Anishkumar Pankajkumar Patel

101504708

BCDV 4032

Building Scalable Blockchain Apps

Lab 05

31st Jan 2024

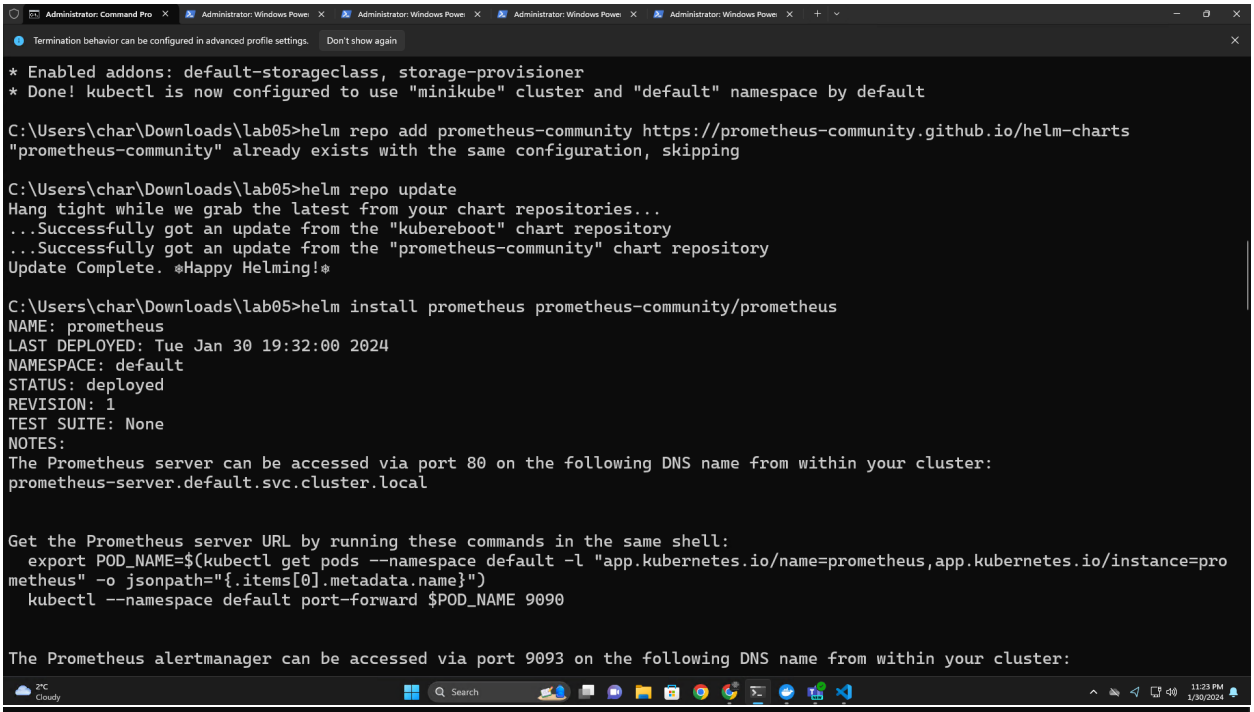
Keerthi Nelaturu

Note for Lab 04 -
Made a mistake in Lab 04 frontend-deployment.yaml and backend-deployment.yaml

