

1) Install httpd using ansible playbook, use handlers, notifiers.

**Purpose:** Install and start the Apache HTTP server (apache2 on Ubuntu) with a handler for service control.

**Explanation:**

**Task Overview:** This playbook installs the apache2 package, which provides the httpd web server on Ubuntu.

1. **Using Handlers and Notifiers:** If apache2 is installed or updated, the notify triggers a handler to start the service. This method is efficient because the handler only runs if there's a change, which saves resources and ensures the service is started only when needed.
2. **Modules:**
  - **apt:** Installs apache2.
  - **service:** Starts the service if notified.

**Playbook Breakdown:**

- **- name: Install apache2 and start service:** This step installs Apache2 and starts the service.
- **hosts: all:** The play will run on all specified hosts in the inventory.

Tasks:

- **name: Install apache2 package:** This task installs the Apache2 package.
- **apt:** Uses the apt module, which is for managing packages on Debian-based systems.
- **name: apache2:** Specifies the apache2 package to be installed.
- **state: present:** Ensures the Apache2 package is installed.
- **update\_cache: yes:** Updates the package cache before installation.
- **notify: Start apache2 service:** Notifies the handler to start the service after installation.

Handlers:

- **name: Start apache2 service:** This handler starts the Apache2 service.
- **service:** Uses the service module to manage services.
- **name: apache2:** Specifies the Apache2 service to start.
- **state: started:** Ensures the Apache2 service is started.

The below one is my playbook script to Install and start the Apache HTTP server (apache2 on Ubuntu) with a handler for service control

```
---
- name: Install apache2 and start service
  hosts: all
  # become: yes this no need we are running as root user.

  tasks:
    - name: Install apache2 package
      apt:
        name: apache2
        state: present
        update_cache: yes
      notify:
        - Start apache2 service

  handlers:
    - name: Start apache2 service
      service:
        name: apache2
        state: started
```

CMD: `ansible-playbook install_apache2.yml --syntax-check`

The command `ansible-playbook install_apache2.yml --syntax-check` is used to check the syntax of the `install_apache2.yml` playbook for any errors without actually running it.

CMD: `ansible-playbook install_apache2.yml --check`

The command `ansible-playbook install_apache2.yml --check` shows what changes the playbook will make without actually applying them.

```
root@AnsibleMaster:/etc/ansible# ansible-playbook install_apache2.yml --syntax-check
playbook: install_apache2.yml
root@AnsibleMaster:/etc/ansible# ansible-playbook install_apache2.yml --check

PLAY [Install apache2 and start service] *****

TASK [Gathering Facts] *****
ok: [172.31.24.16] ✓
ok: [172.31.23.19] ✓

TASK [Install apache2 package] *****
ok: [172.31.24.16] ✓
ok: [172.31.23.19] ✓

PLAY RECAP *****
172.31.23.19      : ok=2    changed=0    unreachable=0    failed=0    skipped=0    rescued=0    ignor
ed=0
172.31.24.16 ✓  : ok=2    changed=0    unreachable=0    failed=0    skipped=0    rescued=0    ignor
ed=0
```

CMD: ansible-playbook install\_a

```
root@AnsibleMaster:/etc/ansible# ansible-playbook install_apache2.yml

PLAY [Install apache2 and start service] *****

TASK [Gathering Facts] *****
ok: [172.31.23.19] ✓
ok: [172.31.24.16]

TASK [Install apache2 package] *****
changed: [172.31.24.16] ✓
changed: [172.31.23.19]

RUNNING HANDLER [Start apache2 service] *****
ok: [172.31.24.16] ✓
ok: [172.31.23.19]

PLAY RECAP *****
172.31.23.19      : ok=3    changed=1    unreachable=0    failed=0    skipped=0    rescued=0    ignor
ed=0
172.31.24.16 ✓   : ok=3    changed=1    unreachable=0    failed=0    skipped=0    rescued=0    ignor
ed=0
root@AnsibleMaster:/etc/ansible# |
```

apache2.yml

The command `ansible-playbook install_apache2.yml` runs the playbook and applies the changes defined in the `install_apache2.yml` file to the target systems.

Now we see the status of the servers.

This is AnsibleNode01 server apache 2 is running.

```
ubuntu@AnsibleNode01:~$ sudo systemctl status apache2
● apache2.service - The Apache HTTP Server
   Loaded: loaded (/usr/lib/systemd/system/apache2.service; enabled; preset: enabled)
   Active: active (running) since Wed 2024-11-06 13:03:45 UTC; 35min ago
     Docs: https://httpd.apache.org/docs/2.4/
   Main PID: 13051 (apache2)
    Tasks: 55 (limit: 1130)
  Memory: 5.4M (peak: 5.6M)
     CPU: 116ms
   CGroup: /system.slice/apache2.service
           └─13051 /usr/sbin/apache2 -k start
             └─13054 /usr/sbin/apache2 -k start
               └─13055 /usr/sbin/apache2 -k start

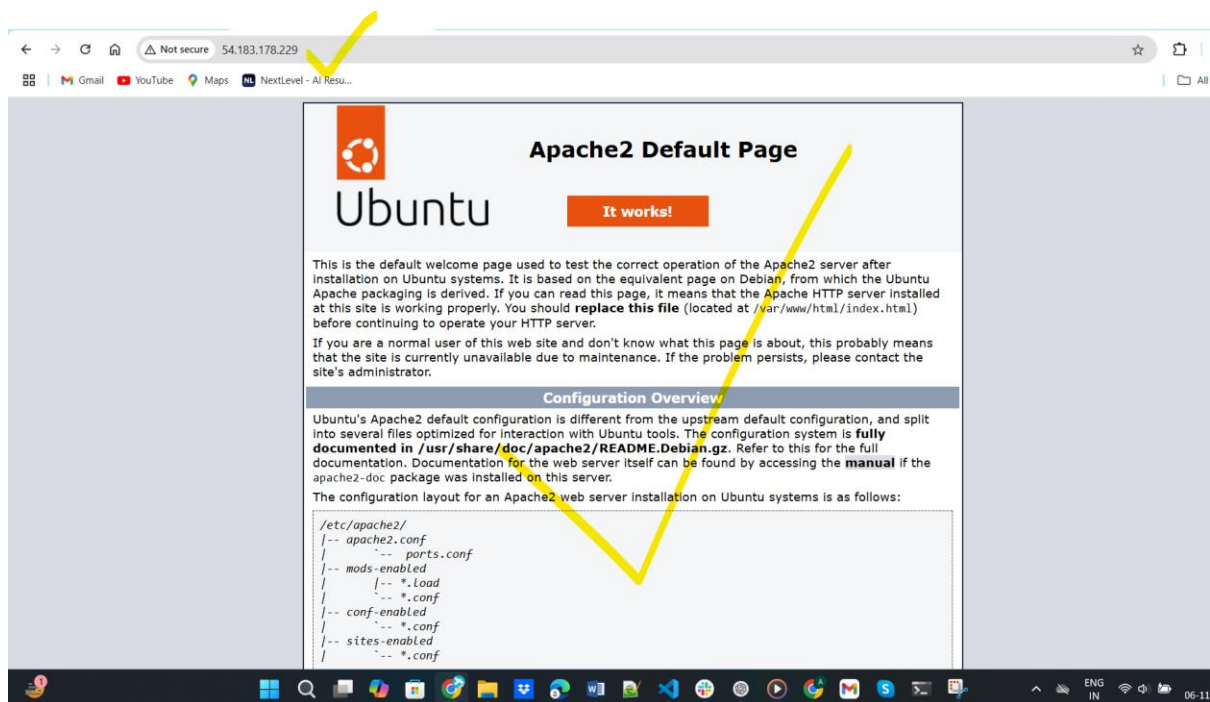
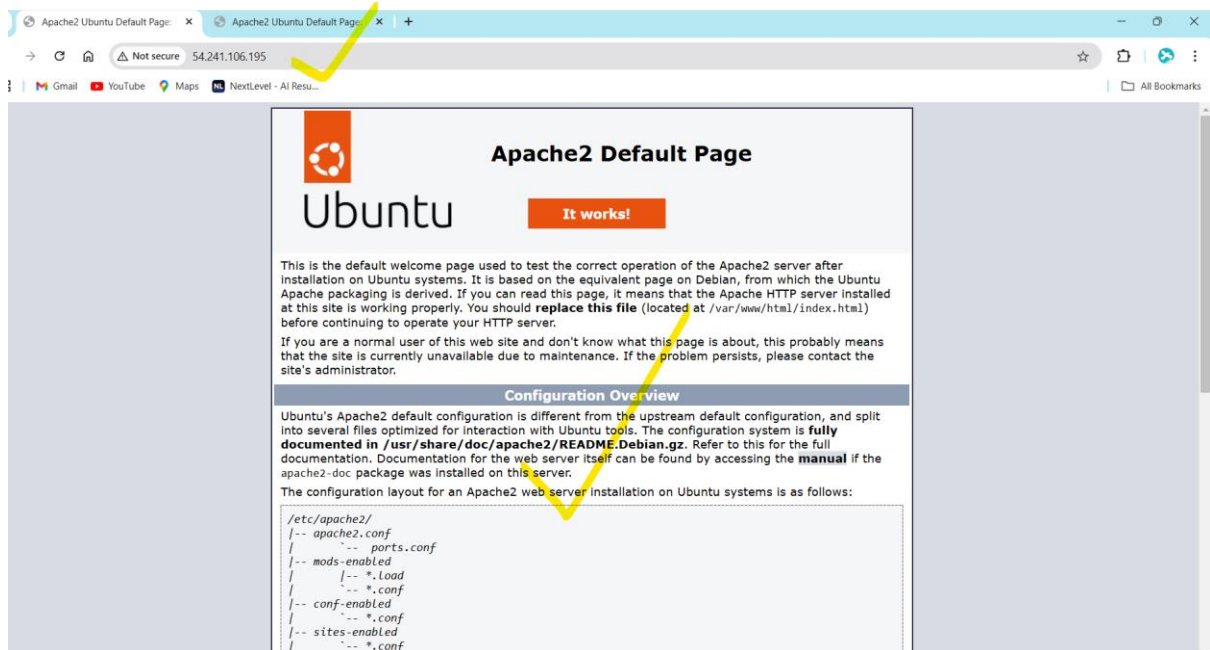
Nov 06 13:03:45 AnsibleNode01 systemd[1]: Starting apache2.service - The Apache HTTP Server...
Nov 06 13:03:45 AnsibleNode01 systemd[1]: Started apache2.service - The Apache HTTP Server.
ubuntu@AnsibleNode01:~$ |
```

