PRACTICA ALTA DISPONIBILITAT AMB DOCKER SWARM I STACK

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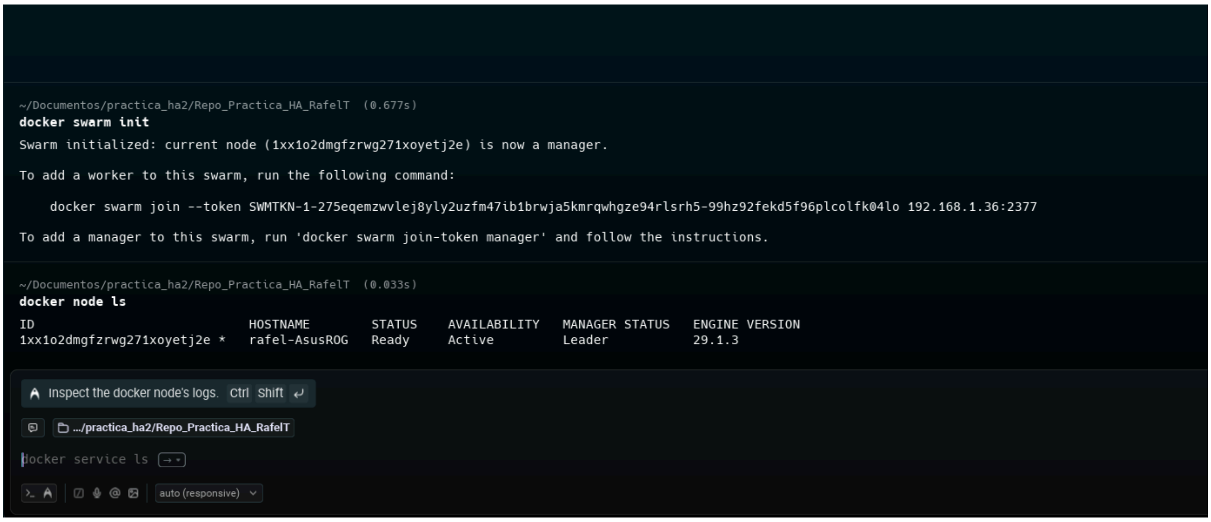
PART 1: Execució de la comanda “docker swarm init”:

·En el meu cas, actualment estic en el linux i execut la comanda corresponent

·Podem veure que la comanda ha funcionat corrèctament i que hi ha un node correguent:

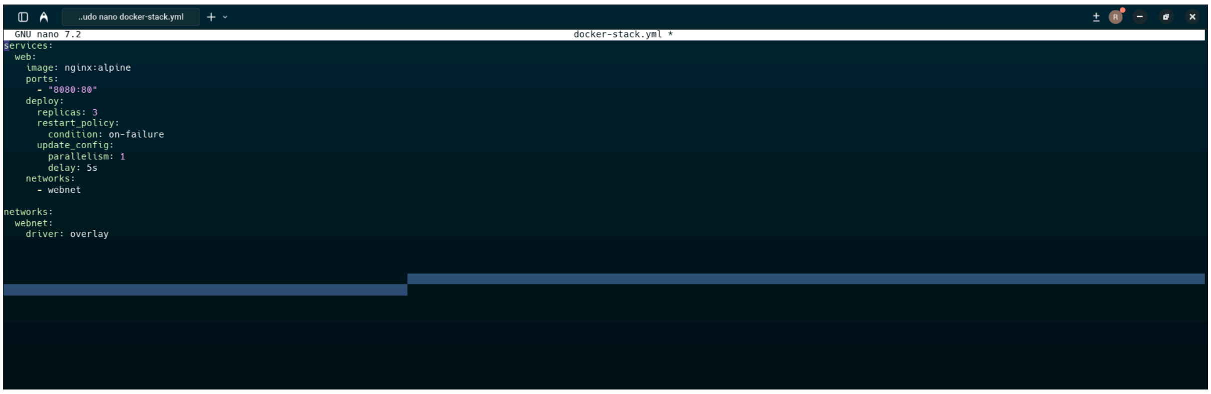


```
~/Documentos/practica_ha2/Repo_Practica_HA_RafelT  (0.677s)
docker swarm init
Swarm initialized: current node (1xx1o2dmgfzrwg271xoyetj2e) is now a manager.

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

    docker swarm join --token SWMTKN-1-275eqemzwvlej8yly2uzfm47ib1brwja5kmrqwhgze94rlsrh5-99hz92fekd5f96plcolfk04lo 192.168.1.36:2377

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

~/Documentos/practica_ha2/Repo_Practica_HA_RafelT  (0.033s)
docker node ls
ID                            HOSTNAME        STATUS    AVAILABILITY   MANAGER STATUS   ENGINE VERSION
1xx1o2dmgfzrwg271xoyetj2e *   rafel-AsusROG   Ready     Active         Leader           29.1.3
```

