

Module 5: Ansible Assignment - 3

Assignment Submitted By:-Hitesh Chauhan

Course Offered: -Advanced Cloud Computing and Devops

Assignment By: -Intellipaat

Trainer: -Kumar

Date Of Submission: -10/03/2025

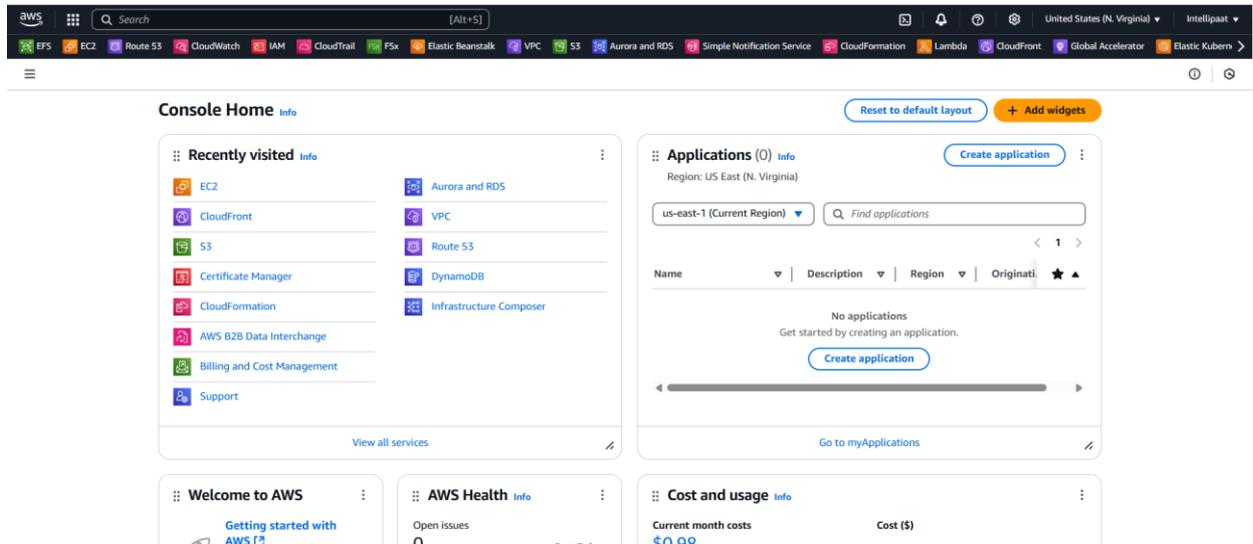
Tasks To Be Performed:

1. Create 2 Ansible roles
2. Install Apache2 on slave1 using one role and NGINX on slave2 using the other role
3. Above should be implemented using different Ansible roles

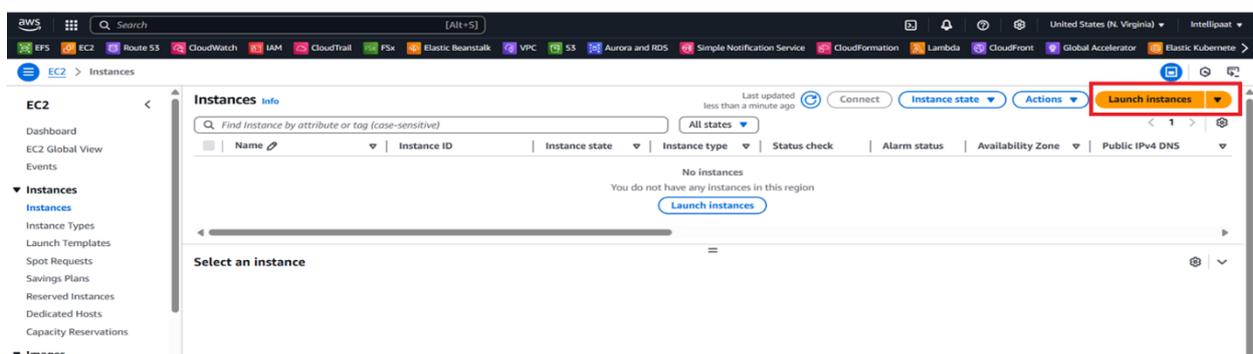
SOLUTION

Go To AWS Management Console And create 3 ec2 instances 1 is master node and 2 is slave node.

