

## Ansible Galaxy, Playbooks, and Roles - A Beginner's Guide

### 1. What is Ansible?

Ansible is an open-source automation tool used for configuration management, application deployment, and task automation. It helps system administrators manage multiple servers efficiently.

### 2. What is Ansible Galaxy?

Ansible Galaxy is a public repository of Ansible roles where users can download pre-built roles or share their own. It helps in speeding up automation by providing reusable configurations.

#### Example:

Imagine you want to set up MySQL on multiple servers. Instead of writing everything from scratch, you can use an Ansible role from Galaxy to do it automatically.

#### Diagram:

[Ansible Galaxy] ---> [Download Role] ---> [Use in Playbook] ---> [Apply to Servers]

### 3. What are Ansible Playbooks?

Playbooks are YAML files that define a set of tasks to automate processes on remote servers. They help in organizing and executing automation steps efficiently.

#### Example Playbook:

```
- name: Install Apache Web Server
```

```
  hosts: web_servers
```

```
  become: yes
```

```
  tasks:
```

```
    - name: Install Apache
```

```
      apt:
```

```
        name: apache2
```

```
        state: present
```

#### Table: Key Components of a Playbook

Component	Description
name	Description of the playbook
hosts	Defines target servers
become	Runs tasks with admin privileges
tasks	List of automation steps

### 4. What are Ansible Roles?

Roles are structured directories that help organize playbooks by separating tasks, variables, and configurations into reusable components.

#### **Role Directory Structure:**

my\_role/

└─ defaults/

└─ files/

└─ handlers/

└─ meta/

└─ tasks/

└─ templates/

└─ vars/

- tasks/ → Contains YAML files defining automation steps.
- handlers/ → Contains handlers that run after task execution.
- templates/ → Stores Jinja2 template files.

#### **Example Role Task File (tasks/main.yml)**

- name: Install MySQL

apt:

name: mysql-server

state: present

#### **5. How to Use Ansible Galaxy?**

You can download and install roles using the command:

```
ansible-galaxy install geerlingguy.mysql
```

To use a downloaded role in a playbook:

- name: Apply MySQL Role

hosts: db\_servers

roles:

- geerlingguy.mysql

#### **6. Managing Multiple Roles with Requirements File**

You can define multiple roles in a requirements.yml file:

- name: geerlingguy.java

- name: geerlingguy.nginx

Then, install them with:

```
ansible-galaxy install -r requirements.yml
```

### **Conclusion**

- Ansible Galaxy provides pre-built roles.
- Playbooks define automation tasks.
- Roles help organize configurations.
- Using ansible-galaxy, you can download and use roles efficiently.

With this knowledge, you can start automating tasks in a structured and reusable way!