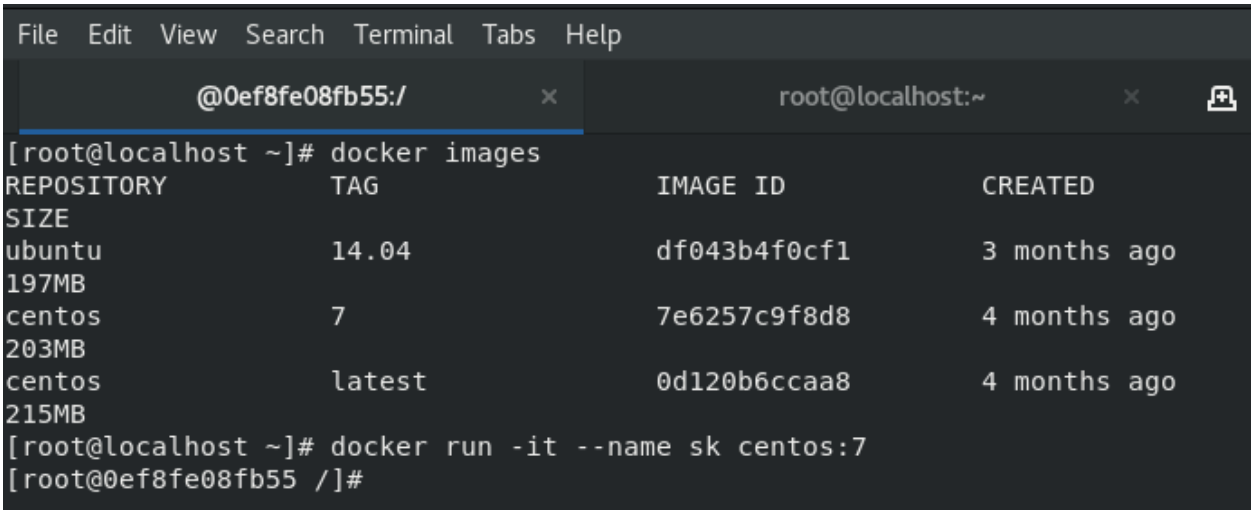
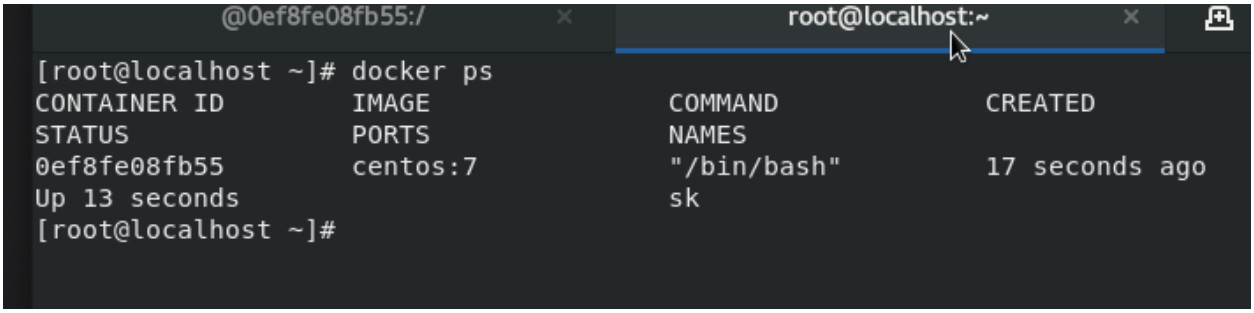
Introduction to K8s

We know how to launch a docker container.

First we see the number of containers running and then, create a new container and launch it





If any of the container goes down or crashes, it requires a lot of human effort to keep a watch at them and launch it regularly.

In such cases, K8s comes to rescue.

How can we use k8s to montitor docker container?

Download:

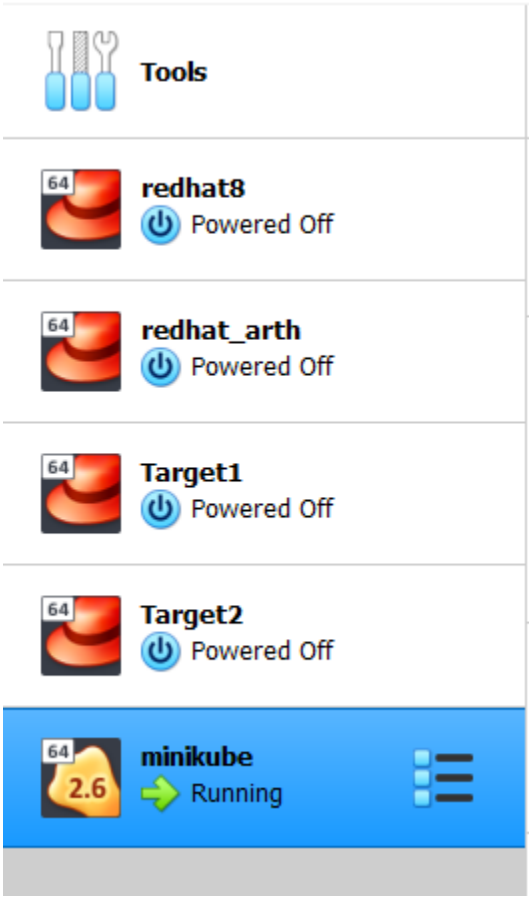
Go to the following link and download minukube:

https://minikube.sigs.k8s.io/docs/start/

Now, use command prompt to go to the directory where it is installed and write the following command: **minikube.exe start –driver=virtualbox –kubernetes-version=v1.20.0**

```
C:\Program Files\Kubernetes\Minikube>minikube.exe start --driver=virtualbox --kubernetes-version=v1.20.0
* minikube v1.16.0 on Microsoft Windows 10 Home Single Language 10.0.19041 Build 19041
* Using the virtualbox driver based on user configuration
* Starting control plane node minikube in cluster minikube
* Creating virtualbox VM (CPUs=2, Memory=2200MB, Disk=20000MB) ...
* Preparing Kubernetes v1.20.0 on Docker 20.10.0 ...
  - Generating certificates and keys ...
  - Booting up control plane ...
  - Configuring RBAC rules ...
* Verifying Kubernetes components...
* Enabled addons: storage-provisioner, default-storageclass
* kubectl not found. If you need it, try: 'minikube kubectl -- get pods -A'
* Done! kubectl is now configured to use "minikube" cluster and "default" namespace by default
```

Check your virtual box if it has been successfully installed.



After downloading check **minikube status**

```
C:\Program Files\Kubernetes\Minikube>minikube status
minikube
type: Control Plane
host: Running
kubelet: Running
apiserver: Running
kubeconfig: Configured
timeToStop: Nonexistent
```

Get your ip using **minikube.exe ip**

```
C:\Program Files\Kubernetes\Minikube>minikube.exe ip
192.168.99.101
```

Open command prompt in administrative mode and download kubectl

Curl -LOhttps://storage.googleapis.com/kubernetesrelease/release/v1.20.0/bin/windows/amd64/kubectl.exe

```
C:\Program Files\Kubernetes\Minikube>curl -LO https://storage.googleapis.com/kubernetes-release/release/v1.20.0/bin/wind
ows/amd64/kubectl.exe
  % Total    % Received % Xferd  Average Speed   Time    Time     Time  Current
                                 Dload  Upload   Total   Spent    Left  Speed
100 39.5M  100 39.5M    0     0   518k      0  0:01:18  0:01:18 --:--:-- 1199k
```

Shows number of pods running

Kubectl.exe get pods

```
C:\Program Files\Kubernetes\Minikube>kubectl.exe get pods
No resources found in default namespace.
```

To launch a pod

Kubectl.exe run nameofpod –image=imageofpod

```
C:\Program Files\Kubernetes\Minikube>Kubectl.exe run sk --image=vimal13/apache-webserver-php
pod/sk created
```

check the running pods

```
C:\Program Files\Kubernetes\Minikube>kubectl.exe get pods
NAME    READY   STATUS              RESTARTS   AGE
sk      0/1     ContainerCreating   0          91s
```

Delete pod

Kubectl.exe delete pod sk

```
C:\Program Files\Kubernetes\Minikube>kubectl.exe delete pod sk
pod "sk" deleted
```

Check the available pods

```
C:\Program Files\Kubernetes\Minikube>kubectl.exe delete pod sk
pod "sk" deleted

C:\Program Files\Kubernetes\Minikube>kubectl.exe get pods
No resources found in default namespace.
```

To use the power of k8s, the steps are:

Kubectl.exe create deployment sk –image=nameofimage

```
C:\Program Files\Kubernetes\Minikube>kubectl.exe create deployment sk --image=vimal13/apache-webserver-php
deployment.apps/sk created
```

Check the pods running

```
C:\Program Files\Kubernetes\Minikube>kubectl.exe get pods
NAME                  READY   STATUS    RESTARTS   AGE
sk-ddd96d544-kcmwz    1/1     Running   0          47s
```

Now delete the pods

If you delete the pod, it will be relaunched and name changed

Therefore, if container crashed, no issue. It will get relaunched again.

```
C:\Program Files\Kubernetes\Minikube>kubectl.exe delete pod sk-ddd96d544-kcmwz
pod "sk-ddd96d544-kcmwz" deleted

C:\Program Files\Kubernetes\Minikube>kubectl.exe get pods
NAME                  READY   STATUS    RESTARTS   AGE
sk-ddd96d544-kr76q    1/1     Running   0          42s
```

Kubectl.exe expose deployments myweb1 –port8080 –type=NodePort

```
C:\Program Files\Kubernetes\Minikube>kubectl.exe  get pods
NAME                     READY   STATUS    RESTARTS   AGE
myweb1-55dbb57599-pgk2h  1/1     Running   0          115s

C:\Program Files\Kubernetes\Minikube>kubectl.exe  get  deployments
NAME     READY   UP-TO-DATE   AVAILABLE   AGE
myweb1   1/1     1            1           8m47s

C:\Program Files\Kubernetes\Minikube>kubectl.exe  expose  deployments  myweb1  --port=8080 --type=NodePort

service/myweb1 exposed

C:\Program Files\Kubernetes\Minikube>
```

Dashboard

minikube dasboard

```
C:\Program Files\Kubernetes\Minikube>minikube dashboard
* Enabling dashboard ...
* Verifying dashboard health ...
* Launching proxy ...
* Verifying proxy health ...
* Opening http://127.0.0.1:1134/api/v1/namespaces/kubernetes-dashboard/services/http:kubernetes-dashboard:/proxy/ in you
r default browser...
```