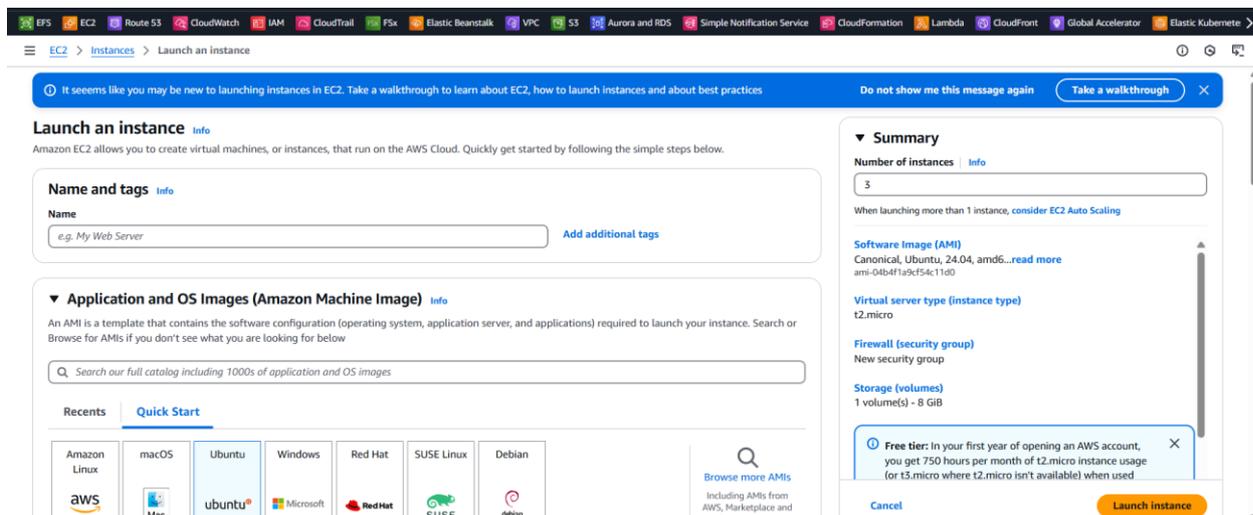
After Login the aws console you will see like this screen.



