Ansible Task 2

Name: Ehab Ashraf Muhammed

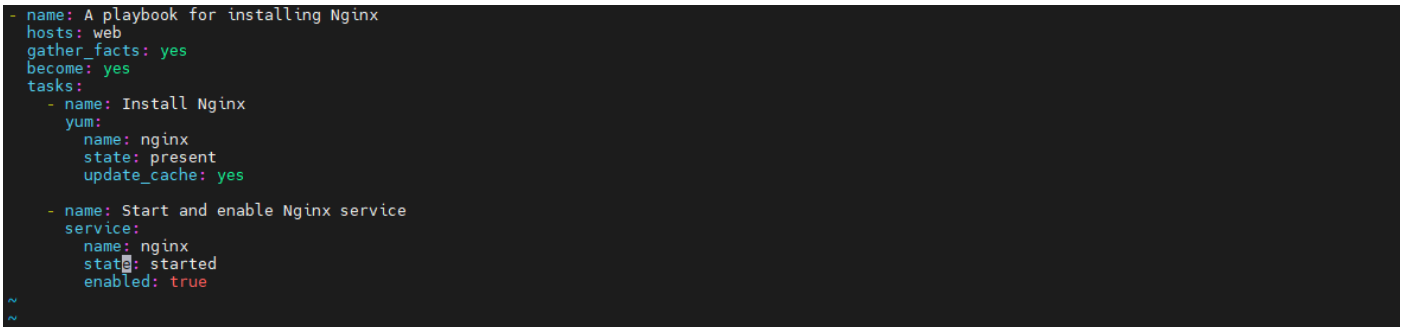
Group: AST-DevOps Engineer_ONL3_SWD1_G2

E-mail: ehabxm25@gmail.com

Task 1:

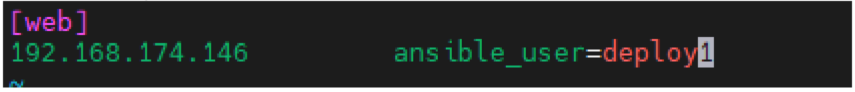
1- Create module to install Nginx.

PlayBook:



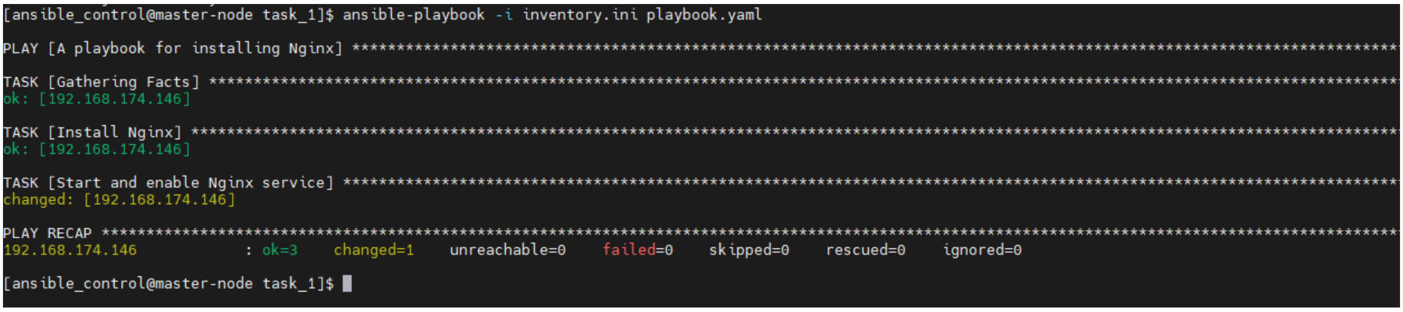
```
- name: A playbook for installing Nginx
  hosts: web
  gather_facts: yes
  become: yes
  tasks:
    - name: Install Nginx
      yum:
        name: nginx
        state: present
        update_cache: yes

    - name: Start and enable Nginx service
      service:
        name: nginx
        state: started
        enabled: true
~
~
```

Inventory:



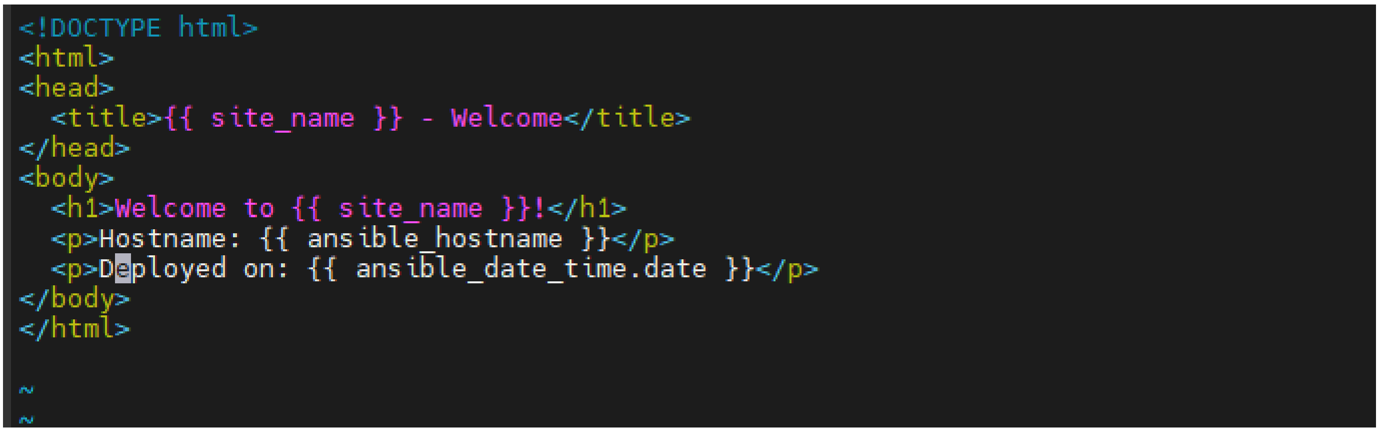
```
[web]
192.168.174.146          ansible_user=deploy1
```

Output:



```
[ansible_control@master-node task_1]$ ansible-playbook -i inventory.ini playbook.yaml

PLAY [A playbook for installing Nginx] *************************************************************************************

TASK [Gathering Facts] *****************************************************************************************************
ok: [192.168.174.146]

TASK [Install Nginx] *******************************************************************************************************
ok: [192.168.174.146]

TASK [Start and enable Nginx service] **************************************************************************************
changed: [192.168.174.146]

PLAY RECAP *****************************************************************************************************************
192.168.174.146            : ok=3    changed=1    unreachable=0    failed=0    skipped=0    rescued=0    ignored=0

[ansible_control@master-node task_1]$
```

