

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/omarrrysn/Ansible-Project-2.git>

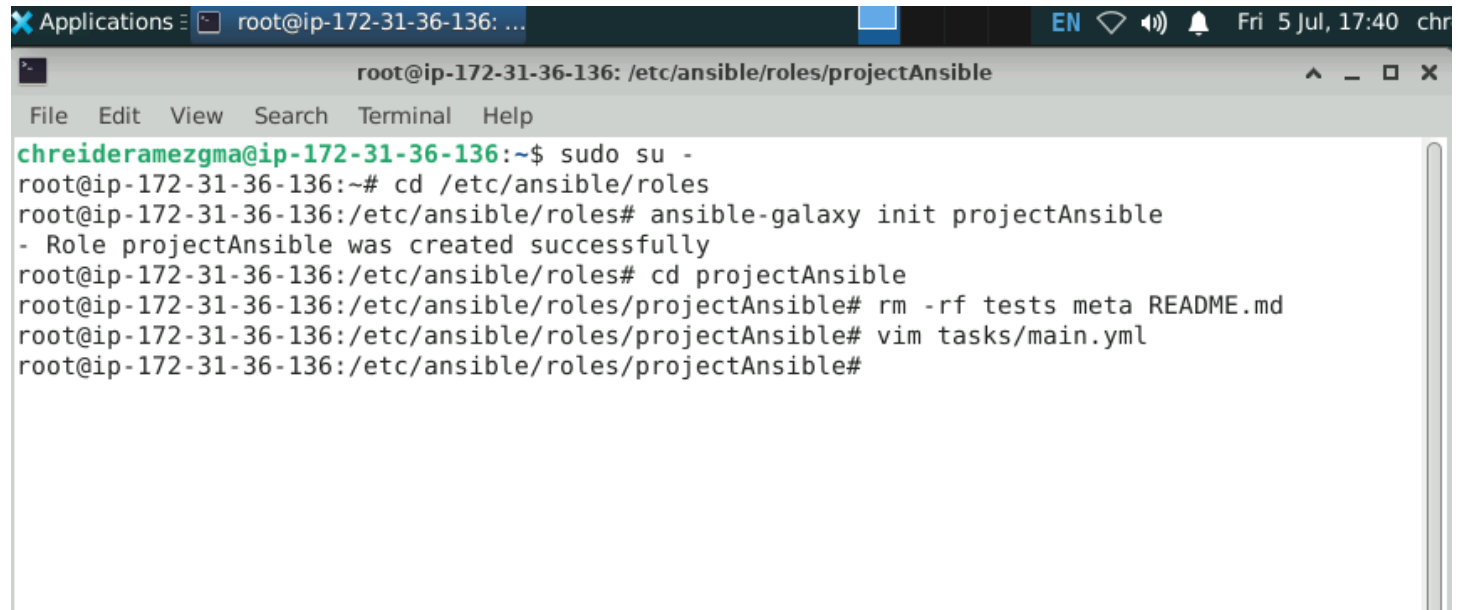
Sudo su -

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 'Applications' and 'root@ip-172-31-36-136: ...'. The terminal content shows a user 'chreideramezgma' at 'ip-172-31-36-136' running 'sudo su -' to become root. Then, they navigate to '/etc/ansible/roles' and run 'ansible-galaxy init projectAnsible', which outputs '- Role projectAnsible was created successfully'. Next, they run 'cd projectAnsible'. Then, they run 'rm -rf tests meta README.md'. Finally, they run 'vim tasks/main.yml' and the prompt returns to the shell. The terminal window has a menu bar with 'File', 'Edit', 'View', 'Search', 'Terminal', and 'Help'.

