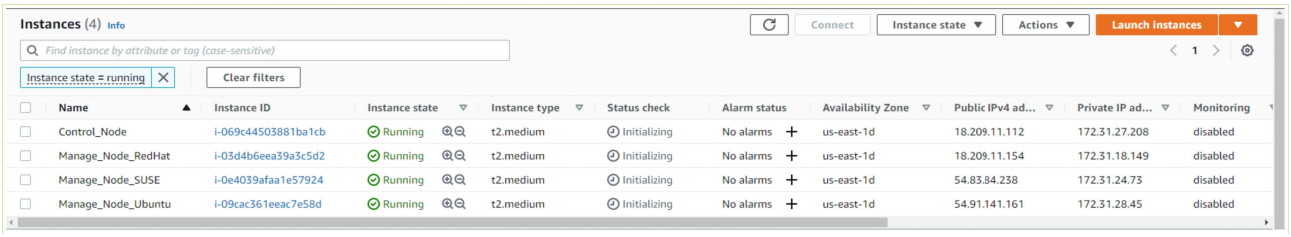
1. Create a Play book to install Apache server on the destination server with yum module install only if the OS is 'RedHat' or 'CentOS' and version 7 and apt module on Ubuntu server
    - Create an Ubuntu machine and install python on it, apt module is used instead of yum in Ubuntu and name of software is apache2 not httpd
2. Create a play book to create testuser1 and testuser2 on all the hosts (use loop)

Table of Contents

Step 1 :: Creating EC2 Instances

Create 4 instances as below

Control_Node --> AWS Linux
Manage_Node_RedHat --> AWS Linux
Manage_Node_SUSE --> SUSE Linux
Manage_Node_Ubuntu --> Ubuntu



Step 2 :: Install Ansible in Control_Node

ansible --version

```
[root@ip-172-31-27-208 ~]# ansible --version
ansible 2.9.27
  config file = /etc/ansible/ansible.cfg
  configured module search path = [u'/root/.ansible/plugins/modules', u'/usr/share/ansible/plugins/modules']
  ansible python module location = /usr/lib/python2.7/site-packages/ansible
  executable location = /usr/bin/ansible
  python version = 2.7.18 (default, May 25 2022, 14:30:51) [GCC 7.3.1 20180712 (Red Hat 7.3.1-15)]
[root@ip-172-31-27-208 ~]#
```

Step 3 :: Configuring Ansible in all nodes

useradd ansadmin
Note: use “useradd -m ansadmin” in case of Ubuntu and SUSE servers
passwd ansadmin
visudo
Add below line
ansadmin ALL=(ALL) NOPASSWD: ALL

vi /etc/ssh/sshd_config
Uncomment the below line
“PasswordAuthentication yes”

service sshd restart

Step 4 :: Setup PasswordLess login to all the Manage Nodes from Control node via ansadmin user

# su - ansadmin
$ ssh-keygen
$ ssh-copy-id -i /home/ansadmin/.ssh/id_rsa.pub ansadmin@172.31.18.149
$ ssh-copy-id -i /home/ansadmin/.ssh/id_rsa.pub ansadmin@172.31.24.73
$ ssh-copy-id -i /home/ansadmin/.ssh/id_rsa.pub ansadmin@172.31.28.45

