

KUBERNETES PROJECT SETUP

DEPLOY 3 PODS IN k8 AND CHECK THE ENDPOINTS / VISUALISE k8 DASHBOARD

NOTE - Please copy the commands in notepad and apply on terminal

PROJECT2 LINK -

https://github.com/praveen1994dec/kubernetes_java_deployments.git

STEP 1 –MINIKUBE AND DOCKER INSTALLATION ON AMAZON LINUX

1. Launch an instance from an Amazon Linux 2 or Amazon Linux AMI
2. Connect to your instance.
3. Update the packages and package caches you have installed on your instance.

```
yum update -y
```

4. Install the latest Docker Engine packages.

Amazon Linux 2 amazon-linux-extras install docker

```
yum install docker -y
```

5. Start the Docker service.

```
systemctl start docker
```

```
systemctl enable docker
```

6. Install Contrack and Minikube:

```
yum install contrack -y
```

```
curl -LO https://storage.googleapis.com/minikube/releases/latest/minikube-linux-amd64
```

```
sudo install minikube-linux-amd64 /usr/local/bin/minikube
```

7. Start your MINIKUBE

```
/usr/local/bin/minikube start --force --driver=docker
```

You are trying to run the amd64 binary on an M1 system.
Please consider running the darwin/arm64 binary instead.
Download at <https://github.com/kubernetes/minikube/releases/download/v1.28.0/minikube-darwin-arm64>

🐞 minikube v1.28.0 on Darwin 12.6.1
🔔 minikube 1.29.0 is available! Download it: <https://github.com/kubernetes/minikube/releases/tag/v1.29.0>
To disable this notice, run: 'minikube config set WantUpdateNotification false'

🌟 Using the docker driver based on existing profile
👍 Starting control plane node minikube in cluster minikube
🚚 Pulling base image ...
🔄 Restarting existing docker container for "minikube" ...
📦 Preparing Kubernetes v1.25.3 on Docker 20.10.20 ...
🔍 Verifying Kubernetes components...
▪ Using image docker.io/kubernetes/metrics-scraper:v1.0.8
▪ Using image gcr.io/k8s-minikube/storage-provisioner:v5
▪ Using image docker.io/kubernetes/dashboard:v2.7.0
💡 Some dashboard features require the metrics-server addon. To enable all features please run:

```
minikube addons enable metrics-server
```

👑 Enabled addons: storage-provisioner, default-storageclass, dashboard
🎉 Done! kubectl is now configured to use "minikube" cluster and "default" namespace by default

STEP2 – INSTALL DOCKER/MAVEN/GIT/JAVA

DOCKER

```
yum install docker -y  
systemctl start docker  
systemctl enable docker
```

MAVEN

```
cd /opt/
```

```
wget http://mirrors.estointernet.in/apache/maven/maven-3/3.6.3/binaries/apache-maven-3.6.3-bin.tar.gz
```

```
tar xvzf apache-maven-3.6.3-bin.tar.gz
```

```
vi /etc/profile.d/maven.sh
```

```
export MAVEN_HOME=/opt/apache-maven-3.6.3  
export PATH=$PATH:$MAVEN_HOME/bin
```

GIT

```
yum install git -y
```

JAVA






```
yum install java -y
```

STEP 3 – INSTALL KUBECTL

```
curl -o kubectl
https://amazon-eks.s3.us-west-2.amazonaws.com/1.20.4/2021
-04-12/bin/linux/amd64/kubectl
chmod +x ./kubectl
mkdir -p $HOME/bin
cp ./kubectl $HOME/bin/kubectl
export PATH=$HOME/bin:$PATH
echo 'export PATH=$HOME/bin:$PATH' >> ~/.bashrc
source $HOME/.bashrc
kubectl version --short --client
```

STEP 4 –

git clone https://github.com/praveen1994dec/kubernetes_java_deployment.git

	praveen1994dec Update README.md	
	kubernetes	changes to java app done
	productcatalogue	changes to java app done
	productcatalogue	
	shopfront	changes to java app done
	stockmanager	changes to java app done

STEP 5 – IMPORTANT STEP

[3 SERVICES IN PROJECT]

SERVICE1 [Give your dockerhub ID in place of praveensingam1994]

```
cd shopfront/  
mvn clean install -DskipTests  
docker build -t praveensingam1994/shopfront:latest .  
docker push praveensingam1994/shopfront:latest
```

SERVICE2 [Give your dockerhub ID in place of praveensingam1994]

```
cd productcatalogue/  
mvn clean install -DskipTests  
docker build -t praveensingam1994/productcatalogue:latest .  
docker push praveensingam1994/productcatalogue:latest
```

SERVICE3 [Give your dockerhub ID in place of praveensingam1994]

```
cd stockmanager/  
mvn clean install -DskipTests  
docker build -t praveensingam1994/stockmanager:latest .  
docker push praveensingam1994/stockmanager:latest
```

STEP 6 - GO TO KUBERNETES FOLDER IN SAME PROJECT

```
cd kubernetes
```

```
kubect1 apply -f shopfront-service.yaml
```

```
kubect1 apply -f productcatalogue-service.yaml
```

```
kubect1 apply -f stockmanager-service.yaml
```

STEP 7 – kubect1 get pods

```
praveensingampall1@Praveens-MacBook-Air ~ % kubect1 get pods
```

