

# Ansible

## Assignment – 1

### Task to be performed

1. Setup a Ansible cluster with 3 nodes
2. On slave 1 install Java
3. On slave 2 install MySQL server

Do the above tasks using ansible playbooks

### Steps and Commands

- Create 3 instance names them as master, slave1 and slave2
- Connect to all the 3 instance
- Update all the machine by running the command **sudo apt update**
- The python3 is pre-installed in Ubuntu machine to see the python3 installed in the both the slave machine by running the command **python3 --version**
- Navigate to master instance
- To install Ansible by running the following command
  - a) **sudo apt install software-properties-common**
  - b) **sudo add-apt-repository --yes --update ppa:ansible/ansible**
  - c) **sudo apt install ansible -y**
- To see the ansible installed in the machine by running the command **ansible --version**
- To create a password-less SSH authentication connection between master and slave go inside the .ssh by running the command **cd .ssh/**
- Next create a key by running the command **ssh-keygen**
- To see the created file by running the command **ls**
- Copy the content of the id\_ras.pub from master machine which is created and paste in the authorized\_key in both the slave machine
- Next copy the private IP address of both slave machine and past in the host file in the master machine and provide the name for each private IP slave1 and slave2
- To create the playbook by running the command **sudo nano play1.yaml**
- Provide the necessary script to install java in slave1 and MySQL in slave2
- save and exit from the created file
- To see the created file by running the command **ls**
- Next to do the syntax check by running the command **ansible-playbook play1.yaml --syntax --check**

- And next run the command **ansible-playbook play1.yaml --check**
- Next to execute the playbook by running the command **ansible-playbook play1.yaml**
- Navigate to slave1 instance
- Now to see the java installed in the slave1 machine by running the command **java –version**
- Navigate to slave2 instance
- Now to see the MYSQL installed in the slave1 machine by running the command **mysql –version**

```
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-172-31-28-75:~$ sudo apt update
```

i-03d6dba47943f5da8 (ansible-master) X  
 PublicIPs: 107.21.70.85 PrivateIPs: 172.31.28.75

```
ubuntu@ip-172-31-28-75:~$ sudo apt install software-properties-common
```

i-03d6dba47943f5da8 (ansible-master) X  
 PublicIPs: 107.21.70.85 PrivateIPs: 172.31.28.75

```
ubuntu@ip-172-31-28-75:~$
```

i-03d6dba47943f5da8 (ansible-master) X  
 PublicIPs: 107.21.70.85 PrivateIPs: 172.31.28.75

```
ubuntu@ip-172-31-28-75:~$ sudo apt install software-properties-common
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
software-properties-common is already the newest version (0.99.22.9).
software-properties-common set to manually installed.
0 upgraded, 0 newly installed, 0 to remove and 20 not upgraded.
ubuntu@ip-172-31-28-75:~$ sudo add-apt-repository --yes --update ppa:ansible/ansible
```

i-03d6dba47943f5da8 (ansible-master)

PublicIPs: 107.21.70.85 PrivateIPs: 172.31.28.75

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```
If you face any issues while installing Ansible PPA, file an issue here:
https://github.com/ansible-community/ppa/issues
More info: https://launchpad.net/~ansible/+archive/ubuntu/ansible
Adding repository.
Adding deb entry to /etc/apt/sources.list.d/ansible-ubuntu-ansible-jammy.list
Adding disabled deb-src entry to /etc/apt/sources.list.d/ansible-ubuntu-ansible-jammy.list
Adding key to /etc/apt/trusted.gpg.d/ansible-ubuntu-ansible.gpg with fingerprint 6125E2A8C77F2818FB7BD15B93C4A3FD7BB9C367
Hit:1 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy InRelease
Get:2 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy-updates InRelease [119 kB]
Hit:3 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy-backports InRelease
Hit:4 http://security.ubuntu.com/ubuntu jammy-security InRelease
Get:5 https://ppa.launchpadcontent.net/ansible/ubuntu jammy InRelease [18.0 kB]
Get:6 https://ppa.launchpadcontent.net/ansible/ubuntu jammy/main amd64 Packages [1120 B]
Get:7 https://ppa.launchpadcontent.net/ansible/ubuntu jammy/main Translation-en [752 B]
Fetched 139 kB in 1s (135 kB/s)
Reading package lists... Done
ubuntu@ip-172-31-28-75:~$ sudo apt install ansible -y
```

i-03d6dba47943f5da8 (ansible-master)

PublicIPs: 107.21.70.85 PrivateIPs: 172.31.28.75

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```
ubuntu@ip-172-31-28-75:~$ ansible --version
ansible [core 2.16.5]
  config file = /etc/ansible/ansible.cfg
  configured module search path = ['/home/ubuntu/.ansible/plugins/modules', '/usr/share/ansible/plugins/modules']
  ansible python module location = /usr/lib/python3/dist-packages/ansible
  ansible collection location = /home/ubuntu/.ansible/collections:/usr/share/ansible/collections
  executable location = /usr/bin/ansible
  python version = 3.10.12 (main, Nov 20 2023, 15:14:05) [GCC 11.4.0] (/usr/bin/python3)
  jinja version = 3.0.3
  libyaml = True
ubuntu@ip-172-31-28-75:~$
```

i-03d6dba47943f5da8 (ansible-master)

PublicIPs: 107.21.70.85 PrivateIPs: 172.31.28.75

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```
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-172-31-24-57:~$ sudo apt update
```

i-049a9d9f8ed521aee (ansible-slave1)

PublicIPs: 3.81.231.15 PrivateIPs: 172.31.24.57

```
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ubuntu@ip-172-31-24-57:~$ python3 --version
Python 3.10.12
ubuntu@ip-172-31-24-57:~$
```

i-049a9d9f8ed521aee (ansible-slave1)

PublicIPs: 3.81.231.15 PrivateIPs: 172.31.24.57

```
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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-172-31-17-19:~$ sudo apt update
```

i-03f5916da557e54c8 (ansible-slave2)

PublicIPs: 18.212.230.166 PrivateIPs: 172.31.17.19

```
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```

```
ubuntu@ip-172-31-17-19:~$ python3 --version
Python 3.10.12
ubuntu@ip-172-31-17-19:~$ █
```

i-03f5916da557e54c8 (ansible-slave2)

Public IPs: 18.212.230.166 Private IPs: 172.31.17.19

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```
ubuntu@ip-172-31-28-75:~$ cd .ssh/
ubuntu@ip-172-31-28-75:~/ssh$ ls
authorized_keys
ubuntu@ip-172-31-28-75:~/ssh$ 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:vyC5R8xBkMvrV9cht16hyvOHp0g7T/py8vCweWId7Y ubuntu@ip-172-31-28-75
The key's randomart image is:
+---[RSA 3072]---+
|          |
|          |
|          . |
|          . o . |
| + o.. = ..|
```

i-03d6dba47943f5da8 (ansible-master)

Public IPs: 107.21.70.85 Private IPs: 172.31.28.75

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```
ubuntu@ip-172-31-28-75:~/ssh$ ls
authorized_keys  id_rsa  id_rsa.pub
ubuntu@ip-172-31-28-75:~/ssh$ cat id_rsa.pub
ssh-rsa AAAAB3NzaC1yc2EAAAQABAAABgQC0Jxk/ngBXRGzEgjHXfn8F9SLJS8v7N3LPhi/6kMw8ocalHbNFGBeclJmV1vDcVY/NVPj1vbNwJxmBwzlhg5KmwMW7pPRSo9cwsL5c6VYnTsASjCENElexa/cLkIjW+LGc810vzrd3E55gKJcfjTBdi6KIwe/8ZjiTQSHVzQzy14pAMygWXl0Rip5MFP+NkqSYptwUQUt63haJKyWTUzEV2DyL2x3LjKHVLYKpoOrnc0uah6EUauig5hx9t1Gbcxv8qrQtMQ9a6v7qbfb9Jh8nZmk1cvMKBmcySQMFndA3Yqoiu8qBkI83mEV/QlrJqG26XX0llCYezMz7Hfhc57Hm43WUPNfyW8w6mrF+9ZY/R7NlgqotYzv5hAtU2MjBP6zWRoHN9P87VRcvEcNkzGqA6pnccVs+d2mmXV5PcKkWvKZGGqqIDKkiavrAk tjCZFEpWmnXH10HfYCAniY170+Bt6XCy528Vq81fhcE2TEC92H3K4Ne6rvHBwllcHsRc= ubuntu@ip-172-31-28-75
ubuntu@ip-172-31-28-75:~/ssh$ █
```

i-03d6dba47943f5da8 (ansible-master)

