# HW1 Ansible

- Utilize the Dcloud DevNet Express Data Center v2 lab, or deploy your own three (3) Virtual Machines
- Configure Ansible server on ***VM 1*** to deploy a web server *to* ***VM2*** and ***VM3*** on port 8080 that displays the message: “Hello World from SJSU-X ", where X is 1 or 2 depending on which web server.
- Include in the Ansible playbook, plays to **deploy** and **undeploy** all the web server resources

GitHub Link: https://github.com/SaiPranaviKurapati/HW1_Ansible_TeamAlterEgos

# Team AlterEgos


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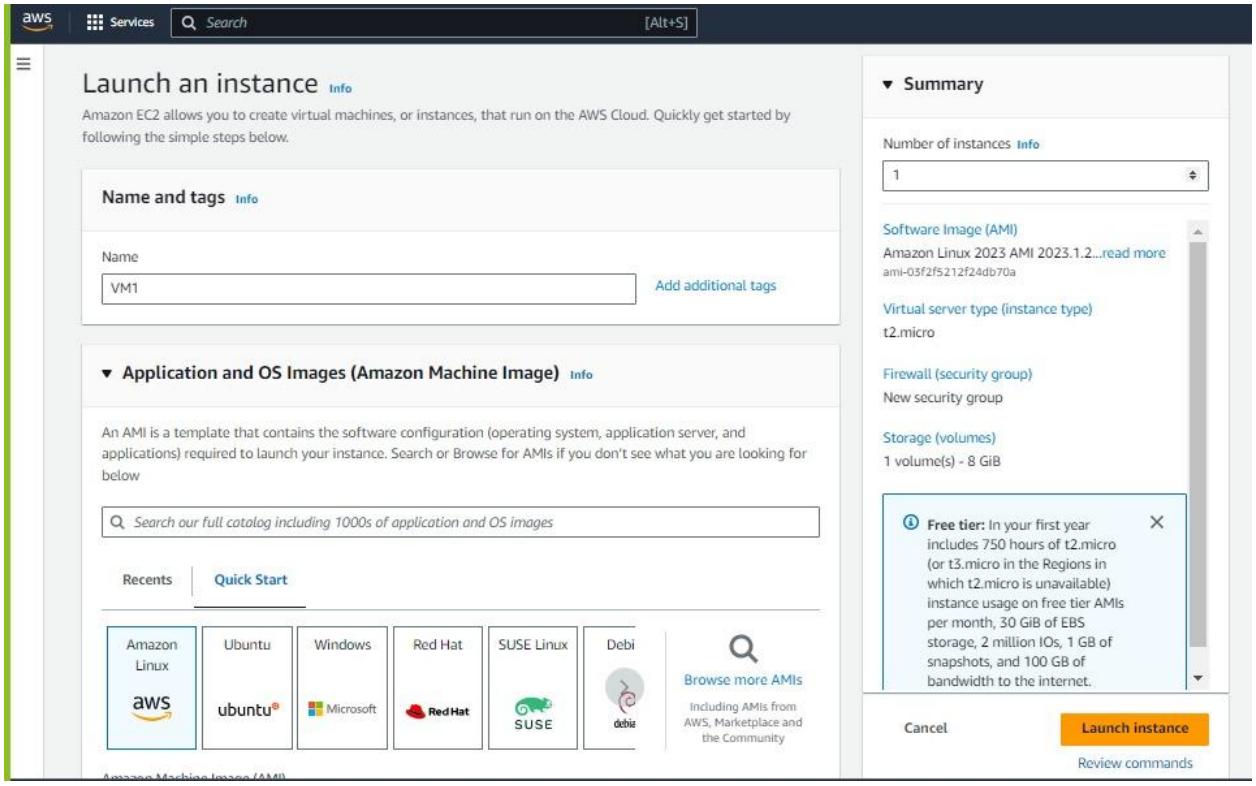
# Creating an instance in AWS

