# Edureka-Devops-Assignment-5: Ansible

Action Items

- Create separate roles for setting up Apache Tomcat and Apache Maven
- Add the necessary logic to the roles to set up the tools
- Create a new playbook and call Tomcat as well as Maven roles inside it
- Execute the playbook on all the hosts

Commands to install Tomcat and Maven
Apache Tomcat:

1. sudo apt-get update
2. sudo apt-get install default-jdk
3. sudo groupadd tomcat
4. sudo useradd -s /bin/false -g tomcat -d /opt/tomcat tomcat
5. curl -O http://redrockdigimark.com/apachemirror/tomcat/tomcat-8/v8.5.31/bin/apachetomcat-8.5.31.tar.gz
6. sudo mkdir /opt/tomcat
7. sudo tar xzvf apache-tomcat-8*tar.gz -C /opt/tomcat --strip-components=1
9. cd /opt/tomcat
10. sudo chgrp -R tomcat /opt/tomcat
11. sudo chmod -R g+r conf
12. sudo chmod g+x conf
13. sudo chown -R tomcat webapps/ work/ temp/ logs/
14. Add this code to /etc/systemd/system/tomcat.service

[Unit]
Description=Apache Tomcat Web Application Container
After=network.targetd

[Service]
Type=forking

Environment=JAVA_HOME=/usr/lib/jvm/java-1.8.0-openjdk-amd64/jre
Environment=CATALINA_PID=/opt/tomcat/temp/tomcat.pid
Environment=CATALINA_HOME=/opt/tomcat
Environment=CATALINA_BASE=/opt/tomcat
Environment='CATALINA_OPTS=-Xms512M -Xmx1024M -server -XX:+UseParallelGC'
Environment='JAVA_OPTS=-Djava.awt.headless=true -Djava.security.egd=file:/dev/./urandom'

ExecStart=/opt/tomcat/bin/startup.sh
ExecStop=/opt/tomcat/bin/shutdown.sh

User=tomcat
Group=tomcat
UMask=0007
RestartSec=10
Restart=always
[Install]
WantedBy=multi-user.target

15. sudo systemctl daemon-reload

16. sudo systemctl start tomcat


Apache Maven:

1. sudo apt install -y python-software-properties
2. sudo add-apt-repository ppa:webupd8team/java
3. sudo apt update
4. sudo apt-get install default-jdk
5. cd /home/edureka/Downloads/ && wget
http://apache.mirror.digitalpacific.com.au/maven/maven-3/3.3.9/binaries/apachemaven-3.3.9
-bin.tar.gz
6. cd /opt/ && sudo tar -xzvf /home/edureka/Downloads/apache-maven-3.3.9-bin.tar.gz
7. sudo update-alternatives --install /usr/bin/mvn maven /opt/apache-maven3.3.9/bin/mvn
1001


—--------------------------------------------------------------------------------------------------


Solution:
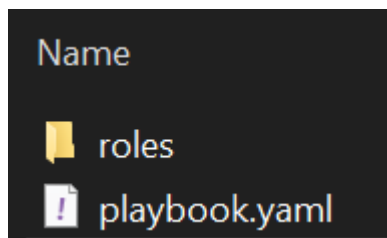
Initialise roles:

```
root@DESKTOP-RNQBCUK:/mnt/c/niket/Edureka_Devops/assignment_05_ansible/roles# ansible-galaxy init tomcat
- Role tomcat was created successfully
root@DESKTOP-RNQBCUK:/mnt/c/niket/Edureka_Devops/assignment_05_ansible/roles# ansible-galaxy init maven
- Role maven was created successfully
root@DESKTOP-RNQBCUK:/mnt/c/niket/Edureka_Devops/assignment_05_ansible/roles# tree
.
├── maven
│   ├── README.md
│   ├── defaults
│   │   └── main.yml
│   ├── files
│   ├── handlers
│   │   └── main.yml
│   ├── meta
│   │   └── main.yml
│   ├── tasks
│   │   └── main.yml
│   ├── templates
│   ├── tests
│   │   ├── inventory
│   │   └── test.yml
│   └── vars
│       └── main.yml
└── tomcat
    ├── README.md
    ├── defaults
    │   └── main.yml
    ├── files
    ├── handlers
    │   └── main.yml
    ├── meta
    │   └── main.yml
    ├── tasks
    │   └── main.yml
    ├── templates
    ├── tests
    │   ├── inventory
    │   └── test.yml
    └── vars
        └── main.yml
```

Templates > tomcat.service.j2:

```
[Unit]
Description=Apache Tomcat Web Application Container
After=network.targetd

[Service]
Type=forking

Environment=JAVA_HOME=/usr/lib/jvm/java-1.8.0-openjdk-amd64/jre
Environment=CATALINA_PID=/opt/tomcat/temp/tomcat.pid
Environment=CATALINA_HOME=/opt/tomcat
Environment=CATALINA_BASE=/opt/tomcat
Environment='CATALINA_OPTS=-Xms512M -Xmx1024M -server -XX:+UseParallelGC'
Environment='JAVA_OPTS=-Djava.awt.headless=true -
Djava.security.egd=file:/dev/./urandom'

ExecStart=/opt/tomcat/bin/startup.sh
ExecStop=/opt/tomcat/bin/shutdown.sh

User=tomcat
Group=tomcat
UMask=0007
RestartSec=10
Restart=always
[Install]
WantedBy=multi-user.target
```