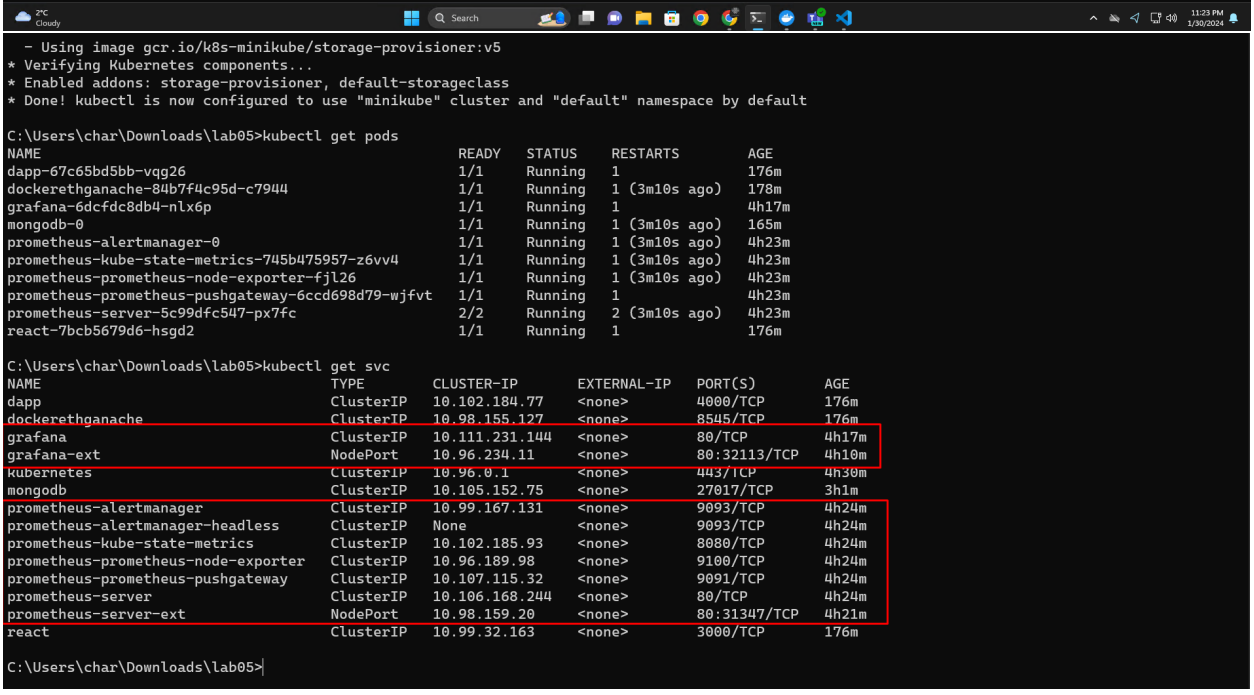
```
apiVersion: apps/v1
kind: Deployment
metadata:
  name:
  namespace:
spec:
  # from here  ->
  replicas:
  selector:
    matchLabels:
      app:
  template:
    metadata:
      labels:
        app:
    spec:
      serviceAccountName:  # Correct placement
      containers:
      - name:
        image:
        ports:
        - containerPort:
```

