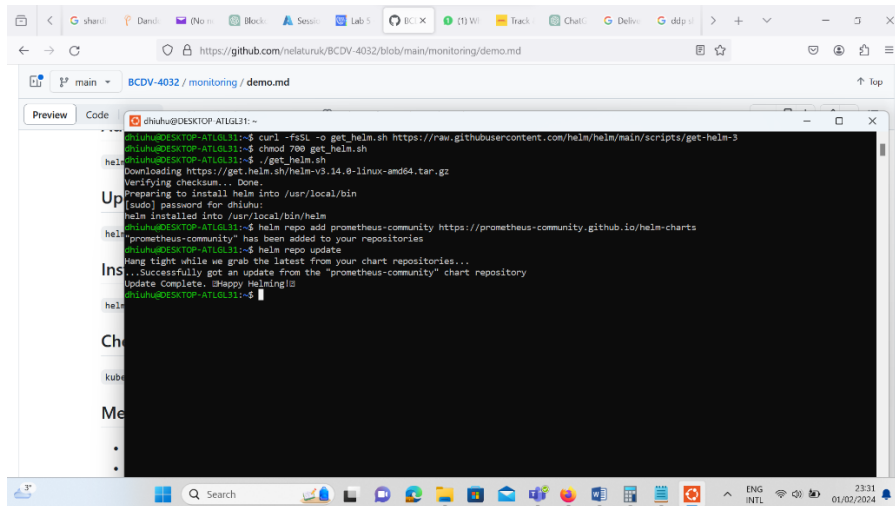
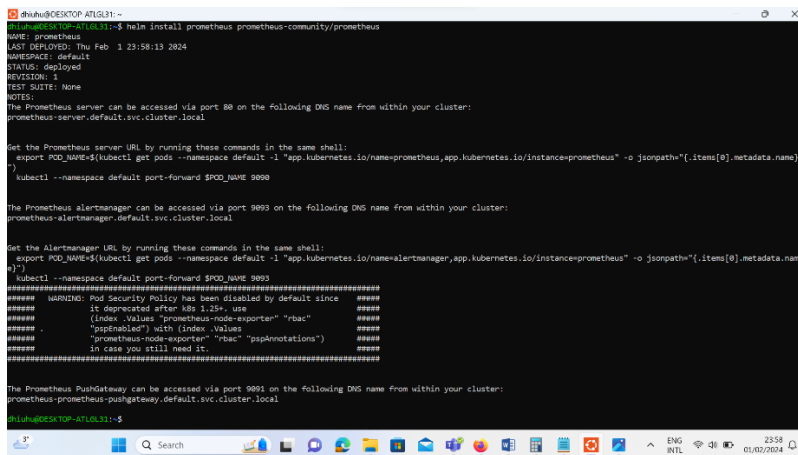


