ANSIBLE-02

1) WATCH ANSIBLE-02 VIDEO AND WRITE DOWN NOTES.2) INSTALL HTTPD USING ANSIBLE PLAYBOOK, USE HANDLERS,NOTIFIERS.

→CREATE TWO SERVERS WITH LINUX-2 IMAGE WHICH WILL ACT AS WORKERS

on ansible controller add inventory with name linux in hosts file

→ON ANSIBLE CONTROLLER CREATE A FILE httpd.yml AND WRITE THE PLAYBOOK

vi apache.yml

```
---
- hosts: all
  become: yes
  tasks:
    - name: Install httpd
      yum:
        name: httpd
        state: present
      notify: Restart httpd

    - name: Ensure httpd is started
      service:
        name: httpd
        state: started

  handlers:
    - name: Restart httpd
      service:
        name: httpd
        state: restarted
```

ansible-playbook httpd.yml –syntax-check **(check the syntax error on cli)**

```
ubuntu@ip-172-31-2-241:~$ ansible-playbook httpd.yml --syntax-check

playbook: httpd.yml
```

ansible linux -m ping

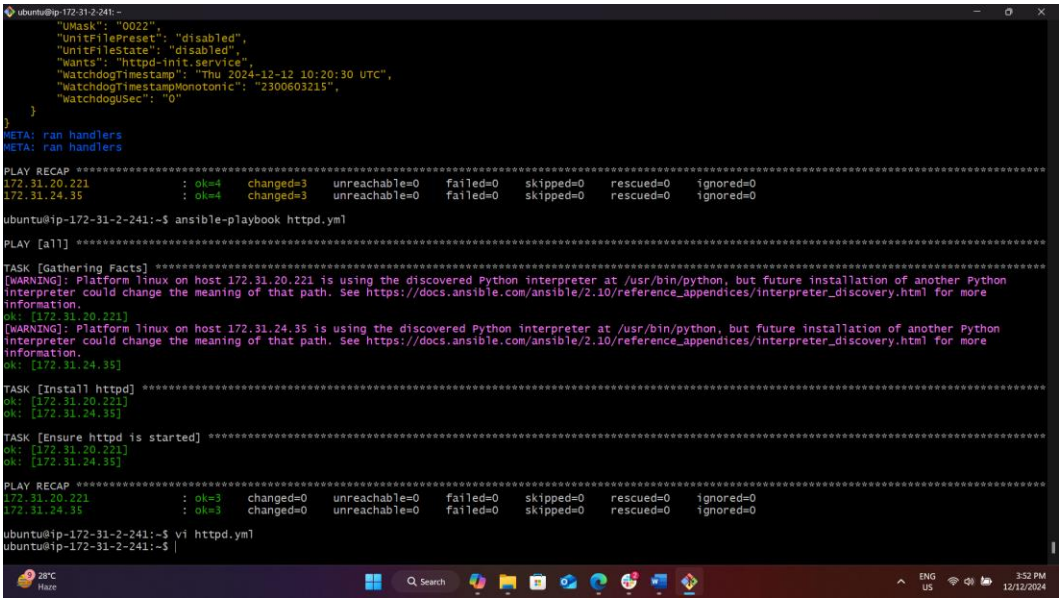
```
ubuntu@ip-172-31-2-241:~$ ansible linux -m ping
172.31.20.221 | UNREACHABLE! => {
    "changed": false,
    "msg": "Failed to connect to the host via ssh: Warning: Permanently added '172.31.20.221' (ED25519) to the list of known hosts.\r\nroot@172.31.20.221: Permission denied (publickey,gssapi-keyex,gssapi-with-mic).",
    "unreachable": true
}
172.31.24.35 | UNREACHABLE! => {
    "changed": false,
    "msg": "Failed to connect to the host via ssh: Warning: Permanently added '172.31.24.35' (ED25519) to the list of known hosts.\r\nroot@172.31.24.35: Permission denied (publickey,gssapi-keyex,gssapi-with-mic).",
    "unreachable": true
}
```

<user permission issue , generate ssh-keygen and add to workers and restart sshd>