Lab 05

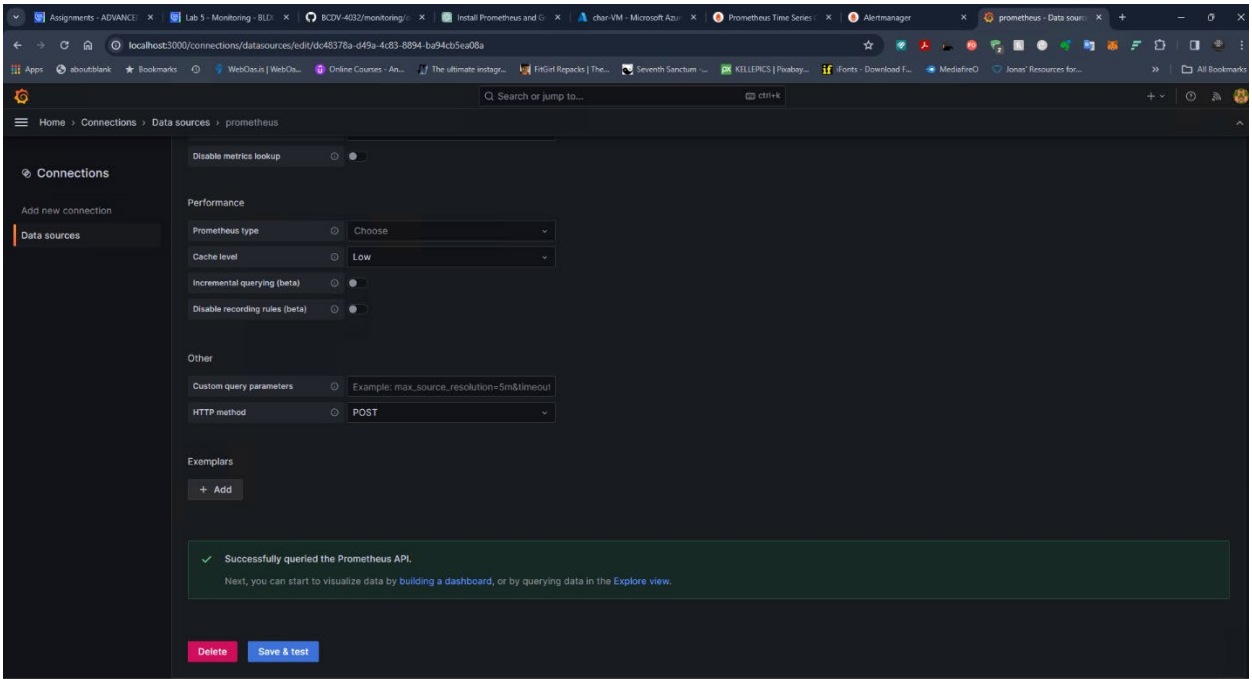
Section 01 – Screenshots of the Demonstration

