



## Lab 14 — Creating and Using Ansible Roles

**Author:** Sandeep Kumar Sharma

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### 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

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### 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

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### 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.

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## 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.

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## SECTION B — Create a Role Using ansible-galaxy

Run:

```
ansible-galaxy init apache_role
```

This creates a complete role structure.

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## 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**