

Task 5: Multi-Tenant EKS Setup (Namespaces + RBAC + NetworkPolicies + Prometheus + Grafana)

Goal: Implement isolation between internal teams.

Implement a fully isolated multi-tenant architecture within a single AWS EKS cluster. Each tenant (Team-A, Team-B) must have:

- Separate namespaces
- Separate RBAC access
- Network isolation (deny cross-namespace communication)
- Prometheus scraping only allowed for that team
- Grafana dashboards visible only to that team

1. Create cluster

```
eksctl create cluster -f cluster.yaml
```

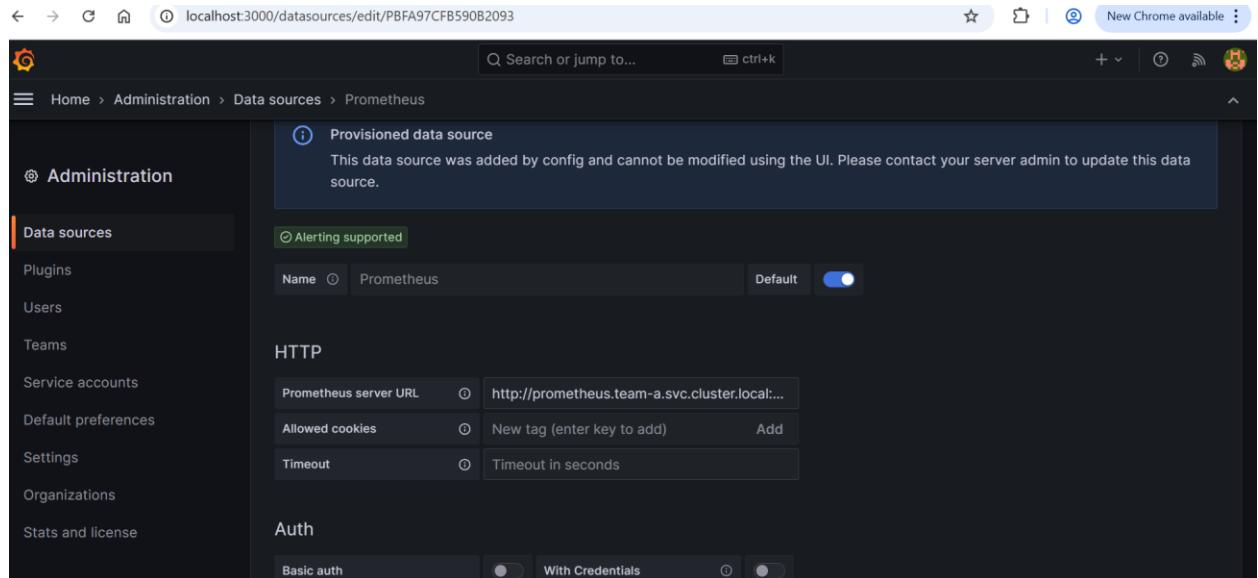
```
PS C:\Users\112256\k8\task\task-5\EKSCluster\eksctl> eksctl create cluster -f cluster.yaml
2025-12-19 08:08:24 [i] nodegroup "private-ng" has 3 node(s)
2025-12-19 08:08:24 [i] node "ip-192-168-113-195.ec2.internal" is ready
ady
2025-12-19 08:08:24 [i] node "ip-192-168-125-114.ec2.internal" is ready
2025-12-19 08:08:24 [i] node "ip-192-168-93-249.ec2.internal" is ready
2025-12-19 08:08:24 [✓] created 1 managed nodegroup(s) in cluster "multi-tenant-eks"
2025-12-19 08:08:25 [i] creating addon: metrics-server
2025-12-19 08:08:26 [i] successfully created addon: metrics-server
2025-12-19 08:08:29 [i] kubectl command should work with "C:\\\\Users\\\\112256\\\\.kube\\\\config", try 'kubectl get nodes'
2025-12-19 08:08:29 [✓] EKS cluster "multi-tenant-eks" in "us-east-1" region is ready
```

Apply complete! Resources: 16 added, 0 changed, 0 destroyed.

