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Assignment No. 6

Aim: Write a ansible playbook to deploy Apache Web server.

Theory:

1) What is YAML:

YAML (short for "YAML Ain't Markup Language") is a human-readable data serialization format. It is commonly used for configuration files, but can also be used for data exchange between programming languages.

YAML files use indentation and key-value pairs to represent data structures such as lists, dictionaries, and arrays. YAML is designed to be easy to read and write for both humans and machines, and it has become popular in many applications, including web development, DevOps, and data science.

2) Introduction to Ansible:

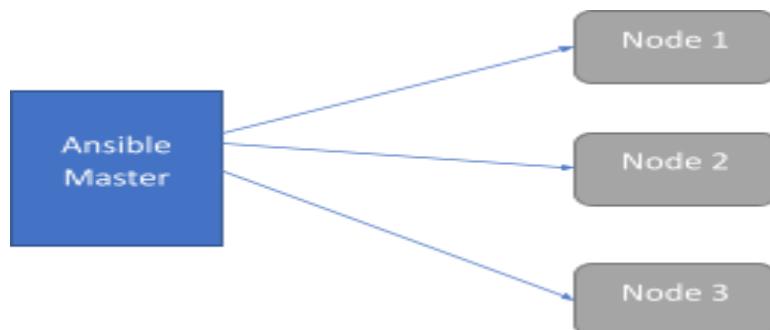
Ansible is an open-source automation tool used for configuration management, application deployment, and task automation. It uses a simple and human-readable language, called YAML, to define tasks, playbooks, and configurations.

Ansible is agentless, which means that it doesn't require any software to be installed on the managed nodes, and it uses SSH and other standard protocols to execute commands and transfer files. Ansible allows for efficient management of large-scale infrastructures, as it can automate repetitive and complex tasks, and it provides a consistent and auditable framework for managing configurations and deployments.

It is also highly extensible and integrates with many other tools and platforms, including cloud providers, container orchestration systems, and monitoring solutions. Ansible is a part of Red Hat and has a large and active community of contributors, which ensures continuous development and support for the tool. It is widely used in various industries, including finance, healthcare, and technology, and is considered one of the most popular automation tools in the market today.

Implementation:

- **Architecture:**



- Steps

- Create 4 ec2 instances of Ubuntu machine.

The screenshot shows the AWS EC2 Instances page with the following details:

Name	Instance ID	Instance state	Instance type	Status check	Alarm status	Availability Zone	Public IPv4 DNS
Ansible_Master	i-0577cd029df755003	Terminated	t2.micro	-	No alarms	us-east-1b	-
Ansible_3	i-04800a575b13589aa	Terminated	t2.micro	-	No alarms	us-east-1b	-
Ansible_2	i-06db0001e60c67843	Terminated	t2.micro	-	No alarms	us-east-1b	-
Ansible_1	i-065c6bdf83585ed3a	Terminated	t2.micro	-	No alarms	us-east-1b	-
Ansible-Server2	i-05670bcfc6b115894	Running	t2.micro	Initializing	No alarms	us-east-1b	ec2-3-87-48-222.co
Ansible-Server1	i-0e92b7dd5fd6a8cd	Running	t2.micro	2/2 checks passed	No alarms	us-east-1b	ec2-3-84-25-101.co
Ansible-Server3	i-0e04d926652b1fe45	Running	t2.micro	Initializing	No alarms	us-east-1b	ec2-35-174-104-59
Ansible-Master	i-0bca2c2816e26c578	Running	t2.micro	Initializing	No alarms	us-east-1b	ec2-18-206-127-22

- Connect to “Ansible-Master” server
- Write following commands

- > sudo -i
- > apt update

```

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.

To run a command as administrator (user "root"), use "sudo <command>".
See "man sudo_root" for details.

ubuntu@ip-172-31-93-152:~$ sudo -i
root@ip-172-31-93-152:~# apt update