Then Click EC2 then click the instances and click the launch instance

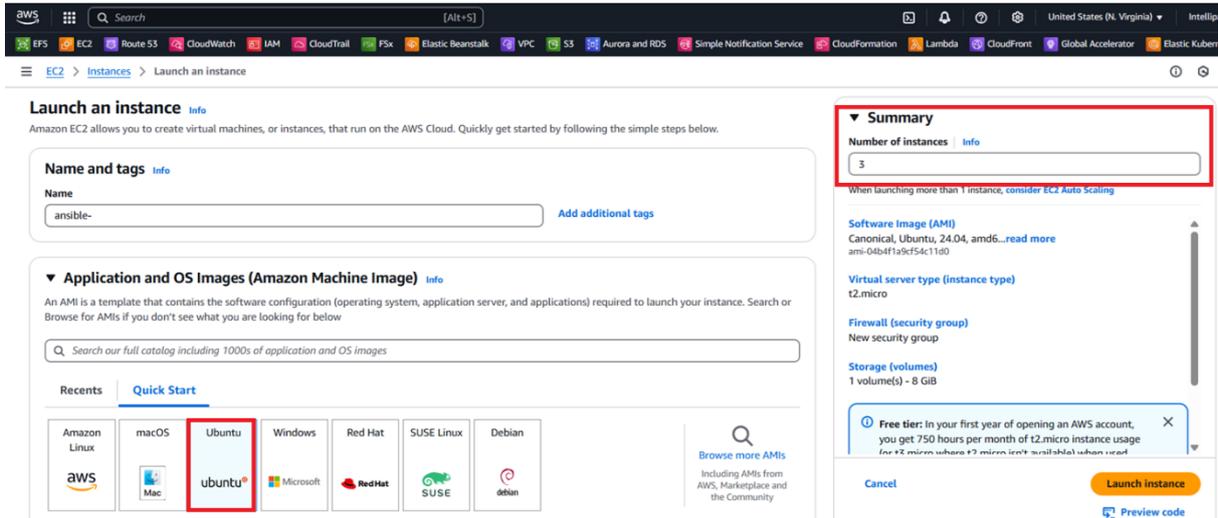


After Click the launch instance you will see like this page.

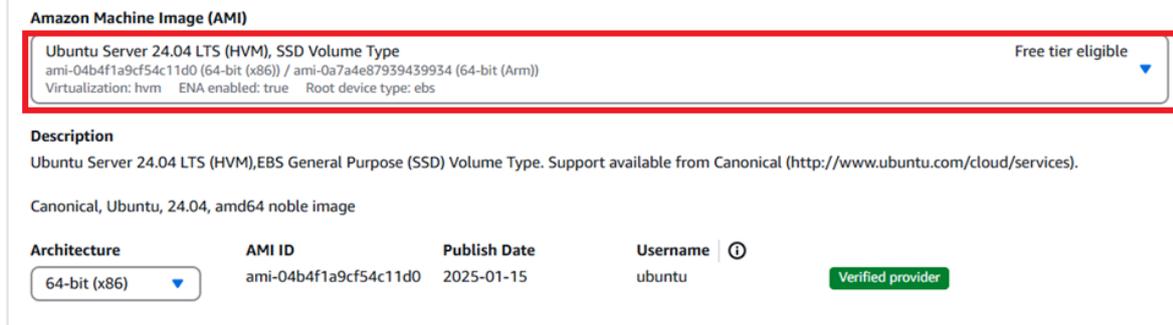


Assign the name of instance

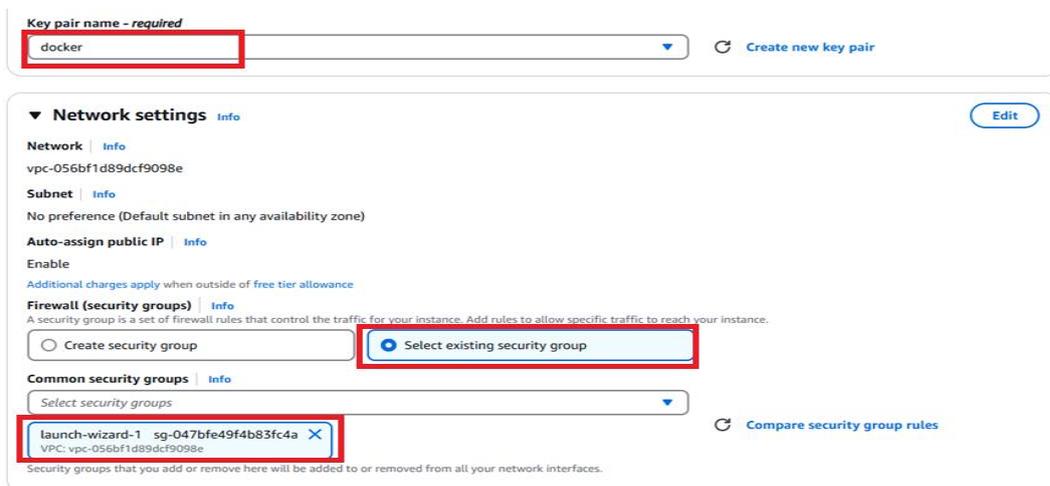
Select AMI is ubuntu



Select the Amazon Machine Image(AMI) as a ubuntu with free tier.



