

```
AWS Secret Access Key [None]: +p/QmOLPksG/WnlsGfz55vJ1EpjrnkbYrDzcC7z6
Default region name [None]: us-east-1
Default output format [None]: text
ubuntu@ip-172-31-37-124:~$ 
aws sts get-caller-identity
# Should print your Account, Arn, User
028686110019      arn:aws:iam::028686110019:root  028686110019
ubuntu@ip-172-31-37-124:~$ cd^C
ubuntu@ip-172-31-37-124:~$ cd terraform-vms
ubuntu@ip-172-31-37-124:~/terraform-vms$ terraform init
Initializing the backend...
Initializing provider plugins...
- Reusing previous version of hashicorp/aws from the dependency lock file
- Using previously-installed hashicorp/aws v5.100.0

Terraform has been successfully initialized!

You may now begin working with Terraform. Try running "terraform plan" to see
any changes that are required for your infrastructure. All Terraform commands
should now work.

If you ever set or change modules or backend configuration for Terraform,
rerun this command to reinitialize your working directory. If you forget, other
commands will detect it and remind you to do so if necessary.
ubuntu@ip-172-31-37-124:~/terraform-vms$ terraform plan
```

i-0b2154824b493e559 (Final\_task-VM)

PublicIPs: 34.230.34.225 PrivateIPs: 172.31.37.124



The screenshot shows a browser window with several tabs open, including "Course Catalog - VMware Lab", "Launch an Instance | EC2 | us-east-1", "Create access key | IAM | Global", and "EC2 Instance Connect | us-east-1". The main content area displays Terraform output:

```
+ protocol      = "tcp"
+ security_groups = []
+ self          = false
+ to_port       = 22
),
]
name           = "k8s_sq"
name_prefix     = (known after apply)
owner_id        = (known after apply)
revoke rules on delete = false
tags_all        = (known after apply)
vpc_id          = "vpc_023c94ec7d245044"
)

Plan: 3 to add, 0 to change, 0 to destroy.

Changes to Outputs:
+ master_public_ip = (known after apply)
+ worker_public_ip = (known after apply)

Note: You didn't use the -out option to save this plan, so Terraform can't guarantee to take exactly these actions if you run "terraform apply" now.
```

ubuntu@ip-172-31-37-124:~/terraform-vms\$

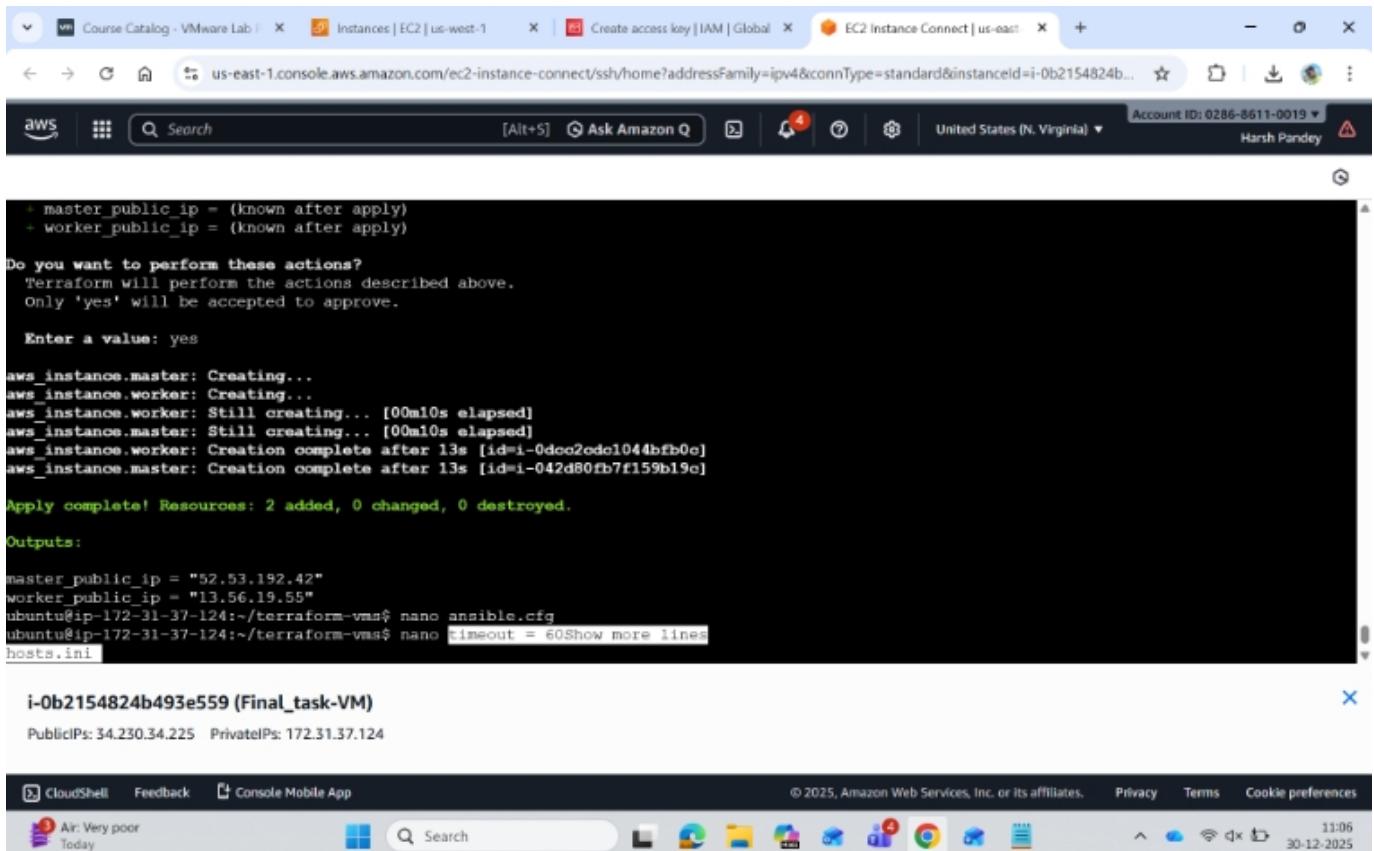
**i-0b2154824b493e559 (Final\_task-VM)**

