

# Assignment 3

## DevOps

### Team 10

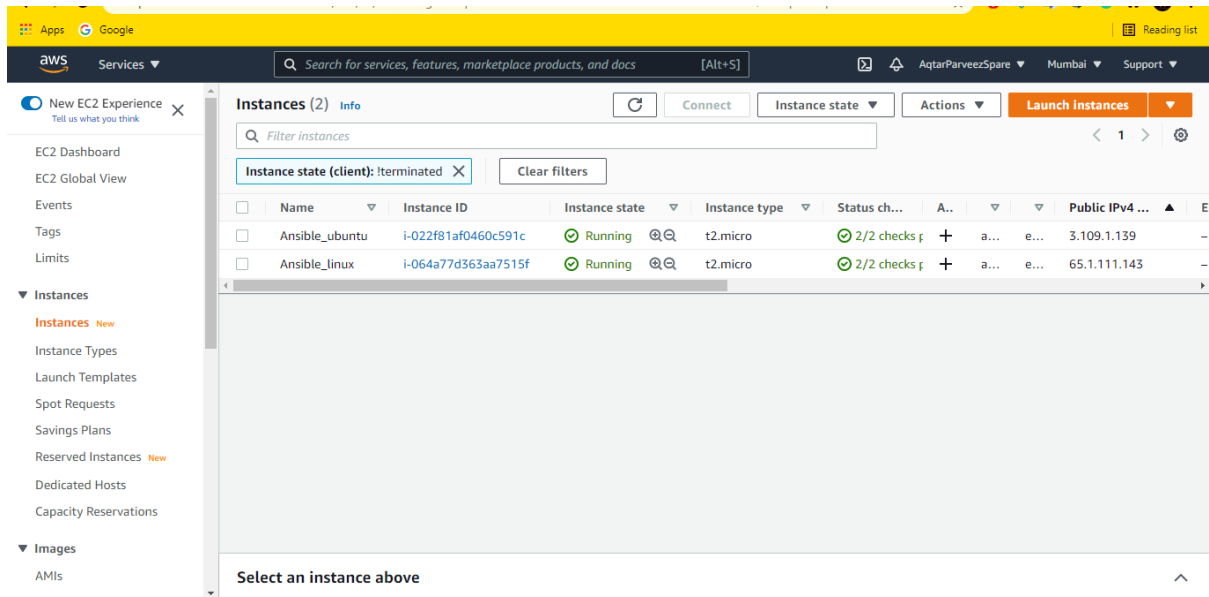
#### Team Members:

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## Step – 1:

Start an amazon EC2 instances and note down their IPv4 addresses (Public) Respectively.

In the below case the keypair (.pem) is the same for both instances.



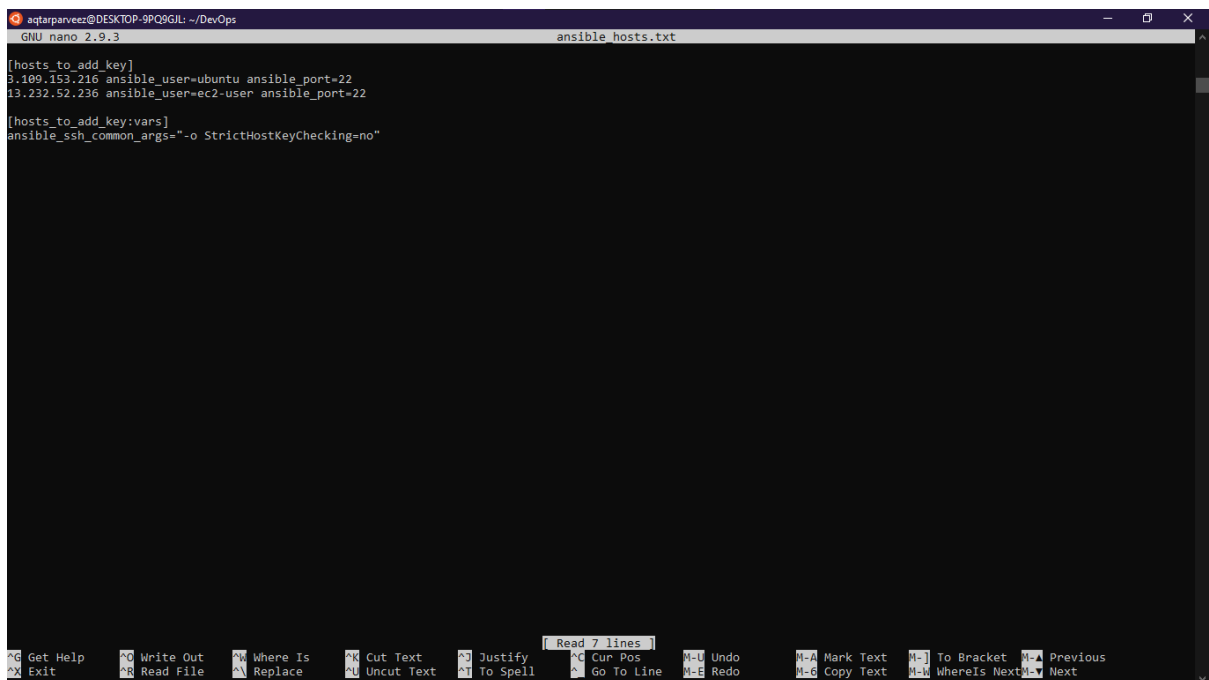
The screenshot shows the AWS Management Console interface. On the left, the navigation menu includes 'New EC2 Experience', 'EC2 Dashboard', 'EC2 Global View', 'Events', 'Tags', 'Limits', 'Instances', 'Images', and 'AMIs'. The 'Instances' section is selected, showing a list of two instances:

Name	Instance ID	Instance state	Instance type	Status checks	Public IPv4 address
Ansible_ubuntu	i-022f81af0460c591c	Running	t2.micro	2/2 checks passed	3.109.1.139
Ansible_linux	i-064a77d363aa7515f	Running	t2.micro	2/2 checks passed	65.1.111.143

## Step -2:

Write down the IP addresses in the below format and save it.

Saved as [ansible\_hosts.txt]

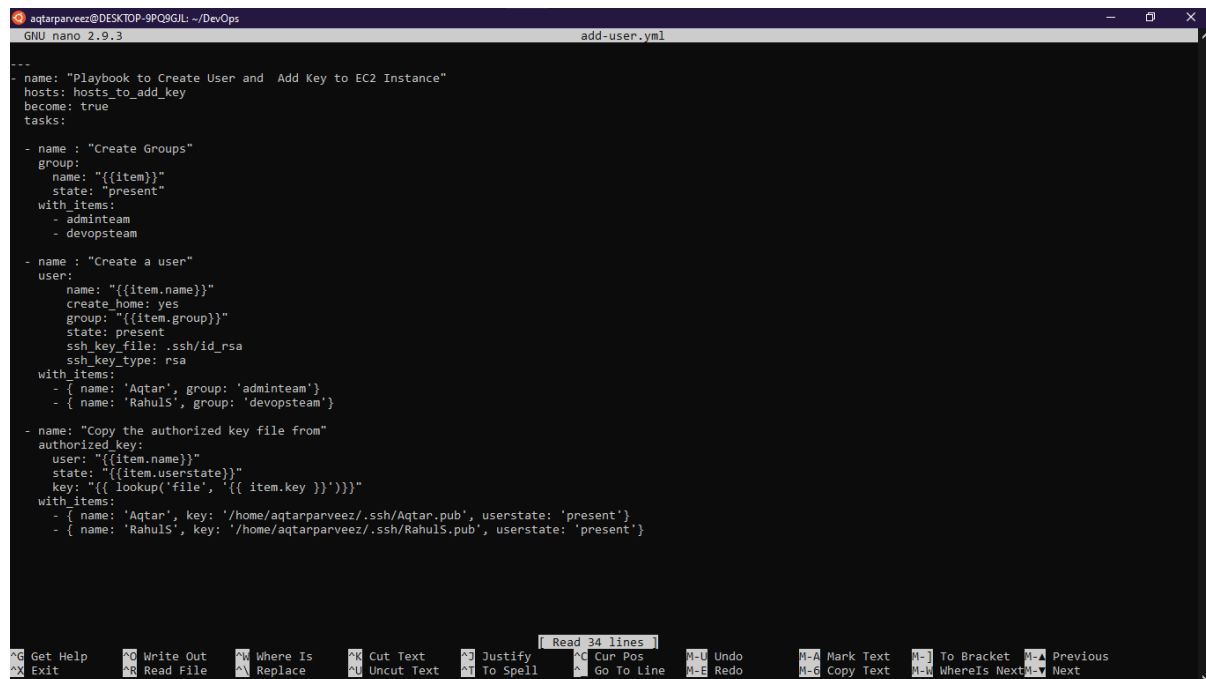


```
GNU nano 2.9.3 ansible_hosts.txt
[hosts_to_add_key]
3.109.153.216 ansible_user=ubuntu ansible_port=22
13.232.52.236 ansible_user=ec2-user ansible_port=22

[hosts_to_add_key:vars]
ansible_ssh_common_args="-o StrictHostKeyChecking=no"
```

