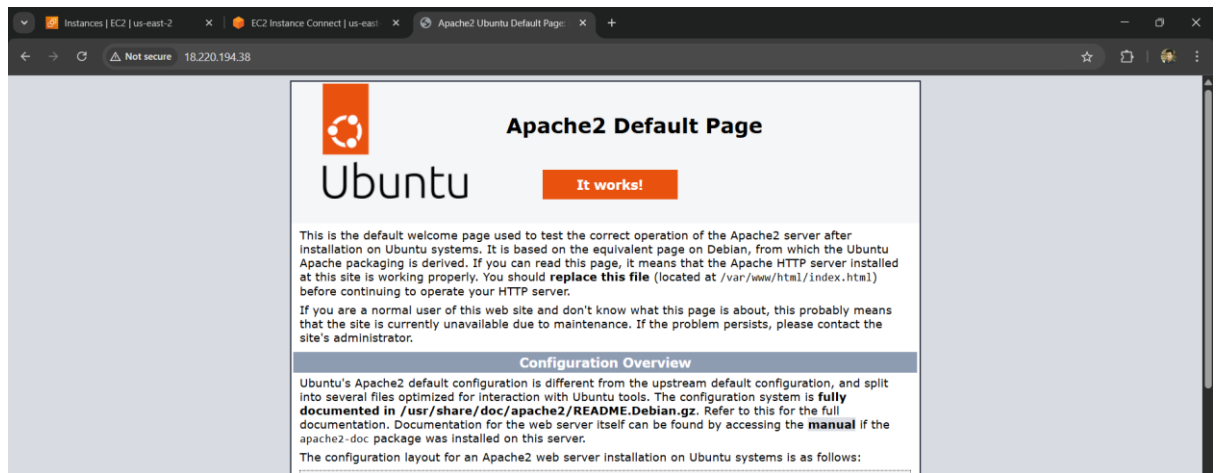


# ANSIBLE 03

- 1) Write a single ansible playbook which will install and start apache and nginx run both on different port numbers.

Note: Playbook should not be hardcoded and pass the variables from different file.

```
ubuntu@ip-172-31-15-53: ~  
--  
- name: Install Apache and Nginx  
  hosts: all  
  become: yes  
  vars_files:  
    - vars/main.yml  
  
  tasks:  
    - name: Install Apache  
      package:  
        name: "{{ apache_pkg }}"  
        state: present  
  
    - name: Install Nginx  
      package:  
        name: "{{ nginx_pkg }}"  
        state: present  
  
.....  
ubuntu@ip-172-31-15-53:~$ mkdir -p vars  
ubuntu@ip-172-31-15-53:~$ ls -ld vars/ vars/main.yml  
ls: cannot access 'vars/main.yml': No such file or directory  
drwxrwxr-x 2 ubuntu ubuntu 4096 Mar 27 14:13 vars/  
ubuntu@ip-172-31-15-53:~$ sudo vi vars/main.yml  
ubuntu@ip-172-31-15-53:~$ sudo vi web.yml  
ubuntu@ip-172-31-15-53:~$ ansible-playbook web.yml  
[WARNING]: Invalid characters were found in group names but not replaced, use -vvvv to see details  
  
PLAY [Install Apache and Nginx] *****  
  
TASK [Gathering Facts] *****  
[WARNING]: Platform linux on host 172.31.10.100 is using the discovered Python interpreter at /usr/bin/python3.12, but future installation of another version could change the meaning of that path. See https://docs.ansible.com/ansible-core/2.17/reference_appendices/interpreter_discovery.html for more information.  
ok: [172.31.10.100]  
[WARNING]: Platform linux on host 172.31.12.185 is using the discovered Python interpreter at /usr/bin/python3.12, but future installation of another version could change the meaning of that path. See https://docs.ansible.com/ansible-core/2.17/reference_appendices/interpreter_discovery.html for more information.  
ok: [172.31.12.185]  
  
TASK [Install Apache] *****  
ok: [172.31.10.100]  
ok: [172.31.12.185]  
  
TASK [Install Nginx] *****  
ok: [172.31.12.185]  
ok: [172.31.10.100]  
  
PLAY RECAP *****  
172.31.10.100 : ok=3  changed=0    unreachable=0    failed=0    skipped=0    rescued=0    ignored=0  
172.31.12.185 : ok=3  changed=0    unreachable=0    failed=0    skipped=0    rescued=0    ignored=0  
  
ubuntu@ip-172-31-15-53:~$ |
```



