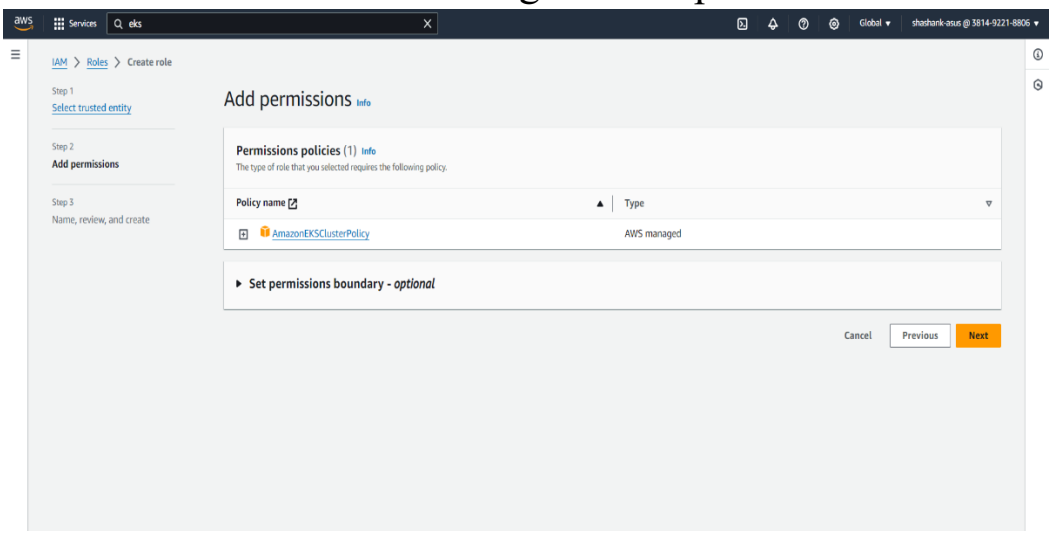
Date : 28 Mar 2024

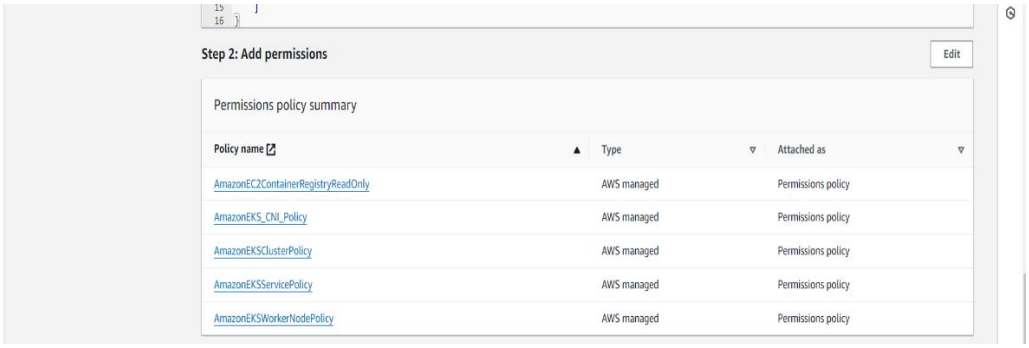
Name : Nirmal Omkar Maruti CDEC B-24

## Task : Hosting of nginx and tomcat via manifest file

1. Create IAM role for EKS and give EKS permission.




2. Create IAM role for EC2 and give permission as below.
   AmazonEC2ContainerRegistryReadonly
   AmazonEKS_CNI_Policy
   AmazonEKSClusterPolicy
   AmazonEKSServicePolicy
   AmazonEKSWorkerNodePolicy