```

i-0bca2c2816e26c578 (Ansible-Master)
Public IPs: 18.206.127.225 Private IPs: 172.31.93.152

```

Get:124 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy-backports/main Translation-en [10.2 kB]
Get:125 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy-backports/main amd64 c-n-f Metadata [388 B]
Get:126 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy-backports/restricted amd64 c-n-f Metadata [116 B]
Get:127 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy-backports/universe amd64 Packages [22.2 kB]
Get:128 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy-backports/universe Translation-en [15.0 kB]
Get:129 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy-backports/universe amd64 c-n-f Metadata [548 B]
Get:130 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy-backports/multiverse amd64 c-n-f Metadata [116 B]
Get:131 http://security.ubuntu.com/ubuntu jammy-security/main amd64 Packages [764 kB]
Get:132 http://security.ubuntu.com/ubuntu jammy-security/main Translation-en [151 kB]
Get:133 http://security.ubuntu.com/ubuntu jammy-security/main amd64 c-n-f Metadata [9028 B]
Get:134 http://security.ubuntu.com/ubuntu jammy-security/restricted amd64 Packages [773 kB]
Get:135 http://security.ubuntu.com/ubuntu jammy-security/restricted Translation-en [121 kB]
Get:136 http://security.ubuntu.com/ubuntu jammy-security/restricted amd64 c-n-f Metadata [604 B]
Get:137 http://security.ubuntu.com/ubuntu jammy-security/universe amd64 Packages [719 kB]
Get:138 http://security.ubuntu.com/ubuntu jammy-security/universe Translation-en [119 kB]
Get:139 http://security.ubuntu.com/ubuntu jammy-security/universe amd64 c-n-f Metadata [14.2 kB]
Get:40 http://security.ubuntu.com/ubuntu jammy-security/multiverse amd64 Packages [19.4 kB]
Get:41 http://security.ubuntu.com/ubuntu jammy-security/multiverse Translation-en [4068 B]
Get:42 http://security.ubuntu.com/ubuntu jammy-security/multiverse amd64 c-n-f Metadata [252 B]
Fetched 26.8 MB in 5s (5617 kB/s)
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
32 packages can be upgraded. Run 'apt list --upgradable' to see them.
root@ip-172-31-93-152:~# 

```

i-0bca2c2816e26c578 (Ansible-Master)

PublicIPs: 18.206.127.225 PrivateIPs: 172.31.93.152

3) Install ansible using command

- apt install ansible

```

root@ip-172-31-93-152:~# apt install ansible
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following additional packages will be installed:
  ieee-data python3-argcomplete python3-dnspython python3-jmespath python3-kerberos python3-libcloud python3-lockfile python3-netaddr python3-ntlm-auth python3-packaging
  python3-pycryptodome python3-requests-kerberos python3-requests-ntlm python3-requests-toolbelt python3-selinux python3-simplejson python3-winrm python3-xmldict
Suggested packages:
  cowsay sshpass python3-sniffio python3-trio python-lockfile-doc ipython3 python-netaddr-docs
The following NEW packages will be installed:
  ansible ieee-data python3-argcomplete python3-dnspython python3-jmespath python3-kerberos python3-libcloud python3-lockfile python3-netaddr python3-ntlm-auth
  python3-packaging python3-pycryptodome python3-requests-kerberos python3-requests-ntlm python3-requests-toolbelt python3-selinux python3-simplejson python3-winrm
  python3-xmldict
0 upgraded, 19 newly installed, 0 to remove and 32 not upgraded.
Need to get 22.9 MB of archives.
After this operation, 243 MB of additional disk space will be used.
Do you want to continue? [Y/n] y
Get:1 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy/main amd64 python3-packaging all 21.3-1 [30.7 kB]
Get:2 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy/main amd64 python3-pycryptodome amd64 3.11.0+dfsg1-3build1 [1027 kB]
Get:3 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy/main amd64 python3-dnspython all 2.1.0-1ubuntu1 [123 kB]
Get:4 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy/main amd64 ieee-data all 20210605.1 [1887 kB]
Get:5 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy/main amd64 python3-netaddr all 0.8.0-2 [309 kB]
Get:6 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy/universe amd64 ansible all 2.10.7+merged+base+2.10.8+dfsg-1 [17.5 MB]
Get:7 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy/universe amd64 python3-argcomplete all 1.8.1-1.5 [27.2 kB]
Get:8 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy/main amd64 python3-jmespath all 0.10.0-1 [21.7 kB]

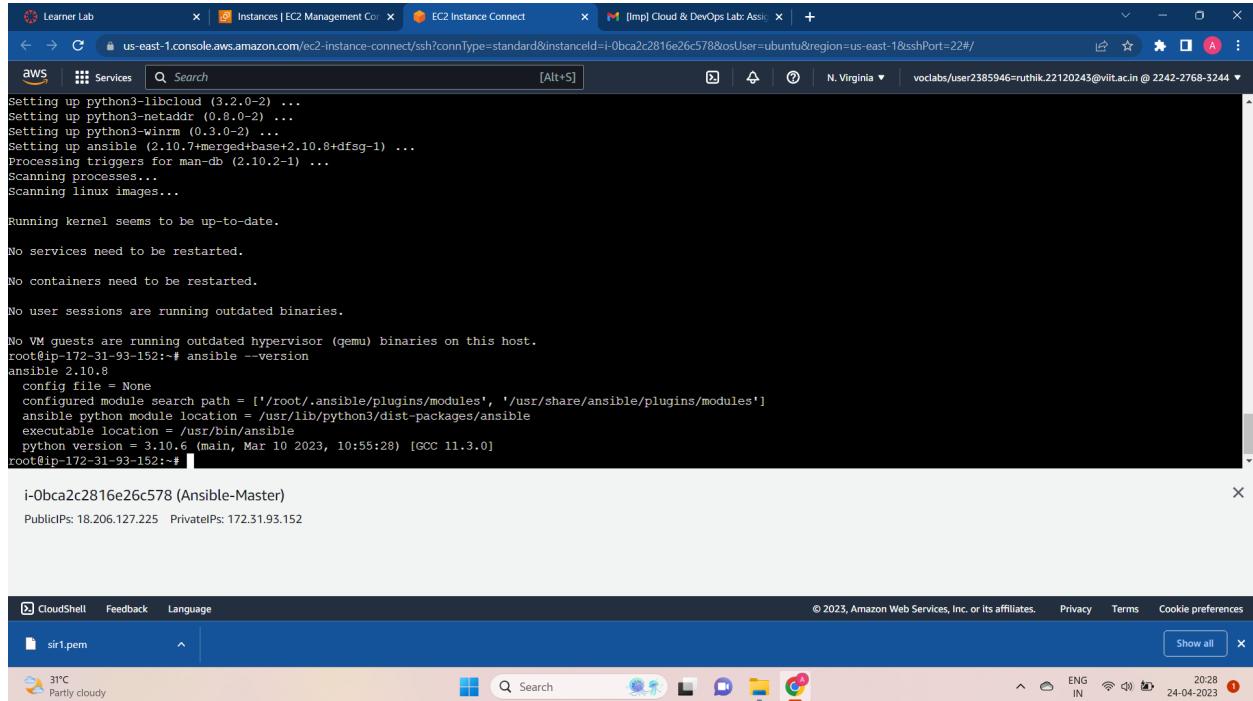