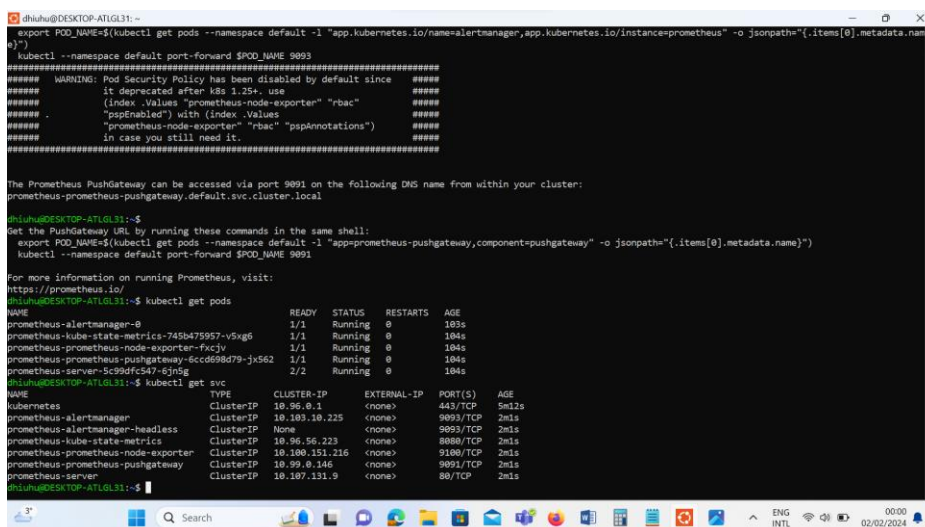
DAVID HIUHU - 101509799



Install helm



Check for Prometheus installation



Metrics on Prometheus

```

Select dhiuhu@DESKTOP-ATLGL31: ~
prometheus-prometheus-pushgateway.default.svc.cluster.local

dhiuhu@DESKTOP-ATLGL31:~$
Get the PushGateway URL by running these commands in the same shell:
export POD_NAME=$(kubectl get pods --namespace default -l "app=prometheus-pushgateway,component=pushgateway" -o jsonpath="{.items[0].metadata.name}")
kubectl --namespace default port-forward $POD_NAME 9091

For more information on running Prometheus, visit:
https://prometheus.io/
dhiuhu@DESKTOP-ATLGL31:~$ kubectl get pods
NAME                                READY    STATUS    RESTARTS   AGE
prometheus-alertmanager-0           1/1      Running   0           103s
prometheus-kube-state-metrics-745b475957-v5xg6  1/1      Running   0           104s
prometheus-prometheus-node-exporter-fxcjv  1/1      Running   0           104s
prometheus-prometheus-pushgateway-6ccd698d79-jx562  1/1      Running   0           104s
prometheus-server-5c99dfc547-6jn5g      2/2      Running   0           104s
dhiuhu@DESKTOP-ATLGL31:~$ kubectl get svc
NAME                                TYPE                CLUSTER-IP    EXTERNAL-IP    PORT(S)    AGE
kubernetes                          ClusterIP           10.96.0.1     <none>         443/TCP    5m12s
prometheus-alertmanager             ClusterIP           10.103.10.225 <none>         9093/TCP    2m1s
prometheus-alertmanager-headless    ClusterIP           None          <none>         9093/TCP    2m1s
prometheus-kube-state-metrics       ClusterIP           10.96.56.223  <none>         8080/TCP    2m1s
prometheus-prometheus-node-exporter ClusterIP           10.100.151.216 <none>         9100/TCP    2m1s
prometheus-prometheus-pushgateway   ClusterIP           10.99.0.146   <none>         9091/TCP    2m1s
prometheus-server                   ClusterIP           10.107.131.9   <none>         80/TCP      2m1s
dhiuhu@DESKTOP-ATLGL31:~$ kubectl expose service prometheus-server --type=NodePort --target-port=9090 --name=prometheus-server-ext
service/prometheus-server-ext exposed
dhiuhu@DESKTOP-ATLGL31:~$ kubectl get svc
NAME                                TYPE                CLUSTER-IP    EXTERNAL-IP    PORT(S)    AGE
kubernetes                          ClusterIP           10.96.0.1     <none>         443/TCP    6m13s
prometheus-alertmanager             ClusterIP           10.103.10.225 <none>         9093/TCP    3m2s
prometheus-alertmanager-headless    ClusterIP           None          <none>         9093/TCP    3m2s
prometheus-kube-state-metrics       ClusterIP           10.96.56.223  <none>         8080/TCP    3m2s
prometheus-prometheus-node-exporter ClusterIP           10.100.151.216 <none>         9100/TCP    3m2s
prometheus-prometheus-pushgateway   ClusterIP           10.99.0.146   <none>         9091/TCP    3m2s
prometheus-server                   ClusterIP           10.107.131.9   <none>         80/TCP      3m2s
prometheus-server-ext               NodePort            10.101.136.36 <none>         80:30747/TCP 14s
dhiuhu@DESKTOP-ATLGL31:~$ minikube ip
192.168.49.2
dhiuhu@DESKTOP-ATLGL31:~$

