

HANDS ON ISTIO/JAEGER/K8/EKS/KIALI

1) Create the AWS EC2 linux AMI instance

- Install kubectl [We will be accessing the PODS and resources of k8]

```
curl -LO "https://dl.k8s.io/release/$(curl -L -s  
https://dl.k8s.io/release/stable.txt)/bin/linux/amd64/kubectl"
```

```
curl -LO "https://dl.k8s.io/$(curl -L -s  
https://dl.k8s.io/release/stable.txt)/bin/linux/amd64/kubectl.sha256"
```

```
echo "$(cat kubectl.sha256) kubectl" | sha256sum --check
```

```
sudo install -o root -g root -m 0755 kubectl /usr/local/bin/kubectl
```

- Install eksctl [We will create the cluster]

```
curl --silent --location  
"https://github.com/weaveworks/eksctl/releases/latest/download/eksctl_  
$(uname -s)_amd64.tar.gz" | tar xz -C /tmp
```

```
sudo mv /tmp/eksctl /usr/bin  
eksctl version
```

2) Add IAM role to EC2 [So that EC2 access the EKS]

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3) Create Cluster

```
eksctl create cluster --name=eksdemo1 --region=us-west-1  
--zones=us-west-1b,us-west-1a --without-nodegroup
```

4) Add OIDC

```
eksctl utils associate-iam-oidc-provider --region us-west-1 --cluster  
eksdemo --approve
```

5) Add nodes

```
eksctl create nodegroup --cluster=eksdemo1 --region=us-west-1  
--name=eksdemo-ng-public --node-type=t2.medium --nodes=2  
--nodes-min=2 --nodes-max=4 --node-volume-size=10 --ssh-access  
--ssh-public-key=key-test --managed --asg-access --external-dns-access  
--full-ecr-access --appmesh-access --alb-ingress-access
```

```
[root@ip-172-31-3-173 ec2-user]# kubectl get pods -n kube-system
```

NAME	READY	STATUS	RESTARTS	AGE
aws-node-fcd27	1/1	Running	0	2m33s
aws-node-g4hvd	1/1	Running	0	3m14s
coredns-769569fd5d-hq4b6	1/1	Running	0	23m
coredns-769569fd5d-ksfwt	1/1	Running	0	23m
kube-proxy-jbgp8	1/1	Running	0	2m33s
kube-proxy-rl8mg	1/1	Running	0	3m14s

6) INSTALL ISTIO

```
curl -L https://istio.io/downloadIstio | ISTIO_VERSION=1.18.1  
TARGET_ARCH=x86_64 sh -
```

7) Go into the directory

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```
cd istio-1.18.1
```

The installation directory contains:

- **Sample applications in samples/**
- **The istioctl client binary in the bin/ directory.**

8) SET THE PATH

```
export PATH=$PWD/bin:$PATH
```

9) INSTALL THE ISTIO WITH DEMO PROFILE

```
istioctl install --set profile=demo -y
```

10)

```
kubectl apply -f
```

<https://raw.githubusercontent.com/istio/istio/release-1.18/samples/bookinfo/platform/kube/bookinfo.yaml>

11) kubectl get services

```
[root@ip-172-31-7-197 istio-1.18.1]# kubectl get services
```

NAME	TYPE	CLUSTER-IP	EXTERNAL-IP	PORT(S)	AGE
details	ClusterIP	10.100.228.237	<none>	9080/TCP	76s
kubernetes	ClusterIP	10.100.0.1	<none>	443/TCP	127m
productpage	ClusterIP	10.100.242.14	<none>	9080/TCP	76s
ratings	ClusterIP	10.100.232.38	<none>	9080/TCP	76s
reviews	ClusterIP	10.100.241.28	<none>	9080/TCP	76s

12) kubectl get pods

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```
[root@ip-172-31-7-197 istio-1.18.1]# kubectl get pods
```

NAME	READY	STATUS	RESTARTS	AGE
details-v1-5ffd6b64f7-9816v	1/1	Running	0	90s
productpage-v1-8b588bf6d-rblmb	1/1	Running	0	89s
ratings-v1-5f9699cfd-mzzwp	1/1	Running	0	90s
reviews-v1-569db879f5-ltf6l	1/1	Running	0	90s
reviews-v2-65c4dc6fdc-mg9s4	1/1	Running	0	90s
reviews-v3-c9c4fb987-xcskp	1/1	Running	0	90s

13) Hit the below command

```
kubectl exec "$(kubectl get pod -l app=ratings -o
jsonpath='{.items[0].metadata.name}')" -c ratings -- curl -sS
productpage:9080/productpage | grep -o "<title>.*</title>"
```

14) TO INJECT ISTIO AS INIT CONTAINER [NOW 2 PODS WILL RUN]

- kubectl label namespace default istio-injection=enabled
- istioctl analyze
- Delete all pods
kubectl delete pod <pod_name>