## 2) Ansible playbook to create 10 different directories with minimal code and directory names should be passed as variables.

```
---
- name: Create multiple directories using variables
  hosts: all
  become: yes
  vars:
    dir: ['dir1', 'dir2', 'dir3', 'dir4', 'dir5', 'dir6', 'dir7', 'dir8', 'dir9', 'dir10']
  tasks:
    - name: Create directories
      file:
        path: "/home/ubuntu/{{ item }}"
        state: directory
      loop: "{{ dir }}"
```

~

```
ubuntu@ip-172-31-15-53: ~
---
- name: Create multiple directories using variables
  hosts: all
  become: yes
  vars:
    dir: ['dir1', 'dir2', 'dir3', 'dir4', 'dir5', 'dir6', 'dir7', 'dir8', 'dir9', 'dir10']
  tasks:
    - name: Create directories
      file:
        path: "/home/ubuntu/{{ item }}"
        state: directory
      loop: "{{ dir }}"
```

```
ubuntu@ip-172-31-15-53:~$ ansible-playbook dir.yml
[WARNING]: Invalid characters were found in group names but not replaced, use -vvvv to see details

PLAY [Create multiple directories] *****

TASK [Gathering Facts] *****
[WARNING]: Platform linux on host 172.31.10.100 is using the discovered Python interpreter at /usr/bin/python3.12, but future installation of another Python interpreter could change the meaning of that path. See https://docs.ansible.com/ansible-core/2.17/reference_appendices/interpreter_discovery.html for more information.
ok: [172.31.10.100]
[WARNING]: Platform linux on host 172.31.12.185 is using the discovered Python interpreter at /usr/bin/python3.12, but future installation of another Python interpreter could change the meaning of that path. See https://docs.ansible.com/ansible-core/2.17/reference_appendices/interpreter_discovery.html for more information.
ok: [172.31.12.185]

TASK [Create directories] *****
changed: [172.31.10.100] => (item=/home/ubuntu/dir1)
changed: [172.31.12.185] => (item=/home/ubuntu/dir1)
changed: [172.31.12.185] => (item=/home/ubuntu/dir2)
changed: [172.31.10.100] => (item=/home/ubuntu/dir2)
changed: [172.31.12.185] => (item=/home/ubuntu/dir3)
changed: [172.31.10.100] => (item=/home/ubuntu/dir3)
changed: [172.31.12.185] => (item=/home/ubuntu/dir4)
changed: [172.31.10.100] => (item=/home/ubuntu/dir4)
changed: [172.31.10.100] => (item=/home/ubuntu/dir5)
changed: [172.31.12.185] => (item=/home/ubuntu/dir5)
changed: [172.31.10.100] => (item=/home/ubuntu/dir6)
changed: [172.31.12.185] => (item=/home/ubuntu/dir6)
changed: [172.31.10.100] => (item=/home/ubuntu/dir7)
changed: [172.31.12.185] => (item=/home/ubuntu/dir7)
changed: [172.31.10.100] => (item=/home/ubuntu/dir8)
changed: [172.31.12.185] => (item=/home/ubuntu/dir8)
changed: [172.31.12.185] => (item=/home/ubuntu/dir9)
changed: [172.31.10.100] => (item=/home/ubuntu/dir9)
changed: [172.31.12.185] => (item=/home/ubuntu/dir10)
changed: [172.31.10.100] => (item=/home/ubuntu/dir10)

PLAY RECAP *****
172.31.10.100      : ok=2    changed=1    unreachable=0    failed=0    skipped=0    rescued=0    ignored=0
172.31.12.185      : ok=2    changed=1    unreachable=0    failed=0    skipped=0    rescued=0    ignored=0

ubuntu@ip-172-31-15-53:~$ |
ubuntu@ip-172-31-10-100:~$ ls
dir1 dir10 dir2 dir3 dir4 dir5 dir6 dir7 dir8 dir9
ubuntu@ip-172-31-10-100:~$ |
```

i-022472d5529aa2092 (Ansible-worker-02)

