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# Kubernetes Cluster on AWS using Kops running on Docker for Mac

Kubernetes - Beginners | Intermediate | Advanced

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## Kubernetes Cluster on AWS using Kops running on Docker for Mac

Pre-requisites:

- Docker Desktop for Mac
- Install AWS CLI using `brew install aws`
- Create an AWS Account if you are first time user.
- Run the below command to install kops on your macOS:

```
brew update && brew install kops
```

## Adding Access & Secret Key

```
aws configure
```

This will store your credential under ~/.aws/credentials

```
bucket_name=collabstore
```

## Create a AWS Bucket

```
[Captains-Bay] ➤ aws s3api create-bucket --bucket ${bucket_name} --region  
{  
  "Location": "/collabstore"  
}
```

## Configure

```
aws s3api put-bucket-versioning --bucket ${bucket_name} --versioning-configu
```

## Configure DNS Name

```
aws route53 create-hosted-zone --name collabnix.com --caller-reference 2
```

```
export KOPS_CLUSTER_NAME=ajeet.k8s.local
```

## Export Cluster Name

```
export KOPS_CLUSTER_NAME=ajeet.k8s.local
```

## Exporting Kops State Store

```
[Captains-Bay] ➤ > export KOPS_STATE_STORE=s3://${bucket_name}
```

```
ssh-keygen -t rsa
```

```
kops create secret --name ajeet.k8s.local sshpublickey admin -i ~/.ssh/id_rsa
```

```
[Captains-Bay] ➤ > kops create cluster \  
> --node-count=2 \  
> --node-size=t2.medium \  
> --zones=us-east-1a \  
> --name=${KOPS_CLUSTER_NAME}
```

Must specify -yes to apply changes

Cluster configuration has been created.

Suggestions:

- list clusters with: `kops get cluster`
- edit this cluster with: `kops edit cluster k8.aws.dev.collabnix.com`
- edit your node instance group: `kops edit ig -name=ajeet.k8s.local nodes`
- edit your master instance group: `kops edit ig -name=ajeet.k8s.local master-us-east-1a`

Finally configure your cluster with: `kops update cluster ajeet.k8s.local -yes`

```
[Captains-Bay] ➤ > kops get cluster  
NAME          CLOUD  ZONES  
ajeet.k8s.local  aws    us-east-1a  
[Captains-Bay] ➤ >
```