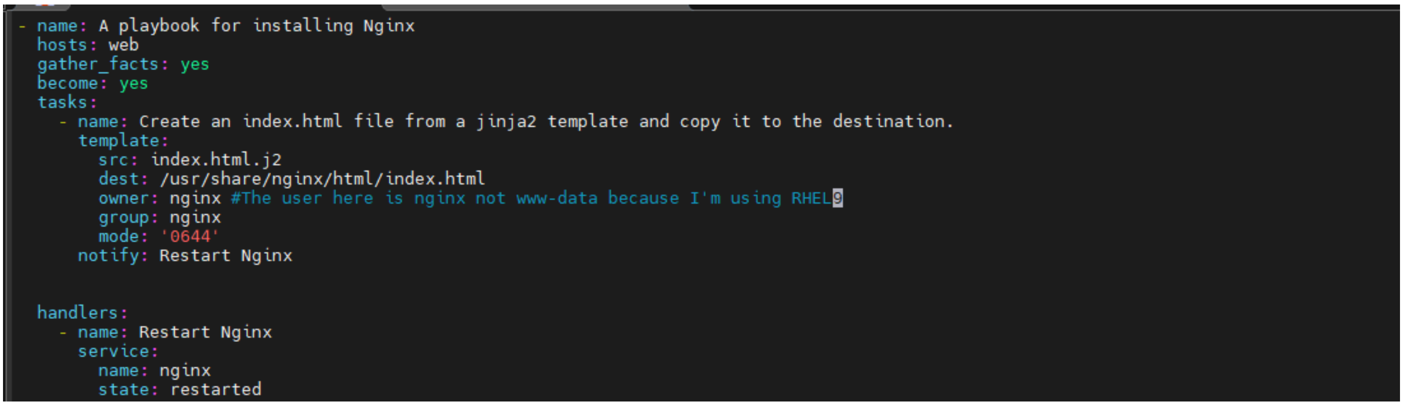
2- Create Jinja2 template file named index.html.j2 to generate a dynamic html page



```
<!DOCTYPE html>
<html>
<head>
  <title>{{ site_name }} - Welcome</title>
</head>
<body>
  <h1>Welcome to {{ site_name }}!</h1>
  <p>Hostname: {{ ansible_hostname }}</p>
  <p>Deployed on: {{ ansible_date_time.date }}</p>
</body>
</html>

~
~
```

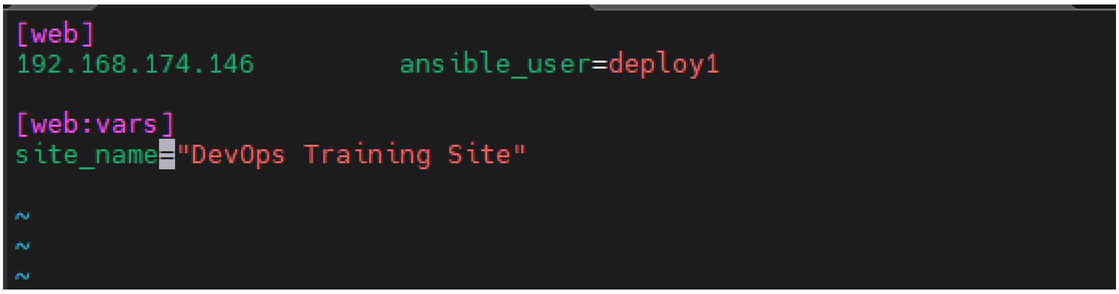
3- Write The ansible playbook (deploy_index.yaml) to copy the template.

Playbook:



```
- name: A playbook for installing Nginx
  hosts: web
  gather_facts: yes
  become: yes
  tasks:
    - name: Create an index.html file from a jinja2 template and copy it to the destination.
      template:
        src: index.html.j2
        dest: /usr/share/nginx/html/index.html
        owner: nginx #The user here is nginx not www-data because I'm using RHEL9
        group: nginx
        mode: '0644'
      notify: Restart Nginx


  handlers:
    - name: Restart Nginx
      service:
        name: nginx
        state: restarted
```

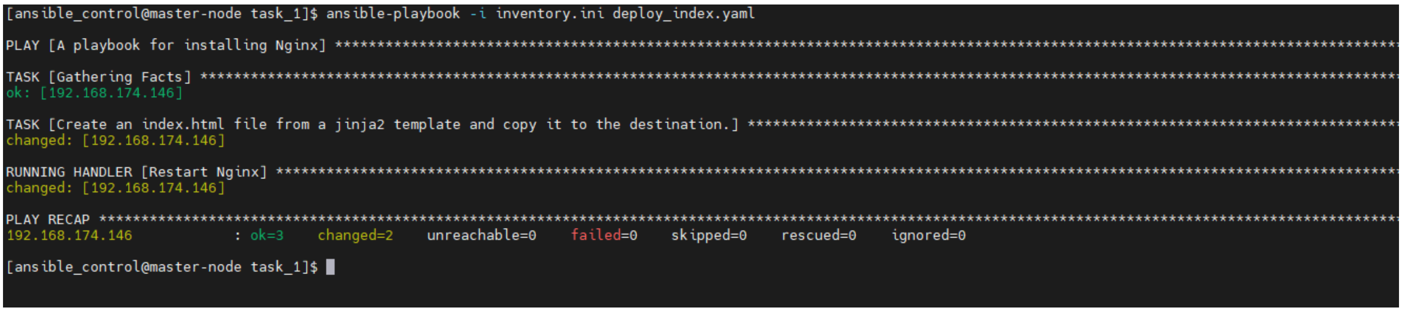
Inventory:



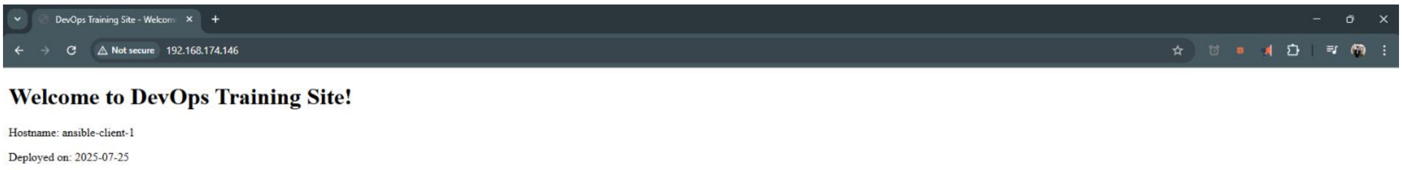
```
[web]
192.168.174.146         ansible_user=deploy1

[web:vars]
site_name="DevOps Training Site"

~
~
~
```

4- Run the playbook and verfy that it’s working correctly

Output:



```
[ansible_control@master-node task_1]$ ansible-playbook -i inventory.ini deploy_index.yaml

PLAY [A playbook for installing Nginx] *************************************************************************************************************************

TASK [Gathering Facts] *****************************************************************************************************************************************
ok: [192.168.174.146]

TASK [Create an index.html file from a jinja2 template and copy it to the destination.] ************************************************************************
changed: [192.168.174.146]

RUNNING HANDLER [Restart Nginx] ********************************************************************************************************************************
changed: [192.168.174.146]

PLAY RECAP *****************************************************************************************************************************************************
192.168.174.146            : ok=3    changed=2    unreachable=0    failed=0    skipped=0    rescued=0    ignored=0

[ansible_control@master-node task_1]$
```



Welcome to DevOps Training Site!