PublicIPs: 18.188.242.231 PrivateIPs: 172.31.10.100

```
ubuntu@ip-172-31-12-185:~$ pwd
/home/ubuntu
ubuntu@ip-172-31-12-185:~$ ls
dir1 dir10 dir2 dir3 dir4 dir5 dir6 dir7 dir8 dir9
ubuntu@ip-172-31-12-185:~$ |
```

i-0a499abc5b4d7bc4f (Ansible-worker-01)

PublicIPs: 18.220.194.38 PrivateIPs: 172.31.12.185

### 3) Ansible playbook to copy ssh-keygen from master to worker nodes.

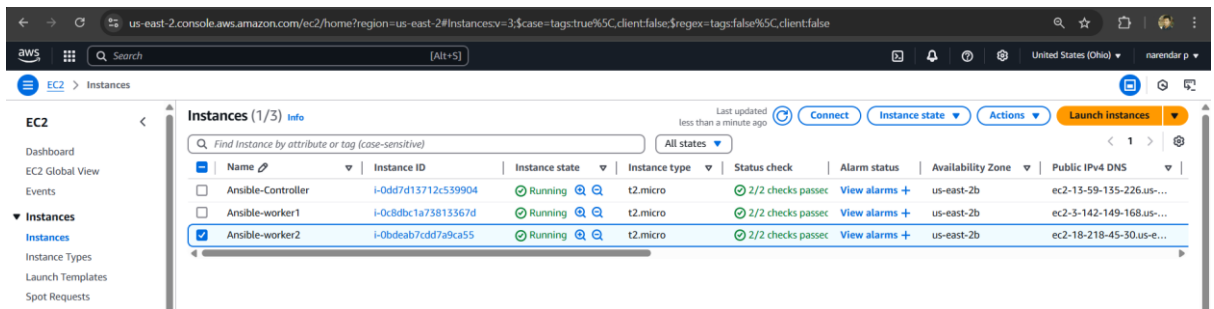
Note:

a)Provision new 3 ec2 machines, one master and two worker nodes.

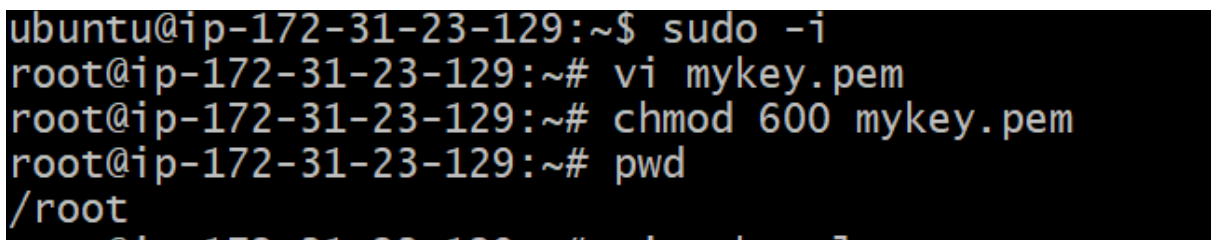
b)Create common user called ansadm and provide sudo privileges on 3 ec2 instances.

c)Create ssh-keygen in master and your playbook should copy the keygen making it password less authentication.

