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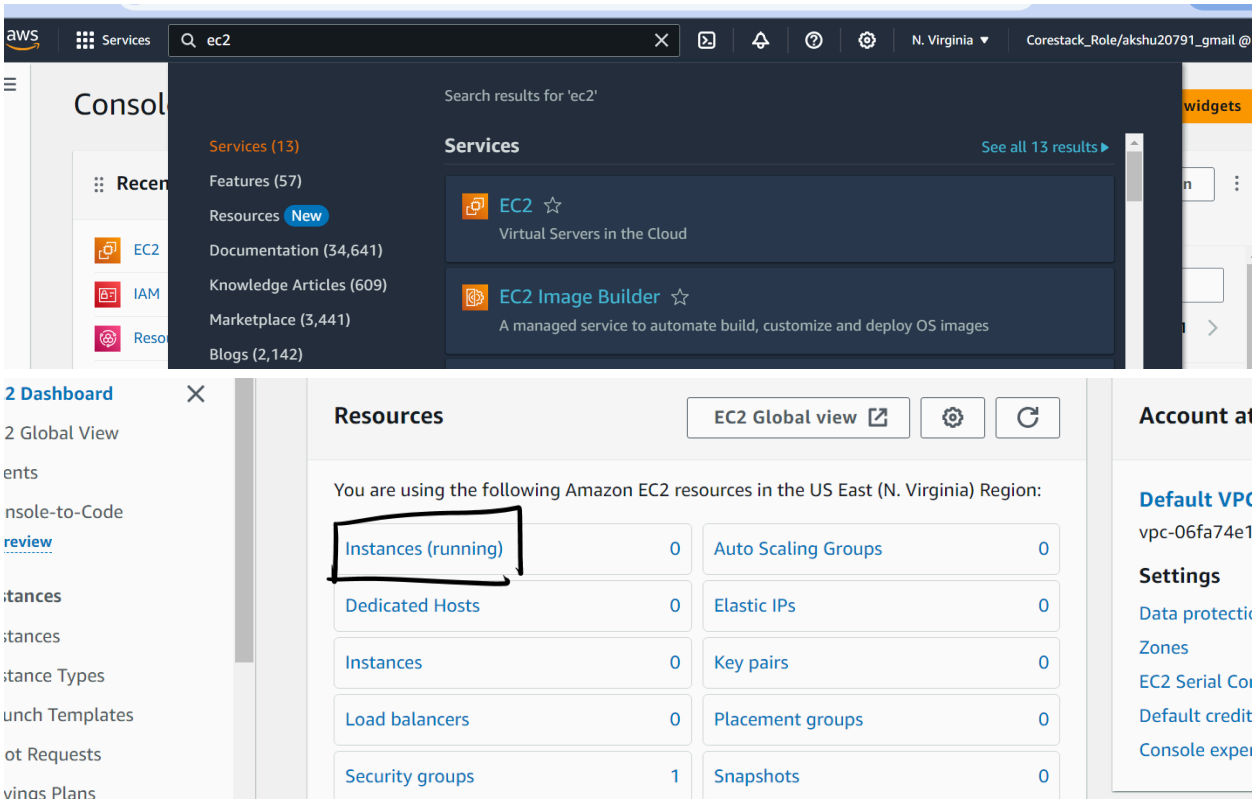
Lesson 01 Demo 01

INSTALLING AND CONFIGURING ANSIBLE

Objective: Using Ansible as a master node architecture in aws Ec2 machine
Tools required: Python , Ansible, AWS