This is AnsibleNode02 server apache 2 is running.

```
ubuntu@AnsibleNode02:~$ sudo systemctl status apache2
● apache2.service - The Apache HTTP Server
   Loaded: loaded (/usr/lib/systemd/system/apache2.service; enabled; preset: enabled)
   Active: active (running) since Wed 2024-11-06 13:03:45 UTC; 35min ago
     Docs: https://httpd.apache.org/docs/2.4/
   Main PID: 13132 (apache2)
    Tasks: 55 (limit: 1130)
  Memory: 5.4M (peak: 5.6M)
     CPU: 120ms
   CGroup: /system.slice/apache2.service
           └─13132 /usr/sbin/apache2 -k start
             └─13135 /usr/sbin/apache2 -k start
               └─13136 /usr/sbin/apache2 -k start

Nov 06 13:03:45 AnsibleNode02 systemd[1]: Starting apache2.service - The Apache HTTP Server...
Nov 06 13:03:45 AnsibleNode02 systemd[1]: Started apache2.service - The Apache HTTP Server.
ubuntu@AnsibleNode02:~$ |
```

And also we check the it's accessible on browsers.



It's accessible.

3) Write an ansible playbook to install apache tomcat.

Here I have written a playbook to install tomcat.

```
name: Download and Install Tomcat9 from tomcat.apache.org
hosts: all
become: true
vars:
  download_url: https://dlcdn.apache.org/tomcat/tomcat-9/v9.0.97/bin/apache-tomcat-9.0.97.tar.gz
  local_tomcat_path: /tmp/apache-tomcat-9.0.97.tar.gz
tasks:
  - name: Install OpenJDK 17
    apt:
      name: openjdk-17-jre-headless
      update_cache: yes
      state: present

  - name: Validate if Java is available
    shell: java -version

  - name: Create Tomcat group
    group:
      name: tomcat
      state: present

  - name: Create Tomcat user
    user:
      name: tomcat
      group: tomcat
      state: present

  - name: Create a Directory /opt/tomcat9
    file:
      path: /opt/tomcat9
      state: directory
      mode: 0755
      owner: tomcat
      group: tomcat

  - name: Download Tomcat archive locally
    local_action:
      module: get_url
      url: "{{ download_url }}"
      dest: "{{ local_tomcat_path }}"
      delegate_to: localhost

  - name: Copy Tomcat archive to remote hosts
    copy:
      src: "{{ local_tomcat_path }}"
      dest: /tmp/apache-tomcat-9.0.97.tar.gz
      mode: 0755

  - name: Extract Tomcat archive
    unarchive:
      src: /tmp/apache-tomcat-9.0.97.tar.gz
      dest: /opt/tomcat9
      mode: 0755
      remote_src: yes
```

```
remote_src: yes

  - name: Move files to the /opt/tomcat9 directory
    shell: mv /opt/tomcat9/apache-tomcat-9.0.97/* /opt/tomcat9
    args:
      removes: /opt/tomcat9/apache-tomcat-9.0.97

  - name: Ensure ownership and permissions for Tomcat directory
    file:
      path: /opt/tomcat9
      state: directory
      owner: tomcat
      group: tomcat
      recurse: yes

  - name: Create a service file for Tomcat
    copy:
      content: |-
        [Unit]
        Description=Tomcat Service
        After=network.target

        [Service]
        Type=forking
        User=tomcat
        Environment="CATALINA_PID=/opt/tomcat9/logs/tomcat.pid"
        Environment="CATALINA_BASE=/opt/tomcat9"
        Environment="CATALINA_HOME=/opt/tomcat9"
        Environment="CATALINA_OPTS=-Xms128M -Xmx1024M -server -XX:UseParallelGC"
        ExecStart=/opt/tomcat9/bin/startup.sh
        ExecStop=/opt/tomcat9/bin/shutdown.sh
        Restart=on-abnormal

        [Install]
        WantedBy=multi-user.target
      dest: /etc/systemd/system/tomcat.service

  - name: Reload systemd to apply changes
    systemd:
      daemon-reload: yes

  - name: Enable and start Tomcat service
    systemd:
      name: tomcat
      enabled: yes
      state: started

  - name: Connect to Tomcat server on port 8080 and check status 200 - Try 5 times
    uri:
      url: http://localhost:8080
      register: result
      until: result.status == 200
      retries: 5
      delay: 10
```