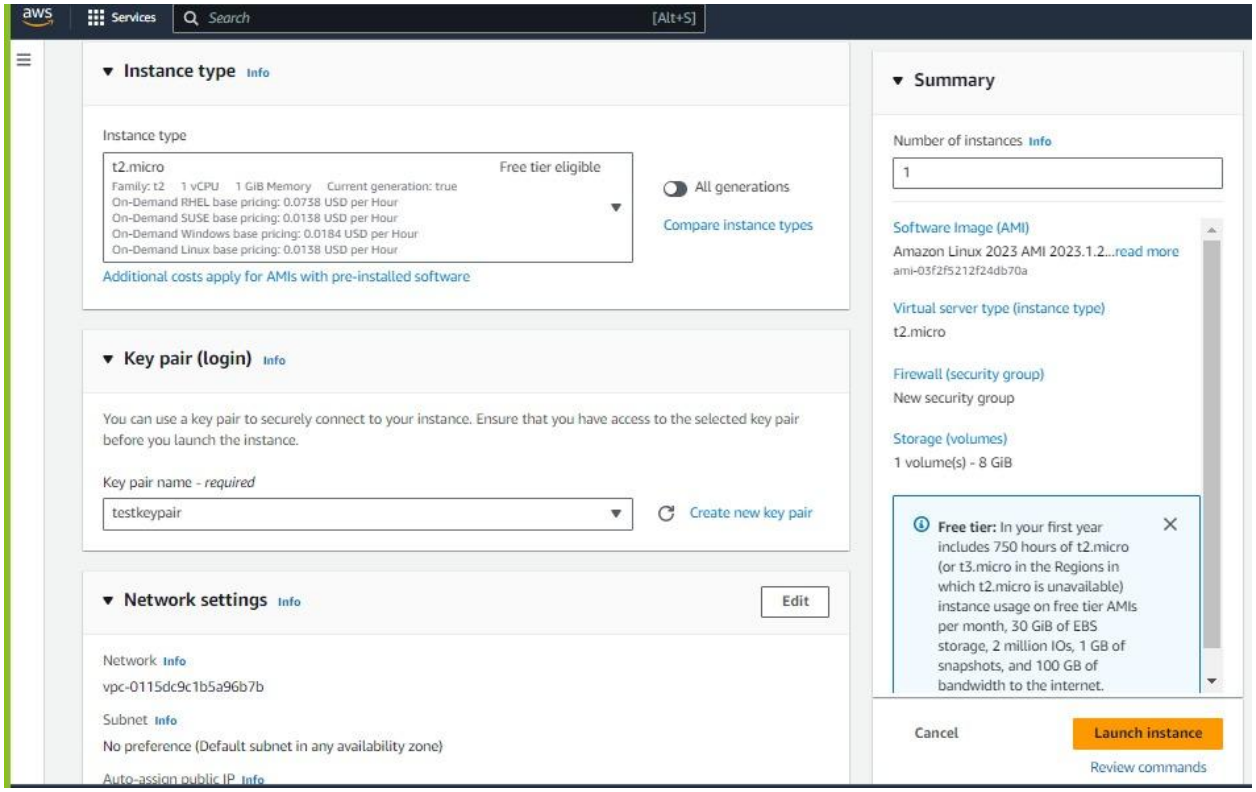
We have created three VMs with a Linux operating system:

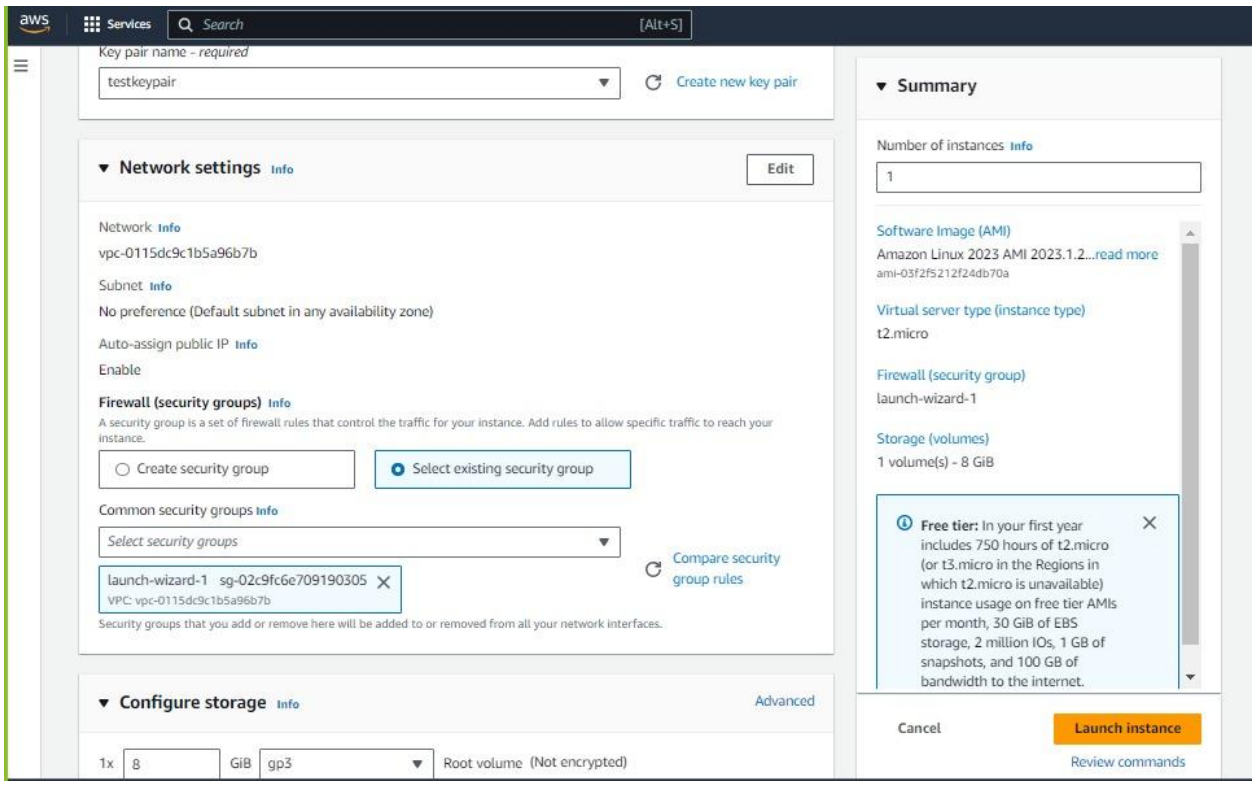
- VM1: 172.31.3.177 (Server1)
- VM2: 172.31.1.16 (Server2)
- VM3: 172.31.8.87 (AnsibleServer)

During the VM creation process, we generated a key pair named 'testkeypair' and selected the 'launch wizard' security group.

- Creating an instance for VM1






Similarly, we created instances for VM2 and VM3.

# Creating SSH key pair

SSH key-pairs are generated to establish communication between hosts and ansible server.

Generating SSH key pair :
**ssh-keygen**

```
[root@ip-172-31-11-45 ~]# ssh-keygen
Generating public/private rsa key pair.
Enter file in which to save the key (/root/.ssh/id_rsa):
Enter passphrase (empty for no passphrase):
Enter same passphrase again:
Your identification has been saved in /root/.ssh/id_rsa
Your public key has been saved in /root/.ssh/id_rsa.pub
The key fingerprint is:
SHA256:vNM6IguvT+vGsYvLGqq9yTz9MX7NC8oai/ZcpSOkTnc root@ip-172-31-11-45.us-west-1.compute.internal
The key's randomart image is:
+---[RSA 3072]----+
|                 |
|                 |
|                 |
|        .        |
|     .   S       |
|    o.  o o      |
| . +o=oE +o.     |
|.OoX*X.=o+o      |
| =o&X%*=o....    |
+----[SHA256]-----+
[root@ip-172-31-11-45 ~]#
```

Copying the keys to the hosts :