Step 5 :: Managing inventory file on Master Node

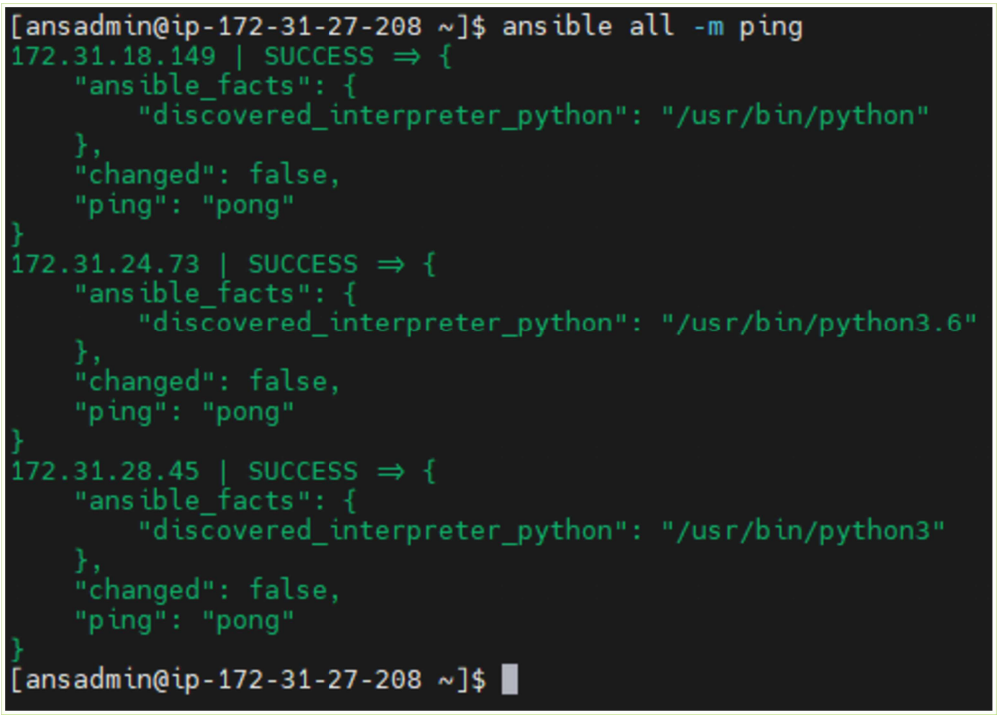
Add the below lines at end of file /etc/ansible/hosts

$ sudo vi /etc/ansible/hosts

[Redhat]
172.31.18.149
[Ubuntu]
172.31.28.45
[Suse]
172.31.24.73

Perform Ping test from Control Node to Manage Nodes from ansadmin user

$ ansible all -m ping



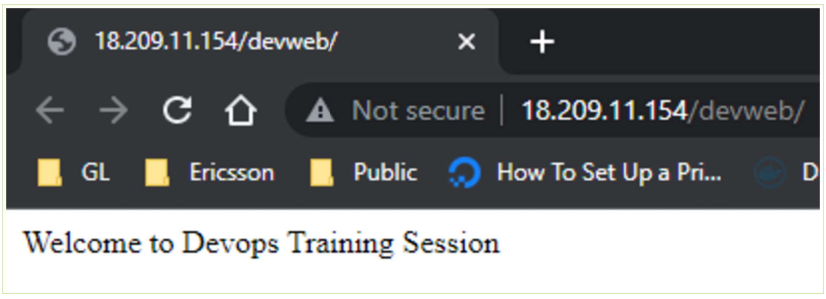
Task 1 :: Create a Play book to install Apache server on the destination server with yum module install only if the OS is 'RedHat' or 'CentOS' and version 7 and apt module on Ubuntu server

```
$ cat apache.yaml
- name: Developing a webserver
  hosts: all
  become: yes
  remote_user: ansadmin
  tasks:
  - block:
    - name: Install http in all RedHat Servers
      yum:
        name: httpd
        state: present
    - name: Start HTTPD in RedHat Servers
      service:
        name: httpd
        state: started
        enabled: yes
    when: (ansible_facts['distribution'] == "Amazon" and ansible_facts['distribution_major_version']
== "2")
  - block:
    - name: Install apache2 in all Ubuntu Servers
      apt:
        name: apache2
        state: present
    - name: Start apache2 in Ubuntu Servers
      service:
        name: apache2
        state: started
        enabled: yes
    when: (ansible_facts['distribution'] == "Ubuntu" and ansible_facts['distribution_major_version']
== "22")
  - block:
    - name: create a directory
      file:
        path: /devweb
        state: directory
        group: ansadmin
        mode: 02775
        setype: httpd_sys_content_t
    - name: create file
      file:
        path: /devweb/index.html
        state: touch
    - name: copy the contents
      copy:
        content: "Welcome to Devops Training Session\n"
        dest: /devweb/index.html
```