I run the play book that should executed.

```
TASK [Ensure ownership and permissions for Tomcat directory] *****
*****
changed: [worker01]
changed: [worker02]
changed: [worker03]

TASK [Create a service file for Tomcat] *****
*****
changed: [worker01]
changed: [worker02]
changed: [worker03]

TASK [Reload systemd to apply changes] *****
*****
ok: [worker01]
ok: [worker02]
ok: [worker03]

TASK [Enable and start Tomcat service] *****
*****
changed: [worker01]
changed: [worker02]
changed: [worker03]

TASK [Connect to Tomcat server on port 8080 and check status 200 - Try 5 times] *****
*****
FAILED - RETRYING: [worker01]: Connect to Tomcat server on port 8080 and check status 200 - Try 5 times (5 retries left).
FAILED - RETRYING: [worker02]: Connect to Tomcat server on port 8080 and check status 200 - Try 5 times (5 retries left).
ok: [worker03]
ok: [worker01]
ok: [worker02]

PLAY RECAP *****
worker01: ok=15 changed=6 unreachable=0 failed=0 skipped=0 rescued=0 ignored=0
worker02: ok=15 changed=6 unreachable=0 failed=0 skipped=0 rescued=0 ignored=0
worker03: ok=15 changed=6 unreachable=0 failed=0 skipped=0 rescued=0 ignored=0
```

Now I want to check the all worker nodes the tomcat service is running or not and that should available on browser.

The below in three worker nodes tomcat is active.

```
ubuntu@workernode01:~$ sudo systemctl status tomcat
● tomcat.service - Tomcat Service
   Loaded: loaded (/etc/systemd/system/tomcat.service; enabled; preset: enabled)
   Active: active (running) since Wed 2024-11-13 18:15:42 UTC; 17min ago
     Process: 29707 ExecStart=/opt/tomcat9/bin/startup.sh (code=exited, status=0/SUCCESS)
    Main PID: 29717 (java)
       Tasks: 31 (limit: 1130)
      Memory: 222.6M (peak: 241.7M)
         CPU: 6.199s
        CGroup: /system.slice/tomcat.service
                └─29717 /usr/bin/java -Djava.util.logging.config.file=/opt/tomcat9/conf/logging.properties -Djava.util.logging.manager=org.apache.juli.ClassLoaderLogManager

Nov 13 18:15:42 workernode01 systemd[1]: Starting tomcat.service - Tomcat Service...
Nov 13 18:15:42 workernode01 startup.sh[29707]: Tomcat started.
Nov 13 18:15:42 workernode01 systemd[1]: Started tomcat.service - Tomcat Service.
lines 1-14/14 (END)
```

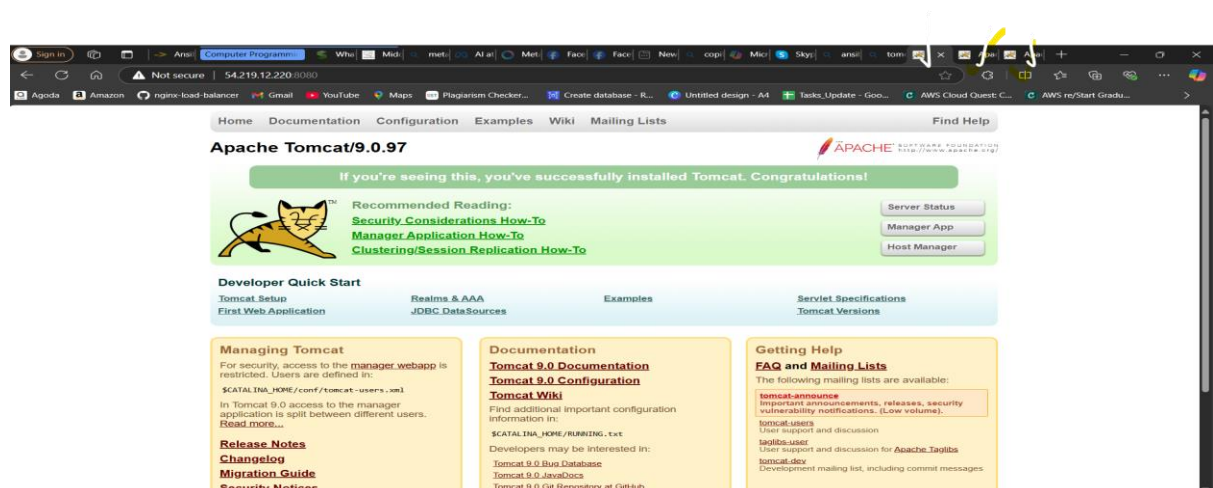
```
ubuntu@workernode02:~$ sudo systemctl status tomcat
● tomcat.service - Tomcat Service
   Loaded: loaded (/etc/systemd/system/tomcat.service; enabled; preset: enabled)
   Active: active (running) since Wed 2024-11-13 18:15:42 UTC; 15min ago
     Process: 29495 ExecStart=/opt/tomcat9/bin/startup.sh (code=exited, status=0/SUCCESS)
    Main PID: 29505 (java)
       Tasks: 31 (limit: 1130)
      Memory: 216.7M (peak: 216.9M)
         CPU: 6.125s
        CGroup: /system.slice/tomcat.service
                └─29505 /usr/bin/java -Djava.util.logging.config.file=/opt/tomcat9/conf/logging.properties -Djava.util.logging.manager=org.apache.juli.ClassLoaderLogManager

Nov 13 18:15:42 workernode02 systemd[1]: Starting tomcat.service - Tomcat Service...
Nov 13 18:15:42 workernode02 startup.sh[29495]: Tomcat started.
Nov 13 18:15:42 workernode02 systemd[1]: Started tomcat.service - Tomcat Service.
lines 1-14/14 (END)
```

```
ubuntu@workernode03:~$ sudo systemctl status tomcat
● tomcat.service - Tomcat Service
   Loaded: loaded (/etc/systemd/system/tomcat.service; enabled; preset: enabled)
   Active: active (running) since Wed 2024-11-13 18:15:42 UTC; 14min ago
     Process: 28390 ExecStart=/opt/tomcat9/bin/startup.sh (code=exited, status=0/SUCCESS)
    Main PID: 28400 (java)
       Tasks: 31 (limit: 1130)
      Memory: 221.0M (peak: 222.8M)
         CPU: 6.175s
        CGroup: /system.slice/tomcat.service
                └─28400 /usr/bin/java -Djava.util.logging.config.file=/opt/tomcat9/conf/logging.properties -Djava.util.logging.manager=org.apache.juli.ClassLoaderLogManager

Nov 13 18:15:42 workernode03 systemd[1]: Starting tomcat.service - Tomcat Service...
Nov 13 18:15:42 workernode03 startup.sh[28390]: Tomcat started.
Nov 13 18:15:42 workernode03 systemd[1]: Started tomcat.service - Tomcat Service.
lines 1-14/14 (END)
```

Now I want to browsing.



Three servers also accessing the tomcat.



4) Write an ansible playbook to provision one ec2 on aws.

To create ec2 instance through playbook in ansible.