PublicIPs: 34.230.34.225 PrivateIPs: 172.31.37.124

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23°C Mostly sunny

10:51 30-12-2025



The screenshot shows a browser window with several tabs open, including 'Course Catalog - VMware Lab', 'Instances | EC2 | us-west-1', 'Create access key | IAM | Global', and 'EC2 Instance Connect | us-east'. The main content area is a terminal window titled 'aws' with the following output:

```
+ master_public_ip = (known after apply)
+ worker_public_ip = (known after apply)

Do you want to perform these actions?
Terraform will perform the actions described above.
Only 'yes' will be accepted to approve.

Enter a value: yes

aws_instance.master: Creating...
aws_instance.worker: Creating...
aws_instance.worker: Still creating... [00m10s elapsed]
aws_instance.master: Still creating... [00m10s elapsed]
aws_instance.worker: Creation complete after 13s [id=i-0dca2cdc1044bfb0c]
aws_instance.master: Creation complete after 13s [id=i-042d80fb7f159b19c]

Apply complete! Resources: 2 added, 0 changed, 0 destroyed.

Outputs:

master_public_ip = "52.53.192.42"
worker_public_ip = "13.56.19.55"
ubuntu@ip-172-31-37-124:~/terraform-vms$ nano ansible.cfg
ubuntu@ip-172-31-37-124:~/terraform-vms$ nano timeout = 60Show more lines
hosts.ini
```

Below the terminal, a modal window displays the instance details:

**i-0b2154824b493e559 (Final\_task-VM)**

Public IPs: 34.230.34.225 Private IPs: 172.31.37.124

At the bottom of the browser window, there is a network status bar showing 'Air: Very poor Today' and a date/time stamp '30-12-2025'.

The screenshot shows the AWS EC2 Instances page. The left sidebar is collapsed, and the main area displays the following information:

**Instances (1/2) Info**

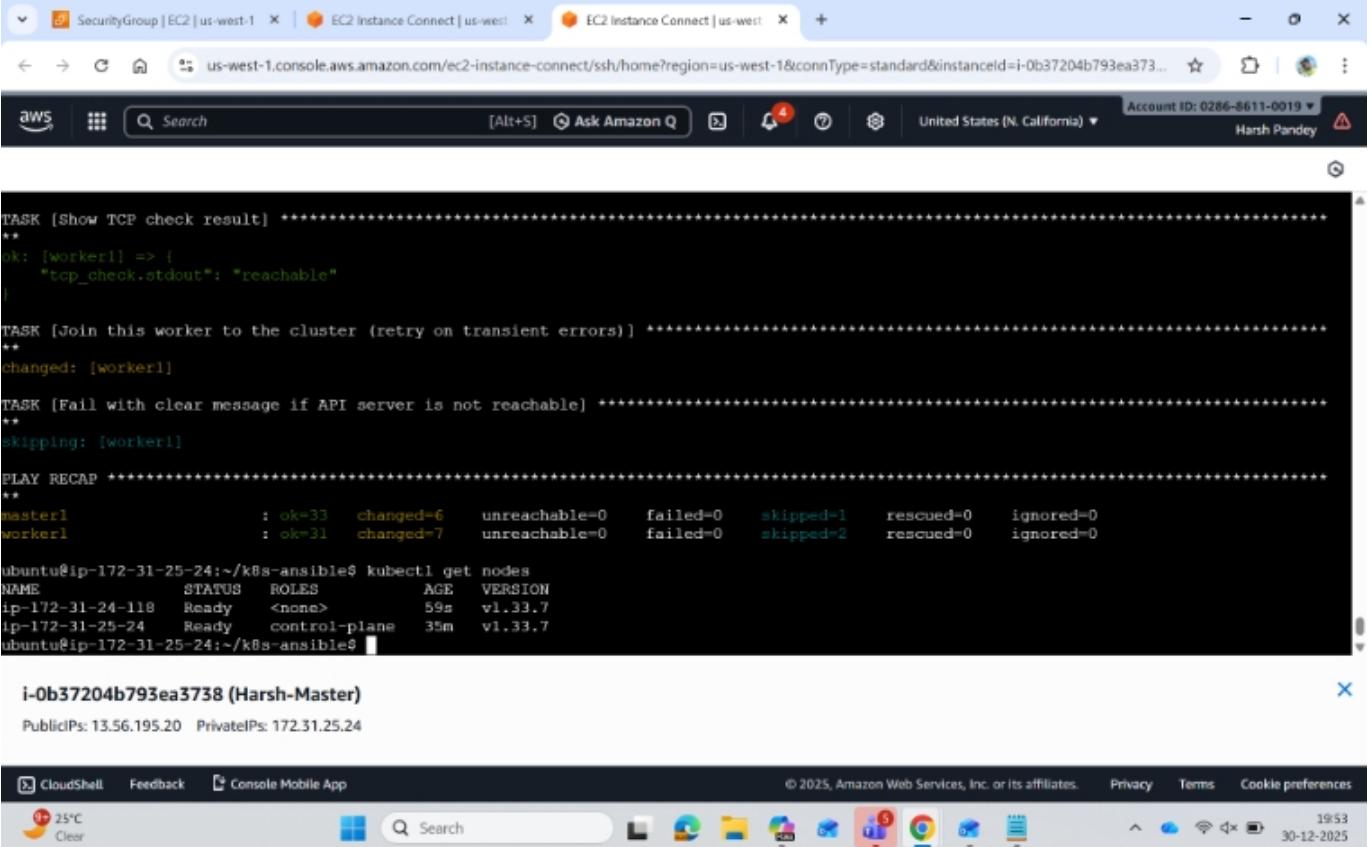
Name	Instance ID	Instance state	Instance type	Status check	Alarm status
Harsh-master	i-042d80fb7f159b19c	Running	t3.small	Initializing	<a href="#">View alarms +</a>
Harsh-worker	i-0dcc2cdc1044fb0c	Running	t3.small	Initializing	<a href="#">View alarms +</a>

**i-042d80fb7f159b19c (Harsh-master)**

**Details**   [Status and alarms](#)   [Monitoring](#)   [Security](#)   [Networking](#)   [Storage](#)   [Tags](#)

**Instance summary** [Info](#)

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23°C   Mostly sunny   Search   11:24   30-12-2025