### a) Provision new 3 ec2 machines, one master and two worker nodes:

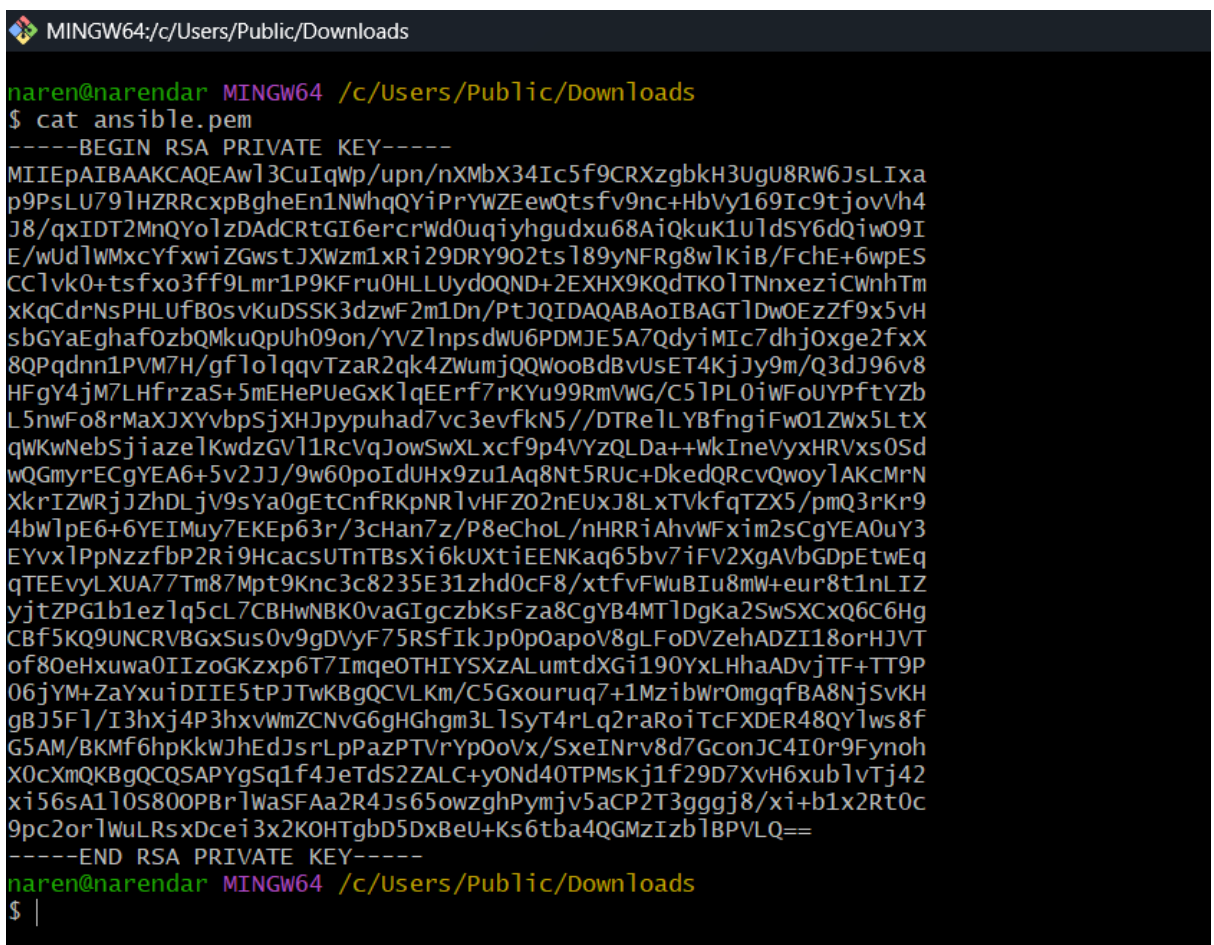


### b) Create common user called ansadm and provide sudo privileges on 3 ec2 instances:



### c) Create ssh-keygen in master and your playbook should copy the keygen making it password less authentication:

→ Cat ssh from pem key:



→ Paste the key in mykey.pem file

```
ubuntu@ip-172-31-23-129:~$ sudo -i
root@ip-172-31-23-129:~# vi mykey.pem
root@ip-172-31-23-129:~# chmod 600 mykey.pem
root@ip-172-31-23-129:~# pwd
/root
```