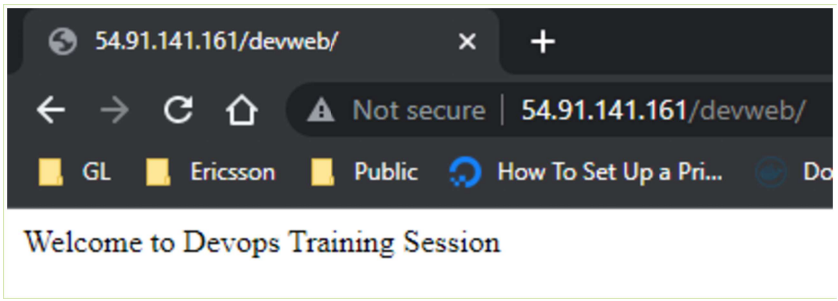
```
- name: link a file
  file:
    src: /devweb
    dest: /var/www/html/devweb
    state: link
  when: (ansible_facts['distribution'] == "Amazon") or (ansible_facts['distribution'] == "Ubuntu")
```

```
[ansadmin@ip-172-31-27-208 assignment]$ ansible-playbook apache.yaml

PLAY [Developing a webserver] ***************************************************************************************

TASK [Gathering Facts] **********************************************************************************************
ok: [172.31.28.45]
ok: [172.31.24.73]
ok: [172.31.18.149]

TASK [Install http in all RedHat Servers] ***************************************************************************
skipping: [172.31.24.73]
skipping: [172.31.28.45]
ok: [172.31.18.149]

TASK [Start HTTPD in RedHat Servers] ********************************************************************************
skipping: [172.31.24.73]
skipping: [172.31.28.45]
ok: [172.31.18.149]

TASK [Install apache2 in all Ubuntu Servers] ************************************************************************
skipping: [172.31.24.73]
skipping: [172.31.18.149]
ok: [172.31.28.45]

TASK [Start apache2 in Ubuntu Servers] ******************************************************************************
skipping: [172.31.24.73]
skipping: [172.31.18.149]
ok: [172.31.28.45]

TASK [create a directory] ********************************************************************************************
skipping: [172.31.24.73]
ok: [172.31.18.149]
ok: [172.31.28.45]

TASK [create file] ***************************************************************************************************
skipping: [172.31.24.73]
changed: [172.31.18.149]
changed: [172.31.28.45]

TASK [copy the contents] *********************************************************************************************
skipping: [172.31.24.73]
ok: [172.31.28.45]
ok: [172.31.18.149]

TASK [link a file] ***************************************************************************************************
skipping: [172.31.24.73]
ok: [172.31.18.149]
ok: [172.31.28.45]

PLAY RECAP ***********************************************************************************************************
172.31.18.149              : ok=7    changed=1    unreachable=0    failed=0    skipped=2    rescued=0    ignored=0
172.31.24.73               : ok=1    changed=0    unreachable=0    failed=0    skipped=8    rescued=0    ignored=0
172.31.28.45               : ok=7    changed=1    unreachable=0    failed=0    skipped=2    rescued=0    ignored=0

[ansadmin@ip-172-31-27-208 assignment]$
```

