Create pod.yaml

```yaml
apiVersion: v1
kind: Pod
metadata:
  name: demo
spec:
  containers:
  - name: testpod
    image: alpine:3.5
    command: ["ping", "8.8.8.8"]
```

PS C:\Users\neeth\Downloads\kubernetes> **kubectl apply -f pod.yaml**

pod/demo created

PS C:\Users\neeth\Downloads\kubernetes> **kubectl get pods**

NAME READY STATUS RESTARTS AGE

demo 1/1 Running 0 34s

PS C:\Users\neeth\Downloads\kubernetes> **kubectl logs demo**

PING 8.8.8.8 (8.8.8.8): 56 data bytes

64 bytes from 8.8.8.8: seq=0 ttl=37 time=68.176 ms

64 bytes from 8.8.8.8: seq=1 ttl=37 time=17.006 ms

64 bytes from 8.8.8.8: seq=2 ttl=37 time=17.256 ms

64 bytes from 8.8.8.8: seq=3 ttl=37 time=17.914 ms

64 bytes from 8.8.8.8: seq=4 ttl=37 time=17.812 ms

64 bytes from 8.8.8.8: seq=5 ttl=37 time=17.498 ms

64 bytes from 8.8.8.8: seq=6 ttl=37 time=17.906 ms

64 bytes from 8.8.8.8: seq=7 ttl=37 time=17.359 ms

64 bytes from 8.8.8.8: seq=8 ttl=37 time=19.081 ms

64 bytes from 8.8.8.8: seq=9 ttl=37 time=17.313 ms

64 bytes from 8.8.8.8: seq=10 ttl=37 time=18.157 ms

64 bytes from 8.8.8.8: seq=11 ttl=37 time=18.163 ms

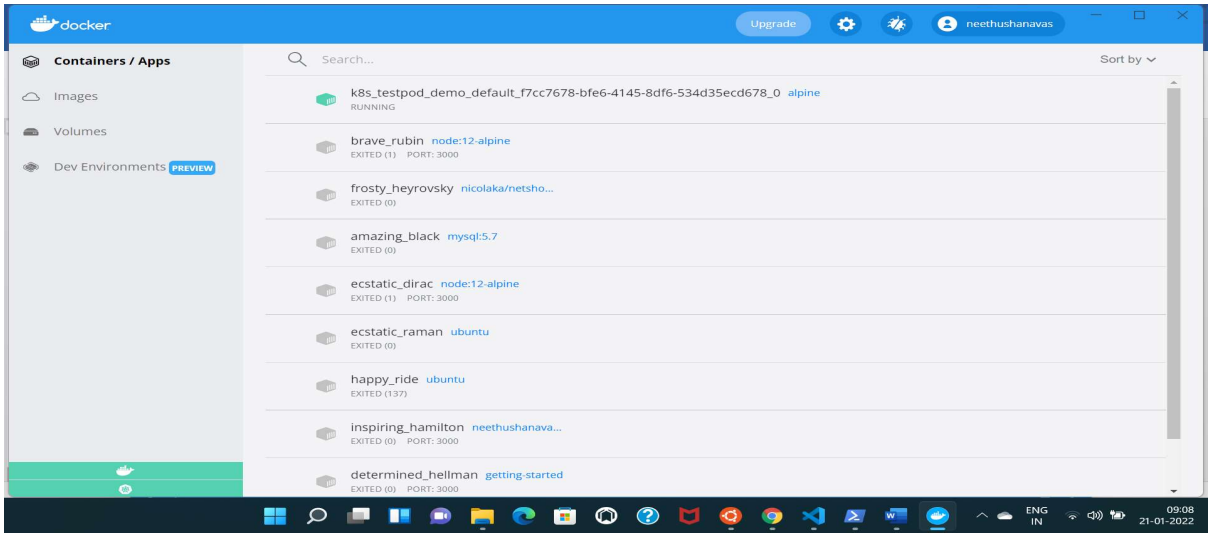
64 bytes from 8.8.8.8: seq=12 ttl=37 time=17.736 ms