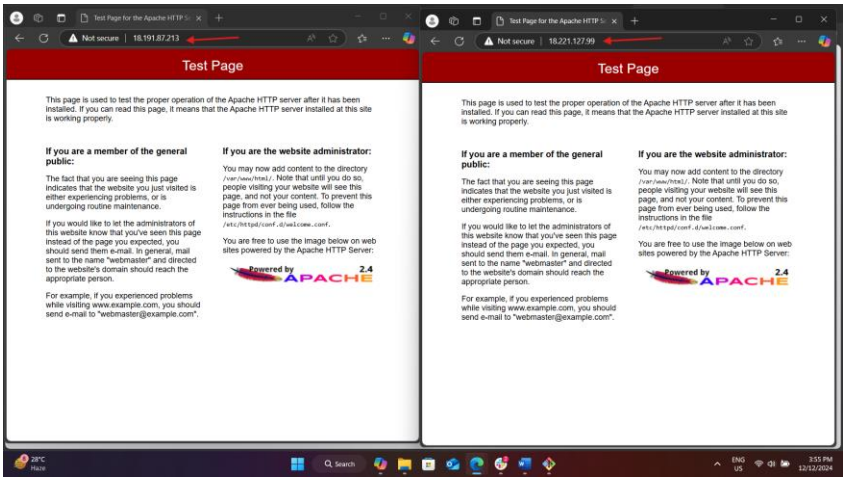
<edit the ansible.cfg and add remote-user as ec2-user>

```
ubuntu@ip-172-31-2-241:/etc/ansible$ ansible linux -m ping
[WARNING]: Platform linux on host 172.31.24.35 is using the discovered Python interpreter at /usr/bin/python, but future installation of another Python interpreter could change the meaning of that path. See https://docs.ansible.com/ansible/2.10/reference_appendices/interpreter_discovery.html for more information.
172.31.24.35 | SUCCESS => {
    "ansible_facts": {
        "discovered_interpreter_python": "/usr/bin/python"
    },
    "changed": false,
    "ping": "pong"
}
[WARNING]: Platform linux on host 172.31.20.221 is using the discovered Python interpreter at /usr/bin/python, but future installation of another Python interpreter could change the meaning of that path. See https://docs.ansible.com/ansible/2.10/reference_appendices/interpreter_discovery.html for more information.
172.31.20.221 | SUCCESS => {
    "ansible_facts": {
        "discovered_interpreter_python": "/usr/bin/python"
    },
    "changed": false,
    "ping": "pong"
}
```

ansible-playbook httpd.yml



→CHECKING ON BROWSER WITH PUBLIC IP'S IF IT IS ACCESSABLE



3) WRITE A ANSIBLE PLAYBOOK TO INSTALL APACHE TOMCAT.

→CREATE A PLAYBOOK NAME tomcat.yml

```
---
- hosts: all
  become: yes
  tasks:
    - name: java install
      yum:
        name: java-17*
        state: present
    - name: Tomcat download
      get_url:
       url: https://dlcdn.apache.org/tomcat/tomcat-9/v9.0.98/bin/apache-tomcat-9.0.98.tar.gz
       dest: /opt/apache-tomcat-9.0.98.tar.gz
    - name: Extracting tomcat
      unarchive:
        src: /opt/apache-tomcat-9.0.98.tar.gz
        dest: /opt
        remote_src: yes
    - name: Changing tomcat directory permissions
      file:
        path: /opt/apache-tomcat-9.0.98
        owner: ec2-user
        group: ec2-user
        recurse: yes
    - name: Starting tomcat
      command: /opt/apache-tomcat-9.0.98/bin/startup.sh
```

