



INDIAN INSTITUTE OF
INFORMATION
TECHNOLOGY

DevOps & its Applications (CS457)

Assignment 3

Under the Guidance of - **Dr. Uma S**

Submitted by -

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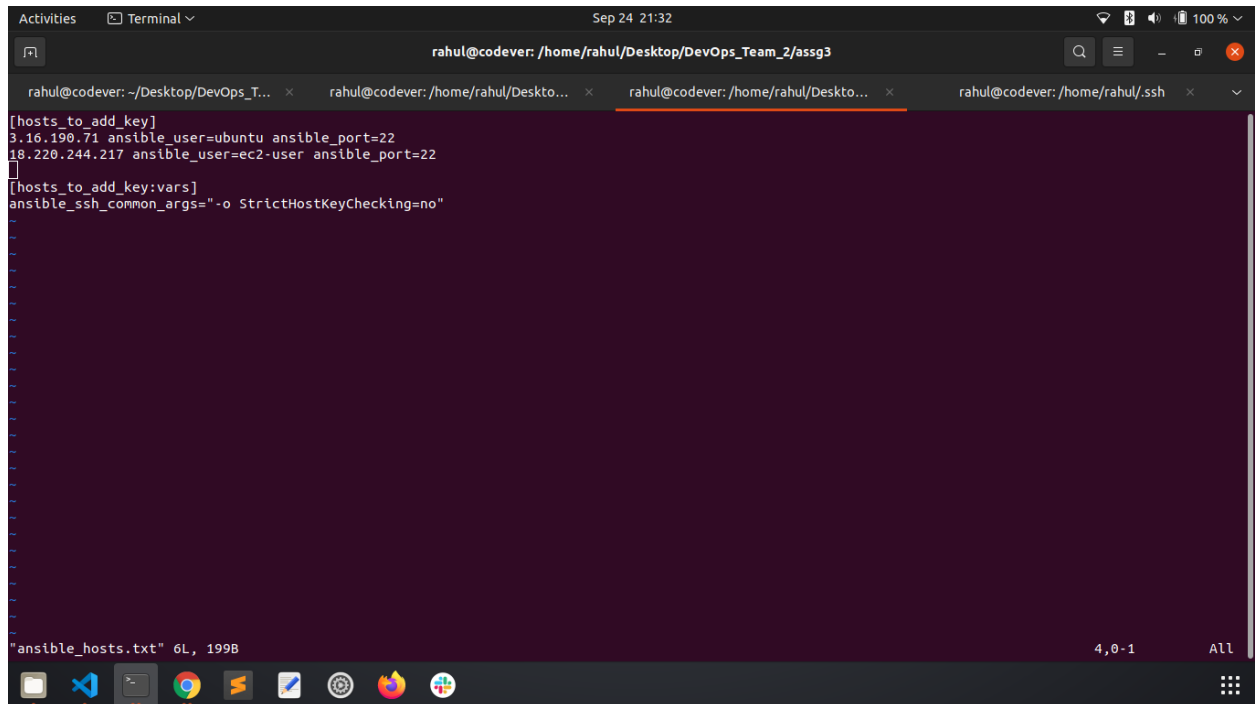
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Add Users to AWS EC2 Instances with SSH access using Ansible

Step 1: Create a text file (`ansible_hosts.txt` here) that contains the details of the EC2 instances (or, hosts) where we want to add the users. The file contents are shown in the screenshot below.



The screenshot shows a terminal window with the following content:

```
rahul@codever: ~/Desktop/DevOps_Team_2/assg3
[hosts_to_add_key]
3.16.190.71 ansible_user=ubuntu ansible_port=22
18.220.244.217 ansible_user=ec2-user ansible_port=22
[hosts_to_add_key:vars]
ansible_ssh_common_args="-o StrictHostKeyChecking=no"
```

The terminal window has a title bar with "Activities", "Terminal", and the date "Sep 24 21:32". The bottom status bar shows "ansible_hosts.txt" 6L, 199B, 4,0-1, and All.

