

Experiment No 4

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D15B 07

AIM: To install Kubectl and execute Kubectl commands to manage the Kubernetes cluster and deploy Your First Kubernetes Application.

- **Running the application on the cluster**
kubectl create deployment nginx --image=nginx

```
Last login: Sun Sep 17 18:58:53 2023 from 13.233.177.4
ubuntu@master:~$ kubectl create deployment nginx --image=nginx
deployment.apps/nginx created
ubuntu@master:~$
```

- **Verifying the deployment using command**
kubectl get deployments

```
ubuntu@master:~$ kubectl get deployments
NAME      READY   UP-TO-DATE   AVAILABLE   AGE
nginx     1/1     1            1           47s
ubuntu@master:~$
```

- **Run the following command to create a service named nginx that will expose the app publicly.**
kubectl expose deploy nginx --port 80 --target-port 80 --type NodePort

```
ubuntu@master:~$ kubectl expose deploy nginx --port 80 --target-port 80 --type NodePort
service/nginx exposed
ubuntu@master:~$
```

- **Run this command to see the summary of the service and ports exposed.**
kubectl get services

```
ubuntu@master:~$ kubectl get services
NAME      TYPE        CLUSTER-IP   EXTERNAL-IP   PORT(S)          AGE
kubernetes ClusterIP   10.96.0.1    <none>        443/TCP          4d14h
nginx     NodePort    10.103.96.233 <none>        80:30816/TCP     67s
ubuntu@master:~$
```

- **Add the port which is displayed i.e 30816 (will differ for each device) in the inbound rules of the security group of the worker.**

Inbound rules (2)								Manage tags	Edit inbound rules
Filter security group rules								< 1 >	⚙
<input type="checkbox"/>	Name	Security group rule...	IP version	Type	Protocol	Port range			
<input type="checkbox"/>	-	sgr-067c4ec19a6dc863c	IPv4	Custom TCP	TCP	30816			
<input type="checkbox"/>	-	sgr-043a60f4b25fe2c26	IPv4	All traffic	All	All			

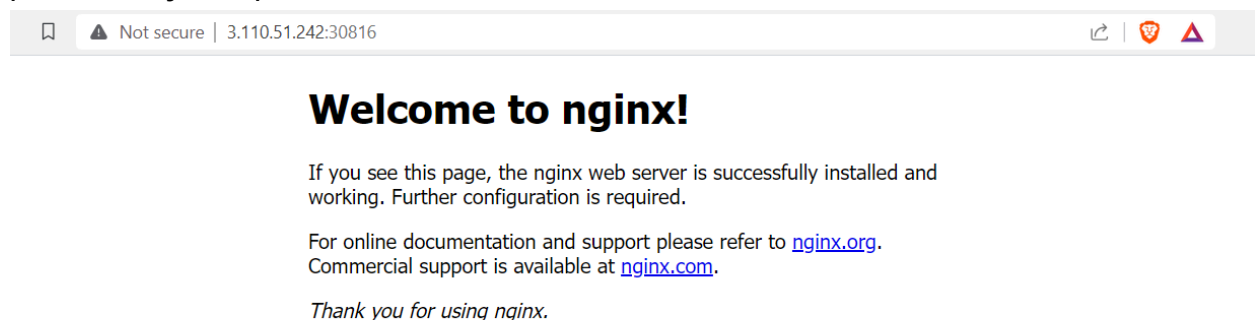
- We can verify that the nginx page is accessible on all nodes using curl command(Worker)
 1. sudo su
 2. curl worker:30816

```
Last login: Fri Sep 22 13:48:46 2023 from 13.233.177.4
ubuntu@worker:~$ sudo su
root@worker:/home/ubuntu# curl worker:30816
<!DOCTYPE html>
<html>
<head>
<title>Welcome to nginx!</title>
<style>
html { color-scheme: light dark; }
body { width: 35em; margin: 0 auto;
font-family: Tahoma, Verdana, Arial, sans-serif; }
</style>
</head>
<body>
<h1>Welcome to nginx!</h1>
<p>If you see this page, the nginx web server is successfully installed and
working. Further configuration is required.</p>

<p>For online documentation and support please refer to
<a href="http://nginx.org/">nginx.org</a>.<br/>
Commercial support is available at
<a href="http://nginx.com/">nginx.com</a>.</p>

<p><em>Thank you for using nginx.</em></p>
</body>
</html>
root@worker:/home/ubuntu#
```

Open a new tab in browser and paste the public IP address followed by :port number (30816 in my case)



Conclusion:

Thus, we have studied and implemented how to install Kubectl and execute Kubectl commands to manage the Kubernetes cluster and deploy.

Errors:

I was facing an error because I forgot to make changes in the security group of worker node.