



## 🚀 *Deploying Prometheus & Grafana on Kubernetes: A Visual Monitoring Stack*

*Want to monitor your Kubernetes cluster like a pro? Here's a simplified yet stylish walkthrough to deploy Prometheus and Grafana using Helm*

### 📦 Step 1: Add Helm Repositories

Add the official Helm charts for Prometheus and Grafana:

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

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

### 🔄 Step 2: Update the Repositories

```
helm repo update
```

### ernetes Step 3: Create Namespaces

```
Kubectl create ns prometheus
```

```
Kubectl create ns Grafana
```

## Step 4: Install Prometheus & Grafana

Deploy the charts into their respective namespaces:

```
helm install prometheus prometheus-community/prometheus --namespace Prometheus
```

```
helm install grafana grafana/grafana --namespace Grafana
```

You can use any name instead of Prometheus and Grafana but it is best practice to use respective names.

## Step 5: Check Pods and Services

Verify everything is running smoothly:

```
controlplane:~$ kubectl get pod -n prometheus
NAME                               READY   STATUS    RESTARTS   AGE
prometheus-alertmanager-0          1/1     Running   0          28m
prometheus-kube-state-metrics-584f9d9b97-66gcj 1/1     Running   0          28m
prometheus-prometheus-node-exporter-lksrn       1/1     Running   0          28m
prometheus-prometheus-node-exporter-smrlz       1/1     Running   0          28m
prometheus-prometheus-pushgateway-866c5c685c-5fjbd 1/1     Running   0          28m
prometheus-server-7687845bbc-nmm6j            2/2     Running   0          28m
controlplane:~$ kubectl get pod -n grafana
NAME           READY   STATUS    RESTARTS   AGE
grafana-b9478bcc9-2tts8  1/1     Running   0          27m
```

```
controlplane:~$ kubectl get svc -n prometheus
NAME           TYPE      CLUSTER-IP   EXTERNAL-IP   PORT(S)   AGE
prometheus-alertmanager   ClusterIP  10.98.124.166 <none>        9093/TCP  29m
prometheus-alertmanager-headless   ClusterIP  None        <none>        9093/TCP  29m
prometheus-kube-state-metrics   ClusterIP  10.97.206.16  <none>        8080/TCP  29m
prometheus-prometheus-node-exporter   ClusterIP  10.96.31.214 <none>        9100/TCP  29m
prometheus-prometheus-pushgateway   ClusterIP  10.103.66.87 <none>        9091/TCP  29m
prometheus-server             NodePort   10.103.108.220 <none>        80:30336/TCP 29m
controlplane:~$ kubectl get svc -n grafana
NAME      TYPE      CLUSTER-IP   EXTERNAL-IP   PORT(S)   AGE
grafana   NodePort   10.102.147.224 <none>        80:30875/TCP 28m
```

