

## ADVANCE DEVOPS EXP 4

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Roll no :- 57

**Aim :-** To install Kubectl and execute Kubectl commands to manage the Kubernetes cluster and deploy Your First Kubernetes Application

**Step 1:** As the cluster is up and running, we can deploy our nginx server on this cluster.

```
ubuntu@ip-172-31-91-198:~$ kubectl get nodes
NAME                                STATUS    ROLES    AGE   VERSION
ip-172-31-80-216                    Ready     <none>    14s   v1.31.1
ip-172-31-91-198                    Ready     control-plane 3m35s v1.31.1
```

Apply this deployment file using this command to create a deployment.

\$kubectl create deployment nginx --image=nginx

```
ubuntu@ip-172-31-91-198:~$ kubectl create deployment nginx --image=nginx
deployment.apps/nginx created
```

**Step 2:** Verify the deployment using the command:

\$kubectl get deployments

```
namespace/kube-flannel created
serviceaccount/flannel created
clusterrole.rbac.authorization.k8s.io/flannel created
clusterrolebinding.rbac.authorization.k8s.io/flannel created
configmap/kube-flannel-cfg created
daemonset.apps/kube-flannel-ds created
ubuntu@ip-172-31-91-198:~$ kubectl get nodes
NAME                STATUS    ROLES    AGE      VERSION
ip-172-31-80-216     Ready    <none>    14s      v1.31.1
ip-172-31-91-198     Ready    control-plane 3m35s    v1.31.1
ubuntu@ip-172-31-91-198:~$ kubectl create deployment nginx --image=nginx
deployment.apps/nginx created
ubuntu@ip-172-31-91-198:~$ kubectl get deployments
NAME    READY   UP-TO-DATE   AVAILABLE   AGE
nginx   1/1     1             1            28s
ubuntu@ip-172-31-91-198:~$ kubectl expose deploy nginx --port 80 --target-port 80 --type NodePort
service/nginx exposed
ubuntu@ip-172-31-91-198:~$ kubectl get services
NAME                TYPE        CLUSTER-IP    EXTERNAL-IP    PORT(S)          AGE
kubernetes           ClusterIP   10.96.0.1      <none>          443/TCP           6m6s
nginx                NodePort    10.110.120.152 <none>          80:31122/TCP      24s
ubuntu@ip-172-31-91-198:~$ ^C
ubuntu@ip-172-31-91-198:~$
```

i-05b0173781636f4ff (Master)

PublicIPs: 44.201.176.188 PrivateIPs: 172.31.91.198

**Step 3:** Next, run the following command to create a service named nginx that will expose the app publicly. It will do so through a NodePort, a scheme that will make the pod accessible through an arbitrary port opened on each node of the cluster with this servicetype, Kubernetes will assign this service on ports on the **30000+** range.

```
$ kubectl expose deploy nginx --port 80 --target-port 80 --type NodePort
```

```
aws | Services | Search | Dashboard | Notifications | Help | Settings | Mumbai | SohamSatpute
```

```
ubuntu@maste-node:~$ kubectl expose deploy nginx --port 80 --target-port 80 --type NodePort
Error from server (AlreadyExists): services "nginx" already exists
ubuntu@maste-node:~$
```

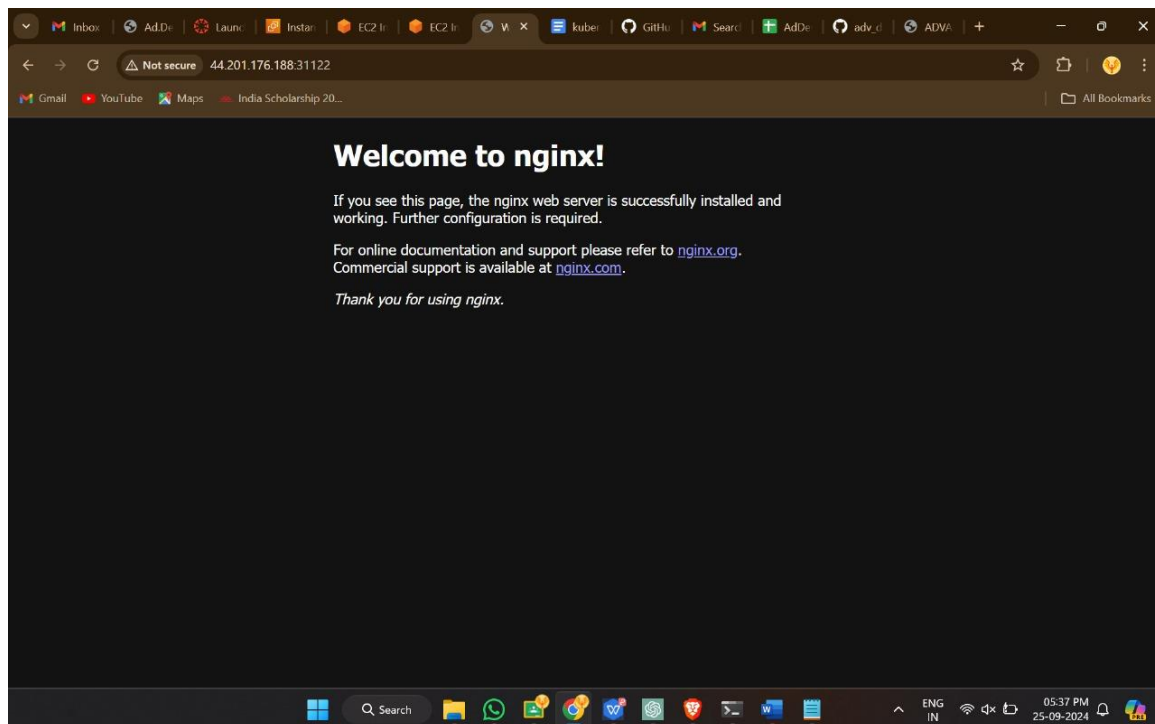
**Step 4:** Run this command to see a summary of the service and the ports exposed.

