8. **Practical Exercise: Set Up a Jenkins CI Pipeline for a Maven Project, Use Ansible to Deploy Artifacts Generated by Jenkins.**
   1. **Install ssh agent and ssh plugins**
   2. **Generate rsa key pair to connect Jenkins (Windows) and Ansible (Ubuntu) in GitBash**

In Git Bash

   ssh-keygen
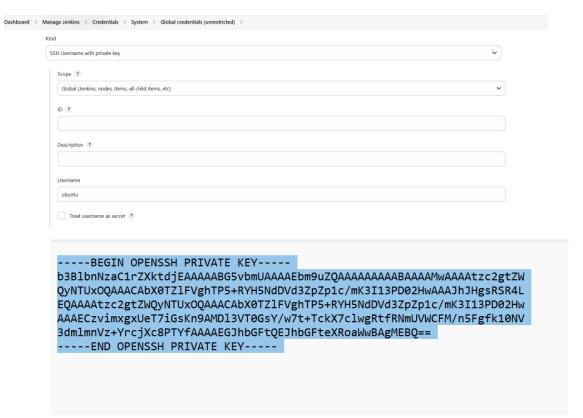
- Execute the command ip a to get the ip address of the ubuntu VM. (For eg: 192.168.1.11 or 10.100.100.139)
- Enable ssh in ubuntu
  - Open terminal
  - Execute following commands
    - su –
    - Enter password root@123
    - sudo ufw allow ssh
    - sudo ufw enable
    - sudo ufw status (Port 22 enabled)
- Execute in Git Bash
  - To copy the public key from windows to ubuntu machine
    scp id_ed25519.pub ubuntu@192.168.1.11:/home/ubuntu/.ssh

```
balam@Balamythil MINGW64 ~/.ssh
$ scp id_ed25519.pub ubuntu@10.100.100.139:/home/ubuntu/.ssh
Enter passphrase for key '/c/Users/balam/.ssh/id_rsa':
id_ed25519.pub                          100%   98    32.1KB/s   00:00

balam@Balamythil MINGW64 ~/.ssh
$ scp C:/Users/balam/.ssh/id_ed25519 ubuntu@192.168.1.11:/home/ubuntu/.ssh/id_ed25519
The authenticity of host '192.168.1.11 (192.168.1.11)' can't be established.
ED25519 key fingerprint is SHA256:AF1wJ4aJLVkRHczE8MMFdYRIP/Bqmyiy5jG2fjRjmOA.
This host key is known by the following other names/addresses:
    ~/.ssh/known_hosts:1: 192.168.1.4
    ~/.ssh/known_hosts:4: 10.100.100.139
Are you sure you want to continue connecting (yes/no/[fingerprint])? yes
Warning: Permanently added '192.168.1.11' (ED25519) to the list of known hosts.
Enter passphrase for key '/c/Users/balam/.ssh/id_rsa':
id_ed25519                                              100%  411    73.3KB/s   00:00
```

- **Same copy the private key file from Windows to ubuntu machine**

scp C:/Users/balam/.ssh/id_ed25519.pub ubuntu@192.168.1.11:/home/ubuntu/.ssh

- **Note: Wherever passphrase is asked press enter key.**

3. **In Jenkins,**
   - **Open Jenkins -> Manage Jenkins -> Credentials**
   - **Add Credentials -> Global -> Kind -> SSH with private key**
     - **Username -> ubuntu**
     - **Id – leave it empty, default will be created**
     - **Add direct key -> Click add**
     - **Copy the entire content of id_ed25519(C:/Users/Name/.ssh/id_ed25519) including begin and end message.**
     - **Paste it in key and click create.**
     - **Ubuntu credentials will be added**

- **Goto Dashboard -> Manage Jenkins -> System**
- **Enter the Remote SSH site details**
- **Hostname – ip address of ubuntu machine**
- **Port is 22**
- **Choose "ubuntu" Credentials and click save.**

SSH remote hosts

SSH sites

SSH sites that projects will want to connect

Hostname ?

192.168.1.11

Port ?

22

Credentials

ubuntu

Save   Apply

- **In Jenkins,**
  - **Dashboard -> New Item -> Free Style Project**
  - **Choose Environment -> Select secret or text files**
  - **Add Build Step -> Execute shell script on remote host using ssh**
  - **Select -> ubuntu@ipaddress in SSH site**
  - **Enter command -> ansible-playbook -i hosts playbook.yml**
  - **Click save**
- **In Ubuntu**
  - **Execute**
    - **nano hosts**

```
  GNU nano 6.2                                          hosts
[ubuntu]
192.168.1.11 ansible_user=ubuntu ansible_ssh_private_key_file=/home/ubuntu/.ssh/id_ed25519
```

- **nano playbook.yml (Do not miss out the hiphens (-) and indent (two spaces)**

```
  GNU nano 6.2                                        playbook.yml
---
- name: Simple Playbook
  hosts: all
  become: false

  tasks:
    - name: Check Uptime of remote machine
      command: uptime
```

- **ansible-playbook -i hosts playbook.yml**

```
ubuntu@ubuntu22:~$ ansible-playbook -i hosts playbook.yml

PLAY [Simple Playbook] **********************************************************

TASK [Gathering Facts] **********************************************************
ok: [192.168.1.11]

TASK [Check Uptime of remote machine] *******************************************
changed: [192.168.1.11]

PLAY RECAP **********************************************************************
192.168.1.11               : ok=2    changed=1    unreachable=0    failed=0    skipped=0    rescued=0    ignored=0
```

- **In Jenkins,**
  - **Select the project -> Click Build Now**
  - **Once Build is ready -> Select Console Output to view output**

```
Started by user mythilim
Running as SYSTEM
Building in workspace C:\ProgramData\Jenkins\.jenkins\workspace\jen1
[SSH] script:
=**********


ansible-playbook -i hosts playbook.yml


[SSH] executing...
bash: line 1: =****: command not found

PLAY [Simple Playbook] **********************************************************

TASK [Gathering Facts] **********************************************************
ok: [192.168.1.11]

TASK [Check Uptime of remote machine] *******************************************
changed: [192.168.1.11]

PLAY RECAP **********************************************************************
192.168.1.11               : ok=2    changed=1    unreachable=0    failed=0    skipped=0    rescued=0    ignored=0


[SSH] completed
[SSH] exit-status: 0


Finished: SUCCESS
```