

Course-End Project 02

Web Application using Ansible

Project Agenda: To deploy a static HTML website with Ansible

Description:

Ansible is a configuration management tool that you can use to configure servers and deploy applications. Ansible is free, easy to set up with few dependencies, and allows you to model complex configuration and deployment workflows. Learning how to deploy a web application end to end will make you more proficient in using Ansible.

In this lab, you will learn how to create and configure an Ansible role, and you will create and configure a role that deploys a web application.

Ansible Roles are a structured way of grouping tasks, handlers, vars, and other properties. They increase reusability. For this project, we will use two Ubuntu machines. The first one will be your Ansible controller and the second one will be your target machine for Apache installation.

Tools required: Ansible and jinja2

Expected Deliverables:

- Initialize the directory
- Apply the configuration
- Deploy the website

Solution:

Repository link: <https://github.com/RamezCh/Ansible-Project-2>

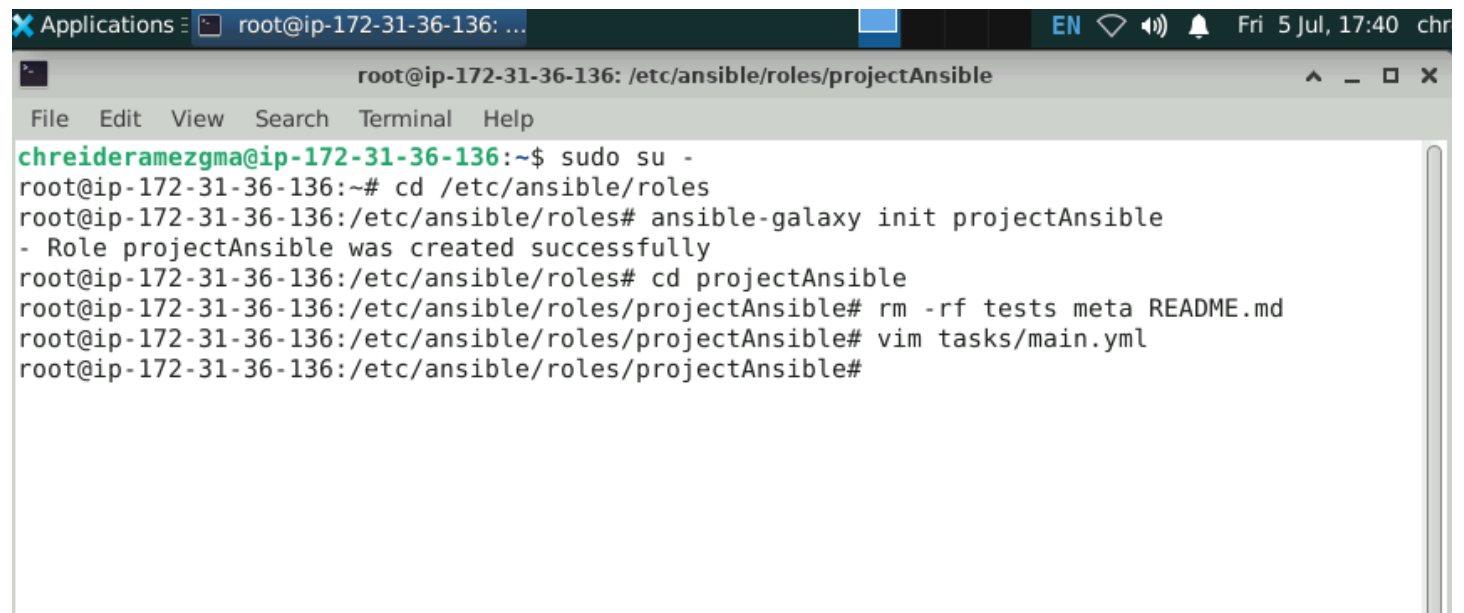
Sudo su -

cd /etc/ansible/roles

ansible-galaxy init projectAnsible

cd projectAnsible

rm -rf tests meta README.md

A screenshot of a terminal window. The title bar shows 'root@ip-172-31-36-136: /etc/ansible/roles/projectAnsible'. The terminal content shows a sequence of commands and their outputs: 'sudo su -' to switch to root, 'cd /etc/ansible/roles' to change directory, 'ansible-galaxy init projectAnsible' which outputs '- Role projectAnsible was created successfully', 'cd projectAnsible' to change to the project directory, 'rm -rf tests meta README.md' to remove files, and 'vim tasks/main.yml' to open a file in vim. The prompt is 'root@ip-172-31-36-136:/etc/ansible/roles/projectAnsible#'.

```
root@ip-172-31-36-136:~$ sudo su -
root@ip-172-31-36-136:~# cd /etc/ansible/roles
root@ip-172-31-36-136:/etc/ansible/roles# ansible-galaxy init projectAnsible
- Role projectAnsible was created successfully
root@ip-172-31-36-136:/etc/ansible/roles# cd projectAnsible
root@ip-172-31-36-136:/etc/ansible/roles/projectAnsible# rm -rf tests meta README.md
root@ip-172-31-36-136:/etc/ansible/roles/projectAnsible# vim tasks/main.yml
root@ip-172-31-36-136:/etc/ansible/roles/projectAnsible#
```