Inspect the docker node's logs. Ctrl Shift
.../practica_ha2/Repo_Practica_HA_RafelT
docker service ls
auto (responsive)

PART 2: Creació de l’arxiu docker-stack.yml:

- Dins la carpeta del meu repositori he creat el arxiu corresponent amb la configuració que ens ha proporcionat el professor:



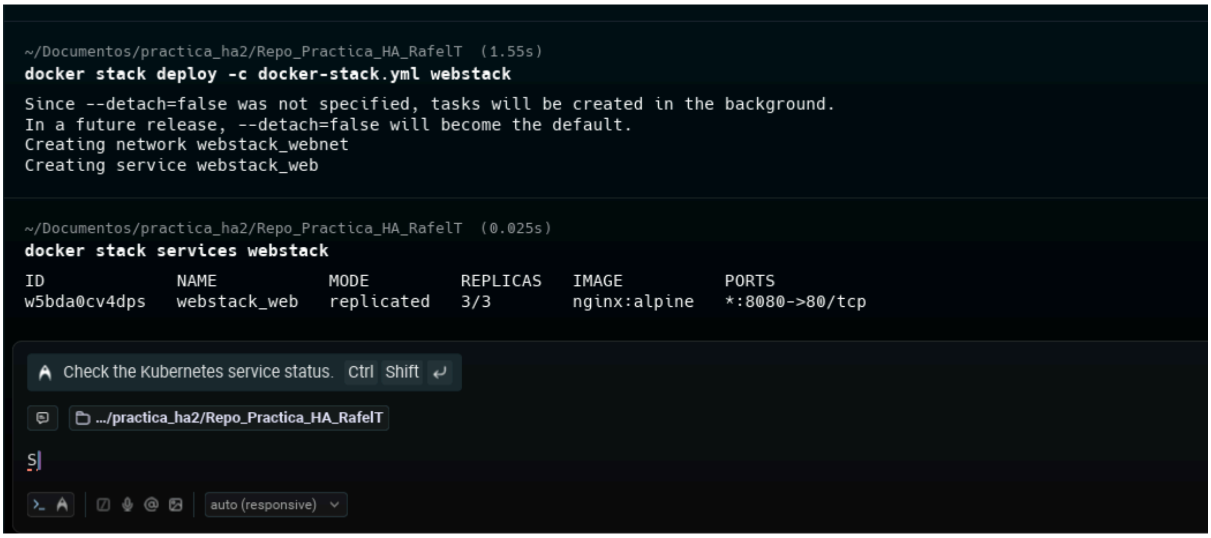
```
 GNU nano 7.2                                   docker-stack.yml *
services:
  web:
    image: nginx:alpine
    ports:
      - "8080:80"
    deploy:
      replicas: 3
      restart_policy:
        condition: on-failure
      update_config:
        parallelism: 1
        delay: 5s
    networks:
      - webnet

networks:
  webnet:
    driver: overlay
```

Part 3: Desplegament del nostre docker stack utilitzant el docker-stack.yml:

- Executam la comanda: docker stack deploy -c docker-stack.yml webstack

  - Podem veure una vegada creat el node web, podem veure la següent configuració:

    ·Nom: webstack_web
    ·Mode: Replicated
    ·Replicas utilitzades: 3/3
    ·Imatge: nginx:alpine
    ·Ports: *:8080 -> 80/tcp