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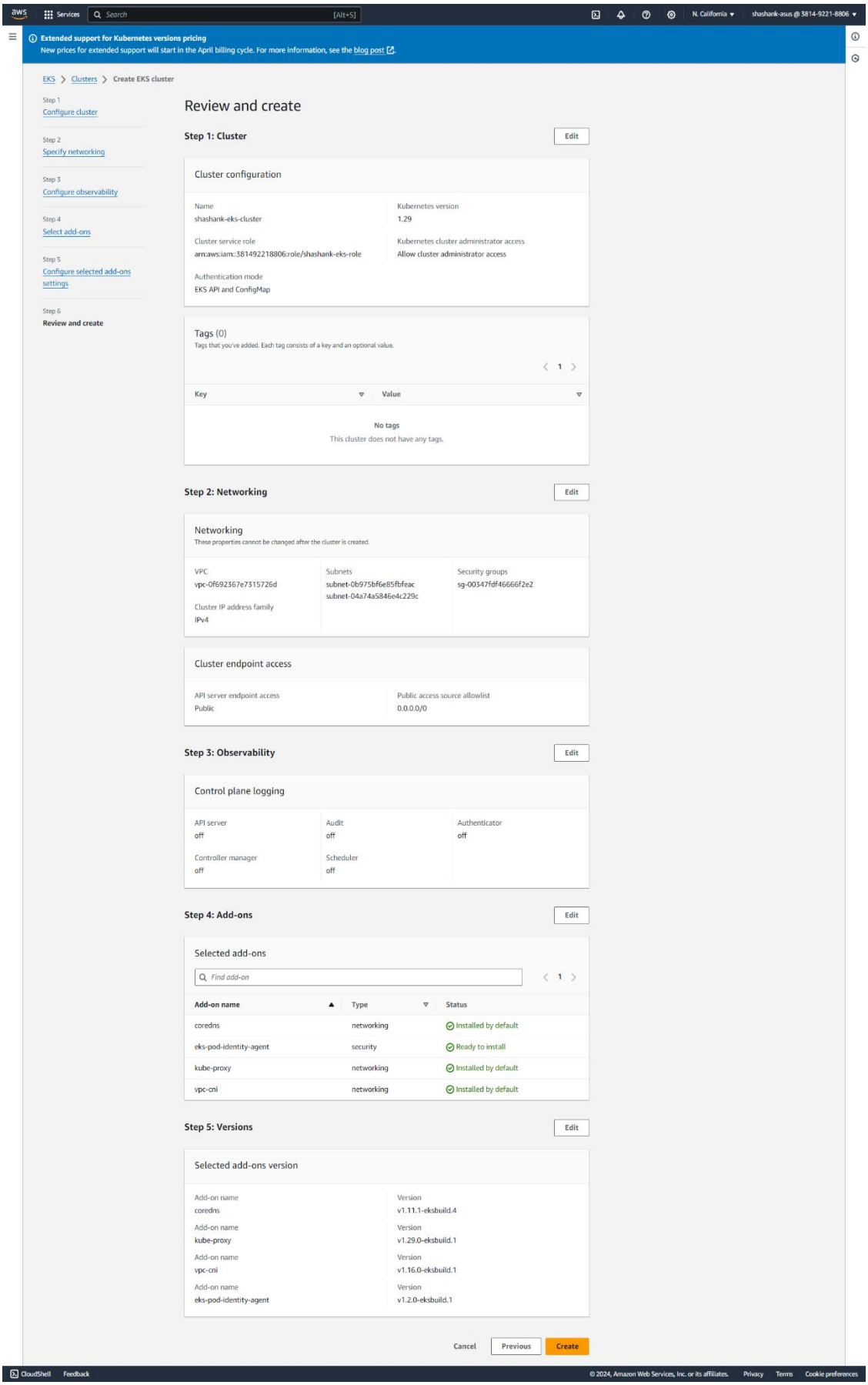
3. Create a cluster.

