ANSIBLE

Amazon
EC2

Task 2

Statement : Deploy Web Server on AWS through ANSIBLE!

- Provision EC2 instance through ansible.
- Retrieve the IP Address of instance using dynamic inventory concept.
- Configure the web server through ansible!
- Create role for webserver to customize the Instance and deploy the webpage to root directory.

So let start this task 2 :-

Ansible is great tool in doing configuration on any OS. What we have to launch the OS using Ansible. So this can be possible using Ansible. But ansible is meant for configuration and for provisioning OS we cab use Terraform. Though Ansible can manage Configuration as well as provisioning there i am using ansible to provision ec2 instance and also for configuring webserver inside that ec2 instance. The task description can be cleared using below figure.

That we can use our localhost ip address to behave as a managed node and we will use the SDK to launch ec2 instance on AWS as Ansible is built on python language so we will be using boto3. Boto as it an API so it has the capability to contact to AWS.
pip3 install boto

So we have to insert localhost IP address in hosts of ansible.

```
[localhost]
127.0.0.1       ansible_ssh_pass=pratik      ansible_ssh_pass=pratik
```

After that try to ping using the ping command. and then try via ansible localhost -m ping.

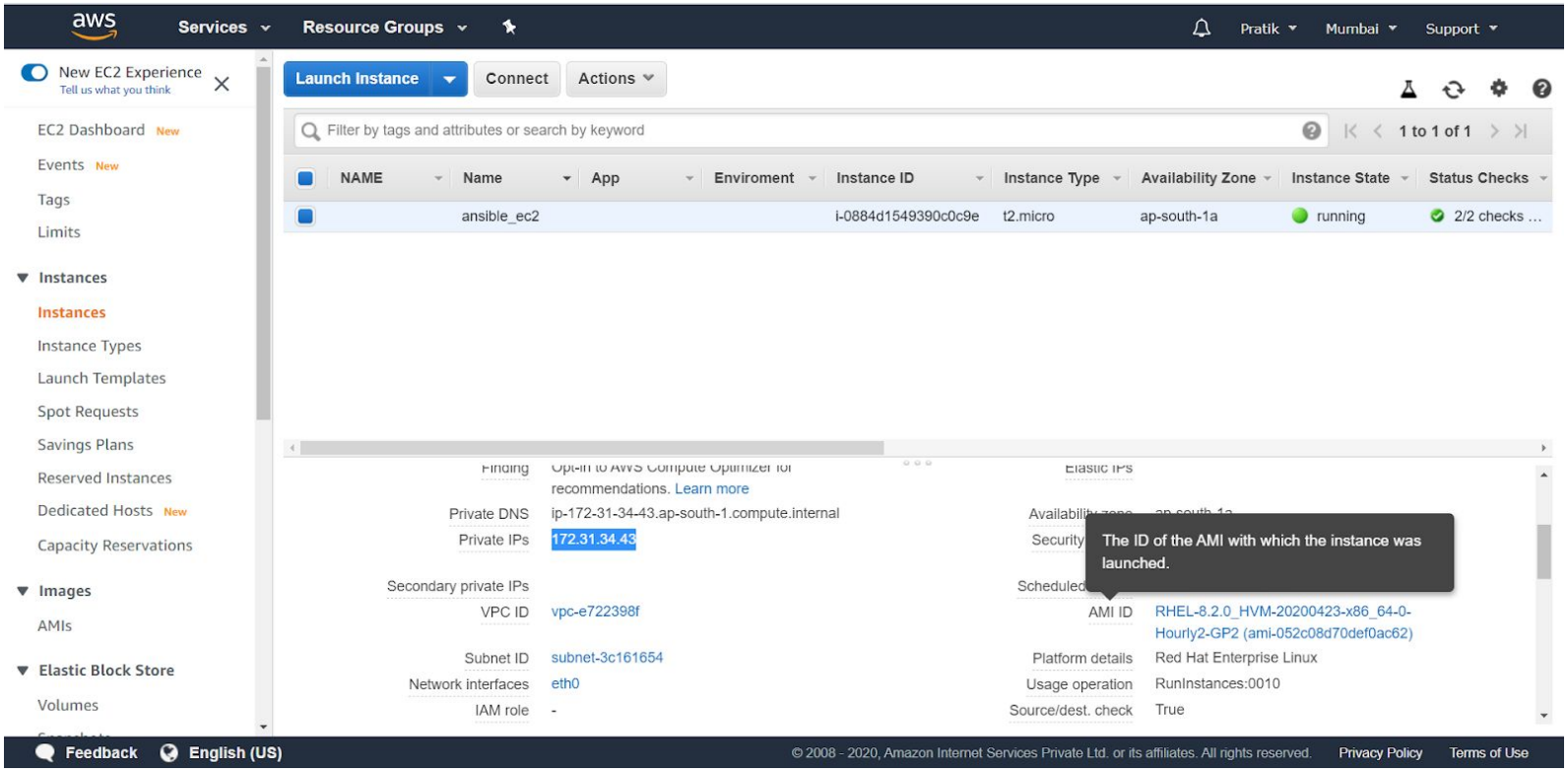
Now we are ready to create ansible-playbook. Ansible Playbook is a file where we have to write play's i.e a book of play's means what you would like to configure or provision then we have to write code in that file. Normally ansible-playbook supports YAML language. so we have to create a playbook.