64 bytes from 8.8.8.8: seq=13 ttl=37 time=18.602 ms

64 bytes from 8.8.8.8: seq=14 ttl=37 time=18.162 ms

64 bytes from 8.8.8.8: seq=15 ttl=37 time=18.137 ms

64 bytes from 8.8.8.8: seq=16 ttl=37 time=17.656 ms
64 bytes from 8.8.8.8: seq=17 ttl=37 time=17.950 ms
64 bytes from 8.8.8.8: seq=18 ttl=37 time=18.077 ms
64 bytes from 8.8.8.8: seq=19 ttl=37 time=17.684 ms
64 bytes from 8.8.8.8: seq=20 ttl=37 time=17.599 ms
64 bytes from 8.8.8.8: seq=21 ttl=37 time=17.817 ms
64 bytes from 8.8.8.8: seq=22 ttl=37 time=17.632 ms
64 bytes from 8.8.8.8: seq=23 ttl=37 time=17.968 ms
64 bytes from 8.8.8.8: seq=24 ttl=37 time=18.064 ms
64 bytes from 8.8.8.8: seq=25 ttl=37 time=160.997 ms
64 bytes from 8.8.8.8: seq=26 ttl=37 time=25.407 ms
64 bytes from 8.8.8.8: seq=27 ttl=37 time=65.086 ms
64 bytes from 8.8.8.8: seq=28 ttl=37 time=18.692 ms
64 bytes from 8.8.8.8: seq=29 ttl=37 time=18.983 ms
64 bytes from 8.8.8.8: seq=30 ttl=37 time=18.546 ms
64 bytes from 8.8.8.8: seq=31 ttl=37 time=33.520 ms
64 bytes from 8.8.8.8: seq=32 ttl=37 time=18.004 ms
64 bytes from 8.8.8.8: seq=33 ttl=37 time=17.022 ms
64 bytes from 8.8.8.8: seq=34 ttl=37 time=16.641 ms
64 bytes from 8.8.8.8: seq=35 ttl=37 time=18.034 ms
64 bytes from 8.8.8.8: seq=36 ttl=37 time=18.477 ms
64 bytes from 8.8.8.8: seq=37 ttl=37 time=29.322 ms
64 bytes from 8.8.8.8: seq=38 ttl=37 time=17.372 ms
64 bytes from 8.8.8.8: seq=39 ttl=37 time=16.611 ms



PS C:\Users\neeth\Downloads\kubernetes> **kubectl delete -f pod.yaml**

pod "demo" deleted

Enable Docker Swarm

PS C:\Users\neeth\Downloads\kubernetes> **docker swarm init**

Swarm initialized: current node (g3pfkgy6i261j4z64evcywzcn) is now a manager.

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

docker swarm join --token SWMTKN-1-1flhhtzzc9uygvqwgme4livfjiu8qkhvcup4x5t6qp2dqkndxp-cdds5dzbabk823n9l7g54dyn2 192.168.65.3:2377

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

PS C:\Users\neeth\Downloads\kubernetes> **docker swarm join --token SWMTKN-1-1flhhtzzc9uygvqwgme4livfjiu8qkhvcup4x5t6qp2dqkndxp-cdds5dzbabk823n9l7g54dyn2 192.168.65.3:2377**

Error response from daemon: This node is already part of a swarm. Use "docker swarm leave" to leave this swarm and join another one.