Public IPs: 107.21.70.85 Private IPs: 172.31.28.75

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```
ubuntu@ip-172-31-24-57:~/ssh$ ls
authorized_keys
ubuntu@ip-172-31-24-57:~/ssh$ sudo nano authorized_keys
```

i-049a9d9f8ed521aee (ansible-slave1)  
Public IPs: 3.81.231.15 Private IPs: 172.31.24.57

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```
GNU nano 6.2
authorized_keys *
ssh-rsa AAAAB3NzaC1yc2EAAAQABAAQCXcw6ExHvoSKc5pjFTrEWGpc4GF5gXgyJr2bIFIvXDwm7o5aUJSVnbI9Yvg1GazilC2r59yFv53p6fEemFDPOJy8o/131L2QRUCV
<E2TEC92H3K4Ne6rvhBw1chS= ubuntu@ip-172-31-28-75
```

i-049a9d9f8ed521aee (ansible-slave1)  
Public IPs: 3.81.231.15 Private IPs: 172.31.24.57

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```
ubuntu@ip-172-31-17-19:~/ssh$ cd .ssh/
ubuntu@ip-172-31-17-19:~/ssh$ ls
authorized_keys
ubuntu@ip-172-31-17-19:~/ssh$ sudo nano authorized_keys
ubuntu@ip-172-31-17-19:~/ssh$
```

i-03f5916da557e54c8 (ansible-slave2)  
Public IPs: 18.212.230.166 Private IPs: 172.31.17.19

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```
GNU nano 6.2                                         authorized keys *  
ssh-rsa AAAAB3NzaC1yc2EAAAQABAAQCXcw6ExHvoSKc5pjFTtEWGpc4GF5gXgyJr2bIFiVXDwm7o5aUJSVnbI9Yvg1GazilC2r59yFv53p6fEemFDPOJy8o/131L2QRUCvk6  
3K4Ne6rvHBllcHsRc= ubuntu@ip-172-31-28-75
```

^G Help ^Q Write Out ^W Where Is ^K Cut ^T Execute ^C Location M-U Undo M-A Set Mark M-J To Bracket  
^X Exit ^R Read File ^\ Replace ^U Paste ^J Justify ^/ Go To Line M-B Redo M-C Copy ^O Where Was

i-03f5916da557e54c8 (ansible-slave2)

Public IPs: 18.212.230.166 Private IPs: 172.31.17.19

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```
ubuntu@ip-172-31-28-75:~$ cd /etc/ansible/  
ubuntu@ip-172-31-28-75:/etc/ansible$ ls  
ansible.cfg hosts roles  
ubuntu@ip-172-31-28-75:/etc/ansible$ sudo nano hosts
```

i-03d6dba47943f5da8 (ansible-master)

Public IPs: 107.21.70.85 Private IPs: 172.31.28.75

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```
GNU nano 6.2                                         hosts +  
[slave1]  
172.31.24.57  
[slave2]  
172.31.17.19  
  
# This is the default ansible 'hosts' file.  
#  
# It should live in /etc/ansible/hosts  
#  
# - Comments begin with the '#' character  
# - Blank lines are ignored  
# - Groups of hosts are delimited by [header] elements
```

^G Help ^Q Write Out ^W Where Is ^K Cut ^T Execute ^C Location M-U Undo M-A Set Mark M-J To Bracket  
^X Exit ^R Read File ^\ Replace ^U Paste ^J Justify ^/ Go To Line M-B Redo M-C Copy ^O Where Was

i-03d6dba47943f5da8 (ansible-master)

Public IPs: 107.21.70.85 Private IPs: 172.31.28.75

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```
ubuntu@ip-172-31-28-75:/etc/ansible$ ansible -m ping all
```

i-03d6dba47943f5da8 (ansible-master)  
PublicIPs: 107.21.70.85 PrivateIPs: 172.31.28.75

```
This key is not known by any other names
Are you sure you want to continue connecting (yes/no/[fingerprint])? yes
172.31.24.57 | SUCCESS => {
    "ansible_facts": {
        "discovered_interpreter_python": "/usr/bin/python3"
    },
    "changed": false,
    "ping": "pong"
}
yes
172.31.17.19 | SUCCESS => {
    "ansible_facts": {
        "discovered_interpreter_python": "/usr/bin/python3"
    },
    "changed": false,
    "ping": "pong"
}
ubuntu@ip-172-31-28-75:/etc/ansible$
```

i-03d6dba47943f5da8 (ansible-master)  
PublicIPs: 107.21.70.85 PrivateIPs: 172.31.28.75

```
ubuntu@ip-172-31-28-75:~$ sudo nano play1.yaml
```

i-03d6dba47943f5da8 (ansible-master)  
PublicIPs: 107.21.70.85 PrivateIPs: 172.31.28.75

```
ubuntu@ip-172-31-28-75:~$
```

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```
GNU nano 6.2                               play1.yaml *
```

```
---
- name: task for slave1
  hosts: slave1
  become: true
  tasks:
    - name: install java in slave1
      apt: name=openjdk-11-jdk state=latest
- name: task for slave2
  hosts: slave2
  become: true
  tasks:
    - name: install mysql in slave1
      apt: name=mysql-server state=latest
```

^G Help ^C Write Out ^W Where Is ^R Cut ^T Execute ^C Location M-U Undo M-A Set Mark M-] To Bracket  
^X Exit ^R Read File ^V Replace ^U Paste ^J Justify ^/ Go To Line M-E Redo M-C Copy ^Q Where Was

i-03d6dba47943f5da8 (ansible-master) X

Public IPs: 107.21.70.85 Private IPs: 172.31.28.75

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```
ubuntu@ip-172-31-28-75:~$ ansible-playbook play1.yaml --syntax-check
playbook: play1.yaml
ubuntu@ip-172-31-28-75:~$
```

i-03d6dba47943f5da8 (ansible-master) X

Public IPs: 107.21.70.85 Private IPs: 172.31.28.75

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```
ubuntu@ip-172-31-28-75:~$ ansible-playbook play1.yaml --syntax-check
playbook: play1.yaml
ubuntu@ip-172-31-28-75:~$ ansible-playbook play1.yaml --check
```

i-03d6dba47943f5da8 (ansible-master) X

Public IPs: 107.21.70.85 Private IPs: 172.31.28.75

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```
ok: [172.31.24.57]

TASK [install java in slave1] ****
changed: [172.31.24.57]

PLAY [task for slave2] ****
TASK [Gathering Facts] ****
ok: [172.31.17.19]

TASK [install mysql in slave1] ****
changed: [172.31.17.19]

PLAY RECAP ****
172.31.17.19      : ok=2    changed=1    unreachable=0    failed=0    skipped=0    rescued=0    ignored=0
172.31.24.57      : ok=2    changed=1    unreachable=0    failed=0    skipped=0    rescued=0    ignored=0

ubuntu@ip-172-31-28-75:~$
```

i-03d6dba47943f5da8 (ansible-master)  
Public IPs: 107.21.70.85 Private IPs: 172.31.28.75

```
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ok: [172.31.24.57]

TASK [install java in slave1] ****
changed: [172.31.24.57]

PLAY [task for slave2] ****
TASK [Gathering Facts] ****
ok: [172.31.17.19]

TASK [install mysql in slave1] ****
changed: [172.31.17.19]

PLAY RECAP ****
172.31.17.19      : ok=2    changed=1    unreachable=0    failed=0    skipped=0    rescued=0    ignored=0
172.31.24.57      : ok=2    changed=1    unreachable=0    failed=0    skipped=0    rescued=0    ignored=0

ubuntu@ip-172-31-28-75:~$ ansible-playbook play1.yaml
```

i-03d6dba47943f5da8 (ansible-master)  
Public IPs: 107.21.70.85 Private IPs: 172.31.28.75

```
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ok: [172.31.24.57]

TASK [install java in slave1] ****
changed: [172.31.24.57]

PLAY [task for slave2] ****
TASK [Gathering Facts] ****
ok: [172.31.17.19]

TASK [install mysql in slave1] ****
changed: [172.31.17.19]

PLAY RECAP ****
172.31.17.19      : ok=2    changed=1    unreachable=0    failed=0    skipped=0    rescued=0    ignored=0
172.31.24.57      : ok=2    changed=1    unreachable=0    failed=0    skipped=0    rescued=0    ignored=0

ubuntu@ip-172-31-28-75:~$
```

i-03d6dba47943f5da8 (ansible-master)  
Public IPs: 107.21.70.85 Private IPs: 172.31.28.75

```
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```

```
ubuntu@ip-172-31-24-57:~$ java --version
openjdk 11.0.22 2024-01-16
OpenJDK Runtime Environment (build 11.0.22+7-post-Ubuntu-0ubuntu22.04.1)
OpenJDK 64-Bit Server VM (build 11.0.22+7-post-Ubuntu-0ubuntu22.04.1, mixed mode, sharing)
ubuntu@ip-172-31-24-57:~$
```

i-049a9d9f8ed521aee (ansible-slave1)

Public IPs: 3.81.231.15 Private IPs: 172.31.24.57

X

```
ubuntu@ip-172-31-17-19:~$ mysql --version
mysql Ver 8.0.36-0ubuntu0.22.04.1 for Linux on x86_64 ((Ubuntu))
ubuntu@ip-172-31-17-19:~$
```

i-03f5916da557e54c8 (ansible-slave2)