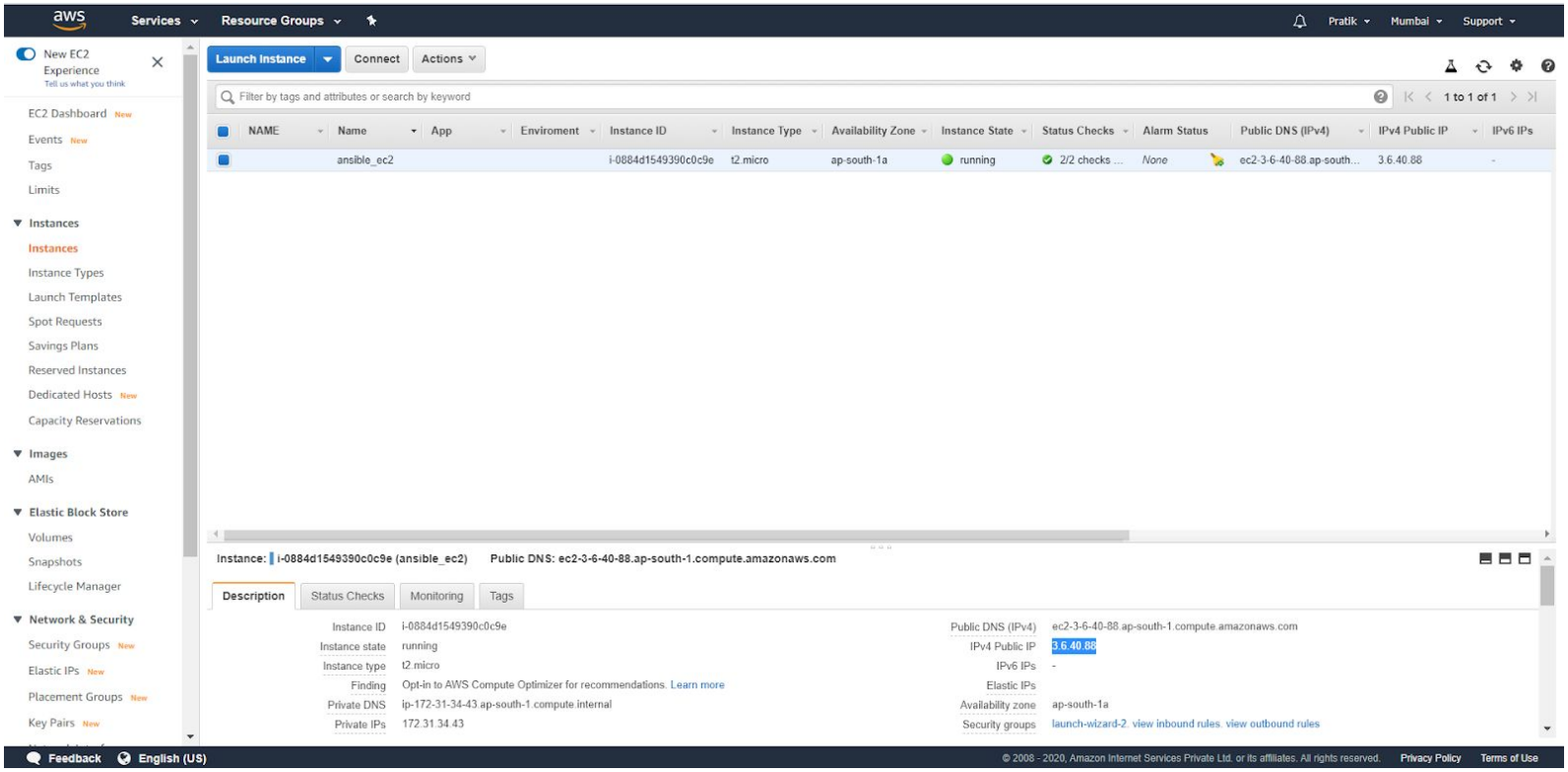
```
- hosts: "localhost"
  vars_files:
      - secret_key.yml
  tasks:
  - name: "provisioning OS on AWS using Ansible"
    ec2:
       key_name: "openstack"
       instance_type: "t2.micro"
       image: "ami-052c08d70def0ac62"
       wait: yes
       count: 1
       instance_tags:
          Name: aws_ansible_ec2
       vpc_subnet_id: "subnet-3c161654
       assign_public_ip: yes
       region: "ap-south-1"
       state: present
       group_id: "sg-06f34c397d23b4c97"
       aws_access_key: "{{aws_access_key}}"
       aws_secret_key: "{{aws_secret_key}}"
    register: X

  - debug:
       var:  X.instances[0].private_ip
    register: IP

  - debug:
       var: IP["X.instances[0].private_ip"]

~
~
~
"aws_ec2.yml" 29L, 709C
```