Step 2: Create the Ansible playbook (add-user.yml here) 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 two screenshots below.

```
Activities Terminal Sep 24 21:39
rahul@codever: /home/rahul/Desktop/DevOps_Team_2/assg3

rahul@codever: ~/Desktop/DevOps_T... x rahul@codever: /home/rahul/Desktop... x rahul@codever: /home/rahul/Desktop... x rahul@codever: /home/rahul/.ssh x

---
- 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:
        - backend_admin_team
        - devops_admin_team

    - 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: 'rahulpr', group: 'devops_admin_team' }
        - { name: 'ptushar', group: 'backend_admin_team' }

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

"add-user.yml" 34L, 983B 6,1 Top
```

```
Activities Terminal Sep 24 21:39
rahul@codever: /home/rahul/Desktop/DevOps_Team_2/assg3

rahul@codever: ~/Desktop/DevOps_T... x rahul@codever: /home/rahul/Desktop... x rahul@codever: /home/rahul/Desktop... x rahul@codever: /home/rahul/.ssh x

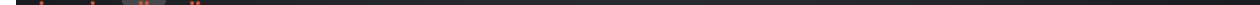
hosts: hosts_to_add_key
become: true
tasks:
  - name: "Create Groups"
    group:
      name: "{{item}}"
      state: "present"
    with_items:
      - backend_admin_team
      - devops_admin_team

  - 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: 'rahulpr', group: 'devops_admin_team' }
      - { name: 'ptushar', group: 'backend_admin_team' }

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

```
Activities Terminal ~
rahul@codever: /home/rahul/Desktop/DevOps_Team_2/assg3
rahul@codever: ~/Desktop/DevOps_T...  rahul@codever: /home/rahul/Desktop...  rahul@codever: /home/rahul/Desktop...  rahul@codever: /home/rahul/.ssh

(base) rahul@codever: /home/rahul/Desktop/DevOps_Team_2/assg3$ ssh-keygen -t rsa
Generating public/private rsa key pair.
Enter file in which to save the key (/home/rahul/.ssh/id_rsa): /home/rahul/.ssh/rahulpr
Enter passphrase (empty for no passphrase):
Enter same passphrase again:
Your identification has been saved in /home/rahul/.ssh/rahulpr
Your public key has been saved in /home/rahul/.ssh/rahulpr.pub
The key fingerprint is:
SHA256:yl1fsmTVg60opY82nhzjEFsP347beULkn/WzIULT4u4 rahul@codever
The key's randomart image is:
+---[RSA 3072]-----+
|
|  . o                + o
|  = +. o  o  . .
|  = *o$ +
|  . * * 0o* .
|  = .++o.o
|  . o+++.o
|  .E ooo .o
+---[SHA256]-----+
(base) rahul@codever: /home/rahul/Desktop/DevOps_Team_2/assg3$ ssh-keygen -t rsa
Generating public/private rsa key pair.
Enter file in which to save the key (/home/rahul/.ssh/id_rsa): /home/rahul/.ssh/ptushar
Enter passphrase (empty for no passphrase):
Enter same passphrase again:
Your identification has been saved in /home/rahul/.ssh/ptushar
Your public key has been saved in /home/rahul/.ssh/ptushar.pub
The key fingerprint is:
SHA256:qjuw4V4cN6ouE0AokDkenUtnzEl/TkY3lX2DJGZva3g rahul@codever
The key's randomart image is:
+---[RSA 3072]-----+
|*+o.=  =+..|
```



```
Activities Terminal Sep 24 21:49
rahul@codever: /home/rahul/Desktop/DevOps_Team_2/assg3

rahul@codever: ~/Desktop/DevOps_T... x rahul@codever: /home/rahul/Deskto... x rahul@codever: /home/rahul/Deskto... x rahul@codever: /home/rahul/.ssh x
(base) rahul@codever: /home/rahul/Desktop/DevOps_Team_2/assg3$ vim add-user.yml
(base) rahul@codever: /home/rahul/Desktop/DevOps_Team_2/assg3$ ansible-playbook add-user.yml -i ansible_hosts.txt --key-file=ansible_aws.pem

< PLAY [Playbook to Create User and Add Key to EC2 Instance] >
-----
      \  ^__^
       (oo)\_______
          (__)\       )\/\
              ||----w |
              ||     ||

< TASK [Gathering Facts] >
-----
      \  ^__^
       (oo)\_______
          (__)\       )\/\
              ||----w |
              ||     ||

ok: [18.220.244.217]
ok: [3.16.190.71]

< TASK [Create Groups] >
-----
      \  ^__^
       (oo)\_______
          (__)\       )\/\
              ||----w |
              ||     ||

changed: [3.16.190.71] => (item=backend_admin_team)
changed: [18.220.244.217] => (item=backend_admin_team)
```

