Devops and its applications(CS457)

Assignment 3: Adding users to ec2 instances

```
 ubuntu@ip-172-31-10-229: ~                                    —    □    ✕

   System information as of Fri Sep 24 05:43:48 UTC 2021

   System load:  0.01              Processes:              95
   Usage of /:   14.7% of 7.69GB   Users logged in:        0
   Memory usage: 19%               IP address for eth0: 172.31.10.229
   Swap usage:   0%


0 packages can be updated.
0 of these updates are security updates.




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.

To run a command as administrator (user "root"), use "sudo <command>".
See "man sudo_root" for details.

ubuntu@ip-172-31-10-229:~$ █
```

```
 System information as of Fri Sep 24 05:45:42 UTC 2021

  System load:   0.0                    Processes:              94
  Usage of /:    14.7% of 7.69GB   Users logged in:        0
  Memory usage: 19%                 IP address for eth0: 172.31.8.27
  Swap usage:    0%


0 packages can be updated.
0 of these updates are security updates.



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.

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applicable law.

To run a command as administrator (user "root"), use "sudo <command>".
See "man sudo_root" for details.

ubuntu@ip-172-31-8-27:~$
```

```
ubuntu@ip-172-31-10-229: ~                                    —    □    ✕

ubuntu@ip-172-31-10-229:~$ sudo apt update
Hit:1 http://ppa.launchpad.net/ansible/ansible/ubuntu bionic InRelease
Hit:2 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu bionic InRelease
Hit:3 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu bionic-updates InRelease
Hit:4 http://security.ubuntu.com/ubuntu bionic-security InRelease
Hit:5 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu bionic-backports InRelease
Reading package lists... Done
Building dependency tree
Reading state information... Done
80 packages can be upgraded. Run 'apt list --upgradable' to see them.
ubuntu@ip-172-31-10-229:~$ clear
ubuntu@ip-172-31-10-229:~$ sudo apt install ansible
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following additional packages will be installed:
  libpython-stdlib libpython2.7-minimal libpython2.7-stdlib python
  python-asn1crypto python-cffi-backend python-crypto python-cryptography
  python-enum34 python-httplib2 python-idna python-ipaddress python-jinja2
  python-markupsafe python-minimal python-paramiko python-pkg-resources
  python-pyasn1 python-setuptools python-six python-yaml python2.7
  python2.7-minimal sshpass
Suggested packages:
  python-doc python-tk python-crypto-doc python-cryptography-doc
```

```
ubuntu@ip-172-31-10-229: ~/.ssh

ubuntu@ip-172-31-10-229:~$ ssh ubuntu@172.31.8.27
The authenticity of host '172.31.8.27 (172.31.8.27)' can't be established.
ECDSA key fingerprint is SHA256:wCcKIGYo8Ecp03ohqKd0PV/iO3q/QkdWTg/RqpnHTZA.
Are you sure you want to continue connecting (yes/no)? yes
Warning: Permanently added '172.31.8.27' (ECDSA) to the list of known hosts.
ubuntu@172.31.8.27: Permission denied (publickey).
ubuntu@ip-172-31-10-229:~$ cd .ssh/
ubuntu@ip-172-31-10-229:~/.ssh$ ls
authorized_keys  known_hosts
ubuntu@ip-172-31-10-229:~/.ssh$
```

```
ubuntu@ip-172-31-10-229:~/.ssh$ ssh-keygen
Generating public/private rsa key pair.
Enter file in which to save the key (/home/ubuntu/.ssh/id_rsa):
Enter passphrase (empty for no passphrase):
Enter same passphrase again:
Your identification has been saved in /home/ubuntu/.ssh/id_rsa.
Your public key has been saved in /home/ubuntu/.ssh/id_rsa.pub.
The key fingerprint is:
SHA256:uf7MS8wB745pPFWjMRxk2+9vLrJc2F5YQ3f8OULOxgI ubuntu@ip-172-31-10-229
The key's randomart image is:
+---[RSA 2048]----+
|         .o      |
|        ..o    . |
|       .E.... .+|
|        += B.. =|
|       S o* B.+o|
|        =o.o+.oo|
|       ...= . = .|
|       .+B ..o.o.|
|       .+o*.oo.+o|
+----[SHA256]-----+
ubuntu@ip-172-31-10-229:~/.ssh$ ls
authorized_keys  id_rsa  id_rsa.pub  known_hosts
ubuntu@ip-172-31-10-229:~/.ssh$
```

```
ubuntu@ip-172-31-8-27: ~                                    —    □    X

ubuntu@ip-172-31-10-229:~/.ssh$ cd ..
ubuntu@ip-172-31-10-229:~$ clear
ubuntu@ip-172-31-10-229:~$ ssh ubuntu@172.31.8.27
Welcome to Ubuntu 18.04.5 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 05:57:30 UTC 2021