[NOTE - You will see two container per pod]

```
[root@ip-172-31-7-197 istio-1.18.1]# kubectl get pods
```

NAME	READY	STATUS	RESTARTS	AGE
details-v1-5ffd6b64f7-4xpp2	2/2	Running	0	21s
productpage-v1-8b588bf6d-lffqt	2/2	Running	0	21s
ratings-v1-5f9699cfd-psmb6	2/2	Running	0	21s
reviews-v1-569db879f5-srq4z	2/2	Running	0	21s
reviews-v2-65c4dc6fdc-hzhjg	2/2	Running	0	21s
reviews-v3-c9c4fb987-5ppmb	2/2	Running	0	21s

15) `cd samples/bookinfo/networking/`

`kubectl apply -f bookinfo-gateway.yaml`

16) `kubectl get vs`

`kubectl get gateway`

17)

`kubectl get svc istio-ingressgateway -n istio-system`

18) Set the ingress IP and ports:

```
export INGRESS_HOST=$(kubectl -n istio-system get service
istio-ingressgateway -o jsonpath='{.status.loadBalancer.ingress[0].ip}')
export INGRESS_PORT=$(kubectl -n istio-system get service
istio-ingressgateway -o jsonpath='{.spec.ports[?(@.name=="http2")].port}')
export SECURE_INGRESS_PORT=$(kubectl -n istio-system get service
istio-ingressgateway -o jsonpath='{.spec.ports[?(@.name=="https")].port}')
```

19) `echo $SECURE_INGRESS_PORT`

20)

```
export
INGRESS_HOST=a06f39bd75fac4a8491ee0db7ba09704-646636610.us
-west-1.elb.amazonaws.com
```

```
export GATEWAY_URL=$INGRESS_HOST:$INGRESS_PORT
```

```
echo $GATEWAY_URL
```

21) HIT THE BELOW URL

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```
echo "http://$GATEWAY_URL/productpage"
```

<http://a02c0d05e773744d289073f25ac63817-1278996514.us-west-1.elb.amazonaws.com/productpage>

22) KIALI DASHBOAORD [ALL TOOLS INSTALLATION]

```
cd istio-1.18.1/samples/addons
```

```
kubectl apply -f samples/addons
```

Or

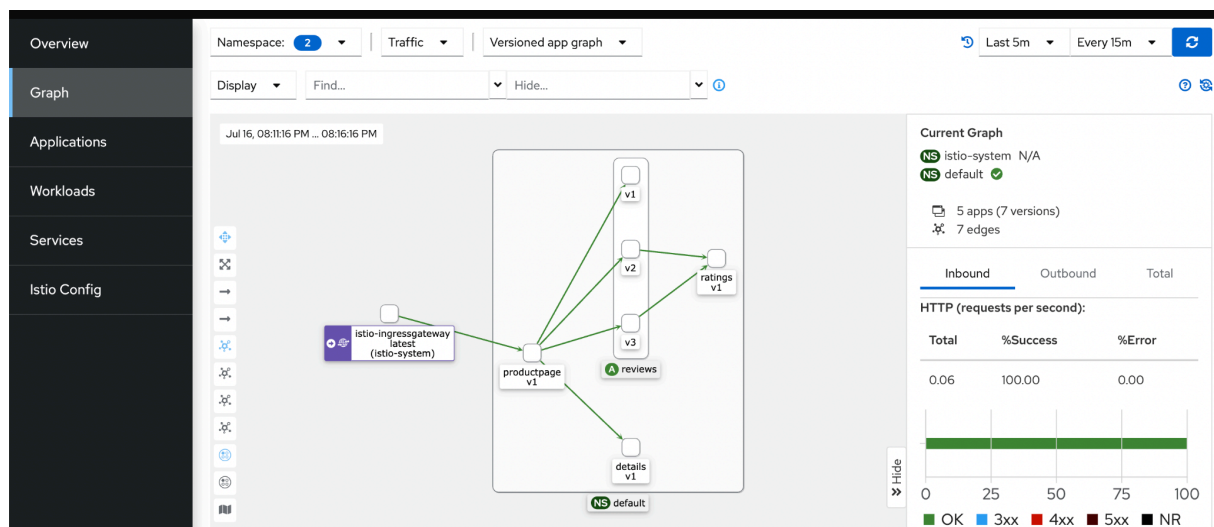
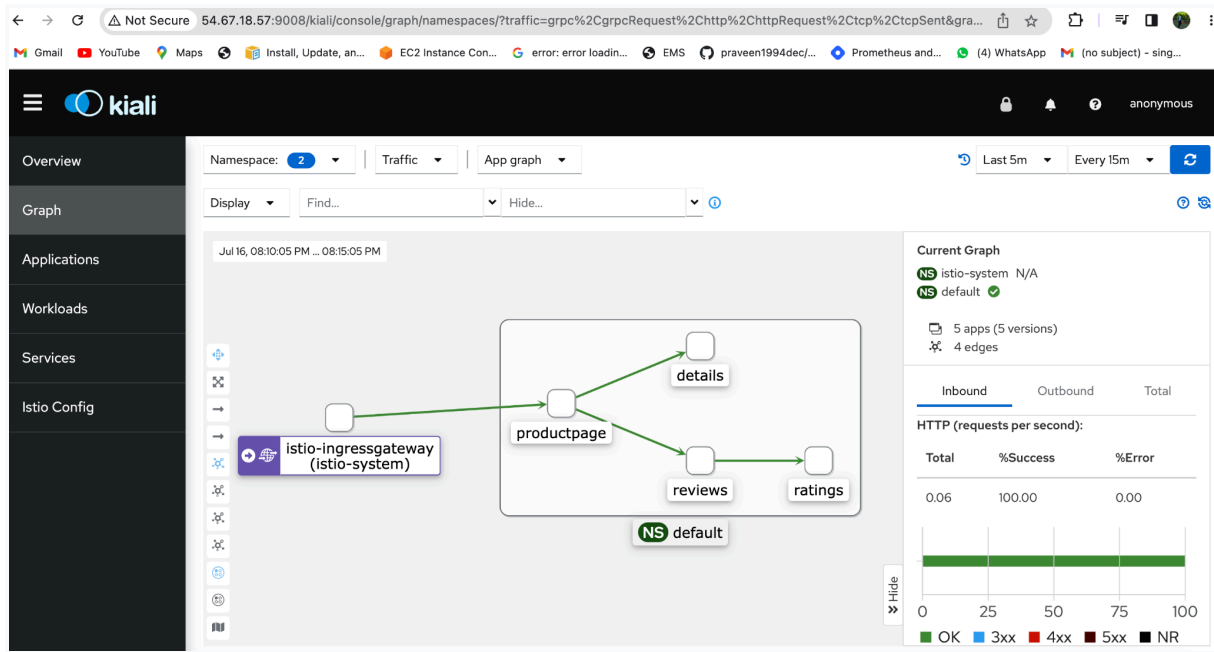
```
Kubectl apply -f .
```

23) DO PORT FORWARD

OPEN THE SG TO ALL TRAFFIC