Now We need choose keypair and then select firewall I choose to select existing security group I have already created.



Now Click Launch the instance.

Configure storage Info Advanced

1x GiB Root volume, 3000 IOPS, Not encrypted

Free tier eligible customers can get up to 30 GB of EBS General Purpose (SSD) or Magnetic storage

The selected AMI contains more instance store volumes than the instance allows. Only the first 0 instance store volumes from the AMI will be accessible from the instance

Click refresh to view backup information
The tags that you assign determine whether the instance will be backed up by any Data Lifecycle Manager policies.

0 x File systems Edit

Advanced details Info

ami-04b4f1a9cf54c11d0

Virtual server type (instance type)
t2.micro

Firewall (security group)
launch-wizard-1

Storage (volumes)
1 volume(s) - 8 GiB

Free tier: In your first year of opening an AWS account, you get 750 hours per month of t2.micro instance usage (or t3.micro where t2.micro isn't available) when used with free tier AMIs, 750 hours per month of public IPv4 address usage, 30 GiB of EBS storage, 2 million I/Os, 1 GB of snapshots, and 100 GB of bandwidth to the internet.

EC2 > Instances > Launch an instance

Success
Successfully initiated launch of instances ([i-0fded2068052ac0f6](#), [i-0687391c0bd5df29b](#), [i-000a14a33511156e5](#))

Instances (3) Info Last updated less than a minute ago

<input type="checkbox"/>	Name	Instance ID	Instance state	Instance type	Status check	Alarm status	Availability Zone	Public IPv4 DNS
<input type="checkbox"/>	ansible-master	i-000a14a33511156e5	Running	t2.micro	Initializing	View alarms +	us-east-1b	ec2-18-205-21-53.com...
<input type="checkbox"/>	ansible-slave1	i-0687391c0bd5df29b	Running	t2.micro	Initializing	View alarms +	us-east-1b	ec2-54-160-118-247.co...
<input type="checkbox"/>	ansible-slave2	i-0fded2068052ac0f6	Running	t2.micro	Initializing	View alarms +	us-east-1b	ec2-34-228-159-159.co...

Now We need to connect the all instances one by one

```

2. 18.205.21.53 (ubuntu)
└─> For more info, ctrl+click on help or visit our website.

Welcome to Ubuntu 24.04.1 LTS (GNU/Linux 6.8.0-1021-aws x86_64)

 * Documentation:  https://help.ubuntu.com
 * Management:   https://landscape.canonical.com
 * Support:      https://ubuntu.com/pro

System information as of Mon Mar 10 16:48:10 UTC 2025

System load:  0.18          Processes:           108
Usage of /:   24.9% of 6.71GB  Users logged in:    0
Memory usage: 21%          IPv4 address for enX0: 172.31.31.188
Swap usage:   0%

Expanded Security Maintenance for Applications is not enabled.

0 updates can be applied immediately.

Enable ESM Apps to receive additional future security updates.
See https://ubuntu.com/esm or run: sudo pro status

The list of available updates is more than a week old.
To check for new updates run: sudo apt update

The programs included with the Ubuntu system are free software;
the exact distribution terms for each program are described in the
individual files in /usr/share/doc/*/copyright.

Ubuntu comes with ABSOLUTELY NO WARRANTY, to the extent permitted by
applicable law.

/usr/bin/xauth: file /home/ubuntu/.Xauthority does not exist
To run a command as administrator (user "root"), use "sudo <command>".
See "man sudo_root" for details.

ubuntu@ip-172-31-31-188:~$