### Follow the below steps:

First you need to update the server.

```
ubuntu@AnsibleMaster:~$ sudo apt update
Hit:1 http://us-west-1.ec2.archive.ubuntu.com/ubuntu jammy InRelease
Get:2 http://us-west-1.ec2.archive.ubuntu.com/ubuntu jammy-updates InRelease [128 kB]
Get:3 http://us-west-1.ec2.archive.ubuntu.com/ubuntu jammy-backports InRelease [127 kB]
Get:4 http://security.ubuntu.com/ubuntu jammy-security InRelease [129 kB]
Get:5 http://us-west-1.ec2.archive.ubuntu.com/ubuntu jammy/universe amd64 Packages [14.1 MB]
Get:6 http://us-west-1.ec2.archive.ubuntu.com/ubuntu jammy/universe Translation-en [5652 kB]
Get:7 http://us-west-1.ec2.archive.ubuntu.com/ubuntu jammy/universe amd64 c-n-f Metadata [286 kB]
Get:8 http://us-west-1.ec2.archive.ubuntu.com/ubuntu jammy/multiverse amd64 Packages [217 kB]
Get:9 http://us-west-1.ec2.archive.ubuntu.com/ubuntu jammy/multiverse Translation-en [112 kB]
Get:10 http://us-west-1.ec2.archive.ubuntu.com/ubuntu jammy/multiverse amd64 c-n-f Metadata [8372 B]
Get:11 http://us-west-1.ec2.archive.ubuntu.com/ubuntu jammy-updates/main amd64 Packages [2146 kB]
Get:12 http://security.ubuntu.com/ubuntu jammy-security/main amd64 Packages [1911 kB]
Get:13 http://us-west-1.ec2.archive.ubuntu.com/ubuntu jammy-updates/main Translation-en [367 kB]
Get:14 http://us-west-1.ec2.archive.ubuntu.com/ubuntu jammy-updates/main amd64 c-n-f Metadata [17.9 kB]
Get:15 http://us-west-1.ec2.archive.ubuntu.com/ubuntu jammy-updates/restricted amd64 Packages [2633 kB]
Get:16 http://us-west-1.ec2.archive.ubuntu.com/ubuntu jammy-updates/restricted Translation-en [455 kB]
Get:17 http://us-west-1.ec2.archive.ubuntu.com/ubuntu jammy-updates/restricted amd64 c-n-f Metadata [612 B]
Get:18 http://us-west-1.ec2.archive.ubuntu.com/ubuntu jammy-updates/universe amd64 Packages [1134 kB]
Get:19 http://us-west-1.ec2.archive.ubuntu.com/ubuntu jammy-updates/universe Translation-en [265 kB]
Get:20 http://us-west-1.ec2.archive.ubuntu.com/ubuntu jammy-updates/universe amd64 c-n-f Metadata [26.4 kB]
Get:21 http://us-west-1.ec2.archive.ubuntu.com/ubuntu jammy-updates/multiverse amd64 Packages [43.3 kB]
Get:22 http://us-west-1.ec2.archive.ubuntu.com/ubuntu jammy-updates/multiverse Translation-en [10.8 kB]
Get:23 http://us-west-1.ec2.archive.ubuntu.com/ubuntu jammy-updates/multiverse amd64 c-n-f Metadata [440 B]
Get:24 http://us-west-1.ec2.archive.ubuntu.com/ubuntu jammy-backports/main amd64 Packages [67.7 kB]
Get:25 http://us-west-1.ec2.archive.ubuntu.com/ubuntu jammy-backports/main Translation-en [11.1 kB]
Get:26 http://us-west-1.ec2.archive.ubuntu.com/ubuntu jammy-backports/main amd64 c-n-f Metadata [388 B]
Get:27 http://us-west-1.ec2.archive.ubuntu.com/ubuntu jammy-backports/restricted amd64 c-n-f Metadata [116 B]
Get:28 http://us-west-1.ec2.archive.ubuntu.com/ubuntu jammy-backports/universe amd64 Packages [28.8 kB]
Get:29 http://us-west-1.ec2.archive.ubuntu.com/ubuntu jammy-backports/universe Translation-en [16.5 kB]
Get:30 http://us-west-1.ec2.archive.ubuntu.com/ubuntu jammy-backports/universe amd64 c-n-f Metadata [672 B]
Get:31 http://us-west-1.ec2.archive.ubuntu.com/ubuntu jammy-backports/multiverse amd64 c-n-f Metadata [116 B]
Get:32 http://security.ubuntu.com/ubuntu jammy-security/main Translation-en [307 kB]
Get:33 http://security.ubuntu.com/ubuntu jammy-security/main amd64 c-n-f Metadata [13.3 kB]
Get:34 http://security.ubuntu.com/ubuntu jammy-security/restricted amd64 Packages [2545 kB]
Get:35 http://security.ubuntu.com/ubuntu jammy-security/restricted Translation-en [440 kB]
```

