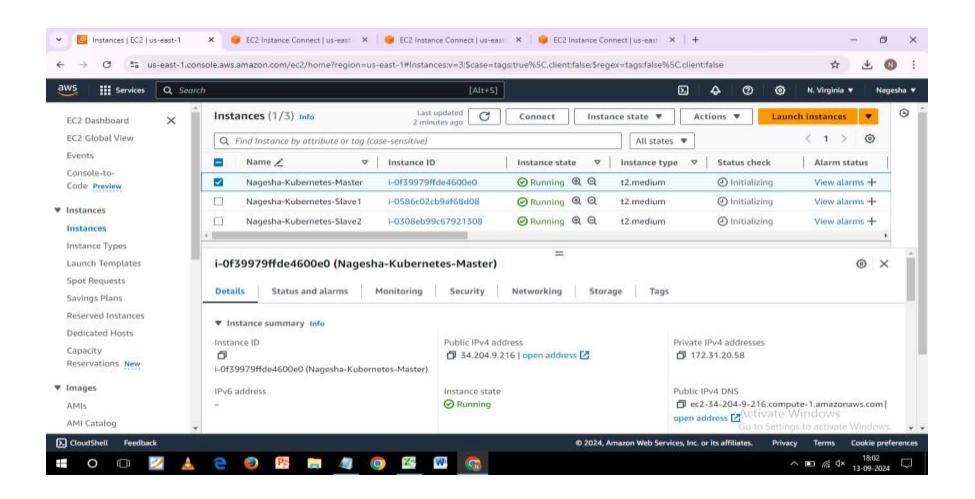
# **AWS Solutions Architect Certification Training**

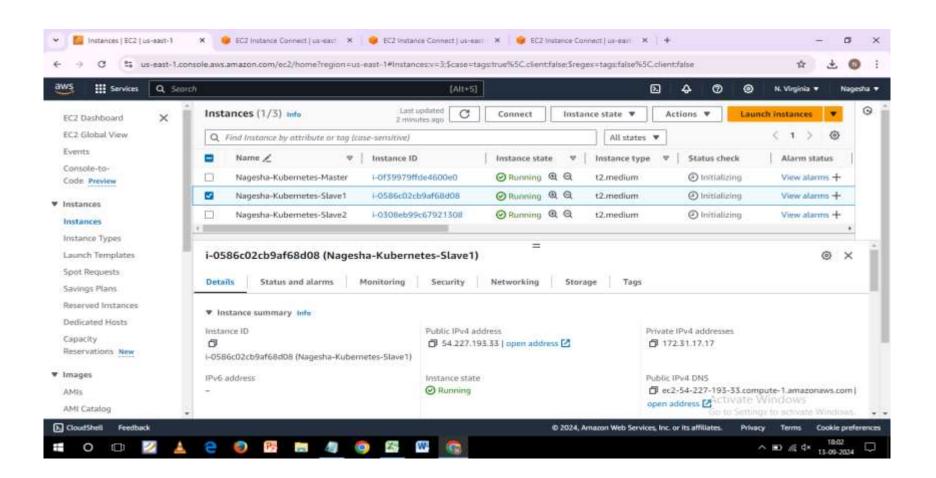
support@intellipaat.com - +91-7022374614 - US: 1-800-216-8930 (Toll Free)

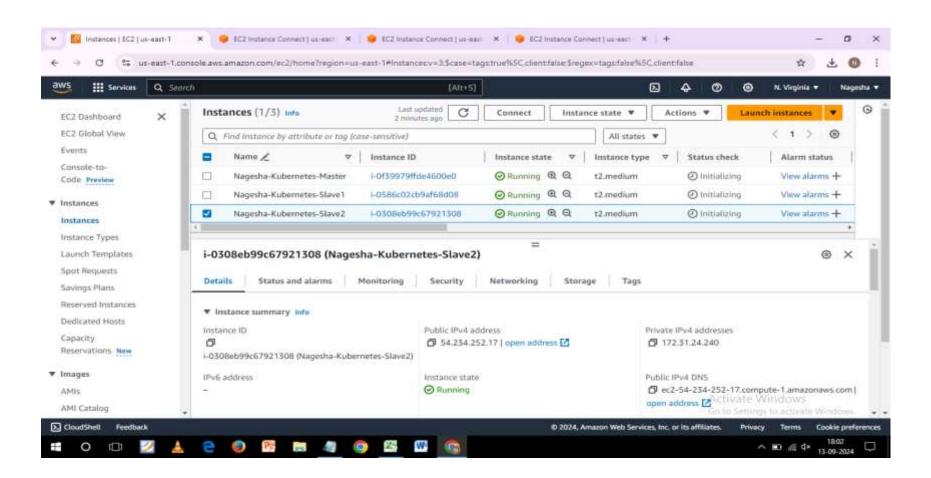
DevOps-Module7-Kubernetes-Assignment-5 COMPLETED by Nagesha KS Please check the following screenshots for each question.

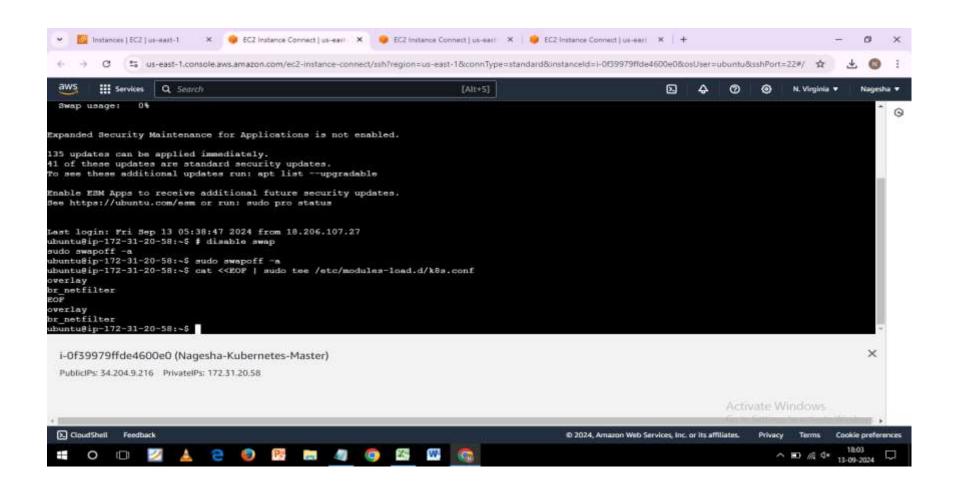
# **Tasks To Be Performed:**

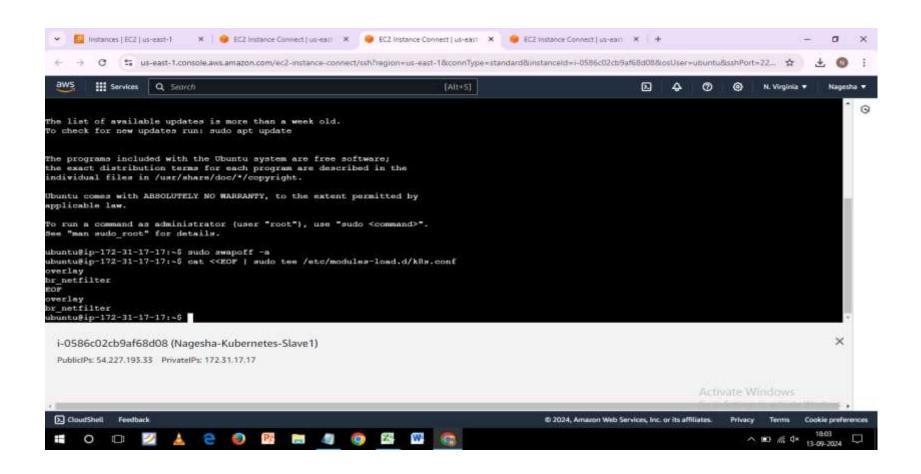
- 1. Use the previous deployment
- 2. Deploy an NGINX deployment of 3 replicas
- 3. Create an NGINX service of type ClusterIP
- 4. Create an ingress service/ Apache to Apache service/ NGINX to NGINX service