vim tasks/main.yml

=====

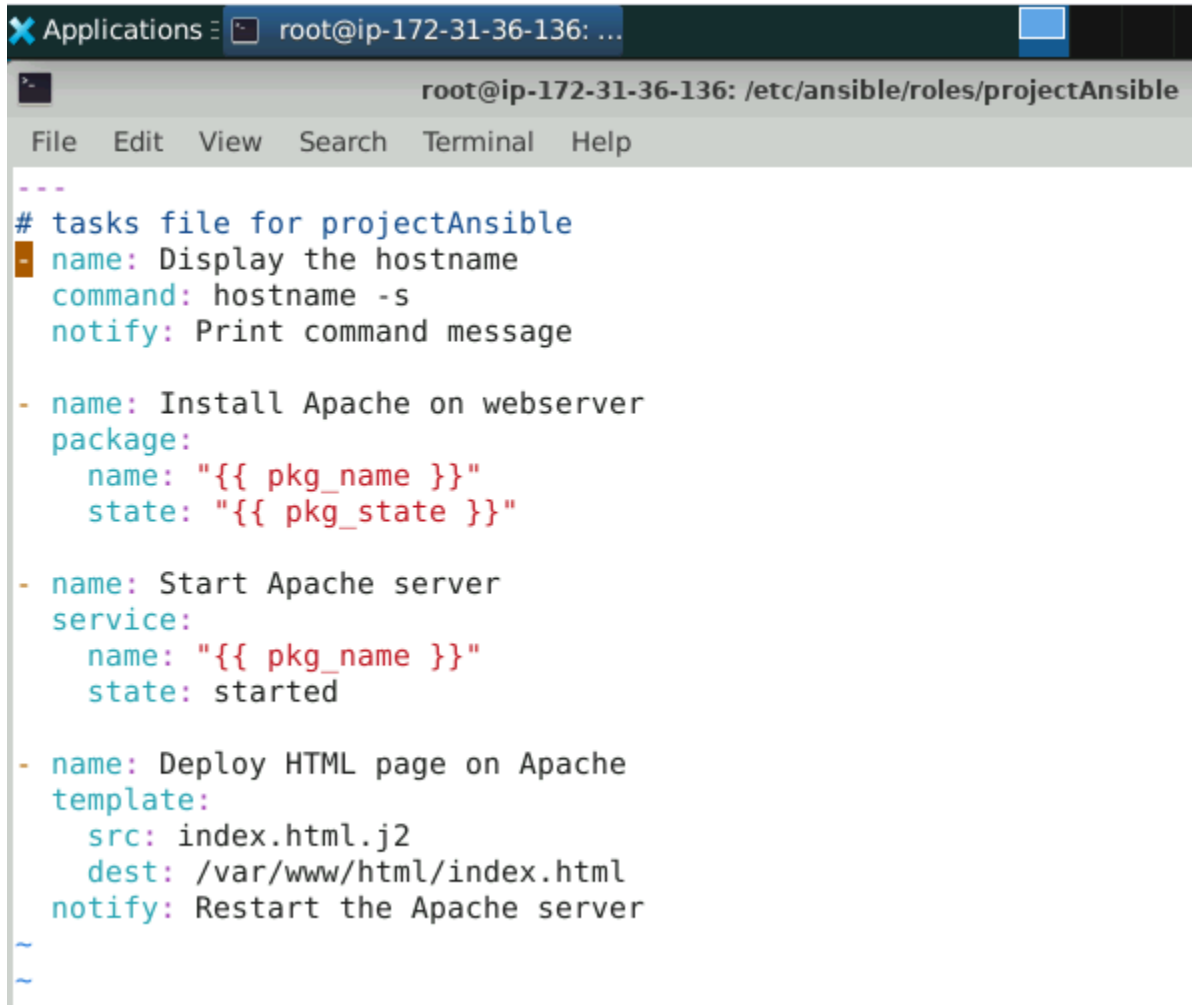
'#' Tasks file for projectAnsible

- name: Display the hostname
command: hostname -s
notify: Print command message
- name: Install Apache on webserver
package:
 - name: "{{ pkg_name }}"
 - state: "{{ pkg_state }}"
- name: Start Apache server

```
service:
  name: "{{ pkg_name }}"
  state: started
```

- name: Deploy HTML page on Apache
- ```
template:
 src: index.html.j2
 dest: /var/www/html/index.html
notify: Restart the Apache server
```

Save the file



The screenshot shows a terminal window with a dark theme. The title bar indicates the user is root@ip-172-31-36-136. The terminal content shows an Ansible tasks file for 'projectAnsible'. The file contains four tasks: displaying the hostname, installing Apache, starting the Apache service, and deploying an HTML page. The tasks are listed with their names, and the details (like command, package, service, template, and notify) are indented. The file ends with a tilde (~) on a new line.

```

tasks file for projectAnsible
- name: Display the hostname
 command: hostname -s
 notify: Print command message

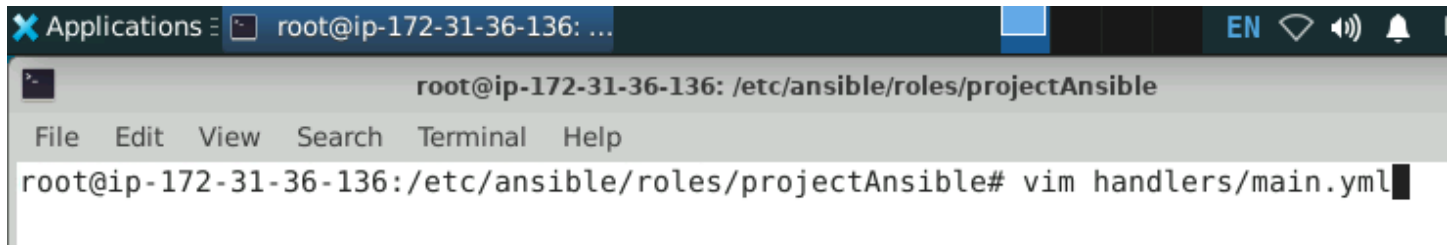
- name: Install Apache on webserver
 package:
 name: "{{ pkg_name }}"
 state: "{{ pkg_state }}"

- name: Start Apache server
 service:
 name: "{{ pkg_name }}"
 state: started

- name: Deploy HTML page on Apache
 template:
 src: index.html.j2
 dest: /var/www/html/index.html
 notify: Restart the Apache server
~
```