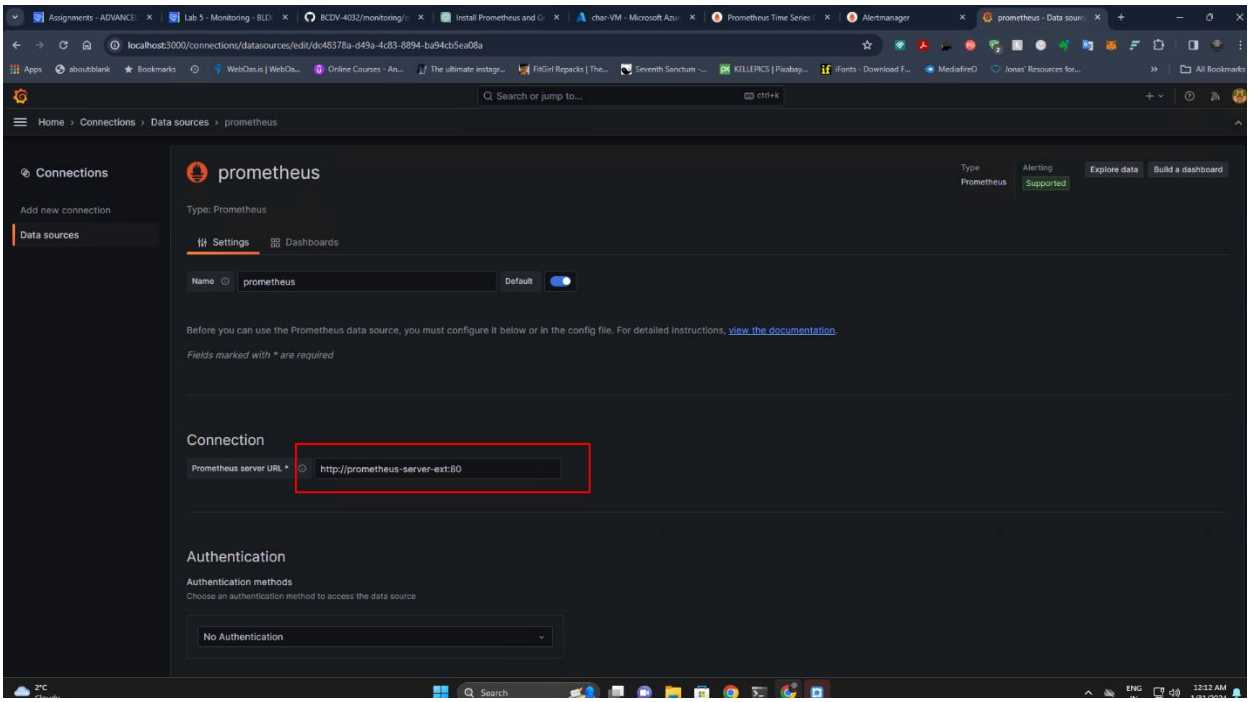


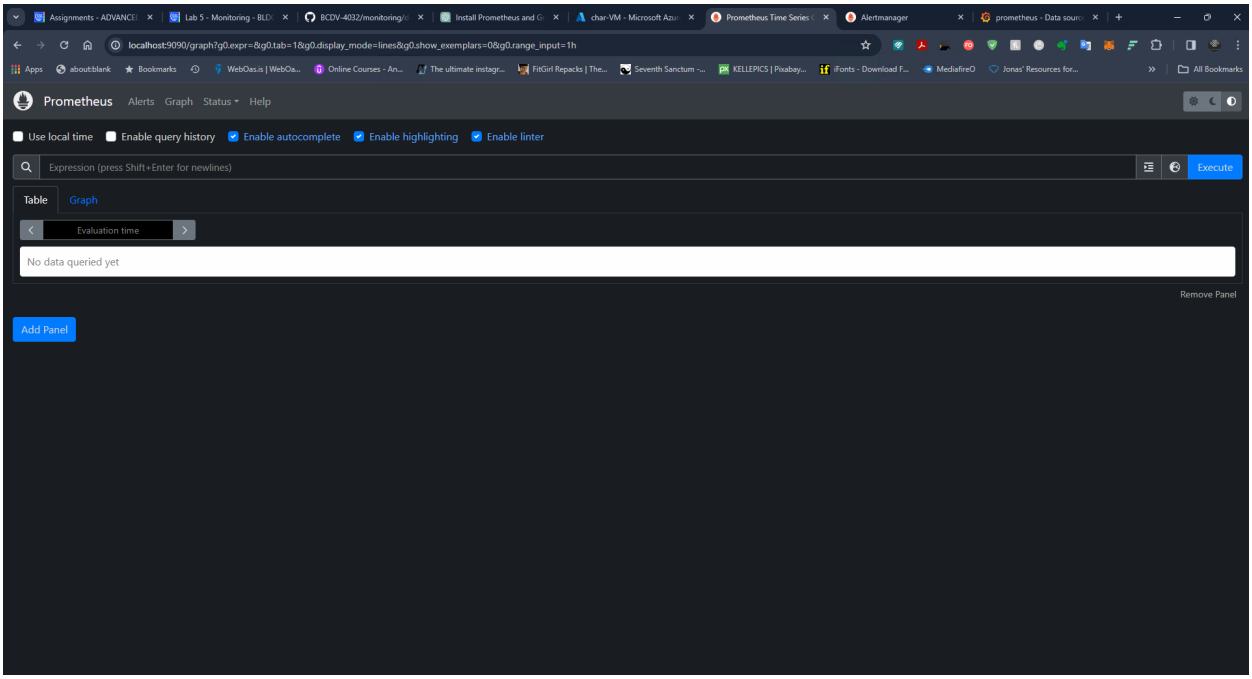
```
Administrator: Command Pro | Administrator: Windows Powe | Administrator: Windows Powe | Administrator: Windows Powe | Administrator: Windows Powe
Termination behavior can be configured in advanced profile settings.  Don't show again

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

C:\Users\char\Downloads\lab05>helm repo add prometheus-community https://prometheus-community.github.io/helm-charts
"prometheus-community" already exists with the same configuration, skipping

C:\Users\char\Downloads\lab05>helm repo update
Hang tight while we grab the latest from your chart repositories...
...Successfully got an update from the "kubereboot" chart repository
...Successfully got an update from the "prometheus-community" chart repository
Update Complete. ⎈Happy Helming!⎈

C:\Users\char\Downloads\lab05>helm install prometheus prometheus-community/prometheus
NAME: prometheus
LAST DEPLOYED: Tue Jan 30 19:32:00 2024
NAMESPACE: default
STATUS: deployed
REVISION: 1
TEST SUITE: None
NOTES:
The Prometheus server can be accessed via port 80 on the following DNS name from within your cluster:
prometheus-server.default.svc.cluster.local


Get the Prometheus server URL by running these commands in the same shell:
  export POD_NAME=$(kubectl get pods --namespace default -l "app.kubernetes.io/name=prometheus,app.kubernetes.io/instance=pro
metheus" -o jsonpath="{.items[0].metadata.name}")
  kubectl --namespace default port-forward $POD_NAME 9090


The Prometheus alertmanager can be accessed via port 9093 on the following DNS name from within your cluster:
```

