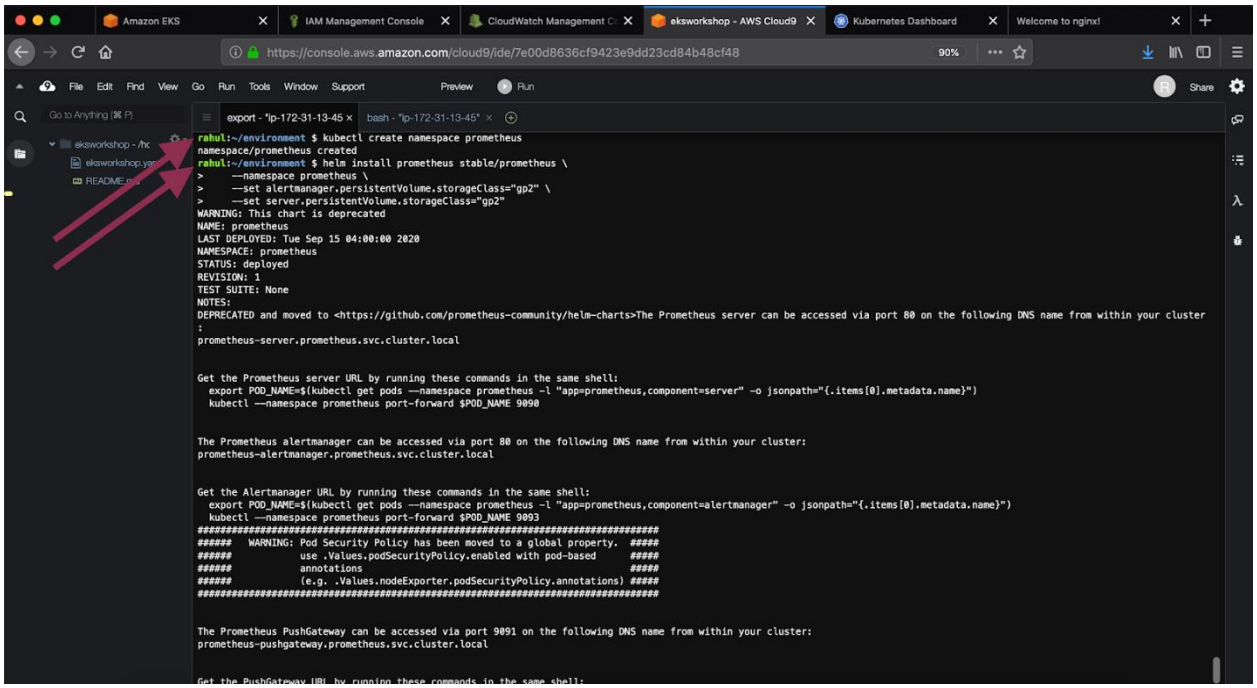
Module 2: Prometheus Security and Use Cases

Use Case 1

Use Case 1: Prometheus Security and Use Cases

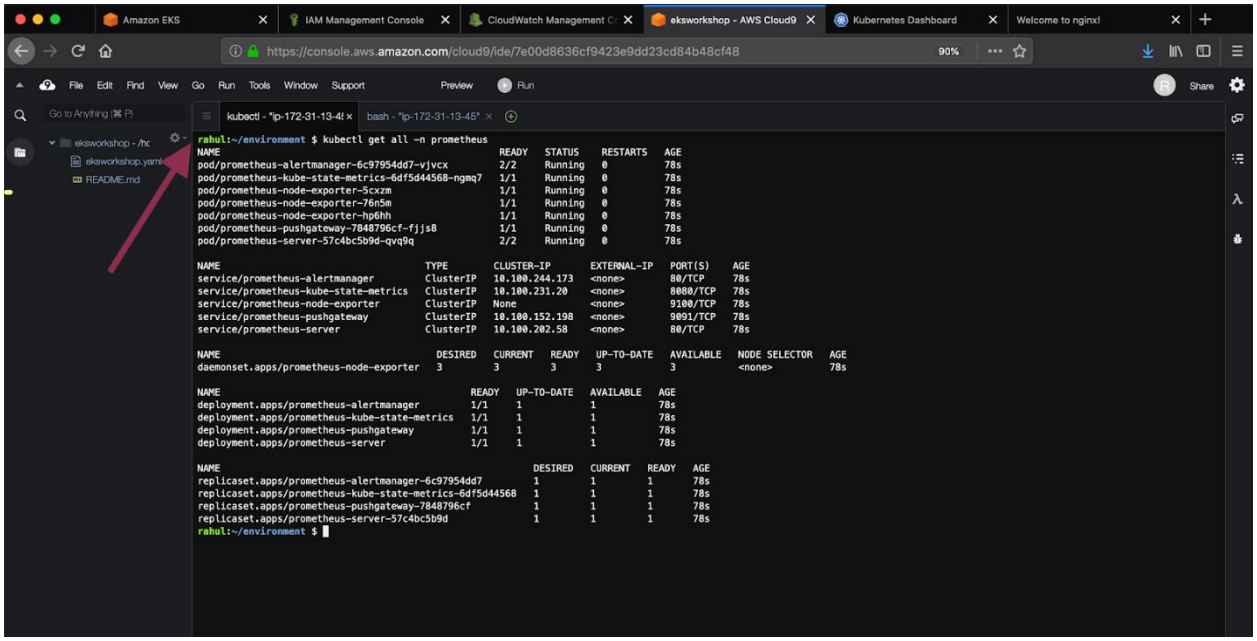
1. Deploy Prometheus

```
kubectl create namespace prometheus
helm install prometheus stable/prometheus \
    --namespace prometheus \
    --set alertmanager.persistentVolume.storageClass="gp2" \
    --set server.persistentVolume.storageClass="gp2"
```



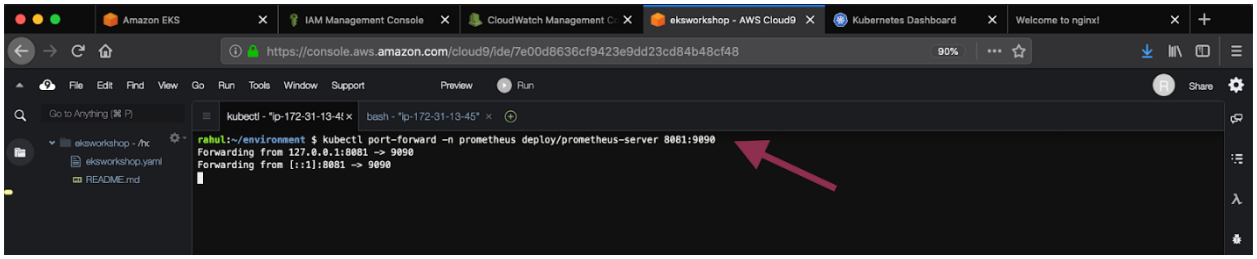
2. Check if Prometheus components deployed as expected

```
kubectl get all -n prometheus
```



3. In order to access the Prometheus server URL, we are going to use the [kubectl port-forward] command to access the application. In Cloud9, run:

```
kubectl port-forward -n prometheus deploy/prometheus-server 8080:9090
```