```

Install Grafana >> Add helm repo >> Update helm repo >> Install helm >> Expose Grafana Service

```

dhiuhu@DESKTOP-ATLGL31:~$
dhiuhu@DESKTOP-ATLGL31:~$ helm repo add grafana https://grafana.github.io/helm-charts
"grafana" has been added to your repositories
dhiuhu@DESKTOP-ATLGL31:~$ helm repo update
Hang tight while we grab the latest from your chart repositories...
...Successfully got an update from the "grafana" chart repository
...Successfully got an update from the "prometheus-community" chart repository
Update Complete. 🎉Happy Helming!🎉
dhiuhu@DESKTOP-ATLGL31:~$ helm install grafana grafana/grafana
NAME: grafana
LAST DEPLOYED: Fri Feb  2 00:15:06 2024
NAMESPACE: default
STATUS: deployed
REVISION: 1
NOTES:
1. Get your 'admin' user password by running:

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

2. The Grafana server can be accessed via port 80 on the following DNS name from within your cluster:

    grafana.default.svc.cluster.local

    Get the Grafana URL to visit by running these commands in the same shell:
    export POD_NAME=$(kubectl get pods --namespace default -l "app.kubernetes.io/name=grafana,app.kubernetes.io/instance=grafana" -o jsonpath="{.items[0].metadata.name}")
    kubectl --namespace default port-forward $POD_NAME 3000

3. Login with the password from step 1 and the username: admin

#####
#####  WARNING: Persistence is disabled!!! You will lose your data when  #####
#####    the Grafana pod is terminated.    #####
#####
dhiuhu@DESKTOP-ATLGL31:~$ kubectl expose service grafana --type=NodePort --target-port=3000 --name=grafana-ext
service/grafana-ext exposed
dhiuhu@DESKTOP-ATLGL31:~$

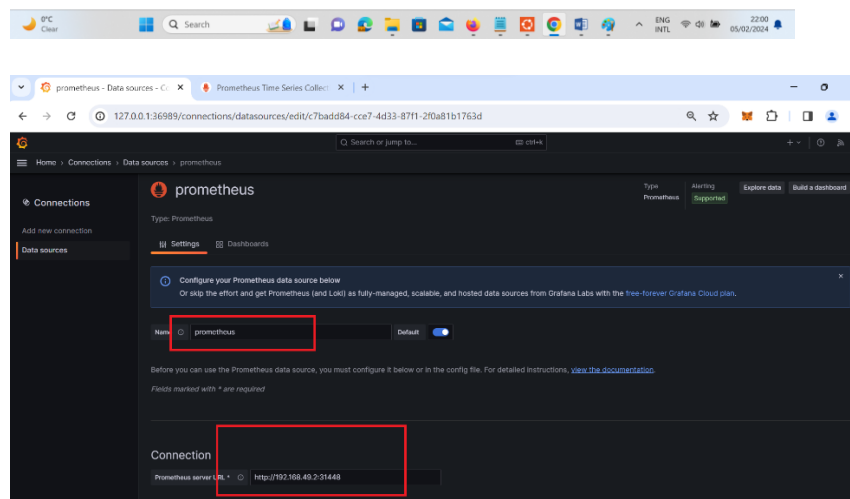
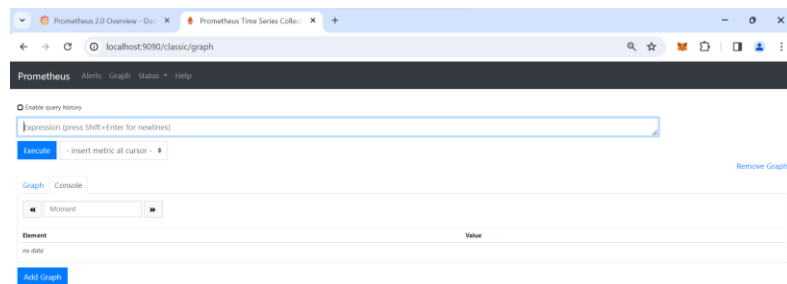
```