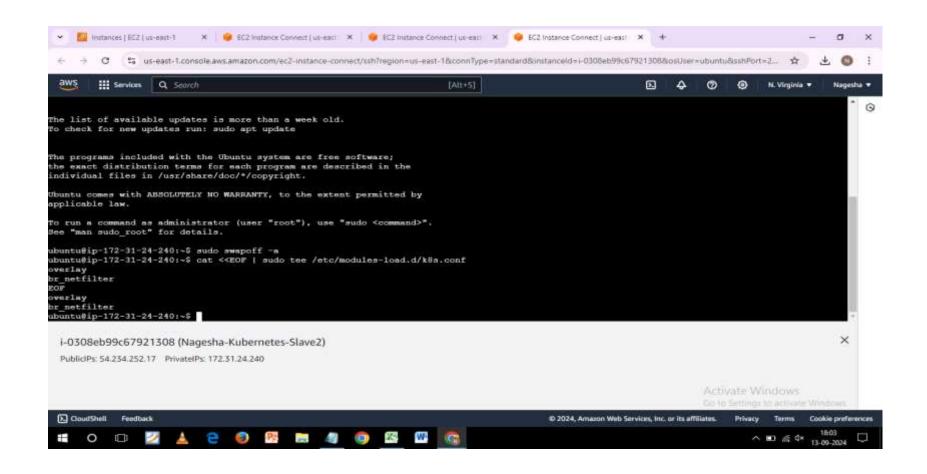


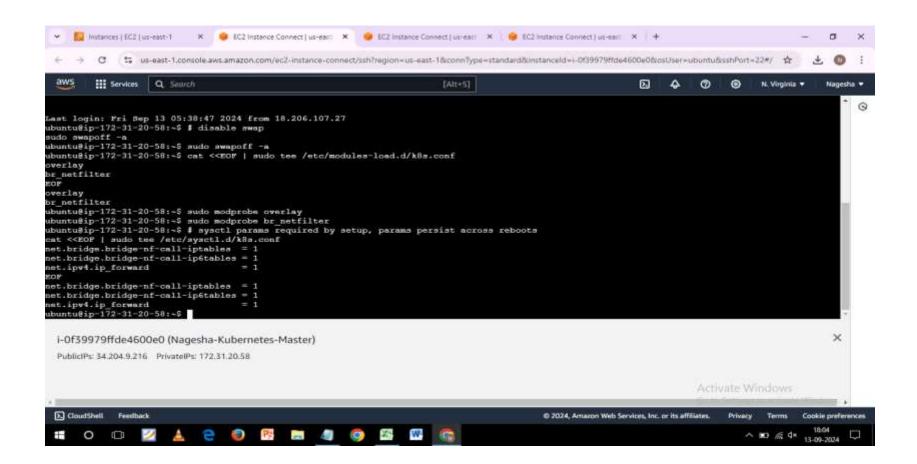


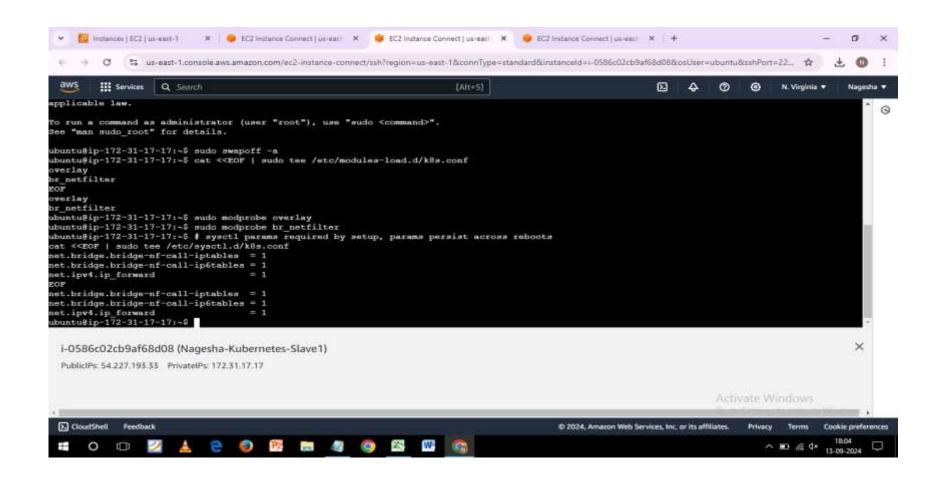


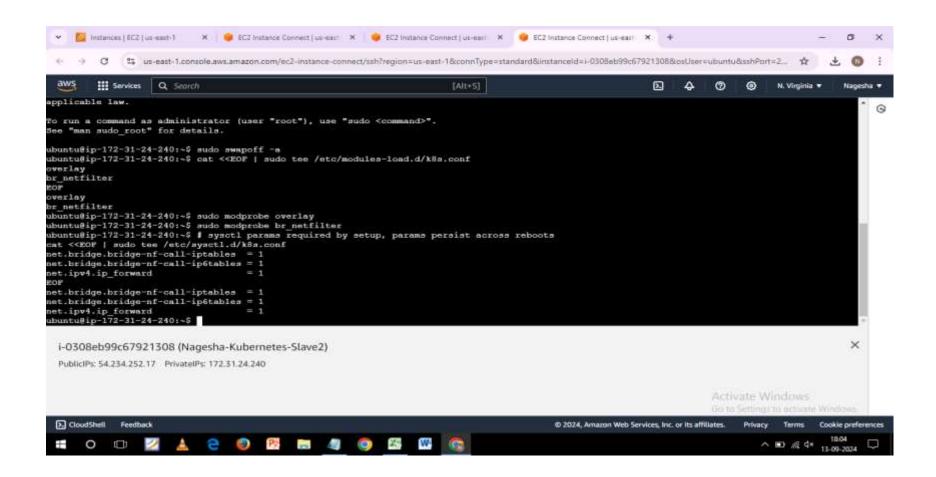


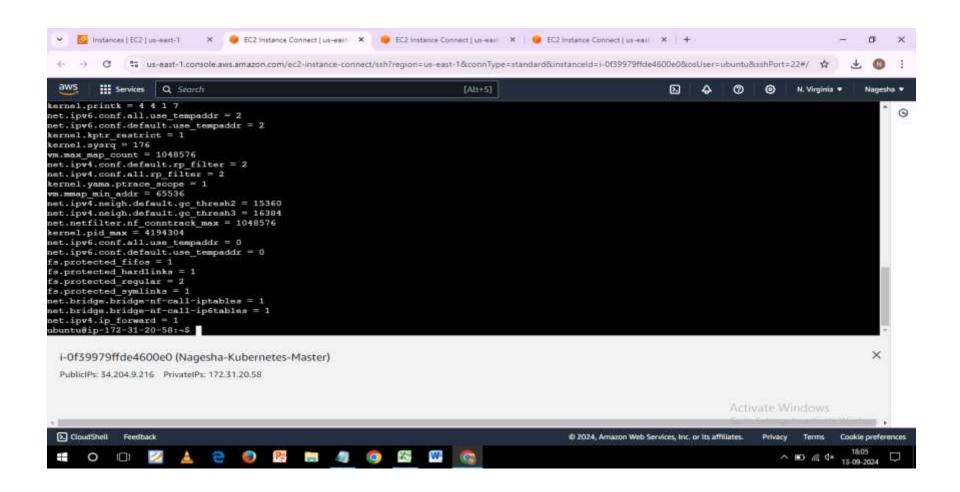


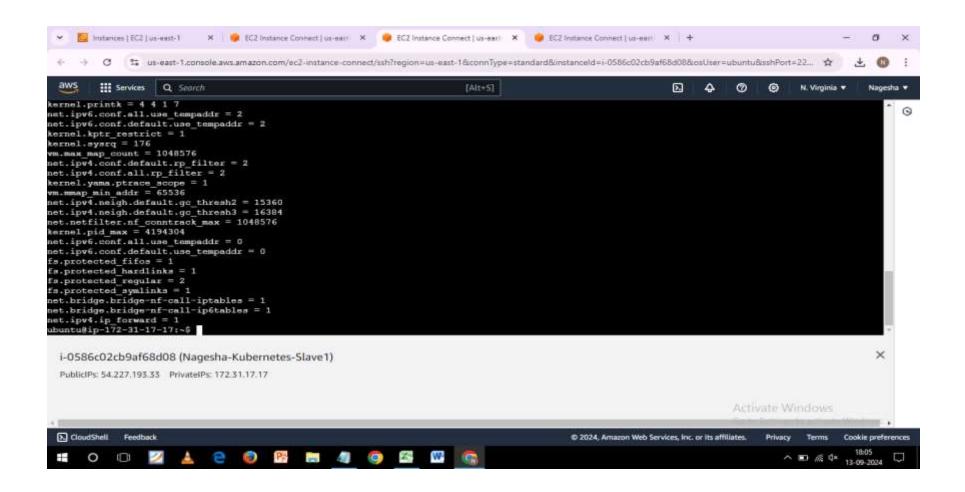


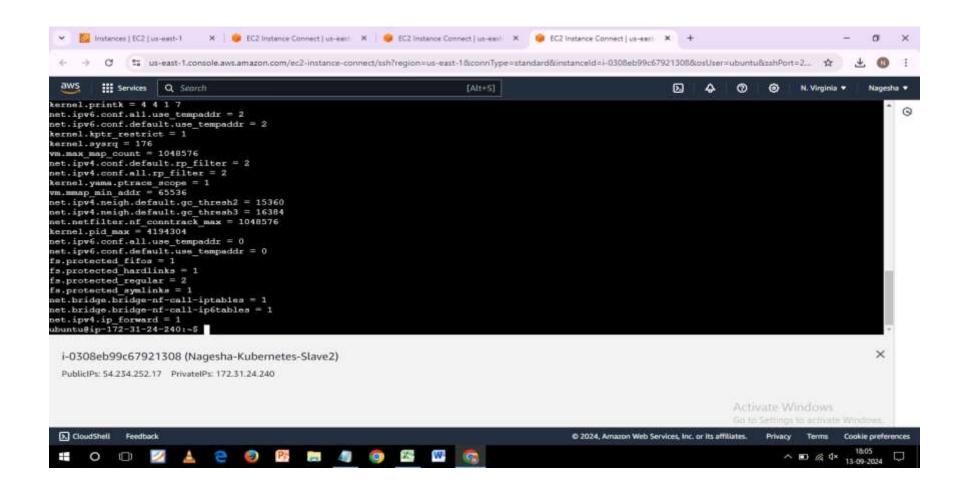


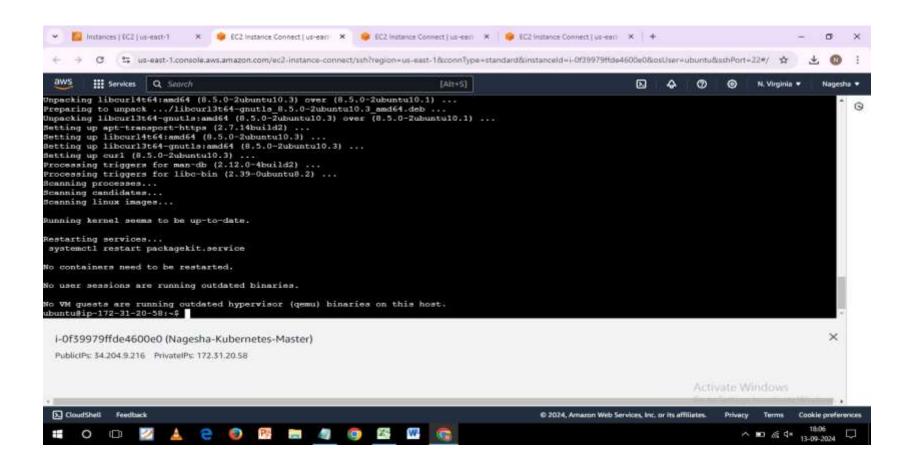


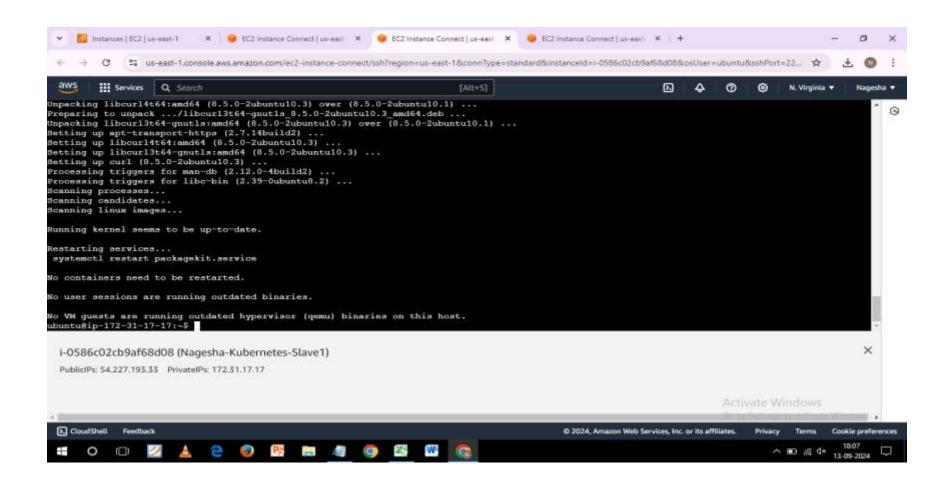


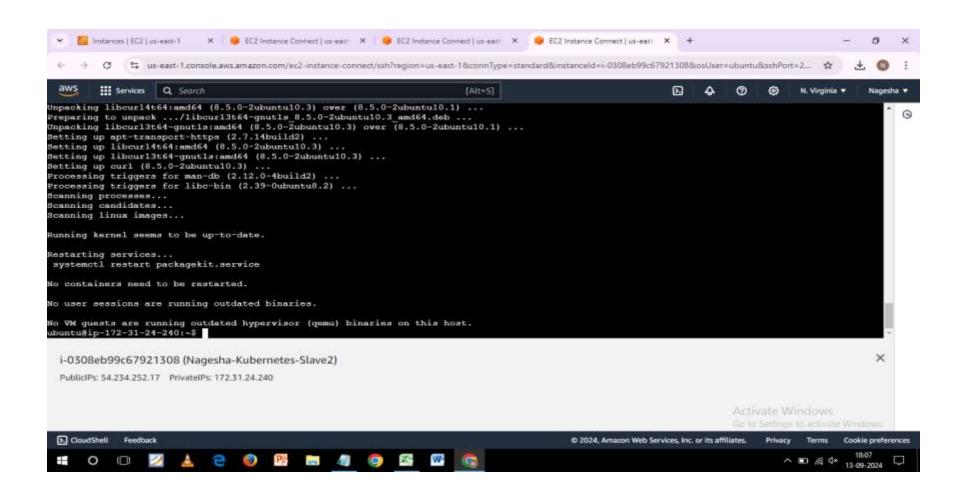


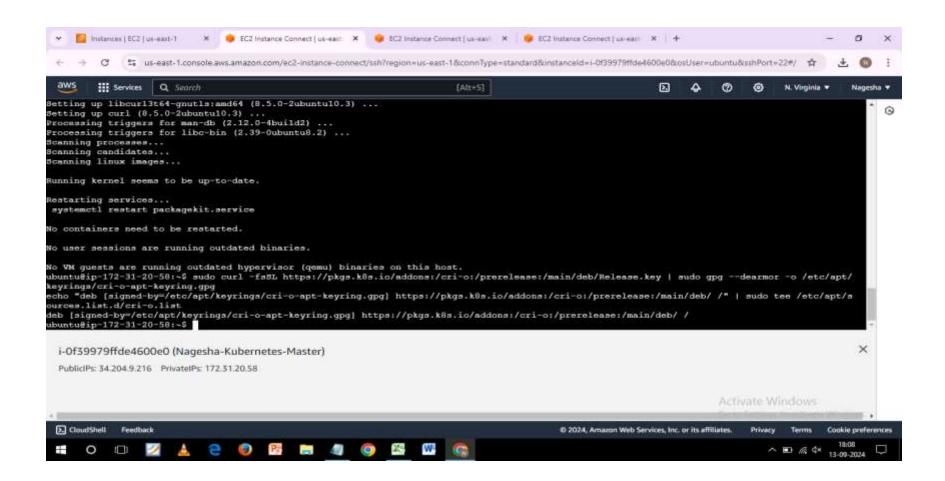


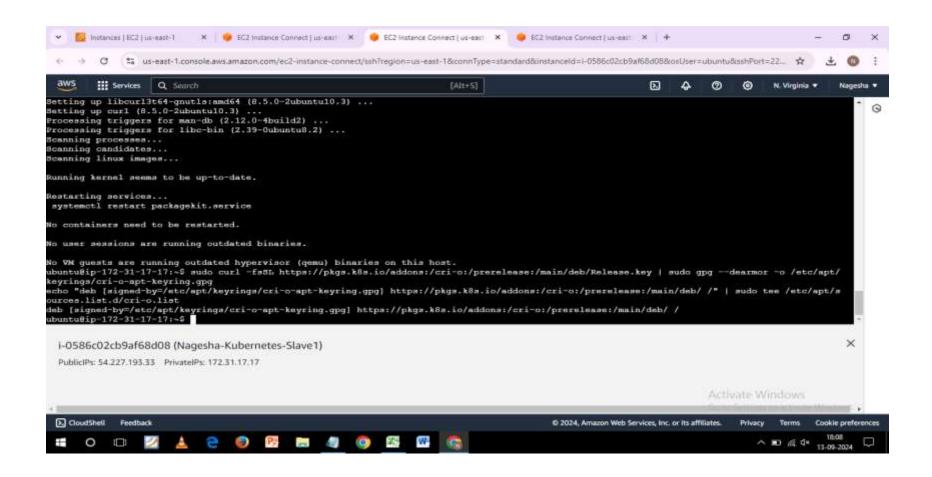


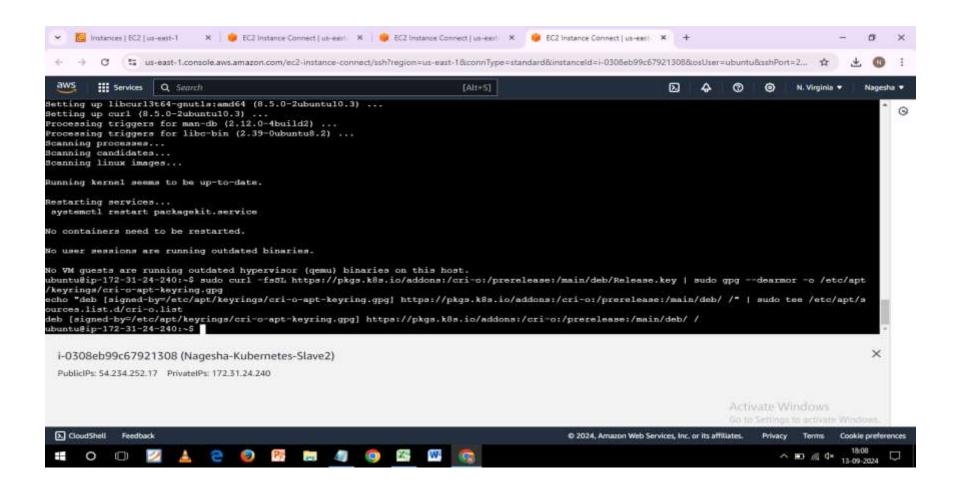


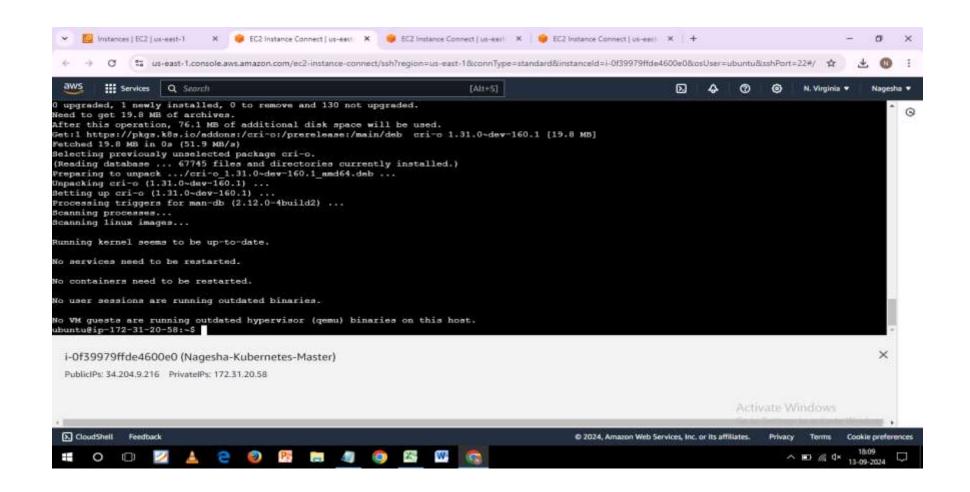


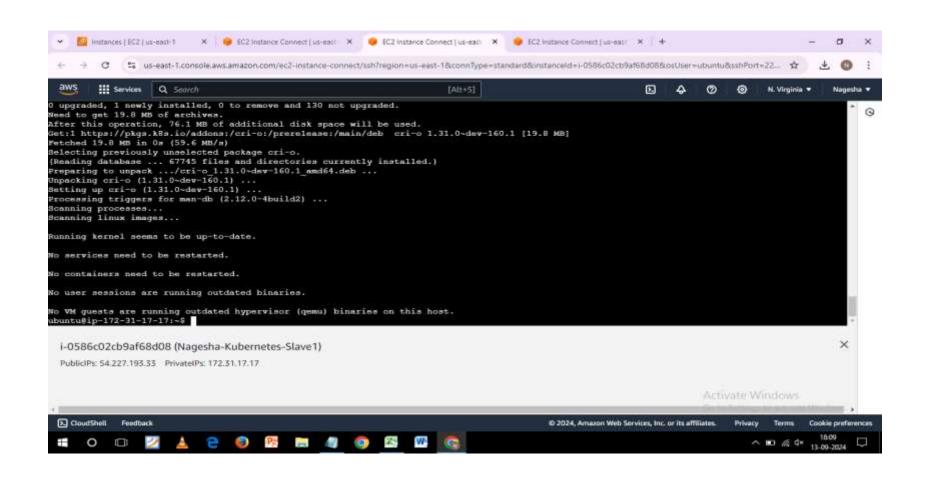


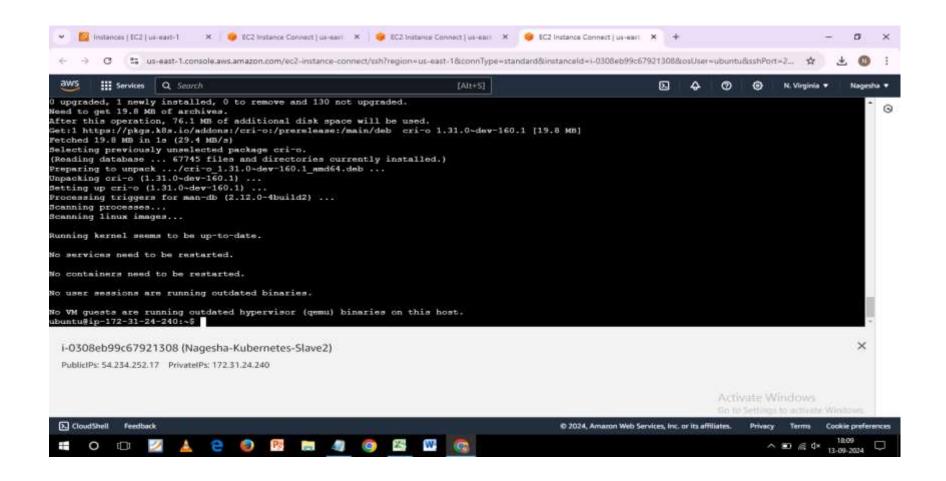


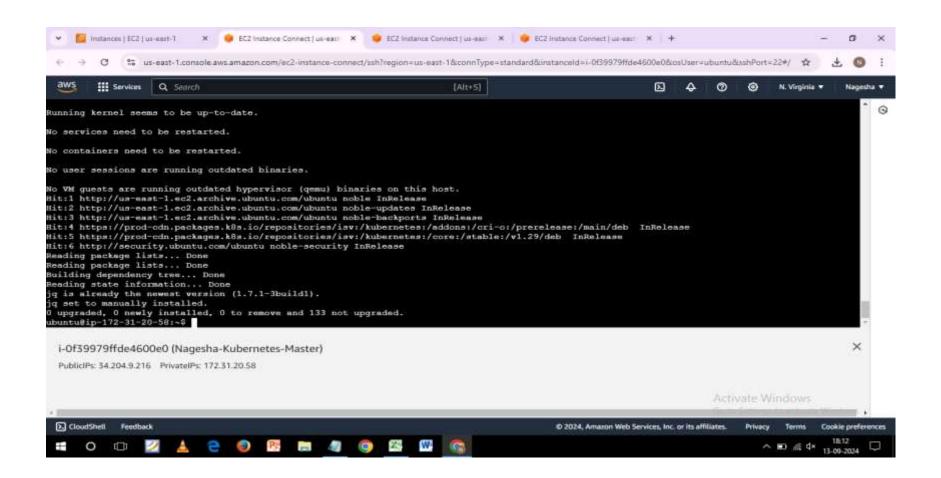