  System load:  0.0                 Processes:              96
  Usage of /:   17.3% of 7.69GB     Users logged in:        1
  Memory usage: 20%                 IP address for eth0: 172.31.8.27
  Swap usage:   0%


85 packages can be updated.
60 of these updates are security updates.
To see these additional updates run: apt list --upgradable


New release '20.04.3 LTS' available.
Run 'do-release-upgrade' to upgrade to it.
```

```
  GNU nano 2.9.3                          hosts

# leading 0s:

## db-[99:101]-node.example.com

[production]
13.233.70.233 ansible_user=ubuntu port=22

[production:vars]
ansible_ssh_common_args="-o StrictHostkeyChecking=no"


^G Get Help    ^O Write Out  ^W Where Is   ^K Cut Text   ^J Justify    ^C Cur Pos
^X Exit        ^R Read File  ^\ Replace    ^U Uncut Text ^T To Spell   ^  Go To Line
```

```yaml
---
- name: "Playbook to Create User and  Add Key to EC2 Instance"
  hosts: production
  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: /home/ubuntu/.ssh/id_rsa.pub
      ssh_key_type: rsa
    with_items:
      - { name: 'pavan', group: 'adminteam'}
      - { name: 'kalyan', group: 'adminteam'}
      - { name: 'raghu', group: 'devopsteam'}
      - { name: 'darshan', 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: 'pavan', key: '/home/ubuntu/.ssh/pavan.pub' , userstate: 'present'}
      - { name: 'kalyan', key: '/home/ubuntu/.ssh/kalyan.pub' , userstate: 'present'}
      - { name: 'raghu', key: '/home/ubuntu/.ssh/raghu.pub', userstate: 'present'}
      - { name: 'darshan', key: '/home/ubuntu/.ssh/darshan.pub', userstate: 'present'}
```

```
^G Get Help    ^O Write Out   ^W Where Is    ^K Cut Text    ^J Justify     ^C Cur Pos     M-U Undo       M-A Mark Text  M-] To Bracket  M-▲ Previous
^X Exit        ^R Read File   ^\ Replace     ^U Uncut Text  ^T To Spell    ^ Go To Line   M-E Redo       M-6 Copy Text  M-W WhereIs Next M-▼ Next
                                                                                                                                         ^B Back
                                                                                                                                         ^F Forward
```

```
ubuntu@ip-172-31-10-229: /etc/ansible                                                    —    □    ×

ubuntu@ip-172-31-10-229:/etc/ansible$ ansible-playbook /etc/ansible/keys.yml -i /etc/ansible/hosts --key-file=/home/ubuntu/.ssh/id_rsa

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

TASK [Gathering Facts] **********************************************************
[DEPRECATION WARNING]: Distribution Ubuntu 18.04 on host 13.233.70.233 should use /usr/bin/python3, but is using /usr/bin/python for backward compatibility with prior Ansible releases. A
future Ansible release will default to using the discovered platform python for this host. See https://docs.ansible.com/ansible/2.9/reference_appendices/interpreter_discovery.html for more
 information. This feature will be removed in version 2.12. Deprecation warnings can be disabled by setting deprecation_warnings=False in ansible.cfg.
ok: [13.233.70.233]

TASK [Create Groups] ***********************************************************
ok: [13.233.70.233] => (item=adminteam)
ok: [13.233.70.233] => (item=devopsteam)

TASK [Create a user] ***********************************************************
ok: [13.233.70.233] => (item={u'group': u'adminteam', u'name': u'pavan'})
ok: [13.233.70.233] => (item={u'group': u'adminteam', u'name': u'kalyan'})
ok: [13.233.70.233] => (item={u'group': u'devopsteam', u'name': u'raghu'})
ok: [13.233.70.233] => (item={u'group': u'devopsteam', u'name': u'darshan'})

TASK [Copy the authorized key file from] ***************************************
ok: [13.233.70.233] => (item={u'name': u'pavan', u'key': u'/home/ubuntu/.ssh/pavan.pub', u'userstate': u'present'})
ok: [13.233.70.233] => (item={u'name': u'kalyan', u'key': u'/home/ubuntu/.ssh/kalyan.pub', u'userstate': u'present'})
ok: [13.233.70.233] => (item={u'name': u'raghu', u'key': u'/home/ubuntu/.ssh/raghu.pub', u'userstate': u'present'})
ok: [13.233.70.233] => (item={u'name': u'darshan', u'key': u'/home/ubuntu/.ssh/darshan.pub', u'userstate': u'present'})

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

ubuntu@ip-172-31-10-229:/etc/ansible$
```

```
