

ANSIBLE CASE STUDY

You are a Devops Engineer and the organization you are working on needs to set up two configuration management server groups. One for Apache another for Nginx. Being a Devops Engineer it is your task to deal with this configuration management issue.

Let us see the tasks that you need to perform using Ansible.

1. Create two Server Groups. One for Apache and another for Nginx.
2. Push two html files with their server information.

Make sure that you don't forget to start the services once the installation is done. Also send post installation messages for both the server groups.

Using Ansible Roles accomplish the above the tasks.

Also, once the Apache server configuration is done you need to install Java on that server group using ansible role in a playbook.

Apr 12 2:19 PM

Instances | EC2 | us-east-1

labs/ansible/install at m | Configure Apache and N | +

us-east-1.console.aws.amazon.com/ec2/home?region=us-east-1#instances:v=3;\$case=tags:true%5C,client:false;\$regex=tags:false%5C,client:false

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Instances (3) Info

Find Instance by attribute or tag (case-sensitive)

Running

	Name	Instance ID	Instance state	Instance type	Status check	Alarm status	Availability
<input type="checkbox"/>	ansible-controller	I-053c6caa806b9673a	Running	t2.micro	2/2 checks passed	View alarms +	us-east-1c
<input type="checkbox"/>	apache	I-0fa1c48154408c6b8	Running	t2.micro	2/2 checks passed	View alarms +	us-east-1c
<input type="checkbox"/>	nginx	I-0c9835fd055f8af3b	Running	t2.micro	2/2 checks passed	View alarms +	us-east-1c

Select an instance

CloudShell Feedback

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ubuntu@ansible-controller: ~