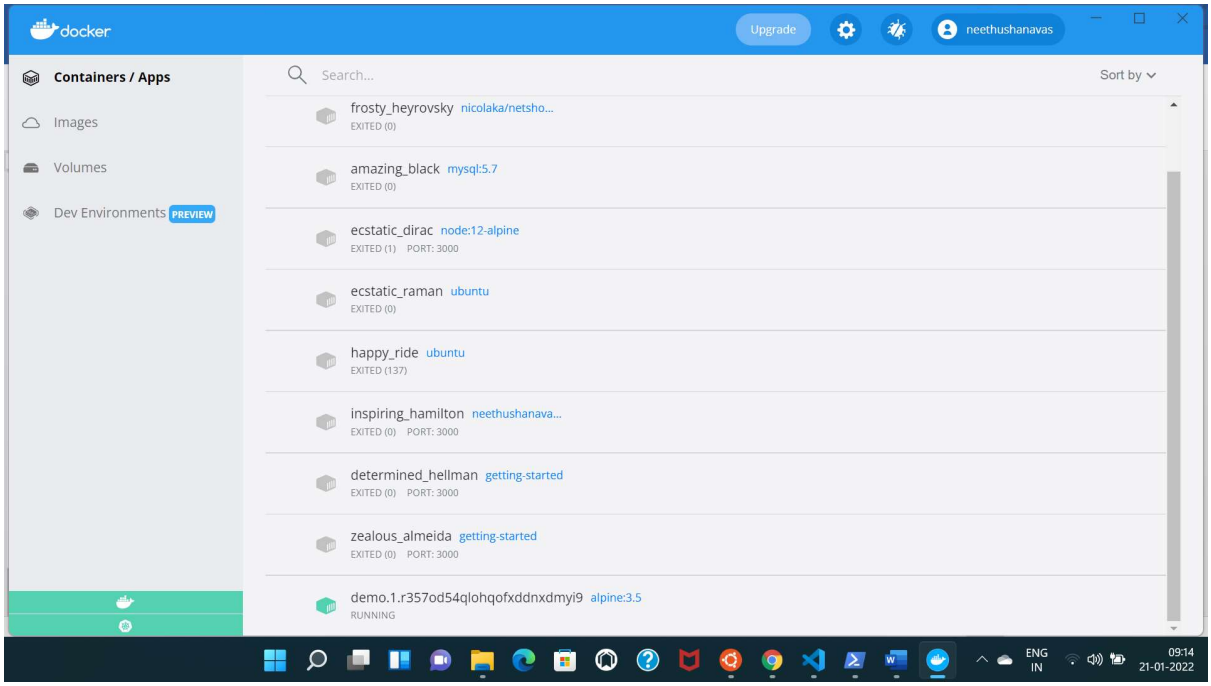
PS C:\Users\neeth\Downloads\kubernetes> **docker service create --name demo alpine:3.5 ping 8.8.8.8**

0u03ln45p1fzn02wb2bfelsve

overall progress: 1 out of 1 tasks

1/1: running

verify: Service converged



PS C:\Users\neeth\Downloads\kubernetes> **docker service ps demo**

ID NAME IMAGE NODE DESIRED STATE CURRENT STATE ERROR PORTS

r357od54qloh demo.1 alpine:3.5 docker-desktop Running Running about a minute ago

PS C:\Users\neeth\Downloads\kubernetes> **docker service logs demo**

demo.1.r357od54qloh@docker-desktop | PING 8.8.8.8 (8.8.8.8): 56 data bytes

demo.1.r357od54qloh@docker-desktop | 64 bytes from 8.8.8.8: seq=0 ttl=37 time=17.708 ms

demo.1.r357od54qloh@docker-desktop | 64 bytes from 8.8.8.8: seq=1 ttl=37 time=18.246 ms

demo.1.r357od54qloh@docker-desktop | 64 bytes from 8.8.8.8: seq=2 ttl=37 time=17.821 ms

demo.1.r357od54qloh@docker-desktop | 64 bytes from 8.8.8.8: seq=3 ttl=37 time=18.257 ms

demo.1.r357od54qloh@docker-desktop | 64 bytes from 8.8.8.8: seq=4 ttl=37 time=17.997 ms

demo.1.r357od54qloh@docker-desktop | 64 bytes from 8.8.8.8: seq=5 ttl=37 time=17.245 ms

demo.1.r357od54qloh@docker-desktop | 64 bytes from 8.8.8.8: seq=6 ttl=37 time=18.492 ms

demo.1.r357od54qloh@docker-desktop | 64 bytes from 8.8.8.8: seq=7 ttl=37 time=17.383 ms

demo.1.r357od54qloh@docker-desktop | 64 bytes from 8.8.8.8: seq=8 ttl=37 time=18.861 ms

demo.1.r357od54qloh@docker-desktop | 64 bytes from 8.8.8.8: seq=9 ttl=37 time=17.461 ms

demo.1.r357od54qloh@docker-desktop | 64 bytes from 8.8.8.8: seq=10 ttl=37 time=18.622 ms

demo.1.r357od54qloh@docker-desktop | 64 bytes from 8.8.8.8: seq=11 ttl=37 time=78.811 ms

demo.1.r357od54qloh@docker-desktop | 64 bytes from 8.8.8.8: seq=12 ttl=37 time=93.996 ms