ubuntu@ip-172-31-8-27:~/.ssh$ cd ..
ubuntu@ip-172-31-8-27:~$ ls
ubuntu@ip-172-31-8-27:~$ cd ..
ubuntu@ip-172-31-8-27:/home$ ls
ubuntu
ubuntu@ip-172-31-8-27:/home$
ubuntu@ip-172-31-8-27:/home$
ubuntu@ip-172-31-8-27:/home$ ls
darshan  kalyan  pavan  raghu  ubuntu
ubuntu@ip-172-31-8-27:/home$
```

```
ubuntu@ip-172-31-8-27: /home

ubuntu@ip-172-31-8-27:/home$ ssh -p 22 -i ~/.ssh/id_rsa pavan@172.31.8.27
The authenticity of host '172.31.8.27 (172.31.8.27)' can't be established.
ECDSA key fingerprint is SHA256:wCcKIGYo8Ecp03ohqKd0PV/iO3q/QkdWTg/RqpnHTZA.
Are you sure you want to continue connecting (yes/no)? yes
Warning: Permanently added '172.31.8.27' (ECDSA) to the list of known hosts.
Welcome to Ubuntu 18.04.5 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 06:22:06 UTC 2021

  System load:  0.02                Processes:            99
  Usage of /:   17.4% of 7.69GB     Users logged in:      1
  Memory usage: 21%                 IP address for eth0: 172.31.8.27
  Swap usage:   0%


85 packages can be updated.
60 of these updates are security updates.
To see these additional updates run: apt list --upgradable

New release '20.04.3 LTS' available.
Run 'do-release-upgrade' to upgrade to it.



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.

$ whoami
pavan
$
```

```
ubuntu@ip-172-31-8-27:/home$ ssh -p 22 kalyan@172.31.8.27
Welcome to Ubuntu 18.04.5 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 06:23:21 UTC 2021

  System load:  0.0                Processes:           99
  Usage of /:   17.5% of 7.69GB    Users logged in:      1
  Memory usage: 21%                IP address for eth0: 172.31.8.27
  Swap usage:   0%


85 packages can be updated.
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To see these additional updates run: apt list --upgradable

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$ whoami
kalyan
$ ls
$ pwd
/home/kalyan
$ cd ..
$ ls
darshan  kalyan  pavan  raghu  ubuntu
$ cd ..
$ ls
bin  boot  dev  etc  home  initrd.img  initrd.img.old  lib  lib64  lost+found  media  mnt  opt  proc  root  run  sbin  snap  srv  sys  tmp  usr  var  vmlinuz  vmlinuz.old
$
```

```
ubuntu@ip-172-31-8-27:/home$ ssh -p 22 raghu@172.31.8.27
Welcome to Ubuntu 18.04.5 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 06:24:57 UTC 2021

  System load:  0.0                Processes:            99
  Usage of /:   17.6% of 7.69GB    Users logged in:      1
  Memory usage: 21%                IP address for eth0:  172.31.8.27
  Swap usage:   0%


85 packages can be updated.
60 of these updates are security updates.
To see these additional updates run: apt list --upgradable

New release '20.04.3 LTS' available.
Run 'do-release-upgrade' to upgrade to it.



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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.

$ whoami
raghu
$ pwd
/home/raghu
$ ls
$ cd .
$ ls
$ cd ..
$ ls
darshan  kalyan  pavan  raghu  ubuntu
$ cd ..
$ ls
bin  boot  dev  etc  home  initrd.img  initrd.img.old  lib  lib64  lost+found  media  mnt  opt  proc  root  run  sbin  snap  srv  sys  tmp  usr  var  vmlinuz  vmlinuz.old
$ exit
Connection to 172.31.8.27 closed.
ubuntu@ip-172-31-8-27:/home$ 
```

```
ubuntu@ip-172-31-8-27:/home$ ssh darshan@172.31.8.27
Welcome to Ubuntu 18.04.5 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 06:26:28 UTC 2021

  System load:  0.02              Processes:              100
  Usage of /:   17.8% of 7.69GB   Users logged in:        1
  Memory usage: 23%               IP address for eth0: 172.31.8.27
  Swap usage:   0%


 * Canonical Livepatch is available for installation.
   - Reduce system reboots and improve kernel security. Activate at:
     https://ubuntu.com/livepatch

85 packages can be updated.
60 of these updates are security updates.
To see these additional updates run: apt list --upgradable

New release '20.04.3 LTS' available.
Run 'do-release-upgrade' to upgrade to it.




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applicable law.

$ whoami
darshan
$ pwd
/home/darshan
$ cd ..
$ ls
darshan  kalyan  pavan  raghu  ubuntu
$ cd ..
$ ls
bin  boot  dev  etc  home  initrd.img  initrd.img.old  lib  lib64  lost+found  media  mnt  opt  proc  root  run  sbin  snap  srv  sys  tmp  usr  var  vmlinuz  vmlinuz.old
$ exit
Connection to 172.31.8.27 closed.
ubuntu@ip-172-31-8-27:/home$
```