Hostname: ansible-client-1

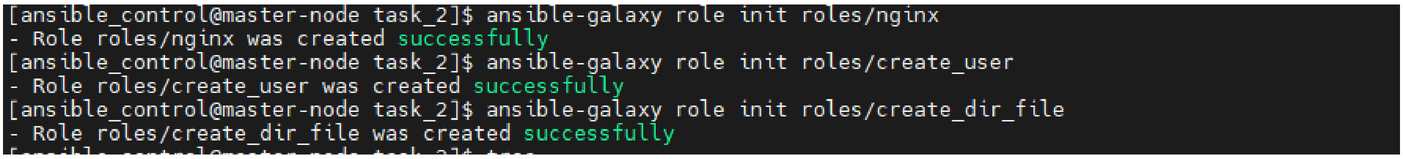
Deployed on: 2025-07-25

Nginx is deployed and working correctly!

End of Task 1.

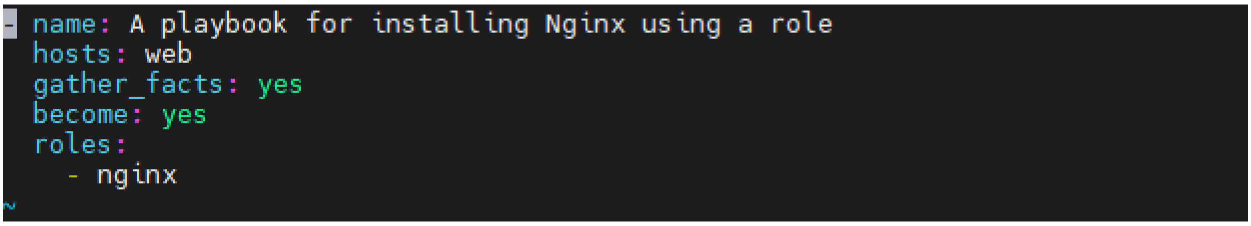
Task 2: Using Ansible roles, do the following:

1- Install nginx



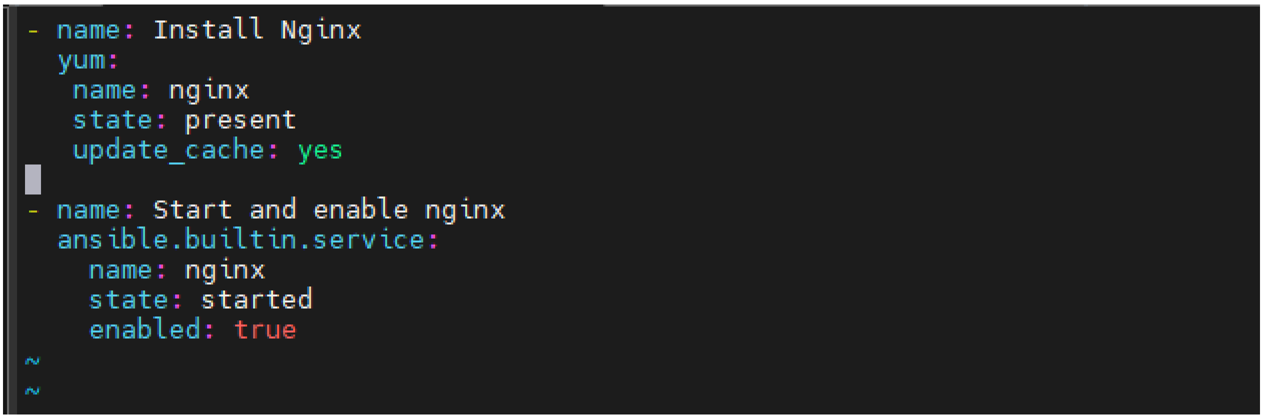
```
[ansible_control@master-node task_2]$ ansible-galaxy role init roles/nginx
- Role roles/nginx was created successfully
[ansible_control@master-node task_2]$ ansible-galaxy role init roles/create_user
- Role roles/create_user was created successfully
[ansible_control@master-node task_2]$ ansible-galaxy role init roles/create_dir_file
- Role roles/create_dir_file was created successfully
[ansible_control@master-node task_2]$ tree
```

The content of nginx_playbook.yml



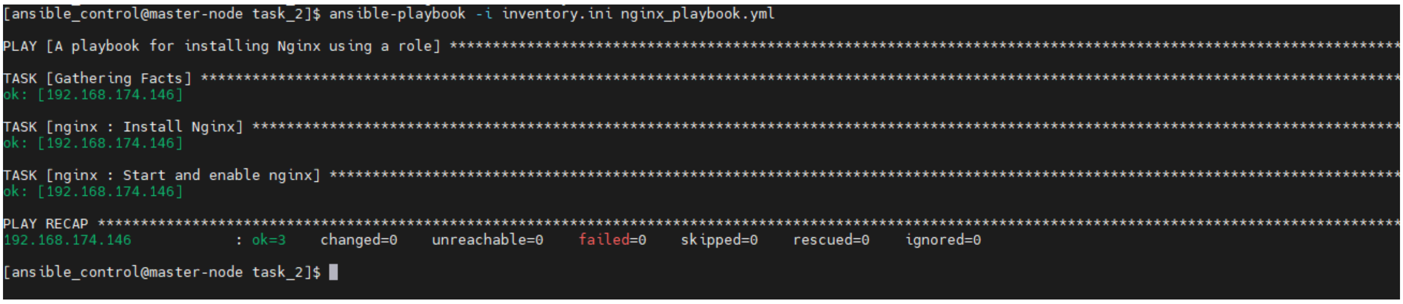
```
- name: A playbook for installing Nginx using a role
  hosts: web
  gather_facts: yes
  become: yes
  roles:
    - nginx
~
```

The content of roles/nginx/tasks/main.yml



```
- name: Install Nginx
  yum:
   name: nginx
   state: present
   update_cache: yes

- name: Start and enable nginx
  ansible.builtin.service:
    name: nginx
    state: started
    enabled: true
~
~
```