```

i-0bca2c2816e26c578 (Ansible-Master)

PublicIPs: 18.206.127.225 PrivateIPs: 172.31.93.152

4) Check the version of ansible using command

➤ ansible –version



```
Setting up python3-libcloud (3.2.0-2) ...
Setting up python3-netaddr (0.8.0-2) ...
Setting up python3-winrm (0.3.0-2) ...
Setting up ansible (2.10.7+merged+base+2.10.8+dfsg-1) ...
Processing triggers for man-db (2.10.2-1) ...
Scanning processes...
Scanning linux images...

Running kernel seems to be up-to-date.

No services need to be restarted.

No containers need to be restarted.

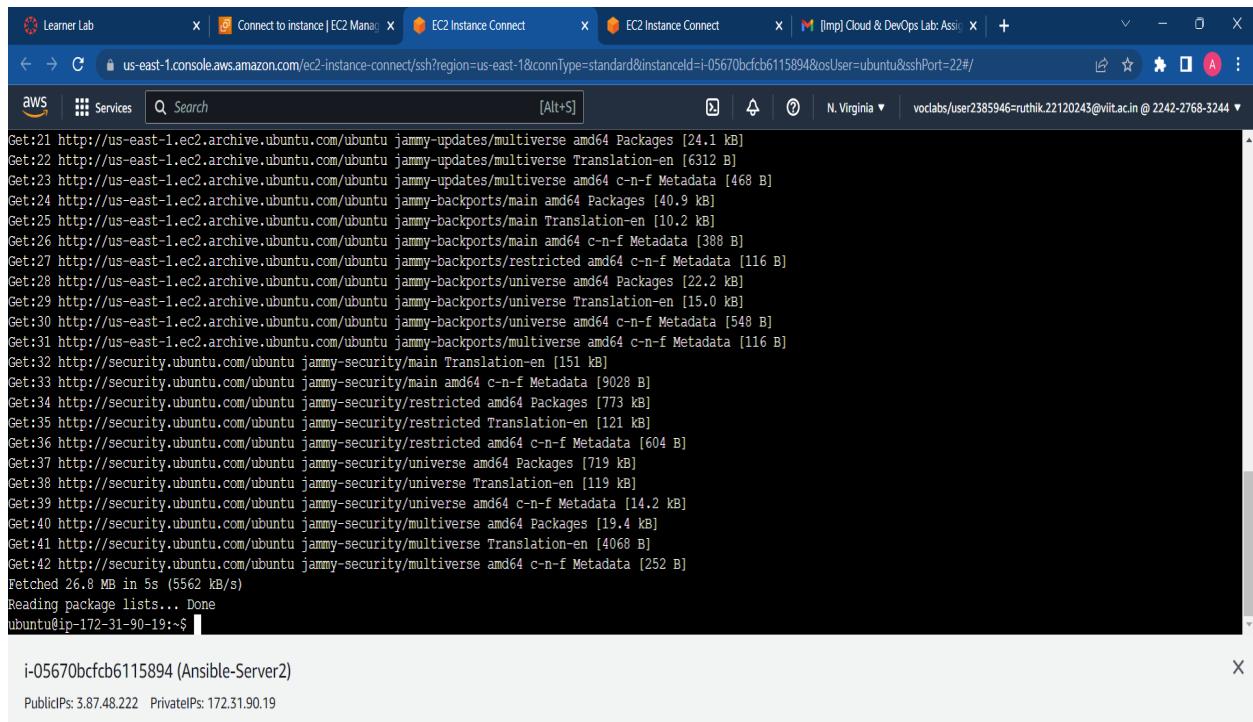
No user sessions are running outdated binaries.

No VM guests are running outdated hypervisor (qemu) binaries on this host.
root@ip-172-31-93-152:~# ansible --version
ansible 2.10.8
  config file = None
  configured module search path = ['/root/.ansible/plugins/modules', '/usr/share/ansible/plugins/modules']
  ansible python module location = /usr/lib/python3/dist-packages/ansible
  executable location = /usr/bin/ansible
  python version = 3.10.6 (main, Mar 10 2023, 10:55:28) [GCC 11.3.0]
root@ip-172-31-93-152:~#
```