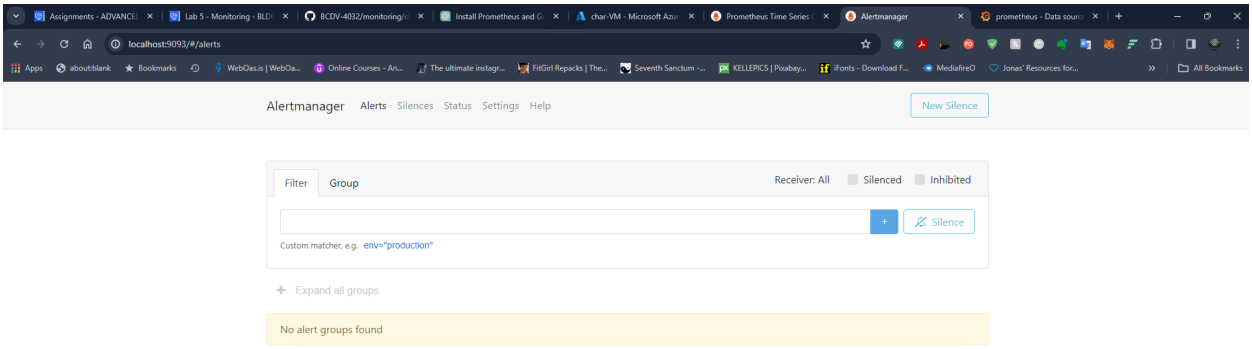


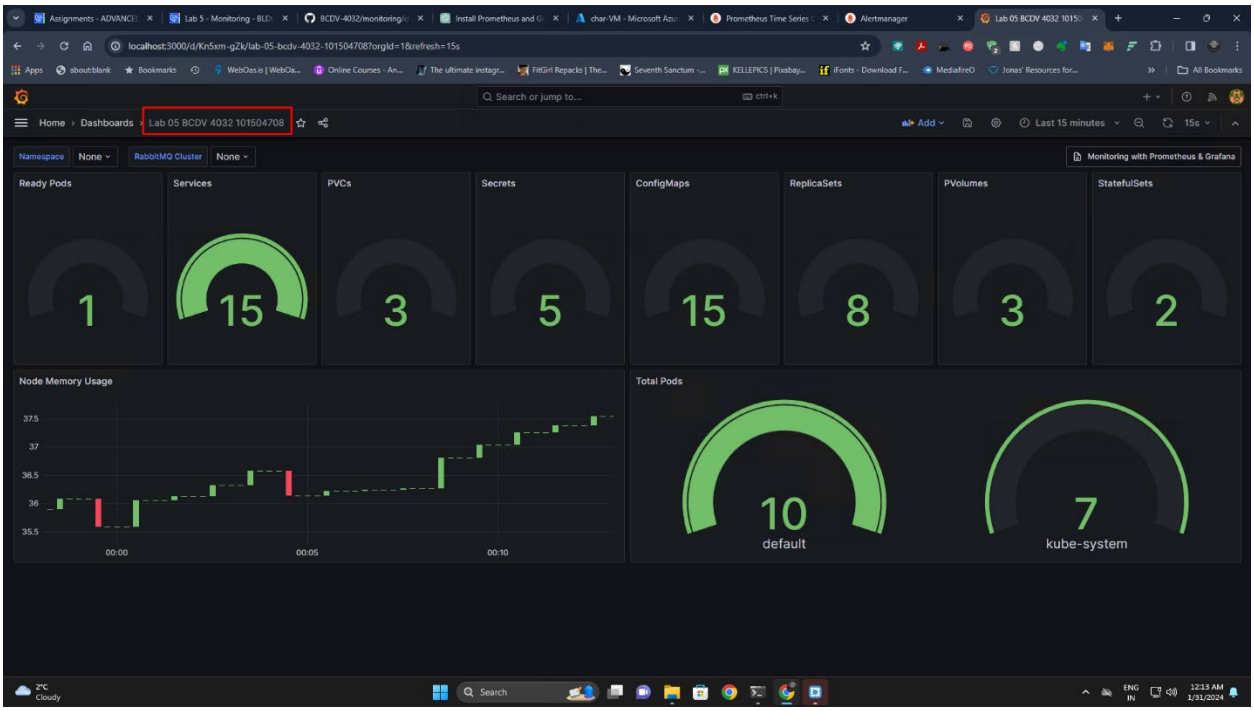
```
  - Using image gcr.io/k8s-minikube/storage-provisioner:v5
* Verifying Kubernetes components...
* Enabled addons: storage-provisioner, default-storageclass
* Done! kubectl is now configured to use "minikube" cluster and "default" namespace by default

C:\Users\char\Downloads\lab05>kubectl get pods
NAME                                             READY   STATUS    RESTARTS        AGE
dapp-67c65bd5bb-vqg26                            1/1     Running   1               176m
dockerethganache-84b7f4c95d-c7944                1/1     Running   1 (3m10s ago)   178m
grafana-6dcfdc8db4-nlx6p                         1/1     Running   1               4h17m
mongodb-0                                        1/1     Running   1 (3m10s ago)   165m
prometheus-alertmanager-0                        1/1     Running   1 (3m10s ago)   4h23m
prometheus-kube-state-metrics-745b475957-z6vv4   1/1     Running   1 (3m10s ago)   4h23m
prometheus-prometheus-node-exporter-fjl26        1/1     Running   1 (3m10s ago)   4h23m
prometheus-prometheus-pushgateway-6ccd698d79-wjfvt   1/1     Running   1          4h23m
prometheus-server-5c99dfc547-px7fc               2/2     Running   2 (3m10s ago)   4h23m
react-7bcb5679d6-hsgd2                           1/1     Running   1               176m

C:\Users\char\Downloads\lab05>kubectl get svc
NAME                                TYPE        CLUSTER-IP       EXTERNAL-IP   PORT(S)        AGE