ubuntu@ansible-controller: ~

ubuntu@apache-server: ~

ubuntu@nginx-server: ~

```
ubuntu@ansible-controller:~$ ansible --version
ansible [core 2.16.5]
  config file = /etc/ansible/ansible.cfg
  configured module search path = ['/home/ubuntu/.ansible/plugins/modules', '/usr/share/ansible/plugins/modules']
  ansible python module location = /usr/lib/python3/dist-packages/ansible
  ansible collection location = /home/ubuntu/.ansible/collections:/usr/share/ansible/collections
  executable location = /usr/bin/ansible
  python version = 3.10.12 (main, Nov 20 2023, 15:14:05) [GCC 11.4.0] (/usr/bin/python3)
  jinja version = 3.0.3
  libyaml = True
ubuntu@ansible-controller:~$
```

```
Apr 12 5:50 PM
devops@ansible-controller: ~
devops@ansible-controller: ~ x ubuntu@apache-server: ~ x ubuntu@nginx-server: ~
devops@ansible-controller:~$ cat myinv
[apache-server]
172.31.27.121
[nginx-server]
172.31.19.192

[apache-server:vars]
ansible_user=devops
ansible_ssh_pass=dhivya@123

[nginx-server:vars]
ansible_user=devops
ansible_ssh_pass=dhivya@123
devops@ansible-controller:~$
```

```
Apr 12 5:51 PM
devops@ansible-controller: ~
devops@ansible-controller: ~ x ubuntu@apache-server: ~ x ubuntu@nginx-server: ~
devops@ansible-controller:~$ tree
.
├── ansible.cfg
├── hosts
├── install-servers.yaml
├── java-install.yaml
├── myinv
├── roles
│   ├── apache
│   │   ├── files
│   │   │   └── index.html
│   │   ├── handlers
│   │   │   └── main.yaml
│   │   └── tasks
│   │       └── main.yaml
│   ├── java
│   │   └── tasks
│   │       └── main.yaml
│   └── nginx
│       ├── files
│       │   └── index.html
│       ├── handlers
│       │   └── main.yaml
│       └── tasks
│           └── main.yaml
└── 11 directories, 12 files
devops@ansible-controller:~$
```

```
Apr 12 5:54 PM
devops@ansible-controller: ~/roles/apache/tasks
devops@ansible-controller: ~/roles/apache/tasks$ cat main.yaml
---
- name: Install Apache
  apt:
    name: apache2
    state: present
    notify: start apache

- name: Copy index.html file
  copy:
    src: index.html
    dest: /var/www/html/index.html

- name: Enable Apache service
  systemd:
    name: apache2
    enabled: yes

- name: Ensure Apache is running
  systemd:
    name: apache2
    state: started

- name: Post installation message
  debug:
    msg: "Apache server configured successfully!"

devops@ansible-controller:~/roles/apache/tasks$
```

```
Apr 12 5:55 PM
devops@ansible-controller: ~/roles/apache/handlers
devops@ansible-controller: ~/roles/apache$ cd handlers/
devops@ansible-controller:~/roles/apache/handlers$ cat main.yaml
---
- name: start apache
  systemd:
    name: apache2
    state: started

devops@ansible-controller:~/roles/apache/handlers$
```

```
Apr 12 5:55 PM
devops@ansible-controller: ~/roles/apache/files
devops@ansible-controller: ~/roles/apache/files$ cat index.html
<h1>Hello from ansible</h1>
devops@ansible-controller:~/roles/apache/files$
```

```
Apr 12 5:57 PM
devops@ansible-controller: ~/roles/nginx/tasks
devops@ansible-controller:~/roles/nginx/tasks$ cat main.yaml
---
- name: Install Nginx
  apt:
    name: nginx
    state: present
    notify: start nginx

- name: Copy index.html file
  copy:
    src: index.html
    dest: /var/www/html/index.html

- name: Enable Nginx service
  systemd:
    name: nginx
    enabled: yes

- name: Ensure Nginx is running
  systemd:
    name: nginx
    state: started

- name: Post installation message
  debug:
    msg: "Nginx server configured successfully!"
devops@ansible-controller:~/roles/nginx/tasks$
```

```
Apr 12 5:57 PM
devops@ansible-controller: ~/roles/nginx/files
devops@ansible-controller: ~/roles/nginx/files$ cat index.html
<h1> Hello from Ansible </h1>
devops@ansible-controller:~/roles/nginx/files$
```

```
Apr 12 5:57 PM
devops@ansible-controller: ~/roles/nginx/handlers
devops@ansible-controller: ~/roles/nginx/handlers$ cat main.yaml
---
- name: start nginx
  systemd:
    name: nginx
    state: started
devops@ansible-controller:~/roles/nginx/handlers$
```

```
Apr 12 6:38 PM
devops@ansible-controller: ~
devops@apache-server: ~/.ssh x devops@nginx-server: ~/.ssh x devops@ansible-controller: ~
devops@ansible-controller:~$ ansible-playbook -i myinv install-servers.yaml --become
PLAY [apache_servers] *****
TASK [Gathering Facts] *****
ok: [172.31.27.121]
TASK [apache : Install Apache] *****
changed: [172.31.27.121]
TASK [apache : Copy index.html file] *****
changed: [172.31.27.121]
TASK [apache : Enable Apache service] *****
ok: [172.31.27.121]
TASK [apache : Ensure Apache is running] *****
ok: [172.31.27.121]
TASK [apache : Post installation message] *****
ok: [172.31.27.121] => {
  "msg": "Apache server configured successfully!"
}
RUNNING HANDLER [apache : start apache] *****
ok: [172.31.27.121]
PLAY [nginx_servers] *****
TASK [Gathering Facts] *****
ok: [172.31.19.192]
```

```
Apr 12 6:39 PM
devops@ansible-controller: ~
devops@apache-server: ~/.ssh x devops@nginx-server: ~/.ssh x devops@ansible-controller: ~
PLAY [nginx_servers] *****
TASK [Gathering Facts] *****
ok: [172.31.19.192]
TASK [nginx : Install Nginx] *****
changed: [172.31.19.192]
TASK [nginx : Copy index.html file] *****
changed: [172.31.19.192]
TASK [nginx : Enable Nginx service] *****
ok: [172.31.19.192]
TASK [nginx : Ensure Nginx is running] *****
ok: [172.31.19.192]
TASK [nginx : Post installation message] *****
ok: [172.31.19.192] => {
  "msg": "Nginx server configured successfully!"
}
RUNNING HANDLER [nginx : start nginx] *****
ok: [172.31.19.192]
PLAY RECAP *****
172.31.19.192      : ok=7    changed=2    unreachable=0    failed=0    skipped=0    rescued=0    ignored=0
172.31.27.121     : ok=7    changed=2    unreachable=0    failed=0    skipped=0    rescued=0    ignored=0
devops@ansible-controller:~$
```



```
Apr 12 6:41 PM 64%
devops@apache-server: ~
devops@apache-server: ~
devops@nginx-server: ~
devops@ansible-controller: ~

devops@apache-server:~$ systemctl status apache2
● apache2.service - The Apache HTTP Server
   Loaded: loaded (/lib/systemd/system/apache2.service; enabled; vendor preset: enabled)
   Active: active (running) since Fri 2024-04-12 13:07:48 UTC; 3min 14s ago
     Docs: https://httpd.apache.org/docs/2.4/
   Main PID: 3705 (apache2)
    Tasks: 55 (limit: 1121)
   Memory: 4.9M
      CPU: 42ms
   CGroup: /system.slice/apache2.service
           └─3705 /usr/sbin/apache2 -k start
             └─3707 /usr/sbin/apache2 -k start
               └─3708 /usr/sbin/apache2 -k start

devops@apache-server:~$
```

```
Apr 12 6:47 PM 60%
devops@apache-server: /var/www/html
devops@ansible-controller: ~/roles
devops@apache-server: /var/www/html
devops@nginx-server: ~

devops@apache-server:/var/www/html$ cat index.html
<h1>Hello from ansible</h1>

devops@apache-server:/var/www/html$
```

```
Apr 12 6:42 PM 63%
devops@ansible-controller: ~
devops@ansible-controller: ~ x devops@apache-server: ~ x devops@nginx-server: ~
devops@ansible-controller:~$ ansible-playbook -i myinv java-install.yaml --become
PLAY [apache_servers] *****
TASK [Gathering Facts] *****
ok: [172.31.27.121]
TASK [java : Install Java] *****
changed: [172.31.27.121]
TASK [java : Post installation message] *****
ok: [172.31.27.121] => {
  "msg": "Java installed successfully!"
}
PLAY RECAP *****
172.31.27.121 : ok=3 changed=1 unreachable=0 failed=0 skipped=0 rescued=0 ignored=0
devops@ansible-controller:~$
```

```
Apr 12 6:43 PM 62%
devops@apache-server: ~
devops@ansible-controller: ~ x devops@apache-server: ~ x devops@nginx-server: ~
devops@apache-server:~$ java --version
openjdk 11.0.22 2024-01-16
OpenJDK Runtime Environment (build 11.0.22+7-post-Ubuntu-0ubuntu222.04.1)
OpenJDK 64-Bit Server VM (build 11.0.22+7-post-Ubuntu-0ubuntu222.04.1, mixed mode, sharing)
devops@apache-server:~$
```

```
Apr 12 6:45 PM 61%
devops@ansible-controller: ~
devops@ansible-controller: ~
devops@ansible-controller: ~
devops@ansible-controller: ~$ cat install.yaml
---
- hosts: apache_servers
  roles:
    - java
devops@ansible-controller:~$ cat install-servers.yaml
---
- hosts: apache_servers
  roles:
    - apache
- hosts: nginx_servers
  roles:
    - nginx
devops@ansible-controller:~$
```