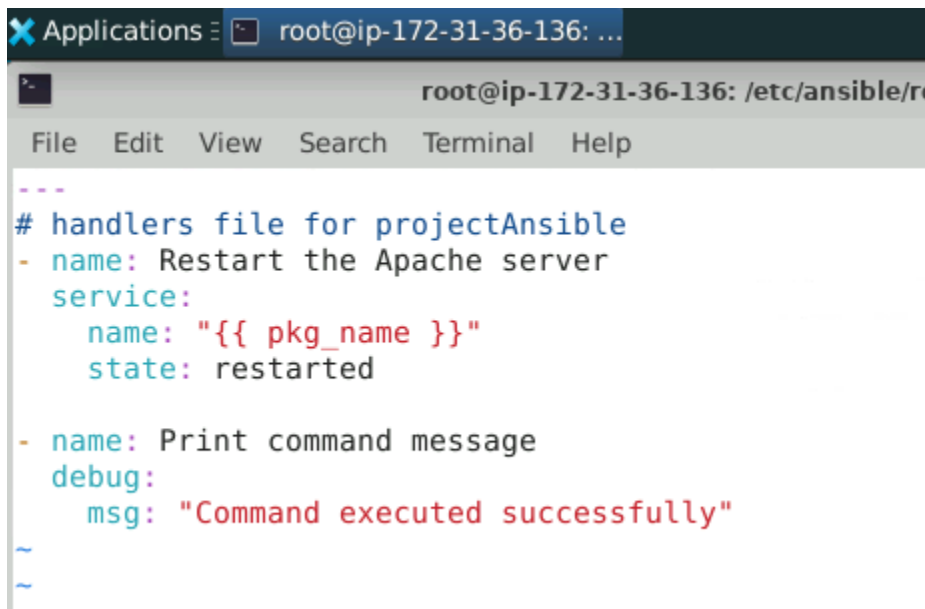
=====

vim handlers/main.yml

A terminal window with a dark background. The title bar shows 'Applications' and 'root@ip-172-31-36-136: ...'. The terminal content shows the prompt 'root@ip-172-31-36-136: /etc/ansible/roles/projectAnsible' followed by the command 'vim handlers/main.yml' entered at the prompt. The terminal has a menu bar with 'File', 'Edit', 'View', 'Search', 'Terminal', and 'Help'.

'#' handlers file for projectAnsible

- name: Restart the Apache server  
service:  
  name: "{{ pkg\_name }}"  
  state: restarted
- name: Print command message  
debug:  
  msg: "Command executed successfully"

A terminal window showing the content of the file 'handlers/main.yml' in vim. The content is displayed with syntax highlighting: comments in blue, list items in red, and variable names in red. The text is: ---, # handlers file for projectAnsible, - name: Restart the Apache server, service:, name: "{{ pkg\_name }}", state: restarted, - name: Print command message, debug:, msg: "Command executed successfully", followed by two tilde characters (~) on separate lines. The terminal window has a title bar and a menu bar.

Save the file

=====

'#' vim vars/main.yml

```
root@ip-172-31-36-136: /etc/ansible/roles/projectAnsible
File Edit View Search Terminal Help
root@ip-172-31-36-136:/etc/ansible/roles/projectAnsible# vim handlers/main.yml
root@ip-172-31-36-136:/etc/ansible/roles/projectAnsible# vim vars/main.yml
root@ip-172-31-36-136:/etc/ansible/roles/projectAnsible#
```

pkg\_name: apache2  
pkg\_state: present

save the file

```
Applications root@ip-172-31-36-136: ...
File Edit View Search Terminal Help

vars file for projectAnsible
pkg_name: apache2
pkg_state: present
~
```

=====  
'#' vim templates/index.html.j2

```
root@ip-172-31-36-136: /etc/ansible/roles/projectAnsible
File Edit View Search Terminal Help
root@ip-172-31-36-136:/etc/ansible/roles/projectAnsible# vim handlers/main.yml
root@ip-172-31-36-136:/etc/ansible/roles/projectAnsible# vim vars/main.yml
root@ip-172-31-36-136:/etc/ansible/roles/projectAnsible# vim templates/index.html.j2
```

This file is for web application.

It is deployed on server {{ ansible\_nodename }}.

IP address of the Host: {{ ansible\_default\_ipv4.address }}.

Host Node Name: {{ ansible\_nodename }}.

Host OS Family: {{ ansible\_os\_family }}.

save the file

```
root@ip-172-31-36-136: /etc/ansible/roles/projectAnsible
File Edit View Search Terminal Help
'#' vim templates/index.html.j2

This file is for web application.

It is deployed on server {{ ansible_nodename }}.

IP address of the Host: {{ ansible_default_ipv4.address }}.

Host Node Name: {{ ansible_nodename }}.

Host OS Family: {{ ansible_os_family }}.

=====
```

'#' cd ../../

You will be in the /etc/ansible directory now.