The screenshot shows a web browser window with three tabs open: "SecurityGroup | EC2 | us-west-1", "EC2 Instance Connect | us-west-1", and "EC2 Instance Connect | us-west-1". The main content area displays the output of an Ansible playbook run on an EC2 instance. The playbook tasks include checking TCP connectivity, joining workers to a cluster, and failing if the API server is unreachable. The play recap shows the status of master and worker nodes. The terminal then runs the command `kubectl get nodes`, which lists two nodes: `ip-172-31-24-118` and `ip-172-31-25-24`, both in a `Ready` state. Below the terminal, the instance ID `i-0b37204b793ea3738` is shown, along with its public and private IP addresses.

```
TASK [Show TCP check result] ****
**
ok: [worker1] => {
    "tcp_check.stdout": "reachable"
}

TASK [Join this worker to the cluster (retry on transient errors)] ****
**
changed: [worker1]

TASK [Fail with clear message if API server is not reachable] ****
**
skipping: [worker1]

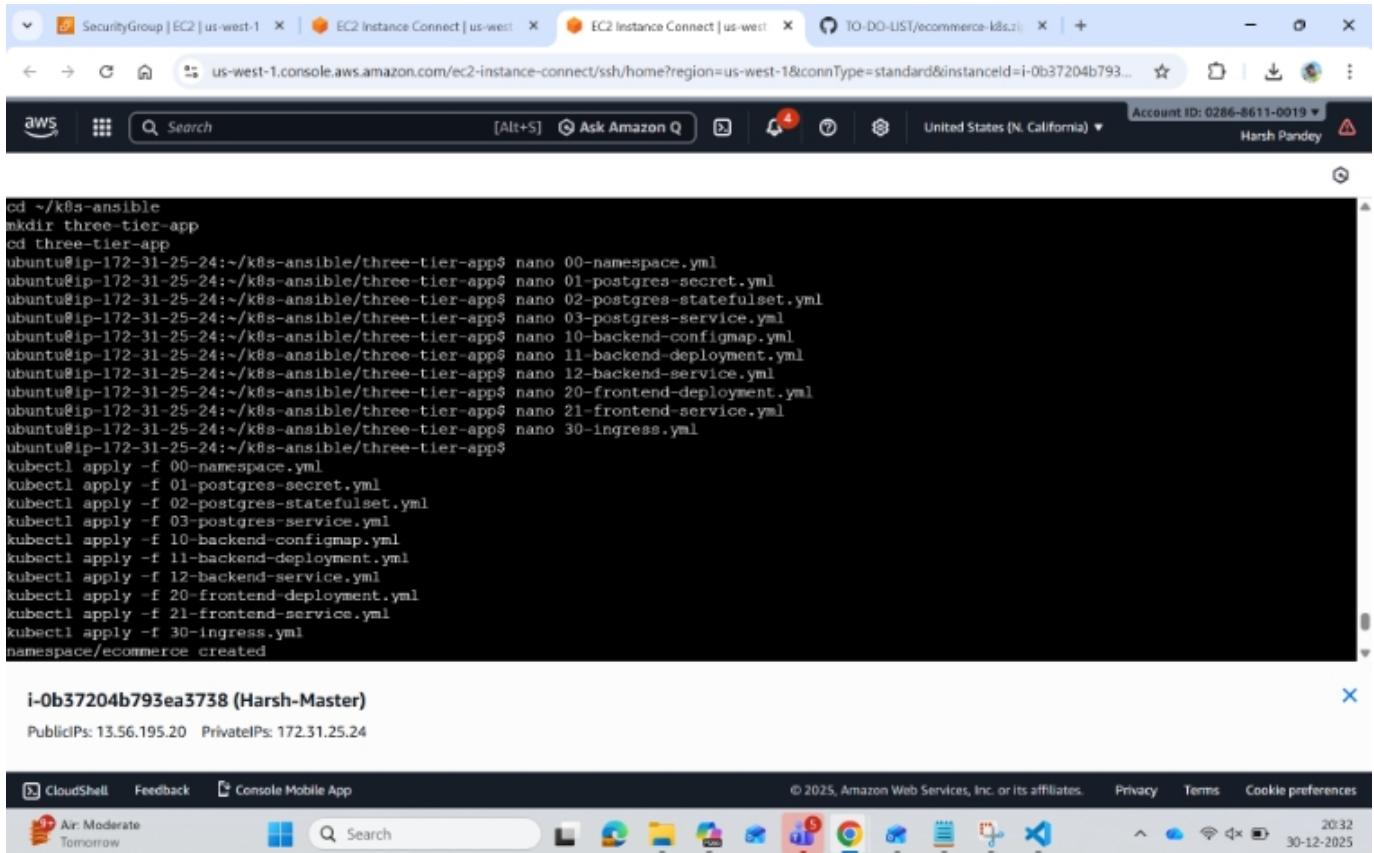
PLAY RECAP ****
**
master1 : ok=33    changed=6    unreachable=0    failed=0    skipped=1    rescued=0    ignored=0
worker1  : ok=31    changed=7    unreachable=0    failed=0    skipped=2    rescued=0    ignored=0

ubuntu@ip-172-31-25-24:~/k8s-ansible$ kubectl get nodes
NAME           STATUS    ROLES     AGE   VERSION
ip-172-31-24-118 Ready    <none>   59s   v1.33.7
ip-172-31-25-24 Ready    control-plane   35m   v1.33.7
ubuntu@ip-172-31-25-24:~/k8s-ansible$
```