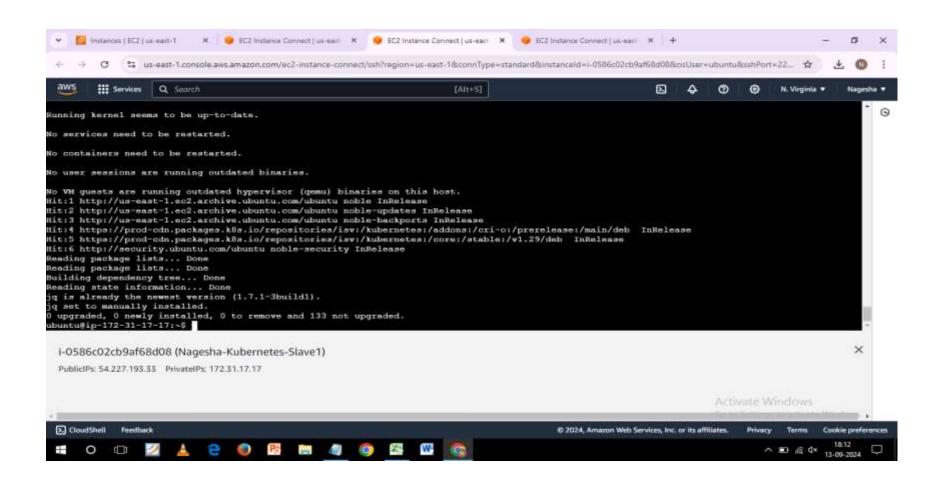


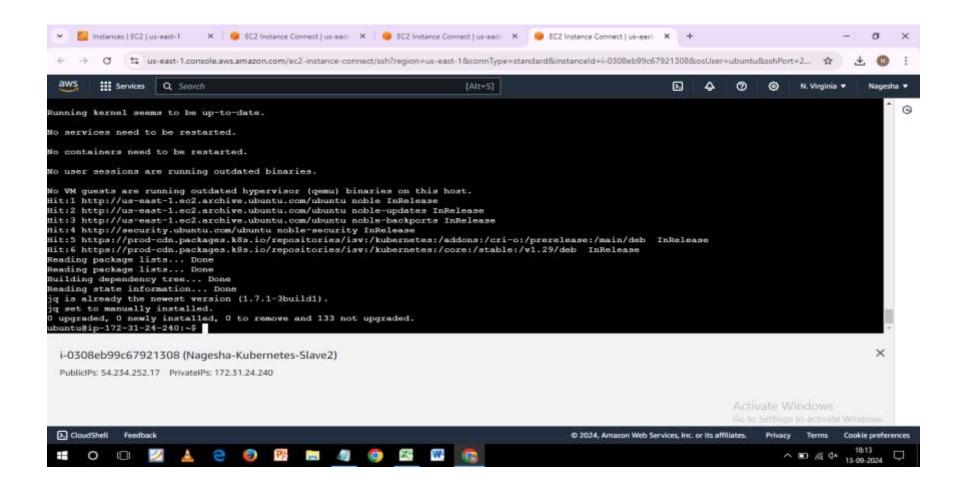


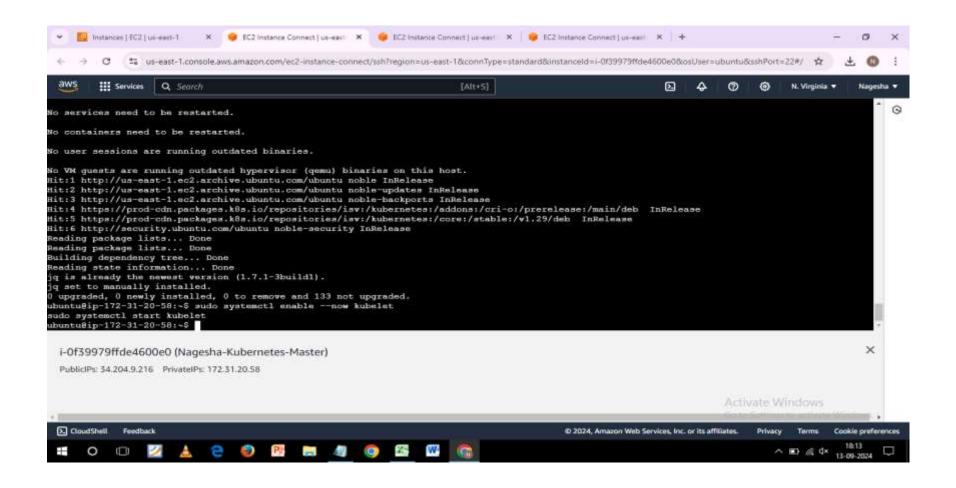


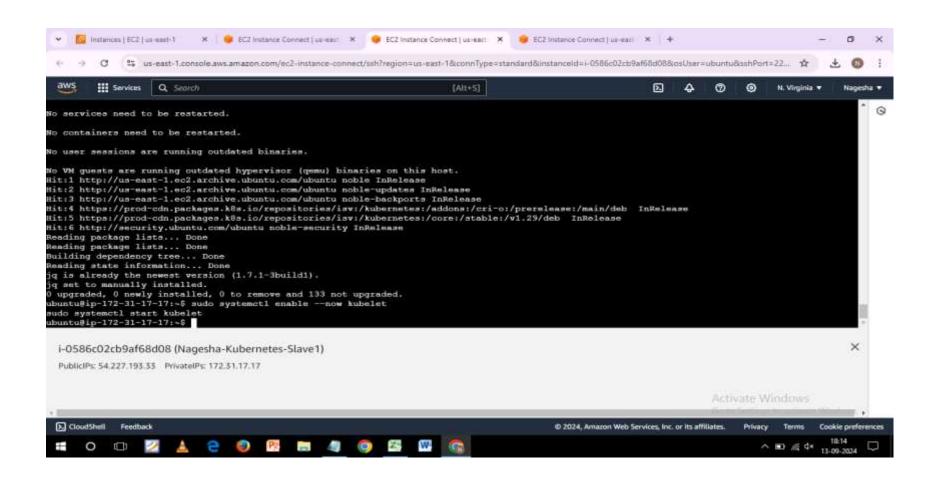


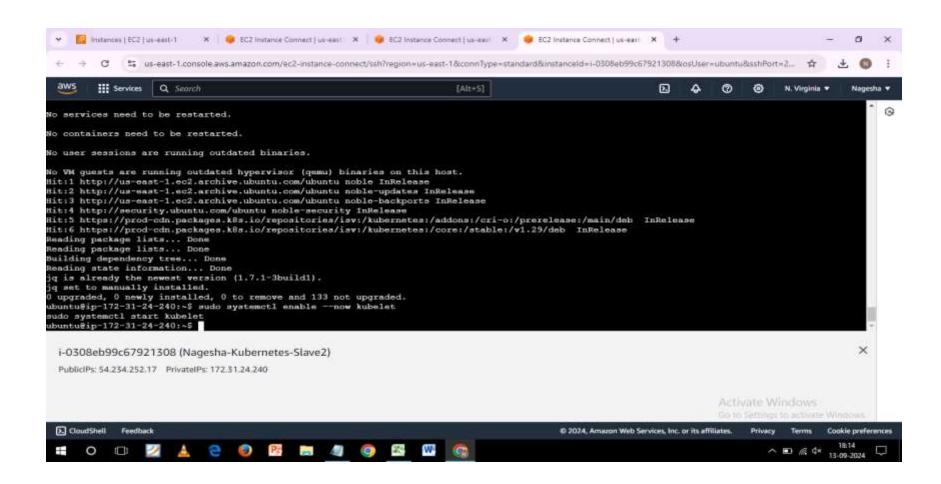


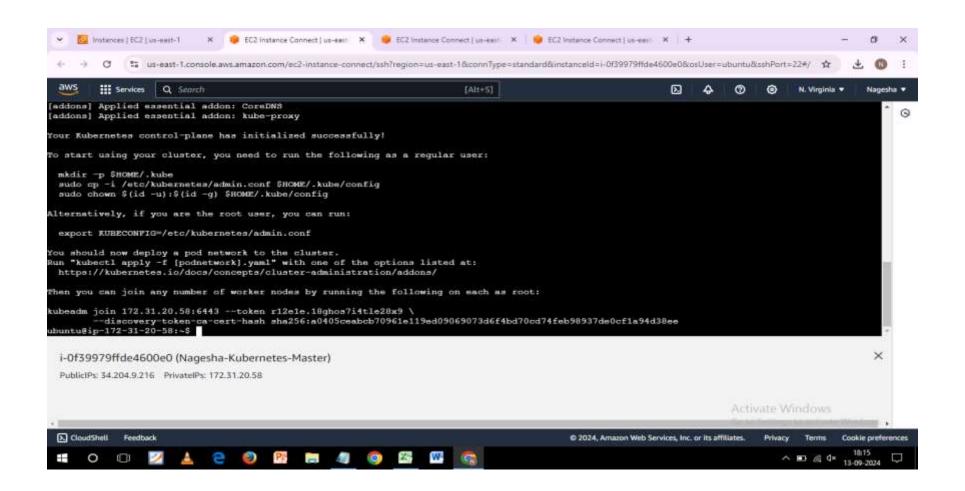


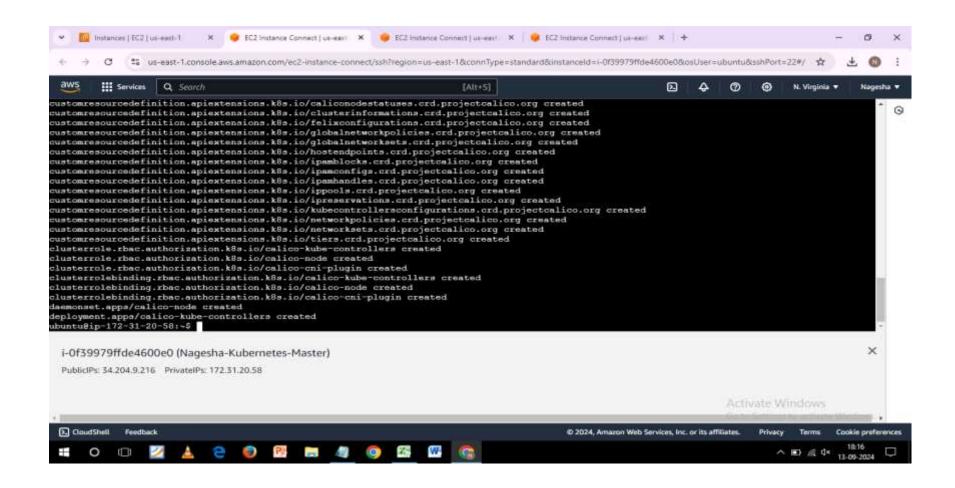


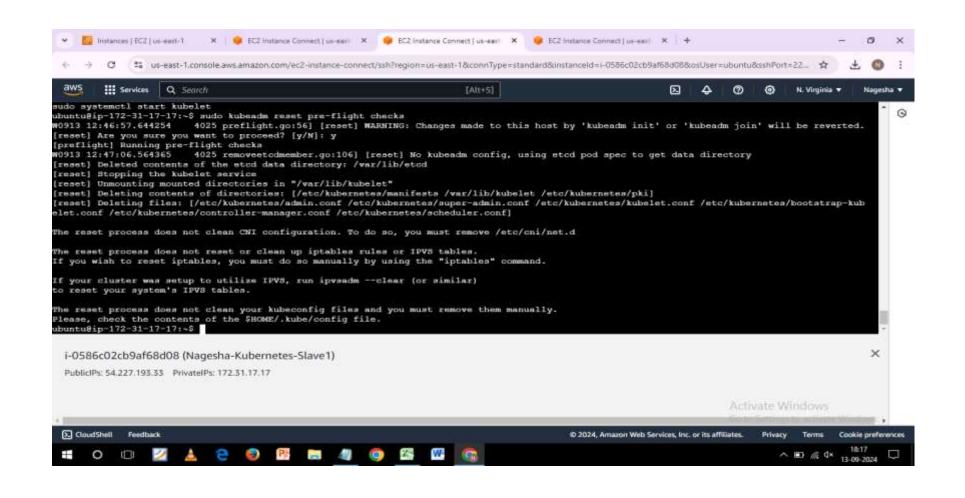


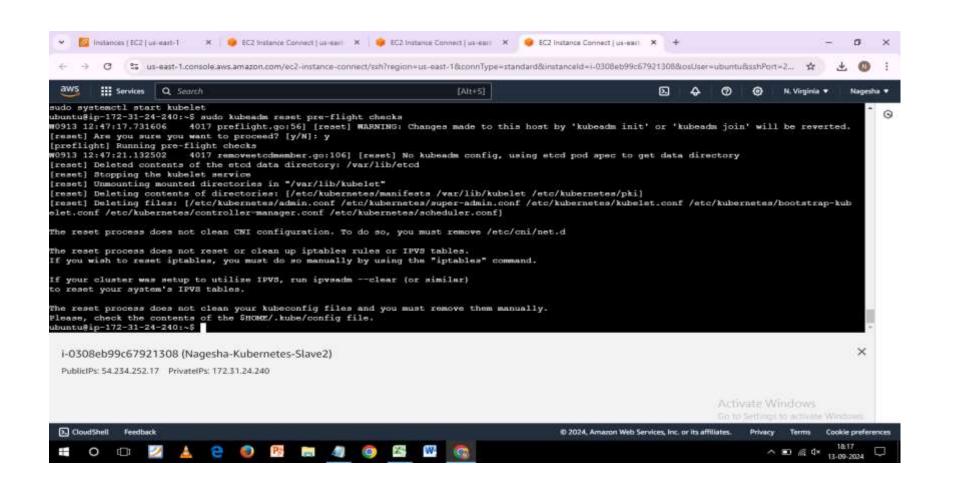


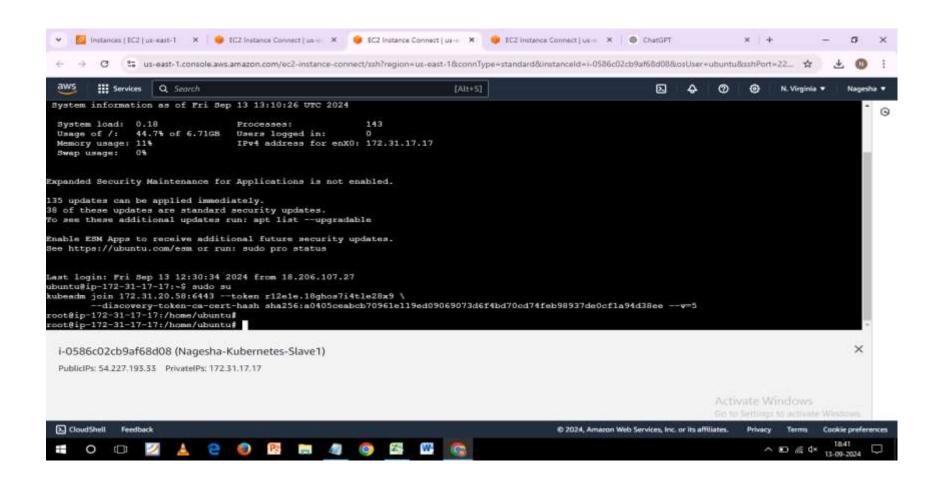


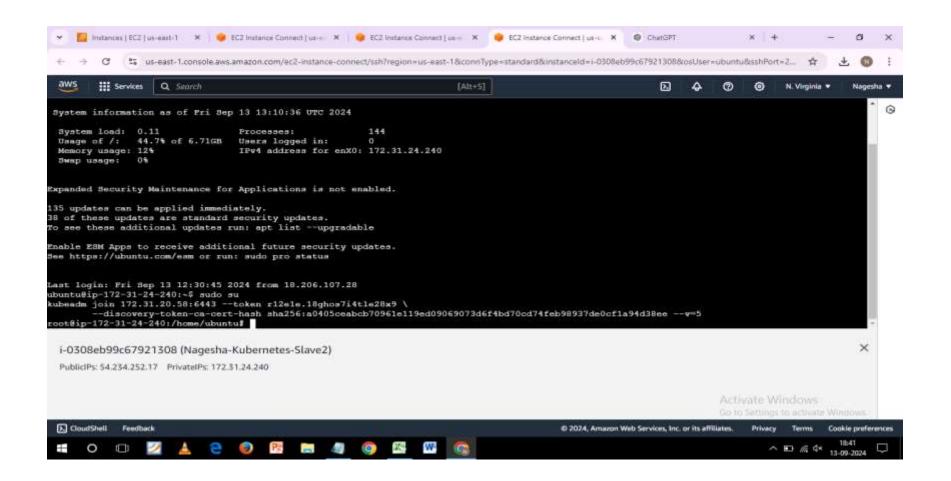


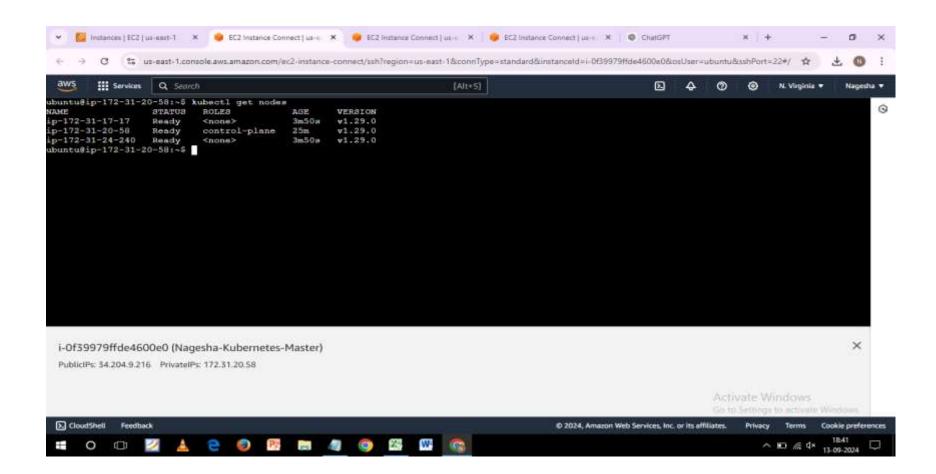


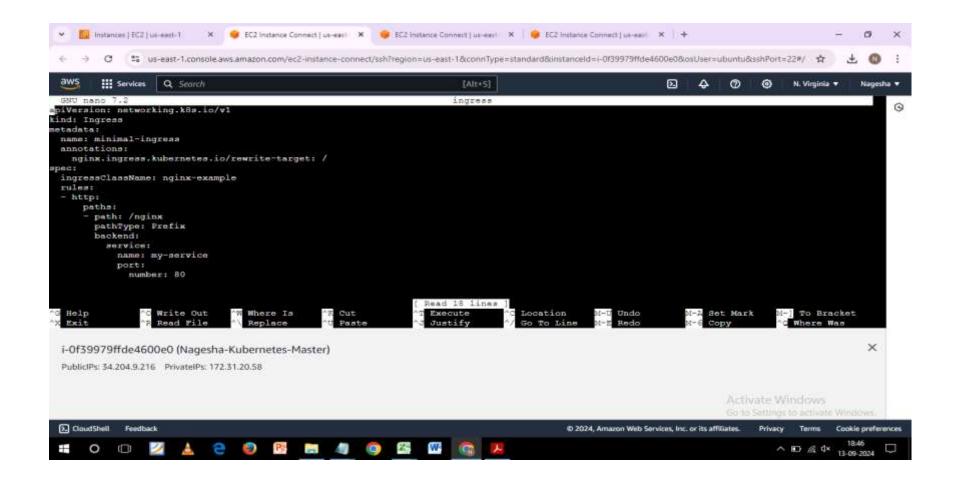


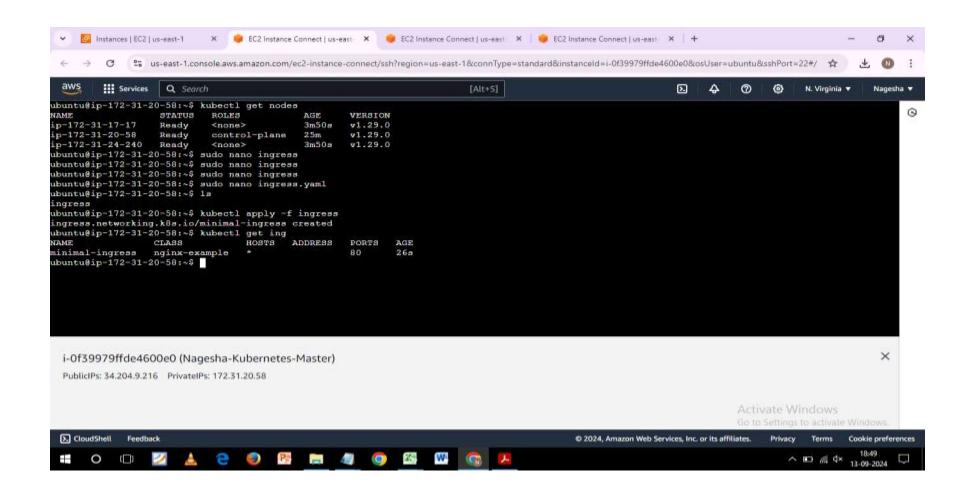


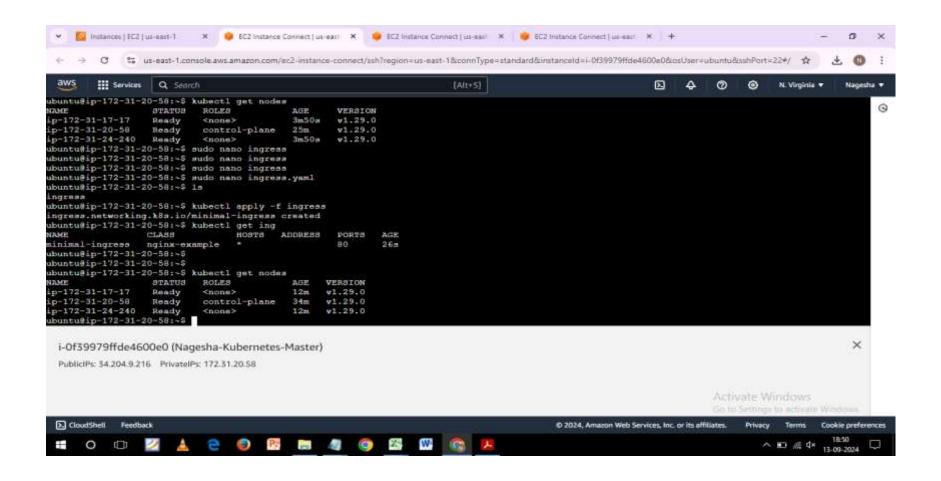