```

```
2. 18.205.21.53 (ubuntu) 3. 54.160.118.247 (ubuntu) 4. 34.228.159.159 (ubuntu)
Authenticating with public key "docker"

• MobaXterm Professional Edition v24.3 •
  (SSH client, X server and network tools)

▶ SSH session to ubuntu@54.160.118.247
  • Direct SSH : ✓
  • SSH compression : ✓
  • SSH-browser : ✓
  • X11-forwarding : ✓ (remote display is forwarded through SSH)
▶ For more info, ctrl+click on help or visit our website.

Welcome to Ubuntu 24.04.1 LTS (GNU/Linux 6.8.0-1021-aws x86_64)

* Documentation: https://help.ubuntu.com
* Management: https://landscape.canonical.com
* Support: https://ubuntu.com/pro

System information as of Mon Mar 10 16:49:49 UTC 2025

System load: 0.13 Processes: 109
Usage of /: 24.9% of 6.71GB Users logged in: 0
Memory usage: 21% IPv4 address for enX0: 172.31.18.6
Swap usage: 0%

Expanded Security Maintenance for Applications is not enabled.

0 updates can be applied immediately.

Enable ESM Apps to receive additional future security updates.
See https://ubuntu.com/esm or run: sudo pro status

The list of available updates is more than a week old.
To check for new updates run: sudo apt update

The programs included with the Ubuntu system are free software;
the exact distribution terms for each program are described in the
```

```
2. 18.205.21.53 (ubuntu) 3. 54.160.118.247 (ubuntu) 4. 34.228.159.159 (ubuntu)
Authenticating with public key "docker"

• MobaXterm Professional Edition v24.3 •
  (SSH client, X server and network tools)

▶ SSH session to ubuntu@34.228.159.159
  • Direct SSH : ✓
  • SSH compression : ✓
  • SSH-browser : ✓
  • X11-forwarding : ✓ (remote display is forwarded through SSH)
▶ For more info, ctrl+click on help or visit our website.

Welcome to Ubuntu 24.04.1 LTS (GNU/Linux 6.8.0-1021-aws x86_64)

* Documentation: https://help.ubuntu.com
* Management: https://landscape.canonical.com
* Support: https://ubuntu.com/pro

System information as of Mon Mar 10 16:50:14 UTC 2025

System load: 0.17 Processes: 108
Usage of /: 24.9% of 6.71GB Users logged in: 0
Memory usage: 20% IPv4 address for enX0: 172.31.24.178
Swap usage: 0%

Expanded Security Maintenance for Applications is not enabled.

0 updates can be applied immediately.

Enable ESM Apps to receive additional future security updates.
See https://ubuntu.com/esm or run: sudo pro status

The list of available updates is more than a week old.
To check for new updates run: sudo apt update

The programs included with the Ubuntu system are free software;
the exact distribution terms for each program are described in the
```

1. Create 2 Ansible roles

To create ansible roles:

sudo ansible-galaxy init apache

sudo ansible-galaxy init nginx

```
ubuntu@ip-172-31-31-188:/etc/ansible$ sudo ansible-galaxy init apache
sudo ansible-galaxy init nginx
- Role apache was created successfully
- Role nginx was created successfully
ubuntu@ip-172-31-31-188:/etc/ansible$
```

2. Install Apache2 on slave1 using one role and NGINX on slave2 using the other role

path of Ansible Apache role

/etc/ansible/roles/apache/tasks/

path of Ansible nginx role

/etc/ansible/roles/nginx/tasks/

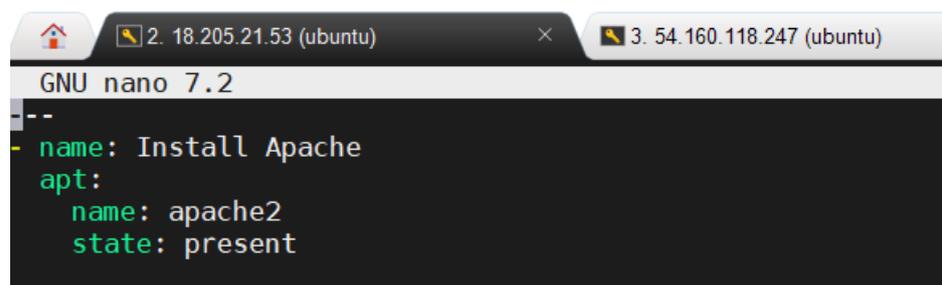
add the yaml playbook files inside tasks