i-0bca2c2816e26c578 (Ansible-Master)
PublicIPs: 18.206.127.225 PrivateIPs: 172.31.93.152

CloudShell Feedback Language © 2023, Amazon Web Services, Inc. or its affiliates. Privacy Terms Cookie preferences Show all ENG IN 20:28 24-04-2023

5) update reaming all hosts i.e. Ansible-Server1, Ansible-Server2, Ansible-Server3 using command sudo apt-get update



```
Get:21 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy-updates/multiverse amd64 Packages [24.1 kB]
Get:22 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy-updates/multiverse Translation-en [6312 B]
Get:23 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy-updates/multiverse amd64 c-n-f Metadata [468 B]
Get:24 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy-backports/main amd64 Packages [40.9 kB]
Get:25 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy-backports/main Translation-en [10.2 kB]
Get:26 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy-backports/main amd64 c-n-f Metadata [388 B]
Get:27 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy-backports/restricted amd64 c-n-f Metadata [116 B]
Get:28 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy-backports/universe amd64 Packages [22.2 kB]
Get:29 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy-backports/universe Translation-en [15.0 kB]
Get:30 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy-backports/universe amd64 c-n-f Metadata [548 B]
Get:31 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy-backports/multiverse amd64 c-n-f Metadata [116 B]
Get:32 http://security.ubuntu.com/ubuntu jammy-security/main Translation-en [151 kB]
Get:33 http://security.ubuntu.com/ubuntu jammy-security/main amd64 c-n-f Metadata [9028 B]
Get:34 http://security.ubuntu.com/ubuntu jammy-security/restricted amd64 Packages [773 kB]
Get:35 http://security.ubuntu.com/ubuntu jammy-security/restricted Translation-en [121 kB]
Get:36 http://security.ubuntu.com/ubuntu jammy-security/restricted amd64 c-n-f Metadata [604 B]
Get:37 http://security.ubuntu.com/ubuntu jammy-security/universe amd64 Packages [719 kB]
Get:38 http://security.ubuntu.com/ubuntu jammy-security/universe Translation-en [119 kB]
Get:39 http://security.ubuntu.com/ubuntu jammy-security/universe amd64 c-n-f Metadata [14.2 kB]
Get:40 http://security.ubuntu.com/ubuntu jammy-security/multiverse amd64 Packages [19.4 kB]
Get:41 http://security.ubuntu.com/ubuntu jammy-security/multiverse Translation-en [4068 B]
Get:42 http://security.ubuntu.com/ubuntu jammy-security/multiverse amd64 c-n-f Metadata [252 B]
Fetched 26.8 MB in 5s (5562 kB/s)
Reading package lists... Done
ubuntu@ip-172-31-90-19:~$
```