### Step -3:

Create the Ansible playbook [add-user.yml] with User details which we will execute to add the users to the EC2 instances mentioned in the [ansible\_hosts.txt] file above. The contents of our playbook are shown in the screenshots below.



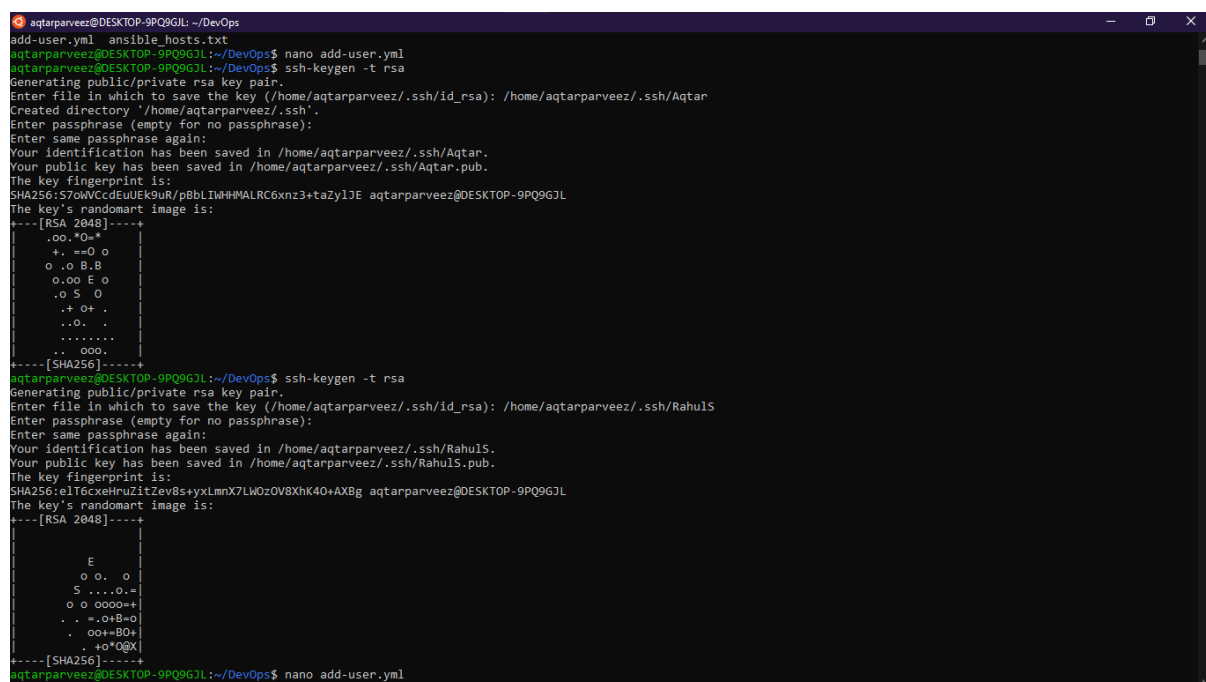
```
---
- name: "Playbook to Create User and Add Key to EC2 Instance"
  hosts: hosts_to_add_key
  become: true
  tasks:
    - name: "Create Groups"
      group:
        name: "{{item}}"
        state: "present"
      with_items:
        - adminteam
        - devopsteam

    - name: "Create a user"
      user:
        name: "{{item.name}}"
        create_home: yes
        group: "{{item.group}}"
        state: present
        ssh_key_file: .ssh/id_rsa
        ssh_key_type: rsa
      with_items:
        - { name: 'Aqtar', group: 'adminteam' }
        - { name: 'Rahuls', group: 'devopsteam' }

    - name: "Copy the authorized key file from"
      authorized_key:
        user: "{{item.name}}"
        state: "{{item.userstate}}"
        key: "{{lookup('file', '{{ item.key }}')}}"
      with_items:
        - { name: 'Aqtar', key: '/home/aqtarparveez/.ssh/Aqtar.pub', userstate: 'present' }
        - { name: 'Rahuls', key: '/home/aqtarparveez/.ssh/Rahuls.pub', userstate: 'present' }
```