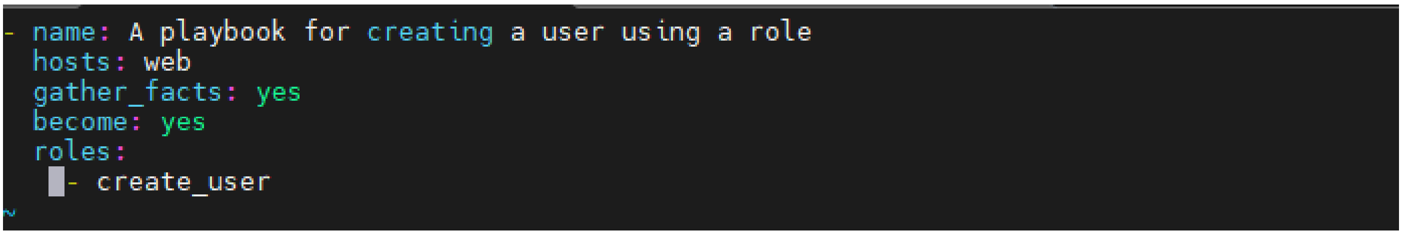
Output after running the playbook:



```
[ansible_control@master-node task_2]$ ansible-playbook -i inventory.ini nginx_playbook.yml

PLAY [A playbook for installing Nginx using a role] **************************************************************************************************************

TASK [Gathering Facts] *******************************************************************************************************************************************
ok: [192.168.174.146]

TASK [nginx : Install Nginx] *************************************************************************************************************************************
ok: [192.168.174.146]

TASK [nginx : Start and enable nginx] ****************************************************************************************************************************
ok: [192.168.174.146]

PLAY RECAP *******************************************************************************************************************************************************
192.168.174.146            : ok=3    changed=0    unreachable=0    failed=0    skipped=0    rescued=0    ignored=0

[ansible_control@master-node task_2]$ 
```

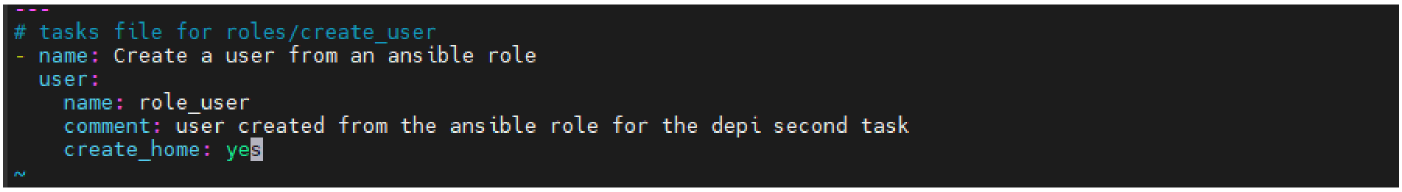
2- Create a user using Ansible roles

Content of create_user_playbook.yml:



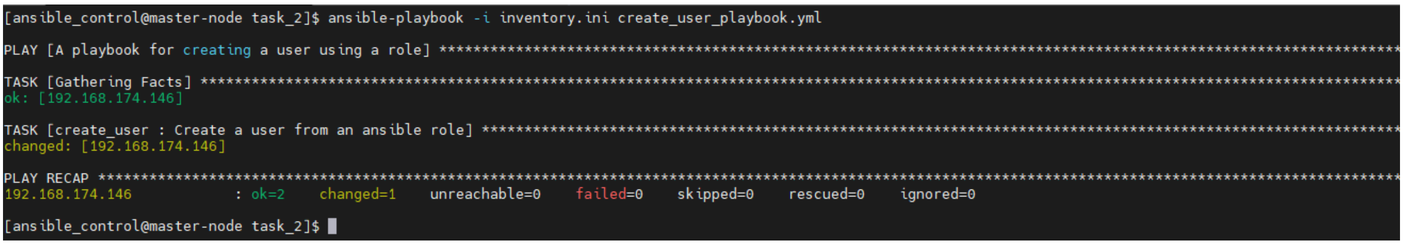
```
- name: A playbook for creating a user using a role
  hosts: web
  gather_facts: yes
  become: yes
  roles:
   - create_user
~
```

Content of roles/create_user/tasks/main.yml:



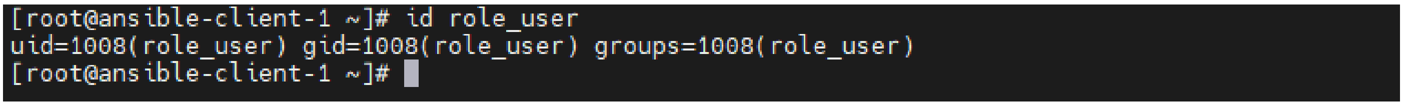
```
---
# tasks file for roles/create_user
- name: Create a user from an ansible role
  user:
    name: role_user
    comment: user created from the ansible role for the depi second task
    create_home: yes
~
```

Output:



```
[ansible_control@master-node task_2]$ ansible-playbook -i inventory.ini create_user_playbook.yml

PLAY [A playbook for creating a user using a role] **************************************************************************************

TASK [Gathering Facts] ******************************************************************************************************************
ok: [192.168.174.146]

TASK [create_user : Create a user from an ansible role] *********************************************************************************
changed: [192.168.174.146]

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

[ansible_control@master-node task_2]$
```

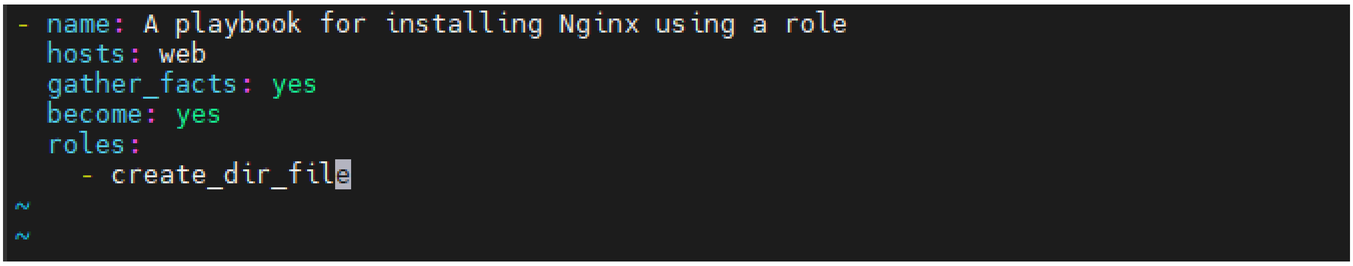
Verification of creation:



```
[root@ansible-client-1 ~]# id role_user
uid=1008(role_user) gid=1008(role_user) groups=1008(role_user)
[root@ansible-client-1 ~]#
```