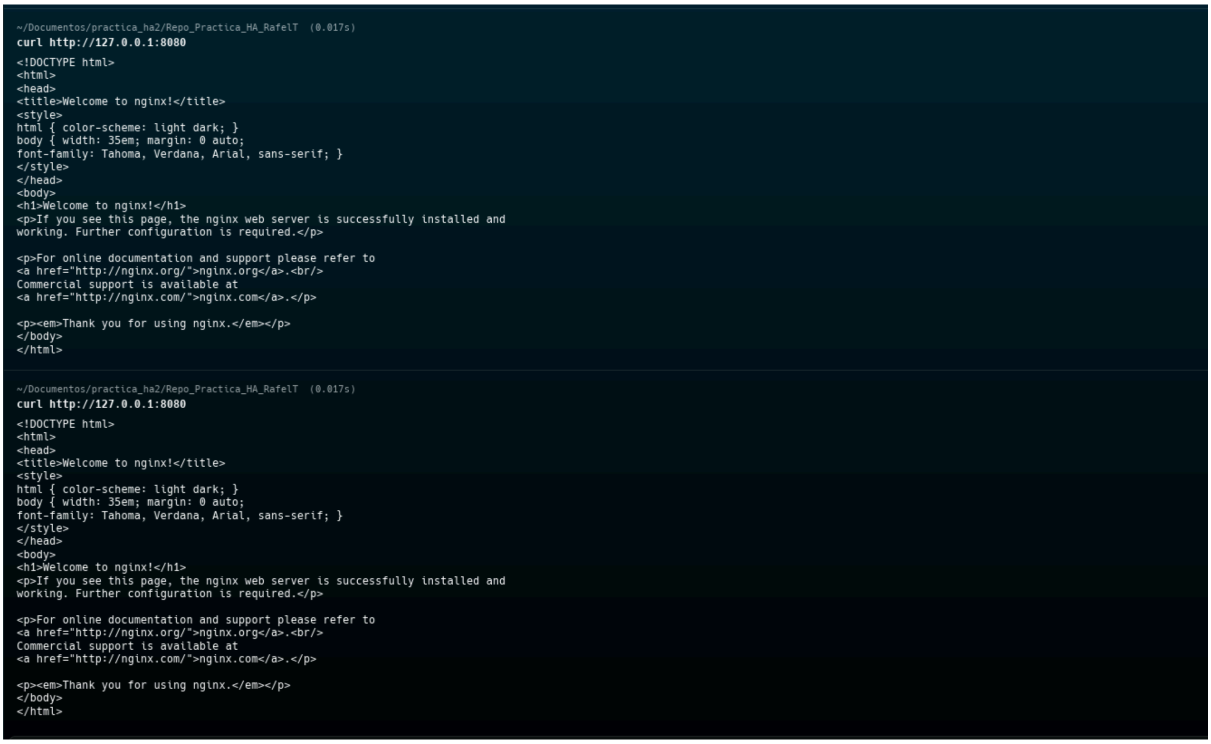


```
~/Documentos/practica_ha2/Repo_Practica_HA_RafelT  (1.55s)
docker stack deploy -c docker-stack.yml webstack
Since --detach=false was not specified, tasks will be created in the background.
In a future release, --detach=false will become the default.
Creating network webstack_webnet
Creating service webstack_web

~/Documentos/practica_ha2/Repo_Practica_HA_RafelT  (0.025s)
docker stack services webstack
ID             NAME           MODE         REPLICAS   IMAGE          PORTS
w5bda0cv4dps   webstack_web   replicated   3/3        nginx:alpine   *:8080->80/tcp
```

Check the Kubernetes service status. Ctrl Shift
.../practica_ha2/Repo_Practica_HA_RafelT
s
auto (responsive)

PART 4: Prova de connexió a la pàgina web utilitzant curl: curl http://127.0.0.1:8080