i-05670bcfc6115894 (Ansible-Server2)
PublicIPs: 3.87.48.222 PrivateIPs: 172.31.90.19

```

Get:11 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy-updates/multiverse amd64 Packages [24.1 kB]
Get:12 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy-updates/multiverse Translation-en [6312 B]
Get:13 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy-updates/multiverse amd64 c-n-f Metadata [468 B]
Get:14 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy-backports/main amd64 Packages [40.9 kB]
Get:15 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy-backports/main Translation-en [10.2 kB]
Get:16 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy-backports/main amd64 c-n-f Metadata [388 B]
Get:17 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy-backports/restricted amd64 c-n-f Metadata [116 B]
Get:18 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy-backports/universe amd64 Packages [22.2 kB]
Get:19 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy-backports/universe Translation-en [15.0 kB]
Get:20 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy-backports/universe amd64 c-n-f Metadata [548 B]
Get:21 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy-backports/multiverse amd64 c-n-f Metadata [116 B]
Get:22 http://security.ubuntu.com/ubuntu jammy-security/main Translation-en [151 kB]
Get:23 http://security.ubuntu.com/ubuntu jammy-security/main amd64 c-n-f Metadata [9028 B]
Get:24 http://security.ubuntu.com/ubuntu jammy-security/restricted amd64 Packages [773 kB]
Get:25 http://security.ubuntu.com/ubuntu jammy-security/restricted Translation-en [121 kB]
Get:26 http://security.ubuntu.com/ubuntu jammy-security/restricted amd64 c-n-f Metadata [604 B]
Get:27 http://security.ubuntu.com/ubuntu jammy-security/universe amd64 Packages [719 kB]
Get:28 http://security.ubuntu.com/ubuntu jammy-security/universe Translation-en [119 kB]
Get:29 http://security.ubuntu.com/ubuntu jammy-security/universe amd64 c-n-f Metadata [14.2 kB]
Get:30 http://security.ubuntu.com/ubuntu jammy-security/multiverse amd64 Packages [19.4 kB]
Get:31 http://security.ubuntu.com/ubuntu jammy-security/multiverse Translation-en [4068 B]
Get:32 http://security.ubuntu.com/ubuntu jammy-security/multiverse amd64 c-n-f Metadata [252 B]
Fetched 26.8 MB in 5s (5652 kB/s)
Reading package lists... Done
ubuntu@ip-172-31-82-68:~$ 

```

i-0e04d926652b1fe45 (Ansible-Server3)
PublicIPs: 35.174.104.59 PrivatePs: 172.31.82.68

```

* Introducing Expanded Security Maintenance for Applications.
  Receive updates to over 25,000 software packages with your
  Ubuntu Pro subscription. Free for personal use.

https://ubuntu.com/aws/pro

Expanded Security Maintenance for Applications is not enabled.

36 updates can be applied immediately.
18 of these updates are standard security updates.
To see these additional updates run: apt list --upgradable

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

Last login: Mon Apr 24 14:58:47 2023 from 18.206.107.27
ubuntu@ip-172-31-89-117:~$ sudo apt-get update
Hit:1 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy InRelease
Hit:2 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy-updates InRelease
Hit:3 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy-backports InRelease
Hit:4 http://security.ubuntu.com/ubuntu jammy-security InRelease
Reading package lists... Done
ubuntu@ip-172-31-89-117:~$ 

```

i-0e92b7dd5fde6a8cd (Ansible-Server1)
PublicIPs: 3.84.25.101 PrivatePs: 172.31.89.117

d) Generate a ssh key on Ansible-master using command

> ssh-keygen

```

python version = 3.10.6 (main, Mar 10 2023, 10:55:28) [GCC 11.3.0]
root@ip-172-31-93-152:~# exit
logout
ubuntu@ip-172-31-93-152:~$ ssh-keygen
Generating public/private rsa key pair.
Enter file in which to save the key (/home/ubuntu/.ssh/id_rsa):
Enter passphrase (empty for no passphrase):
Enter same passphrase again:
Your identification has been saved in /home/ubuntu/.ssh/id_rsa
Your public key has been saved in /home/ubuntu/.ssh/id_rsa.pub
The key fingerprint is:
SHA256:cJ0/WmagKBRFxwY/o08Aanjdmod63ANbXgPdmsJlg+Ic ubuntu@ip-172-31-93-152
The key's randomart image is:
+---[RSA 3072]---+
| ==o.          |
| o+ .          |
| o.o . o       |
| ..= @.. o     |
| .o.. E.OS o   |
| +.+.o.+ + .   |
| o+o... . .    |
| o+o..o.       |
| ...*o. .      |
+---[SHA256]---+
ubuntu@ip-172-31-93-152:~$ 