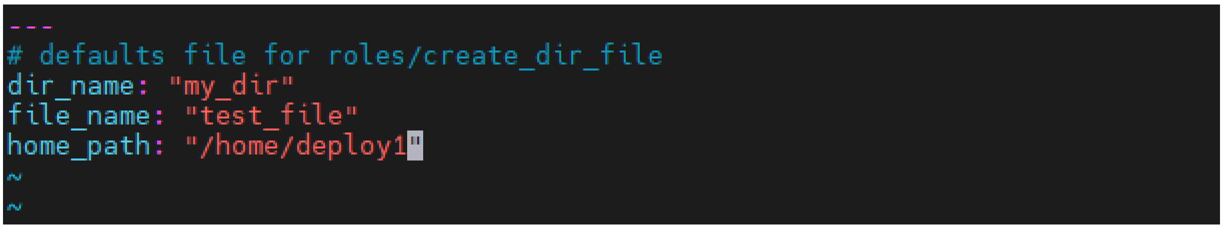
3- Create a directory named my_dir and a file named test_file

Content of create_dir_file_playbook.yml



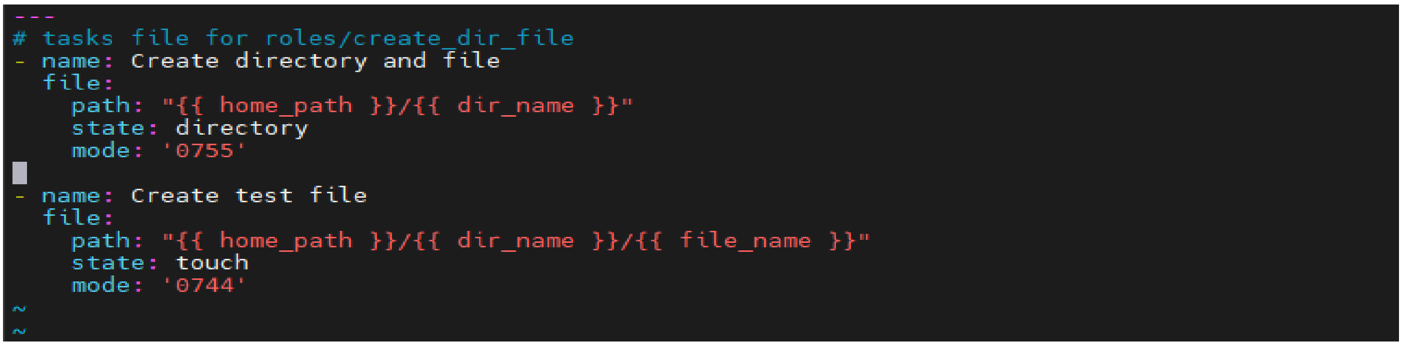
```
- name: A playbook for installing Nginx using a role
  hosts: web
  gather_facts: yes
  become: yes
  roles:
    - create_dir_file
~
~
```

Content of roles/create_dir_file/defaults/main.yml



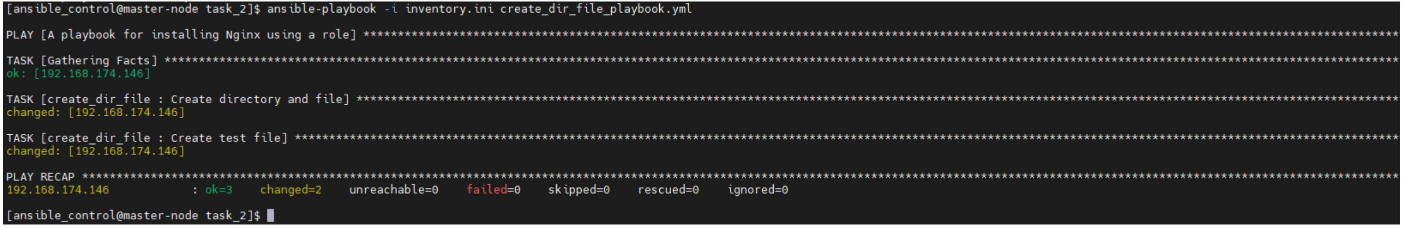
```
---
# defaults file for roles/create_dir_file
dir_name: "my_dir"
file_name: "test_file"
home_path: "/home/deploy1"
~
~
```

Content of roles/create_dir_file/tasks/main.yml



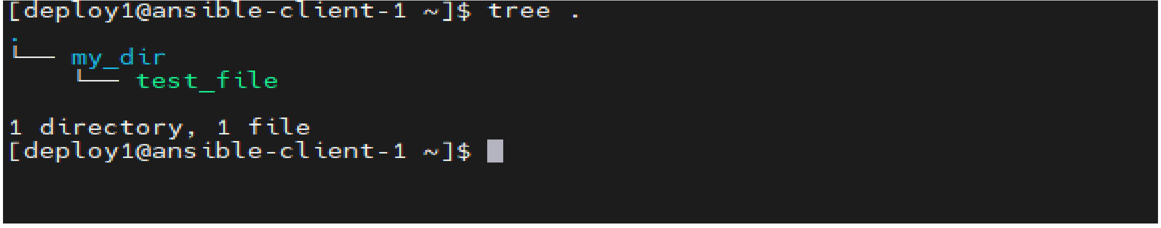
```
---
# tasks file for roles/create_dir_file
- name: Create directory and file
  file:
    path: "{{ home_path }}/{{ dir_name }}"
    state: directory
    mode: '0755'

- name: Create test file
  file:
    path: "{{ home_path }}/{{ dir_name }}/{{ file_name }}"
    state: touch
    mode: '0744'
~
~
```

Output:



```
[ansible_control@master-node task_2]$ ansible-playbook -i inventory.ini create_dir_file_playbook.yml

PLAY [A playbook for installing Nginx using a role] ****************************************************************************************************

TASK [Gathering Facts] *********************************************************************************************************************************
ok: [192.168.174.146]

TASK [create_dir_file : Create directory and file] *****************************************************************************************************
changed: [192.168.174.146]

TASK [create_dir_file : Create test file] **************************************************************************************************************
changed: [192.168.174.146]

PLAY RECAP *********************************************************************************************************************************************
192.168.174.146            : ok=3    changed=2    unreachable=0    failed=0    skipped=0    rescued=0    ignored=0

[ansible_control@master-node task_2]$
```

Verification of file and directory creation:



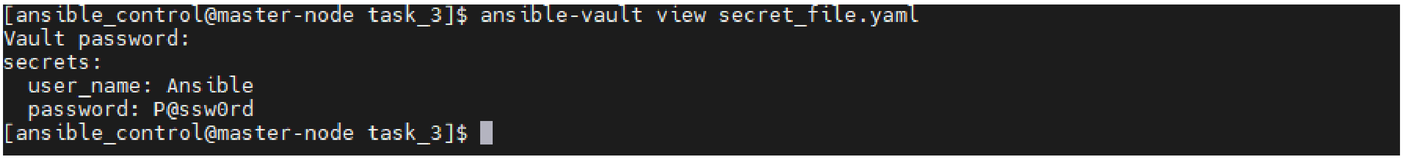
```
[deploy1@ansible-client-1 ~]$ tree .
.
└── my_dir
    └── test_file

1 directory, 1 file
[deploy1@ansible-client-1 ~]$
```

Roles are created and are working correctly!