→ write playbook:

```
root@ip-172-31-23-129: ~
---
- name: Setup SSH Key Authentication on Workers
  hosts: workers
  become: yes
  tasks:
    - name: Install passlib on workers (needed for password hashing)
      ansible.builtin.apt:
        name: python3-passlib
        state: present
    - name: Create ansadm user on workers
      ansible.builtin.user:
        name: ansadm
        shell: /bin/bash
        create_home: yes
        password: "{{ 'password' | password_hash('sha512') }}"
    - name: Grant sudo privileges to ansadm
      ansible.builtin.copy:
        dest: /etc/sudoers.d/ansadm
        content: "ansadm ALL=(ALL) NOPASSWD: ALL"
        mode: '0440'
- name: Setup ansadm User and SSH Key on Master
  hosts: localhost
  become: yes
  tasks:
    - name: Ensure ansadm user exists on master
      ansible.builtin.user:
        name: ansadm
        shell: /bin/bash
        create_home: yes
    - name: Ensure .ssh directory exists for ansadm
      ansible.builtin.file:
        path: /home/ansadm/.ssh
        state: directory
        owner: ansadm
        group: ansadm
        mode: '0700'
```

```

- name: Check if SSH Key already exists
  ansible.builtin.stat:
    path: /home/ansadm/.ssh/id_rsa
    register: ssh_key
- name: Generate SSH Key (if not exists)
  ansible.builtin.command:
    cmd: ssh-keygen -t rsa -b 4096 -N "" -f /home/ansadm/.ssh/id_rsa
    become_user: ansadm
    when: not ssh_key.stat.exists
- name: Copy SSH Key to Workers
  hosts: workers
  become: yes
  tasks:
    - name: Ensure .ssh directory exists on workers
      ansible.builtin.file:
        path: /home/ansadm/.ssh
        state: directory
        owner: ansadm
        group: ansadm
        mode: '0700'
    - name: Fetch SSH Public Key from Master
      ansible.builtin.fetch:
        src: /home/ansadm/.ssh/id_rsa.pub
        dest: /tmp/id_rsa.pub
        flat: yes
        delegate_to: localhost
    - name: Copy SSH Public Key to Workers
      ansible.builtin.copy:
        src: /tmp/id_rsa.pub
        dest: /home/ansadm/.ssh/authorized_keys
        owner: ansadm
        group: ansadm
        mode: '0600'

```

## →run playbook

```

root@ip-172-31-23-129: ~
root@ip-172-31-23-129:~# ansible-playbook ssh.yml

PLAY [Setup SSH Key Authentication on Workers] *****

TASK [Gathering Facts] *****
[WARNING]: Platform linux on host worker1 is using the discovered Python interpreter at /usr/bin/python3.12, but future installation of another Python interpreter could change the meaning of that path. See https://docs.ansible.com/ansible-core/2.17/reference_appendices/interpreter_discovery.html for more information.
ok: [worker1]
[WARNING]: Platform linux on host worker2 is using the discovered Python interpreter at /usr/bin/python3.12, but future installation of another Python interpreter could change the meaning of that path. See https://docs.ansible.com/ansible-core/2.17/reference_appendices/interpreter_discovery.html for more information.
ok: [worker2]

TASK [Install passlib on workers (needed for password hashing)] *****
ok: [worker2]
ok: [worker1]

TASK [Create ansadm user on workers] *****
changed: [worker2]
changed: [worker1]

TASK [Grant sudo privileges to ansadm] *****
changed: [worker1]
changed: [worker2]

PLAY [Setup ansadm User and SSH Key on Master] *****

TASK [Gathering Facts] *****
ok: [localhost]

TASK [Ensure ansadm user exists on master] *****
changed: [localhost]

TASK [Ensure .ssh directory exists for ansadm] *****
changed: [localhost]