```

i-Obca2c2816e26c578 (Ansible-Master)
PublicIPs: 18.206.127.225 PrivatePs: 172.31.93.152

aws Services Search [Alt+S] N. Virginia v vclabs/user2385946=ruthik.22120243@vii.ac.in @ 2242-2768-3244

```
Enter same passphrase again:  
Your identification has been saved in /home/ubuntu/.ssh/id_rsa  
Your public key has been saved in /home/ubuntu/.ssh/id_rsa.pub  
The key fingerprint is:  
SHA256:c7oVMagKBRFxwY/a08anjdmoD63ANbXgPdmsJlgIc ubuntu@ip-172-31-93-152  
The key's randomart image is:  
+---[RSA 3072]---+  
| =o. . |  
| o+ . |  
| o.o . o |  
| ..= @.. o |  
| .o.+ E..O S o |  
|+.+o.+ + . |  
|o+o.... . |  
|o+.*o . o |  
|..*o. . |  
+---[SHA256]---+  
ubuntu@ip-172-31-93-152:~$ ls ~./ssh  
authorized_keys id_rsa id_rsa.pub  
ubuntu@ip-172-31-93-152:~$ cat ~./ssh/id_rsa.pub  
ssh-rsa AAAAB3NzaC1yc2EAAAQABAAQgQDHF7cHeH1sjq70Wgnw/imp/7EPPrSQTYfUXJFc14gvPQL8wuCGJfDci+0M1ly4jgGodWIhaFIIGK13oyJHO50GVjvcL5kW+9JyezjN5pMRmcQh6HGbM5orTA6]XB1lCoLdeMSGCMgQVJ71KD1jk0L8fzSXZgbopeQ6UdzK9USeHC71lF31U42IdY2po08+tBFRWYKXmbOy6ohThaClpzqwrXccIXoyE5+anyVB2jgtv4/tbdiCuTbV37RAKxGMN7zmyyy15q9D2bxwrbV0HWqYDJGDxeJch/fqis13BrffAFBz5vcaURRAbpFctuKSzgZ1J0B1pNzLzhCj/ad/1p8CNMCVXD BXTaXn1yM07iG10o5VUGFk9bhWBHG2kbahxEbclo74a7473vszTwucFaY6Vw/k0hkALAh8vvj6BLEXyrrzpRI63aSwEco3vvzzfGSVki6Q3q0zvJKUjyIEJay/qGZ00SiyGjrzP+qfwcGkxerJKVmhbgikpSy/24c= ubuntu@ip-172-31-93-152  
ubuntu@ip-172-31-93-152:~$
```

i-0bca2c2816e26c578 (Ansible-Master)
PublicIPs: 18.206.127.225 PrivateIPs: 172.31.93.152

aws Services Search [Alt+S] N. Virginia v vclabs/user2385946=ruthik.22120243@vii.ac.in @ 2242-2768-3244

```
System load: 0.0 Processes: 97  
Usage of /: 22.7% of 7.57GB Users logged in: 0  
Memory usage: 22% IPv4 address for eth0: 172.31.89.117  
Swap usage: 0%  
  
* Introducing Expanded Security Maintenance for Applications.  
Receive updates to over 25,000 software packages with your  
Ubuntu Pro subscription. Free for personal use.  
  
https://ubuntu.com/aws/pro  
  
Expanded Security Maintenance for Applications is not enabled.  
  
36 updates can be applied immediately.  
18 of these updates are standard security updates.  
To see these additional updates run: apt list --upgradable  
  
Enable ESM Apps to receive additional future security updates.  
See https://ubuntu.com/esm or run: sudo pro status  
  
Last login: Mon Apr 24 16:06:48 2023 from 18.206.107.27  
ubuntu@ip-172-31-89-117:~$ cd .ssh  
ubuntu@ip-172-31-89-117:~/.ssh$ ls  
authorized_keys id_rsa id_rsa.pub  
ubuntu@ip-172-31-89-117:~/.ssh$ sudo nano authorized_keys
```

i-0e92b7dd5fde6a8cd (Ansible-Server1)
PublicIPs: 18.204.222.9 PrivateIPs: 172.31.89.117