```
root@ip-172-31-36-136: /etc/ansible/roles/projectAnsible
File Edit View Search Terminal Help
chreideramezgma@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

=====

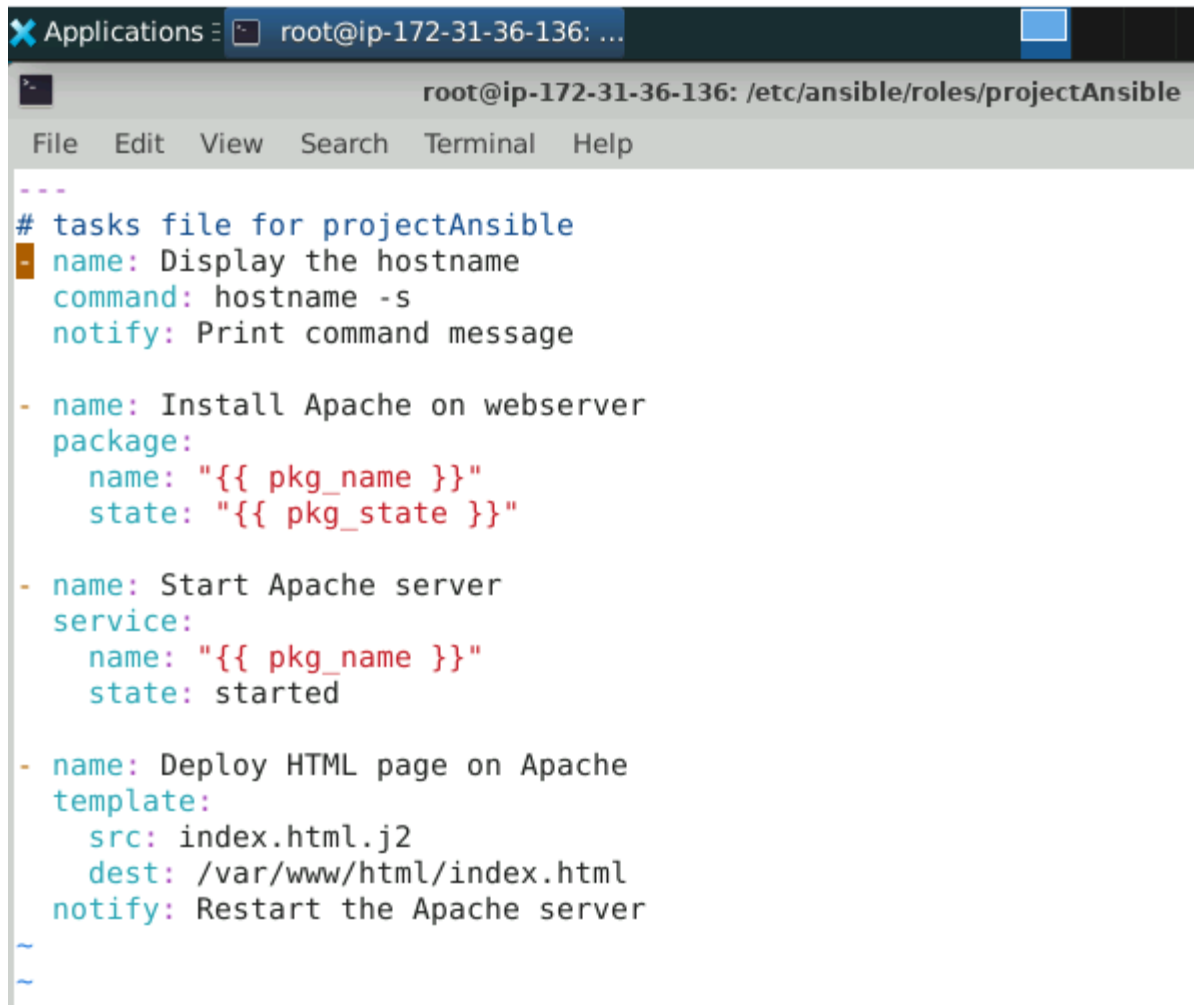
'#' Tasks file for projectAnsible

- 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 defines four tasks: displaying the hostname, installing Apache, starting the Apache service, and deploying an HTML page. The tasks are listed with their names and associated variables like pkg\_name and pkg\_state. The file ends with a tilde (~) character.

```

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

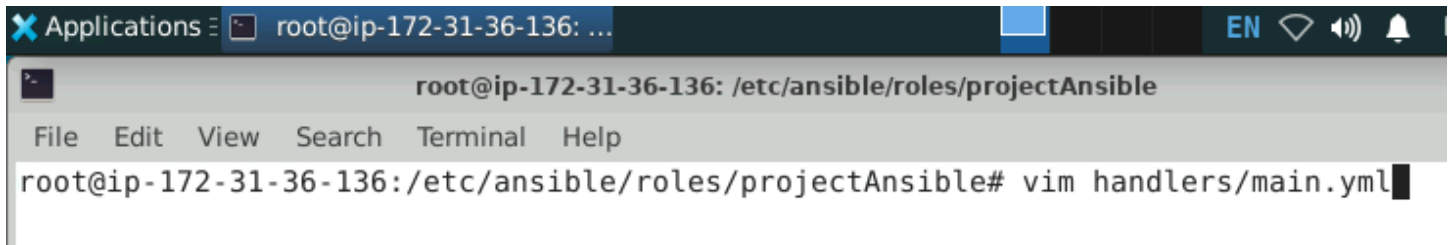
- name: Install Apache on webserver
 package:
 name: "{{ pkg_name }}"
 state: "{{ pkg_state }}"

