-247 ec2-user]# docker node ls


| ID                          | HOSTNAME                                     | STATUS | AVAILABILITY | MANAGER STATUS | ENGINE VERSION |
|-----------------------------|----------------------------------------------|--------|--------------|----------------|----------------|
| tlrrgeu0ih6w3q7xcov46dh43   | ip-172-31-40-32.ap-south-1.compute.internal  | Ready  | Active       |                | 25.0.3         |
| ezia6zrflupaxidfhkj27uiag   | ip-172-31-42-148.ap-south-1.compute.internal | Ready  | Active       | Reachable      | 25.0.3         |
| 9o9gr2gs4al20szhln5mequ3b   | ip-172-31-43-5.ap-south-1.compute.internal   | Ready  | Active       |                | 25.0.3         |
| 5z6lthdng4wktv8l6uufdegwi   | ip-172-31-46-247.ap-south-1.compute.internal | Down   | Active       |                | 25.0.3         |
| ilrrapqyewpza6y0jqrmmqe6    | ip-172-31-46-247.ap-south-1.compute.internal | Down   | Active       |                | 25.0.3         |
| wx2ybwrmeyelwy49bd3weyika * | ip-172-31-46-247.ap-south-1.compute.internal | Ready  | Active       | Leader         | 25.0.3         |


[root@ip-172-31-46-247 ec2-user]# docker service create --name webapp --replicas 3 nginx
Error response from daemon: rpc error: code = AlreadyExists desc = name conflicts with an existing object: service webapp already exists
[root@ip-172-31-46-247 ec2-user]# docker service create --name webapp --replicas 3 nginx
Error response from daemon: rpc error: code = AlreadyExists desc = name conflicts with an existing object: service webapp already exists
[root@ip-172-31-46-247 ec2-user]# docker service create --name webapp1 --replicas 3 nginx
8hk7segbhklr6ulbr22kkg8i
overall progress: 3 out of 3 tasks
1/3: running [=====>]
2/3: running [=====>]
3/3: running [=====>]
verify: Service converged
[root@ip-172-31-46-247 ec2-user]#
```

Docker service not able to deploy when mangers are down

```
Last login: Wed Apr 17 14:59:43 2024 from 13.233.177.5
[ec2-user@ip-172-31-43-5 ~]$ sudo su
[root@ip-172-31-43-5 ec2-user]# service docker start
Redirecting to /bin/systemctl start docker.service
[root@ip-172-31-43-5 ec2-user]# docker ps


| CONTAINER ID | IMAGE        | COMMAND                 | CREATED        | STATUS        | PORTS  | NAMES                               |
|--------------|--------------|-------------------------|----------------|---------------|--------|-------------------------------------|
| bc3e3324c601 | nginx:latest | "/docker-entrypoint..." | 6 minutes ago  | Up 6 minutes  | 80/tcp | webapp1.2.ystei9wu06y94jjgs7mt30e18 |
| 7f2c80a1fbc5 | nginx:latest | "/docker-entrypoint..." | 22 minutes ago | Up 22 minutes | 80/tcp | webapp.1.22u87pc9dga19sweo3bz286az  |


[root@ip-172-31-43-5 ec2-user]# docker node ls
Error response from daemon: This node is not a swarm manager. Worker nodes can't be used to view or modify cluster state. Please run this command o
manager node or promote the current node to a manager.
[root@ip-172-31-43-5 ec2-user]# docker service create --name webapp3 --replicas 3 nginx
Error response from daemon: This node is not a swarm manager. Worker nodes can't be used to view or modify cluster state. Please run this command o
manager node or promote the current node to a manager.
[root@ip-172-31-43-5 ec2-user]# docker service create --name webapp3 --replicas 3 nginx
Error response from daemon: This node is not a swarm manager. Worker nodes can't be used to view or modify cluster state. Please run this command o
manager node or promote the current node to a manager.
[root@ip-172-31-43-5 ec2-user]#
```