Public IPs: 18.212.230.166 Private IPs: 172.31.17.19

X

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## Assignment – 2

### Task to be performed

1. Create a Script which can add text “This text been added by custom script” to tmp.1.txt
2. Run this script using Ansible on all the hosts

### Steps and Commands

- Create a script file in master machine by running the command **sudo nano script.sh**
- Provide the necessary text contend and provide the name as 1.txt for creating file in the script.sh file
- save and exit from the created file
- To execute the script which was provided in script.sh file by running the command **sudo bash script.sh**
- Next go inside the tmp by running the command **cd /tmp/**
- To see the 1.txt file by running the command **ls**
- And come out of the tmp path by running the command **cd ..**
- Next to create the playbook by running the command **sudo nano play2.yaml**
- Provide the necessary script to create 1.txt file in all the hosts
- save and exit from the created file
- To see the created file by running the command **ls**
- Next to do the syntax check by running the command **ansible-playbook play2.yaml --syntax --check**
- And next run the command **ansible-playbook play2.yaml --check**
- Next to execute the playbook by running the command **ansible-playbook play2.yaml**
- Navigate to slave1 instance
- Next go inside the tmp by running the command **cd /tmp/**
- To see the 1.txt file by running the command **ls**
- Navigate to slave2 instance
- Next go inside the tmp by running the command **cd /tmp/**
- To see the 1.txt file by running the command **ls**

```
ubuntu@ip-172-31-28-75:~$ sudo nano script2.sh
```

i-03d6dba47943f5da8 (ansible-master)

Public IPs: 107.21.70.85 Private IPs: 172.31.28.75

X

```
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```

```
GNU nano 6.2 script2.sh *
echo "This test has been added by custom script" > /tmp/l.txt
```

^G Help ^C Write Out ^W Where Is ^K Cut ^T Execute ^C Location M-U Undo M-A Set Mark M-J To Bracket  
^X Exit ^R Read File ^M Replace ^U Paste ^J Justify ^Y Go To Line M-B Redo M-C Copy ^Q Where Was

i-03d6dba47943f5da8 (ansible-master)

Public IPs: 107.21.70.85 Private IPs: 172.31.28.75

X

```
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```

```
ubuntu@ip-172-31-28-75:~$ sudo bash script2.sh
```

i-03d6dba47943f5da8 (ansible-master)

Public IPs: 107.21.70.85 Private IPs: 172.31.28.75

X

```
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```

```
ubuntu@ip-172-31-28-75:/tmp$ cd /tmp/
ubuntu@ip-172-31-28-75:/tmp$ ls
1.txt
snap-private-tmp
systemd-private-c9c5d1e8246f4978b30def69494dcc12-chrony.service-a5duZG
systemd-private-c9c5d1e8246f4978b30def69494dcc12-systemd-logind.service-ky52St
systemd-private-c9c5d1e8246f4978b30def69494dcc12-systemd-resolved.service-8IIZGc
ubuntu@ip-172-31-28-75:/tmp$ cat 1.txt
This test has been added by custom script
ubuntu@ip-172-31-28-75:/tmp$
```

i-03d6dba47943f5da8 (ansible-master)

Public IPs: 107.21.70.85 Private IPs: 172.31.28.75

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```
ubuntu@ip-172-31-28-75:~$ sudo nano script2.sh
ubuntu@ip-172-31-28-75:~$ sudo nano play2.yaml
```

i-03d6dba47943f5da8 (ansible-master)

Public IPs: 107.21.70.85 Private IPs: 172.31.28.75

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```
GNU nano 6.2                               play2.yaml *

---
- name: executing script using playbook
  hosts: all
  become: true
  tasks:
    - name: running script
      script: script2.sh
```

i-03d6dba47943f5da8 (ansible-master)

Public IPs: 107.21.70.85 Private IPs: 172.31.28.75

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```
ubuntu@ip-172-31-28-75:~$ ansible-playbook play2.yaml --syntax-check
playbook: play2.yaml
ubuntu@ip-172-31-28-75:~$ ansible-playbook play1.yaml --check
```

i-03d6dba47943f5da8 (ansible-master)

PublicIPs: 107.21.70.85 PrivatePs: 172.31.28.75

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```
ok: [172.31.24.57]
TASK [install java in slave1] *****
ok: [172.31.24.57]

PLAY [task for slave2] *****
TASK [Gathering Facts] *****
ok: [172.31.17.19]

TASK [install mysql in slave1] *****
ok: [172.31.17.19]

PLAY RECAP *****
172.31.17.19      : ok=2    changed=0    unreachable=0    failed=0    skipped=0    rescued=0    ignored=0
172.31.24.57      : ok=2    changed=0    unreachable=0    failed=0    skipped=0    rescued=0    ignored=0
```

ubuntu@ip-172-31-28-75:~\$ ansible-playbook play2.yaml

PublicIPs: 107.21.70.85 PrivatePs: 172.31.28.75

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```
ubuntu@ip-172-31-28-75:~$ ansible-playbook play2.yaml

PLAY [executing script using playbook] *****
TASK [Gathering Facts] *****
ok: [172.31.24.57]
ok: [172.31.17.19]

TASK [running script] *****
changed: [172.31.24.57]
changed: [172.31.17.19]

PLAY RECAP *****
172.31.17.19      : ok=2    changed=1    unreachable=0    failed=0    skipped=0    rescued=0    ignored=0
172.31.24.57      : ok=2    changed=1    unreachable=0    failed=0    skipped=0    rescued=0    ignored=0
```

ubuntu@ip-172-31-28-75:~\$

i-03d6dba47943f5da8 (ansible-master)

PublicIPs: 107.21.70.85 PrivatePs: 172.31.28.75

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```
ubuntu@ip-172-31-24-57:~$ cd /tmp/
ubuntu@ip-172-31-24-57:/tmp$ ls
1.txt      systemd-private-51443d6b495e43898ae56c46154658c8-chrony.service-rEh5xE
hsperfdata_root  systemd-private-51443d6b495e43898ae56c46154658c8-systemd-logind.service-OXGAKx
hsperfdata_ubuntu  systemd-private-51443d6b495e43898ae56c46154658c8-systemd-resolved.service-efVosW
snap-private-tmp
ubuntu@ip-172-31-24-57:/tmp$ cat 1.txt
This test has been added by custom script
ubuntu@ip-172-31-24-57:/tmp$
```

i-049a9d9f8ed521aee (ansible-slave1)

Public IPs: 3.81.231.15 Private IPs: 172.31.24.57

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```
ubuntu@ip-172-31-17-19:~$ cd /tmp/
ubuntu@ip-172-31-17-19:/tmp$ ls
1.txt
snap-private-tmp
systemd-private-928e60afc428454ba28dbab04980bd22-chrony.service-DGjPeB
systemd-private-928e60afc428454ba28dbab04980bd22-systemd-logind.service-5luSdc
systemd-private-928e60afc428454ba28dbab04980bd22-systemd-resolved.service-KLouUh
tmp_Kagefo6168
ubuntu@ip-172-31-17-19:/tmp$ cat 1.txt
This test has been added by custom script
ubuntu@ip-172-31-17-19:/tmp$
```

i-03f5916da557e54c8 (ansible-slave2)

Public IPs: 18.212.230.166 Private IPs: 172.31.17.19

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## Assignment – 3

### Task 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

### Steps and Commands

- Navigate to master instance
- Go inside the /etc/ansible/roles/ path by running the command **cd /etc/ansible/roles/**
- To create the role by running the command **sudo ansible-galaxy init apache**, **sudo ansible-galaxy init nginx**
- To see the created role by running the command **ls**
- Go inside the apache role by running the command **cd apache/**
- And go inside tasks by running command **cd tasks/**
- Create the install.yaml file by running the command by sudo nano install.yaml
- Provide the necessary script to install apache2
- save and exit from the created file
- To see the created file by running the command **ls**
- To open main.yml by running the command **sudo nano main.yml**
- Provide the necessary script to include the install.yaml file which was created
- save and exit from the main.yml file
- Go inside the nginx role by running the command **cd nginx/**
- And go inside tasks by running command **cd tasks/**
- Create the install.yaml file by running the command by **sudo nano install.yaml**
- Provide the necessary script to install nginx
- save and exit from the created file
- To see the created file by running the command **ls**
- To open main.yml by running the command **sudo nano main.yml**
- Provide the necessary script to include the install.yaml file which was created
- save and exit from the main.yml file
- To create the playbook by running the command **sudo nano play3.yaml**
- Provide the necessary script also provide the apache role to slave1 and nginx role to slave2
- save and exit from the created file