### **Kubernetes Commands**

## installing kubernetes cluster

### # Kubeadm Installation Guide

This guide outlines the steps needed to set up a Kubernetes cluster using kubeadm.

## ## Pre-requisites

**Ubuntu OS** 

t2.medium instance type or higher

---

## AWS Setup

Make sure all traffic is allowed on all instance

---

## ## Execute on Both "Master" & "Worker Node"

Run the following commands on both the master and worker nodes to prepare them for kubeadm.

## # disable swap

sudo swapoff -a

# # Create the .conf file to load the modules at bootup

cat <<EOF | sudo tee /etc/modules-load.d/k8s.conf overlay br\_netfilter EOF

sudo modprobe overlay sudo modprobe br\_netfilter

## # sysctl params required by setup, params persist across reboots

cat <<EOF | sudo tee /etc/sysctl.d/k8s.conf
net.bridge.bridge-nf-call-iptables = 1
net.bridge.bridge-nf-call-ip6tables = 1</pre>

net.ipv4.ip\_forward = 1 EOF

## # Apply sysctl params without reboot

sudo sysctl --system

#### ## Install CRIO Runtime

sudo apt-get update -y sudo apt-get install -y software-properties-common curl apt-transport-https ca-certificates gpg

sudo curl -fsSL https://pkgs.k8s.io/addons:/cri-o:/prerelease:/main/deb/Release.key | sudo gpg --dearmor -o /etc/apt/keyrings/cri-o-apt-keyring.gpg echo "deb [signed-by=/etc/apt/keyrings/cri-o-apt-keyring.gpg] https://pkgs.k8s.io/addons:/cri-o:/prerelease:/main/deb/ /" | sudo tee /etc/apt/sources.list.d/cri-o.list

sudo apt-get update -y sudo apt-get install -y cri-o

sudo systemctl daemon-reload sudo systemctl enable crio --now sudo systemctl start crio.service