PS C:\Users\neeth\Downloads\kubernetes> **docker service rm demo**

demo

Deploy and check application

Create bb.yaml

```yaml
apiVersion: apps/v1
kind: Deployment
metadata:
  name: bb-demo
  namespace: default
spec:
  replicas: 1
  selector:
    matchLabels:
      bb: web
  template:
    metadata:
      labels:
        bb: web
    spec:
      containers:
      - name: bb-site
        image: neethushanavas/getting-started
---
apiVersion: v1
kind: Service
metadata:
  name: bb-entrypoint
  namespace: default
spec:
  type: NodePort
  selector:
    bb: web
  ports:
```

```
  - port: 3000
    targetPort: 3000
    nodePort: 30001
```

PS C:\Users\neeth\Downloads\kubernetes> **kubectl apply -f bb.yaml**

deployment.apps/bb-demo created

service/bb-entrypoint created

PS C:\Users\neeth\Downloads\kubernetes> **kubectl get deployments**

NAME READY UP-TO-DATE AVAILABLE AGE

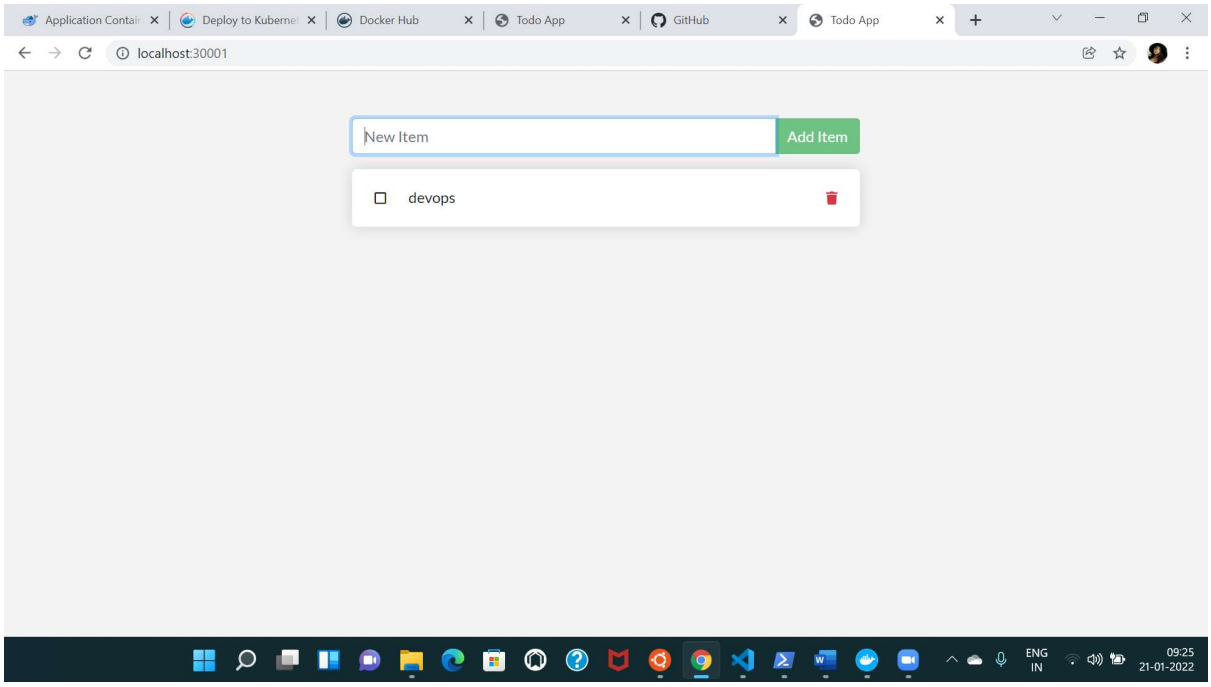
bb-demo 1/1 1 1 27s