- To see the created file by running the command **ls**
- Next to do the syntax check by running the command **ansible-playbook play3.yaml --syntax --check**
- And next run the command **ansible-playbook play3.yaml --check**
- Next to execute the playbook by running the command **ansible-playbook play3.yaml**
- If we put the public IP address of slave1 instance in the browser apache2 page will be reflected
- If we put the public IP address of slave2 instance in the browser nginx page will be reflected

```
ubuntu@ip-172-31-28-75:~$ cd /etc/ansible/
ubuntu@ip-172-31-28-75:/etc/ansible$ ls
ansible.cfg hosts roles
ubuntu@ip-172-31-28-75:/etc/ansible$ cd roles/
ubuntu@ip-172-31-28-75:/etc/ansible/roles$ sudo ansible-galaxy init apache
- Role apache was created successfully
ubuntu@ip-172-31-28-75:/etc/ansible/roles$ sudo ansible-galaxy init nginx
- Role nginx was created successfully
ubuntu@ip-172-31-28-75:/etc/ansible/roles$ ls
apache nginx
ubuntu@ip-172-31-28-75:/etc/ansible/roles$
```

i-03d6dba47943f5da8 (ansible-master)  
PublicIPs: 107.21.70.85 PrivateIPs: 172.31.28.75

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```
ubuntu@ip-172-31-28-75:~$ cd /etc/ansible/
ubuntu@ip-172-31-28-75:/etc/ansible$ ls
ansible.cfg hosts roles
ubuntu@ip-172-31-28-75:/etc/ansible$ cd roles/
ubuntu@ip-172-31-28-75:/etc/ansible/roles$ sudo ansible-galaxy init apache
- Role apache was created successfully
ubuntu@ip-172-31-28-75:/etc/ansible/roles$ sudo ansible-galaxy init nginx
- Role nginx was created successfully
ubuntu@ip-172-31-28-75:/etc/ansible/roles$ ls
apache nginx
ubuntu@ip-172-31-28-75:/etc/ansible/roles$ cd apache/
ubuntu@ip-172-31-28-75:/etc/ansible/roles/apache$ ls
README.md defaults files handlers meta tasks templates tests vars
ubuntu@ip-172-31-28-75:/etc/ansible/roles/apache$ cd tasks/
ubuntu@ip-172-31-28-75:/etc/ansible/roles/apache/tasks$ ls
main.yml
ubuntu@ip-172-31-28-75:/etc/ansible/roles/apache/tasks$ sudo nano install.sh
```

i-03d6dba47943f5da8 (ansible-master)  
PublicIPs: 107.21.70.85 PrivateIPs: 172.31.28.75

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```
GNU nano 6.2                               install.yaml *
- name: installing apache2
  apt: name=apache2 state=latest
```

i-03d6dba47943f5da8 (ansible-master)  
PublicIPs: 107.21.70.85 PrivateIPs: 172.31.28.75

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```
ubuntu@ip-172-31-28-75:/etc/ansible$ ls
ansible.cfg  hosts  roles
ubuntu@ip-172-31-28-75:/etc/ansible$ cd roles/
ubuntu@ip-172-31-28-75:/etc/ansible/roles$ sudo ansible-galaxy init apache
- Role apache was created successfully
ubuntu@ip-172-31-28-75:/etc/ansible/roles$ sudo ansible-galaxy init nginx
- Role nginx was created successfully
ubuntu@ip-172-31-28-75:/etc/ansible/roles$ ls
apache  nginx
ubuntu@ip-172-31-28-75:/etc/ansible/roles$ cd apache/
ubuntu@ip-172-31-28-75:/etc/ansible/roles/apache$ ls
README.md  defaults  files  handlers  meta  tasks  templates  tests  vars
ubuntu@ip-172-31-28-75:/etc/ansible/roles/apache$ cd tasks/
ubuntu@ip-172-31-28-75:/etc/ansible/roles/apache/tasks$ ls
main.yml
ubuntu@ip-172-31-28-75:/etc/ansible/roles/apache/tasks$ sudo nano install.sh
ubuntu@ip-172-31-28-75:/etc/ansible/roles/apache/tasks$ sudo nano install.sh
ubuntu@ip-172-31-28-75:/etc/ansible/roles/apache/tasks$ sudo nano main.yml
```

i-03d6dba47943f5da8 (ansible-master)  
PublicIPs: 107.21.70.85 PrivateIPs: 172.31.28.75

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```
GNU nano 6.2                               main.yml *
# tasks file for apache
include_tasks: install.yaml
```

i-03d6dba47943f5da8 (ansible-master)  
PublicIPs: 107.21.70.85 PrivateIPs: 172.31.28.75

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```
ubuntu@ip-172-31-28-75:~$ cd /etc/ansible/
ubuntu@ip-172-31-28-75:/etc/ansible$ ls
ansible.cfg hosts roles
ubuntu@ip-172-31-28-75:/etc/ansible$ cd roles
ubuntu@ip-172-31-28-75:/etc/ansible/roles$ ls
apache nginx
ubuntu@ip-172-31-28-75:/etc/ansible/roles$ cd nginx
ubuntu@ip-172-31-28-75:/etc/ansible/roles/nginx$ ls
README.md defaults files handlers meta tasks templates tests vars
ubuntu@ip-172-31-28-75:/etc/ansible/roles/nginx$ cd tasks
ubuntu@ip-172-31-28-75:/etc/ansible/roles/nginx/tasks$ ls
main.yml
ubuntu@ip-172-31-28-75:/etc/ansible/roles/nginx/tasks$ sudo nano install.yaml
```

i-03d6dba47943f5da8 (ansible-master)

PublicIPs: 107.21.70.85 PrivatePs: 172.31.28.75

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GNU nano 6.2

install.yaml \*

```
- name: installing nginx
  apt: name=nginx state=latest
```

^G Help ^Q Write Out ^W Where Is ^F Cut ^T Execute ^C Location
^X Exit ^R Read File ^V Replace ^U Paste ^J Justify ^Y Go To Line M-U Undo
M-R Redo M-A Set Mark M-C Copy

i-03d6dba47943f5da8 (ansible-master)

PublicIPs: 107.21.70.85 PrivatePs: 172.31.28.75

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```
ubuntu@ip-172-31-28-75:~$ cd /etc/ansible/
ubuntu@ip-172-31-28-75:/etc/ansible$ ls
ansible.cfg hosts roles
ubuntu@ip-172-31-28-75:/etc/ansible$ cd roles
ubuntu@ip-172-31-28-75:/etc/ansible/roles$ ls
apache nginx
ubuntu@ip-172-31-28-75:/etc/ansible/roles$ cd nginx
ubuntu@ip-172-31-28-75:/etc/ansible/roles/nginx$ ls
README.md defaults files handlers meta tasks templates tests vars
ubuntu@ip-172-31-28-75:/etc/ansible/roles/nginx$ cd tasks
ubuntu@ip-172-31-28-75:/etc/ansible/roles/nginx/tasks$ ls
main.yml
ubuntu@ip-172-31-28-75:/etc/ansible/roles/nginx/tasks$ sudo nano install.yaml
ubuntu@ip-172-31-28-75:/etc/ansible/roles/nginx/tasks$ sudo nano main.yml
```

i-03d6dba47943f5da8 (ansible-master)

PublicIPs: 107.21.70.85 PrivatePs: 172.31.28.75

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```
GNU nano 6.2                                     main.yml *
```

```
---  
# tasks file for nginx  
- include_tasks: install.yaml
```

i-03d6dba47943f5da8 (ansible-master)  
PublicIPs: 107.21.70.85 PrivateIPs: 172.31.28.75

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```
ubuntu@ip-172-31-28-75:~$ sudo nano play3.yaml
```

i-03d6dba47943f5da8 (ansible-master)  
PublicIPs: 107.21.70.85 PrivateIPs: 172.31.28.75

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```
GNU nano 6.2                                     play3.yaml *
```

```
---  
- name: executing apache role form slave1  
  become: true  
  hosts: slave1  
  roles:  
    - apache  
- name: executing nginx role from slave2  
  become: true  
  hosts: slave2  
  roles:  
    - nginx
```

i-03d6dba47943f5da8 (ansible-master)  
PublicIPs: 107.21.70.85 PrivateIPs: 172.31.28.75

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```
ubuntu@ip-172-31-28-75:~$ sudo nano play3.yaml
ubuntu@ip-172-31-28-75:~$ ansible-playbook play3.yaml --syntax-check
```

i-03d6dba47943f5da8 (ansible-master)

Public IPs: 107.21.70.85 Private IPs: 172.31.28.75

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```
playbook: play3.yaml
ubuntu@ip-172-31-28-75:~$ ansible-playbook play3.yaml --check

PLAY [executing apache role form slave1] ****
TASK [Gathering Facts] ****
ok: [172.31.24.57]

PLAY [executing nginx role from slave2] ****
TASK [Gathering Facts] ****
ok: [172.31.17.19]

PLAY RECAP ****
172.31.17.19      : ok=1    changed=0    unreachable=0   failed=0    skipped=0    rescued=0    ignored=0
172.31.24.57      : ok=1    changed=0    unreachable=0   failed=0    skipped=0    rescued=0    ignored=0

ubuntu@ip-172-31-28-75:~$ ansible-playbook play3.yaml
```

i-03d6dba47943f5da8 (ansible-master)

Public IPs: 107.21.70.85 Private IPs: 172.31.28.75

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```
ubuntu@ip-172-31-28-75:~$ ansible-playbook play3.yaml

PLAY [executing apache role from slave1] ****
TASK [Gathering Facts] ****
ok: [172.31.24.57]

PLAY [executing nginx role from slave2] ****
TASK [Gathering Facts] ****
ok: [172.31.17.19]

PLAY RECAP ****
172.31.17.19      : ok=1    changed=0    unreachable=0   failed=0    skipped=0    rescued=0    ignored=0
172.31.24.57      : ok=1    changed=0    unreachable=0   failed=0    skipped=0    rescued=0    ignored=0

ubuntu@ip-172-31-28-75:~$
```

i-03d6dba47943f5da8 (ansible-master)

Public IPs: 107.21.70.85 Private IPs: 172.31.28.75

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The screenshot shows a web browser window with the address bar displaying "Not secure 381.231.15". The page content is the Apache2 Default Page. It features the Ubuntu logo and the text "Apache2 Default Page". Below this, it says "Ubuntu" and "It works!". A note explains that this is the default welcome page for the Apache2 server. It also provides instructions for maintenance and links to configuration documentation. A code block at the bottom shows the path to the configuration file: "/etc/apache2/ / -- apache2.conf".