echo "CRI runtime installed successfully"

## # Add Kubernetes APT repository and install required packages

curl -fsSL https://pkgs.k8s.io/core:/stable:/v1.29/deb/Release.key | sudo gpg --dearmor -o /etc/apt/keyrings/kubernetes-apt-keyring.gpg echo 'deb [signed-by=/etc/apt/keyrings/kubernetes-apt-keyring.gpg] https://pkgs.k8s.io/core:/stable:/v1.29/deb/ /' | sudo tee /etc/apt/sources.list.d/kubernetes.list

sudo apt-get update -y sudo apt-get install -y kubelet="1.29.0-\*" kubectl="1.29.0-\*" kubeadm="1.29.0-\*" sudo apt-get update -y sudo apt-get install -y jq

sudo systemctl enable --now kubelet

### sudo systemctl start kubelet

-----

## ## Execute ONLY on "Master Node"

sudo kubeadm config images pull

sudo kubeadm init

mkdir -p "\$HOME"/.kube sudo cp -i /etc/kubernetes/admin.conf "\$HOME"/.kube/config sudo chown "\$(id -u)":"\$(id -g)" "\$HOME"/.kube/config

## # Network Plugin = calico

kubectl apply -f https://raw.githubusercontent.com/projectcalico/calico/master/manifests/calico.yaml

-----

## ## Execute on ALL of your Worker Node's

- **1. Perform pre-flight checks** sudo kubeadm reset pre-flight checks
- 2. Paste the join command you got from the master node and append `--v=5` at the end but first use sudo su command to become root (avoid using sudo your-token).

sudo su <your-token --v=5>

### sudo su

kubeadm join 172.31.20.58:6443 --token r12e1e.18ghos7i4tle28x9 \

--discovery-token-ca-cert-hash sha256:a0405ceabcb70961e119ed09069073d6f4bd70cd74feb98937de0cf1a94d38ee --v=5

## ## Verify Cluster Connection

\*\*On Master Node:\*\*

**kubectl** get nodes

sudo nano ingress

```
apiVersion: networking.k8s.io/v1
kind: Ingress
metadata:
name: minimal-ingress
annotations:
 nginx.ingress.kubernetes.io/rewrite-target:/
spec:
ingressClassName: nginx-example
rules:
- http:
   paths:
   - path: /nginx
    pathType: Prefix
    backend:
     service:
      name: my-service
      port:
       number: 80
```

# sudo nano ingress

edit the script mention paths path:/nginx mention service: name: my-service

# kubectl apply -f ingress.yaml

 $ingress.networking.k8s.io/minimal-ingress\ created$ 

kubectl get ing

kubectl get nodes