**ssh-copy-id ansible@172.31.1.16**

```
[root@ip-172-31-11-45 .ssh]# ssh-copy-id ansible@172.31.1.16
/usr/bin/ssh-copy-id: INFO: Source of key(s) to be installed: "/root/.ssh/id_rsa.pub"
The authenticity of host '172.31.1.16 (172.31.1.16)' can't be established.
ED25519 key fingerprint is SHA256:qi0KvM99y3yOq73W+37nHYRoAV8VCKUrpaTuA//4H9E.
This key is not known by any other names
Are you sure you want to continue connecting (yes/no/[fingerprint])? y
Please type 'yes', 'no' or the fingerprint: yes
/usr/bin/ssh-copy-id: INFO: attempting to log in with the new key(s), to filter out any that are already installed
/usr/bin/ssh-copy-id: INFO: 1 key(s) remain to be installed -- if you are prompted now it is to install the new keys
ansible@172.31.1.16's password:

Number of key(s) added: 1

Now try logging into the machine, with:   "ssh 'ansible@172.31.1.16'"
and check to make sure that only the key(s) you wanted were added.
```

**ssh-copy-id ansible@172.31.3.177**

```
[root@ip-172-31-11-45 .ssh]# ssh-copy-id ansible@172.31.3.177
/usr/bin/ssh-copy-id: INFO: Source of key(s) to be installed: "/root/.ssh/id_rsa.pub"
The authenticity of host '172.31.3.177 (172.31.3.177)' can't be established.
ED25519 key fingerprint is SHA256:MlA7coNHr/4Zg/lemustHBVl7XblT9nz22AG9N4yUSE.
This key is not known by any other names
Are you sure you want to continue connecting (yes/no/[fingerprint])? yes
/usr/bin/ssh-copy-id: INFO: attempting to log in with the new key(s), to filter out any that are already installed
/usr/bin/ssh-copy-id: INFO: 1 key(s) remain to be installed -- if you are prompted now it is to install the new keys
ansible@172.31.3.177's password:

Number of key(s) added: 1

Now try logging into the machine, with:   "ssh 'ansible@172.31.3.177'"
and check to make sure that only the key(s) you wanted were added.
```

# Verifying SSH

Verify that the keys has been copied :

**ssh ansible@172.31.3.177**

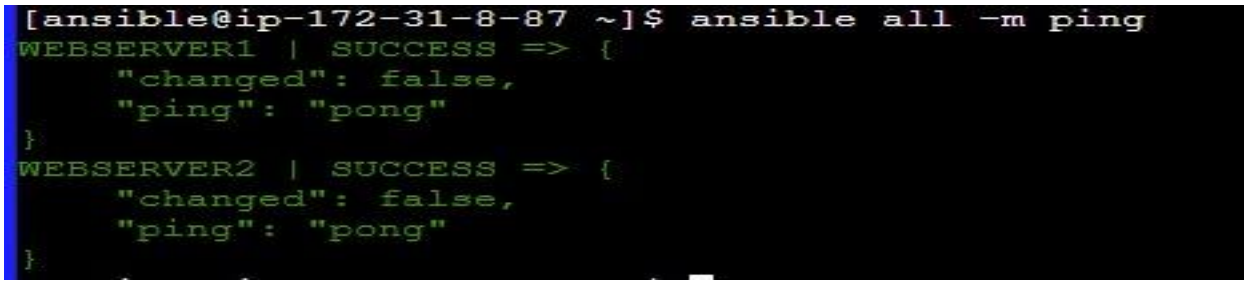
```
ansible@ip-172-31-8-87 ~]$ ssh ansible@172.31.3.177
  ,     #_
  ~\_  ####_        Amazon Linux 2023
 ~~  \_#####\
 ~~     \###|
 ~~       \#/ ___   https://aws.amazon.com/linux/amazon-linux-2023
  ~~       V~' '->
   ~~~         /
     ~~._.   _/
        _/ _/
      _/m/'
ast login: Wed Sep  6 22:05:54 2023 from 172.31.8.87
ansible@ip-172-31-3-177 ~]$
```