### **CMD:** sudo apt install python3-pip

```
ubuntu@AnsibleMaster:~$ sudo apt install python3-pip
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following packages will be installed:
  build-essential bzip2 cpp cpp-11 dpkg-dev fakeroot fontconfig-config fonts-dejavu-core g++ g++-11 gcc gcc-11 gcc-11-base javascript-common
  libalgorithm-diff-perl libalgorithm-diff-xs-perl libalgorithm-merge-perl libasan6 libatomic1 libc-dev-bin libc-devtools libc6-dev libcc1-0 libcrypt-dev
  libdeflate0 libdpkg-perl libexpat1-dev libfakeroot libfile-fcntllock-perl libfontconfig1 libgcc-11-dev libgd3 libgomp1 libisl23 libitm1 libjbig0
  libjpeg-turbo8 libjpeg8 libjs-jquery libjs-sphinxdoc libjs-underscore liblsan0 libmpc3 libnsl-dev libpython3-dev libpython3.10-dev libquadmath0
  libstdc++-11-dev libtiff5 libtirpc-dev libtsan0 libubsan1 libwebp7 libxpm4 linux-libc-dev lto-disabled-list make manpages-dev python3-dev python3-wheel
  python3.10-dev rpcsvc-proto zlib1g-dev
Suggested packages:
  bzip2-doc cpp-doc gcc-11-locales debiana-keyring g++-multilib g++-11-multilib gcc-11-doc gcc-multilib autoconf automake libtool flex bison gdb gcc-doc
  gcc-11-multilib apache2 | lighttpd | httpd glibc-doc bsr libgd-tools libstdc++-11-doc make-doc
The following NEW packages will be installed:
  build-essential bzip2 cpp cpp-11 dpkg-dev fakeroot fontconfig-config fonts-dejavu-core g++ g++-11 gcc gcc-11 gcc-11-base javascript-common
  libalgorithm-diff-perl libalgorithm-diff-xs-perl libalgorithm-merge-perl libasan6 libatomic1 libc-dev-bin libc-devtools libc6-dev libcc1-0 libcrypt-dev
  libdeflate0 libdpkg-perl libexpat1-dev libfakeroot libfile-fcntllock-perl libfontconfig1 libgcc-11-dev libgd3 libgomp1 libisl23 libitm1 libjbig0
  libjpeg-turbo8 libjpeg8 libjs-jquery libjs-sphinxdoc libjs-underscore liblsan0 libmpc3 libnsl-dev libpython3-dev libpython3.10-dev libquadmath0
  libstdc++-11-dev libtiff5 libtirpc-dev libtsan0 libubsan1 libwebp7 libxpm4 linux-libc-dev lto-disabled-list make manpages-dev python3-dev python3-pip
  python3-wheel python3.10-dev rpcsvc-proto zlib1g-dev
0 upgraded, 64 newly installed, 0 to remove and 16 not upgraded.
Need to get 71.3 MB of archives.
After this operation, 239 MB of additional disk space will be used.
Do you want to continue? [Y/n] y
Get:1 http://us-west-1.ec2.archive.ubuntu.com/ubuntu jammy-updates/main amd64 libc-dev-bin amd64 2.35-0ubuntu3.8 [20.3 kB]
Get:2 http://us-west-1.ec2.archive.ubuntu.com/ubuntu jammy-updates/main amd64 linux-libc-dev amd64 5.15.0-125.135 [1345 kB]
Get:3 http://us-west-1.ec2.archive.ubuntu.com/ubuntu jammy/main amd64 libcrypt-dev amd64 1:4.4.27-1 [112 kB]
Get:4 http://us-west-1.ec2.archive.ubuntu.com/ubuntu jammy/main amd64 rpcsvc-proto amd64 1.4.2-0ubuntu6 [68.5 kB]
Get:5 http://us-west-1.ec2.archive.ubuntu.com/ubuntu jammy-updates/main amd64 libtirpc-dev amd64 1.3.2-2ubuntu0.1 [192 kB]
Get:6 http://us-west-1.ec2.archive.ubuntu.com/ubuntu jammy/main amd64 libnsl-dev amd64 1.3.0-2build2 [71.3 kB]
Get:7 http://us-west-1.ec2.archive.ubuntu.com/ubuntu jammy-updates/main amd64 libc6-dev amd64 2.35-0ubuntu3.8 [2100 kB]
Get:8 http://us-west-1.ec2.archive.ubuntu.com/ubuntu jammy-updates/main amd64 gcc-11-base amd64 11.4.0-1ubuntu1-22.04 [20.2 kB]
Get:9 http://us-west-1.ec2.archive.ubuntu.com/ubuntu jammy/main amd64 libisl23 amd64 0.24-2build1 [727 kB]
Get:10 http://us-west-1.ec2.archive.ubuntu.com/ubuntu jammy/main amd64 libmpc3 amd64 1.2.1-2build1 [46.9 kB]
Get:11 http://us-west-1.ec2.archive.ubuntu.com/ubuntu jammy-updates/main amd64 cpp-11 amd64 11.4.0-1ubuntu1-22.04 [10.0 MB]
Get:12 http://us-west-1.ec2.archive.ubuntu.com/ubuntu jammy/main amd64 cpp amd64 4:11.2.0-1ubuntu1 [27.7 kB]
Get:13 http://us-west-1.ec2.archive.ubuntu.com/ubuntu jammy-updates/main amd64 libcc1-0 amd64 12.3.0-1ubuntu1-22.04 [48.3 kB]
Get:14 http://us-west-1.ec2.archive.ubuntu.com/ubuntu jammy-updates/main amd64 libgomp1 amd64 12.3.0-1ubuntu1-22.04 [126 kB]
Get:15 http://us-west-1.ec2.archive.ubuntu.com/ubuntu jammy-updates/main amd64 libitm1 amd64 12.3.0-1ubuntu1-22.04 [30.2 kB]
```

CMD: pip install ansible

CMD: pip install boto3 botocore

```
ubuntu@AnsibleMaster:~$ pip install ansible
Defaulting to user installation because normal site-packages is not writeable
Collecting ansible
  Downloading ansible-10.6.0-py3-none-any.whl (49.4 MB)
    49.4/49.4 MB 27.8 MB/s eta 0:00:00
Collecting ansible-core==2.17.6
  Downloading ansible_core-2.17.6-py3-none-any.whl (2.2 MB)
    2.2/2.2 MB 84.7 MB/s eta 0:00:00
Requirement already satisfied: cryptography in /usr/lib/python3/dist-packages (from ansible-core==2.17.6->ansible) (3.4.8)
Requirement already satisfied: packaging in /usr/lib/python3/dist-packages (from ansible-core==2.17.6->ansible) (21.3)
Requirement already satisfied: Jinja2>=3.0.0 in /usr/lib/python3/dist-packages (from ansible-core==2.17.6->ansible) (3.0.3)
Collecting resolvelib<1.1.0,>=0.5.3
  Downloading resolvelib-1.0.1-py2.py3-none-any.whl (17 kB)
Requirement already satisfied: PyYAML>=5.1 in /usr/lib/python3/dist-packages (from ansible-core==2.17.6->ansible) (5.4.1)
Installing collected packages: resolvelib, ansible-core, ansible
  WARNING: The scripts ansible, ansible-config, ansible-connection, ansible-console, ansible-doc, ansible-galaxy, ansible-inventory, ansible-playbook, ansible-runner and ansible-vault are installed in '/home/ubuntu/.local/bin' which is not on PATH.
  Consider adding this directory to PATH or, if you prefer to suppress this warning, use --no-warn-script-location.
  WARNING: The script ansible-community is installed in '/home/ubuntu/.local/bin' which is not on PATH.
  Consider adding this directory to PATH or, if you prefer to suppress this warning, use --no-warn-script-location.
Successfully installed ansible-10.6.0 ansible-core-2.17.6 resolvelib-1.0.1
ubuntu@AnsibleMaster:~$ pip install boto3 botocore
Defaulting to user installation because normal site-packages is not writeable
Collecting boto3
  Downloading boto3-1.35.57-py3-none-any.whl (139 kB)
    139.2/139.2 MB 3.5 MB/s eta 0:00:00
Collecting botocore
  Downloading botocore-1.35.57-py3-none-any.whl (12.7 MB)
    12.7/12.7 MB 18.7 MB/s eta 0:00:00
Requirement already satisfied: jmespath<2.0.0,>=0.7.1 in /usr/lib/python3/dist-packages (from boto3) (0.10.0)
Collecting s3transfer<0.11.0,>=0.10.0
  Downloading s3transfer-0.10.3-py3-none-any.whl (82 kB)
    82.6/82.6 MB 22.5 MB/s eta 0:00:00
Collecting python-dateutil<3.0.0,>=2.1
  Downloading python_dateutil-2.9.0.post0-py2.py3-none-any.whl (229 kB)
    229.9/229.9 MB 49.7 MB/s eta 0:00:00
Requirement already satisfied: urllib3<2.0.0,>=1.25.4 in /usr/lib/python3/dist-packages (from boto3) (1.26.5)
Requirement already satisfied: six>=1.5 in /usr/lib/python3/dist-packages (from python-dateutil<3.0.0,>=2.1->botocore) (1.16.0)
Installing collected packages: python-dateutil, botocore, s3transfer, boto3
Successfully installed boto3-1.35.57 botocore-1.35.57 python-dateutil-2.9.0.post0 s3transfer-0.10.3
```