**i-0b37204b793ea3738 (Harsh-Master)**

PublicIPs: 13.56.195.20 PrivateIPs: 172.31.25.24

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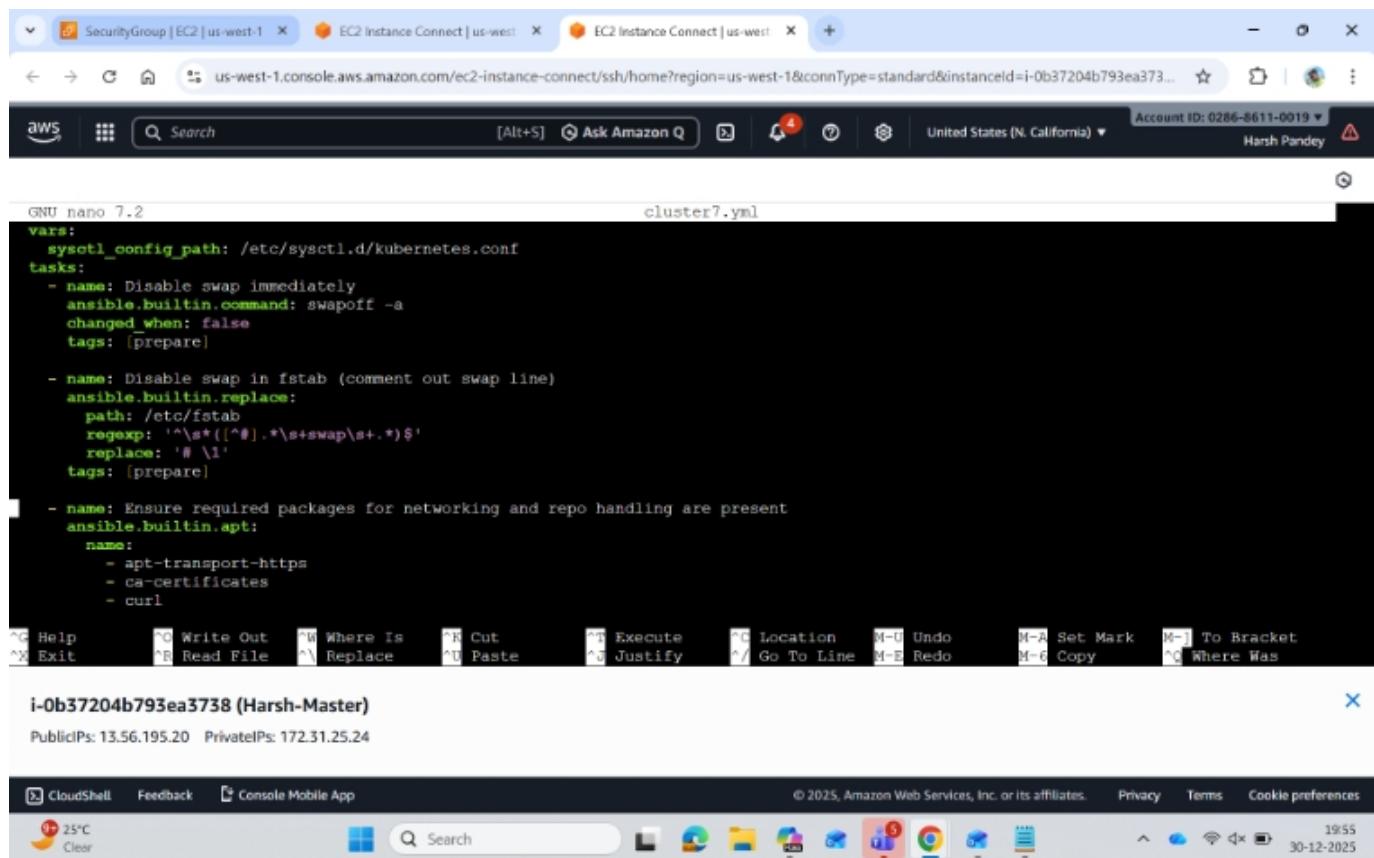