```
Activities Terminal Sep 24 21:50
rahul@codever: /home/rahul/Desktop/DevOps_Team_2/assg3

rahul@codever: ~/Desktop/DevOps_T... x rahul@codever: /home/rahul/Deskto... x rahul@codever: /home/rahul/Deskto... x rahul@codever: /home/rahul/.ssh x
      \  ^__^
       (oo)\_______
          (__)\       )\/\
              ||----w |
              ||     ||

changed: [3.16.190.71] => (item=backend_admin_team)
changed: [18.220.244.217] => (item=backend_admin_team)
changed: [3.16.190.71] => (item=devops_admin_team)
changed: [18.220.244.217] => (item=devops_admin_team)

< TASK [Create a user] >
-----
      \  ^__^
       (oo)\_______
          (__)\       )\/\
              ||----w |
              ||     ||

changed: [18.220.244.217] => (item={'name': 'rahulpr', 'group': 'devops_admin_team'})
changed: [3.16.190.71] => (item={'name': 'rahulpr', 'group': 'devops_admin_team'})
changed: [18.220.244.217] => (item={'name': 'ptushar', 'group': 'backend_admin_team'})
changed: [3.16.190.71] => (item={'name': 'ptushar', 'group': 'backend_admin_team'})

< TASK [Copy the authorized key file from] >
-----
      \  ^__^
       (oo)\_______
          (__)\       )\/\
              ||----w |
              ||     ||

changed: [18.220.244.217] => (item={'name': 'rahulpr', 'key': '/home/rahul/.ssh/rahulpr.pub', 'userstate': 'present'})
ok: [3.16.190.71] => (item={'name': 'rahulpr', 'key': '/home/rahul/.ssh/rahulpr.pub', 'userstate': 'present'})
changed: [18.220.244.217] => (item={'name': 'ptushar', 'key': '/home/rahul/.ssh/ptushar.pub', 'userstate': 'present'})
ok: [3.16.190.71] => (item={'name': 'ptushar', 'key': '/home/rahul/.ssh/ptushar.pub', 'userstate': 'present'})
```

```
Activities Terminal Sep 24 21:50
rahul@codever: /home/rahul/Desktop/DevOps_Team_2/assg3

changed: [18.220.244.217] => (item={'name': 'rahulpr', 'key': '/home/rahul/.ssh/rahulpr.pub', 'userstate': 'present'})
ok: [3.16.190.71] => (item={'name': 'rahulpr', 'key': '/home/rahul/.ssh/rahulpr.pub', 'userstate': 'present'})
changed: [18.220.244.217] => (item={'name': 'ptushar', 'key': '/home/rahul/.ssh/ptushar.pub', 'userstate': 'present'})
ok: [3.16.190.71] => (item={'name': 'ptushar', 'key': '/home/rahul/.ssh/ptushar.pub', 'userstate': 'present'})

< PLAY RECAP >
-----
      \   ^__^
       (oo)\_______
            ||----w |
            ||     ||

18.220.244.217      : ok=4    changed=3    unreachable=0    failed=0    skipped=0    rescued=0    ignored=0
3.16.190.71       : ok=4    changed=2    unreachable=0    failed=0    skipped=0    rescued=0    ignored=0

(base) rahul@codever: /home/rahul/Desktop/DevOps_Team_2/assg3$ ssh -p 22 -i ../../.ssh/rahulpr rahulpr@3.16.190.71
Enter passphrase for key ' ../../.ssh/rahulpr ':
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 Fri Sep 24 16:16:46 UTC 2021

System load:  0.0      Processes:      105
Usage of /:   21.7% of 7.69GB   Users logged in:  0
Memory usage: 23%      IPv4 address for eth0: 172.31.2.120
Swap usage:   0%
```

THE OUTCOME

After successful execution of the playbook, users have been added to the instances and can log in using their private ssh-key. The screenshot below shows the outcome.

```
Activities Terminal Sep 24 21:50
rahul@codever: /home/rahul/Desktop/DevOps_Team_2/assg3

(base) rahul@codever: /home/rahul/Desktop/DevOps_Team_2/assg3$ ssh -p 22 -i ../../.ssh/rahulpr rahulpr@3.16.190.71
Enter passphrase for key ' ../../.ssh/rahulpr ':
Welcome to Ubuntu 20.04.2 LTS (GNU/Linux 5.4.0-1045-aws x86_64)

 * Documentation:  https://help.ubuntu.com
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Usage of /:   21.7% of 7.69GB   Users logged in:  0
Memory usage: 23%      IPv4 address for eth0: 172.31.2.120
Swap usage:   0%

124 updates can be applied immediately.
57 of these updates are standard security updates.
To see these additional updates run: apt list --upgradable

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.

$ pwd
/home/rahulpr
$ whoami
rahulpr
```