First need to set the apache task

So to this path /etc/ansible/roles/apache/tasks/ here You need to create the file name is install.yaml

sudo nano install.yaml write this code and save it then exit this file

```
---
- name: install apache
  apt:
    name: apache2
    state: present
```

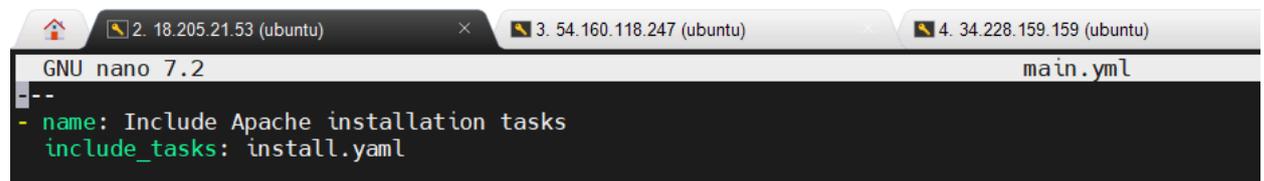


```
GNU nano 7.2
---
- name: Install Apache
  apt:
    name: apache2
    state: present
```

Then after you will main.yaml file open this file

Sudo nano main.yaml.write this code in main.yaml and save it this and exit from file.

```
---  
- name: include apache installation tasks  
  include_tasks: install.yaml
```

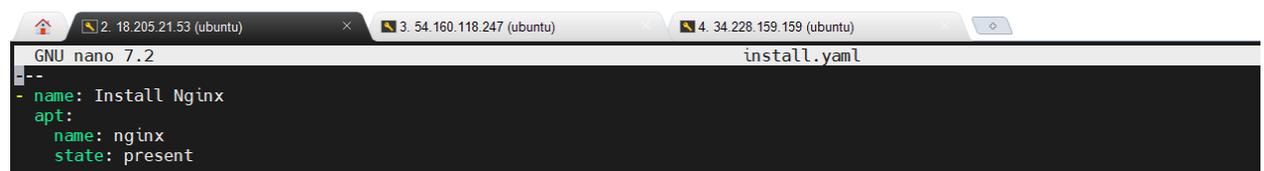


```
GNU nano 7.2 main.yaml  
---  
- name: Include Apache installation tasks  
  include_tasks: install.yaml
```

Then go to /etc/ansible/roles/nginx/tasks/ path

Create one file like install.yaml.write this code

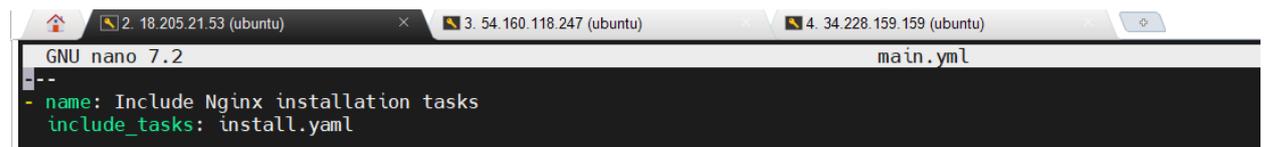
```
---  
- name: Install Nginx  
  apt:  
    name: nginx  
    state: present
```



```
GNU nano 7.2 install.yaml  
---  
- name: Install Nginx  
  apt:  
    name: nginx  
    state: present
```

Sudo nano main.yaml.write this code in main.yaml and save it this and exit from file.

```
---  
- name: include Nginx installation tasks  
  include_tasks: install.yaml
```