aws Services Search [Alt+S] N. Virginia v vclabs/user2385946=ruthik.22120243@vii.ac.in @ 2242-2768-3244

```
GNU nano 6.2 authorized keys *  
ssh-rsa AAAAB3NzaC1yc2EAAAQABAAQgQjA3rZdhg7pcyI4me/qfJpETMoANPN/4IxUTwRdFFQtk91PKUqCwbFsXr6dAzsAC5zS9Ev4Dd9Q8Tb1BWQghwBFM3QsELvDG2P2r6pdMV2ITkgM3WknqTDPc1b19Y0Z5Zvc>6Q3q0zvJKUjyIEJay/qCZ00SiyGjrzP+qfwcGkxerJKVmhbgikpSy/24c= ubuntu@ip-172-31-93-152
```

i-0e92b7dd5fde6a8cd (Ansible-Server1)
PublicIPs: 18.204.222.9 PrivateIPs: 172.31.89.117

```
AWS Services Search [Alt+S] N. Virginia v vocabs/user2385946=ruthik.22120245@vii.ac.in @ 2242-2768-3244 ▾
System load: 0.0 Processes: 97
Usage of /: 22.7% of 7.57GB Users logged in: 0
Memory usage: 22% IPv4 address for eth0: 172.31.89.117
Swap usage: 0%

* Introducing Expanded Security Maintenance for Applications.
Receive updates to over 25,000 software packages with your
Ubuntu Pro subscription. Free for personal use.

https://ubuntu.com/aws/pro

Expanded Security Maintenance for Applications is not enabled.

36 updates can be applied immediately.
18 of these updates are standard security updates.
To see these additional updates run: apt list --upgradable

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

Last login: Mon Apr 24 16:06:48 2023 from 18.206.107.27
ubuntu@ip-172-31-89-117:~$ cd .ssh
ubuntu@ip-172-31-89-117:~/.ssh$ ls
authorized_keys id rsa id rsa.pub
ubuntu@ip-172-31-89-117:~/.ssh$ sudo nano authorized_keys
ubuntu@ip-172-31-89-117:~/.ssh$ █

i-0e92b7dd5fde6a8cd (Ansible-Server1)
PublicIPs: 18.204.222.9 PrivateIPs: 172.31.89.117
```

```
AWS Services Search [Alt+S] N. Virginia v vocabs/user2385946=ruthik.22120245@vii.ac.in @ 2242-2768-3244 ▾
ubuntu@ip-172-31-93-152:~/.ssh$ ssh ubuntu@172.31.89.117
Welcome to Ubuntu 22.04.2 LTS (GNU/Linux 5.15.0-1031-aws x86_64)

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

System information as of Mon Apr 24 16:19:10 UTC 2023

System load: 0.0 Processes: 100
Usage of /: 22.7% of 7.57GB Users logged in: 1
Memory usage: 22% IPv4 address for eth0: 172.31.89.117
Swap usage: 0%

* Introducing Expanded Security Maintenance for Applications.
Receive updates to over 25,000 software packages with your
Ubuntu Pro subscription. Free for personal use.

https://ubuntu.com/aws/pro

Expanded Security Maintenance for Applications is not enabled.

36 updates can be applied immediately.
18 of these updates are standard security updates.
To see these additional updates run: apt list --upgradable

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

Last login: Mon Apr 24 16:14:44 2023 from 18.206.107.29
ubuntu@ip-172-31-89-117:~$ █

i-0bc2c2816e26c578 (Ansible-Master)
PublicIPs: 174.129.114.88 PrivateIPs: 172.31.93.152
```

```
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Last login: Mon Apr 24 16:14:44 2023 from 18.206.107.29
ubuntu@ip-172-31-89-117:~$ exit
logout
Connection to 172.31.89.117 closed.
ubuntu@ip-172-31-93-152:~/.ssh$ █

i-0bc2c2816e26c578 (Ansible-Master)
PublicIPs: 174.129.114.88 PrivateIPs: 172.31.93.152
```

Create a playbook on Ansible-master

Step 1:- connect to “Ansible-Master”

Step 2:- create a new folder “ansible-project” using command mkdir.