Prerequisites: NA



Click on Launch instances

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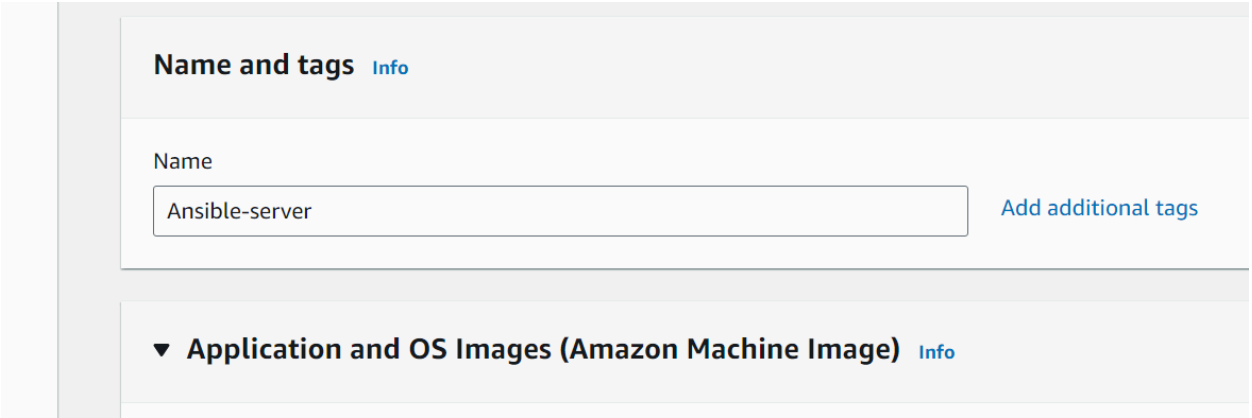
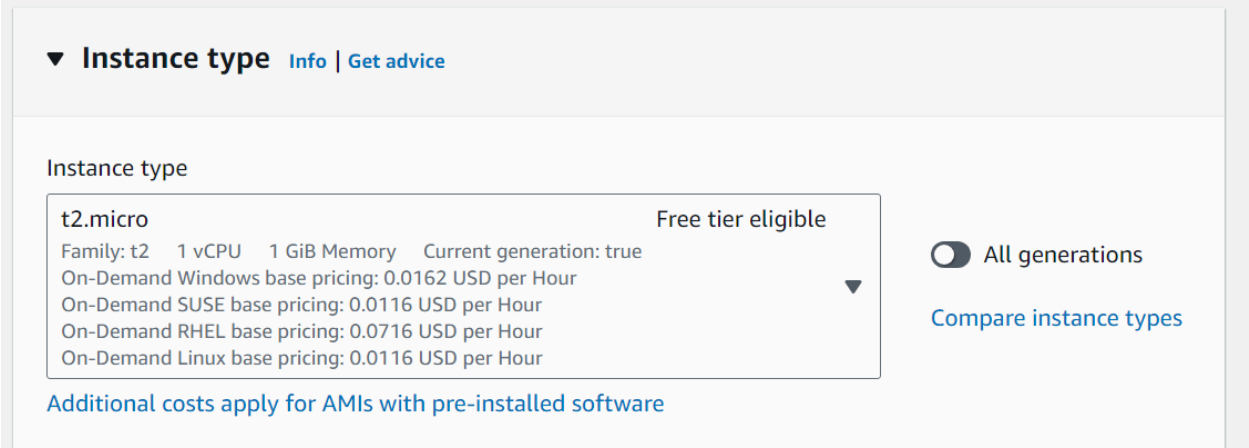
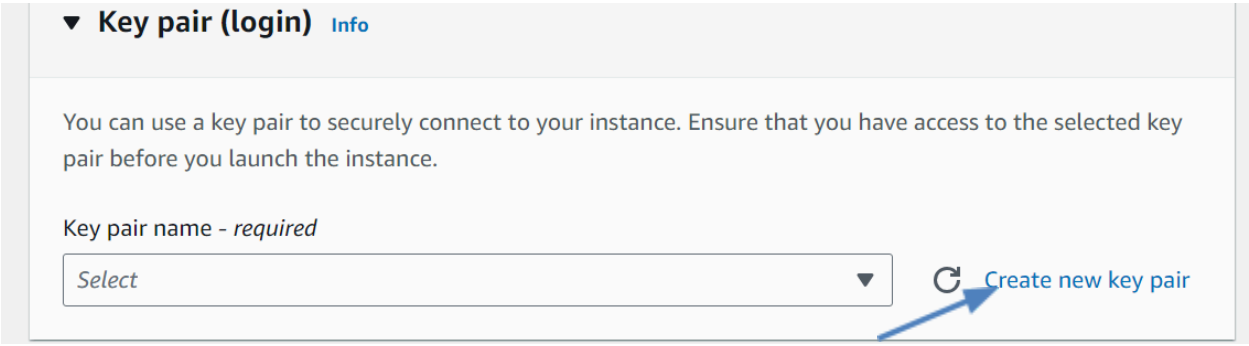


Select AMI as Ubuntu 24.4



Click on Create new key pair and create a new key pair



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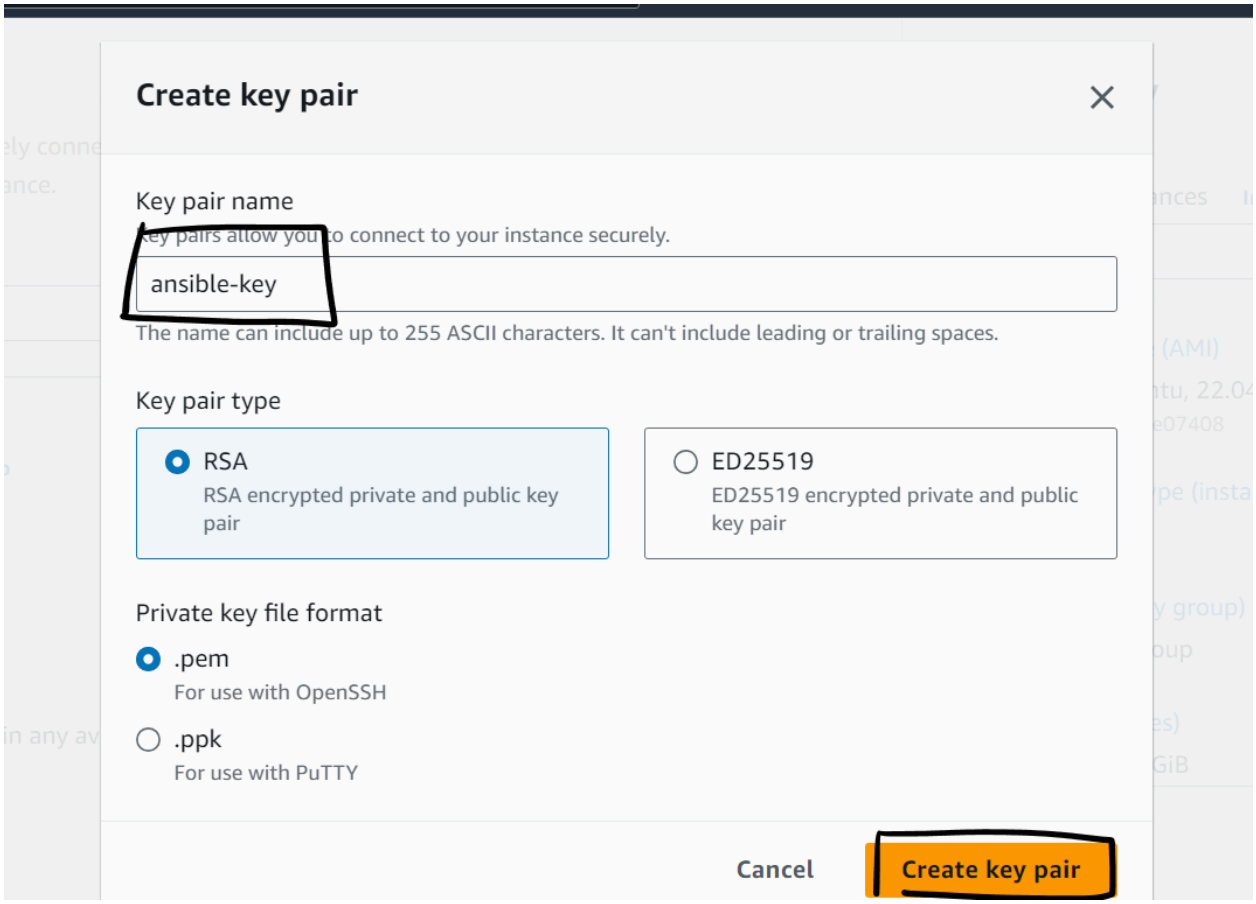