>get-url = this helps with downloading packages from web

>dest = destination

>unarchive = like the command like tar xvf

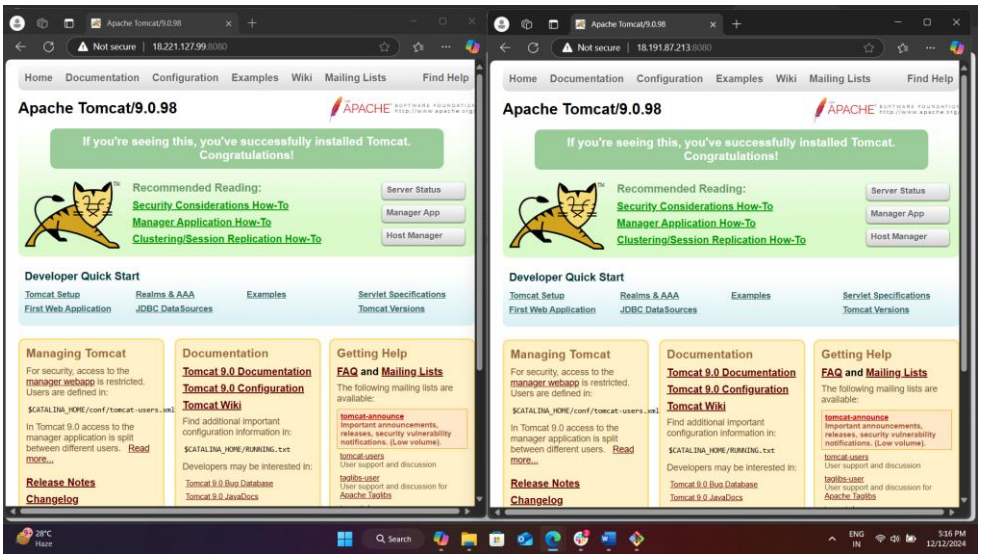
>src = source

ansible-playbook httpd.yml –syntax-check **(check the syntax error on cli)**

ansible-playbook tomcat.yml

```
TASK [Gathering Facts] *********************************************************************************************************************************************************************
[WARNING]: Platform linux on host 172.31.20.221 is using the discovered Python interpreter at /usr/bin/python, but future installation of another Python interpreter could
change the meaning of that path. See https://docs.ansible.com/ansible/2.10/reference_appendices/interpreter_discovery.html for more information.
ok: [172.31.20.221]
[WARNING]: Platform linux on host 172.31.24.35 is using the discovered Python interpreter at /usr/bin/python, but future installation of another Python interpreter could
change the meaning of that path. See https://docs.ansible.com/ansible/2.10/reference_appendices/interpreter_discovery.html for more information.
ok: [172.31.24.35]

TASK [java install] ************************************************************************************************************************************************************************
changed: [172.31.20.221]
changed: [172.31.24.35]

TASK [Tomcat download] *********************************************************************************************************************************************************************
changed: [172.31.20.221]
changed: [172.31.24.35]

TASK [Extracting tomcat] *******************************************************************************************************************************************************************
changed: [172.31.24.35]
changed: [172.31.20.221]

TASK [Changing tomcat directory permissions] ***********************************************************************************************************************************************
changed: [172.31.20.221]
changed: [172.31.24.35]

TASK [Starting tomcat] *********************************************************************************************************************************************************************
changed: [172.31.20.221]
changed: [172.31.24.35]

PLAY RECAP *********************************************************************************************************************************************************************************
172.31.20.221              : ok=6    changed=5    unreachable=0    failed=0    skipped=0    rescued=0    ignored=0
172.31.24.35               : ok=6    changed=5    unreachable=0    failed=0    skipped=0    rescued=0    ignored=0
```

<checking on browser if tomcat is accessable>



4) WRITE A ANSIBLE PLAYBOOK TO PROVISION ONE EC2 ON AWS.

→INSTALL AMAZON AWS ON ANSIBLE

ansible-galaxy collection install amazon.aws

```
ubuntu@ip-172-31-2-241:~$ ansible-galaxy collection install amazon.aws
Starting galaxy collection install process
Process install dependency map
Starting collection install process
Installing 'amazon.aws:9.1.0' to '/home/ubuntu/.ansible/collections/ansible_collections/amazon/aws'
Downloading https://galaxy.ansible.com/api/v3/plugin/ansible/content/published/collections/artifacts/amazon-aws-9.1.0.tar.gz to /home/ubuntu/.ansible/tmp/ansible-local-1911
37pa7pw_i/tmp2lr_ka9d
amazon.aws (9.1.0) was installed successfully
```

sudo apt install -y awscli

```
ubuntu@ip-172-31-2-241:~$ aws --version
aws-cli/1.22.34 Python/3.10.12 Linux/6.8.0-1015-aws botocore/1.23.34
```

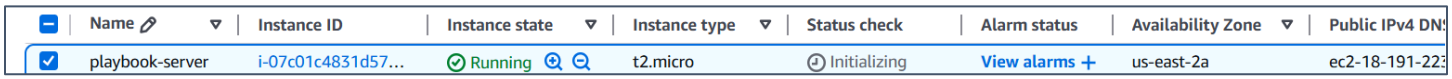
aws configure

```
ubuntu@ip-172-31-2-241:~$ aws configure
AWS Access Key ID [None]: AKIAVVZPCK2JLYC6PJME
AWS Secret Access Key [None]: yr1gPcxigzOsHBfD9vJVO1Mtc6JmsG8Io+Q
fCVWW
Default region name [None]: us-east-2
Default output format [None]: json
```