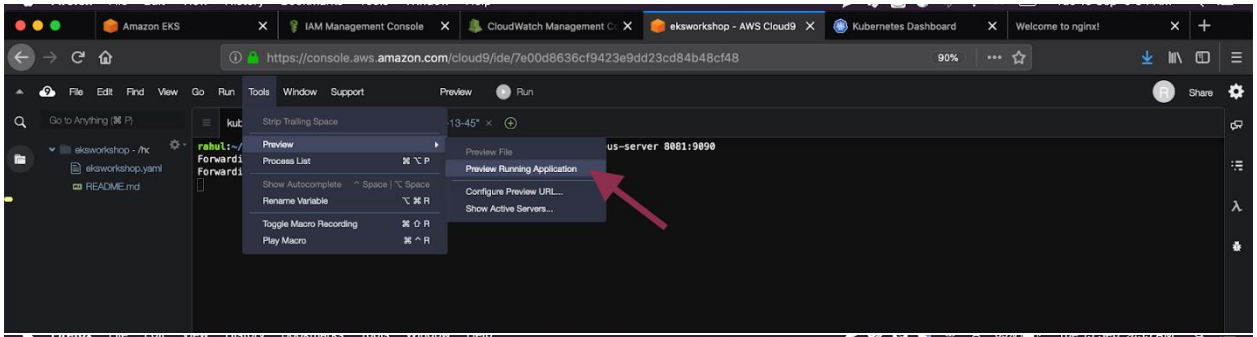


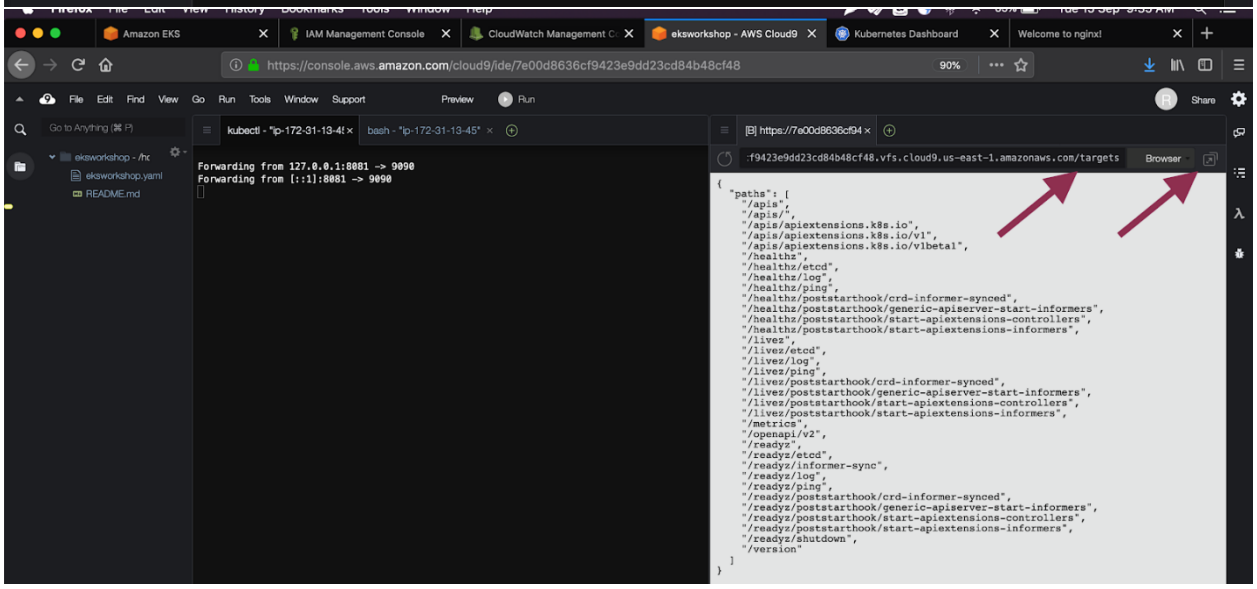
Note: In case you get an error in port forwarding saying port already in use then run the below commands to kill the process and rerun the above command. This issue could probably come because we deployed nginx earlier which used port 8080.

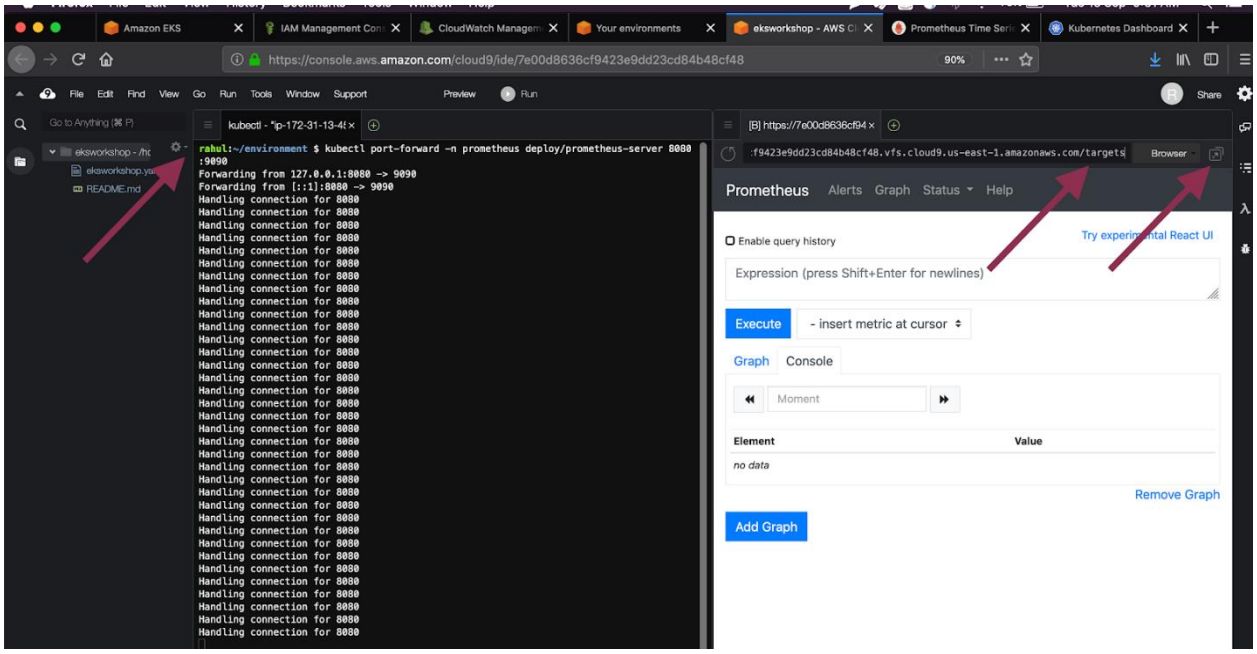
```
fuser -k 8080/tcp
```

In your Cloud9 environment, click Tools / Preview / Preview Running Application. Scroll to the end of the URL and append:

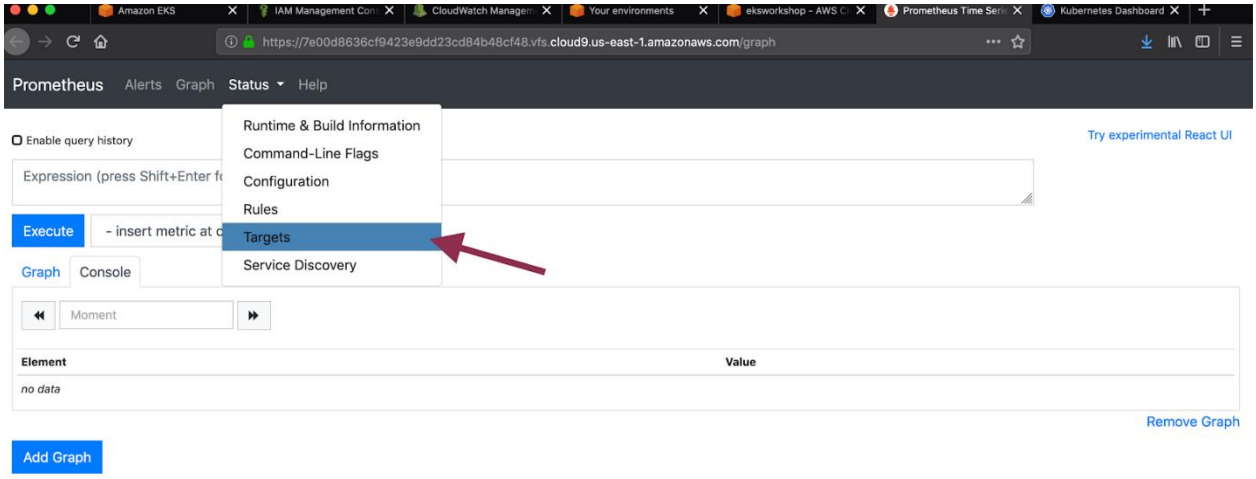
```
/targets
```

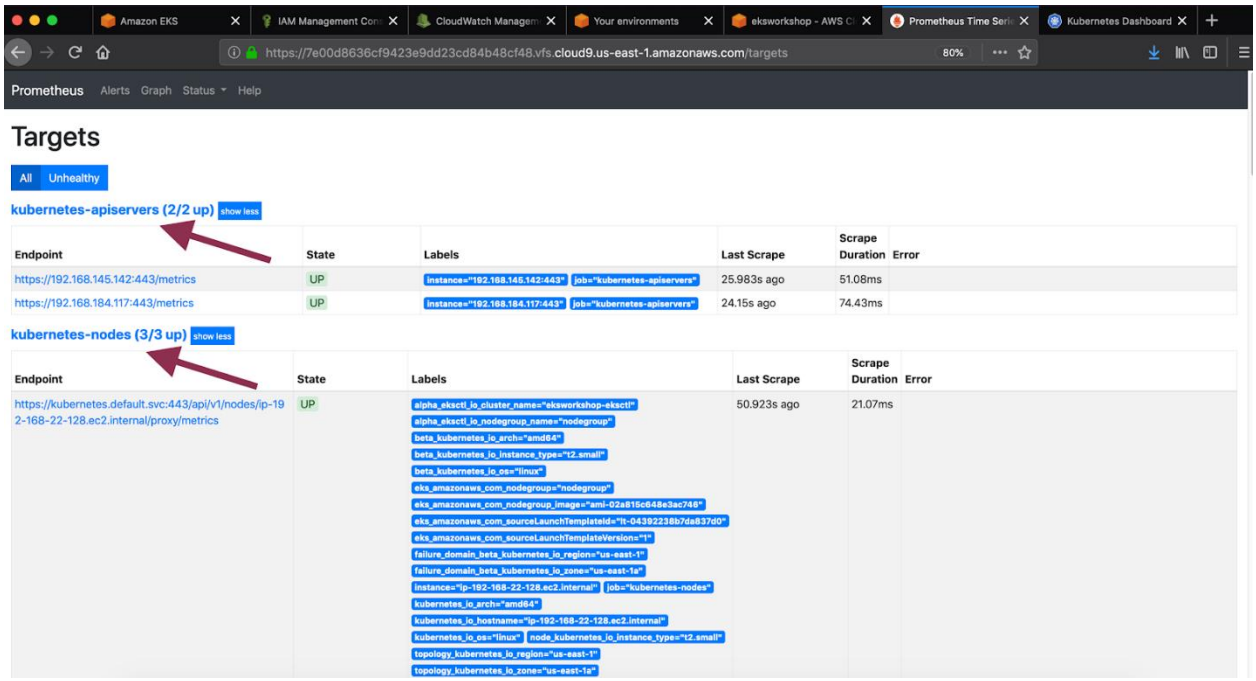






Prometheus will be launched; you can see the targets in the Status Drop Down > Targets.