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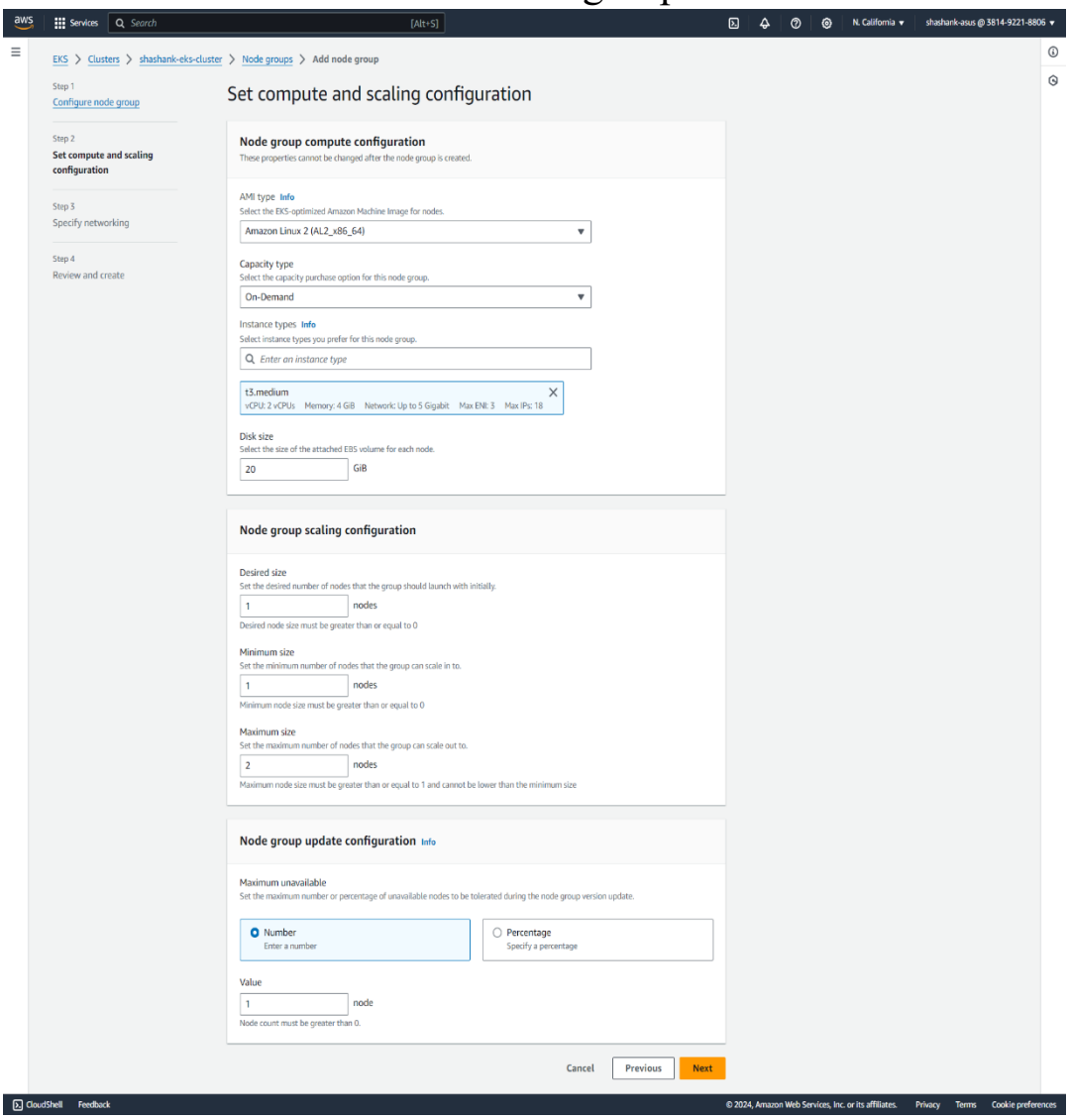
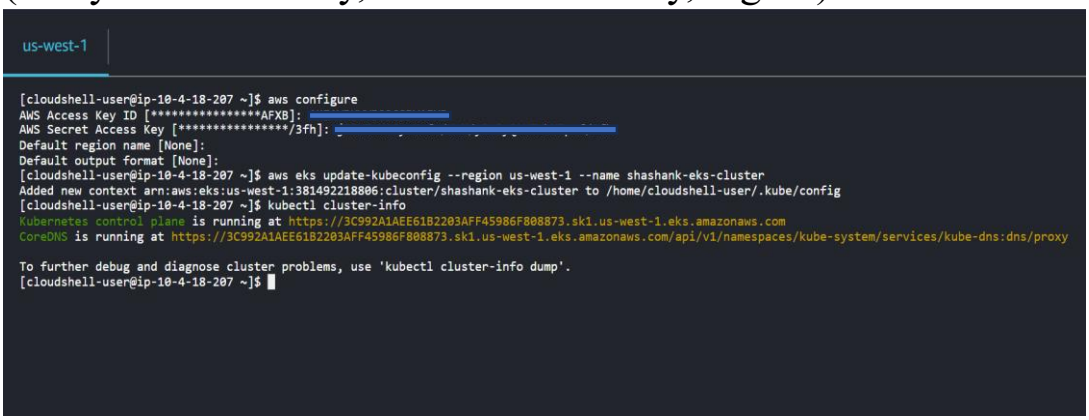
4. After creation of cluster add node group to it.