```



```

TASK [Check if SSH Key already exists] *****
ok: [localhost]

TASK [Generate SSH key (if not exists)] *****
[WARNING]: Module remote_tmp /home/ansadm/.ansible/tmp did not exist and was created with a mode of 0700, this may cause issues when running as
another user. To avoid this, create the remote_tmp dir with the correct permissions manually
changed: [localhost]

PLAY [Copy SSH Key to Workers] *****

TASK [Gathering Facts] *****
ok: [worker1]
ok: [worker2]

TASK [Ensure .ssh directory exists on workers] *****
changed: [worker1]
changed: [worker2]

TASK [Fetch SSH Public Key from Master] *****
changed: [worker2 -> localhost]
ok: [worker1 -> localhost]

TASK [Copy SSH Public Key to workers] *****
changed: [worker1]
changed: [worker2]

PLAY RECAP *****
localhost                : ok=5    changed=3    unreachable=0    failed=0    skipped=0    rescued=0    ignored=0
worker1                   : ok=8    changed=4    unreachable=0    failed=0    skipped=0    rescued=0    ignored=0
worker2                   : ok=8    changed=5    unreachable=0    failed=0    skipped=0    rescued=0    ignored=0

```

## → Checked connection in worker nodes

```

root@ip-172-31-23-129:~# ansible workers -m ping
[WARNING]: Platform linux on host worker1 is using the discovered Python interpreter at /usr/bin/python3.12, but future installation of another
Python interpreter could change the meaning of that path. See https://docs.ansible.com/ansible-
core/2.17/reference_appendices/interpreter_discovery.html for more information.
worker1 | SUCCESS => {
  "ansible_facts": {
    "discovered_interpreter_python": "/usr/bin/python3.12"
  },
  "changed": false,
  "ping": "pong"
}
[WARNING]: Platform linux on host worker2 is using the discovered Python interpreter at /usr/bin/python3.12, but future installation of another
Python interpreter could change the meaning of that path. See https://docs.ansible.com/ansible-
core/2.17/reference_appendices/interpreter_discovery.html for more information.
worker2 | SUCCESS => {
  "ansible_facts": {
    "discovered_interpreter_python": "/usr/bin/python3.12"
  },
  "changed": false,
  "ping": "pong"
}

root@ip-172-31-23-129:~# cd .ssh
root@ip-172-31-23-129:~/.ssh# ls
authorized_keys  known_hosts  known_hosts.old