Outputs:

```
namespaces = [
    "team-a",
    "team-b",
]
```

```
kubectl port-forward -n team-a deploy/grafana 3000:3000  
http://localhost:3000
```

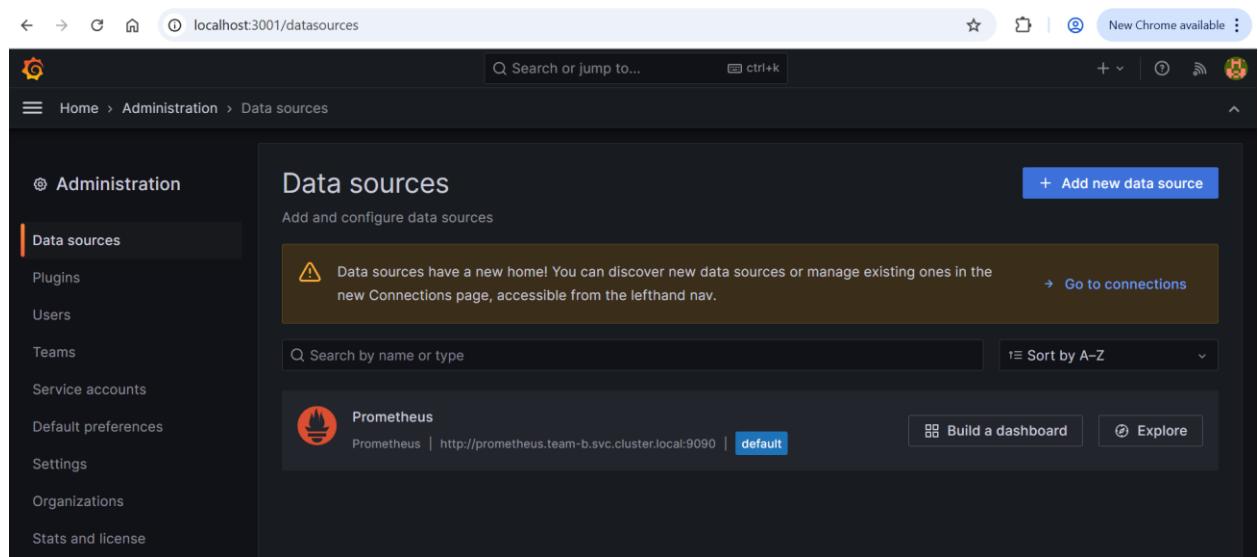


The screenshot shows the Grafana administration interface for managing data sources. The left sidebar is titled 'Administration' and includes 'Data sources' (which is selected), 'Plugins', 'Users', 'Teams', 'Service accounts', 'Default preferences', 'Settings', 'Organizations', and 'Stats and license'. The main panel is titled 'Prometheus' and shows it is a 'Provisioned data source'. It has an 'Alerting supported' status. The 'Name' is set to 'Prometheus' and is marked as 'Default'. Under the 'HTTP' section, the 'Prometheus server URL' is set to 'http://prometheus.team-a.svc.cluster.local:9090'. There are sections for 'Allowed cookies' (with a 'New tag' input field and 'Add' button) and 'Timeout' (set to 'Timeout in seconds'). Under the 'Auth' section, there are three options: 'Basic auth' (selected), 'With Credentials', and another unselected option. The top navigation bar shows the URL 'localhost:3000/datasources/edit/PBFA97CFB590B2093'.

Team**a**

```
kubectl port-forward -n team-b deploy/grafana 3001:3000
```

<http://localhost:3001>



The screenshot shows the Grafana administration interface for managing data sources. The left sidebar is identical to the previous screenshot. The main panel is titled 'Data sources' and contains a message: 'Data sources have a new home! You can discover new data sources or manage existing ones in the new Connections page, accessible from the lefthand nav.' with a link to 'Go to connections'. Below this is a search bar and a sorting dropdown. A single data source card is visible for 'Prometheus', which is connected to 'Prometheus | http://prometheus.team-b.svc.cluster.local:9090' and is marked as 'default'. There are buttons to 'Build a dashboard' and 'Explore'. The top navigation bar shows the URL 'localhost:3001/datasources'.