## Step 6: Expose Services via NodePort

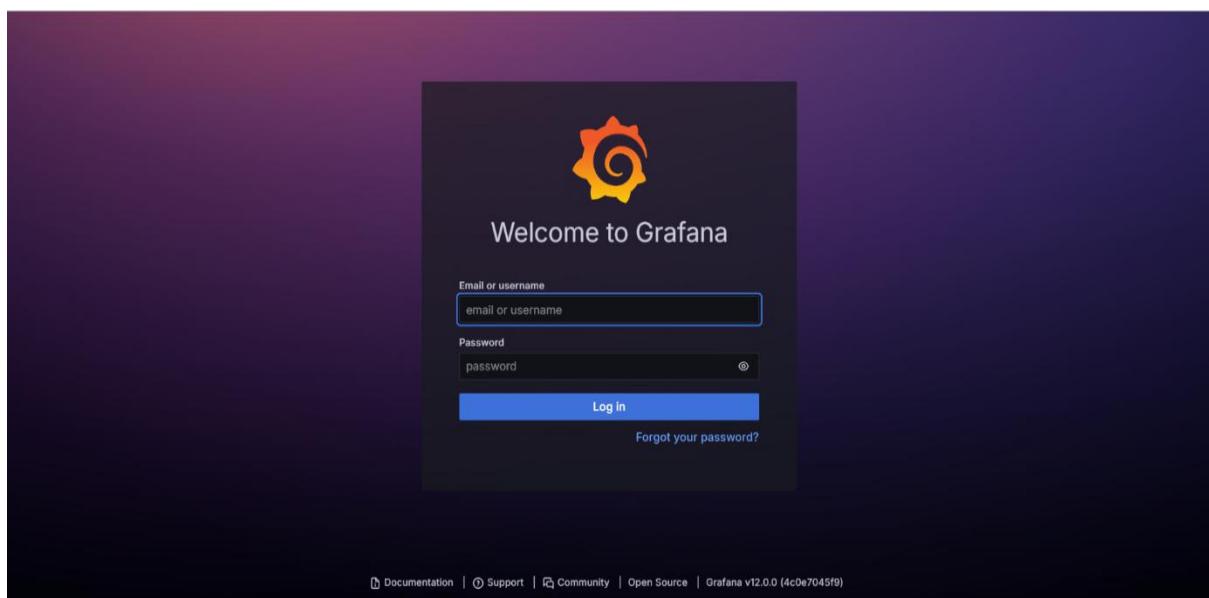
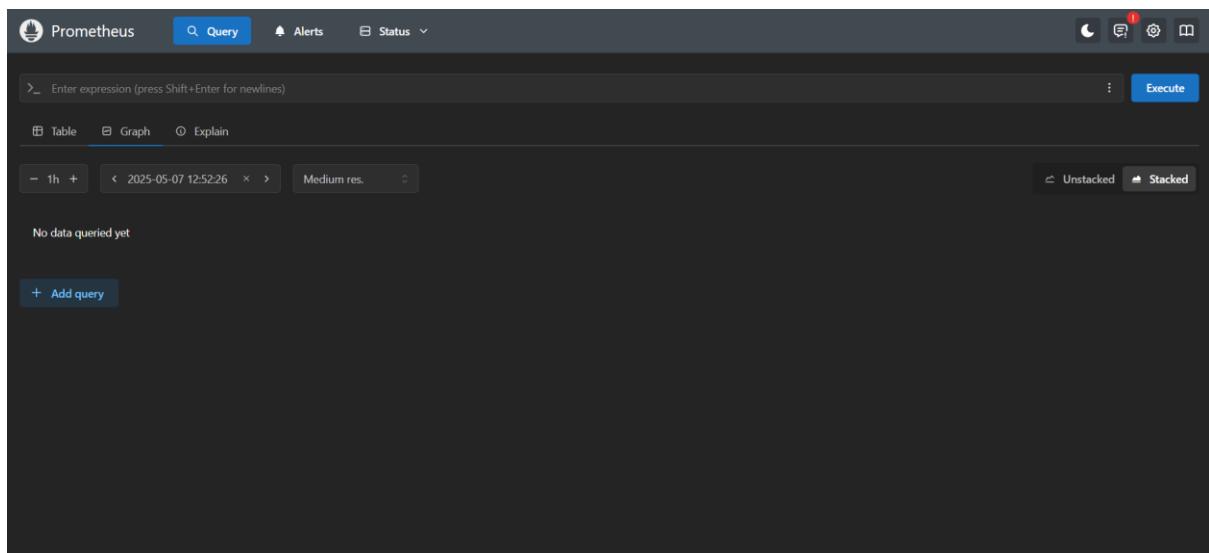
Edit the services to make them accessible from your browser:

**kubectl edit -n prometheus svc prometheus-server**

**kubectl edit -n grafana svc Grafana**

 Change type: ClusterIP to type: NodePort

## Step 7: Access Prometheus & Grafana

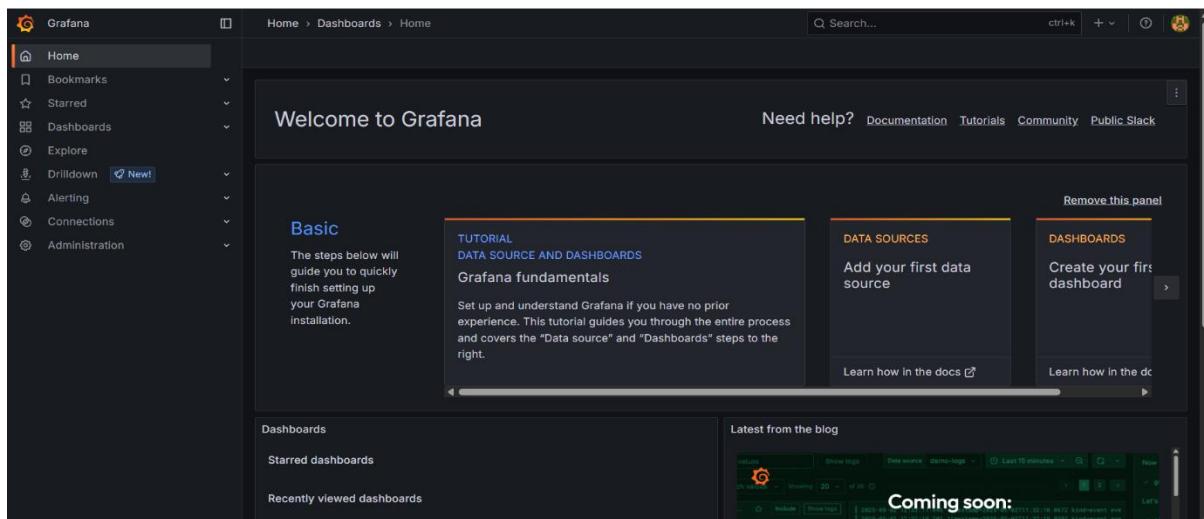


## 🔐 Step 8: Retrieve Grafana Admin Password

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

Get the auto-generated password for the admin user:

Default username is usually admin

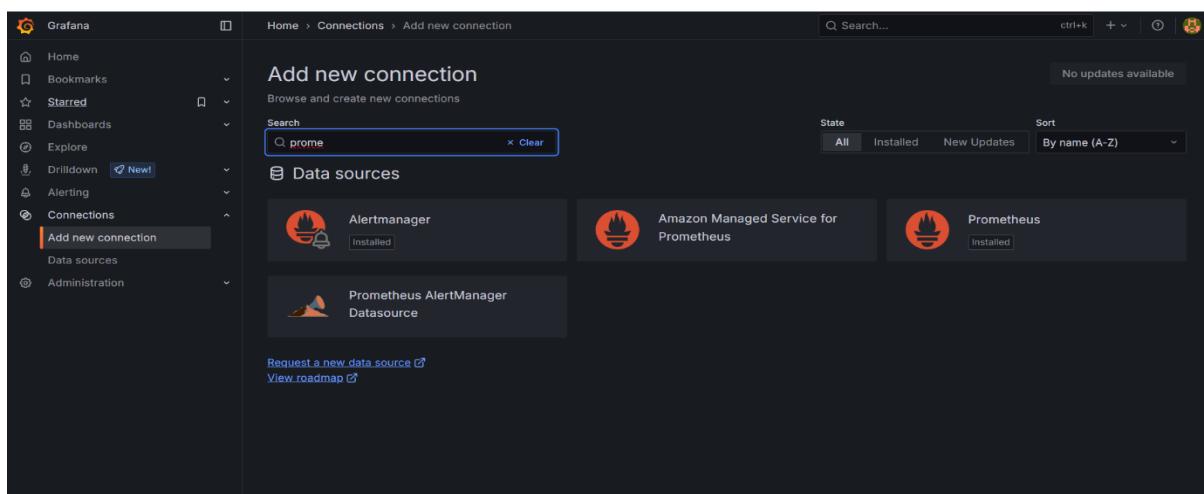


The screenshot shows the Grafana Home dashboard. On the left is a sidebar with links like Home, Bookmarks, Starred, Dashboards, Explore, Drilldown, Alerting, Connections, and Administration. The main area has a "Welcome to Grafana" header and three panels: "Basic" (with a tutorial about Grafana fundamentals), "DATA SOURCES" (with a link to add a data source), and "DASHBOARDS" (with a link to create a dashboard). Below these are sections for "Dashboards" (Starred dashboards and Recently viewed dashboards) and "Latest from the blog".

## 🔗 Step 9: Connect Prometheus to Grafana

Inside Grafana:

- Go to **Settings → Data Sources**
- Click **Add data source**
- Choose **Prometheus**
- Enter your Prometheus service URL



The screenshot shows the "Add new connection" page under "Connections". The sidebar on the left has a link to "Add new connection" under "Connections". The main area has a search bar with "prome" typed in, a "Data sources" section with options for Alertmanager, Amazon Managed Service for Prometheus, and Prometheus, and a note at the bottom about requesting a new data source.

## Step 10: Explore Grafana Dashboards