\$kubectl get services

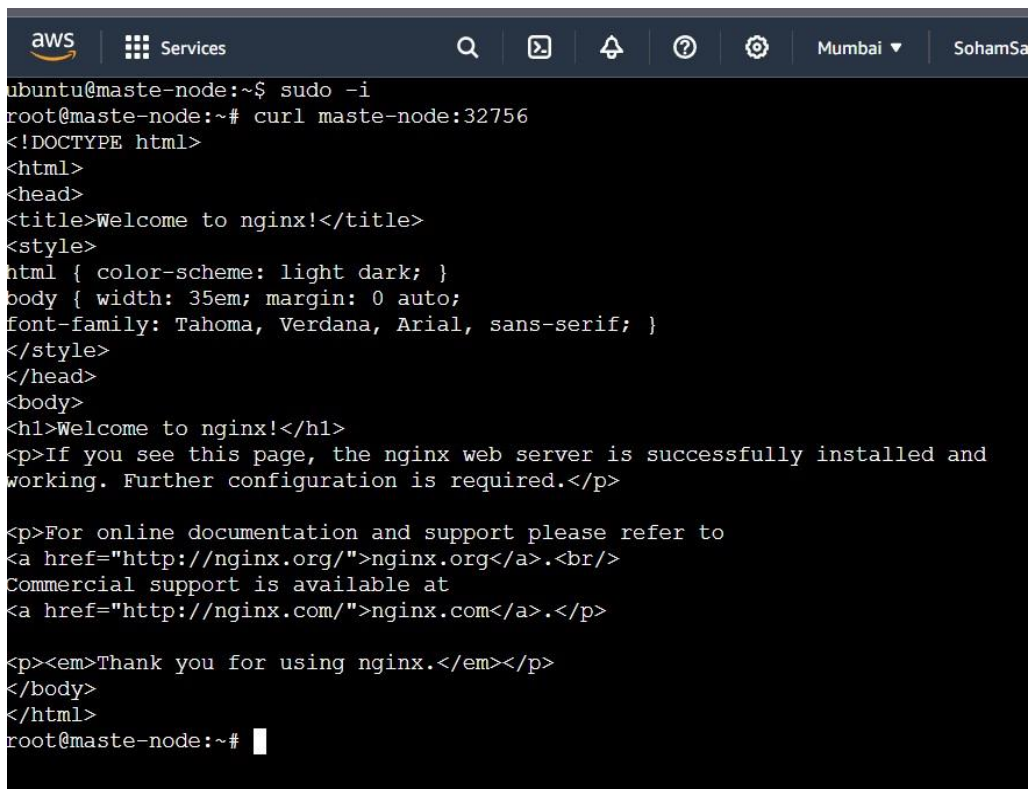
```
ubuntu@ip-172-31-91-198:~$ kubectl get services
```

NAME	TYPE	CLUSTER-IP	EXTERNAL-IP	PORT(S)	AGE
kubernetes	ClusterIP	10.96.0.1	<none>	443/TCP	6m6s
nginx	NodePort	10.110.120.152	<none>	80:31122/TCP	24s

**Step 5:** Add the port which is displayed i.e. 32756(in our case ) in the inbound rules of the security group.



**Step 6:** Now you can verify that the Nginx page is reachable on all nodes using the `curl` command. As you can see, the “**WELCOME TO NGINX!**” page can be reached.



```
aws | Services | Search | [Icons] | Mumbai | SohamSa
ubuntu@maste-node:~$ sudo -i
root@maste-node:~# curl maste-node:32756
<!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@maste-node:~#
```

**Step 7:** To test that everything is working, visit `http://worker_1_ip:nginx_port` or `http://worker_2_ip:nginx_port` through a browser on your local machine. You will see Nginx's familiar welcome page.

<http://13.127.63.136:32756/>