5. After adding node group to the cluster open cloud shell and configure it using command.

# aws configure

(add your access key, secrete access key, region)



6. Create pod.yml & service.yml file in your VS code and upload files on your git repo.
7. Create pod file for nginx and tomcat with extension pod.yml.

Pod.yml

```yaml
apiVersion: v1
kind: Pod
metadata:
  name: demopod
  labels:
    app: new-app
spec:
  containers:
  - name: nginx
    image: nginx:latest
    ports:
    - containerPort: 80
      protocol: TCP
  - name: tomcat
    image: tomcat:latest
    ports:
    - containerPort: 8080
      protocol: TCP
```

8. After completing the script create pod using command.

#git clone <your-git-repo-link>
#git clone https://github.com/Nirmalomkar/Kubernetes.git
(in my case my file present in Kubernetes repo.)
#ls
#(goes upto your pod.yml file for creation of node)
#kubectl apply -f pods.yml
#kubectl get pods
#kubectl get -o wide pods
#kubectl describe pods

```
[cloudshell-user@ip-10-6-16-163 kubernetes]$ kubectl apply -f pods.yml
pod/demopod created
[cloudshell-user@ip-10-6-16-163 kubernetes]$ kubectl get pods
NAME      READY   STATUS    RESTARTS   AGE
demopod   2/2     Running   0          29s
[cloudshell-user@ip-10-6-16-163 kubernetes]$ kubectl get -o wide pods
NAME      READY   STATUS    RESTARTS   AGE   IP            NODE                                          NOMINATED NODE   READINESS GATES
demopod   2/2     Running   0          43s   172.31.26.254   ip-172-31-19-77.us-west-1.compute.internal   <none>           <none>
```

```
[cloudshell-user@ip-10-6-16-163 kubernetes]$ kubectl describe pods
Name:             demopod
Namespace:        default
Priority:         0
Service Account:  default
Node:             ip-172-31-19-77.us-west-1.compute.internal/172.31.19.77
Start Time:       Thu, 28 Mar 2024 07:53:04 +0000
Labels:           app=new-app
Annotations:      <none>
Status:           Running
IP:               172.31.27.238
IPs:
  IP:  172.31.27.238
Containers:
  nginx:
    Container ID:   containerd://9ceae70ff287f6242f57e61142515153226e98e543d9cc3251e65a4286c4a6e8
    Image:          nginx:latest
    Image ID:       docker.io/library/nginx@sha256:6db391d1c0cfb30588ba0bf72ea999404f2764febf0f1f196acd5867ac7efa7e
    Port:           80/TCP
    Host Port:      0/TCP
    State:          Running
      Started:      Thu, 28 Mar 2024 07:53:05 +0000
    Ready:          True
    Restart Count:  0
    Environment:    <none>
    Mounts:
      /var/run/secrets/kubernetes.io/serviceaccount from kube-api-access-gwfhm (ro)
  tomcat:
```