CMD: sudo apt install awscli -y

```
ubuntu@AnsibleMaster:~$ sudo apt install awscli -y
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following additional packages will be installed:
  docutils-common fontconfig fonts-droid-fallback fonts-noto-mono fonts-urw-base35 ghostscript groff gsfonts hicolor-icon-theme imagemagick
  imagemagick-6-common imagemagick-6.q16 libaom3 libavahi-client3 libavahi-common-data libavahi-common3 libcairo2 libcups2 libdatrie1 libdav1d5 libde265-0
  libdjvulibre-text libdjvulibre21 libfftw3-double3 libgraphite2-3 libgs9 libgs9-common libharfbuzz0b libheif1 libice6 libidn2 libijs-0.35 liblmbase25
  libimagequant0 libjpeg-turbo8 libjpeg9 libjxr-tools libjxr0 liblcms2-2 liblqr-1-0 libltdl7 libmagickcore-6.q16-6 libmagickcore-6.q16-6-extra libmagickwand-6.q16-6
  libnetpbm10 libopenexr25 libopenjp2-7 libpango-1.0-0 libpangocairo-1.0-0 libpangoft2-1.0-0 libpaper-utils libpaper1 libpixman-1-0 libraqm0 libsm6
  libthai-data libthai0 libwebp-demux2 libwebpmux3 libwmf-lite-0.2-7 libx265-199 libxaw7 libxcb-render0 libxcb-shm0 libxmu6 libxrender1 libxt6 mailcap
  mime-support netpbm poppler-data psutils python3-botocore python3-dateutil python3-docutils python3-olefile python3-pil python3-pygments python3-roman
  python3-rsa python3-s3transfer sgml-base x11-common xml-core
Suggested packages:
  fonts-noto fonts-freefont-otf | fonts-freefont-ttf fonts-texgyre ghostscript-x imagemagick-doc autotrace cups-bsd | lpr | lprng enscript ffmpeg gimp
  gnuplot grads graphviz hp2xx htm2ps libwmf-bin mplayer povray radiance sane-utils texlive-base-bin transfig ufw xdg-utils cups-common
  libfftw3-bin libfftw3-dev liblcms2-utils inkscape poppler-utils fonts-japanese-mincho | fonts-ipafont-mincho fonts-japanese-gothic
  | fonts-ipafont-gothic fonts-archic-ukai fonts-archic-uming fonts-nanum docutils-doc fonts-linuxlibertine | ttf-linux-libertine texlive-lang-french
  texlive-latex-base texlive-latex-recommended python-pil-doc python-pygments-doc ttf-bitstream-vera sgml-base-doc debhelper
The following NEW packages will be installed:
  awscli docutils-common fontconfig fonts-droid-fallback fonts-noto-mono fonts-urw-base35 ghostscript groff gsfonts hicolor-icon-theme imagemagick
  imagemagick-6-common imagemagick-6.q16 libaom3 libavahi-client3 libavahi-common-data libavahi-common3 libcairo2 libcups2 libdatrie1 libdav1d5 libde265-0
  libdjvulibre-text libdjvulibre21 libfftw3-double3 libgraphite2-3 libgs9 libgs9-common libharfbuzz0b libheif1 libice6 libidn2 libijs-0.35 liblmbase25
  libimagequant0 libjpeg-turbo8 libjpeg9 libjxr-tools libjxr0 liblcms2-2 liblqr-1-0 libltdl7 libmagickcore-6.q16-6 libmagickcore-6.q16-6-extra libmagickwand-6.q16-6
  libnetpbm10 libopenexr25 libopenjp2-7 libpango-1.0-0 libpangocairo-1.0-0 libpangoft2-1.0-0 libpaper-utils libpaper1 libpixman-1-0 libraqm0 libsm6
  libthai-data libthai0 libwebp-demux2 libwebpmux3 libwmf-lite-0.2-7 libx265-199 libxaw7 libxcb-render0 libxcb-shm0 libxmu6 libxrender1 libxt6 mailcap
  mime-support netpbm poppler-data psutils python3-botocore python3-dateutil python3-docutils python3-olefile python3-pil python3-pygments python3-roman
  python3-rsa python3-s3transfer sgml-base x11-common xml-core
0 upgraded, 84 newly installed, 0 to remove and 16 not upgraded.
Need to get 45.1 MB of archives.
After this operation, 223 MB of additional disk space will be used.
Get:1 http://us-west-1.ec2.archive.ubuntu.com/ubuntu jammy/main amd64 fonts-droid-fallback all 1:6.0.1r16-1.1build1 [1885 kB]
Get:2 http://us-west-1.ec2.archive.ubuntu.com/ubuntu jammy/main amd64 libfftw3-double3 amd64 3.3.8-2ubuntu8 [770 kB]
Get:3 http://us-west-1.ec2.archive.ubuntu.com/ubuntu jammy/universe amd64 libaom3 amd64 3.3.0-1 [1748 kB]
Get:4 http://us-west-1.ec2.archive.ubuntu.com/ubuntu jammy/universe amd64 libdav1d5 amd64 0.9.2-1 [463 kB]
Get:5 http://us-west-1.ec2.archive.ubuntu.com/ubuntu jammy-updates/universe amd64 libde265-0 amd64 1.0.8-1ubuntu0.3 [290 kB]
Get:6 http://us-west-1.ec2.archive.ubuntu.com/ubuntu jammy/universe amd64 libx265-199 amd64 3.5-2 [1170 kB]
Get:7 http://us-west-1.ec2.archive.ubuntu.com/ubuntu jammy/universe amd64 libheif1 amd64 1.12.0-2build1 [196 kB]
Get:8 http://us-west-1.ec2.archive.ubuntu.com/ubuntu jammy/main amd64 liblcms2-2 amd64 2.12-rc1-2build1 [139 kB]
Get:9 http://us-west-1.ec2.archive.ubuntu.com/ubuntu jammy/universe amd64 liblqr-1-0 amd64 0.4.2-2.1 [27.6 kB]
Get:10 http://us-west-1.ec2.archive.ubuntu.com/ubuntu jammy/main amd64 libltdl7 amd64 2.4.6-5build2 [20.6 kB]
```

Then you need to configure the aws credentials.

```
ubuntu@AnsibleMaster:~$ aws configure
AWS Access Key ID [None]: AKIAW3MD7G
AWS Secret Access Key [None]: hvPqlTyZ
Default region name [None]: us-west-1
Default output format [None]: json
```



Then now you want to create .yaml for create ec2 instance.

```
- name: Launch EC2 Instance
  hosts: localhost
  gather_facts: no
  tasks:
    - name: Launch new EC2 instance
      amazon.aws.ec2_instance:
        name: "my-ansible-ec2"
        key_name: "Ncalifornia"
        instance_type: "t2.micro"
        image_id: "ami-05c65d8bb2e35991a" # Example for Amazon Linux 2, check your region for valid AMI
        region: "us-west-1"
        wait: yes
        vpc_subnet_id: "subnet-03324022d15e3092b"
        security_groups: "sg-0036f38891ec04f38"
        register: ec2

    - name: Output Instance ID
      debug:
        msg: "Launched instance ID is {{ ec2.instance_ids[0] }}"
```