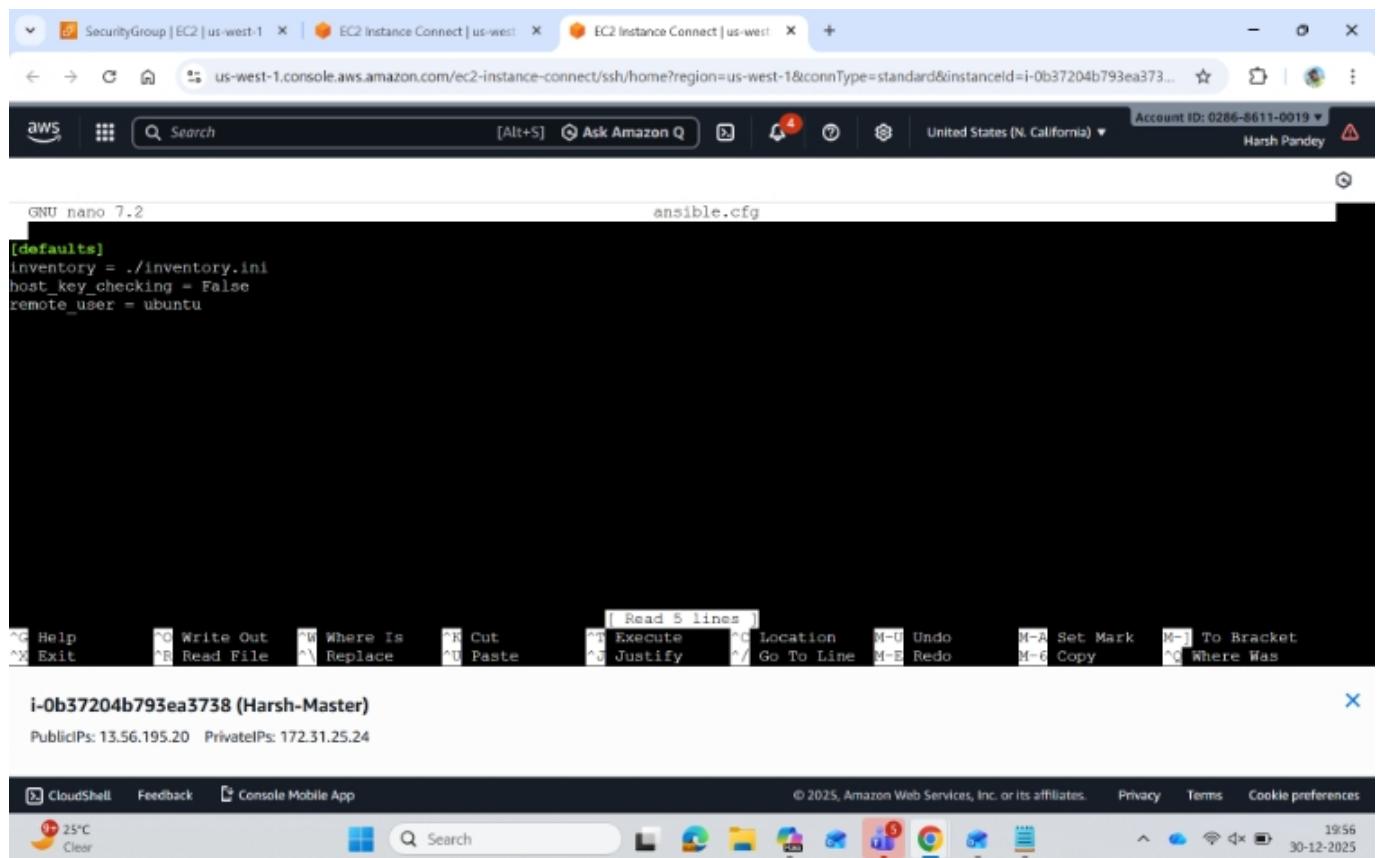
```
cd ~/k8s-ansible
mkdir three-tier-app
cd three-tier-app
ubuntu@ip-172-31-25-24:~/k8s-ansible/three-tier-app$ nano 00-namespace.yml
ubuntu@ip-172-31-25-24:~/k8s-ansible/three-tier-app$ nano 01-postgres-secret.yml
ubuntu@ip-172-31-25-24:~/k8s-ansible/three-tier-app$ nano 02-postgres-statefulset.yml
ubuntu@ip-172-31-25-24:~/k8s-ansible/three-tier-app$ nano 03-postgres-service.yml
ubuntu@ip-172-31-25-24:~/k8s-ansible/three-tier-app$ nano 10-backend-configmap.yml
ubuntu@ip-172-31-25-24:~/k8s-ansible/three-tier-app$ nano 11-backend-deployment.yml
ubuntu@ip-172-31-25-24:~/k8s-ansible/three-tier-app$ nano 12-backend-service.yml
ubuntu@ip-172-31-25-24:~/k8s-ansible/three-tier-app$ nano 20-frontend-deployment.yml
ubuntu@ip-172-31-25-24:~/k8s-ansible/three-tier-app$ nano 21-frontend-service.yml
ubuntu@ip-172-31-25-24:~/k8s-ansible/three-tier-app$ nano 30-ingress.yml
ubuntu@ip-172-31-25-24:~/k8s-ansible/three-tier-app$ kubectl apply -f 00-namespace.yml
ubuntu@ip-172-31-25-24:~/k8s-ansible/three-tier-app$ kubectl apply -f 01-postgres-secret.yml
ubuntu@ip-172-31-25-24:~/k8s-ansible/three-tier-app$ kubectl apply -f 02-postgres-statefulset.yml
ubuntu@ip-172-31-25-24:~/k8s-ansible/three-tier-app$ kubectl apply -f 03-postgres-service.yml
ubuntu@ip-172-31-25-24:~/k8s-ansible/three-tier-app$ kubectl apply -f 10-backend-configmap.yml
ubuntu@ip-172-31-25-24:~/k8s-ansible/three-tier-app$ kubectl apply -f 11-backend-deployment.yml
ubuntu@ip-172-31-25-24:~/k8s-ansible/three-tier-app$ kubectl apply -f 12-backend-service.yml
ubuntu@ip-172-31-25-24:~/k8s-ansible/three-tier-app$ kubectl apply -f 20-frontend-deployment.yml
ubuntu@ip-172-31-25-24:~/k8s-ansible/three-tier-app$ kubectl apply -f 21-frontend-service.yml
ubuntu@ip-172-31-25-24:~/k8s-ansible/three-tier-app$ kubectl apply -f 30-ingress.yml
namespace/ecommerce created

i-0b37204b793ea3738 (Harsh-Master)
PublicIPs: 13.56.195.20 PrivateIPs: 172.31.25.24
```