The key would be downloaded to the machine

In Firewall ,

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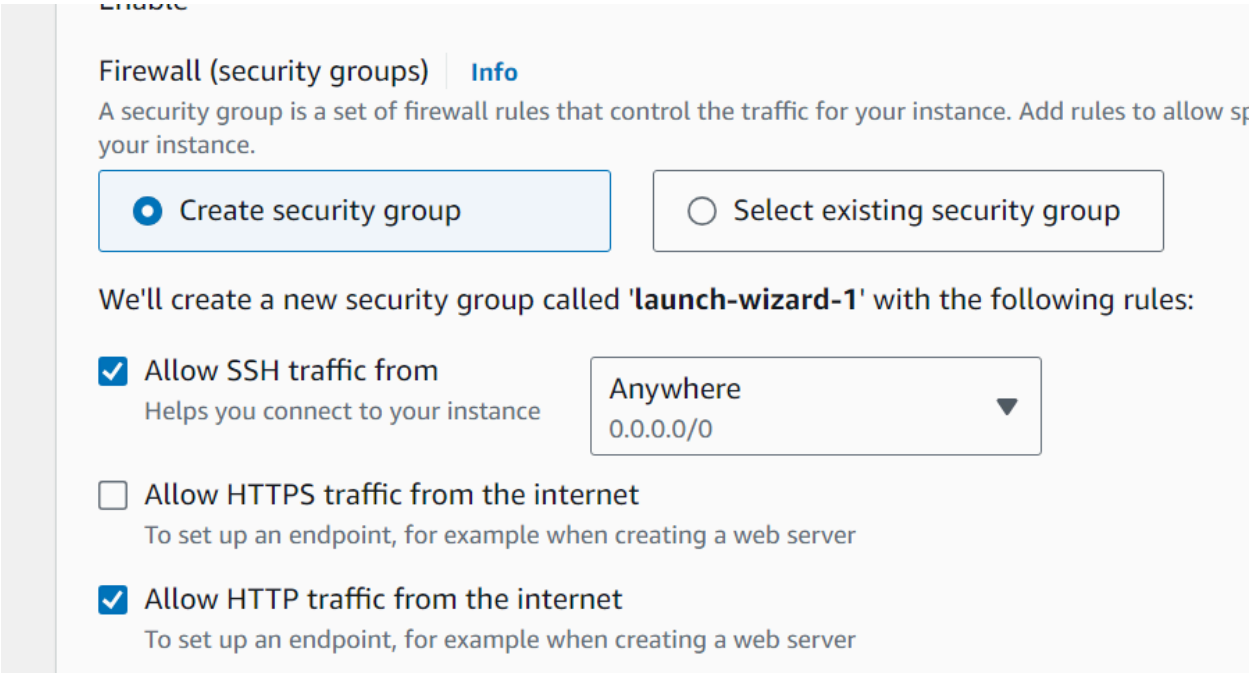
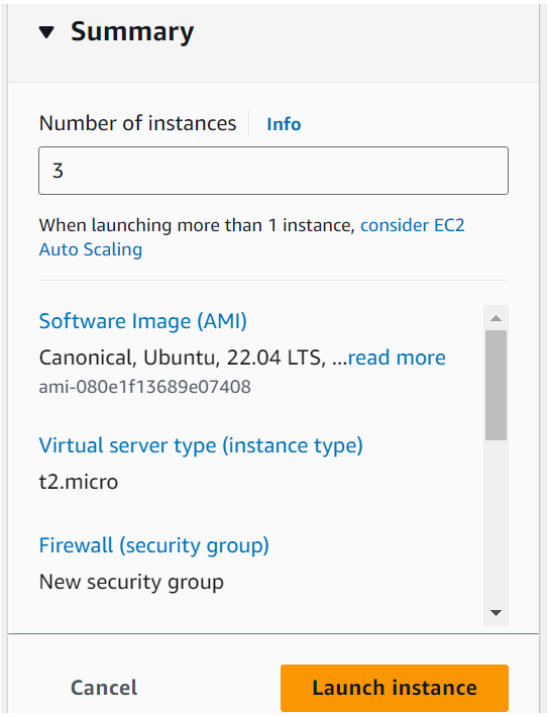


Change the number of instances to 3 and launch the instances. We will consider one machine as master machine and other two as nodes



After Machines are launched We can rename them as :