Now our ec2 instance is created.

```
ubuntu@AnsibleMaster:~$ ansible-playbook created_ec2.yml

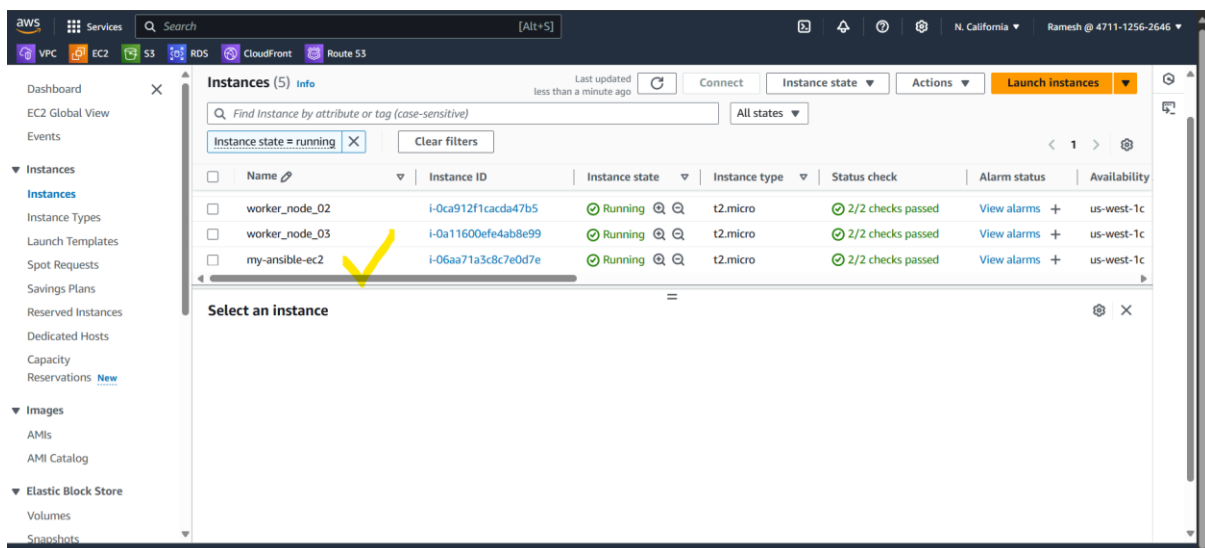
PLAY [Launch EC2 Instance] *****

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

TASK [Output Instance ID] *****
ok: [localhost] => {
  "msg": "Launched instance ID is i-06aa71a3c8c7e0d7e"
}

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

Now I am check in aws console ec2 instance is created or not.



	Name	Instance ID	Instance state	Instance type	Status check	Alarm status	Availability
<input type="checkbox"/>	worker_node_02	i-0ca912f1cacda47b5	Running	t2.micro	2/2 checks passed	View alarms	us-west-1c
<input type="checkbox"/>	worker_node_03	i-0a11600efe4ab8e99	Running	t2.micro	2/2 checks passed	View alarms	us-west-1c
<input checked="" type="checkbox"/>	my-ansible-ec2	i-06aa71a3c8c7e0d7e	Running	t2.micro	2/2 checks passed	View alarms	us-west-1c

## Playbook explanation:

**Name:** Describes the playbook's purpose, "Launch EC2 Instance".

**hosts: localhost:** Runs tasks on the control machine, as we are managing AWS resources remotely.

**gather\_facts: no:** Disables unnecessary fact-gathering to save time.

**Purpose:** This task launches an EC2 instance with the specified configuration.

**Key Parameters:**

- name, key\_name, instance\_type, and image\_id define the instance name, SSH key, instance type, and AMI.
  - region, vpc\_subnet\_id, and security\_groups set the AWS region, subnet, and security group for network and access configurations.
  - register: ec2 saves instance data for later tasks.
- 
- **Purpose:** Prints the ID of the newly created EC2 instance.
  - **debug Module:** Outputs a custom message using the instance ID stored in ec2.instance\_ids[0].

5) Write an ansible playbook to copy one file from node-1 to node-2.

First I login into the workernode01 there I am created one file added the content in file.

```
ubuntu@workernode01:~$ cat > workernode1.txt
this file is created in workernode_01.
^C
ubuntu@workernode01:~$ ls
workernode1.txt
ubuntu@workernode01:~$ cat workernode1.txt
this file is created in workernode_01.
ubuntu@workernode01:~$ pwd
/home/ubuntu
ubuntu@workernode01:~$ |
```

Now this file I want to transfer to workernode02.

In workernode02 there is no file as off now.

```
Last login: Mon Nov 11 09:18:49 2024 from 172.31.12.169
ubuntu@workernode02:~$ ls
ubuntu@workernode02:~$ pwd
/home/ubuntu
ubuntu@workernode02:~$ |
```

So I went to ansibleMaster server there I am writing .yaml file.

Through .yaml we need to send workernode02.

```
ubuntu@AnsibleMaster:~$ sudo cat /etc/ansible/hosts
[all]
workernode01 ansible_host=172.31.7.86 ansible_user=ubuntu ansible_ssh_private_key_file=/home/ubuntu/Ncalifornia.pem
workernode02 ansible_host=172.31.13.180 ansible_user=ubuntu ansible_ssh_private_key_file=/home/ubuntu/Ncalifornia.pem
workernode03 ansible_host=172.31.10.242 ansible_user=ubuntu ansible_ssh_private_key_file=/home/ubuntu/Ncalifornia.pem

ubuntu@AnsibleMaster:~$ cat copy_workernode1_workernode2.yaml
---
- name: Copy file from node-1 to node-2 using Ansible control machine as intermediary
  hosts: workernode01
  tasks:
    - name: Fetch file from node-1 to control machine
      fetch:
        src: /home/ubuntu/workernode1.txt # Source file on node-1
        dest: /home/ubuntu/workernode1.txt # Temporary location on the control machine
        flat: yes # Avoids creating a directory structure
- name: Copy file from control machine to node-2
  hosts: workernode02
  tasks:
    - name: Copy file from control machine to node-2
      copy:
        src: /home/ubuntu/workernode1.txt # Source file on the control machine (master server)
        dest: /home/ubuntu # Destination path on node-2

ubuntu@AnsibleMaster:~$ |
```

The playbook is successfully executed.

```
ubuntu@AnsibleMaster:~$ ansible-playbook copy_workernode1_workernode2.yml
PLAY [Copy file from node-1 to node-2 using Ansible control machine as intermediary] *****
TASK [Gathering Facts] *****
[WARNING]: Platform linux on host workernode01 is using the discovered python interpreter at /usr/bin/python3.10, 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: [workernode01]
TASK [Fetch file from node-1 to control machine] *****
changed: [workernode01]
PLAY [Copy file from control machine to node-2] *****
TASK [Gathering Facts] *****
[WARNING]: Platform linux on host workernode02 is using the discovered python interpreter at /usr/bin/python3.10, 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: [workernode02]
TASK [Copy file from control machine to node-2] *****
changed: [workernode02]
PLAY RECAP *****
workernode01 : ok=2 changed=1 unreachable=0 failed=0 skipped=0 rescued=0 ignored=0
workernode02 : ok=2 changed=1 unreachable=0 failed=0 skipped=0 rescued=0 ignored=0
```

Now I want to check file is there or not.

The below one is Ansible Master server.

```
ubuntu@AnsibleMaster:~$ ls
Ncalifornia.pem copy_workernode1_workernode2.yml created_ec2.yml workernode1.txt
ubuntu@AnsibleMaster:~$ cat workernode1.txt
this file is created in workernode_01.
ubuntu@AnsibleMaster:~$ pwd
/home/ubuntu
ubuntu@AnsibleMaster:~$ |
```

This is my workernode02.

Content is available.

```
Last login: Mon Nov 11 11:15:39 2024 from 172.31.12.169
ubuntu@workernode02:~$ ls
workernode1.txt
ubuntu@workernode02:~$ pwd
/home/ubuntu
ubuntu@workernode02:~$ |
```

6) Write a ansible playbook to create different files with different names using single playbook.

Here first created one .yaml file there I am written one script to crate multiple ec2 instances.