### Step – 4:

Now generate the ssh-key key pair for all the users to be added to the EC2 instances using the command mentioned in the screenshots below. Make sure to name the ssh-key same as mentioned in the playbook.



```
aqtarparveez@DESKTOP-9PQ9GJL: ~/DevOps
add-user.yml ansible_hosts.txt
aqtarparveez@DESKTOP-9PQ9GJL:~/DevOps$ nano add-user.yml
aqtarparveez@DESKTOP-9PQ9GJL:~/DevOps$ ssh-keygen -t rsa
Generating public/private rsa key pair.
Enter file in which to save the key (/home/aqtarparveez/.ssh/id_rsa): /home/aqtarparveez/.ssh/Aqtar
Created directory '/home/aqtarparveez/.ssh'.
Enter passphrase (empty for no passphrase):
Enter same passphrase again:
Your identification has been saved in /home/aqtarparveez/.ssh/Aqtar.
Your public key has been saved in /home/aqtarparveez/.ssh/Aqtar.pub.
The key fingerprint is:
SHA256:57oWVccdeUJEk9uR/pBbLlWmHMLRC6xnz3+taZylJE aqtarparveez@DESKTOP-9PQ9GJL
The key's randomart image is:
+--[RSA 2048]-----+
|.oo.*O=|
|+. ==O O|
|o.o B.B|
|o.o E O|
|.S O|
|. + O+ .|
|..O. .|
|.....|
|..ooo.|
+-----+
aqtarparveez@DESKTOP-9PQ9GJL:~/DevOps$ ssh-keygen -t rsa
Generating public/private rsa key pair.
Enter file in which to save the key (/home/aqtarparveez/.ssh/id_rsa): /home/aqtarparveez/.ssh/Rahuls
Enter passphrase (empty for no passphrase):
Enter same passphrase again:
Your identification has been saved in /home/aqtarparveez/.ssh/Rahuls.
Your public key has been saved in /home/aqtarparveez/.ssh/Rahuls.pub.
The key fingerprint is:
SHA256:elT6cxeHruzit8s+yxLmnX7LW0z0V8XhK40+AXBg aqtarparveez@DESKTOP-9PQ9GJL
The key's randomart image is:
+--[RSA 2048]-----+
|E|
|o o. o|
|S ....O=|
|o O 0000+|
|. .-O+B=O|
|.oo+BO+|
|. +o*OgX|
+-----+
aqtarparveez@DESKTOP-9PQ9GJL:~/DevOps$ nano add-user.yml
```

## Step- 5:

Run the Ansible Playbook Using the following command.