The screenshot shows a web browser window with the address bar displaying "Not secure 18.212.230.166". The page content is the nginx Welcome page. It features the text "Welcome to nginx!". Below this, it says "If you see this page, the nginx web server is successfully installed and working. Further configuration is required." It also provides links to online documentation and commercial support. A small note at the bottom says "Thank you for using nginx."

## Assignment – 4

### Task to be performed

1. Use the previous deployment of Ansible cluster
2. Configure the files folder in the role with index.html which should be replaced with the original index.html

All of the above should only happen on the slave which has NGINX installed using the role.

### Steps and Commands

- Navigate to master instance
- Go inside the /etc/ansible/roles/ path by running the command **cd /etc/ansible/roles/**
- Go inside the nginx role by running the command **cd nginx/**
- And go inside tasks by running command **cd files/**
- Create a file index.html file by running the command **sudo nano index.html**
- Provide the necessary content for custom page
- save and exit from the index.html file
- To create copy.yaml file by running the command **sudo nano copy.yaml**
- Provide the necessary script to replace the apache2 page to custom page in copy.yaml file
- save and exit from the copy.yaml file
- To open main.yaml by running the command **sudo nano main.yaml**
- Provide the necessary script to include the copy.yaml file which was created
- save and exit from the main.yaml file
- Next to do the syntax check for play3.yaml which was created in assignment 3 by running the command **ansible-playbook play3.yaml --syntax --check**
- And next run the command **ansible-playbook play3.yaml --check**
- Next to execute the playbook of play3.yaml which was created in assignment 3 by running the command **ansible-playbook play3.yaml**
- If we put the public IP address of slave2 instance in the browser customized web page will be reflected

```
ubuntu@ip-172-31-28-75:~$ cd /etc/ansible/
ubuntu@ip-172-31-28-75:/etc/ansible$ ls
ansible.cfg  hosts  roles
ubuntu@ip-172-31-28-75:/etc/ansible$ cd roles
ubuntu@ip-172-31-28-75:/etc/ansible/roles$ ls
apache  nginx
ubuntu@ip-172-31-28-75:/etc/ansible/roles$ cd nginx
ubuntu@ip-172-31-28-75:/etc/ansible/roles/nginx$ ls
README.md  defaults  files  handlers  meta  tasks  templates  tests  vars
ubuntu@ip-172-31-28-75:/etc/ansible/roles/nginx$ cd files
ubuntu@ip-172-31-28-75:/etc/ansible/roles/nginx/files$ ls
ubuntu@ip-172-31-28-75:/etc/ansible/roles/nginx/files$ sudo nano index.html
```

i-03d6dba47943f5da8 (ansible-master)

Public IPs: 107.21.70.85 Private IPs: 172.31.28.75

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```
GNU nano 6.2                               index.html *
custom Nginx HTML file
```

^G Help ^O Write Out ^W Where Is ^M Cut ^T Execute ^C Location M-U Undo M-A Set Mark M-J To Bracket
^X Exit ^R Read File ^L Replace ^U Paste ^J Justify ^I Go To Line M-E Redo M-C Copy ^Q Where Was

i-03d6dba47943f5da8 (ansible-master)

Public IPs: 107.21.70.85 Private IPs: 172.31.28.75

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```
ubuntu@ip-172-31-28-75:/etc/ansible/roles/nginx/tasks$ ls
install.yaml  main.yaml
ubuntu@ip-172-31-28-75:/etc/ansible/roles/nginx/tasks$ sudo nano copy.yaml
```

i-03d6dba47943f5da8 (ansible-master)

Public IPs: 107.21.70.85 Private IPs: 172.31.28.75

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```
GNU nano 6.2                               copy.yaml *
```

```
---  
-name: replace default nginx page with custom html file  
copy: src=/etc/ansible/roles/nginx/files/index.html dest=/var/www/html/
```

i-03d6dba47943f5da8 (ansible-master)  
Public IPs: 107.21.70.85 Private IPs: 172.31.28.75

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```
GNU nano 6.2                               main.yaml *
```

```
---  
# tasks file for nginx  
- include_tasks: install.yaml  
- include_tasks: copy.yaml
```

i-03d6dba47943f5da8 (ansible-master)  
Public IPs: 107.21.70.85 Private IPs: 172.31.28.75

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```
ubuntu@ip-172-31-28-75:~$ ansible-playbook play3.yaml --syntax-check  
playbook: play3.yaml  
ubuntu@ip-172-31-28-75:~$ ansible-playbook play3.yaml --check
```

i-03d6dba47943f5da8 (ansible-master)  
Public IPs: 107.21.70.85 Private IPs: 172.31.28.75

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```
README.md defaults files handlers meta tasks templates tests vars
ubuntu@ip-172-31-28-75:/etc/ansible/roles/nginx$ cd files
ubuntu@ip-172-31-28-75:/etc/ansible/roles/nginx/files$ ls
ubuntu@ip-172-31-28-75:/etc/ansible/roles/nginx/files$ sudo nano index.html
ubuntu@ip-172-31-28-75:/etc/ansible/roles/nginx/files$ cd ..
ubuntu@ip-172-31-28-75:/etc/ansible/roles/nginx$ cd tasks
ubuntu@ip-172-31-28-75:/etc/ansible/roles/nginx/tasks$ ls
install.yaml main.yaml
ubuntu@ip-172-31-28-75:/etc/ansible/roles/nginx/tasks$ pwd
/etc/ansible/roles/nginx/tasks
ubuntu@ip-172-31-28-75:/etc/ansible/roles/nginx/tasks$ sudo nano copy.yaml
ubuntu@ip-172-31-28-75:/etc/ansible/roles/nginx/tasks$ sudo nano main.yaml
ubuntu@ip-172-31-28-75:/etc/ansible/roles/nginx/tasks$ cd ..
ubuntu@ip-172-31-28-75:~$ ansible-playbook play3.yaml --syntax-check

playbook: play3.yaml
ubuntu@ip-172-31-28-75:~$ ansible-playbook play3.yaml --check
```

i-03d6dba47943f5da8 (ansible-master)

PublicIPs: 107.21.70.85 PrivateIPs: 172.31.28.75

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```
TASK [nginx : include_tasks] ****
included: /etc/ansible/roles/nginx/tasks/install.yaml for 172.31.17.19

TASK [nginx : installing nginx] ****
ok: [172.31.17.19]

TASK [nginx : include_tasks] ****
included: /etc/ansible/roles/nginx/tasks/copy.yaml for 172.31.17.19

TASK [nginx : replace default nginx page with custom html file] ****
changed: [172.31.17.19]

PLAY RECAP ****
172.31.17.19      : ok=5    changed=1    unreachable=0    failed=0    skipped=0    rescued=0    ignored=0
172.31.24.57      : ok=5    changed=0    unreachable=0    failed=0    skipped=0    rescued=0    ignored=0

ubuntu@ip-172-31-28-75:~$ ansible-playbook play3.yaml
```

i-03d6dba47943f5da8 (ansible-master)

PublicIPs: 107.21.70.85 PrivateIPs: 172.31.28.75

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```
TASK [nginx : include_tasks] ****
included: /etc/ansible/roles/nginx/tasks/install.yaml for 172.31.17.19

TASK [nginx : installing nginx] ****
ok: [172.31.17.19]

TASK [nginx : include_tasks] ****
included: /etc/ansible/roles/nginx/tasks/copy.yaml for 172.31.17.19

TASK [nginx : replace default nginx page with custom html file] ****
changed: [172.31.17.19]

PLAY RECAP ****
172.31.17.19      : ok=5    changed=1    unreachable=0    failed=0    skipped=0    rescued=0    ignored=0
172.31.24.57      : ok=5    changed=0    unreachable=0    failed=0    skipped=0    rescued=0    ignored=0

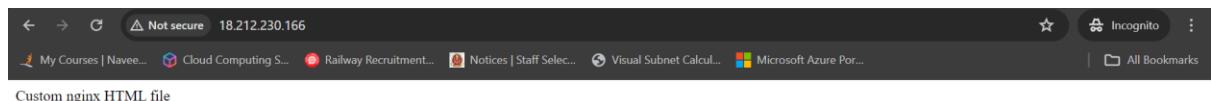
ubuntu@ip-172-31-28-75:~$
```

i-03d6dba47943f5da8 (ansible-master)