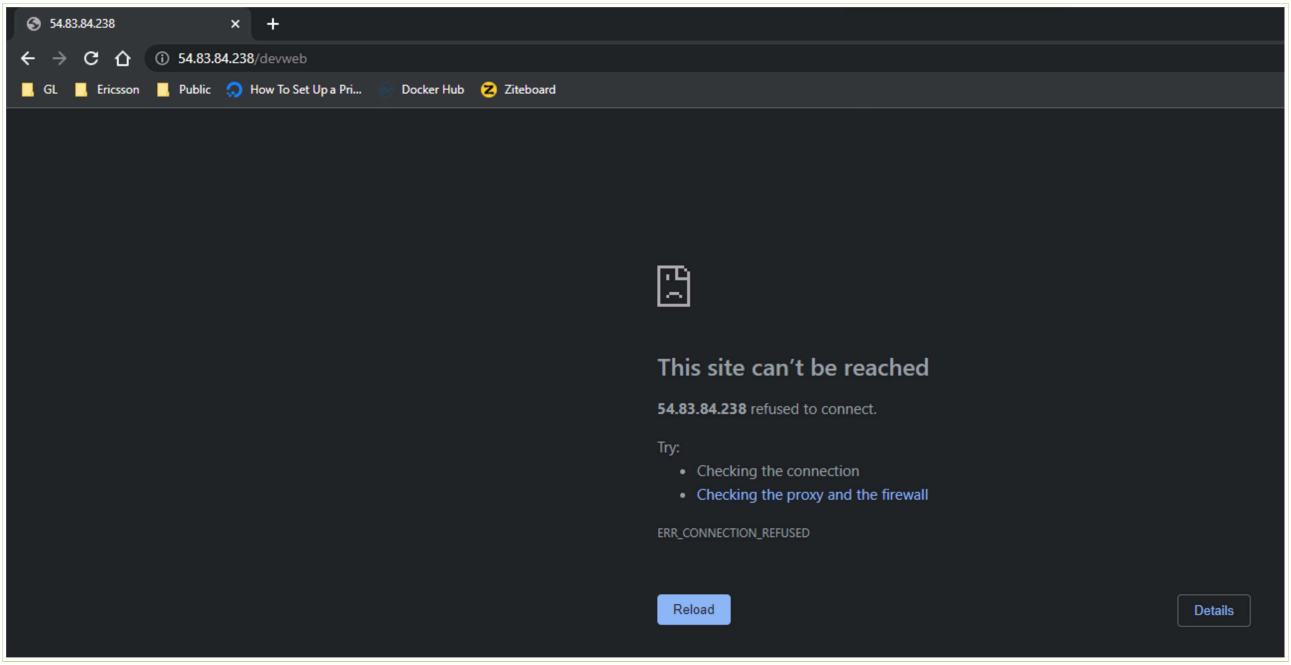
Result From RedHat Server



Result from Ubuntu Server

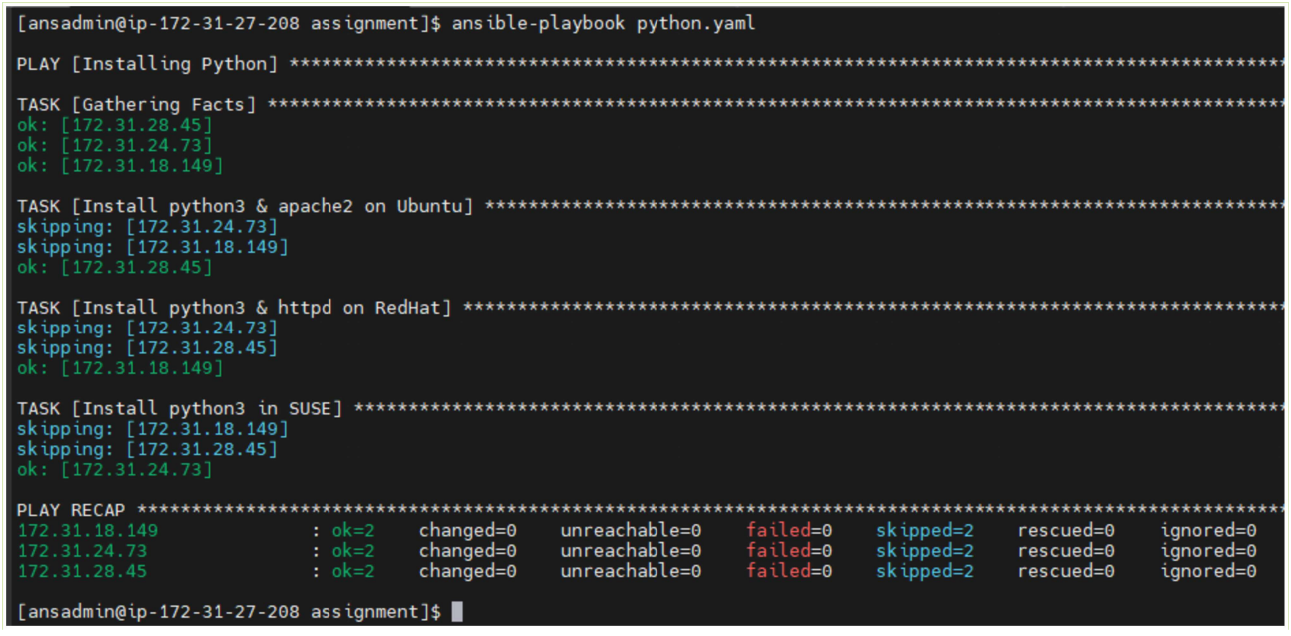


Result from SUSE Server



Task 2 :: Create an Ubuntu machine and install python on it, apt module is used instead of yum in Ubuntu and name of software is apache2 not httpd

```
$ cat python.yaml
- name: Installing Python
  hosts: all
  become: yes
  tasks:
     - name: Install python3 & apache2 on Ubuntu
       apt:
          name:
          - python3
          - apache2
          state: present
       when: ansible_os_family == "Debian"

     - name: Install python3 & httpd on RedHat
       yum:
          name:
          - python3
          - httpd
          state: present
       when: ansible_os_family == "RedHat"

     - name: Install python3 in SUSE
       zypper:
         name: python3
         state: present
       when: ansible_os_family == "Suse"
```



