**Source Code:**

**Terraform:**

terraform {

required\_providers {

aws = {

source = "hashicorp/aws"

version = "5.83.1"

}

}

}

provider "aws" {

# Configuration options

# eu-central-1

region = "us-east-1"

access\_key = "AKIAQR3KLZGHB2YGIZ5O"

secret\_key = "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"

}

locals {

servers = ["A", "Nginx"]

}

resource "aws\_s3\_bucket" "jenkins-backup"{

bucket\_prefix = "p-jenkins-backup"

}

resource "aws\_instance" "ansible-lab" {

ami = "ami-04b4f1a9cf54c11d0"

instance\_type = "t2.micro"

tags = {

Name = each.value

}

for\_each = toset(local.servers)

key\_name = "iitk-cmat-2025-01-25"

security\_groups = [aws\_security\_group.sg-1.name]

}

resource "aws\_security\_group" "sg-1" {

egress {

from\_port = 0

to\_port = 0

protocol = "-1"

cidr\_blocks = ["0.0.0.0/0"]

ipv6\_cidr\_blocks = ["::/0"]

}

ingress {

from\_port = 0

to\_port = 0

protocol = "-1"

cidr\_blocks = ["0.0.0.0/0"]

ipv6\_cidr\_blocks = ["::/0"]

}

name = "my-sg"

}

**Ansible Setup Commands:**

ssh-keygen -t rsa

cat ~/.ssh/id\_rsa.pub

Each Host

nano ~/.ssh/authorized\_keys

(Paste public key of Ansible server in a new line)

sudo apt update

sudo apt install -y software-properties-common

sudo add-apt-repository --yes --update ppa:ansible/ansible

sudo apt install -y ansible

ansible --version

echo [defaults] | sudo tee -a /etc/ansible/ansible.cfg

echo host\_key\_checking = False | sudo tee -a /etc/ansible/ansible.cfg

echo interpreter\_python = auto\_silent | sudo tee -a /etc/ansible/ansible.cfg

cat /etc/ansible/ansible.cfg

nano ~/inventory

ansible all -m ping -i ~/inventory

**Important Project Commands:**

sudo apt install -y unzip

wget <https://github.com/do-community/html_demo_site/archive/refs/heads/main.zip>

unzip main.zip

ansible-playbook -i ~/inventory project-playbook.yaml

Accessed @ <http://ec2-18-204-213-49.compute-1.amazonaws.com:8080/>

**Project Files:**

*inventory*:

[Nginx]

ip-172-31-84-126 ansible\_user=ubuntu ansible\_ssh\_iitk-cmat-2025-01-25=~/.ssh/id\_rsa

*Nginx-server.conf*:

server {

listen 8080 default\_server;

listen [::]:8080 default\_server;

root /tmp/project\_webapp/html\_demo\_site-main;

index index.html index.htm index.nginx-debian.html;

server\_name Nginxserver;

location / {

try\_files $uri $uri/ =404;

}

}

*project-playbook.yaml*:

- name: deploy web app

hosts: Nginx

become: true

tasks:

- name: install nginx app

apt:

name: nginx

- name: copy over webapp

copy:

src: "html\_demo\_site-main"

dest: "/tmp/project\_webapp"

- name: copy over nginx configuration

copy:

src: nginx-server.conf

dest: "/etc/nginx/conf.d"

notify:

- "restart nginx service"

handlers:

- name: "restart nginx service"

become: true

service:

name: nginx

state: restarted