#CREATE A PLAYBOOK WITH NAME ec2.yml AND ADD THE FOLLOWING CONTENT

```
---
- name: Provision an EC2 instance
 hosts: localhost
 gather_facts: false
 vars:
  ansible_python_interpreter: /usr/bin/python3
  aws_access_key: "your_access_key_id"
  aws_secret_key: "your_secret_access_key"
 tasks:
  - name: Launch EC2 instance
   amazon.aws.ec2_instance:
     name: playbook-server
     key_name: ohio
     instance_type: t2.micro
     image_id: ami-088d38b423bff245f
     region: us-east-2
     security_groups: default
     wait: yes
     count: 1
     aws_access_key: "{{ aws_access_key }}"
     aws_secret_key: "{{ aws_secret_key }}"
```

```
ubuntu@ip-172-31-2-241:~$ ansible-playbook ec2.yml
[WARNING]: Collection amazon.aws does not support Ansible version 2.10.8

PLAY [Provision an EC2 instance] ***********************************************

TASK [Launch EC2 instance] *****************************************************
changed: [localhost]

PLAY RECAP *********************************************************************
localhost                  : ok=1    changed=1    unreachable=0    failed=0    skipped=0    rescued=0    ignored=0
```



5) WRITE A ANSIBLE PLAYBOOK TO COPY ONE FILE FROM NODE-1 TO NODE-2.

→CREATE A INVENTORY FILE node_inventory WITH FOLLOWING CONTENT

```
[node1]
node-1 ansible_host=NODE_1_IP

[node2]
node-2 ansible_host=NODE_2_IP
```

→CREATE A PLAYBOOK copy.yml WITH FOLLOWING CONTENT

```
---
- name: Create a file on node-1 and copy it to node-2
  hosts: node1
  gather_facts: false
  tasks:
    - name: Create a file on node-1
      file:
        path: /home/ec2-user/test.txt
        state: touch

- hosts: node1
  gather_facts: false
  tasks:
    - name: Fetch file from node-1
      fetch:
        src: /home/ec2-user/test.txt
        dest: /tmp/test.txt
        flat: yes

- hosts: node2
  gather_facts: false
  tasks:
    - name: Copy file to node-2
      copy:
        src: /tmp/test.txt
        dest: /home/ec2-user/test.txt
```

→ NOW RUN THE COMMAND FOR PLAYBOOK

ansible-playbook -i /home/ubuntu/node_inventory copy.yml

```
ubuntu@ip-172-31-2-241:~$ vi copy.yml
ubuntu@ip-172-31-2-241:~$ ansible-playbook -i /home/ubuntu/node_inventory copy.yml

PLAY [Create a file on node-1 and copy it to node-2] ***************************************************************************

TASK [Create a file on node-1] *************************************************************************************************
[WARNING]: Platform linux on host node-1 is using the discovered Python interpreter at /usr/bin/python, but future installation of
another Python interpreter could change the meaning of that path. See
https://docs.ansible.com/ansible/2.10/reference_appendices/interpreter_discovery.html for more information.
changed: [node-1]

PLAY [node1] *******************************************************************************************************************

TASK [Fetch file from node-1] **************************************************************************************************
changed: [node-1]

PLAY [node2] *******************************************************************************************************************

TASK [Copy file to node-2] *****************************************************************************************************
[WARNING]: Platform linux on host node-2 is using the discovered Python interpreter at /usr/bin/python, but future installation of
another Python interpreter could change the meaning of that path. See
https://docs.ansible.com/ansible/2.10/reference_appendices/interpreter_discovery.html for more information.
changed: [node-2]

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

→CHECK THE NODE2 IF FILE IS AVAILABLE

```
[ec2-user@ip-172-31-20-221 ~]$ ll
total 0
-rw-r--r-- 1 root root 0 Dec 12 13:15 test.txt
[ec2-user@ip-172-31-20-221 ~]$
```

6) WRITE A ANSIBLE PLAYBOOK TO CREATE DIFFERENT FILES WITH DIFFERENT NAMES USING SINGLE PLAYBOOK.

→CREATE A PLAYBOOK create_files.yml WITH FOLLOWING CONTENT

```
---
- name: Create multiple files
  hosts: localhost
  tasks:
    - name: Ensure the directory exists
      file:
        path: /home/ec2-user
        state: directory

    - name: Create files with different names
      file:
        path: "/home/ec2-user/{{ item }}"
        state: touch
      loop:
        - file1.txt
        - file2.txt
        - file3.txt
        - file4.txt
        - file5.txt
```

→RUN THE PLAYBOOK # ansible-playbook create_files.yml

```
ubuntu@ip-172-31-2-241:~$ vi create_files.yml
ubuntu@ip-172-31-2-241:~$ ansible-playbook create_files.yml

PLAY [Create multiple files] ***************************************************************************************************

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

TASK [Ensure the directory exists] *********************************************************************************************
changed: [localhost]

TASK [Create files with different names] ***************************************************************************************
changed: [localhost] => (item=file1.txt)
changed: [localhost] => (item=file2.txt)
changed: [localhost] => (item=file3.txt)
changed: [localhost] => (item=file4.txt)
changed: [localhost] => (item=file5.txt)

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