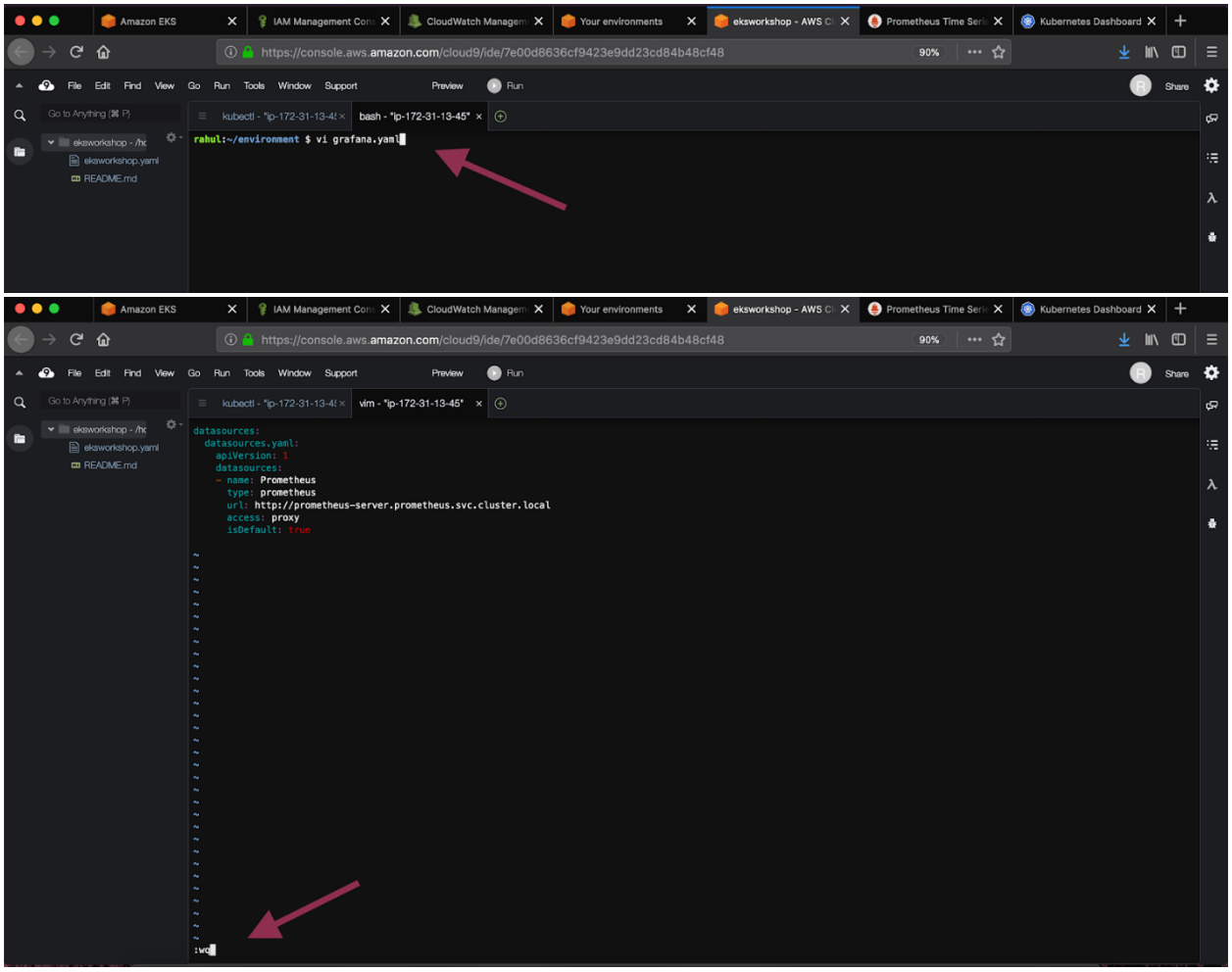
2. Deploy Grafana

We are now going to install Grafana.

1. Create YAML file called **grafana.yaml** with following values:

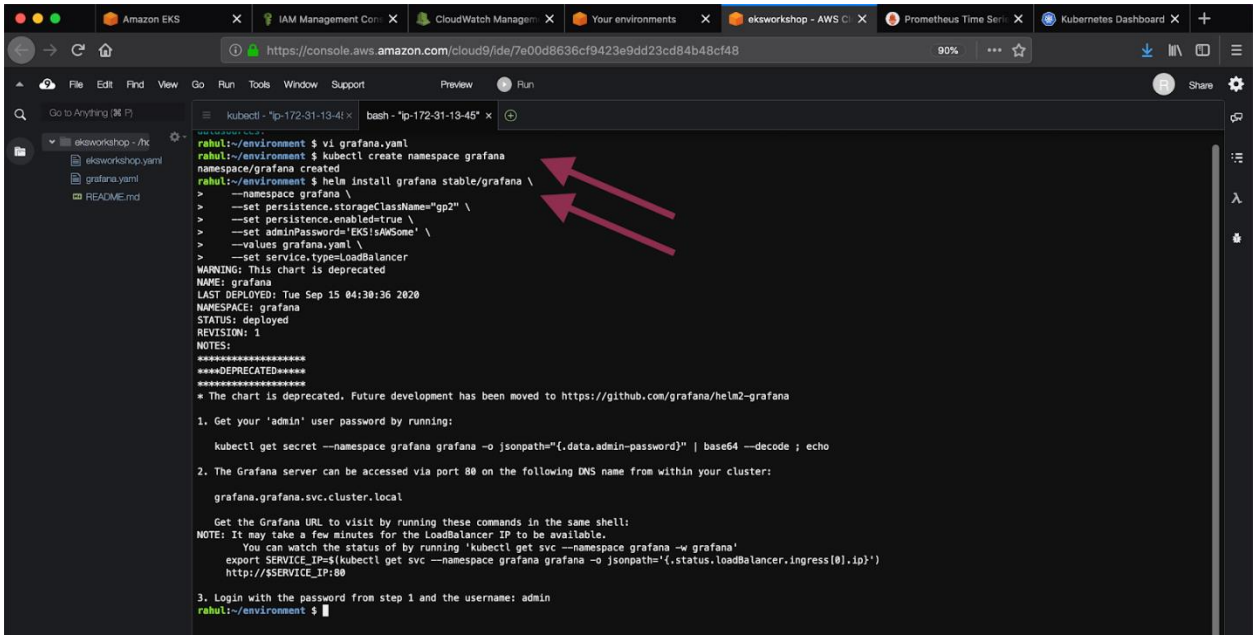
```
datasources:
  datasources.yaml:
    apiVersion: 1
    datasources:
    - name: Prometheus
```

```
    type: prometheus
    url: http://prometheus-server.prometheus.svc.cluster.local
    access: proxy
    isDefault: true
```



2. Install grafana using the yaml file.

```
kubectl create namespace grafana
helm install grafana stable/grafana \
    --namespace grafana \
    --set persistence.storageClassName="gp2" \
    --set persistence.enabled=true \
    --set adminPassword='EKS!sAWSome' \
    --values grafana.yaml \
    --set service.type=LoadBalancer
```