End of Task 2.

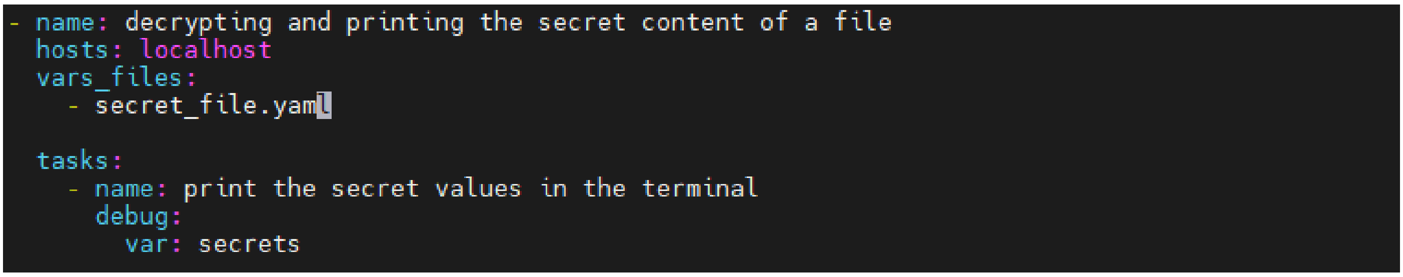
Task 3: Encrypt a secret file using Ansible vault and print its value

Content of the secret file:



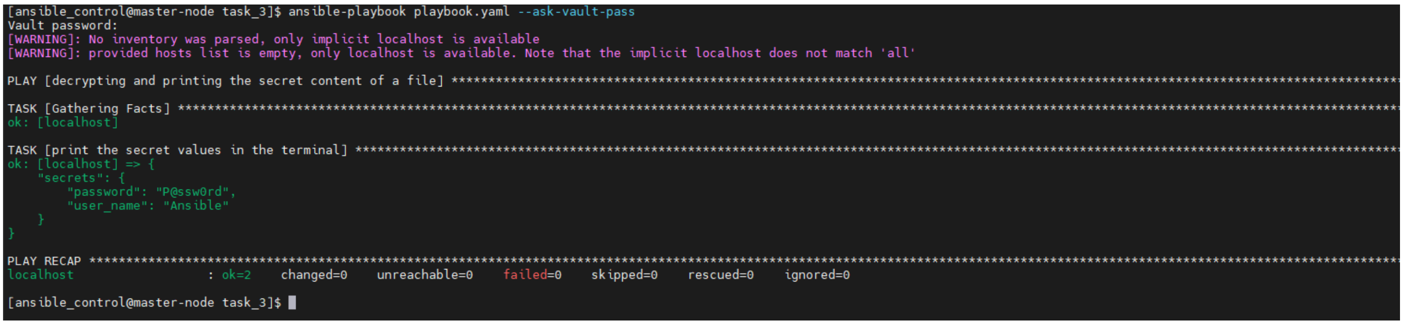
```
[ansible_control@master-node task_3]$ ansible-vault view secret_file.yaml
Vault password:
secrets:
  user_name: Ansible
  password: P@ssw0rd
[ansible_control@master-node task_3]$
```

Content of the playbook:



```
- name: decrypting and printing the secret content of a file
  hosts: localhost
  vars_files:
    - secret_file.yaml

  tasks:
    - name: print the secret values in the terminal
      debug:
        var: secrets
```

Output of the terminal:

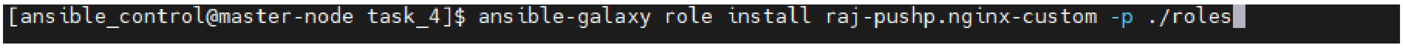


```
[ansible_control@master-node task_3]$ ansible-playbook playbook.yaml --ask-vault-pass
Vault password:
[WARNING]: No inventory was parsed, only implicit localhost is available
[WARNING]: provided hosts list is empty, only localhost is available. Note that the implicit localhost does not match 'all'

PLAY [decrypting and printing the secret content of a file] ***********************************************************

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

TASK [print the secret values in the terminal] ************************************************************************
ok: [localhost] => {
    "secrets": {
        "password": "P@ssw0rd",
        "user_name": "Ansible"
    }
}

PLAY RECAP ************************************************************************************************************
localhost                  : ok=2    changed=0    unreachable=0    failed=0    skipped=0    rescued=0    ignored=0

[ansible_control@master-node task_3]$
```

Secrets are printed in the terminal correctly!

End of Task 3.

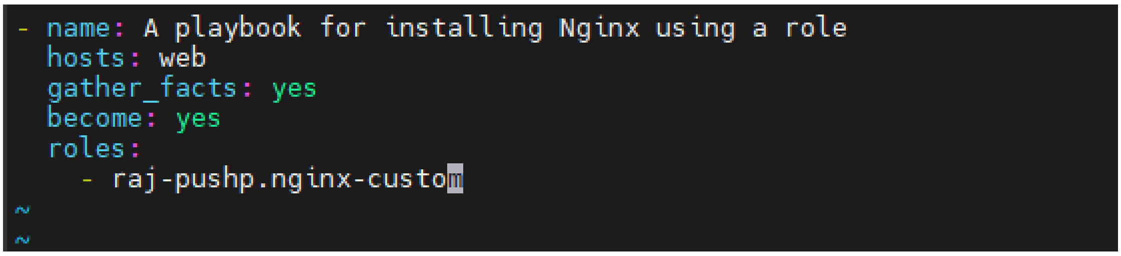
Task 4: Install a role called raj-pushp.nginx-custom and use it



```
[ansible_control@master-node task_4]$ ansible-galaxy role install raj-pushp.nginx-custom -p ./roles
```

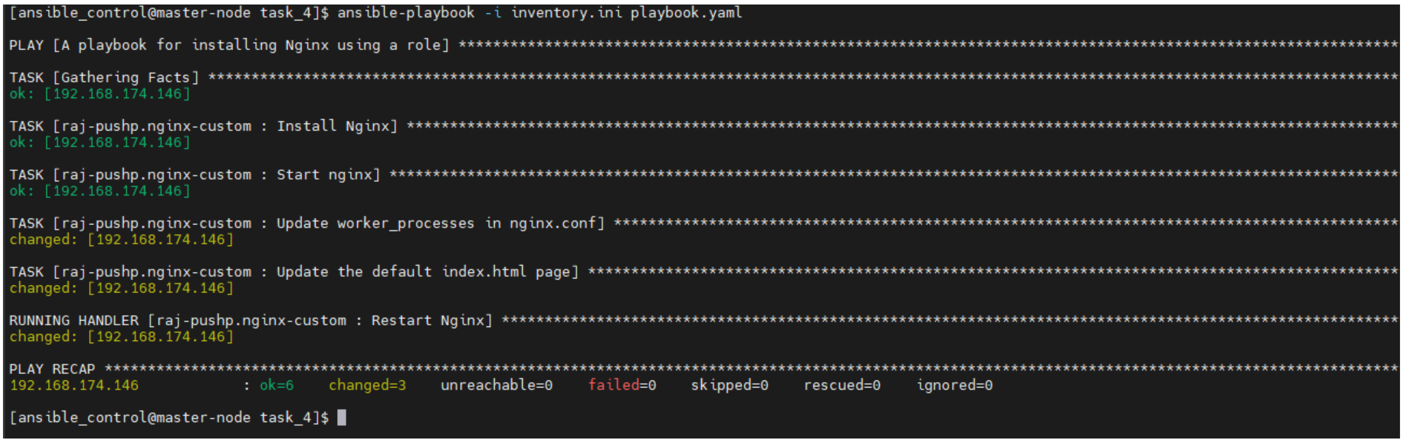
PS: I used the –p switch to install it in the task_4 directory for better structuring