NAME	READY	STATUS	RESTARTS	AGE
productcatalogue-594ddfdf5f-l2hjr	1/1	Running	3 (101s ago)	25h
shopfront-d6dcddc7f-7qhw2	1/1	Running	2 (101s ago)	25h
stockmanager-676fc8968f-bb8kk	1/1	Running	91 (18s ago)	25h

STEP 8 – Hit the below command to **start** the kubernetes dashboard in EC2

```
/usr/local/bin/minikube dashboard
```

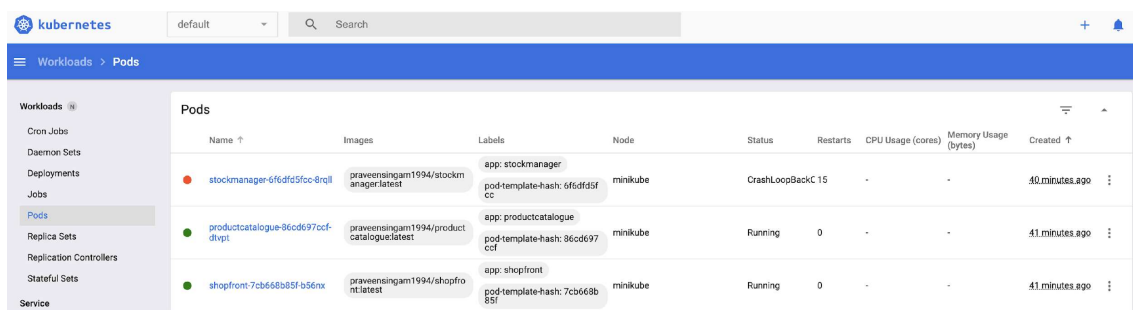
STEP 9 [IN NEW EC2 WINDOW] -

Open the EC2 in new window and set the PROXY

```
kubect1 proxy --address='0.0.0.0' --accept-hosts='^*$'
```

STEP 9 - Hit in browser to view the dashboard

<http://<EC2-IP>:8001/api/v1/namespaces/kubernetes-dashboard/services/http:kubernetes-dashboard:/proxy/#/pod?namespace=default>



Name ↑	Images	Labels	Node	Status	Restarts	CPU Usage (cores)	Memory Usage (bytes)	Created ↑
stockmanager-6f6df5f0c-8rqlj	praveensingam1994/stockmanager:latest	app: stockmanager pod-template-hash: 6f6df5f0c	minikube	CrashLoopBackOff	15	-	-	40 minutes ago
productcatalogue-86cd697cfd-vpjt	praveensingam1994/productcatalogue:latest	app: productcatalogue pod-template-hash: 86cd697cfd	minikube	Running	0	-	-	41 minutes ago
shopfront-7cb668b8f-b56nx	praveensingam1994/shopfront:latest	app: shopfront pod-template-hash: 7cb668b8f	minikube	Running	0	-	-	41 minutes ago

[YOU WILL SEE YOUR APPS]

STEP 10 – Hit the below command for each service in different console of EC2

[EC2 LOGIN FIRST]

```
kubectl port-forward --address 0.0.0.0 svc/shopfront  
8080:8010
```

[EC2 LOGIN FIRST]

```
kubectl port-forward --address 0.0.0.0 svc/productcatalogue  
8090:8020
```

[EC2 LOGIN FIRST]

```
kubectrl port-forward --address 0.0.0.0 svc/stockmanager
9008:8030
```

STEP 11 –

- <http://<EC2IP>:8090/products>
- [{"id": "1", "name": "Widget", "description": "Premium ACME Widgets", "price": 1.1999999999999999555910790149937383830547332763671875}, {"id": "2", "name": "Sprocket", "description": "Grade B sprockets", "price": 4.09999999999999996447286321199499070644378662109375}, {"id": "3", "name": "Anvil", "description": "Large Anvils", "price": 45.5}, {"id": "4", "name": "Cogs", "description": "Grade Y cogs", "price": 1.80000000000000000000444089209850062616169452667236328125}, {"id": "5", "name": "Multitool", "description": "Multitools", "price": 154.0999999999999994315658113919198513031005859375}]
- <http://<EC2IP>:9008/stocks>
- [{"productId": "1", "sku": "12345678", "amountAvailable": 5}, {"productId": "2", "sku": "34567890", "amountAvailable": 2}, {"productId": "3", "sku": "54326745", "amountAvailable": 999}, {"productId": "4", "sku": "93847614", "amountAvailable": 0}, {"pro


```
ductId":"5","sku":"11856388","amountAvailable":1}]
```

STEP 12 – ANALYZE THE DASHBOARD

[IGNORE THE ERROR IN 1 POD, It is due to PROBES as discussed in class]

Name	Images	Labels	Node	Status	Restarts	CPU Usage (cores)	Memory Usage (bytes)	Created
stockmanager-6f6df5fco-8rqjl	praveensingam1994/stockmanager:latest	app: stockmanager pod-template-hash: 6f6df5fco	minikube	CrashLoopBackOff	15	-	-	45 minutes ago
productcatalogue-86cd697cxf-dhvgf	praveensingam1994/productcatalogue:latest	app: productcatalogue pod-template-hash: 86cd697cxf	minikube	Running	0	-	-	45 minutes ago
shopfront-7cb668b85f-b56nx	praveensingam1994/shopfront:latest	app: shopfront pod-template-hash: 7cb668b85f	minikube	Running	0	-	-	45 minutes ago

GO TO EACH SEGMENT ON LEFT HAND SIDE AND EXPLORE 😊 😊