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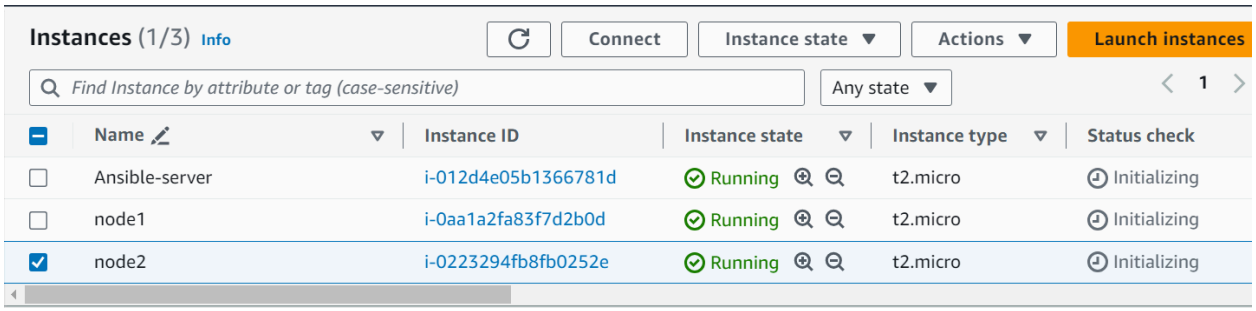
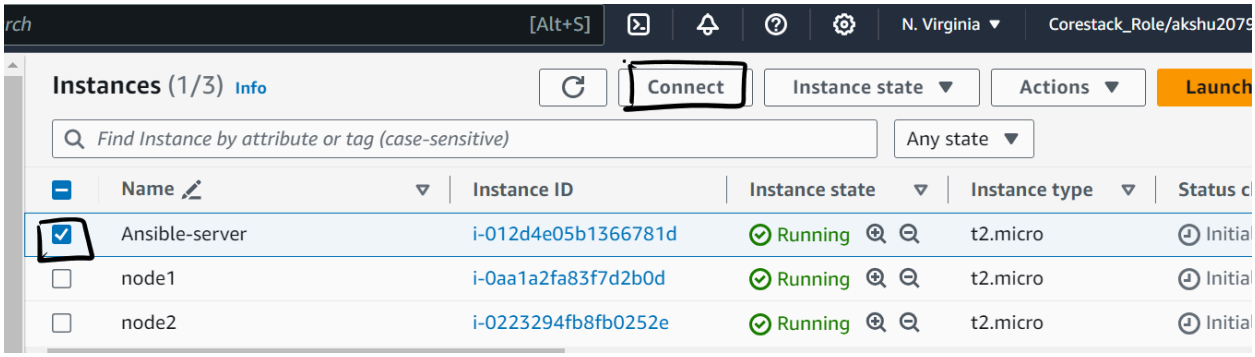