Content of playbook.yaml:

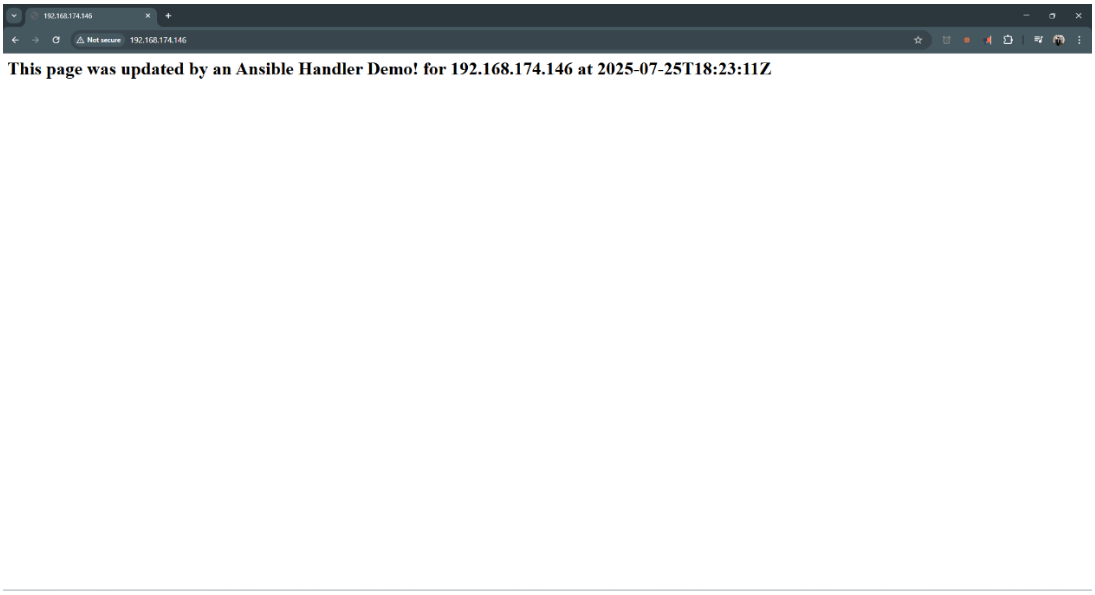


```
- name: A playbook for installing Nginx using a role
  hosts: web
  gather_facts: yes
  become: yes
  roles:
    - raj-pushp.nginx-custom
~
~
```

Output:



```
[ansible_control@master-node task_4]$ ansible-playbook -i inventory.ini playbook.yaml

PLAY [A playbook for installing Nginx using a role] ****************************************************************************************

TASK [Gathering Facts] *********************************************************************************************************************
ok: [192.168.174.146]

TASK [raj-pushp.nginx-custom : Install Nginx] **********************************************************************************************
ok: [192.168.174.146]

TASK [raj-pushp.nginx-custom : Start nginx] ************************************************************************************************
ok: [192.168.174.146]

TASK [raj-pushp.nginx-custom : Update worker_processes in nginx.conf] **********************************************************************
changed: [192.168.174.146]

TASK [raj-pushp.nginx-custom : Update the default index.html page] *************************************************************************
changed: [192.168.174.146]

RUNNING HANDLER [raj-pushp.nginx-custom : Restart Nginx] ***********************************************************************************
changed: [192.168.174.146]

PLAY RECAP *********************************************************************************************************************************
192.168.174.146            : ok=6    changed=3    unreachable=0    failed=0    skipped=0    rescued=0    ignored=0

[ansible_control@master-node task_4]$
```



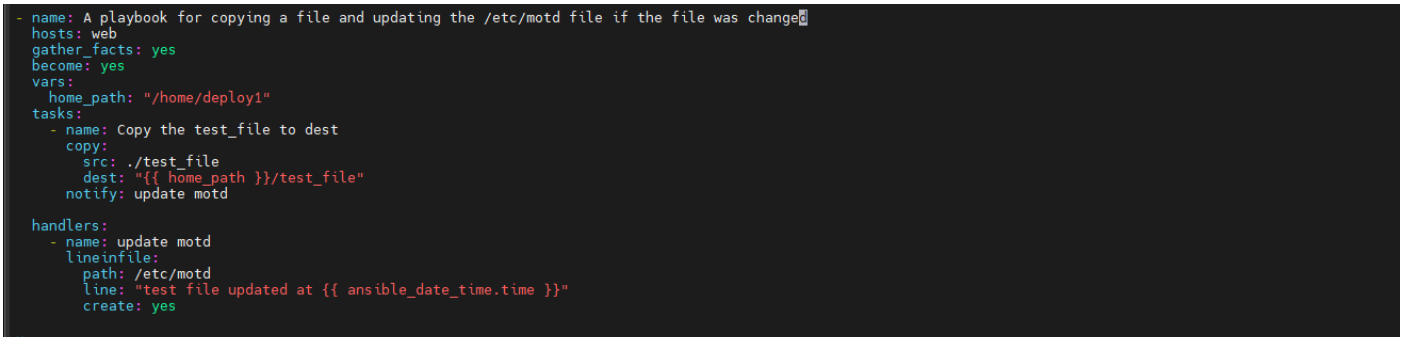
This page was updated by an Ansible Handler Demo! for 192.168.174.146 at 2025-07-25T18:23:11Z

Nginx is deployed and working correctly using the role from Galaxy!

End of Task 4.