- 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
~
```

=====

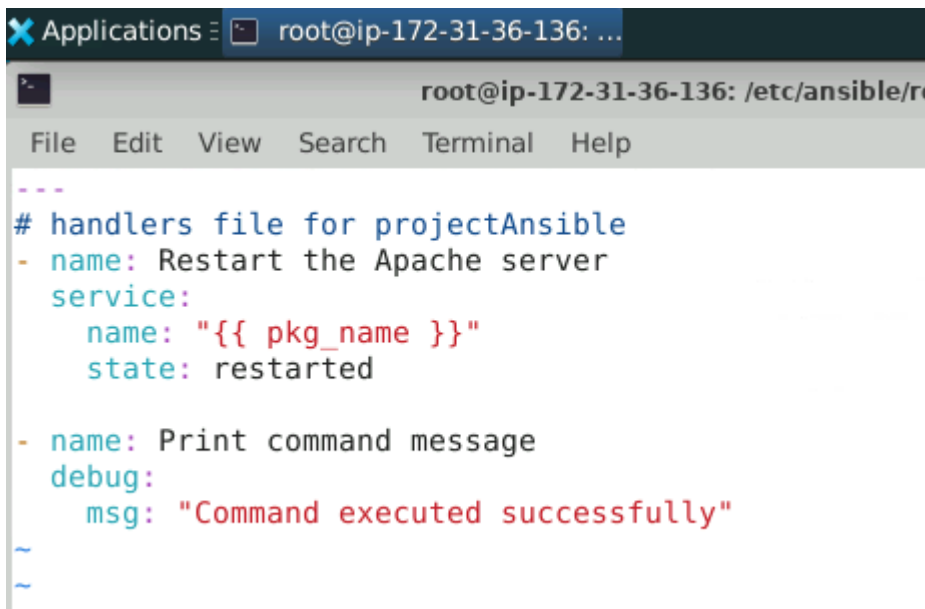
vim handlers/main.yml

A terminal window with a dark background. The title bar shows 'Applications' and the current directory is '/etc/ansible/roles/projectAnsible'. The prompt is 'root@ip-172-31-36-136: /etc/ansible/roles/projectAnsible#'. The command 'vim handlers/main.yml' has been entered and is followed by a cursor.

```
root@ip-172-31-36-136: /etc/ansible/roles/projectAnsible# vim handlers/main.yml
```

'#' 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 text is color-coded: blue for comments, red for names, and cyan for keys. The content matches the list provided in the previous block.

```

handlers file for projectAnsible
- name: Restart the Apache server
 service:
 name: "{{ pkg_name }}"
 state: restarted

- name: Print command message
 debug:
 msg: "Command executed successfully"
```

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.

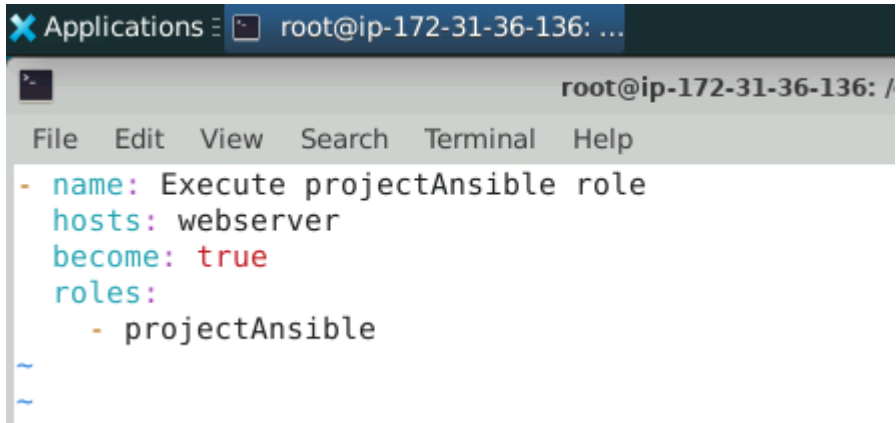
'#' vim playbookProject.yml

```
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 window icon and the text 'root@ip-172-31-36-136: ...'. The terminal content displays an Ansible playbook snippet in YAML format. The first line is a list item starting with a hyphen and 'name: Execute projectAnsible role'. The following lines are 'hosts: webserver', 'become: true', and 'roles:'. Under 'roles:', there is a sub-list item '- projectAnsible'. The terminal has a menu bar with 'File', 'Edit', 'View', 'Search', 'Terminal', and 'Help'. At the bottom left, there are two blue tilde symbols '~' indicating the current directory is the home directory.

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