```
kubectl port-forward --address 0.0.0.0 svc/kiali 9008:20001 -n istio-system
```

<http://54.67.18.57:9008/kiali/console/overview?duration=60&refresh=60000>

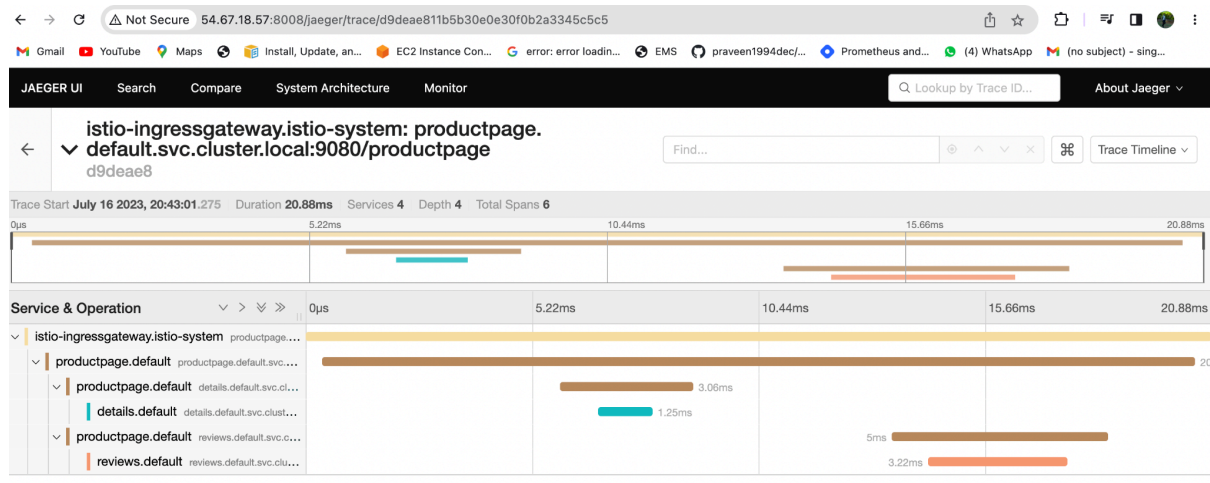


24) FOR JAEGER

kubectrl port-forward --address 0.0.0.0 svc/tracing 8008:80 -n istio-system

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Delete:

DELETE NODE

**eksctl delete nodegroup --cluster=eksdemo
--region=us-west-1 --name=eksdemo-ng-public**

DELETE CLUSTER

eksctl delete cluster --name=eksdemo --region=us-west-1

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