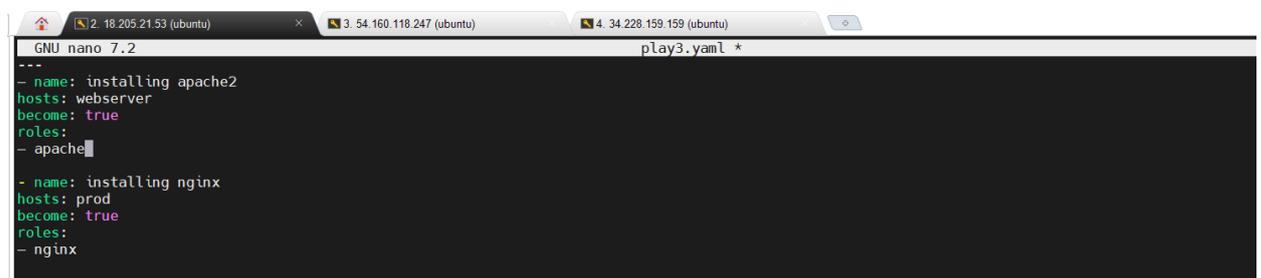
```
GNU nano 7.2 main.yaml  
---  
- name: Include Nginx installation tasks  
  include_tasks: install.yaml
```

Then go to this path cd /etc/ansible and create one more file for installing Apache and nginx like name is play.yaml

finally create a playbook to execute the tasks of the role and write this below code in play.yaml

```
---
- name: installing apache2
  hosts: webservers
  become: true
  roles:
  - apache

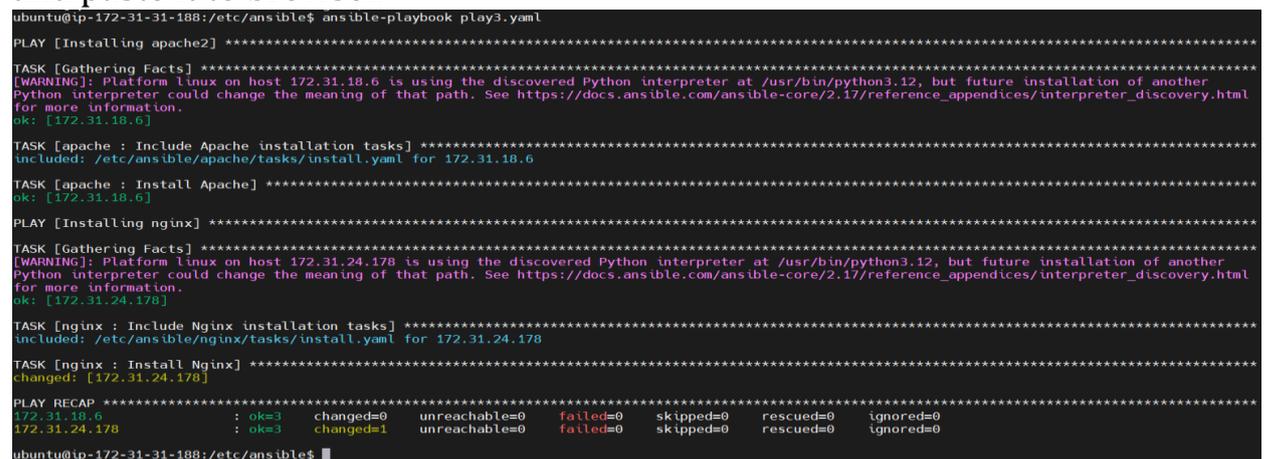
- name: installing nginx
  hosts: prod
  become: true
  roles:
  - nginx
```



Now Save it this yaml.we need to deploy the both apache and nginx through role based.