PublicIPs: 107.21.70.85 PrivateIPs: 172.31.28.75

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## Assignment – 5

### Task to be performed

1. Create a new deployment of Ansible cluster of 5 nodes
2. Label 2 nodes as test and other 2 as prod
3. Install Java on test nodes
4. Install MySQL server on prod nodes

### Steps and Commands

- Create 5 instance names them as master, test1, test2, prod1 and prod2
- Connect to all the 5 instance
- Update all the machine by running the command **sudo apt update**
- The python3 is pre-installed in Ubuntu machine to see the python3 installed in the test1, test2, prod1 and prod2 machine by running the command **python3 --version**
- Navigate to master instance
- To install Ansible by running the following command
  - d) **sudo apt install software-properties-common**
  - e) **sudo add-apt-repository --yes --update ppa:ansible/ansible**
  - f) **sudo apt install ansible -y**
- To see the ansible installed in the machine by running the command **ansible --version**
- To create a password-less SSH authentication connection between master instance and test1, test2, prod1, prod2 instance go inside the .ssh by running the command **cd .ssh/**
- Next create a key by running the command **ssh-keygen**
- To see the created file by running the command **ls**
- Copy the content of the id\_rsa.pub from master machine which is created and paste in the authorized\_keys in test1, test2, prod1 and prod2 machine
- Next copy the private IP address of both test1, test2 instance and past in the host file in the master machine also provide the name as test
- Next copy the private IP address of both prod1, prod2 instance and past in the host file in the master machine also provide the name as prod
- Go inside the /etc/ansible/roles/ path by running the command **cd /etc/ansible/roles/**
- To create the role by running the command **sudo ansible-galaxy init java**, **sudo ansible-galaxy init mysql**
- To see the created role by running the command **ls**
- Go inside the apache role by running the command **cd java/**
- And go inside tasks by running command **cd tasks/**

- Create the install.yaml file by running the command by sudo nano install.yaml
- Provide the necessary script to install java
- save and exit from the created file
- To see the created file by running the command **ls**
- To open main.yml by running the command **sudo nano main.yml**
- Provide the necessary script to include the install.yaml file which was created
- save and exit from the main.yml file
- Go inside the nginx role by running the command **cd mysql/**
- And go inside tasks by running command **cd tasks/**
- Create the install.yaml file by running the command by **sudo nano install.yaml**
- Provide the necessary script to install MYSQL
- save and exit from the created file
- To see the created file by running the command **ls**
- To open main.yml by running the command **sudo nano main.yml**
- Provide the necessary script to include the install.yaml file which was created
- save and exit from the main.yml file
- To create the playbook by running the command **sudo nano play1.yaml**
- Provide the necessary script also provide the java role to test and mysql role to prod
- save and exit from the created file
- To see the created file by running the command **ls**
- Next to do the syntax check by running the command **ansible-playbook play1.yaml --syntax --check**
- And next run the command **ansible-playbook play1.yaml --check**
- Next to execute the playbook by running the command **ansible-playbook play1.yaml**
- Navigate to test1 and test2 instance
- Now to see the java installed in the test1 and test2 machine by running the command **java -version**
- Navigate to prod1 and prod2 instance
- Now to see the MYSQL installed in the prod1 and prod2 machine by running the command **mysql -version**

```
System information as of Sun Apr 28 15:02:03 UTC 2024
System load: 0.12109375      Processes:          102
Usage of /: 20.5% of 7.57GB  Users logged in:    0
Memory usage: 22%           IPv4 address for eth0: 172.31.24.149
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
```

i-0203ee0eff9bfff7ba (test1-node)  
PublicIPs: 54.167.94.52 PrivateIPs: 172.31.24.149

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```
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-172-31-19-5:~$ sudo apt update
```

i-0de345837f3e9d215 (test2-node)  
PublicIPs: 3.88.29.58 PrivateIPs: 172.31.19.5

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```
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-172-31-28-97:~$ sudo apt update
```

i-0086eb74de69a358d (prod2-node)  
PublicIPs: 54.91.159.214 PrivateIPs: 172.31.28.97

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```
System information as of Sun Apr 28 15:03:14 UTC 2024

System load: 0.0615234375      Processes:          101
Usage of /: 20.5% of 7.57GB   Users logged in:     0
Memory usage: 20%              IPv4 address for eth0: 172.31.31.112
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
```

i-0e20fb7d927df6d20 (prod1-node)  
PublicIPs: 52.91.43.173 PrivateIPs: 172.31.31.112

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```
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-172-31-28-75:~$ sudo apt update
```

i-03d6dba47943f5da8 (ansible-master)  
PublicIPs: 107.21.70.85 PrivateIPs: 172.31.28.75

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```
ubuntu@ip-172-31-28-75:~$ sudo apt install software-properties-common
```

i-03d6dba47943f5da8 (ansible-master)  
PublicIPs: 107.21.70.85 PrivateIPs: 172.31.28.75

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```
ubuntu@ip-172-31-28-75:~$ sudo apt install software-properties-common
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
software-properties-common is already the newest version (0.99.22.9).
software-properties-common set to manually installed.
0 upgraded, 0 newly installed, 0 to remove and 20 not upgraded.
ubuntu@ip-172-31-28-75:~$ sudo add-apt-repository --yes --update ppa:ansible/ansible
```

i-03d6dba47943f5da8 (ansible-master)  
Public IPs: 107.21.70.85 Private IPs: 172.31.28.75

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```
If you face any issues while installing Ansible PPA, file an issue here:
https://github.com/ansible-community/ppa/issues
More info: https://launchpad.net/~ansible/+archive/ubuntu/ansible
Adding repository.
Adding deb entry to /etc/apt/sources.list.d/ansible-ubuntu-ansible-jammy.list
Adding disabled deb-src entry to /etc/apt/sources.list.d/ansible-ubuntu-ansible-jammy.list
Adding key to /etc/apt/trusted.gpg.d/ansible-ubuntu-ansible.gpg with fingerprint 6125E2A8C77F2818FB7BD15B93C4A3FD7BB9C367
Hit:1 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy InRelease
Get:2 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy-updates InRelease [119 kB]
Hit:3 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy-backports InRelease
Hit:4 http://security.ubuntu.com/ubuntu jammy-security InRelease
Get:5 https://ppa.launchpadcontent.net/ansible/ansible/ubuntu jammy InRelease [18.0 kB]
Get:6 https://ppa.launchpadcontent.net/ansible/ansible/ubuntu jammy/main amd64 Packages [1120 B]
Get:7 https://ppa.launchpadcontent.net/ansible/ansible/ubuntu jammy/main Translation-en [752 B]
Fetched 139 kB in 1s (135 kB/s)
Reading package lists... Done
ubuntu@ip-172-31-28-75:~$ sudo apt install ansible -y
```

i-03d6dba47943f5da8 (ansible-master)  
Public IPs: 107.21.70.85 Private IPs: 172.31.28.75

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```
ubuntu@ip-172-31-28-75:~$ ansible --version
ansible [core 2.16.5]
  config file = /etc/ansible/ansible.cfg
  configured module search path = ['/home/ubuntu/.ansible/plugins/modules', '/usr/share/ansible/plugins/modules']
  ansible python module location = /usr/lib/python3/dist-packages/ansible
  ansible collection location = /home/ubuntu/.ansible/collections:/usr/share/ansible/collections
  executable location = /usr/bin/ansible
  python version = 3.10.12 (main, Nov 20 2023, 15:14:05) [GCC 11.4.0] (/usr/bin/python3)
  jinja version = 3.0.3
  libyaml = True
ubuntu@ip-172-31-28-75:~$
```

i-03d6dba47943f5da8 (ansible-master)  
Public IPs: 107.21.70.85 Private IPs: 172.31.28.75