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Air: Moderate Tomorrow    20:32 30-12-2025





```
cd ~/k8s-ansible
mkdir three-tier-app
cd three-tier-app
ubuntu@ip-172-31-25-24:~/k8s-ansible/three-tier-app$ nano 00-namespace.yml
ubuntu@ip-172-31-25-24:~/k8s-ansible/three-tier-app$ nano 01-postgres-secret.yml
ubuntu@ip-172-31-25-24:~/k8s-ansible/three-tier-app$ nano 02-postgres-statefulset.yml
ubuntu@ip-172-31-25-24:~/k8s-ansible/three-tier-app$ nano 03-postgres-service.yml
ubuntu@ip-172-31-25-24:~/k8s-ansible/three-tier-app$ nano 10-backend-configmap.yml
ubuntu@ip-172-31-25-24:~/k8s-ansible/three-tier-app$ nano 11-backend-deployment.yml
ubuntu@ip-172-31-25-24:~/k8s-ansible/three-tier-app$ nano 12-backend-service.yml
ubuntu@ip-172-31-25-24:~/k8s-ansible/three-tier-app$ nano 20-frontend-deployment.yml
ubuntu@ip-172-31-25-24:~/k8s-ansible/three-tier-app$ nano 21-frontend-service.yml
ubuntu@ip-172-31-25-24:~/k8s-ansible/three-tier-app$ nano 30-ingress.yml
ubuntu@ip-172-31-25-24:~/k8s-ansible/three-tier-app$ kubectl apply -f 00-namespace.yml
kubectl apply -f 01-postgres-secret.yml
kubectl apply -f 02-postgres-statefulset.yml
kubectl apply -f 03-postgres-service.yml
kubectl apply -f 10-backend-configmap.yml
kubectl apply -f 11-backend-deployment.yml
kubectl apply -f 12-backend-service.yml
kubectl apply -f 20-frontend-deployment.yml
kubectl apply -f 21-frontend-service.yml
kubectl apply -f 30-ingress.yml
namespace/ecommerce created

i-0b37204b793ea3738 (Harsh-Master)
PublicIPs: 13.56.195.20 PrivateIPs: 172.31.25.24

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Air: Moderate
Search
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20:32
2025-12-20
```