Extraction of the IP of newly launched EC2 instance.

```
[root@Ansible ansible_yask2]# ansible-playbook  --vault-id  ec2_launch@prompt aws_ec2.yml
Vault password (ec2_launch):

PLAY [localhost] ***************************************************************************************************

TASK [Gathering Facts] *********************************************************************************************
ok: [127.0.0.1]

TASK [provisioning OS on AWS using Ansible] ************************************************************************
changed: [127.0.0.1]

TASK [debug] *******************************************************************************************************
ok: [127.0.0.1] => {
    "X.instances[0].private_ip": "172.31.34.43"
}

TASK [debug] *******************************************************************************************************
ok: [127.0.0.1] => {
    "IP[\"X.instances[0].private_ip\"]": "172.31.34.43"
}

PLAY RECAP *********************************************************************************************************
127.0.0.1                  : ok=4    changed=1    unreachable=0    failed=0    skipped=0    rescued=0    ignored=0

[root@Ansible ansible_yask2]#
```

After Running code Successfully. we can see below that the new ec2 instance named "ansible_ec2" is has been launched.

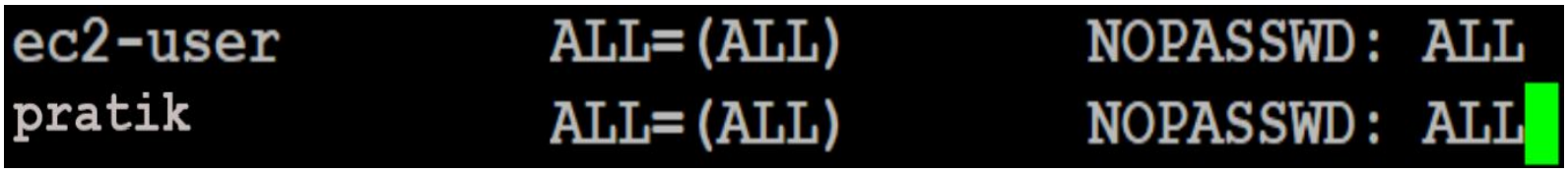




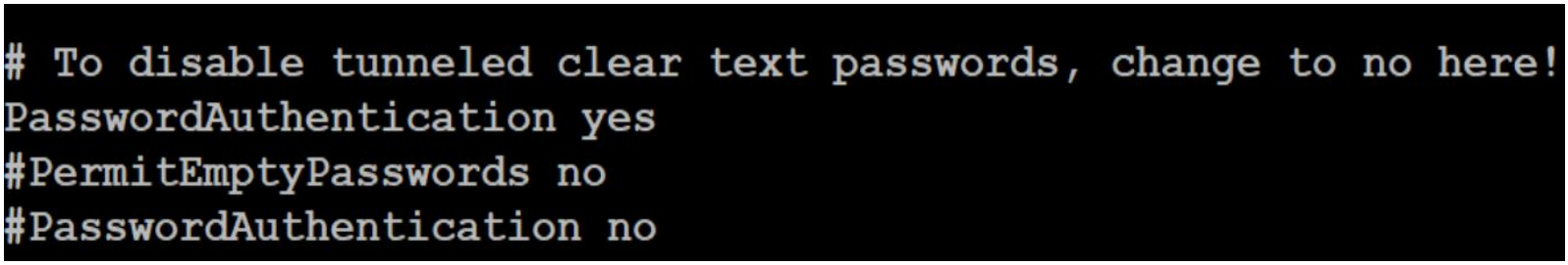
Now we have to set the user name and password of the newly ec2 instance launched and also we have to set the hostname.

```
Last login: Wed Aug 19 05:45:08 UTC 2020 on pts/1
[root@ec2 ~]# useradd pratik
[root@ec2 ~]# passwd pratik
Changing password for user pratik.
New password:
BAD PASSWORD: The password is shorter than 8 characters
Retype new password:
passwd: all authentication tokens updated successfully.
[root@ec2 ~]#
```

Updation of the user in /etc/sudoers



we need to give password authentication in /etc/ssh/sshd_config. and restart the sshd services.