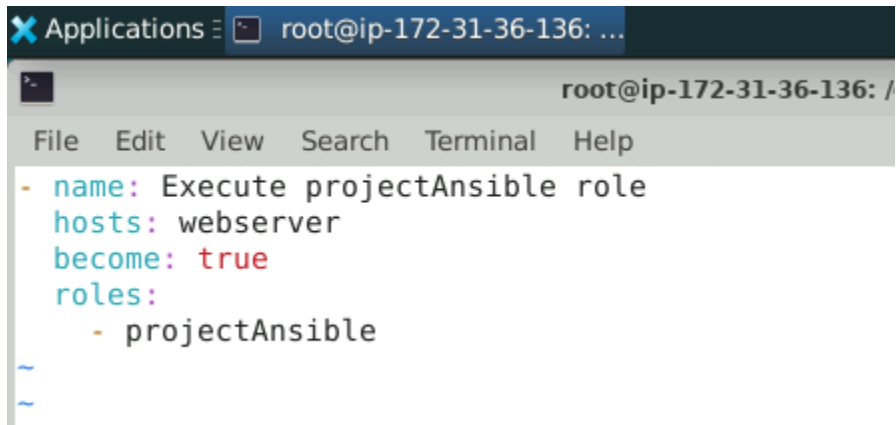
'#' vim playbookProject.yml

```
Applications root@ip-172-31-36-136: ... EN Fri 5 Ju
root@ip-172-31-36-136: /etc/ansible
File Edit View Search Terminal Help
root@ip-172-31-36-136:/etc/ansible/roles/projectAnsible# vim handlers/main.yml
root@ip-172-31-36-136:/etc/ansible/roles/projectAnsible# vim vars/main.yml
root@ip-172-31-36-136:/etc/ansible/roles/projectAnsible# vim templates/index.html.j2
root@ip-172-31-36-136:/etc/ansible/roles/projectAnsible# cd ../../
root@ip-172-31-36-136:/etc/ansible# vim playbookProject.yml
```

---

- name: Execute projectAnsible role
- hosts: webserver
- become: true
- roles:
  - projectAnsible

'#' ansible-playbook playbookProject.yml



The image shows a terminal window with a dark theme. The title bar at the top reads 'Applications' followed by a hamburger menu icon and the text 'root@ip-172-31-36-136: ...'. The terminal itself has a light gray background and a dark gray title bar that says 'root@ip-172-31-36-136: /'. Below the title bar is a menu bar with the options 'File', 'Edit', 'View', 'Search', 'Terminal', and 'Help'. The main content of the terminal is a YAML snippet for an Ansible playbook, displayed with syntax highlighting: a blue dash followed by 'name: Execute projectAnsible role' in black, 'hosts: webserver' in blue, 'become: true' in red, and 'roles:' in blue. Under 'roles:', there is a blue dash followed by 'projectAnsible' in black. At the bottom of the visible text, there are two blue tilde characters (~) on separate lines.

```
- name: Execute projectAnsible role
 hosts: webserver
 become: true
 roles:
 - projectAnsible
~
~
```

```
Applications: root@ip-172-31-36-136: ... EN Fri 5 Jul, 17:51 chreideramezgm

root@ip-172-31-36-136: /etc/ansible
File Edit View Search Terminal Help
root@ip-172-31-36-136:/etc/ansible# ansible-playbook playbookProject.yml

PLAY [Execute projectAnsible role] *****

TASK [Gathering Facts] *****
ok: [localhost]

TASK [projectAnsible : Display the hostname] *****
changed: [localhost]

TASK [projectAnsible : Install Apache on webserver] *****
changed: [localhost]

TASK [projectAnsible : Start Apache server] *****
ok: [localhost]

TASK [projectAnsible : Deploy HTML page on Apache] *****
changed: [localhost]

RUNNING HANDLER [projectAnsible : Restart the Apache server] *****
changed: [localhost]

RUNNING HANDLER [projectAnsible : Print command message] *****
ok: [localhost] => {
 "msg": "Command executed successfully"
}

PLAY RECAP *****
localhost : ok=7 changed=4 unreachable=0 failed=0 skipped=0 rescued=0
ignored=0

root@ip-172-31-36-136:/etc/ansible#
```

```
Applications: localhost - Google Chro... root@ip-172-31-36-136... EN Fri 5 Jul, 17:52 chreideramezgm

localhost x +
< - > localhost New Chrome available

'# vim templates/index.html.j2 This file is for web application. It is deployed on server ip-172-31-36-136. IP address of the Host:
172.31.36.136. Host Node Name: ip-172-31-36-136. Host OS Family: Debian.
```