```
[ansible@ip-172-31-8-87 ~]$ ssh ansible@172.31.1.16
  ,     #_
  ~\_  ####_        Amazon Linux 2023
 ~~  \_#####\
 ~~     \###|
 ~~       \#/ ___   https://aws.amazon.com/linux/amazon-linux-2023
  ~~       V~' '->
   ~~~         /
     ~~._.   _/
        _/ _/
      _/m/'
Last login: Thu Sep  7 04:17:27 2023 from 172.31.8.87
[ansible@ip-172-31-1-16 ~]$
```

## Creating Ansible Inventory

The IP addresses of both servers, VM1 and VM2, are included in the Ansible server's hosts file. You can verify the connection to both VMs from the Ansible server using the following command.

**Ansible all -m ping**

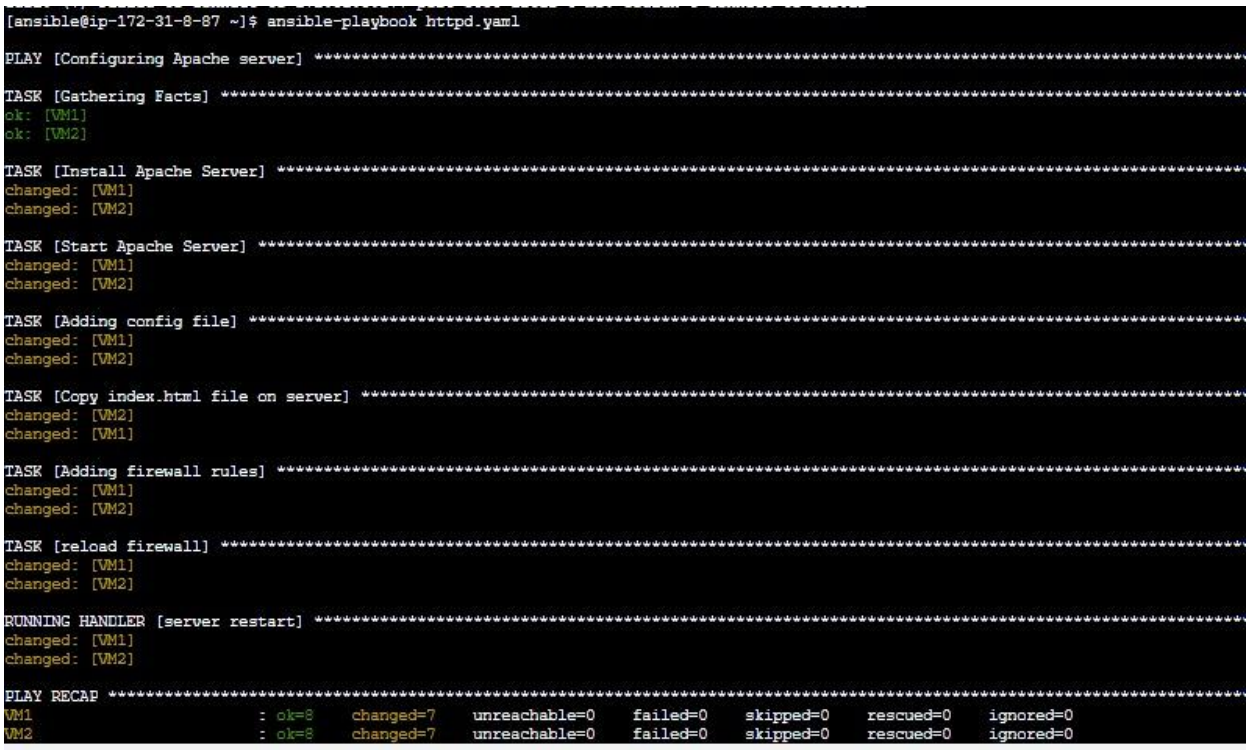



## Deploy the web server

After successfully establishing the connection, we create .yaml, .j2, and .html files. The .yaml file contains commands to:

- Install the Apache server.
- Launch the server after successful installation.
- Add firewall rules.
- Reload the firewall.
- Display the message