## Deploy Kubernetes

```
kops update cluster --name ${KOPS_CLUSTER_NAME} --yes
```

```
kops get cluster
```

NAME	CLOUD	ZONES
ajeet.k8s.local	aws	us-east-1a

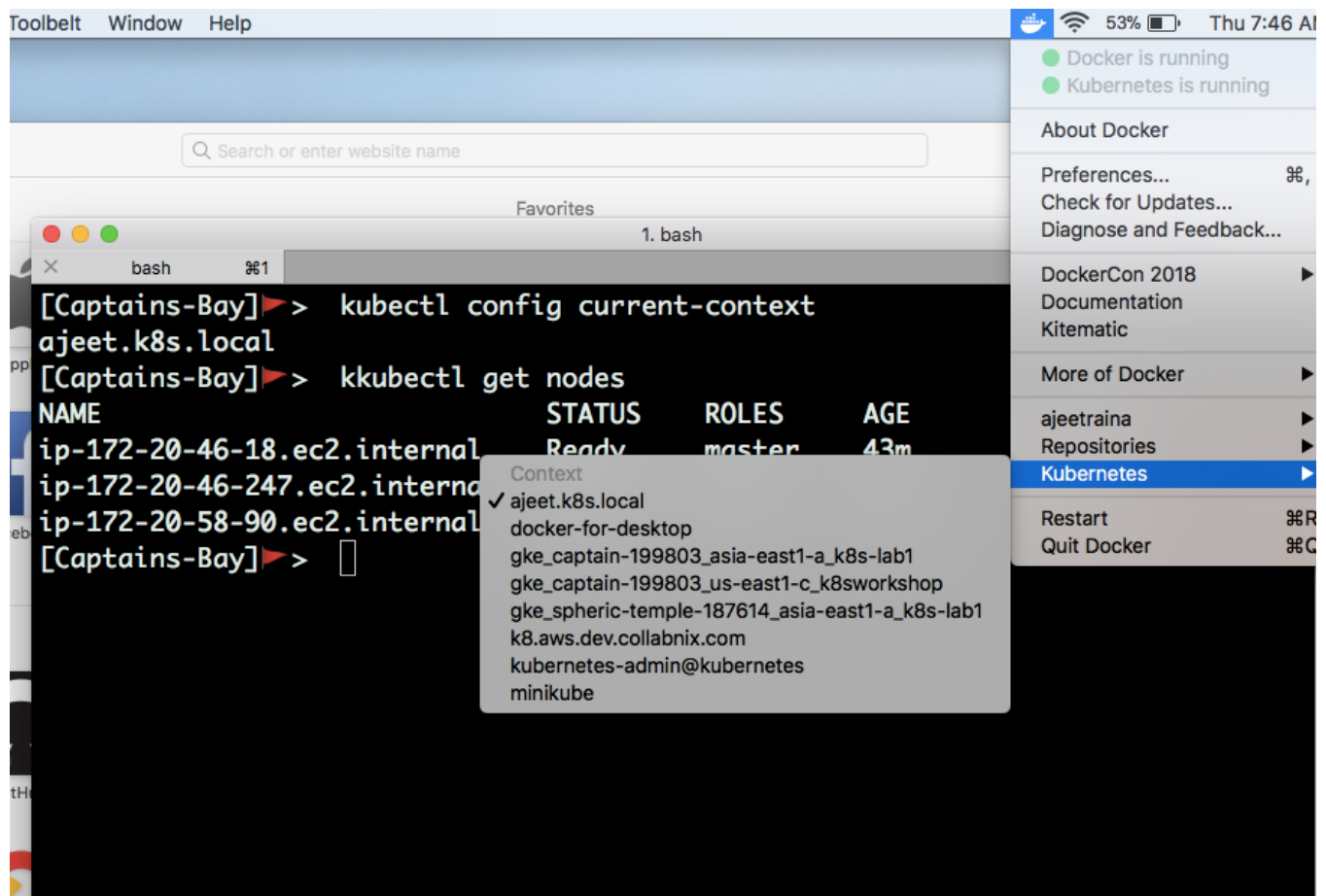
```
[Captains-Bay] ➤ > kops update cluster --name ${KOPS_CLUSTER_NAME} --yes
I0531 07:01:41.613598 1366 apply_cluster.go:456] Gossip DNS: skipping DNS
I0531 07:01:44.786395 1366 executor.go:91] Tasks: 0 done / 77 total; 30 c
I0531 07:01:46.893202 1366 executor.go:91] Tasks: 30 done / 77 total; 24
I0531 07:01:49.007022 1366 executor.go:91] Tasks: 54 done / 77 total; 19
I0531 07:01:51.649219 1366 executor.go:91] Tasks: 73 done / 77 total; 3 c
I0531 07:01:53.079596 1366 executor.go:91] Tasks: 76 done / 77 total; 1 c
I0531 07:01:53.440746 1366 executor.go:91] Tasks: 77 done / 77 total; 0 c
I0531 07:01:54.102339 1366 update_cluster.go:291] Exporting kubecfg for c
kops has set your kubectl context to ajeet.k8s.local
```

Cluster changes have been applied to the cloud.

Changes may require instances to restart: kops rolling-update cluster

```
[Captains-Bay] ➤ >
```

Now you can see K8s cluster under Context UI.



#### Suggestions:

- \* validate cluster: `kops validate cluster`
- \* list nodes: `kubectl get nodes --show-labels`
- \* ssh to the master: `ssh -i ~/.ssh/id_rsa admin@api.ajeet.k8s.local`
- \* the admin user is specific to Debian. If not using Debian please use the
- \* read about installing addons at: <https://github.com/kubernetes/kops/blob/>

```
[Captains-Bay] > kubectl get nodes
```

NAME	STATUS	ROLES	AGE	VERSION
ip-172-20-40-58.ec2.internal	Ready	node	107s	v1.17.6
ip-172-20-41-233.ec2.internal	Ready	node	103s	v1.17.6
ip-172-20-43-50.ec2.internal	Ready	master	3m7s	v1.17.6
ip-172-20-52-114.ec2.internal	Ready	node	104s	v1.17.6

```
[Captains-Bay] >
```

```
kops get instancegroups
```

NAME	ROLE	MACHINETYPE	MIN	MAX	ZONES
master-us-east-1a	Master	t3.medium	1	1	us-east-1a
nodes	Node	t2.medium	3	3	us-east-1a

## My Image

```
kops delete cluster --state=s3://kubernetes-aws-io --yes
```


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