Now Run this command.the command is **ansible-playbook play3.yaml**

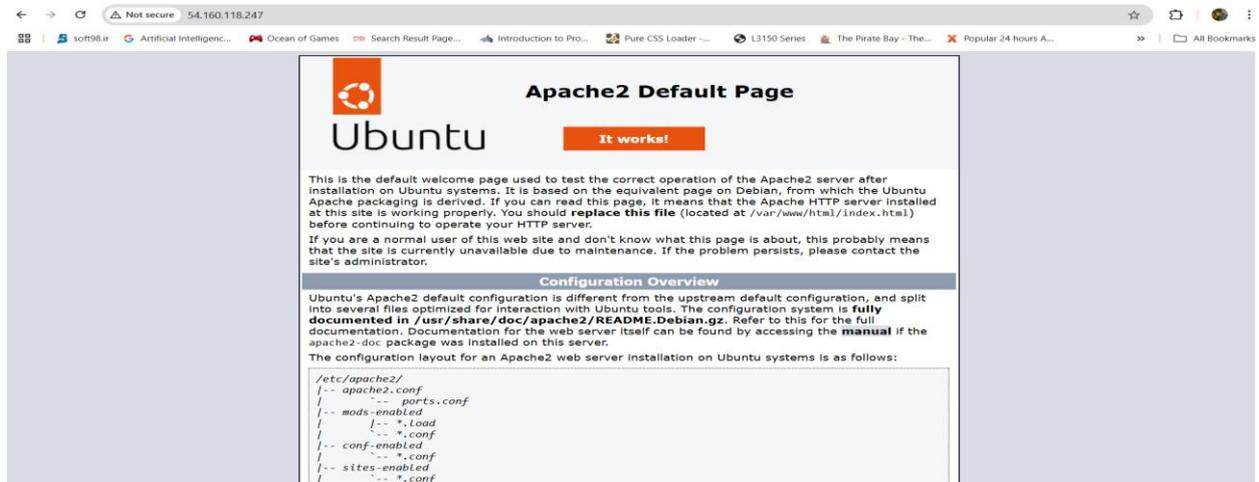
After complete the deployment go to aws instance and copy the public ip and paste it to browser.



```
ubuntu@ip-172-31-31-188:/etc/ansible$ ansible-playbook play3.yaml
PLAY [Installing apache2] *****
TASK [Gathering Facts] *****
[WARNING]: Platform linux on host 172.31.18.6 is using the discovered Python interpreter at /usr/bin/python3.12, but future installation of another Python interpreter could change the meaning of that path. See https://docs.ansible.com/ansible-core/2.17/reference_appendices/interpreter_discovery.html for more information.
ok: [172.31.18.6]
TASK [apache : Include Apache installation tasks] *****
included: /etc/ansible/apache/tasks/install.yaml for 172.31.18.6
TASK [apache : Install Apache] *****
ok: [172.31.18.6]
PLAY [Installing nginx] *****
TASK [Gathering Facts] *****
[WARNING]: Platform linux on host 172.31.24.178 is using the discovered Python interpreter at /usr/bin/python3.12, but future installation of another Python interpreter could change the meaning of that path. See https://docs.ansible.com/ansible-core/2.17/reference_appendices/interpreter_discovery.html for more information.
ok: [172.31.24.178]
TASK [nginx : Include Nginx installation tasks] *****
included: /etc/ansible/nginx/tasks/install.yaml for 172.31.24.178
TASK [nginx : Install Nginx] *****
changed: [172.31.24.178]
PLAY RECAP *****
172.31.18.6      : ok=3    changed=0    unreachable=0    failed=0    skipped=0    rescued=0    ignored=0
172.31.24.178  : ok=3    changed=1    unreachable=0    failed=0    skipped=0    rescued=0    ignored=0
ubuntu@ip-172-31-31-188:/etc/ansible$
```

Now we need to see the output in both server.

Ansible Slave 1



Ansible Slave 2



CODE:

APACHE ROLE

`/etc/ansible/roles/apache/tasks/`

Install.yaml

- name: Install Apache

apt:

name: apache2

state: present

This file created by default when you create the role.

main.yaml

- name: Include Apache installation tasks

include_tasks: install.yaml

NGINX ROLE

`/etc/ansible/roles/nginx/tasks/`

Install.yaml

- name: Install Nginx

apt:

name: nginx

state: present

main.yaml

- name: Include Nginx installation tasks

include_tasks: install.yaml

play3.yaml

- name: Installing apache2

hosts: webservers

become: yes

roles:

- apache

- name: Installing nginx

hosts: prod

become: yes

roles:

- nginx