dapp                                ClusterIP   10.102.184.77    <none>        4000/TCP       176m
dockerethganache                    ClusterIP   10.98.155.127    <none>        8545/TCP       176m
grafana                             ClusterIP   10.111.231.144   <none>        80/TCP         4h17m
grafana-ext                         NodePort    10.96.234.11     <none>        80:32113/TCP   4h10m
kubernetes                          ClusterIP   10.96.0.1        <none>        443/TCP        4h30m
mongodb                             ClusterIP   10.105.152.75    <none>        27017/TCP      3h1m
prometheus-alertmanager             ClusterIP   10.99.167.131    <none>        9093/TCP       4h24m
prometheus-alertmanager-headless    ClusterIP   None             <none>        9093/TCP       4h24m
prometheus-kube-state-metrics       ClusterIP   10.102.185.93    <none>        8080/TCP       4h24m
prometheus-prometheus-node-exporter ClusterIP   10.96.189.98     <none>        9100/TCP       4h24m
prometheus-prometheus-pushgateway   ClusterIP   10.107.115.32    <none>        9091/TCP       4h24m
prometheus-server                   ClusterIP   10.106.168.244   <none>        80/TCP         4h24m
prometheus-server-ext               NodePort    10.98.159.20     <none>        80:31347/TCP   4h21m
react                               ClusterIP   10.99.32.163     <none>        3000/TCP       176m

C:\Users\char\Downloads\lab05>
```