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```
ubuntu@ip-172-31-28-75:~$ cd .ssh/
ubuntu@ip-172-31-28-75:~/ssh$ ls
authorized_keys
ubuntu@ip-172-31-28-75:~/ssh$ 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:vyC5R0xPBkMvrV9cht16hyv0Hpo7T/py8vCweWId7Y ubuntu@ip-172-31-28-75
The key's randomart image is:
+---[RSA 3072]---+
| |
| |
| . o o . |
| + o.. = .|
```

i-03d6dba47943f5da8 (ansible-master)

PublicIPs: 107.21.70.85 PrivateIPs: 172.31.28.75

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```
ubuntu@ip-172-31-28-75:~/ssh$ ls
authorized_keys id_rsa id_rsa.pub
ubuntu@ip-172-31-28-75:~/ssh$ cat id_rsa.pub
ssh-rsa AAAAB3NzaC1yc2EAAQABAAQgQC0Jxk/ngBXRGzEqjHXFn8F9SLJS8v7N3LPh1/6kMw8ocahNFGBec1JmV1vDcVY/NVPj1vbNwJxmBwz1hg5KmwMW7pPRSo9cws15c6VYnTsASjCENE8exa/ckIKjW+LGlc81Ovrzd3E55gKJCfjTBdi6KIwe/82jiTQSHVzQzyI4pAMygWX10Rip5MFP+NkqSYpTwdUQUt63haJkYWTU2zEv2DyLzx3l_jKHVLyKpOrnroc7uaH6Euauiq5hx9t1gbcxv8grQta6v7gbFB9jh8nZmK1cvMKBmqySQMFndA3Ygoiu8Bk183mEV/Q1rJqG26XX011CYezMz7HfHC57hm43WUPNfyw8w6mrF+9ZY/R7NLqqOtzv5hatU2MjBP6zWROhN9P87VRCvECnKzGgA6pnccsVs+d2mmXV5PcKKWvKZGGqQIDKkiavrAKtjCZFEpWmnXH10hfYCAniY170+Bt6XCy528Vq81fhcE2TEC92H3K4Ne6rvHBwl1chS Rc= ubuntu@ip-172-31-28-75
ubuntu@ip-172-31-28-75:~/ssh$
```

i-03d6dba47943f5da8 (ansible-master)

PublicIPs: 107.21.70.85 PrivateIPs: 172.31.28.75

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```
ubuntu@ip-172-31-24-149:~$ cd .ssh
ubuntu@ip-172-31-24-149:~/ssh$ ls
authorized_keys
ubuntu@ip-172-31-24-149:~/ssh$ sudo nano authorized_keys
ubuntu@ip-172-31-24-149:~/ssh$
```

i-0203ee0eff9bff7ba (test1-node)

PublicIPs: 54.167.94.52 PrivateIPs: 172.31.24.149

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```
GNU nano 6.2                                         authorized keys *
ssh-rsa AAAAB3NzaC1yc2EAAAQABAAQCXcw6ExHvoSKc5pjFTrEWGPc4GF5gXgyJrZbIFiVXDwm7o5aUJSVnbI9Yvg1GazilC2r59yFv53p6fEemFDPOJy8o/131L2QRUCv>
>E2TEC92H3K4Ne6rvHBwllchRsRc= ubuntu@ip-172-31-28-75
```

^G Help ^C Write Out ^W Where Is ^K Cut ^T Execute ^C Location M-U Undo M-A Set Mark  
^X Exit ^R Read File ^V Replace ^U Paste ^J Justify ^L Go To Line M-B Redo M-C Copy

i-0203ee0eff9bff7ba (test1-node)

Public IPs: 54.167.94.52 Private IPs: 172.31.24.149

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```
ubuntu@ip-172-31-19-5:~$ cd .ssh
ubuntu@ip-172-31-19-5:~/ssh$ ls
authorized_keys
ubuntu@ip-172-31-19-5:~/ssh$ sudo nano authorized_keys
```

i-0de345837f3e9d215 (test2-node)

Public IPs: 3.88.29.58 Private IPs: 172.31.19.5

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```
GNU nano 6.2                                         authorized keys *
ssh-rsa AAAAB3NzaC1yc2EAAAQABAAQCXcw6ExHvoSKc5pjFTrEWGPc4GF5gXgyJrZbIFiVXDwm7o5aUJSVnbI9Yvg1GazilC2r59yFv53p6fEemFDPOJy8o/131L2QRUCv>
>E2TEC92H3K4Ne6rvHBwllchRsRc= ubuntu@ip-172-31-28-75
```

^G Help ^C Write Out ^W Where Is ^K Cut ^T Execute ^C Location M-U Undo M-A Set Mark  
^X Exit ^R Read File ^V Replace ^U Paste ^J Justify ^L Go To Line M-B Redo M-C Copy

i-0de345837f3e9d215 (test2-node)

Public IPs: 3.88.29.58 Private IPs: 172.31.19.5

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```
ubuntu@ip-172-31-28-97:~$ cd .ssh
ubuntu@ip-172-31-28-97:~/ssh$ ls
authorized_keys
ubuntu@ip-172-31-28-97:~/ssh$
```

i-0086eb74de69a358d (prod2-node)  
Public IPs: 54.91.159.214 Private IPs: 172.31.28.97

```
GNU nano 6.2                                         authorized_keys *
ssh-rsa AAAAB3NzaC1yc2EAAAQABAAQCXcw6ExHvoSKc5pjFTrEWGPc4GF5gXgyJrZbIFiVXDwm7o5aUJSVnbI9Yvg1GazilC2r59yFv53p6fEemFDPOJy8o/131L2QRUCvk66zn
4Rc= ubuntu@ip-172-31-28-75
```

i-0086eb74de69a358d (prod2-node)  
Public IPs: 54.91.159.214 Private IPs: 172.31.28.97

```
ubuntu@ip-172-31-112:~$ cd .ssh
ubuntu@ip-172-31-112:~/ssh$ ls
authorized_keys
ubuntu@ip-172-31-112:~/ssh$ sudo nano authorized_keys
```

i-0e20fb7d927df6d20 (prod1-node)  
Public IPs: 52.91.43.173 Private IPs: 172.31.31.112

```
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```

```
GNU nano 6.2                                         authorized keys *
ssh-rsa AAAAB3NzaC1yc2EAAAQABAAQGQXcw6ExHvoSKc5pjFTxEWGPc4GF5gXgyJrZbIFiVXDwm7o5aUJSVnbI9Yvg1GazilC2r59yFv53p6fEemFDPOJy8o/13112QRUCvkd
3K4Ne6rvHBw1lchSRe= ubuntu@ip-172-31-28-75
```

^G Help ^O Write Out ^W Where Is ^R Cut ^T Execute ^C Location M-U Undo M-A Set Mark M-[ To Bracket  
^X Exit ^R Read File ^V Replace ^U Paste ^J Justify ^/ Go To Line M-E Redo M-6 Copy ^Q Where Was

i-0e20fb7d927df6d20 (prod1-node)

Public IPs: 52.91.43.173 Private IPs: 172.31.31.112

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```
ubuntu@ip-172-31-28-75:~$ sudo nano /etc/ansible/hosts
```

i-03d6dba47943f5da8 (ansible-master)

Public IPs: 107.21.70.85 Private IPs: 172.31.28.75

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```
GNU nano 6.2                                         /etc/ansible/hosts *
```

```
[test]
172.31.24.149
172.31.19.5
[prod]
172.31.31.112
172.31.28.97
```

```
# This is the default ansible 'hosts' file.
#
# It should live in /etc/ansible/hosts
#
# - Comments begin with the '#' character
```

^G Help ^O Write Out ^W Where Is ^R Cut ^T Execute ^C Location M-U Undo M-A Set Mark M-[ To Bracket  
^X Exit ^R Read File ^V Replace ^U Paste ^J Justify ^/ Go To Line M-E Redo M-6 Copy ^Q Where Was

i-03d6dba47943f5da8 (ansible-master)

Public IPs: 107.21.70.85 Private IPs: 172.31.28.75

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```
ubuntu@ip-172-31-28-75:~$ sudo nano /etc/ansible/hosts
ubuntu@ip-172-31-28-75:~$ ansible -m ping all
```

i-03d6dba47943f5da8 (ansible-master)  
PublicIPs: 107.21.70.85 PrivateIPs: 172.31.28.75

```
Are you sure you want to continue connecting (yes/no/[fingerprint])? yes
172.31.24.149 | SUCCESS => {
    "ansible_facts": {
        "discovered_interpreter_python": "/usr/bin/python3"
    },
    "changed": false,
    "ping": "pong"
}
yes
172.31.19.5 | SUCCESS => {
    "ansible_facts": {
        "discovered_interpreter_python": "/usr/bin/python3"
    },
    "changed": false,
    "ping": "pong"
}
yes
172.31.31.112 | SUCCESS => {
```

i-03d6dba47943f5da8 (ansible-master)  
PublicIPs: 107.21.70.85 PrivateIPs: 172.31.28.75