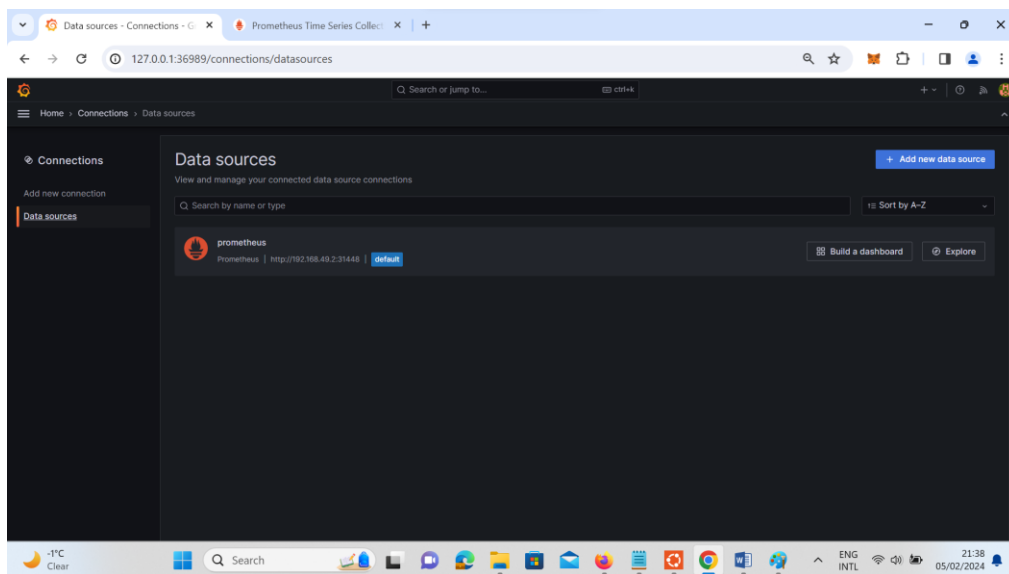
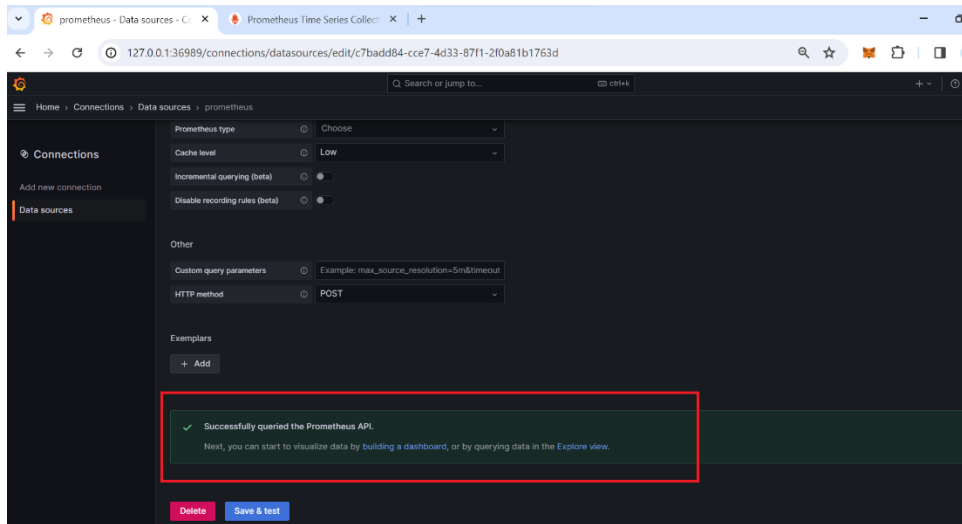
Get Grafana admin password

```
dhiuhu@DESKTOP-ATLGL31: ~
dhiuhu@DESKTOP-ATLGL31:~$ kubectl get secret --namespace default grafana -o jsonpath="{.data.admin-password}" | base64 --decode ; echo
T53ONDsXbYCdFxP1qD9aJynCfhxyiz9MjMRb0Lz
dhiuhu@DESKTOP-ATLGL31:~$ kubectl get pods
NAME                                READY   STATUS    RESTARTS   AGE
grafana-7866b54884-rnbp5           1/1     Running   1 (26h ago) 45h
prometheus-5c74fcd85c-9kvt1        1/1     Running   1 (26h ago) 28h
prometheus-alertmanager-0          1/1     Running   1 (26h ago) 45h
prometheus-kube-state-metrics-745b475957-cb6wd 1/1     Running   1 (26h ago) 45h
prometheus-prometheus-node-exporter-fgt5r 1/1     Running   1 (26h ago) 45h
prometheus-prometheus-pushgateway-6ccd698d79-pvgdp 1/1     Running   1 (26h ago) 45h
prometheus-server-5c99dfc547-pv56k 2/2     Running   2 (26h ago) 45h
dhiuhu@DESKTOP-ATLGL31:~$ kubectl get svc
NAME                                TYPE                CLUSTER-IP      EXTERNAL-IP      PORT(S)          AGE
grafana                             ClusterIP           10.98.239.155    <none>            80/TCP           45h
grafana-ext                         NodePort            10.106.77.41     <none>            80:32005/TCP     46h
grafana-service                     NodePort            10.107.162.176   <none>            80:31562/TCP     28h
```