PS C:\Users\neeth\Downloads\kubernetes> **kubectl get services**

NAME TYPE CLUSTER-IP EXTERNAL-IP PORT(S) AGE

bb-entrypoint NodePort 10.104.214.110 <none> 3000:30001/TCP 42s

kubernetes ClusterIP 10.96.0.1 <none> 443/TCP 5d11h



PS C:\Users\neeth\Downloads\kubernetes> **kubectl delete -f bb.yaml**

deployment.apps "bb-demo" deleted

service "bb-entrypoint" deleted

Deploy to swarm

Create bb-stack.yaml

```
version: '3.7'
```

```yaml
services:
  bb-app:
    image: neethushanavas/getting-started
    ports:
      - "8000:3000"
```

PS C:\Users\neeth\Downloads\kubernetes> **docker stack deploy -c bb-stack.yaml demo**

Creating network demo_default

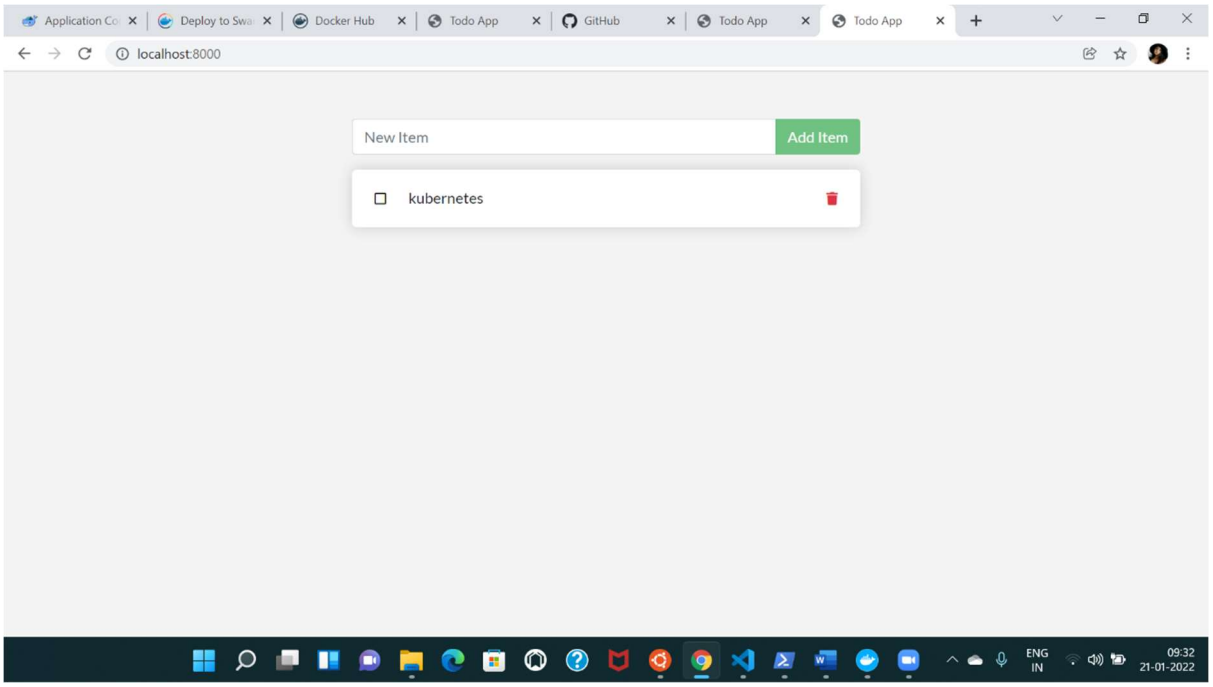
Creating service demo_bb-app

PS C:\Users\neeth\Downloads\kubernetes> **docker service ls**

ID NAME MODE REPLICAS IMAGE

PORTS

whjsv9xbbjz3 demo_bb-app replicated 1/1 neethushanavas/getting-started:latest *:8000->3000/tcp