root@ip-172-31-23-129:~/.ssh# cat authorized_keys
no-port-forwarding,no-agent-forwarding,no-X11-forwarding,command="echo 'Please login as the user \"ubuntu\" rather than the user \"root\".';echo;
sleep 10;exit 142" ssh-rsa AAAAB3NzaC1yc2EAAAADAQABAAQDCXcK4ipan+6mf+dcxtffghz1/0JF0BuqfdsBtxFbomwsjFqn0+wtv2Ud1FFzGkGCF4SfulaGpBI+thZkR7BC
2x+/2dz4dtXLXr0hz220i9Wngnz+rEgNPYydbIiXMMB0JG0Yjp6tytZ3S6QLKGC53G7rwcJCS4rVSV1Jjp1CLA70gt/BR2VYzFzh/HCKbCy01dbobXFLb0NFj07a2yxz3i0VGdzCuqIH8vy
ET7rckRIIKW+TT62x/Gjd9/0uavU/0owu7QcstTJ05A0P7YRcdF0pB1Mo6VM2Ff70IJaeF0bEgoJ2s2w8ctR8E6y8q4NJrD3PAXabU0f8+01 ansible
root@ip-172-31-23-129:~/.ssh# cd
root@ip-172-31-23-129:~# vi ssh.yml
root@ip-172-31-23-129:~#

root@ip-172-31-28-137:~# cd .ssh
root@ip-172-31-28-137:~/.ssh# ls
authorized_keys
root@ip-172-31-28-137:~/.ssh# cat authorized_keys
no-port-forwarding,no-agent-forwarding,no-X11-forwarding,command="echo 'Please login as the user \"ubuntu\" rather than the user \"root\".';echo;sleep 10;exit 142" ssh-rsa AAAAB3NzaC1yc2E
AAAADAQABAAQDCXcK4ipan+6mf+dcxtffghz1/0JF0BuqfdsBtxFbomwsjFqn0+wtv2Ud1FFzGkGCF4SfulaGpBI+thZkR7BC2x+/2dz4dtXLXr0hz220i9Wngnz+rEgNPYydbIiXMMB0JG0Yjp6tytZ3S6QLKGC53G7rwcJCS4rVSV1Jjp1C
LA70gt/BR2VYzFzh/HCKbCy01dbobXFLb0NFj07a2yxz3i0VGdzCuqIH8vyET7rckRIIKW+TT62x/Gjd9/0uavU/0owu7QcstTJ05A0P7YRcdF0pB1Mo6VM2Ff70IJaeF0bEgoJ2s2w8ctR8E6y8q4NJrD3PAXabU0f8+01 ansible
root@ip-172-31-28-137:~/.ssh#

i-0bdeab7cdd7a9ca55 (Ansible-worker2)
PublicIPs: 18.218.45.30 PrivateIPs: 172.31.28.137

root@ip-172-31-25-62:~# cd .ssh/
root@ip-172-31-25-62:~/.ssh# ls
authorized_keys
root@ip-172-31-25-62:~/.ssh# cat authorized_keys
no-port-forwarding,no-agent-forwarding,no-X11-forwarding,command="echo 'Please login as the user \"ubuntu\" rather than the user \"root\".';echo;sleep 10;exit 142" ssh-rsa AAAAB3NzaC1yc2E
AAAADAQABAAQDCXcK4ipan+6mf+dcxtffghz1/0JF0BuqfdsBtxFbomwsjFqn0+wtv2Ud1FFzGkGCF4SfulaGpBI+thZkR7BC2x+/2dz4dtXLXr0hz220i9Wngnz+rEgNPYydbIiXMMB0JG0Yjp6tytZ3S6QLKGC53G7rwcJCS4rVSV1Jjp1C
LA70gt/BR2VYzFzh/HCKbCy01dbobXFLb0NFj07a2yxz3i0VGdzCuqIH8vyET7rckRIIKW+TT62x/Gjd9/0uavU/0owu7QcstTJ05A0P7YRcdF0pB1Mo6VM2Ff70IJaeF0bEgoJ2s2w8ctR8E6y8q4NJrD3PAXabU0f8+01 ansible
root@ip-172-31-25-62:~/.ssh#

i-0c8dbc1a73813367d (Ansible-worker1)
PublicIPs: 3.142.149.168 PrivateIPs: 172.31.25.62