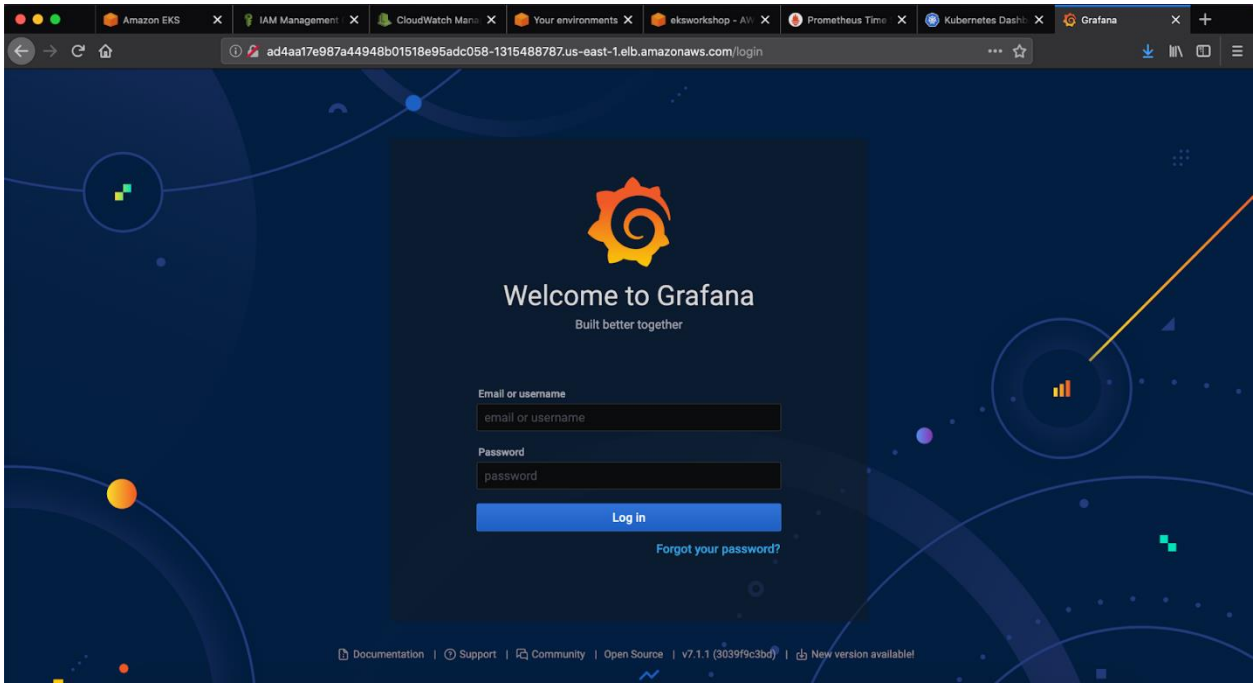


3. Run the following command to check if Grafana is deployed properly:

```
kubectl get all -n grafana
```

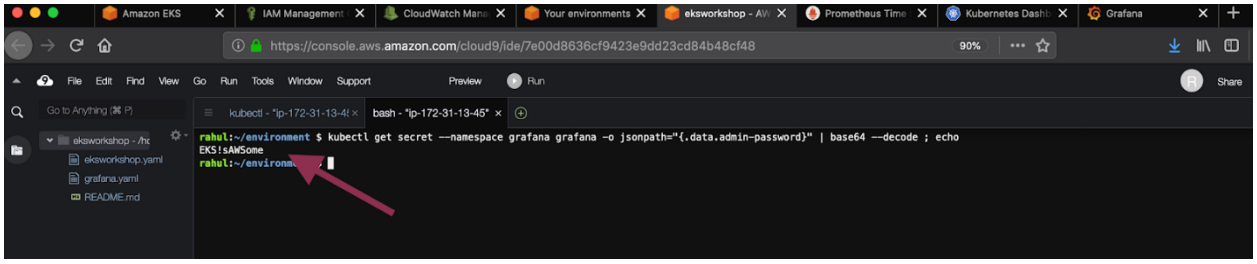
You can get the Grafana ELB URL using this command. Copy & Paste the value into the browser to access Grafana web UI.

```
export ELB=$(kubectl get svc -n grafana grafana -o
jsonpath='{.status.loadBalancer.ingress[0].hostname}')
echo http://$ELB
```



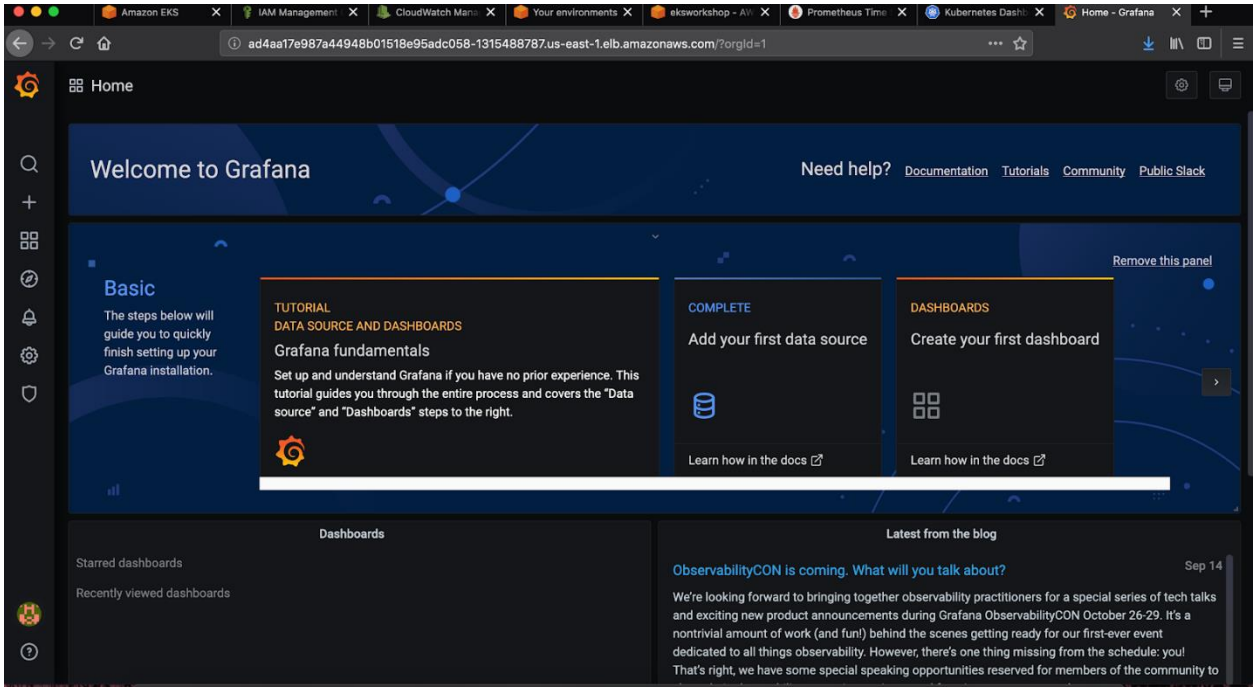
When logging in, use the username admin and get the password hash by running the following:

```
kubectl get secret --namespace grafana grafana -o
jsonpath="{.data.admin-password}" | base64 --decode ; echo
```



Log in to Grafana

Log in to Grafana dashboard using credentials supplied during configuration.



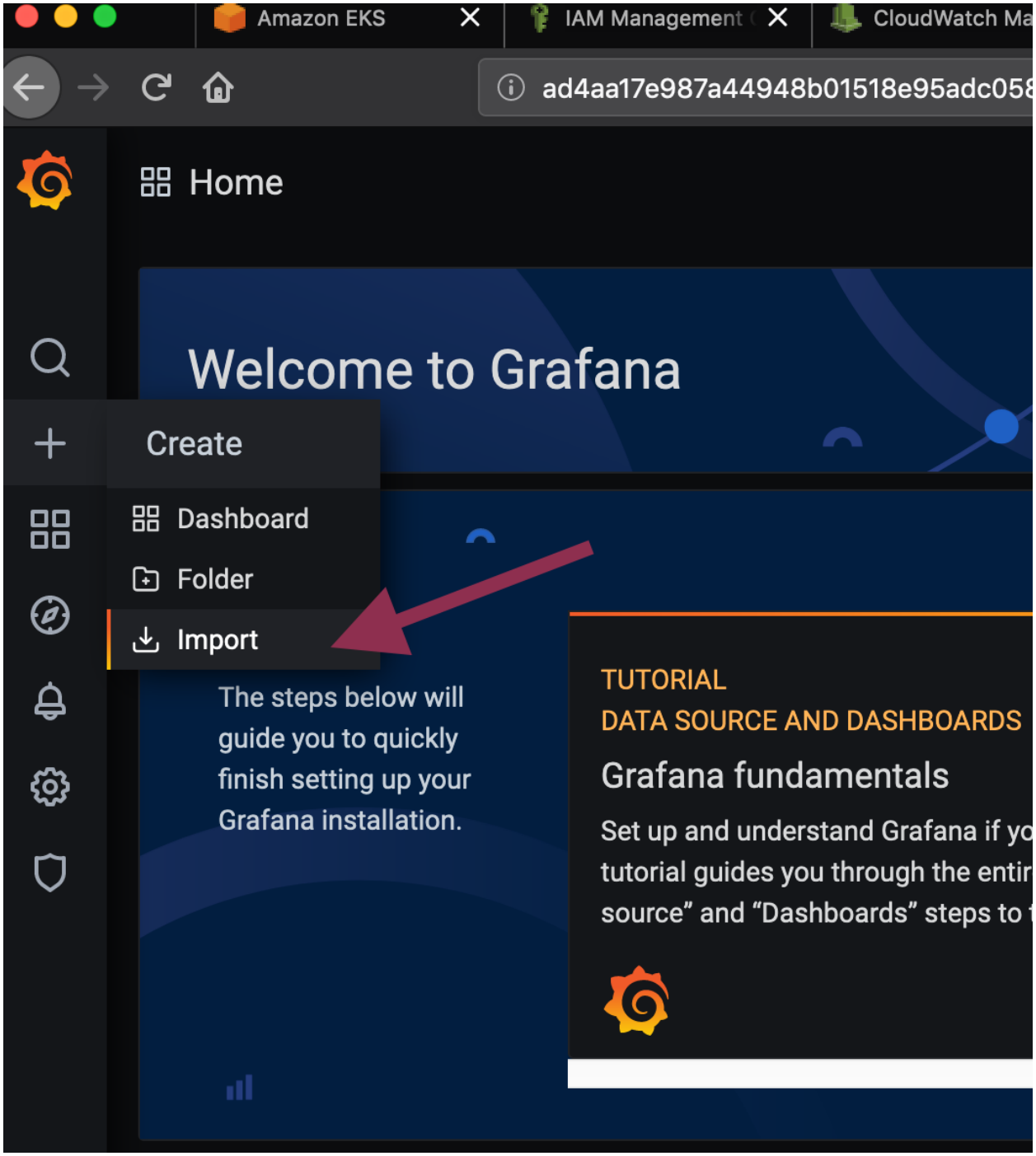
You will notice that 'Install Grafana' & 'create your first data source' are already completed. We will import a community created dashboard for this tutorial.