Handlers > main.yml:

```yaml
# handlers file for tomcat
  - name: reload systemctl
    command: sudo systemctl daemon-reload

  - name: start tomcat
    command: sudo systemctl start tomcat
~
```

Tomcat > Tasks > main.yaml:

```yaml
---
# tasks file for tomcat

    - name: install apache tomcat
      command: {{ item }}
      with_items:
        - sudo apt-get update
        - sudo apt-get install default-jdk
        - sudo groupadd tomcat
        - sudo useradd -s /bin/false -g tomcat -d /opt/tomcat tomcat
        - curl -O http://redrockdigimark.com/apachemirror/tomcat/tomcat-8/v8.5.31/bin/apachetomcat-8.5.31.tar.gz
        - sudo mkdir /opt/tomcat
        - sudo tar xzvf apache-tomcat-8*tar.gz -C /opt/tomcat --strip-components=1
        - sudo mkdir /opt/tomcat
        - cd /opt/tomcat
        - sudo chgrp -R tomcat /opt/tomcat
        - sudo chmod -R g+r conf
        - sudo chmod g+x conf
        - sudo chown -R tomcat webapps/ work/ temp/ logs/

    - name: tomcat | Create service file
      template: src=tomcat.service.j2 dest=/etc/systemd/system/tomcat.service mode=644
      notify:
        - reload systemctl
        - start tomcat
~
```

Maven > tasks > main.yaml:

```yaml
---
# tasks file for maven

  - name: install maven
    command: {{ item }}
    with_items:
      - sudo apt install -y python-software-properties
      - sudo add-apt-repository ppa:webupd8team/java
      - sudo apt update
      - sudo apt-get install default-jdk
      - cd /home/edureka/Downloads/ && wget http://apache.mirror.digitalpacific.com.au/maven/maven-3/3.3.9/binaries/apachemaven-3.3.9-bin.tar.gz
      - cd /opt/ && sudo tar -xzvf /home/edureka/Downloads/apache-maven-3.3.9-bin.tar.gz
      - sudo update-alternatives --install /usr/bin/mvn maven /opt/apache-maven3.3.9/bin/mvn 1001
```

Playbook.yaml:

```yaml
- name: setup apache tomcat
  hosts: all
  become: yes
  roles:
    - role: tomcat
      message: installing tomcat using role
    - role: maven
      name: installing maven using role
~
```

Inventory.txt:

```
server1 ansible_host=192.168.40.21 ansible_user=vagrant ansible_ssh_pass=vagrant

[servers]
server1
```

Create remote server VM on local using vagrant and virtual box:
XXXxx << It Didn't work on local VM after trying hard for a long time. >> xxXXXX

Switching to AWS > ubuntu AMI > t2.medium

| ⊘ Successfully started i-06e8db04ff22c49d1 | ✕ |
|---|---|

**Instances (1/1)** Info    Connect    Instance state ▾    Actions ▾    **Launch instances** ▾

Q Search    ‹ 1 ›    ⚙

| ☑ | Name ▽ | Instance ID | Instance state ▽ | Instance type ▽ | Status check | Alarm status |
|---|---|---|---|---|---|---|
| ☑ | Ansible-test | i-06e8db04ff22c49d1 | ⊘ Running ⊕⊖ | t2.medium | ⊘ 2/2 checks passed | No alarms + |

**Instance: i-06e8db04ff22c49d1 (Ansible-test)**    ⚙  ✕

| Details | Security | Networking | Storage | Status checks | Monitoring | Tags |
|---|---|---|---|---|---|---|

▼ Instance summary  Info

Instance ID
⧉ i-06e8db04ff22c49d1 (Ansible-test)

Public IPv4 address
⧉ 52.66.203.143 | open address ⧉

Private IPv4 addresses
⧉ 172.31.42.194

IPv6 address
–

Instance state
⊘ Running

Public IPv4 DNS
⧉ ec2-52-66-203-143.ap-south-

Security group:

**Inbound rules** Info

| Security group rule ID | Type  Info | Protocol  Info | Port range  Info | Source  Info | Description - optional  Info | |
|---|---|---|---|---|---|---|
| sgr-07d7107293a4b800a | SSH ▾ | TCP | 22 | Custom ▾  Q  122.162.144.107/32 ✕ | | Delete |
| sgr-064dcf570181c12ae | HTTP ▾ | TCP | 80 | Custom ▾  Q  122.162.144.107/32 ✕ | | Delete |
| sgr-032290e1adab9eb88 | Custom TCP ▾ | TCP | 8080 | Custom ▾  Q  122.162.144.107/32 ✕ | | Delete |

Login to EC2:

- Enable password based authentication in /etc/ssh/sshd_config file
- Restart sshd >>service sshd restart.
- Also set password for this machine using "passwd ubuntu: and supply that in our inventory file.

New inventory.txt:

```
server1 ansible_host=13.127.253.35 ansible_user=ubuntu ansible_ssh_pass=ubuntu

[servers]
server1
```

**>>ansible-playbook playbook.yaml -i inventory.txt**

**NOT WORKING STILL**

**Source Code Repo:**
**https://github.com/nikk0007/Edureka-devops-assignment-5-ansible.git**

**================================================**

**Issues-resolution:**

Remove **known_hosts** file at this path(**/root/.ssh/**) in Ansible running machine in case SSH connection cannot be established by Ansible to the other machine.
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