Step 2: Now we will connect to these machines

We can connect to the machine directly via browser

Select the ansible-server and click on connect



Click on Ec2 instance connect tab

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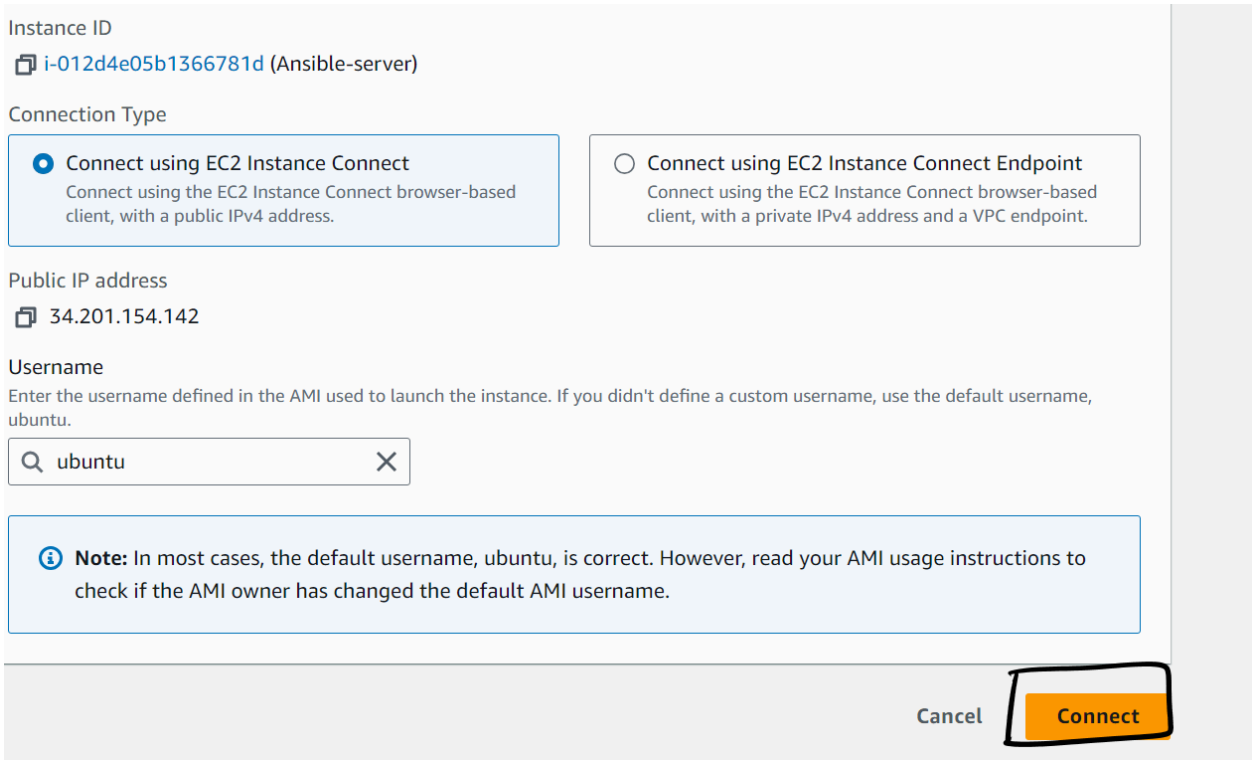
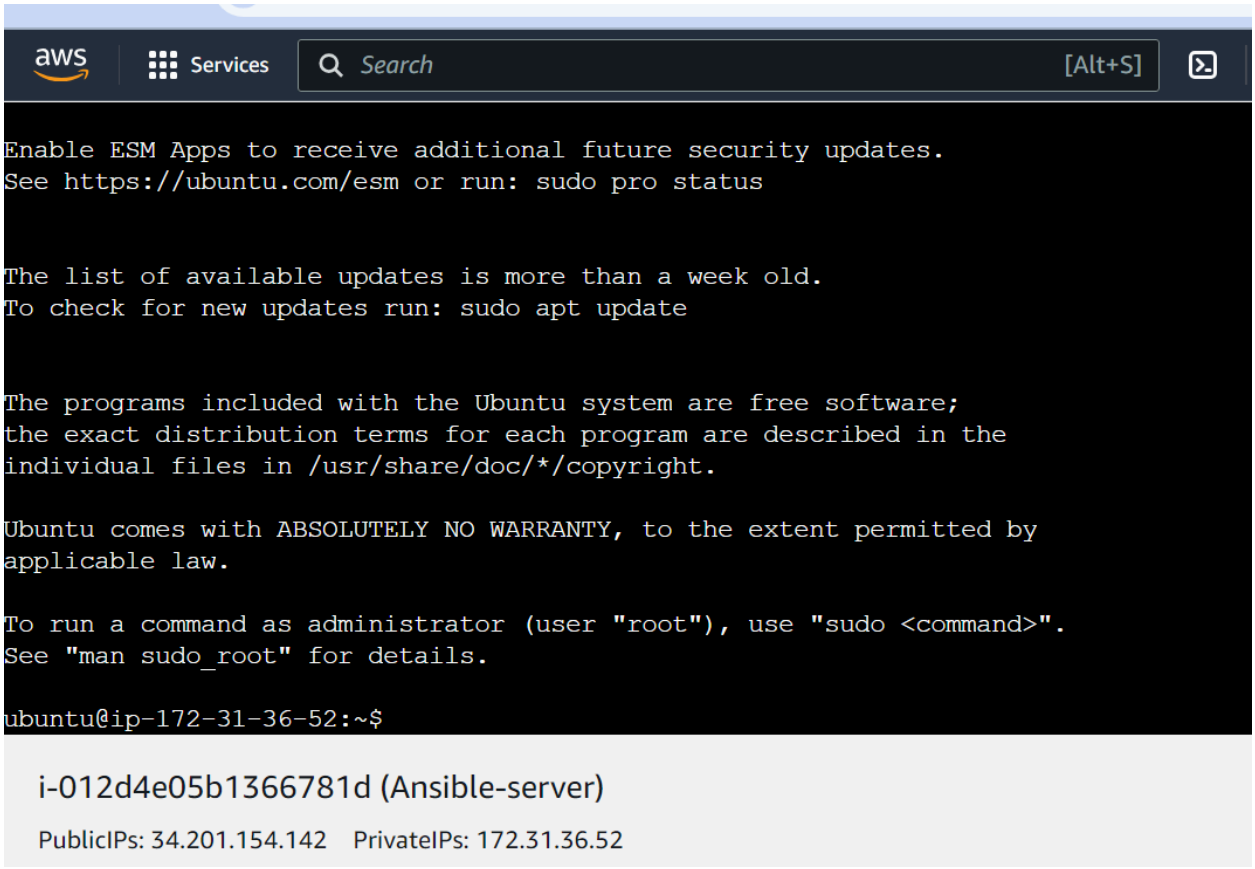


Note: Do not change the username



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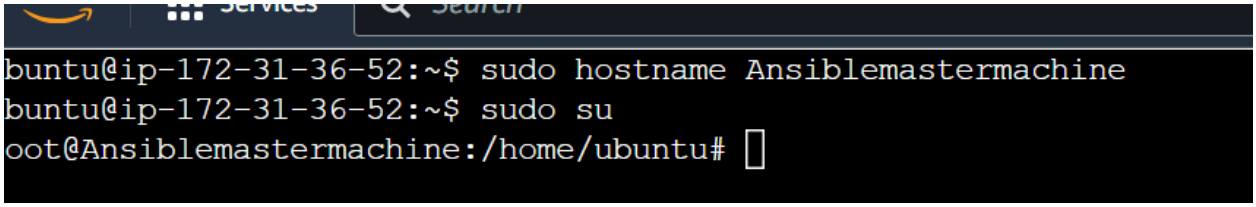
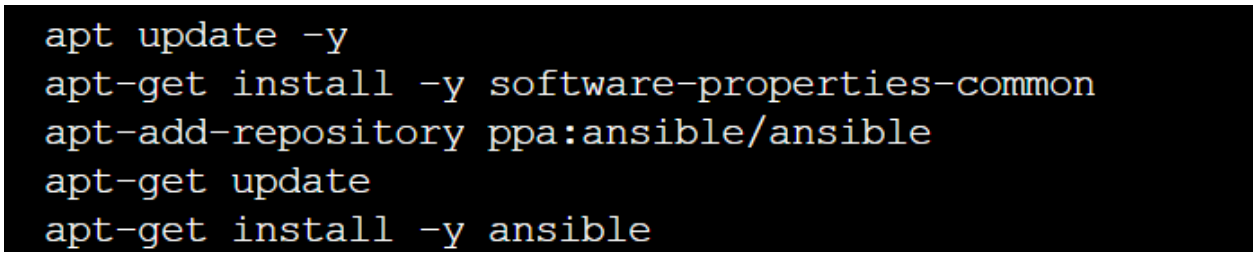
Similarly, We can connect with other machines as well