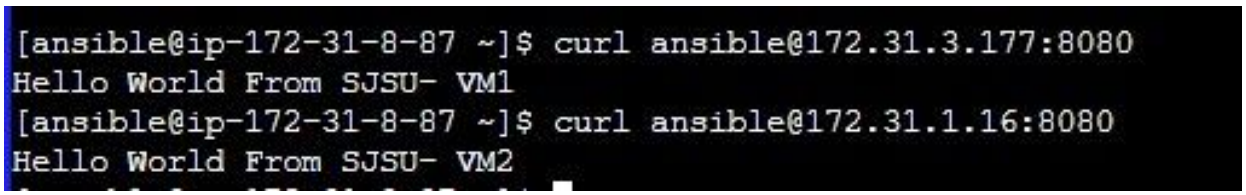
**ansible-playbook httpd.yaml**




## Validation from workstation

Logging on to ansible server(VM3) on AWS server running the IP address will printout the below message after successful validation of curl command.

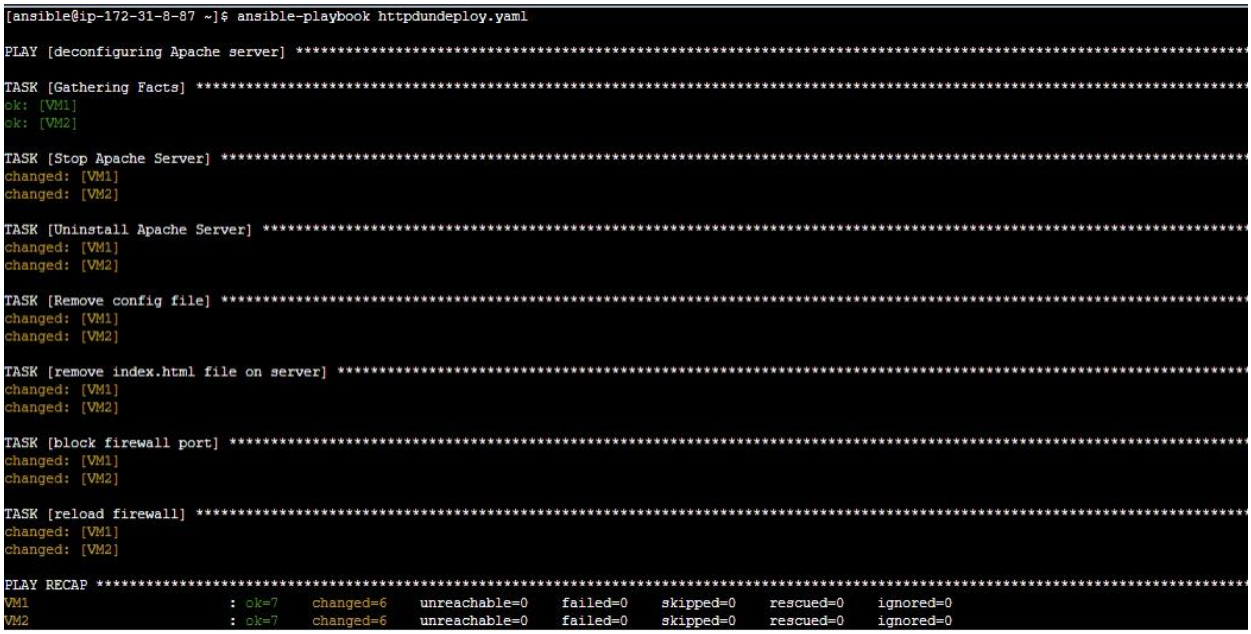
**curl ansible@172.31.3.177:8080**
**curl ansible@172.31.1.16:8080**




## Un-deploy the web server

To un-deploy the web server, we uninstalled the Apache server on both servers and removed all its dependencies. After completing this task, we also disabled port 8080.

**Ansible-playbook httpdundeploy.yaml**




## Validate after un-deployment

After un-deploying, we validate that the servers are no longer reachable using the following commands.

**Curl ansible@172.31.1.16:8080**
**Curl ansible@172.31.3.177:8080**