Ansible Playbook to add users to ec2 instance with there ssh keys

```yaml
---
- name: "Playbook to Create User and  Add Key to EC2 Instance"
  hosts: production
  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: /home/ubuntu/.ssh/id_rsa.pub
        ssh_key_type: rsa
        with_items:
        - { name: 'pavan', group: 'adminteam'}
        - { name: 'kalyan', group: 'adminteam'}
        - { name: 'raghu', group: 'devopsteam'}
        - { name: 'darshan', 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: 'pavan', key: '/home/ubuntu/.ssh/pavan.pub' , userstate: 'present'}
        - { name: 'kalyan', key: '/home/ubuntu/.ssh/kalyan.pub' , userstate: 'present'}
        - { name: 'raghu', key: '/home/ubuntu/.ssh/raghu.pub', userstate: 'present'}
        - { name: 'darshan', key: '/home/ubuntu/.ssh/darshan.pub', userstate: 'present'}
```

Instructions for adding users to ec2 instances

Ansible Master:
    sudo apt-get install
    sudo apt install software-properties-common
    sudo apt-add-repository ppa:ansible/ansible
    sudo apt update
    sudo apt install ansible
Ansible Slave:
    sudo apt-get update
    sudo apt-get install python

Generate SSH keys:
    ssh-keygen

File for host config:
    /etc/ansible/hosts

File for ssh
    /.ssh

For executing ansible playbook:
      ansible-playbook /etc/ansible/key.yml -i /etc/ansible/host
--key-file=/home/ubuntu/.ssh/id_rsa.pub