Task 3 :: Create a play book to create testuser1 and testuser2 on all the hosts (use loop)

```
$ cat user_loop.yaml
- hosts: all
  become: true
  vars_files:
     - user_details.yaml
  tasks:
     - name: more complex items to add several users
       user:
        name: "{{ item.name }}"
        uid: "{{ item.uid }}"
        groups: "{{ item.groups }}"
        state: present
       with_items: "{{ user_details }}"
```

```
$ cat user_details.yaml
user_details:
  - {name: 'testuser1', uid: 1002, groups: ['ansadmin']}
  - {name: 'testuser2', uid: 1003, groups: ['ansadmin']}
```

```
[ansadmin@ip-172-31-27-208 assignment]$ ansible-playbook user_loop.yaml

PLAY [all] *********************************************************************************************************

TASK [Gathering Facts] *********************************************************************************************
ok: [172.31.24.73]
ok: [172.31.28.45]
ok: [172.31.18.149]

TASK [more complex items to add several users] *********************************************************************
ok: [172.31.28.45] => (item={u'name': u'testuser1', u'groups': [u'ansadmin'], u'uid': 1002})
ok: [172.31.18.149] => (item={u'name': u'testuser1', u'groups': [u'ansadmin'], u'uid': 1002})
changed: [172.31.24.73] => (item={u'name': u'testuser1', u'groups': [u'ansadmin'], u'uid': 1002})
ok: [172.31.28.45] => (item={u'name': u'testuser2', u'groups': [u'ansadmin'], u'uid': 1003})
ok: [172.31.18.149] => (item={u'name': u'testuser2', u'groups': [u'ansadmin'], u'uid': 1003})
changed: [172.31.24.73] => (item={u'name': u'testuser2', u'groups': [u'ansadmin'], u'uid': 1003})

PLAY RECAP *********************************************************************************************************
172.31.18.149              : ok=2    changed=0    unreachable=0    failed=0    skipped=0    rescued=0    ignored=0
172.31.24.73               : ok=2    changed=1    unreachable=0    failed=0    skipped=0    rescued=0    ignored=0
172.31.28.45               : ok=2    changed=0    unreachable=0    failed=0    skipped=0    rescued=0    ignored=0

[ansadmin@ip-172-31-27-208 assignment]$
```

RedHat Server ::

```
[root@ip-172-31-18-149 ~]# cat /etc/passwd | grep -i test
testuser1:x:1002:1002::/home/testuser1:/bin/bash
testuser2:x:1003:1003::/home/testuser2:/bin/bash
[root@ip-172-31-18-149 ~]# cat /etc/group | grep -i test
ansadmin:x:1001:testuser1,testuser2
testuser1:x:1002:
testuser2:x:1003:
[root@ip-172-31-18-149 ~]#
```

Suse Linux Server

```
ip-172-31-24-73:~ # cat /etc/passwd | grep -i test
testuser1:x:1002:100::/home/testuser1:/bin/bash
testuser2:x:1003:100::/home/testuser2:/bin/bash
ip-172-31-24-73:~ # cat /etc/group | grep -i test
ansadmin:x:1000:testuser1,testuser2
ip-172-31-24-73:~ #
```

Ubuntu Server ::

```
ubuntu@ip-172-31-28-45:~$ cat /etc/passwd | grep -i test
testuser1:x:1002:1002::/home/testuser1:/bin/sh
testuser2:x:1003:1003::/home/testuser2:/bin/sh
ubuntu@ip-172-31-28-45:~$ cat /etc/group | grep -i test
ansadmin:x:1001:testuser1,testuser2
testuser1:x:1002:
testuser2:x:1003:
ubuntu@ip-172-31-28-45:~$
```