- Podem veure que la pagina web respon be al curl, això vol dir que el servei esta corrèctament carregat:



```
~/Documentos/practica_ha2/Repo_Practica_HA_RafelT  (0.017s)
curl http://127.0.0.1:8080
<!DOCTYPE html>
<html>
<head>
<title>Welcome to nginx!</title>
<style>
html { color-scheme: light dark; }
body { width: 35em; margin: 0 auto;
font-family: Tahoma, Verdana, Arial, sans-serif; }
</style>
</head>
<body>
<h1>Welcome to nginx!</h1>
<p>If you see this page, the nginx web server is successfully installed and
working. Further configuration is required.</p>

<p>For online documentation and support please refer to
<a href="http://nginx.org/">nginx.org</a>.<br/>
Commercial support is available at
<a href="http://nginx.com/">nginx.com</a>.</p>

<p><em>Thank you for using nginx.</em></p>
</body>
</html>

~/Documentos/practica_ha2/Repo_Practica_HA_RafelT  (0.017s)
curl http://127.0.0.1:8080
<!DOCTYPE html>
<html>
<head>
<title>Welcome to nginx!</title>
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Commercial support is available at
<a href="http://nginx.com/">nginx.com</a>.</p>

<p><em>Thank you for using nginx.</em></p>
</body>
</html>
```
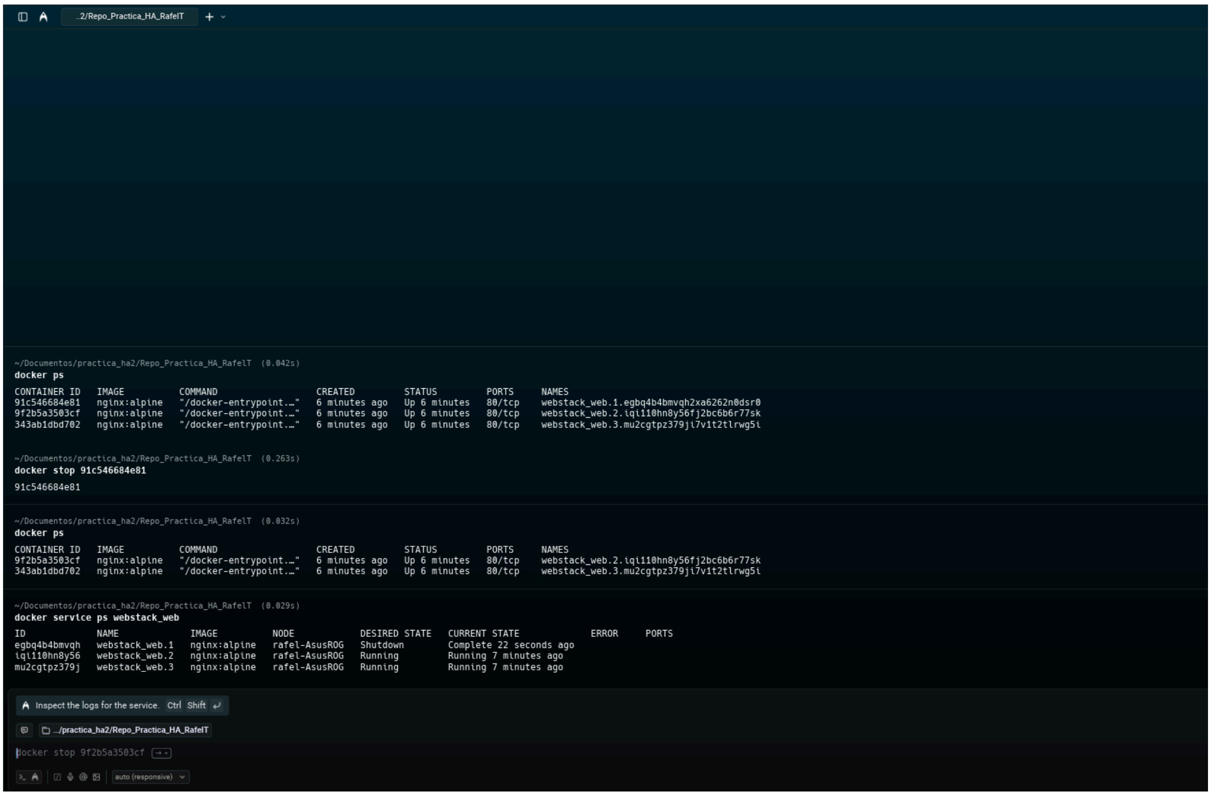

PART 5: Prova de aturada de un node:

- Per realitzar la prova del funcionament del servei, el que feim, és aturar amb la comanda: docker stop “id contenedor” un dels contenidors que tenim creats

- Una vegada aturat el contenedor, podem veure més abaix, que de manera totalment automatica, el servei aixeca un contenedor cada vegada que detecta que un contenedor falla, comprovant així el seu correcte funcionament:



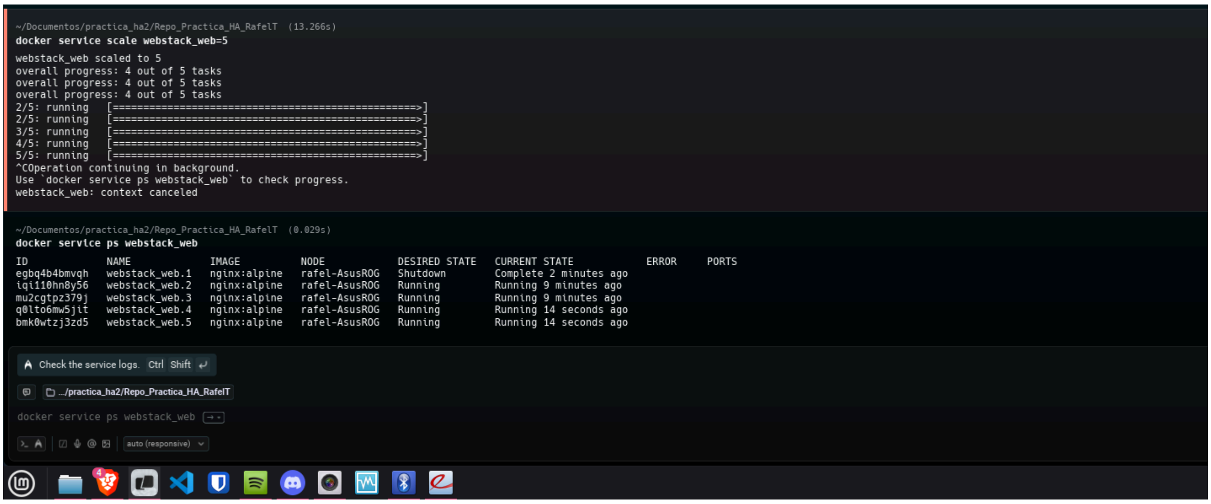
```
~/Documentos/practica_ha2/Repo_Practica_HA_RafelT  (0.042s)
docker ps
CONTAINER ID   IMAGE          COMMAND                  CREATED         STATUS         PORTS     NAMES
91c546684e81   nginx:alpine   "/docker-entrypoint.…"   6 minutes ago   Up 6 minutes   80/tcp    webstack_web.1.egbq4b4bmvqh2xa6262n0dsr0
9f2b5a3503cf   nginx:alpine   "/docker-entrypoint.…"   6 minutes ago   Up 6 minutes   80/tcp    webstack_web.2.iqi110hn8y56fj2bc6b6r77sk
343ab1dbd702   nginx:alpine   "/docker-entrypoint.…"   6 minutes ago   Up 6 minutes   80/tcp    webstack_web.3.mu2cgtpz379ji7v1t2tlrwg5i

~/Documentos/practica_ha2/Repo_Practica_HA_RafelT  (0.263s)
docker stop 91c546684e81
91c546684e81

~/Documentos/practica_ha2/Repo_Practica_HA_RafelT  (0.032s)
docker ps
CONTAINER ID   IMAGE          COMMAND                  CREATED         STATUS         PORTS     NAMES
9f2b5a3503cf   nginx:alpine   "/docker-entrypoint.…"   6 minutes ago   Up 6 minutes   80/tcp    webstack_web.2.iqi110hn8y56fj2bc6b6r77sk
343ab1dbd702   nginx:alpine   "/docker-entrypoint.…"   6 minutes ago   Up 6 minutes   80/tcp    webstack_web.3.mu2cgtpz379ji7v1t2tlrwg5i

~/Documentos/practica_ha2/Repo_Practica_HA_RafelT  (0.029s)
docker service ps webstack_web
ID             NAME             IMAGE          NODE             DESIRED STATE   CURRENT STATE            ERROR     PORTS
egbq4b4bmvqh   webstack_web.1   nginx:alpine   rafel-AsusROG    Shutdown        Complete 22 seconds ago
iqi110hn8y56   webstack_web.2   nginx:alpine   rafel-AsusROG    Running         Running 7 minutes ago
mu2cgtpz379j   webstack_web.3   nginx:alpine   rafel-AsusROG    Running         Running 7 minutes ago
```

Inspect the logs for the service. Ctrl Shift
.../practica_ha2/Repo_Practica_HA_RafelT

```
docker stop 9f2b5a3503cf
```

Part 6: Prova de autoescalat del servei:

- Executam la comanda : “docker service scale webstack_web=5” per així augmentar el número de nodes molt més i tenir un escalat automatic:

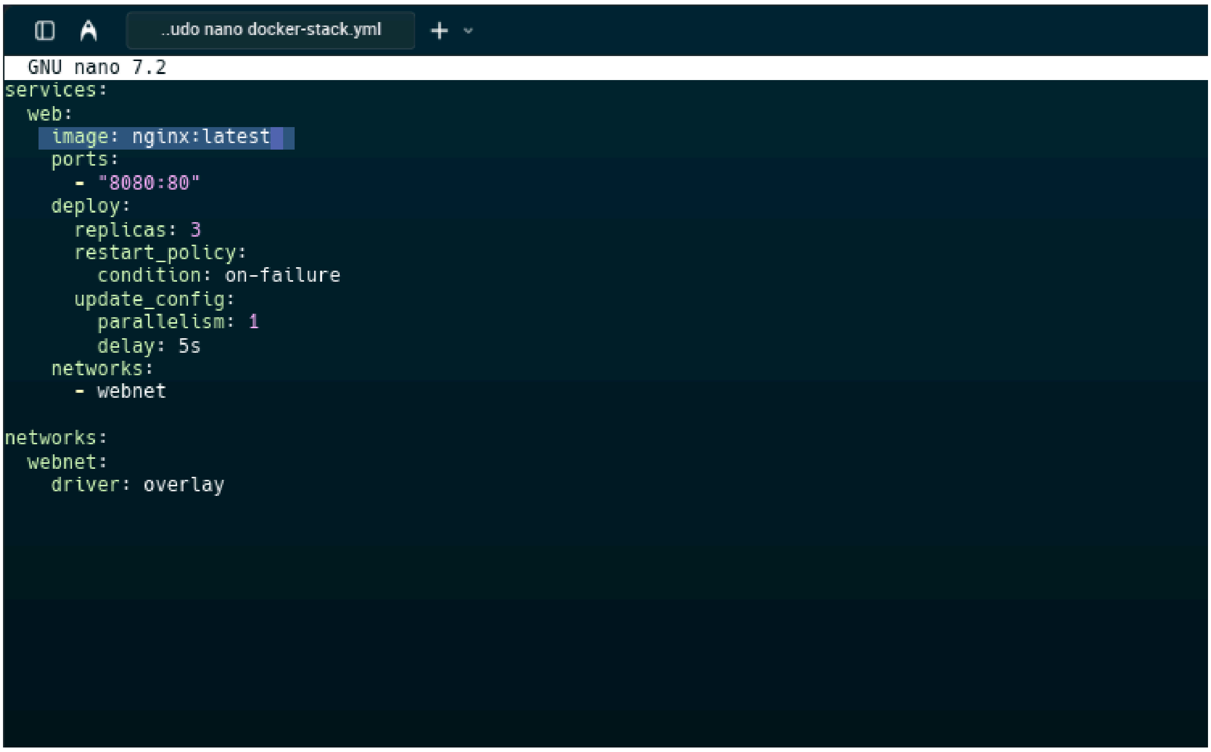


```
~/Documentos/practica_ha2/Repo_Practica_HA_RafelT  (13.266s)
docker service scale webstack_web=5
webstack_web scaled to 5
overall progress: 4 out of 5 tasks
overall progress: 4 out of 5 tasks
overall progress: 4 out of 5 tasks
2/5: running   [==================================================>]
2/5: running   [==================================================>]
3/5: running   [==================================================>]
4/5: running   [==================================================>]
5/5: running   [==================================================>]
^COperation continuing in background.
Use `docker service ps webstack_web` to check progress.
webstack_web: context canceled

~/Documentos/practica_ha2/Repo_Practica_HA_RafelT  (0.029s)
docker service ps webstack_web
ID             NAME             IMAGE          NODE            DESIRED STATE   CURRENT STATE            ERROR     PORTS
egbq4b4bmvqh   webstack_web.1   nginx:alpine   rafel-AsusROG   Shutdown        Complete 2 minutes ago
iqi110hn8y56   webstack_web.2   nginx:alpine   rafel-AsusROG   Running         Running 9 minutes ago
mu2cgtpz379j   webstack_web.3   nginx:alpine   rafel-AsusROG   Running         Running 9 minutes ago
q0lto6mw5jit   webstack_web.4   nginx:alpine   rafel-AsusROG   Running         Running 14 seconds ago
bmk0wtzj3zd5   webstack_web.5   nginx:alpine   rafel-AsusROG   Running         Running 14 seconds ago
```

Check the service logs. Ctrl Shift ↵
.../practica_ha2/Repo_Practica_HA_RafelT
docker service ps webstack_web
auto (responsive)

Prova 7: Prova de Rolling Update en calent:

- Per realitzar aquesta prova el que feim, es una vegada el servei està correguent en calent, accedim a l’arxiu “docker-stack.yml” i ho modificam en calent:



```
GNU nano 7.2
services:
  web:
    image: nginx:latest
    ports:
      - "8080:80"
    deploy:
      replicas: 3
      restart_policy:
        condition: on-failure
      update_config:
        parallelism: 1
        delay: 5s
    networks:
      - webnet

networks:
  webnet:
    driver: overlay
```