

Module 3: Ansible Modules and Roles

Demo Document - 3

Demo: Create Ansible Playbook with Ansible Roles

Problem Statement:

Creating an Apache Server on Ubuntu Using Ansible Roles

Solution Steps:

1. Ansible Roles

In /etc/ansible, there should be a roles folder. Go into the folder and run the following command:
ansible-galaxy init apache --offline -apache was created successfully

```
[root@ip-172-31-18-124 ~]# ansible-galaxy init apache --offline
- Role apache was created successfully
[root@ip-172-31-18-124 ~]#
```

The command should automatically create the following structure.

```
[root@ip-172-31-18-124 ~]# tree apache/
apache/
├── defaults
│   └── main.yml
├── files
├── handlers
│   └── main.yml
├── meta
│   └── main.yml
├── README.md
├── tasks
│   └── main.yml
├── templates
├── tests
│   ├── inventory
│   └── test.yml
└── vars
    └── main.yml

8 directories, 8 files
[root@ip-172-31-18-124 ~]#
```

2. Here are the main components which we use in the demo.

- **tasks/main.yml** – It is the starting point of the role tasks. You can use the main.yml to point to other task files.
- **handlers/main.yml** – It contains the handlers.
- **files** – You can keep your files and resources that you want to deploy here

3. Let us start with the **tasks/main.yml**. Paste the following code inside:

```
[root@ip-172-31-18-124 tasks]# cat main.yml
---
# tasks file for apache
- include_tasks: install.yml
- include_tasks: configure.yml
- include_tasks: service.yml

[root@ip-172-31-18-124 tasks]#
```

4. We are dividing the tasks into smaller portions and pointing to other YAML files. So, we need to create those files.

Inside **/etc/ansible/roles/apache/tasks**, let us create **install.yml** with the following code:

```
[root@ip-172-31-18-124 tasks]# cat install.yml
---
# installing apache2
- name: installing apache2 server
  apt:
    name: apache2
    state: present

[root@ip-172-31-18-124 tasks]#
```

It is installing **apache2** on the **Apache server**.

5. **files, configure.yml and handlers/main.yml**

We will setup some files and resources in the **/etc/ansible/roles/apache/files/** folder. First, you can get a **standard apache2.conf** file, make your custom changes and put it in the folder. In our case, we are just going to add “**# Custom config**” comment on the top. During the run process, ansible will take this **apache2.conf** file and replace it on the target machine.

Then we are going to create an index.html in the `/etc/ansible/roles/apache/files/` folder with the following code.

```
[root@ip-172-31-18-124 files]# cat index.html
<head>
<title>Apache Demo</title>
</head>
<body>
<h1>
Welcome to Apache Demo!
</h1>
<br/><br/><br/>
<p>

</p>
</body>
</html>

[root@ip-172-31-18-124 files]# █
```

6. Now let us go back to the `/etc/ansible/roles/apache/tasks` folder and create `configure.yml` with the following code:

```
[root@ip-172-31-18-124 tasks]# cat configure.yml
---
# Configuring apache2
- name: apache2 configuration file
  copy: src=apache2.conf dest=/etc/apache2/apache2.conf
  notify: restart apache service

- name: create the webpage index.html
  copy: src=index.html dest=/var/www/html/index.html

- name: copy the image resource
  copy: src=Blue_marble_2015.jpg dest=/var/www/html/Blue_marble_2015.jpg

[root@ip-172-31-18-124 tasks]# █
```

The above code is copying the resources we saved in the files folder to our target server. We are using the `configure.yml` to set up our Apache configurations.

7. Notice the "notify" command. This requires a handler. So we go into the `/etc/ansible/roles/apache/handlers/main.yml` and enter the following code:

```
[root@ip-172-31-18-124 tasks]# cat /etc/ansible/roles/apache/handlers/main.yml
---
# restarting server
- name: restart apache service
  service: name=apache2 state=restarted

[root@ip-172-31-18-124 tasks]#
```

This code is going to **restart** the **Apache server**.

8. Service.yml

Again, go back to the `/etc/ansible/roles/apache/tasks/` folder create the `service.yml` file with the following code..

```
[root@ip-172-31-18-124 tasks]# cat /etc/ansible/roles/apache/tasks/service.yml
---
# tasks file for apache
- name: start apache2 server
  service: name=apache2 state=started

[root@ip-172-31-18-124 tasks]#
```

This will start the **Apache server**. We are done with defining the **apache role**.

Now in the folder `/etc/ansible` define the following `site.yml`

```
[root@ip-172-31-18-124 ansible]# cat site.yml
---
- hosts: 172.31.25.35
  become: true
  roles:
  - apache

[root@ip-172-31-18-124 ansible]#
```

9. We can check if our **YAML** files are well formatted using the following command:

ansible-playbook site.yml --syntax-check

```
[root@ip-172-31-18-124 ansible]# ansible-playbook site.yml --syntax-check
playbook: site.yml
[root@ip-172-31-18-124 ansible]#
```

10. Now run the following command to execute the Apache role.

```
ansible-playbook -i hosts site.yml
```

```
[root@ip-172-31-18-124 ansible]# ansible-playbook -i hosts site.yml
PLAY [172.31.25.35] *****
TASK [Gathering Facts] *****
ok: [172.31.25.35]
```