Home › Connections › Data sources › prometheus
Connections
Add new connection
Data sources
Disable metrics lookup
Performance
Prometheus type
Choose
Cache level
Low
Incremental querying (beta)
Disable recording rules (beta)
Other
Custom query parameters
Example: max_source_resolution=5m&timeout
HTTP method
POST
Exemplars
+ Add
Successfully queried the Prometheus API.
Next, you can start to visualize data by building a dashboard, or by querying data in the Explore view.
Delete
Save & test


Home › Connections › Data sources › prometheus
Connections
Add new connection
Data sources
prometheus
Type: Prometheus
Type
Prometheus
Alerting
Supported
Explore data
Build a dashboard
Settings
Dashboards
Name
prometheus
Default
Before you can use the Prometheus data source, you must configure it below or in the config file. For detailed instructions, view the documentation.
Fields marked with * are required
Connection
Prometheus server URL *
http://prometheus-server-ext:80
Authentication
Authentication methods
Choose an authentication method to access the data source
No Authentication


Prometheus
Alerts
Graph
Status
Help
Use local time
Enable query history
Enable autocomplete
Enable highlighting
Enable linter
Expression (press Shift+Enter for newlines)
Execute
Table
Graph
Evaluation time
No data queried yet
Remove Panel
Add Panel


Alertmanager
Alerts
Silences
Status
Settings
Help
New Silence
Filter
Group
Receiver: All
Silenced
Inhibited
Silence
Custom matcher, e.g. env="production"
Expand all groups
No alert groups found


Home › Dashboards › Lab 05 BCDV 4032 101504708
Namespace
None
RabbitMQ Cluster
None
Monitoring with Prometheus & Grafana
Ready Pods
1
Services
15
PVCs
3
Secrets
5
ConfigMaps
15
ReplicaSets
8
PVolumes
3
StatefulSets
2
Node Memory Usage
37.5
37
36.5
36
35.5
00:00
00:05
00:10
Total Pods
10
default
7
kube-system

Section 02 – Commands

helm repo add prometheus-community https://prometheus-community.github.io/helm-charts

helm repo update

helm install prometheus prometheus-community/prometheus

kubectl get pods

kubectl get svc

kubectl expose service prometheus-server --type=NodePort --target-port=9090 --name=prometheus-server-ext

helm repo add grafana https://grafana.github.io/helm-charts

helm repo update

helm install grafana grafana/grafana

kubectl expose service grafana --type=NodePort --target-port=3000 --name=grafana-ext

kubectl get secret --namespace default grafana -o jsonpath="{.data.admin-password}" | ForEach-Object {[System.Text.Encoding]::UTF8.GetString([System.Convert]::FromBase64String($_))}

http://prometheus-server-ext:80

kubectl port-forward grafana-6dcfdc8db4-nlx6p 3000

kubectl port-forward prometheus-server-5c99dfc547-px7fc 9090

kubectl port-forward prometheus-alertmanager-0 9093

PromQL queries

- *count(kube_secret_info)*
- *count(kube_replicaset_created)*
- *count(kube_statefulset_created)*
- *count(kube_configmap_info)*
- *count(kube_role_info)*
- *count(kube_rolebinding_info)*
- *count(kube_persistentvolume_info)*
- *count(kube_persistentvolumeclaim_info)*
- *count(kube_service_info)*
- *sum(count by(service) (kube_service_spec_ports_port))*