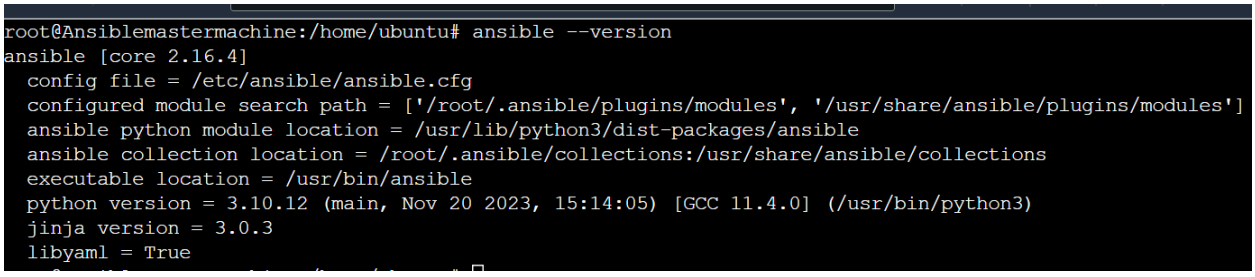
Step 3: lets now install ansible in ansible server (execute the below command only in master machine)

sudo hostname Ansiblemastermachine
sudo su
apt update -y
apt-get install -y software-properties-common
apt-add-repository ppa:ansible/ansible
apt update
apt install -y ansible



ansible --version





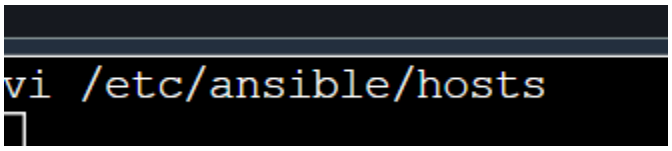
Step 4: we will now define the hosts from the master machine (ansible server)

vi /etc/ansible/hosts

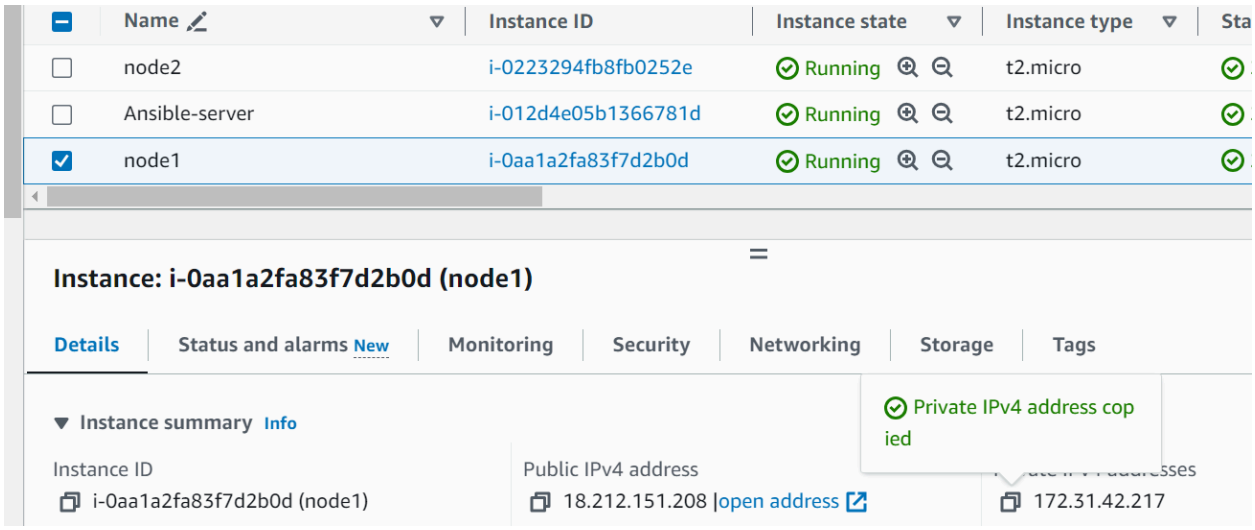
.