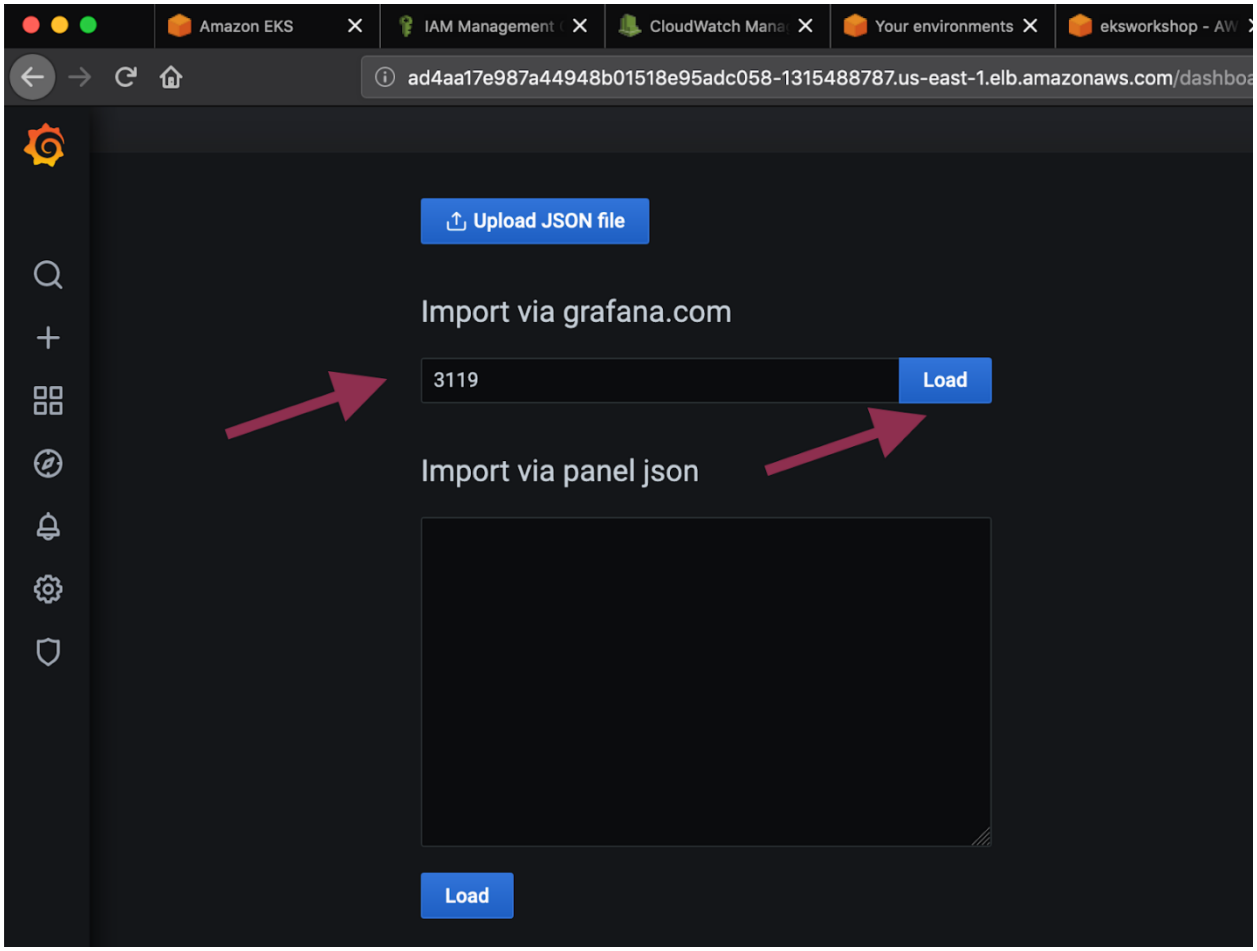
Cluster Monitoring Dashboard

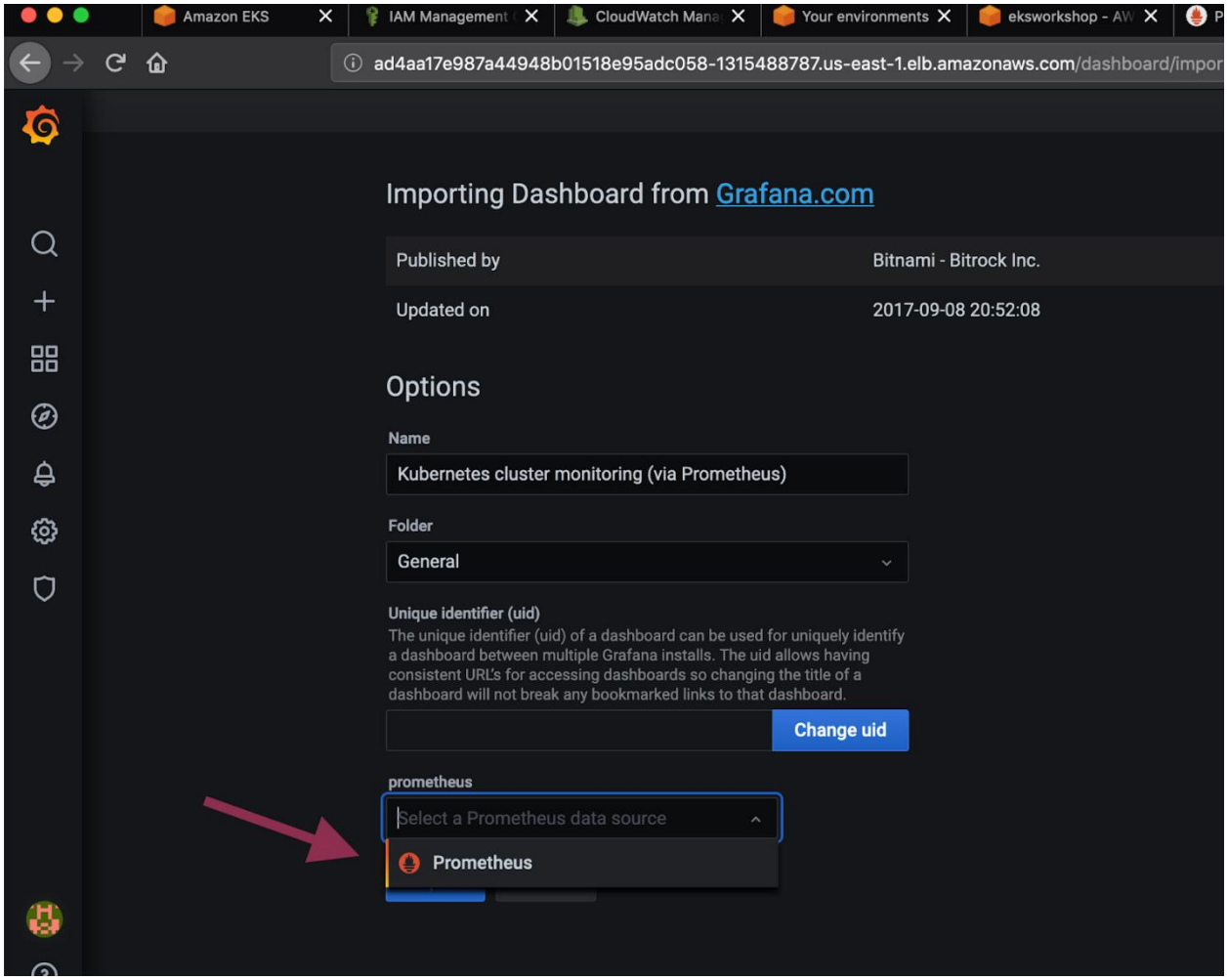
For creating a dashboard to monitor the cluster:

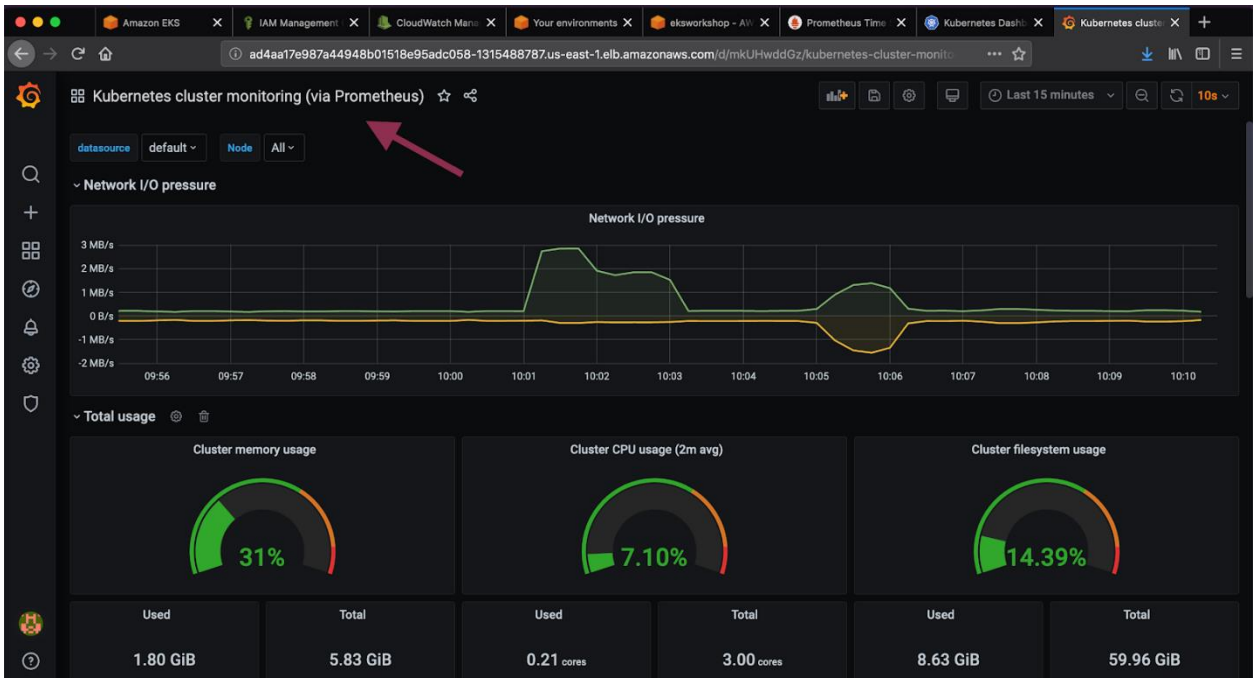
- Click '+' button on the left panel and select 'Import'.
- Enter 3119 dashboard id under Grafana.com Dashboard.
- Click 'Load'.
- Select 'Prometheus' as the endpoint under prometheus data sources drop down.
- Click 'Import'.

This will show monitoring dashboard for all cluster nodes


Amazon EKS
IAM Management
CloudWatch Ma
ad4aa17e987a44948b01518e95adc058
Home
Welcome to Grafana
Create
Dashboard
Folder
Import
The steps below will guide you to quickly finish setting up your Grafana installation.
TUTORIAL
DATA SOURCE AND DASHBOARDS
Grafana fundamentals
Set up and understand Grafana if yo
tutorial guides you through the entir
source" and "Dashboards" steps to


Amazon EKS
IAM Management
CloudWatch Mana
Your environments
eksworkshop - AW
ad4aa17e987a44948b01518e95adc058-1315488787.us-east-1.elb.amazonaws.com/dashboa
Upload JSON file
Import via grafana.com
3119
Load
Import via panel json
Load

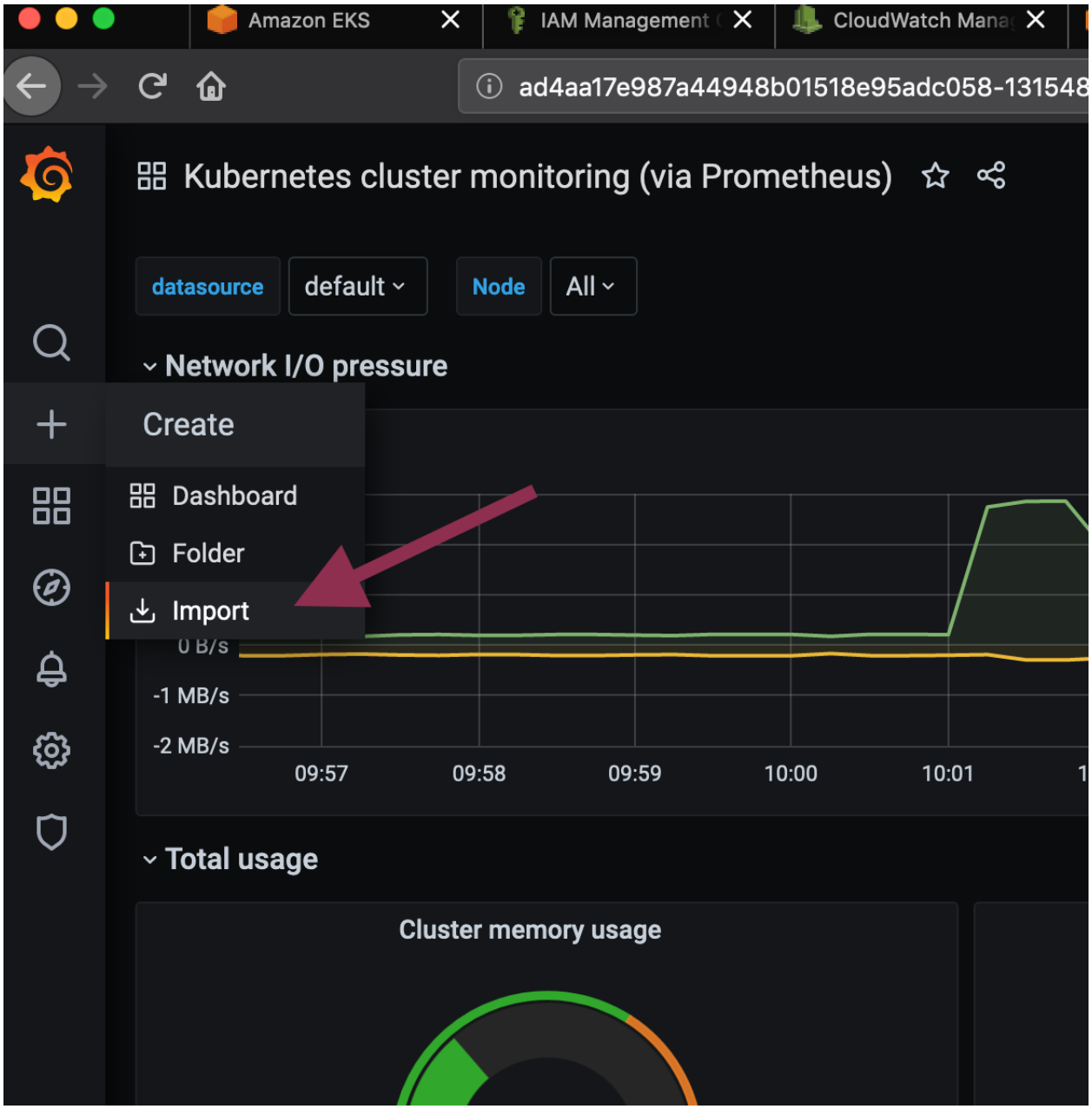

Amazon EKS
IAM Management
CloudWatch Mana
Your environments
eksworkshop - AW
ad4aa17e987a44948b01518e95adc058-1315488787.us-east-1.elb.amazonaws.com/dashboard/impor
Importing Dashboard from Grafana.com
Published by
Bitnami - Bitrock Inc.
Updated on
2017-09-08 20:52:08
Options
Name
Kubernetes cluster monitoring (via Prometheus)
Folder
General
Unique identifier (uid)
The unique identifier (uid) of a dashboard can be used for uniquely identify a dashboard between multiple Grafana installs. The uid allows having consistent URL's for accessing dashboards so changing the title of a dashboard will not break any bookmarked links to that dashboard.
Change uid
prometheus
Select a Prometheus data source
Prometheus