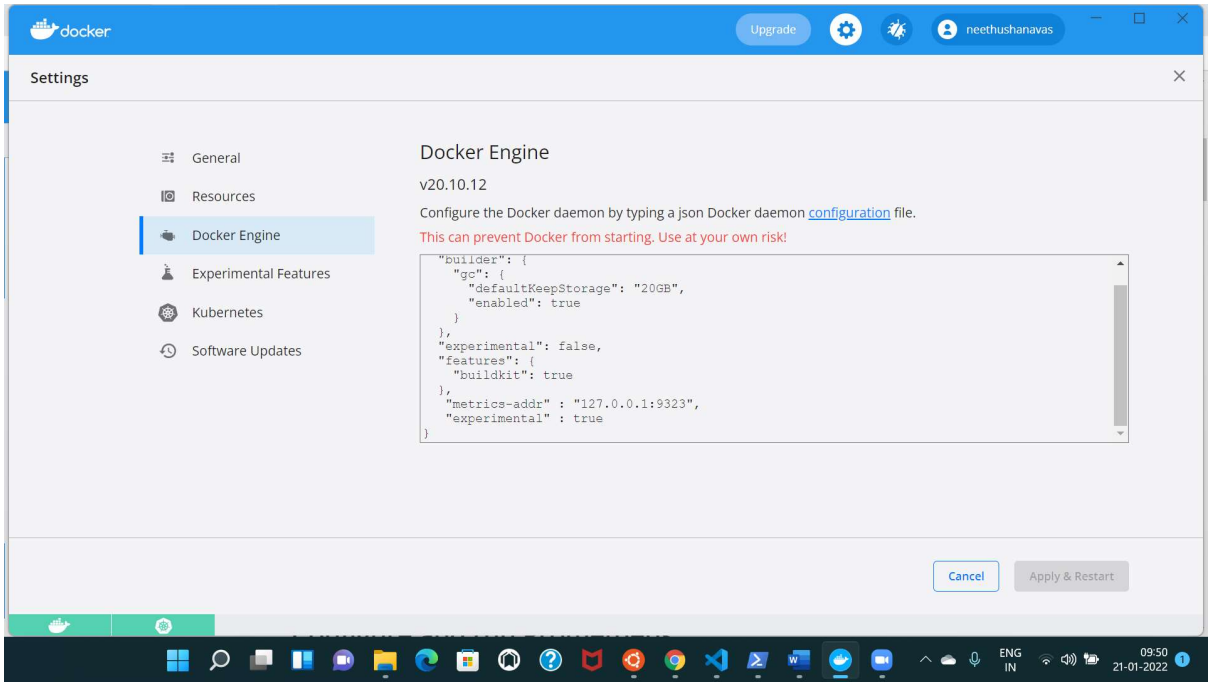


PS C:\Users\neeth\Downloads\kubernetes> **docker stack rm demo**

Removing service demo_bb-app

Removing network demo_default

Collect Docker metrics with Prometheus



Create Prometheus.yml

```
global:
  scrape_interval: 15s
  evaluation_interval: 15s
  external_labels:
      monitor: 'codelab-monitor'
rule_files:
scrape_configs:
  - job_name: 'prometheus'
    static_configs:
      - targets: ['host.docker.internal:9090']
  - job_name: 'docker'
    static_configs:
      - targets: ['192.168.65.1:9323']
```

PS C:\tmp>**docker service create --replicas 1 --name my-prometheus `**

>> **--mount type=bind,source=C:/tmp/prometheus.yml,destination=/etc/prometheus/prometheus.yml `**