```
ubuntu@AnsibleMaster:~$ cat Create_Multiple_Files_with_Different_Names.yml
---
- name: Create multiple files with different names
  hosts: all
  tasks:
    - name: Create multiple files
      copy:
        dest: "/tmp/{{ item.name }}"
        content: "{{ item.content }}"
      loop:
        - { name: 'file1.txt', content: 'This is file 1.' } # Content for file1.txt
        - { name: 'file2.txt', content: 'This is file 2.' }
        - { name: 'file3.txt', content: 'This is file 3.' }
        - { name: 'file4.txt', content: 'This is file 4.' }
```

```

ubuntu@AnsibleMaster:~$ sudo vi Create_Multiple_Files_with_Different_Names.yml
ubuntu@AnsibleMaster:~$ ansible-playbook Create_Multiple_Files_with_Different_Names.yml

PLAY [Create multiple files with different names] *****

TASK [Gathering Facts] *****
[WARNING]: Platform linux on host workernode01 is using the discovered Python interpreter at /usr/bin/python3.10, 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: [workernode01]
[WARNING]: Platform linux on host workernode02 is using the discovered Python interpreter at /usr/bin/python3.10, 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: [workernode02]
[WARNING]: Platform linux on host workernode03 is using the discovered Python interpreter at /usr/bin/python3.10, 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: [workernode03]

TASK [Create multiple files] *****
changed: [workernode01] => (item={'name': 'file1.txt', 'content': 'This is file 1.'})
changed: [workernode03] => (item={'name': 'file1.txt', 'content': 'This is file 1.'})
changed: [workernode02] => (item={'name': 'file1.txt', 'content': 'This is file 1.'})
changed: [workernode01] => (item={'name': 'file2.txt', 'content': 'This is file 2.'})
changed: [workernode03] => (item={'name': 'file2.txt', 'content': 'This is file 2.'})
changed: [workernode02] => (item={'name': 'file2.txt', 'content': 'This is file 2.'})
changed: [workernode01] => (item={'name': 'file3.txt', 'content': 'This is file 3.'})
changed: [workernode03] => (item={'name': 'file3.txt', 'content': 'This is file 3.'})
changed: [workernode02] => (item={'name': 'file3.txt', 'content': 'This is file 3.'})
changed: [workernode01] => (item={'name': 'file4.txt', 'content': 'This is file 4.'})
changed: [workernode02] => (item={'name': 'file4.txt', 'content': 'This is file 4.'})
changed: [workernode03] => (item={'name': 'file4.txt', 'content': 'This is file 4.'})

PLAY RECAP *****
workernode01 : ok=2 changed=1 unreachable=0 failed=0 skipped=0 rescued=0 ignored=0
workernode02 : ok=2 changed=1 unreachable=0 failed=0 skipped=0 rescued=0 ignored=0
workernode03 : ok=2 changed=1 unreachable=0 failed=0 skipped=0 rescued=0 ignored=0

ubuntu@AnsibleMaster:~$

```

Within the three servers we have all files.

```

ubuntu@workernode01:~$ ls
workernode1.txt
ubuntu@workernode01:~$ cd /tmp/
ubuntu@workernode01:/tmp$ ls
file1.txt  snap-private-tmp
file2.txt  systemd-private-0a97440377c148bdb0ad80ce98d5250a-chrond.service-8L2xZ1
file3.txt  systemd-private-0a97440377c148bdb0ad80ce98d5250a-systemd-logind.service-4EgLiR
file4.txt  systemd-private-0a97440377c148bdb0ad80ce98d5250a-systemd-resolved.service-0JmNhr
ubuntu@workernode01:/tmp$

```

```

ubuntu@workernode02:~$ cd /tmp/
ubuntu@workernode02:/tmp$ ls
file1.txt  snap-private-tmp
file2.txt  systemd-private-4f67fd226b14798a440e22e7ca3a672-chrond.service-DvJhCr
file3.txt  systemd-private-4f67fd226b14798a440e22e7ca3a672-systemd-logind.service-RgibL4
file4.txt  systemd-private-4f67fd226b14798a440e22e7ca3a672-systemd-resolved.service-5jPvZ3
ubuntu@workernode02:/tmp$

```

```

Last login: Mon Nov 11 11:58:30 2024 from 172.31.12.169
ubuntu@workernode03:~$ ls
ubuntu@workernode03:~$ cd /tmp
ubuntu@workernode03:/tmp$ ls
file1.txt  snap-private-tmp
file2.txt  systemd-private-d2f207f19fff46c786c97d2fd6b78f983-chrond.service-4yCGg7
file3.txt  systemd-private-d2f207f19fff46c786c97d2fd6b78f983-systemd-logind.service-fyDmNw
file4.txt  systemd-private-d2f207f19fff46c786c97d2fd6b78f983-systemd-resolved.service-H49VEh
ubuntu@workernode03:/tmp$

```

## **Tomcat file code is below:**

- name: Download and Install Tomcat9 from tomcat.apache.org

hosts: all

become: true

vars:

download\_url: <https://dlcdn.apache.org/tomcat/tomcat-9/v9.0.97/bin/apache-tomcat-9.0.97.tar.gz>

local\_tomcat\_path: /tmp/apache-tomcat-9.0.97.tar.gz

tasks:

- name: Install OpenJDK 17

apt:

name: openjdk-17-jre-headless

update\_cache: yes

state: present

- name: Validate if Java is available

shell: java -version

- name: Create Tomcat group

group:

name: tomcat

state: present

- name: Create Tomcat user

user:

name: tomcat

group: tomcat

state: present

- name: Create a Directory /opt/tomcat9

file:

path: /opt/tomcat9

state: directory



mode: 0755

owner: tomcat

group: tomcat

- name: Download Tomcat archive locally

local\_action:

module: get\_url

url: "{{ download\_url }}"

dest: "{{ local\_tomcat\_path }}"

delegate\_to: localhost

- name: Copy Tomcat archive to remote hosts

copy:

src: "{{ local\_tomcat\_path }}"

dest: /tmp/apache-tomcat-9.0.97.tar.gz

mode: 0755

- name: Extract Tomcat archive

unarchive:

src: /tmp/apache-tomcat-9.0.97.tar.gz

dest: /opt/tomcat9

mode: 0755

remote\_src: yes

- name: Move files to the /opt/tomcat9 directory

shell: mv /opt/tomcat9/apache-tomcat-9.0.97/\* /opt/tomcat9

args:

removes: /opt/tomcat9/apache-tomcat-9.0.97

- name: Ensure ownership and permissions for Tomcat directory

file:

path: /opt/tomcat9

state: directory

owner: tomcat

group: tomcat

recurse: yes

- name: Create a service file for Tomcat

copy:

content: |-

[Unit]

Description=Tomcat Service

After=network.target

[Service]

Type=forking

User=tomcat

Environment="CATALINA\_PID=/opt/tomcat9/logs/tomcat.pid"

Environment="CATALINA\_BASE=/opt/tomcat9"

Environment="CATALINA\_HOME=/opt/tomcat9"

Environment="CATALINA\_OPTS=-Xms512M -Xmx1024M -server -XX:+UseParallelGC"

ExecStart=/opt/tomcat9/bin/startup.sh

ExecStop=/opt/tomcat9/bin/shutdown.sh

Restart=on-abnormal

[Install]

WantedBy=multi-user.target

dest: /etc/systemd/system/tomcat.service

- name: Reload systemd to apply changes

systemd:

daemon-reload: yes

- name: Enable and start Tomcat service

systemd:

name: tomcat

enabled: yes

state: started

- name: Connect to Tomcat server on port 8080 and check status 200 - Try 5 times

uri:

url: http://localhost:8080

register: result

until: result.status == 200

retries: 5

delay: 10