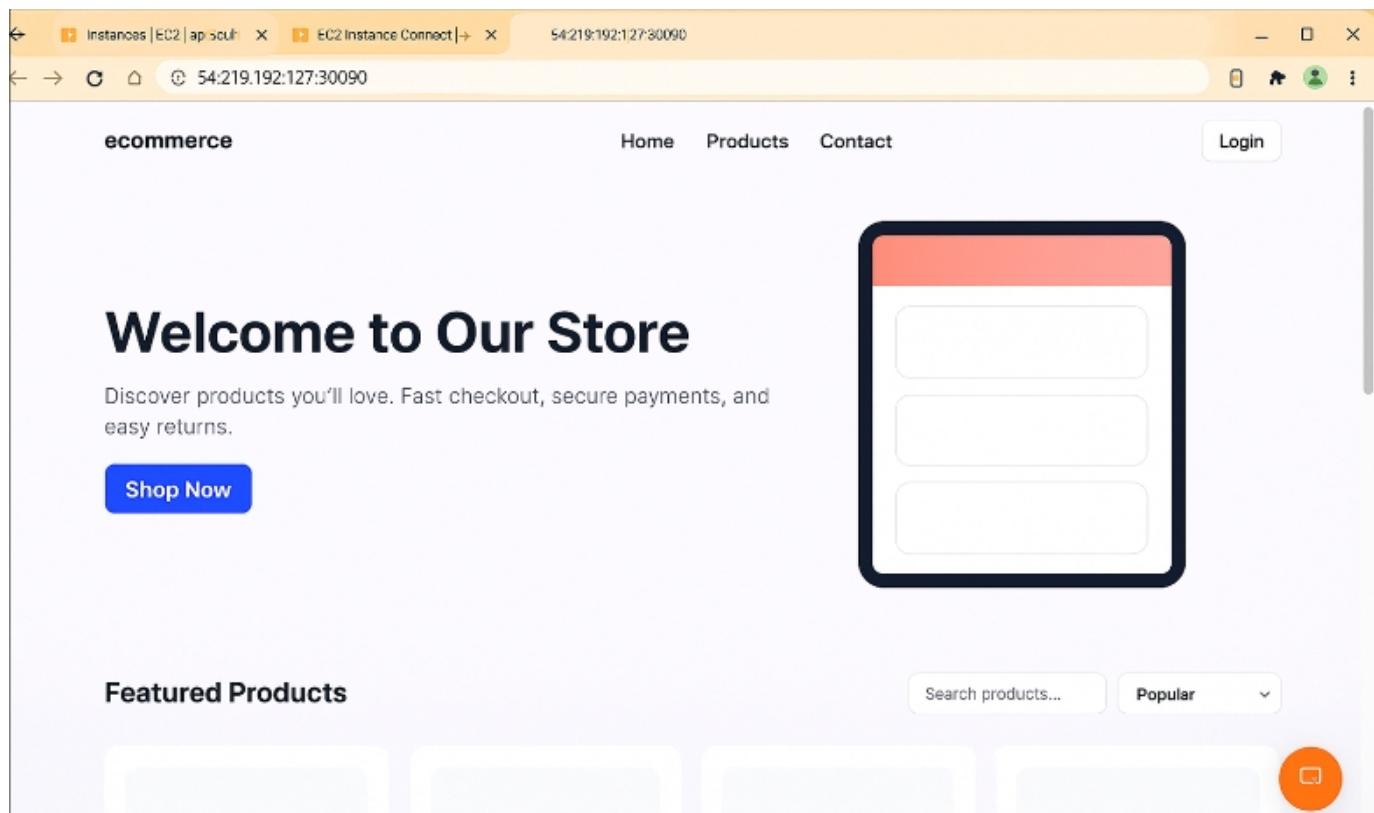
```
Chat | M30 | Upload ob... | EC2 Instan... | EC2 Instan... | Harsh Pan... | Repository | Cannot co... | RANGBIR... | + - D X
← → C Home us-west-1.console.aws.amazon.com/ec2-instance-connect/sshd/home?region=us-west-1&connType=standard&instanceId=i-046d9cccd6cf47d0d7... ☆ 📁 🌐 ⚙️
aws Search [Alt+S] Account ID: 0286-8611-0019
United States (N. California) Harsh Pandey

kubectl get pvc -n demo
service "postgres-service" deleted
statefulset.apps "postgres" deleted
persistentvolumeclaim "postgres-storage-postgres-0" deleted
persistentvolume/pv-postgres unchanged
service/postgres-service created
statefulset.apps/postgres created
NAME          CAPACITY   ACCESS MODES  RECLAIM POLICY  STATUS   CLAIM
  REASON AGE
pv postgres   10Gi      RWO        Retain       Bound    demo/postgres storage postgres 0  manual    <unset>
18m
NAME          STATUS     VOLUME   CAPACITY   ACCESS MODES  STORAGECLASS  VOLUMEATTRIBUTESCLASS
postgres storage postgres 0 Pending    pv postgres   0        manual    <unset>           0s
ubuntu@ip-172-31-11-247:~$ kubectl get pvc -n demo
NAME          STATUS     VOLUME   CAPACITY   ACCESS MODES  STORAGECLASS  VOLUMEATTRIBUTESCLASS
postgres storage postgres 0 Bound     pv postgres   10Gi    RWO        manual    <unset>           7s
ubuntu@ip-172-31-11-247:~$ kubectl get pods -n demo
NAME          READY   STATUS    RESTARTS   AGE
backend-7f7c446858-gb24s  1/1    Running   0          173m
backend-7f7c446858-hcmss  1/1    Running   0          173m
frontend-9b5c4649c-77ts1  1/1    Running   0          38m
frontend-9b5c4649c-qrv99  1/1    Running   0          38m
Frontend-9b5c4649c-rr55k  1/1    Running   0          30m
postgres-0            1/1    Running   0          17s
ubuntu@ip-172-31-11-247:~$
```

**i-046d9cccd6cf47d0d7 (MASTER-KUBE)**

PublicIPs: 54.219.204.10 PrivateIPs: 172.31.11.247

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Instances | ECZ | Ap south X 54.219.192.127:30090/products

54.219.192.127:30090/products

# ecommerce

Home Products Contact Login

 Classic Tee US\$19.99 <a href="#">Add to Cart</a> <a href="#">Details</a>	 Laptop Sleeve US\$34.99 <a href="#">Add to Cart</a> <a href="#">Details</a>	 City Backpack US\$39.99 <a href="#">Add to Cart</a> <a href="#">Details</a>	 Running Shoes US\$39.99 <a href="#">Add to Cart</a> <a href="#">Details</a>
 Wireless Earbuds US\$49.99 <a href="#">Add to Cart</a> <a href="#">Details</a>	 Smartwatch US\$129.00 <a href="#">Add to Cart</a> <a href="#">Details</a>	 Water Bottle US\$9.99 <a href="#">Add to Cart</a> <a href="#">Details</a>	 Sunglasses US\$39.99 <a href="#">Add to Cart</a> <a href="#">Details</a>

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