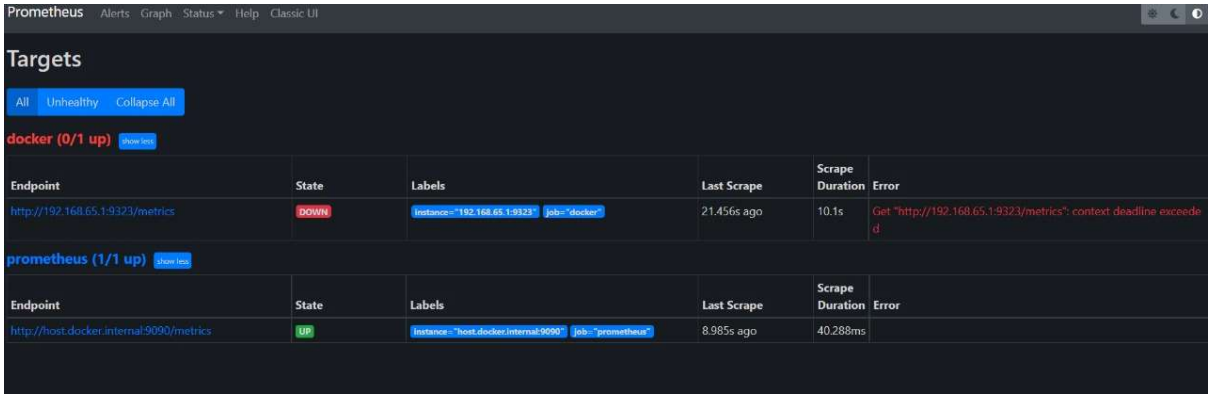
>> **--publish published=9090,target=9090,protocol=tcp `**

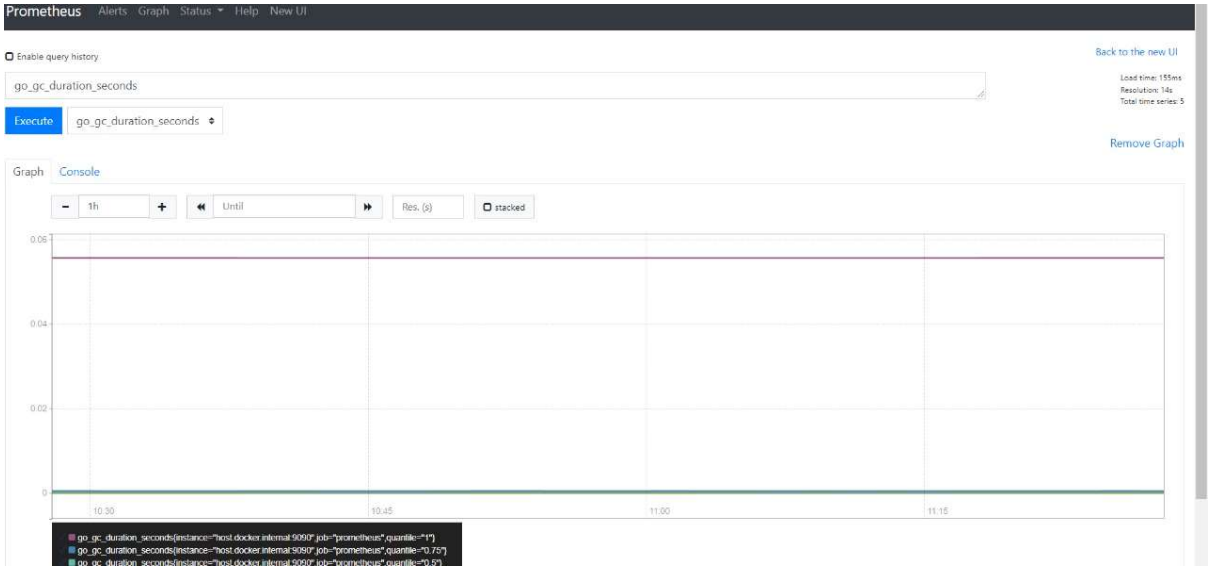
>> **prom/Prometheus**

hmppzk8l1rw2dw3q8yftu50e0

overall progress: 1 out of 1 tasks

1/1: ready [==>   ]





PS C:\tmp>**docker service create `**

>> --replicas 10 `

>> --name ping_service `

>> alpine ping-docker.com

image alpine:latest could not be accessed on a registry to record

its digest. Each node will access alpine:latest independently,

possibly leading to different nodes running different

versions of the image.

r4l6s510q1wcngkrzbj80x8b0

overall progress: 10 out of 10 tasks

1/10: running
[==>]

2/10: running
[==>]

3/10: running
[==>]

4/10: running
[==>]

5/10: running
[==>]

6/10: running
[==>]

7/10: running
[==>]

8/10: running
[==>]

9/10: running
[==>]

10/10: running
[==>]

verify: Service converged

PS C:\tmp> docker service remove ping_service