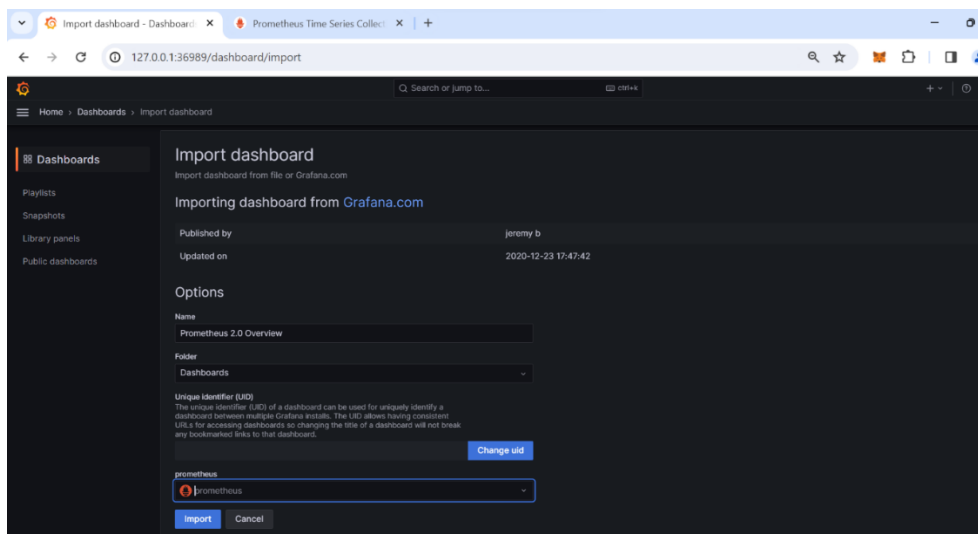
Add Prometheus as data source for Grafana

```
dhiuhu@DESKTOP-ATLGL31: ~
dhiuhu@DESKTOP-ATLGL31:~$ minikube service grafana-service
NAMESPACE   NAME      TARGET PORT  URL
default     grafana-service  80           http://192.168.49.2:31562
Starting tunnel for service grafana-service.
NAMESPACE   NAME      TARGET PORT  URL
default     grafana-service  80           http://127.0.0.1:36989
Opening service default/grafana-service in default browser...
http://127.0.0.1:36989
Because you are using a Docker driver on linux, the terminal needs to be open to run it.
```