```
)  
yes
172.31.31.112 | SUCCESS => {
    "ansible_facts": {
        "discovered_interpreter_python": "/usr/bin/python3"
    },
    "changed": false,
    "ping": "pong"
}
yes
172.31.28.97 | SUCCESS => {
    "ansible_facts": {
        "discovered_interpreter_python": "/usr/bin/python3"
    },
    "changed": false,
    "ping": "pong"
}
ubuntu@ip-172-31-28-75:~$
```

i-03d6dba47943f5da8 (ansible-master)  
PublicIPs: 107.21.70.85 PrivateIPs: 172.31.28.75

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```
ubuntu@ip-172-31-28-75:/etc/ansible/roles$ ls
apache java mysql nginx
ubuntu@ip-172-31-28-75:/etc/ansible/roles$ cd java/
ubuntu@ip-172-31-28-75:/etc/ansible/roles/java$ ls
README.md defaults files handlers meta tasks templates tests vars
ubuntu@ip-172-31-28-75:/etc/ansible/roles/java$ cd tasks
ubuntu@ip-172-31-28-75:/etc/ansible/roles/java/tasks$ ls
main.yml
ubuntu@ip-172-31-28-75:/etc/ansible/roles/java/tasks$ sudo nano install.yaml
```

i-03d6dba47943f5da8 (ansible-master)  
Public IPs: 107.21.70.85 Private IPs: 172.31.28.75

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```
GNU nano 6.2                               install.yaml *
```

```
---
- name: install java
  apt: name=openjdk-11-jdk state=latest
```

^G Help ^O Write Out ^W Where Is ^K Cut ^T Execute ^C Location M-U Undo M-A Set Mark M-[ To Bracket
^X Exit ^R Read File ^V Replace ^U Paste ^J Justify ^L Go To Line M-E Redo M-C Copy ^D Where Was

i-03d6dba47943f5da8 (ansible-master)  
Public IPs: 107.21.70.85 Private IPs: 172.31.28.75

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```
GNU nano 6.2                               main.yaml *
```

```
# tasks file for java
- include: install.yaml
```

^G Help ^O Write Out ^W Where Is ^K Cut ^T Execute ^C Location M-U Undo M-A Set Mark M-[ To Bracket
^X Exit ^R Read File ^V Replace ^U Paste ^J Justify ^L Go To Line M-E Redo M-C Copy ^D Where Was

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```
ubuntu@ip-172-31-28-75:/etc/ansible/roles/java$ cd ..
ubuntu@ip-172-31-28-75:/etc/ansible/roles$ ls
apache java mysql nginx
ubuntu@ip-172-31-28-75:/etc/ansible/roles$ cd mysql
ubuntu@ip-172-31-28-75:/etc/ansible/roles/mysql$ ls
README.md defaults files handlers meta tasks templates tests vars
ubuntu@ip-172-31-28-75:/etc/ansible/roles/mysql$ cd tasks
ubuntu@ip-172-31-28-75:/etc/ansible/roles/mysql/tasks$ ls
main.yml
ubuntu@ip-172-31-28-75:/etc/ansible/roles/mysql/tasks$ sudo nano install.yaml
```

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```
GNU nano 6.2                               install.yaml *
```

```
---
- name: installingmysql
  apt: name=mysql-server state=latest
```

Help Write Out Where Is Cut Execute Location Undo Set Mark To Bracket  
Exit Read File Replace Paste Justify Go To Line Redo Copy Where Was

i-03d6dba47943f5da8 (ansible-master)  
Public IPs: 107.21.70.85 Private IPs: 172.31.28.75

```
ubuntu@ip-172-31-28-75:/etc/ansible/roles/java$ cd ..
ubuntu@ip-172-31-28-75:/etc/ansible/roles$ ls
apache java mysql nginx
ubuntu@ip-172-31-28-75:/etc/ansible/roles$ cd mysql
ubuntu@ip-172-31-28-75:/etc/ansible/roles/mysql$ ls
README.md defaults files handlers meta tasks templates tests vars
ubuntu@ip-172-31-28-75:/etc/ansible/roles/mysql$ cd tasks
ubuntu@ip-172-31-28-75:/etc/ansible/roles/mysql/tasks$ ls
main.yml
ubuntu@ip-172-31-28-75:/etc/ansible/roles/mysql/tasks$ sudo nano install.yaml
ubuntu@ip-172-31-28-75:/etc/ansible/roles/mysql/tasks$ sudo nano main.yaml
```

i-03d6dba47943f5da8 (ansible-master)  
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```
GNU nano 6.2                                     main.yml *
```

```
---  
# tasks file for mysql  
- include_tasks: install.yaml
```

i-03d6dba47943f5da8 (ansible-master) X

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```
ubuntu@ip-172-31-28-75:~$ sudo nano play5.yaml
```

i-03d6dba47943f5da8 (ansible-master) X

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```
GNU nano 6.2                                     play5.yaml *
```

```
---  
- name: running java role for the test group  
  hosts: test  
  become: true  
  roles:  
  - java  
- name: running mysql role for the prod group  
  hosts: prod  
  become: true  
  roles:  
  - mysql
```

i-03d6dba47943f5da8 (ansible-master) X

Public IPs: 107.21.70.85 Private IPs: 172.31.28.75

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```
ubuntu@ip-172-31-28-75:~$ ansible-playbook play5.yaml --syntax-check
playbook: play5.yaml
ubuntu@ip-172-31-28-75:~$ ansible-playbook play5.yaml --check
```

i-03d6dba47943f5da8 (ansible-master)  
PublicIPs: 107.21.70.85 PrivateIPs: 172.31.28.75

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```
TASK [Gathering Facts] *****
ok: [172.31.31.112]
ok: [172.31.28.97]

TASK [mysql : include_tasks] *****
included: /etc/ansible/roles/mysql/tasks/install.yaml for 172.31.31.112, 172.31.28.97

TASK [mysql : installingmysql] *****
changed: [172.31.31.112]
changed: [172.31.28.97]

PLAY RECAP *****
172.31.19.5      : ok=3    changed=1    unreachable=0    failed=0    skipped=0    rescued=0    ignored=0
172.31.24.149   : ok=3    changed=1    unreachable=0    failed=0    skipped=0    rescued=0    ignored=0
172.31.28.97    : ok=3    changed=1    unreachable=0    failed=0    skipped=0    rescued=0    ignored=0
172.31.31.112   : ok=3    changed=1    unreachable=0    failed=0    skipped=0    rescued=0    ignored=0
```

i-03d6dba47943f5da8 (ansible-master)  
PublicIPs: 107.21.70.85 PrivateIPs: 172.31.28.75

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```
TASK [Gathering Facts] *****
ok: [172.31.28.97]
ok: [172.31.31.112]

TASK [mysql : include_tasks] *****
included: /etc/ansible/roles/mysql/tasks/install.yaml for 172.31.31.112, 172.31.28.97

TASK [mysql : installingmysql] *****
changed: [172.31.31.112]
changed: [172.31.28.97]

PLAY RECAP *****
172.31.19.5      : ok=3    changed=1    unreachable=0    failed=0    skipped=0    rescued=0    ignored=0
172.31.24.149   : ok=3    changed=1    unreachable=0    failed=0    skipped=0    rescued=0    ignored=0
172.31.28.97    : ok=3    changed=1    unreachable=0    failed=0    skipped=0    rescued=0    ignored=0
172.31.31.112   : ok=3    changed=1    unreachable=0    failed=0    skipped=0    rescued=0    ignored=0
```

i-03d6dba47943f5da8 (ansible-master)  
PublicIPs: 107.21.70.85 PrivateIPs: 172.31.28.75

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```
ubuntu@ip-172-31-24-149:~$ java --version
openjdk 11.0.22 2024-01-16
OpenJDK Runtime Environment (build 11.0.22+7-post-Ubuntu-0ubuntu22.04.1)
OpenJDK 64-Bit Server VM (build 11.0.22+7-post-Ubuntu-0ubuntu22.04.1, mixed mode, sharing)
ubuntu@ip-172-31-24-149:~$
```

i-0203ee0eff9bff7ba (test1-node)  
Public IPs: 54.167.94.52 Private IPs: 172.31.24.149

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```
ubuntu@ip-172-31-19-5:~$ java --version
openjdk 11.0.22 2024-01-16
OpenJDK Runtime Environment (build 11.0.22+7-post-Ubuntu-0ubuntu22.04.1)
OpenJDK 64-Bit Server VM (build 11.0.22+7-post-Ubuntu-0ubuntu22.04.1, mixed mode, sharing)
ubuntu@ip-172-31-19-5:~$
```

i-0de345837f3e9d215 (test2-node)  
Public IPs: 3.88.29.58 Private IPs: 172.31.19.5

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```
ubuntu@ip-172-31-31-112:~$ mysql --version
mysql Ver 8.0.36-0ubuntu0.22.04.1 for Linux on x86_64 ((Ubuntu))
ubuntu@ip-172-31-31-112:~$
```

i-0e20fb7d927df6d20 (prod1-node)  
Public IPs: 52.91.43.173 Private IPs: 172.31.31.112

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```
ubuntu@ip-172-31-28-97:~$ mysql --version
mysql Ver 8.0.36-0ubuntu0.22.04.1 for Linux on x86_64 ((Ubuntu))
ubuntu@ip-172-31-28-97:~$
```

i-0086eb74de69a358d (prod2-node)

Public IPs: 54.91.159.214 Private IPs: 172.31.28.97

X

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