press i to start inserting

[ansiblegroup]
Privateip of node1
Privateip of node2



Copy the private ip of the node 1



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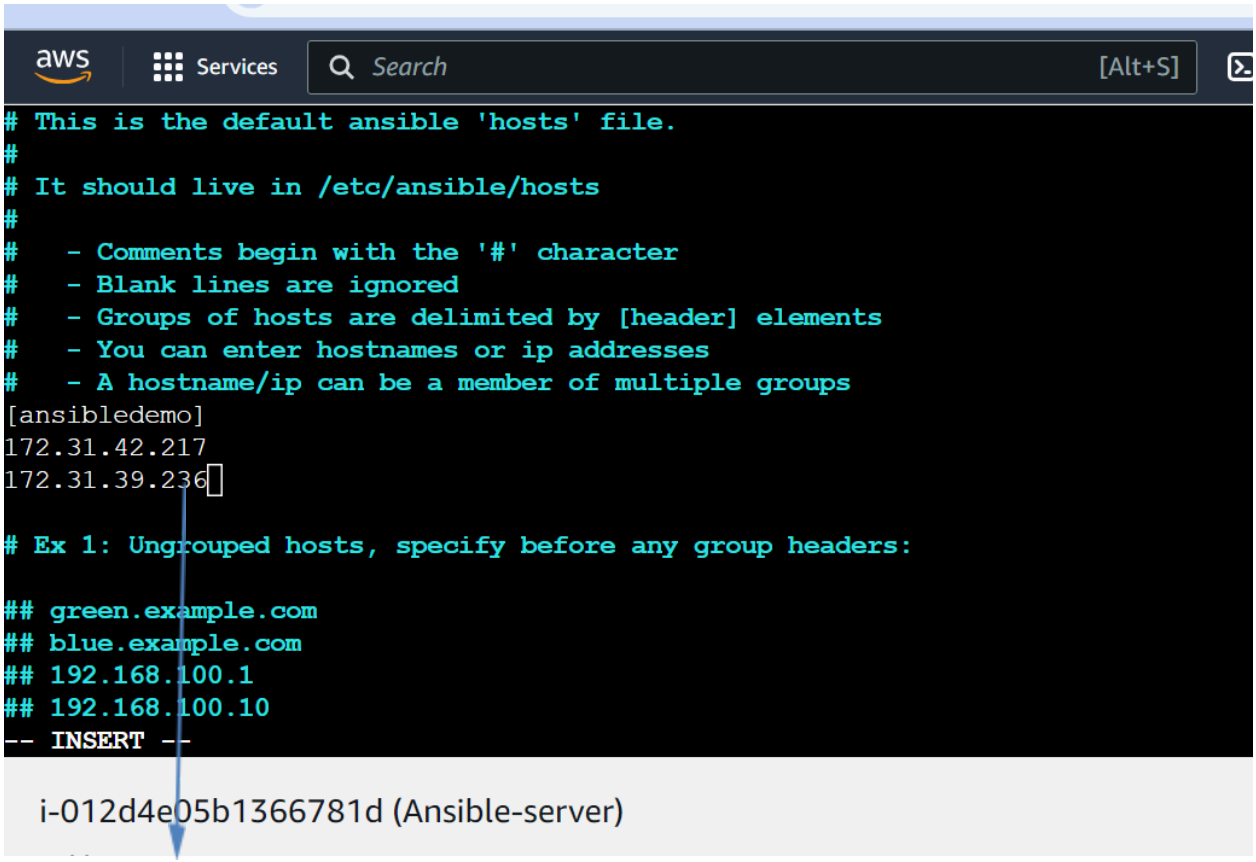


(we have to also copy the paste the private ip of the node2 as well)

Press esc :wq to save and quit the file

Step 5: Create a user in Ansible server (master machine) and the nodes

adduser devops
(put password as devops)
And press enter three times and press y

.

```
root@Ansiblemastermachine:/home/ubuntu# adduser devops
Adding user `devops' ...
Adding new group `devops' (1001) ...
Adding new user `devops' (1001) with group `devops' ...
Creating home directory `/home/devops' ...
Copying files from `/etc/skel' ...
New password:
Retype new password:
passwd: password updated successfully
Changing the user information for devops
Enter the new value, or press ENTER for the default
        Full Name []:
        Room Number []:
        Work Phone []:
        Home Phone []:
        Other []:
Is the information correct? [Y/n] y
```

Similary create the same username and pass In the nodes as well

Perform same task in node2 as well
(use same username and pass in master and the nodes)

Step 6: We will now configure sshd configuration in master and node machines

vi /etc/ssh/sshd_config
press i

```
root@Ansiblemastermachine:/home/ubuntu# vi /etc/ssh/sshd_config
```

On line 33 change to PermitRootlogin yes and remove #

```
#ListenAddress ::

#HostKey /etc/ssh/ssh_host_rsa_key
#HostKey /etc/ssh/ssh_host_ecdsa_key
#HostKey /etc/ssh/ssh_host_ed25519_key

# Ciphers and keying
#RekeyLimit default none

# Logging
#SyslogFacility AUTH
#LogLevel INFO

# Authentication:

#LoginGraceTime 2m
PermitRootLogin yes
#StrictModes yes
#MaxAuthTries 6
#MaxSessions 10

#PubkeyAuthentication yes
-- INSERT --                                                    34,20
```

Remove # from line 38

.

```
#MaxAuthTries 6
#MaxSessions 10

PubkeyAuthentication yes

# Expect .ssh/authorized_keys2 to be disregarded by default in future.
#AuthorizedKeysFile     .ssh/authorized_keys .ssh/authorized_keys2

#AuthorizedPrincipalsFile none
-- INSERT --                                                    39,1
```

On line 57 enable PasswordAuthentication as yes by removing #

```
# To disable tunneled clear text passwords, change to no here!
PasswordAuthentication yes
#PermitEmptyPasswords no

# Change to yes to enable challenge-response passwords (beware issues with
# some PAM modules and threads)
KbdInteractiveAuthentication no

# Kerberos options
#KerberosAuthentication no
#KerberosOrLocalPasswd yes
#KerberosTicketCleanup yes
#KerberosGetAFSToken no

-- INSERT --                                                    57,1
```

to come out of the file we will use esc :wq

(perform same activity in node1 and node2 as well)

We need to restart ssh in master (ansible-server and nodes)

(with latest ubuntu these steps need to be added up in master and nodes)