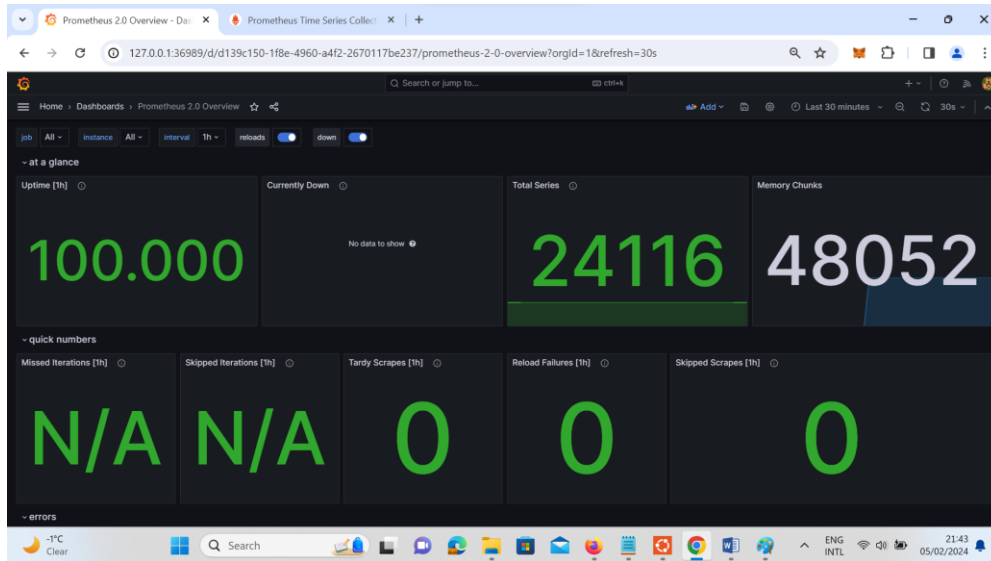




Import dashboard from 3662 ID.