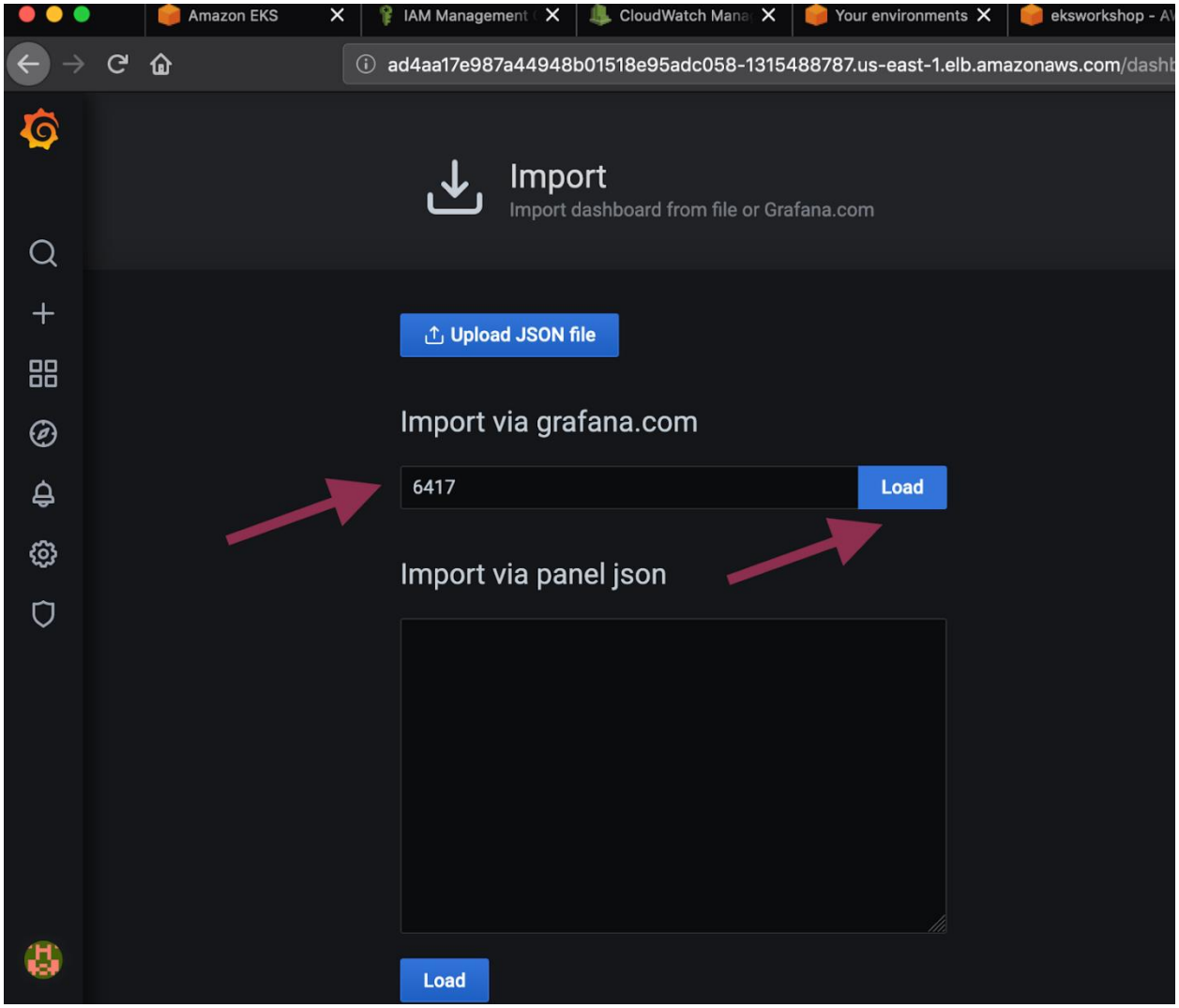

Kubernetes cluster monitoring (via Prometheus)
Last 15 minutes
10s
datasource
default
Node
All
Network I/O pressure
Network I/O pressure
3 MB/s
2 MB/s
1 MB/s
0 B/s
-1 MB/s
-2 MB/s
09:56
09:57
09:58
09:59
10:00
10:01
10:02
10:03
10:04
10:05
10:06
10:07
10:08
10:09
10:10
Total usage
Cluster memory usage
31%
Cluster CPU usage (2m avg)
7.10%
Cluster filesystem usage
14.39%
Used
1.80 GiB
Total
5.83 GiB
Used
0.21 cores
Total
3.00 cores
Used
8.63 GiB
Total
59.96 GiB

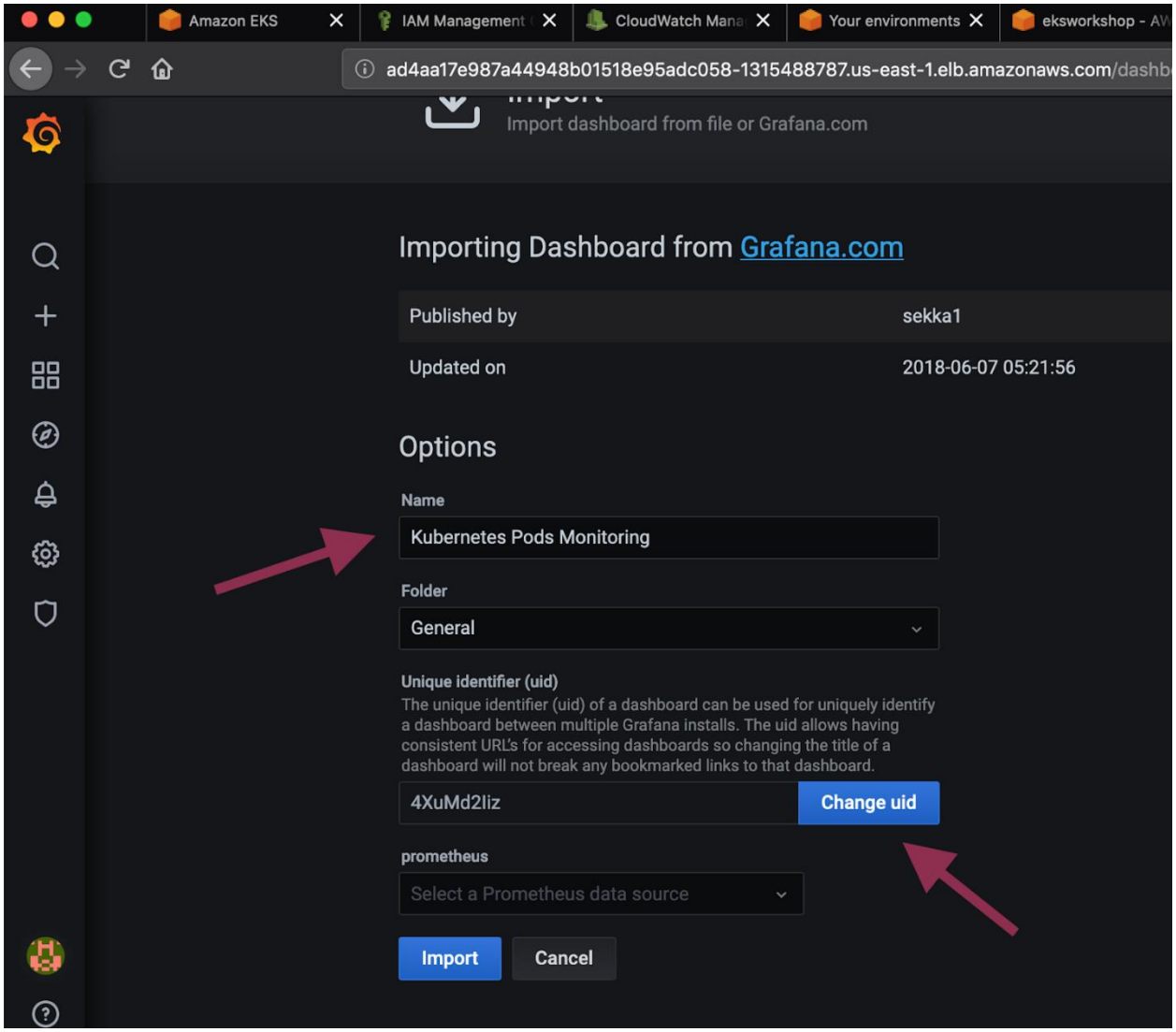
Pods Monitoring Dashboard

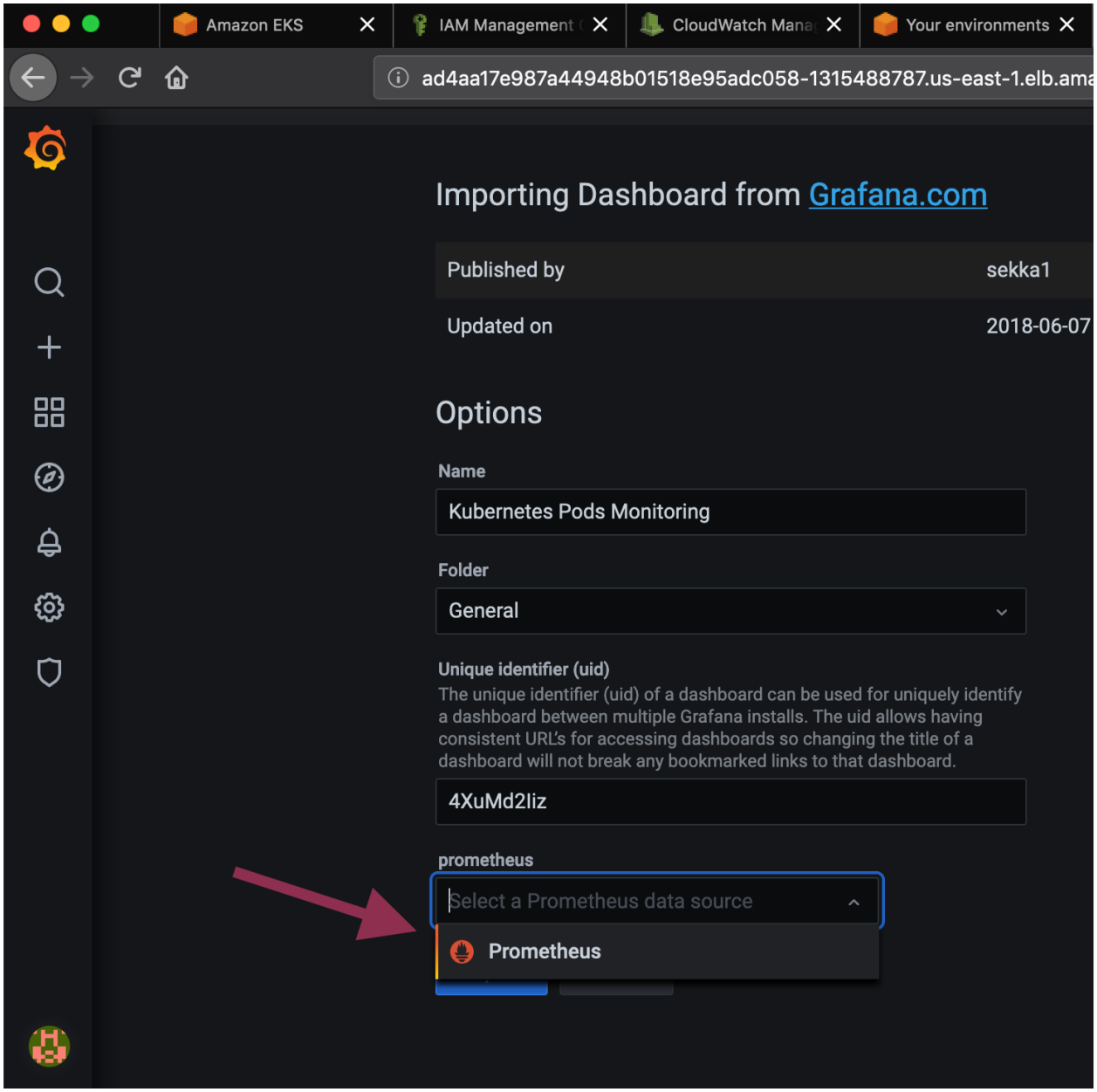
For creating a dashboard to monitor all the pods:

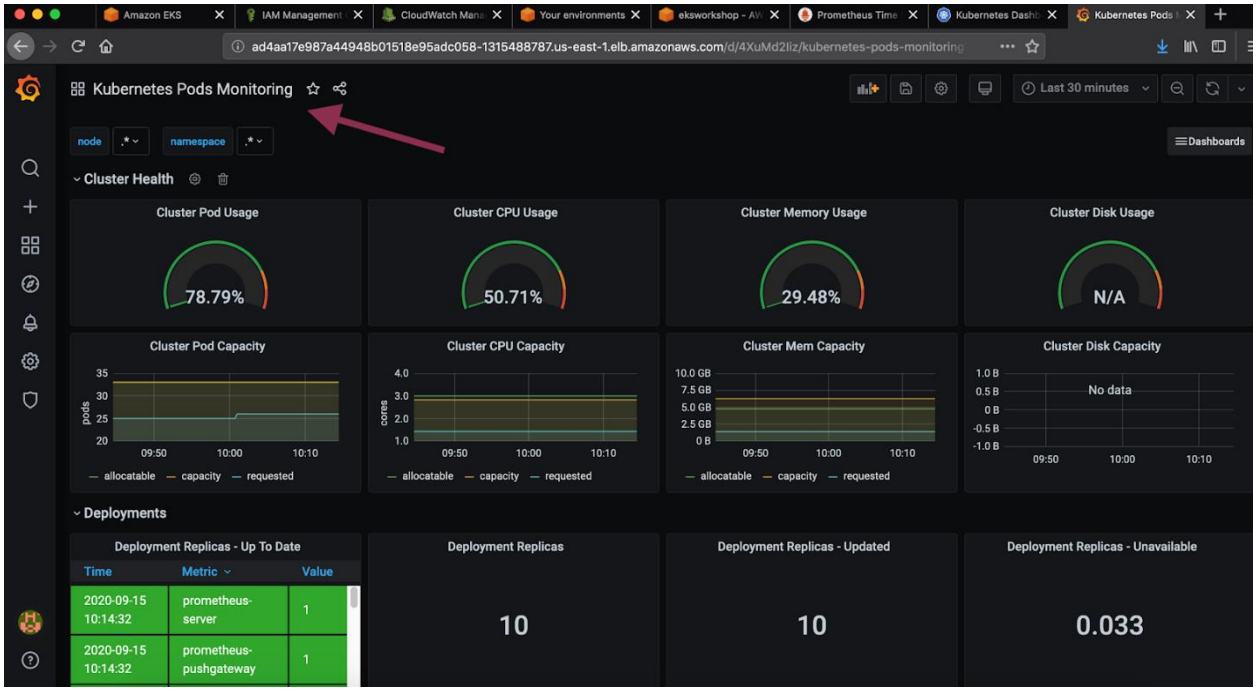
- Click '+' button on left panel and select 'Import'.
- Enter 6417 dashboard id under Grafana.com Dashboard.
- Click 'Load'.
- Enter Kubernetes Pods Monitoring as the Dashboard name.
- Click change to set the Unique identifier (uid).
- Select 'Prometheus' as the endpoint under prometheus data sources drop down.s
- Click 'Import'.

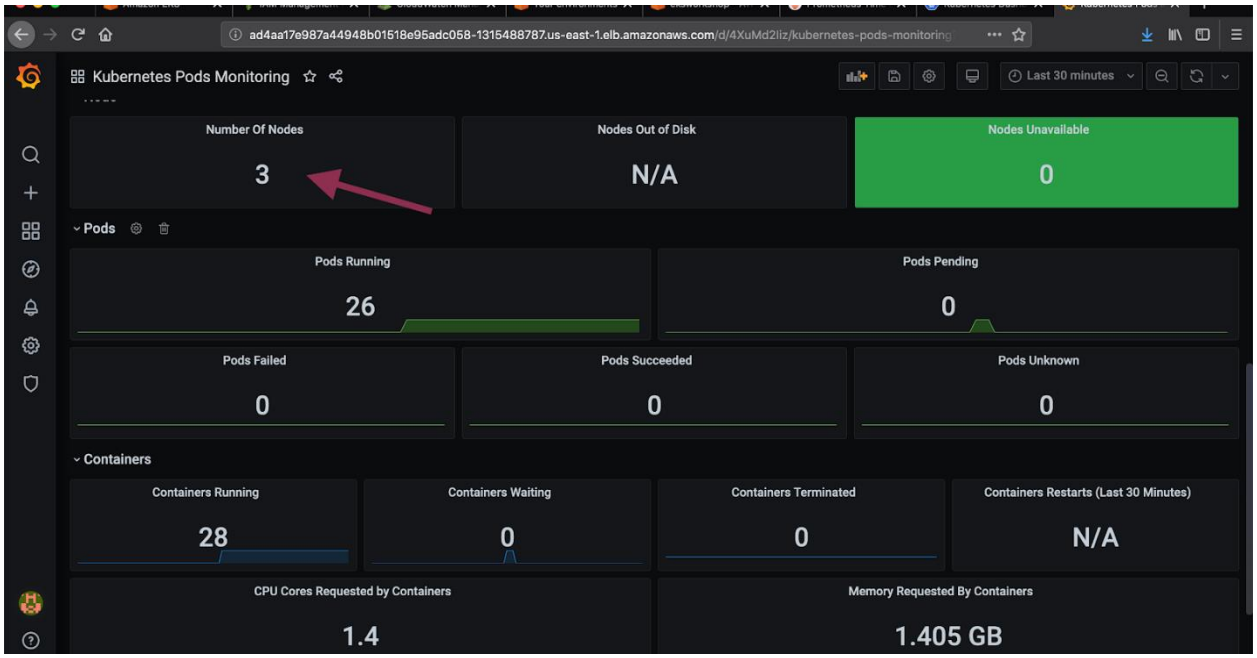



Amazon EKS
IAM Management
CloudWatch Mana
Your environments
eksworkshop - A
ad4aa17e987a44948b01518e95adc058-1315488787.us-east-1.elb.amazonaws.com/dashb
Import
Import dashboard from file or Grafana.com
Upload JSON file
Import via grafana.com
6417
Load
Import via panel json
Load


Amazon EKS
IAM Management
CloudWatch Mana
Your environments
eksworkshop - AW
ad4aa17e987a44948b01518e95adc058-1315488787.us-east-1.elb.amazonaws.com/dashb
Import dashboard from file or Grafana.com
Importing Dashboard from Grafana.com
Published by
sekka1
Updated on
2018-06-07 05:21:56
Options
Name
Kubernetes Pods Monitoring
Folder
General
Unique identifier (uid)
The unique identifier (uid) of a dashboard can be used for uniquely identify a dashboard between multiple Grafana installs. The uid allows having consistent URL's for accessing dashboards so changing the title of a dashboard will not break any bookmarked links to that dashboard.
4XuMd2liz
Change uid
prometheus
Select a Prometheus data source
Import
Cancel


Amazon EKS
IAM Management
CloudWatch Mana
Your environments
ad4aa17e987a44948b01518e95adc058-1315488787.us-east-1.elb.ama
Importing Dashboard from Grafana.com
Published by
sekka1
Updated on
2018-06-07
Options
Name
Kubernetes Pods Monitoring
Folder
General
Unique identifier (uid)
The unique identifier (uid) of a dashboard can be used for uniquely identify a dashboard between multiple Grafana installs. The uid allows having consistent URL's for accessing dashboards so changing the title of a dashboard will not break any bookmarked links to that dashboard.
4XuMd2liz
prometheus
Select a Prometheus data source
Prometheus





End of Lab Exercise. Hope you learnt something useful.