Restart the services using service sshd restart.

Then we have to generate the ssh key. using the command ssh-keygen.

```
[ec2-user@Ansible ~]$ ssh-keygen
Generating public/private rsa key pair.
Enter file in which to save the key (/home/ec2-user/.ssh/id_rsa):
Enter passphrase (empty for no passphrase):
Enter same passphrase again:
Your identification has been saved in /home/ec2-user/.ssh/id_rsa.
Your public key has been saved in /home/ec2-user/.ssh/id_rsa.pub.
The key fingerprint is:
SHA256:uNq7WuGH2w2/2Q1lrYgDdrjl4HFC500aAcSMAzOtUY4 ec2-user@Ansible
The key's randomart image is:
+---[RSA 3072]----+
|    ++.=o..      |
|    .=+ o  .     |
|    Eo... o .    |
|    .  o + =   . |
|      o S * . o .|
|     . * @ . + . |
|      = = + o .  |
|     + + + + o   |
|    o.=o. =.. .  |
+----[SHA256]-----+
[ec2-user@Ansible ~]$
```

After generation of a sshkey we have to copy the sshkey in ec2 instance. using the command ssh-copy-id.

```
pratik@172.31.34.43 's password:

Number of key(s) added: 1

Now try logging into the machine, with:   "ssh 'pratik@172.31.34.43'"
and check to make sure that only the key(s) you wanted were added.
```

After copying ssh key to newly launched ec2 instance then we have to update the private IP address in the ansible hosts.

write the access permission code in the ansible.cfg file.

```
[defaults]
inventory = /etc/myhosts.txt
host_key_checking=False
command_warnings=false
remote_user = pratik
ask_pass = false

[privilege_escalation]
become = true
become_method = sudo
become_user = root
become_ask_pass = false
~
~
```

```
[localhost]
127.0.0.1       ansible_ssh_pass=pratik       ansible_ssh_pass=pratik

[ec2]
172.31.34.43
```

Here no need to give password as we have already generated ssh key and copied to the desired ec2 instance. Now we can ping the ec2 Node.

```
ec2-user@Ansible:~
[ec2-user@Ansible ~]$ ansible ec2 -m ping
172.31.34.43 | SUCCESS => {
    "ansible_facts": {
        "discovered_interpreter_python": "/usr/libexec/platform-python"
    },
    "changed": false,
    "ping": "pong"
}
[ec2-user@Ansible ~]$
```

We have to configure the web server in that ec2 node with the help of ansible.

```
- hosts: "ec2"
  tasks:
  - package:
      name: "httpd"
      state: present
  - copy:
      src: "index.html"
      dest: "/var/www/html"
  - service:
      name: "httpd"
      state: restarted
~
~
~
```

The above code will configure the webserver in that ec2 node.

```
[root@Ansible ansible_yask2]# ansible-playbook ec2.yml

PLAY [ec2] *********************************************************************************************************************

TASK [Gathering Facts] *********************************************************************************************************
ok: [172.31.34.43]
```

```
[root@Ansible ansible_yask2]# ansible-playbook ec2.yml

PLAY [ec2] *********************************************************************************************************************

TASK [Gathering Facts] *********************************************************************************************************
ok: [172.31.34.43]

TASK [package] *****************************************************************************************************************
changed: [172.31.34.43]

TASK [copy] ********************************************************************************************************************
[WARNING]: File '/var/www/html/index.html' created with default permissions '600'. The previous default was '666'.
Specify 'mode' to avoid this warning.
changed: [172.31.34.43]

TASK [service] *****************************************************************************************************************
changed: [172.31.34.43]

PLAY RECAP *********************************************************************************************************************
172.31.34.43               : ok=4    changed=3    unreachable=0    failed=0    skipped=0    rescued=0    ignored=0
```

Now we see our code run successfully now you can check the webserver using public IP of that ec2 instance.

Congratulations on your success

Welcome to the second Task of Ansible

Launching EC2 instance on AWS using ansible-playbook

The webserver is successfully configured !!!

Thanks for reading!!!