Make sure the (.pem) keypair file is proper and original as obtained from AWS while launching the instances.

```
aqtarparveez@DESKTOP-9PQ9G1L: ~/DevOps
TASK [Gathering Facts] *****fatal: [3.109.153.216]: UNREACHABLE! => {"changed": false, "msg": "Failed to connect
to the host via ssh: Warning: Permanently added '3.109.153.216' (ECDSA) to the list of known hosts.\r\nno such identity: /mnt/e/Keypair/Assg3.pem: No such file or direc
tory\r\nubuntu@3.109.153.216: Permission denied (publickey).", "unreachable": true}
fatal: [3.109.153.216]: UNREACHABLE! => {"changed": false, "msg": "Failed to connect to the host via ssh: Warning: Permanently added '3.109.153.216' (ECDSA) to the list
of known hosts.\r\nno such identity: /mnt/e/Keypair/Assg3.pem: No such file or directory\r\nec2-user@3.109.153.216: Permission denied (publickey,gssapi-keyex,gssapi-wi
th-mic).", "unreachable": true}

PLAY RECAP *****3.109.153.216 : ok=0 changed=0 unreachable=1 failed=0 skippe
d=0 rescued=0 ignored=0

aqtarparveez@DESKTOP-9PQ9G1L:~/DevOps$ cp -i /mnt/e/Keypair/Assg3.pem /home/aqtarparveez/DevOps/
cp: cannot stat '/mnt/e/Keypair/Assg3.pem': No such file or directory
aqtarparveez@DESKTOP-9PQ9G1L:~/DevOps$ ansible-playbook add-user.yml -i ansible_hosts.txt --key-file=/mnt/e/Keypair/Assign3.pem

PLAY [Playbook to Create User and Add Key to EC2 Instance] *****

TASK [Gathering Facts] *****
[WARNING]: Platform linux on host 13.232.52.236 is using the discovered Python interpreter at /usr/bin/python, but future installation of another Python interpreter
could change this. See https://docs.ansible.com/ansible/2.9/reference_appendices/interpreter_discovery.html for more information.
ok: [13.232.52.236]
ok: [3.109.153.216]

TASK [Create Groups] *****
changed: [13.232.52.236] => (item=adminteam)
changed: [3.109.153.216] => (item=adminteam)
changed: [13.232.52.236] => (item=devopsteam)
changed: [3.109.153.216] => (item=devopsteam)

TASK [Create a user] *****
changed: [13.232.52.236] => (item={u'group': u'adminteam', u'name': u'Aqtar'})
changed: [3.109.153.216] => (item={u'group': u'adminteam', u'name': u'Aqtar'})
changed: [3.109.153.216] => (item={u'group': u'devopsteam', u'name': u'RahulS'})
changed: [13.232.52.236] => (item={u'group': u'devopsteam', u'name': u'RahulS'})

TASK [Copy the authorized key file from] *****
changed: [3.109.153.216] => (item={u'name': u'Aqtar', u'key': u'/home/aqtarparveez/.ssh/Aqtar.pub', u'userstate': u'present'})
changed: [13.232.52.236] => (item={u'name': u'Aqtar', u'key': u'/home/aqtarparveez/.ssh/Aqtar.pub', u'userstate': u'present'})
changed: [3.109.153.216] => (item={u'name': u'RahulS', u'key': u'/home/aqtarparveez/.ssh/RahulS.pub', u'userstate': u'present'})
changed: [13.232.52.236] => (item={u'name': u'RahulS', u'key': u'/home/aqtarparveez/.ssh/RahulS.pub', u'userstate': u'present'})

PLAY RECAP *****
13.232.52.236 : ok=4 changed=3 unreachable=0 failed=0 skipped=0 rescued=0 ignored=0
3.109.153.216 : ok=4 changed=3 unreachable=0 failed=0 skipped=0 rescued=0 ignored=0

aqtarparveez@DESKTOP-9PQ9G1L:~/DevOps$
```

Outcome:

Now Connect to the instance using the following command:

ssh -p <port number> -i <location of the .pub keys> <user name>@<IP>

```
Aqtar@ip-172-31-15-174:~$
TASK [Create a user] *****
changed: [13.232.52.236] => (item={u'group': u'adminteam', u'name': u'Aqtar'})
changed: [3.109.153.216] => (item={u'group': u'adminteam', u'name': u'Aqtar'})
changed: [3.109.153.216] => (item={u'group': u'devopsteam', u'name': u'RahulS'})
changed: [13.232.52.236] => (item={u'group': u'devopsteam', u'name': u'RahulS'})

TASK [Copy the authorized key file from] *****
changed: [13.232.52.236] => (item={u'name': u'Aqtar', u'key': u'/home/aqtarparveez/.ssh/Aqtar.pub', u'userstate': u'present'})
changed: [13.232.52.236] => (item={u'name': u'Aqtar', u'key': u'/home/aqtarparveez/.ssh/Aqtar.pub', u'userstate': u'present'})
changed: [3.109.153.216] => (item={u'name': u'RahulS', u'key': u'/home/aqtarparveez/.ssh/RahulS.pub', u'userstate': u'present'})
changed: [13.232.52.236] => (item={u'name': u'RahulS', u'key': u'/home/aqtarparveez/.ssh/RahulS.pub', u'userstate': u'present'})

PLAY RECAP *****
13.232.52.236 : ok=4 changed=3 unreachable=0 failed=0 skipped=0 rescued=0 ignored=0
3.109.153.216 : ok=4 changed=3 unreachable=0 failed=0 skipped=0 rescued=0 ignored=0

aqtarparveez@DESKTOP-9PQ9G1L:~/DevOps$ ssh -p 22 /home/aqtarparveez/.ssh/Aqtar Aqtar@13.232.52.236
ssh: Could not resolve hostname /home/aqtarparveez/.ssh/aqtar: Name or service not known
aqtarparveez@DESKTOP-9PQ9G1L:~/DevOps$ ssh -p 22 ../../../../ssh/Aqtar Aqtar@13.232.52.236
ssh: Could not resolve hostname ../../../../ssh/aqtar: Name or service not known
aqtarparveez@DESKTOP-9PQ9G1L:~/DevOps$ ssh -p 22 ../../../../ssh/aqtar aqtar@13.232.52.236
ssh: Could not resolve hostname ../../../../ssh/aqtar: Name or service not known
aqtarparveez@DESKTOP-9PQ9G1L:~/DevOps$ ssh -p 22 -i ../../../../ssh/Aqtar Aqtar@13.232.52.236
Warning: Identity file ../../../../ssh/Aqtar not accessible: No such file or directory.
Aqtar@13.232.52.236: Permission denied (publickey,gssapi-keyex,gssapi-with-mic).
aqtarparveez@DESKTOP-9PQ9G1L:~/DevOps$ ssh -p 22 -i /home/aqtarparveez/.ssh/Aqtar Aqtar@13.232.52.236

  ____  _
 / ___|| | | |
| |___| |_| |
 \___|_____|_|

 Amazon Linux 2 AMI

https://aws.amazon.com/amazon-linux-2/
11 package(s) needed for security, out of 35 available
Run "sudo yum update" to apply all updates.
[Aqtar@ip-172-31-15-174 ~]$ sudo yum update

We trust you have received the usual lecture from the local System
Administrator. It usually boils down to these three things:

 #1) Respect the privacy of others.
 #2) Think before you type.
 #3) With great power comes great responsibility.

[sudo] password for Aqtar:
Sorry, try again.
[sudo] password for Aqtar:
```

Able to use Linux connecting to the Linux instance using our own pair of ssh keys.

```
aqtarparveez@DESKTOP-9PQ9GJL: ~/DevOps
[Aqtar@ip-172-31-15-174 ~]$ quit
-bash: quit: command not found
[Aqtar@ip-172-31-15-174 ~]$ exit
logout
There are stopped jobs.
[Aqtar@ip-172-31-15-174 ~]$ logout
[sudo] password for Aqtar: Connection to 13.232.52.236 closed.
aqtarparveez@DESKTOP-9PQ9GJL:~/DevOps$ ssh -p 22 -i /home/aqtarparveez/.ssh/RahulS RahulS@3.109.153.216
Welcome to Ubuntu 20.04.2 LTS (GNU/Linux 5.4.0-1045-aws x86_64)

 * Documentation:  https://help.ubuntu.com
 * Management:    https://landscape.canonical.com
 * Support:       https://ubuntu.com/advantage

System information as of Mon Sep 27 15:03:17 UTC 2021

System load:  0.0               Processes:    100
Usage of /:   16.6% of 7.69GB   Users logged in: 0
Memory usage: 22%              IPv4 address for eth0: 172.31.8.103
Swap usage:   0%

1 update can be applied immediately.
To see these additional updates run: apt list --upgradable

The list of available updates is more than a week old.
To check for new updates run: sudo apt update

The programs included with the Ubuntu system are free software;
the exact distribution terms for each program are described in the
individual files in /usr/share/doc/*/copyright.

Ubuntu comes with ABSOLUTELY NO WARRANTY, to the extent permitted by
applicable law.

$ sudo apt update
[sudo] password for RahulS:
```

Able to use Ubuntu connecting to the ubuntu instance using our own pair of ssh keys.