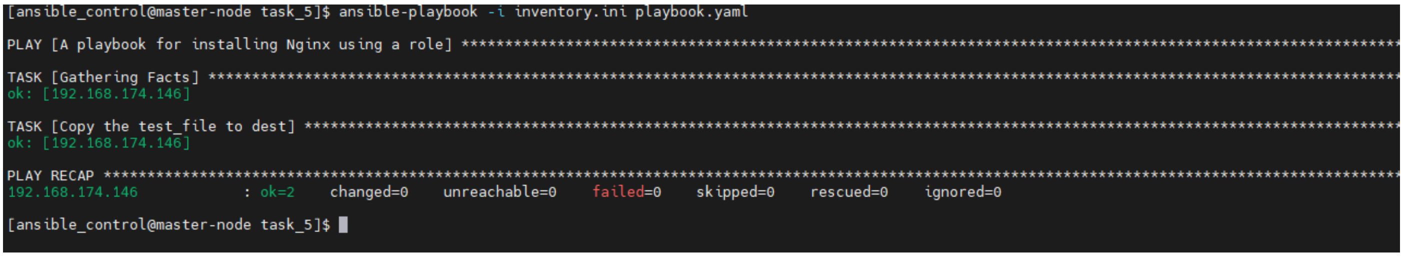
Task 5: Updating a file with a message using handlers

Content of playbook.yaml:



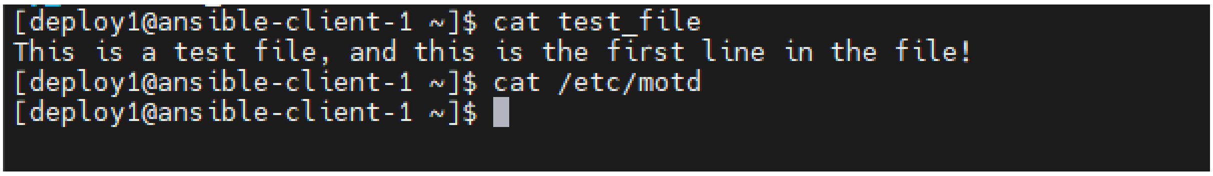
```yaml
- name: A playbook for copying a file and updating the /etc/motd file if the file was changed
  hosts: web
  gather_facts: yes
  become: yes
  vars:
    home_path: "/home/deploy1"
  tasks:
    - name: Copy the test_file to dest
      copy:
        src: ./test_file
        dest: "{{ home_path }}/test_file"
      notify: update motd

  handlers:
    - name: update motd
      lineinfile:
        path: /etc/motd
        line: "test file updated at {{ ansible_date_time.time }}"
        create: yes
```

Output:



```
[ansible_control@master-node task_5]$ ansible-playbook -i inventory.ini playbook.yaml

PLAY [A playbook for installing Nginx using a role] ************************************************************************************

TASK [Gathering Facts] *****************************************************************************************************************
ok: [192.168.174.146]

TASK [Copy the test_file to dest] ******************************************************************************************************
ok: [192.168.174.146]

PLAY RECAP *****************************************************************************************************************************
192.168.174.146            : ok=2    changed=0    unreachable=0    failed=0    skipped=0    rescued=0    ignored=0

[ansible_control@master-node task_5]$ █
```

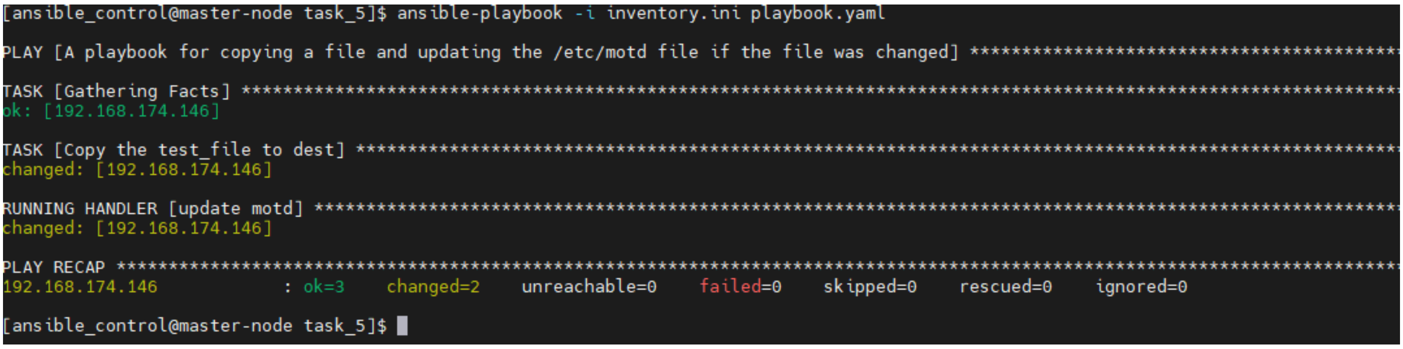
Output on the destination:



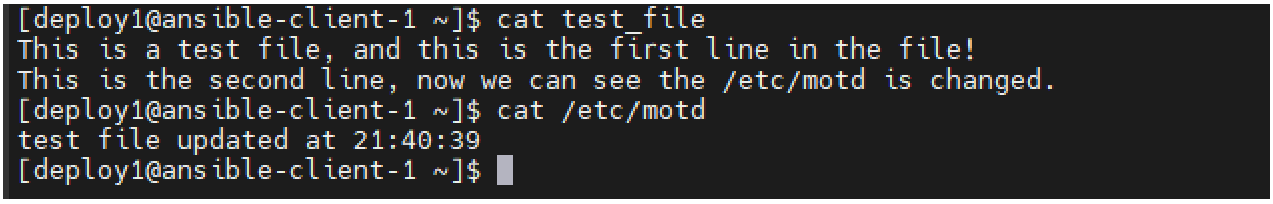
```
[deploy1@ansible-client-1 ~]$ cat test_file
This is a test file, and this is the first line in the file!
[deploy1@ansible-client-1 ~]$ cat /etc/motd
[deploy1@ansible-client-1 ~]$ █
```

We can see there are no output from the /etc/motd file because the file wasn’t changed.

Now let’s try to change it and copy it again.



```
[ansible_control@master-node task_5]$ ansible-playbook -i inventory.ini playbook.yaml

PLAY [A playbook for copying a file and updating the /etc/motd file if the file was changed] *******************************************

TASK [Gathering Facts] *****************************************************************************************************************
ok: [192.168.174.146]

TASK [Copy the test_file to dest] ******************************************************************************************************
changed: [192.168.174.146]

RUNNING HANDLER [update motd] **********************************************************************************************************
changed: [192.168.174.146]

PLAY RECAP *****************************************************************************************************************************
192.168.174.146            : ok=3    changed=2    unreachable=0    failed=0    skipped=0    rescued=0    ignored=0

[ansible_control@master-node task_5]$ █
```



```
[deploy1@ansible-client-1 ~]$ cat test_file
This is a test file, and this is the first line in the file!
This is the second line, now we can see the /etc/motd is changed.
[deploy1@ansible-client-1 ~]$ cat /etc/motd
test file updated at 21:40:39
[deploy1@ansible-client-1 ~]$ █
```

We can now see the /etc/motd file is updated, if we want to use the full date-time format we can use the ansible_date_time.iso8601 variable instead.

End of Task 5!

End of the full assignment.