Step 3: a) cd ansible-project b) nano inventory c) write a private IP of “Ansible-server1” into inventory d) write a private IP of “Ansible-server2” into inventory e) write a private IP of “Ansible-server3” into inventory.

```
aws Services Search [Alt+S] N. Virginia vclabs/user2385946=ruthik.22120243@vitt.ac.in @ 2242-2768-3244
ubuntu@ip-172-31-93-152:~/Ansible-project$ ls
first-playbook.yaml first-playbook.yml inventory inventory.ini
ubuntu@ip-172-31-93-152:~/Ansible-project$ nano inventory.ini
ubuntu@ip-172-31-93-152:~/Ansible-project$ nano first-playbook.yaml
ubuntu@ip-172-31-93-152:~/Ansible-project$
```

i-0bca2c2816e26c578 (Ansible-Master)

PublicIPs: 174.129.114.88 PrivateIPs: 172.31.93.152

```
aws Services Search [Alt+S] inventory.ini N. Virginia vclabs/user2385946=ruthik.22120243@vitt.ac.in @ 2242-2768-3244
GNU nano 6.2
[wsl|1]
172.31.88.117
[dbservers]
172.31.90.19
```

i-0bca2c2816e26c578 (Ansible-Master)

PublicIPs: 174.129.114.88 PrivateIPs: 172.31.93.152

Save and exit

Task: Install Nginx and Start Nginx

Step 1: Create a new file called "first-playbook.yml"

```
aws Services Search [Alt+S] N. Virginia vodlabs/user2385946=ruthik.22120243@vit.ac.in @ 2242-2768-3244
ubuntu@ip-172-31-93-152:~/Ansible-project$ ls
first-playbook.yaml inventory inventory.ini
ubuntu@ip-172-31-93-152:~/Ansible-project$ nano inventory.ini
ubuntu@ip-172-31-93-152:~/Ansible-project$ nano first-playbook.yaml
ubuntu@ip-172-31-93-152:~/Ansible-project$
```

i-Obca2c2816e26c578 (Ansible-Master)

PublicIPs: 174.129.114.88 PrivateIPs: 172.31.93.152

```
aws Services Search [Alt+S] N. Virginia vodlabs/user2385946=ruthik.22120243@vit.ac.in @ 2242-2768-3244
GNU nano 6.2 first-playbook.yaml
[Read 15 lines]
- name: Install and Start nginx
  tasks:
    - name: Install Nginx
      apt:
        name: nginx
        state: present
        update_cache: yes
    - name: start nginx
      service:
        name: nginx
        state: started
```

i-Obca2c2816e26c578 (Ansible-Master)

PublicIPs: 174.129.114.88 PrivateIPs: 172.31.93.152

Execute the playbook by using command:

ansible-playbook -i inventory.ini first-playbook.yaml

```
aws Services Search [Alt+S] N. Virginia vodlabs/user2385946=ruthik.22120243@vit.ac.in @ 2242-2768-3244
ubuntu@ip-172-31-93-152:~$ ls
Ansible-project
ubuntu@ip-172-31-93-152:~$ cd Ansible-project
ubuntu@ip-172-31-93-152:~/Ansible-project$ nano inventory.ini
ubuntu@ip-172-31-93-152:~/Ansible-project$ ls
first-playbook.yaml inventory inventory.ini
ubuntu@ip-172-31-93-152:~/Ansible-project$ nano first-playbook.yaml
ubuntu@ip-172-31-93-152:~/Ansible-project$ ansible-playbook -i inventory.ini first-playbook.yaml
```

PLAY [Install and Start nginx] *****

TASK [Gathering Facts] ****

The authenticity of host '172.31.90.19 (172.31.90.19)' can't be established.

ED25519 Key fingerprint is SHA256:D2Au9NBDRW5sgsINFnNm61nH3+k8sfvOaE610yJ2yc.

This key is not known by any other names

Are you sure you want to continue connecting (yes/no/[fingerprint])? ok: [172.31.90.117]

yes

fatal: [172.31.90.19]: UNREACHABLE! => {"changed": false, "msg": "Failed to connect to the host via ssh: Warning: Permanently added '172.31.90.19' (ED25519) to the list of known hosts.\r\nnubuntu@172.31.90.19: Permission denied (publickey).", "unreachable": true}

TASK [Install Nginx] *****

changed: [172.31.90.117]

TASK [start nginx] *****

ok: [172.31.90.117]

PLAY RECAP *****

host	changed	unreachable	failed	skipped	rescued	ignored	
172.31.90.117	ok=0	changed=0	unreachable=1	failed=0	skipped=0	rescued=0	ignored=0
172.31.90.19	ok=0	changed=0	unreachable=1	failed=0	skipped=0	rescued=0	ignored=0

```
ubuntu@ip-172-31-93-152:~/Ansible-project$
```

i-Obca2c2816e26c578 (Ansible-Master)

Verify the output:

Step 1: connect to any ansible-server1

Step run the command: sudo systemctl status nginx

Conclusion

Successfully deploying Apache Web server using ansible playbook