



Lab 14 — Creating and Using Ansible Roles

Author: Sandeep Kumar Sharma



Learning Objectives

In this lab, you will learn: - What Ansible roles are - Why roles are used in automation projects - The structure of an Ansible role - How to create a role using `ansible-galaxy` - How to run roles inside a playbook



Learning Outcomes

After completing this lab, you will: - Understand role-based automation structure - Create reusable roles for large projects - Separate tasks, handlers, variables, and templates - Build clean folder-based automation



What Are Ansible Roles?

Roles allow you to organize automation into independent components.

A role contains: - Tasks - Handlers - Variables - Templates - Files - Defaults - Metadata

Roles make automation modular, scalable, and reusable.



SECTION A — Role Directory Structure

A role has this structure:

```
rolename/
├── defaults/
│   └── main.yml
├── vars/
│   └── main.yml
├── tasks/
│   └── main.yml
├── handlers/
│   └── main.yml
└── templates/
```

```
└── files/
    └── meta/
        └── main.yml
```

Each folder has a specific purpose.

SECTION B — Create a Role Using ansible-galaxy

Run:

```
ansible-galaxy init apache_role
```

This creates a complete role structure.

SECTION C — Define Tasks for the Role

Edit:

```
nano apache_role/tasks/main.yml
```

Add:

```
---
- name: Install Apache
  package:
    name: "{{ apache_package }}"
    state: present

- name: Start Apache
  service:
    name: "{{ apache_package }}"
    state: started
    enabled: yes
```



SECTION D — Add Variables for the Role

Edit:

```
nano apache_role/vars/main.yml
```

Add:

```
apache_package: "{{ 'apache2' if ansible_facts['os_family'] == 'Debian' else 'httpd' }}"
```



SECTION E — Add Handler for the Role

Edit:

```
nano apache_role/handlers/main.yml
```

Add:

```
---
- name: restart apache
  service:
    name: "{{ apache_package }}"
    state: restarted
```



SECTION F — Use the Role in a Playbook

Create:

```
nano role-use.yml
```

Add:

```
---
- name: Apply Apache role
  hosts: dev
```

```
become: yes
gather_facts: yes

roles:
  - apache_role
```

Run:

```
ansible-playbook role-use.yml
```



Hands-On Checklist

- [] Create a role using ansible-galaxy
- [] Define tasks, handlers, and variables
- [] Use OS-based logic inside a role
- [] Run the role through a playbook



Lab Summary

In this lab, you learned:

- Role structure
- How to create reusable automation components
- How to define tasks, handlers, and variables inside a role
- How to call a role from a playbook

Next Lab: [Lab 15 — Role Dependencies & Advanced Role Usage](#)