9. Create service file for nginx and tomcat with extension service.yml.

Service.yml

service.yml

```yaml
apiVersion: v1
kind: Service
metadata:
  name: demoxyz
spec:
  selector:
    app: new-app
  type: NodePort
  ports:
    - port: 80
      targetPort: 80
      name: nginx
      protocol: TCP

    - port: 8080
      targetPort: 8080
      name: tomcat
      protocol: TCP

```

10. After writing the script use git pull command to pull your service.yml file

# git pull

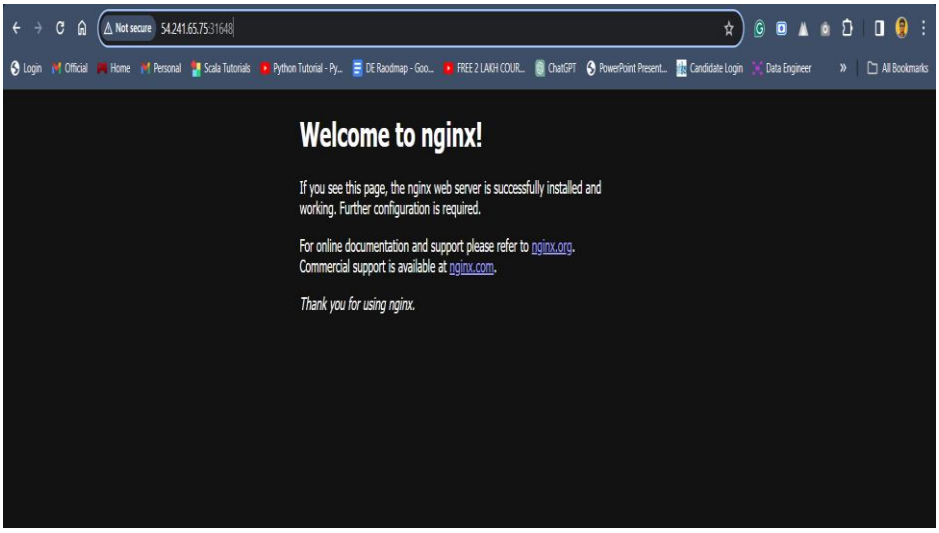
```
[cloudshell-user@ip-10-6-16-163 kubernetes]$ git pull
remote: Enumerating objects: 5, done.
remote: Counting objects: 100% (5/5), done.
remote: Compressing objects: 100% (3/3), done.
remote: Total 3 (delta 2), reused 0 (delta 0), pack-reused 0
Unpacking objects: 100% (3/3), 942 bytes | 471.00 KiB/s, done.
From https://github.com/shashanksharma1309/kubernetes
   f47670a..863338c  main       -> origin/main
Updating f47670a..863338c
Fast-forward
 service.yml | 2 ++
 1 file changed, 2 insertions(+)
```

11. Use commands to create service.

#ls
#kubectl apply -f service.yml
#kubectl get srv (services)

```
[cloudshell-user@ip-10-6-16-163 kubernetes]$ kubectl apply -f service.yml
service/demoxyz created
[cloudshell-user@ip-10-6-16-163 kubernetes]$ kubectl get svc
NAME         TYPE        CLUSTER-IP     EXTERNAL-IP   PORT(S)                   AGE
demoxyz      NodePort    10.100.59.75   <none>        80:31648/TCP,8080:30444/TCP   15s
kubernetes   ClusterIP   10.100.0.1     <none>        443/TCP                   147m
[cloudshell-user@ip-10-6-16-163 kubernetes]$
```

12. After creation of service hit the IP of your instance which is created while creation of node group.
    For nginx
        <instance-IP>:<port-IP>
        In my case;
        54.241.65.75:31648




13. For tomcat;
54.241.65.75:30444