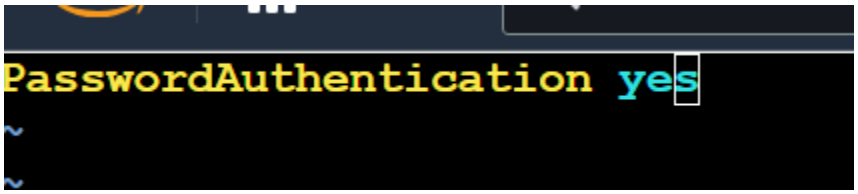
#cd /etc/ssh/sshd_config.d

ls -ltr

vi 60-cloudimg-settings.conf

```
root@ip-172-31-40-241:/etc/ssh/sshd_config.d# cd /etc/ssh/sshd_config.d
root@ip-172-31-40-241:/etc/ssh/sshd_config.d# ls -ltr
total 4
-rw-r--r-- 1 root root 27 May 26 15:41 60-cloudimg-settings.conf
root@ip-172-31-40-241:/etc/ssh/sshd_config.d# vi 60-cloudimg-settings.conf
```

Change password authentication to yes



service ssh restart

.

```
Is the information correct? [Y/n] y
root@Ansiblemastermachine:/home/ubuntu# vi /etc/ssh/sshd_config
root@Ansiblemastermachine:/home/ubuntu# service sshd restart
root@Ansiblemastermachine:/home/ubuntu#
```

Step 8: We will now give sudo permission to the “devops” user in ansible and the nodes

visudo

```
@Ansiblemastermachine:/home/ubuntu# visudo
```

Scroll down to user priviledge specification and add below line

devops ALL=(ALL:ALL) NOPASSWD:ALL

```
# Cmnd alias specification

# User privilege specification
root    ALL=(ALL:ALL) ALL
devops  ALL=(ALL:ALL) NOPASSWD: ALL
# Members of the admin group may gain root privileges
%admin ALL=(ALL) ALL

# Allow members of group sudo to execute any command
%sudo   ALL=(ALL:ALL) ALL

# See sudoers(5) for more information on "#include" directives:
```

Press ctrl x and then press Y and enter

(We need to perform the same activity for node1 and node2)

Step 7: From Ansible server we will generate the trust relationship with the nodes

In Ansible-server (master machine):

su – devops
ssh-keygen
(press enter three times)

.

```
root@Ansiblemastermachine:/home/ubuntu# su - devops
devops@Ansiblemastermachine:~$ ssh-keygen
Generating public/private rsa key pair.
Enter file in which to save the key (/home/devops/.ssh/id_rsa):
Created directory '/home/devops/.ssh'.
Enter passphrase (empty for no passphrase):
Enter same passphrase again:
Your identification has been saved in /home/devops/.ssh/id_rsa
Your public key has been saved in /home/devops/.ssh/id_rsa.pub
The key fingerprint is:
SHA256:5FN4V674s15pMuk7g5cuzhEgEiIFba7B6okOi08nUIU devops@Ansiblemastermachine
The key's randomart image is:
+---[RSA 3072]----+
|o+o.o         .  |
| .Eo .   .   o   |
|.o. . . + o . .  |
```

Now we need to copy the keypair in the node 1 and node2

Go to Ansible-server(master)

ls -a
cd .ssh

```
akshat@Ansiblemastermachine:~$ ls -a
.  ..  .bash_logout  .bashrc  .profile  .ssh
akshat@Ansiblemastermachine:~$ cd .ssh
```

ssh-copy-id devops@privateipofnode1

```
devops@Ansiblemastermachine:~/.ssh$ ssh-copy-id devops@172.31.24.137
/usr/bin/ssh-copy-id: INFO: Source of key(s) to be installed: "/home/devops/.ssh/id_rsa.pub"
The authenticity of host '172.31.24.137 (172.31.24.137)' can't be established.
ECDSA key fingerprint is SHA256:wctGpvbTfVc8XK6WQnO5HaLSCg1SmqrZn12CSbmYrbw.
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
devops@172.31.24.137's password:

Number of key(s) added: 1

Now try logging into the machine, with:   "ssh 'devops@172.31.24.137'"
and check to make sure that only the key(s) you wanted were added.

devops@Ansiblemastermachine:~/.ssh$
```

In the password put the password which we set while creating the user devops

Similarly copy to the node2 as well

.

```
devops@Ansiblemastermachine:~/.ssh$ ssh-copy-id devops@172.31.23.147
/usr/bin/ssh-copy-id: INFO: Source of key(s) to be installed: "/home/devops/.ssh/id_rsa.pub"
The authenticity of host '172.31.23.147 (172.31.23.147)' can't be established.
ECDSA key fingerprint is SHA256:Ai4nqA+kvRqnwYIkm6my8nV6ELL9aLG4sywmWTeRMpw.
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
devops@172.31.23.147's password:

Number of key(s) added: 1

Now try logging into the machine, with:   "ssh 'devops@172.31.23.147'"
and check to make sure that only the key(s) you wanted were added.

devops@Ansiblemastermachine:~/.ssh$
```

We have now established the trust relationship of the master with the nodes.

Step 8: Lets now check if we are able to see the create files in the nodes via ansible

```
devops@Ansiblemastermachine:~$ ansible all -a"touch file1"
172.31.24.137 | CHANGED | rc=0 >>

172.31.23.147 | CHANGED | rc=0 >>

devops@Ansiblemastermachine:~$ ansible all -a"ls"
172.31.23.147 | CHANGED | rc=0 >>
file1
172.31.24.137 | CHANGED | rc=0 >>
file1
devops@Ansiblemastermachine:~$
```