```

## 4) Ansible playbook to inject ansible vault variables:

### → Create a Vault File:

As secrets.yml

In this file store details

→ **Ansible playbook to inject ansible vault variables:**

---

- name: Inject Ansible Vault Variables

hosts: localhost

gather\_facts: false

vars\_files:

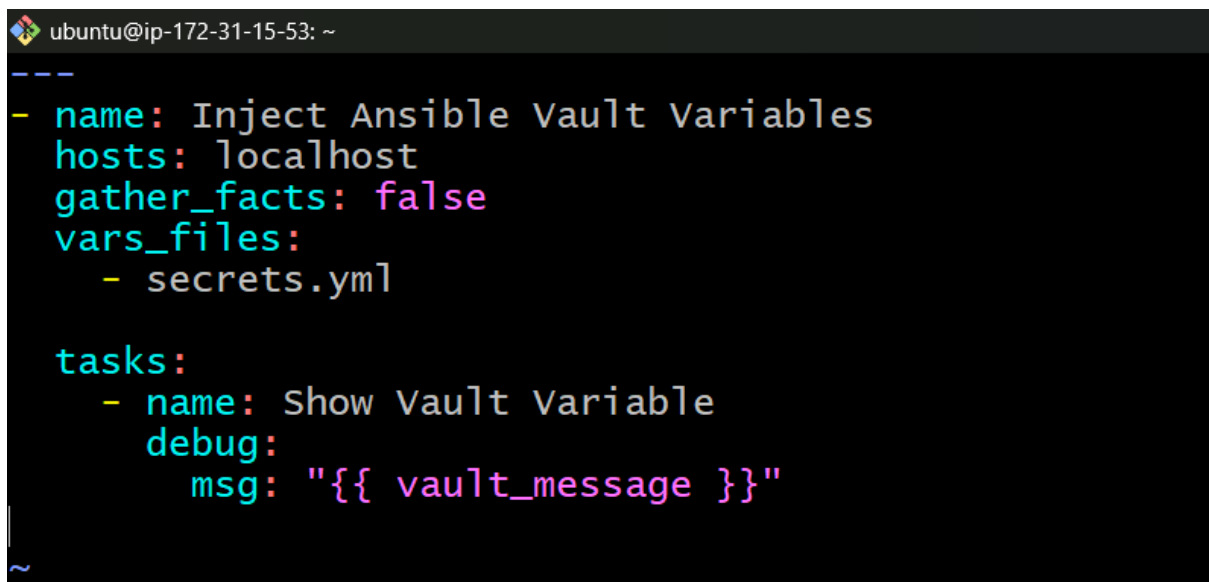
- secrets.yml

tasks:

- name: Show Vault Variable

debug:

msg: "{{ vault\_message }}"

A terminal window with a dark background and light-colored text. The title bar shows 'ubuntu@ip-172-31-15-53: ~'. The terminal content displays the same Ansible playbook as the previous block, with syntax highlighting: 'name' is green, 'hosts' is blue, 'gather\_facts' is green, 'vars\_files' is blue, 'tasks' is green, and 'msg' is green. The text is as follows:

```
---
- name: Inject Ansible Vault Variables
  hosts: localhost
  gather_facts: false
  vars_files:
    - secrets.yml

  tasks:
    - name: Show Vault Variable
      debug:
        msg: "{{ vault_message }}"
```

→run playbook then display the details:



```
ubuntu@ip-172-31-15-53:~$ ansible-vault encrypt secrets.yml
New Vault password:
Confirm New Vault password:
shred: /home/ubuntu/secrets.yml: failed to open for writing: Permission denied
ERROR! Unexpected Exception, this is probably a bug: [Errno 13] Permission denied: '/home/ubuntu/secrets.yml'
to see the full traceback, use -vvv
ubuntu@ip-172-31-15-53:~$ sudo chown ubuntu:ubuntu /home/ubuntu/secrets.yml
ubuntu@ip-172-31-15-53:~$ sudo chmod 600 /home/ubuntu/secrets.yml
ubuntu@ip-172-31-15-53:~$ sudo ansible-vault encrypt /home/ubuntu/secrets.yml
New Vault password:
Confirm New Vault password:
Encryption successful
```

```
ubuntu@ip-172-31-15-53:~$ ansible-playbook vault.yml --ask-vault-pass
Vault password:
[WARNING]: Invalid characters were found in group names but not replaced, use -vvvv to see details
ERROR! an error occurred while trying to read the file '/home/ubuntu/secrets.yml': [Errno 13] Permission denied: '/home/ubuntu/secrets.yml'
ubuntu@ip-172-31-15-53:~$ ls -l /home/ubuntu/secrets.yml
-rw----- 1 root root 484 Mar 27 13:07 /home/ubuntu/secrets.yml
ubuntu@ip-172-31-15-53:~$ -rw----- 1 ubuntu ubuntu 150 Mar 27 12:34 secrets.yml
-rw-----: command not found
ubuntu@ip-172-31-15-53:~$ sudo chown ubuntu:ubuntu /home/ubuntu/secrets.yml
ubuntu@ip-172-31-15-53:~$ sudo chmod 600 /home/ubuntu/secrets.yml
ubuntu@ip-172-31-15-53:~$ ansible-vault view /home/ubuntu/secrets.yml --ask-vault-pass
Vault password:
username: narendar
password: Devops@123
ubuntu@ip-172-31-15-53:~$
```