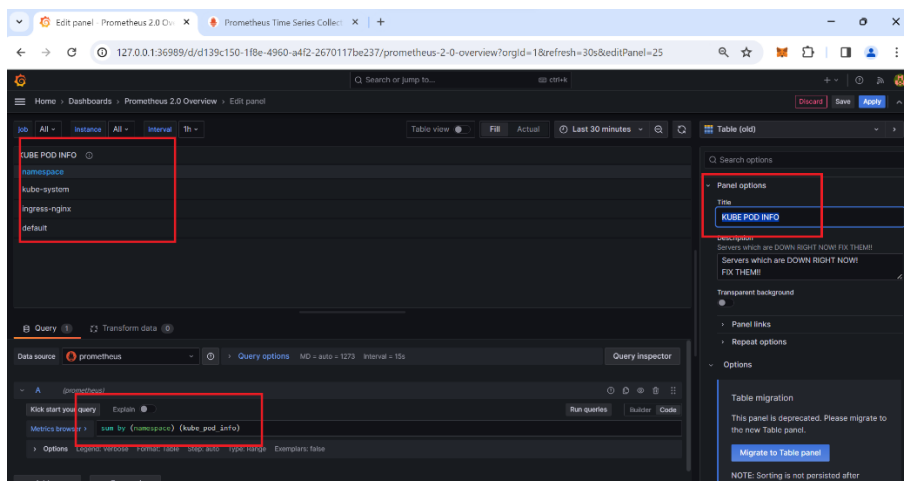


DASHBOARD 3662 ID

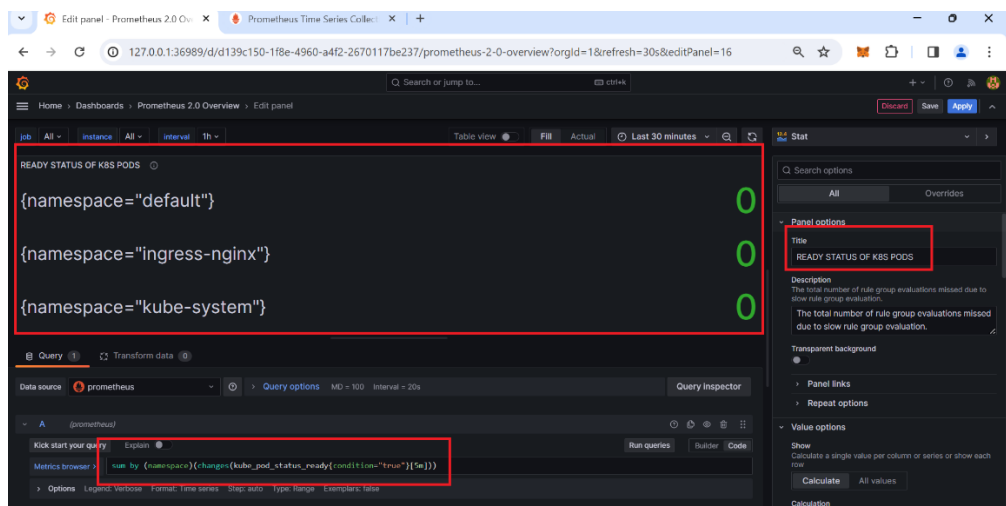


VISUALIZATIONS WITH PromQL Examples

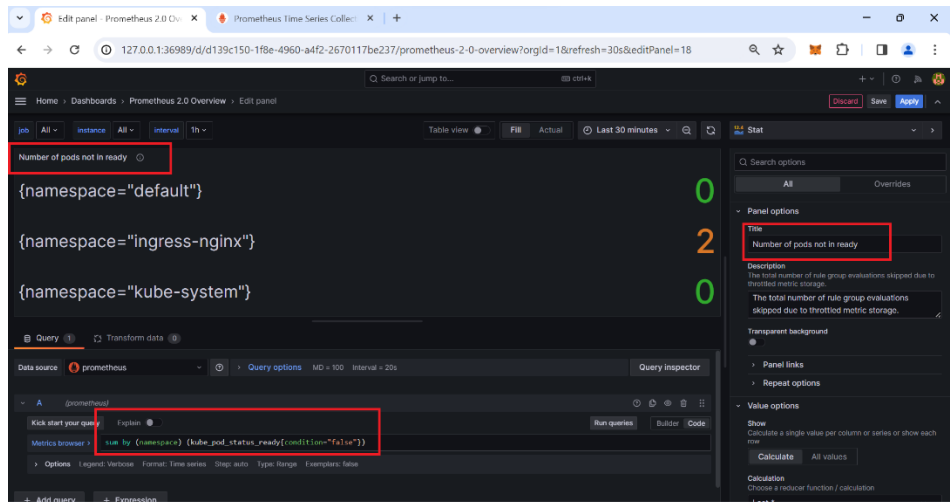
1. KUBE POD INFO $\text{sum by (namespace) (kube_pod_info)}$



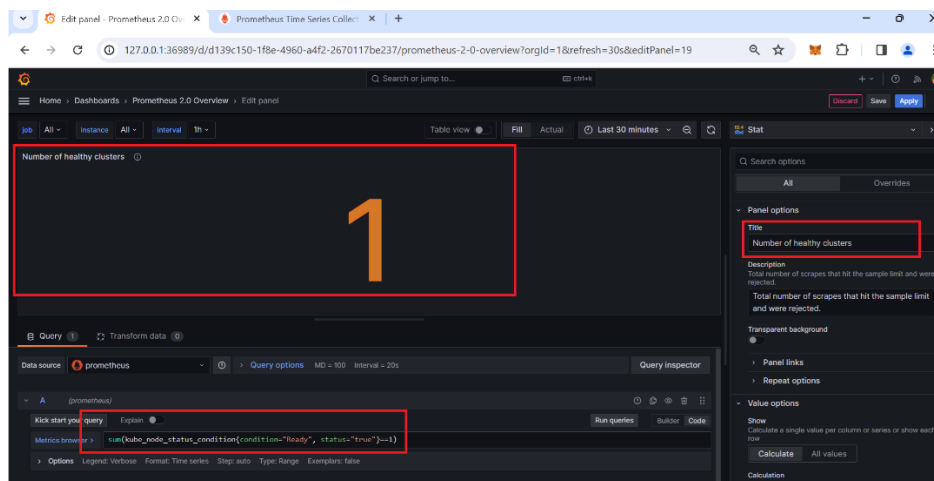
2. READY STATUS OF K8S PODS $\text{sum by (namespace) (changes (kube_pod_status_ready\{condition=\"true\"\} [5m]))}$



3. Number of pods not in ready sum by (namespace) (kube_pod_status_ready{condition="false"})



4. Number of healthy clusters



FINAL DASHBOARD – 4 VISUALIZATIONS

