

Ex No 10

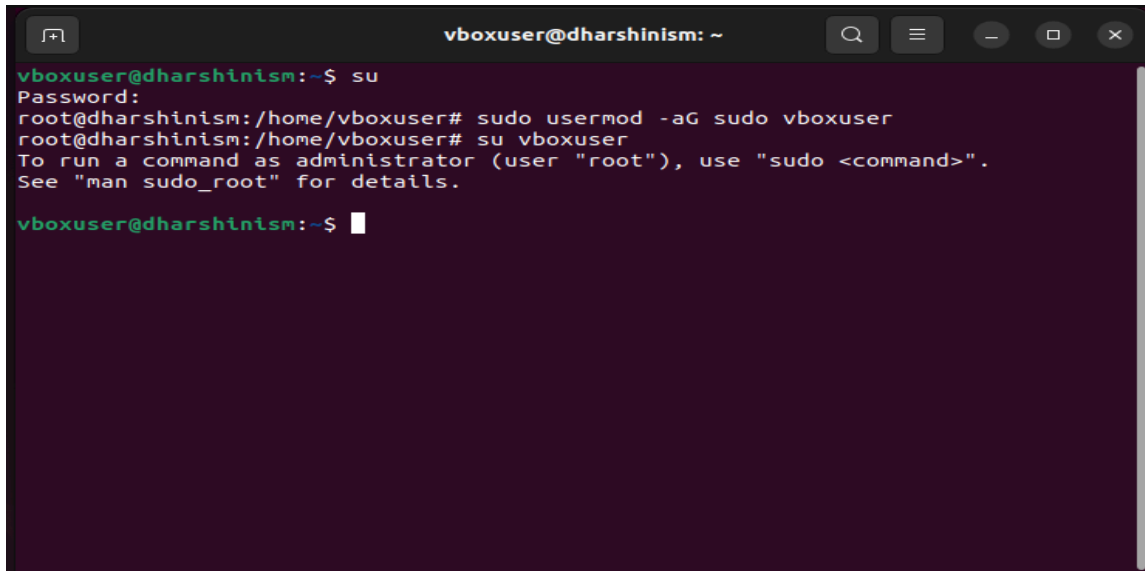
Install and configure Ansible

AIM:

To install and configure Ansible.

PROCEDURE:

Step 1: Open terminal and switch to the root user in your Virtual machine

A terminal window titled 'vboxuser@dhharshinism: ~' with standard window controls. The terminal shows the following commands and output:

```
vboxuser@dhharshinism:~$ su
Password:
root@dhharshinism:/home/vboxuser# sudo usermod -aG sudo vboxuser
root@dhharshinism:/home/vboxuser# su vboxuser
To run a command as administrator (user "root"), use "sudo <command>".
See "man sudo_root" for details.

vboxuser@dhharshinism:~$
```

Step 2: Run the following commands,

1. `sudo apt install ansible`
2. `ansible - -version`

```
Activities Terminal Apr 2 13:58
vboxuser@dhharshinism: ~
Waiting for cache lock: Could not get lock /var/lib/dpkg/lock-frontent. It is he^C by process 2438 (unattended-upgr)... 5s
vboxuser@dhharshinism:~$ sudo kill -9 2438
vboxuser@dhharshinism:~$ sudo apt install ansible
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following package was automatically installed and is no longer required:
  systemd-hwe-hwdb
Use 'sudo apt autoremove' to remove it.
The following additional packages will be installed:
  ieee-data libpython3-stdlib libpython3.10 libpython3.10-minimal
  libpython3.10-stdlib python-babel-localedata python3 python3-argcomplete
  python3-babel python3-distutils python3-dnspython python3-jinja2
  python3-jmespath python3-kerberos python3-lib2to3 python3-libcloud
  python3-minimal python3-netaddr python3-ntlm-auth python3-packaging
  python3-pycryptodome python3-requests-kerberos python3-requests-ntlm
  python3-requests-toolbelt python3-selinux python3-simplejson python3-winrm
  python3-xmltodict python3.10 python3.10-minimal
Suggested packages:
  cowsay sshpass python3-doc python3-tk python3-venv python3-sniffio
  python3-trio python-jinja2-doc ipython3 python-netaddr-docs python3.10-venv
  python3.10-doc binutils binfmt-support
The following NEW packages will be installed:
  ansible ieee-data python-babel-localedata python3-argcomplete python3-babel
  python3-distutils python3-dnspython python3-jinja2 python3-jmespath
  python3-kerberos python3-libcloud python3-netaddr python3-ntlm-auth
  python3-packaging python3-pycryptodome python3-requests-kerberos
  python3-requests-ntlm python3-requests-toolbelt python3-selinux
  python3-simplejson python3-winrm python3-xmltodict
The following packages will be upgraded:
  libpython3-stdlib libpython3.10 libpython3.10-minimal libpython3.10-stdlib
  python3 python3-lib2to3 python3-minimal python3.10 python3.10-minimal
9 upgraded, 22 newly installed, 0 to remove and 597 not upgraded.
Need to get 28.2 MB/35.7 MB of archives.
After this operation, 272 MB of additional disk space will be used.
Do you want to continue? [Y/n] y
Get:1 http://in.archive.ubuntu.com/ubuntu jammy/main amd64 python-babel-localedata all 2.8.0+dfsg.1-7 [4,982 kB]
Get:2 http://in.archive.ubuntu.com/ubuntu jammy/main amd64 python3-babel all 2.8.0+dfsg.1-7 [85.1 kB]
Get:3 http://in.archive.ubuntu.com/ubuntu jammy-updates/main amd64 python3-jinja2 all 3.0.3-1ubuntu0.4 [108 kB]
Get:4 http://in.archive.ubuntu.com/ubuntu jammy/main amd64 python3-packaging all 21.3-1 [30.7 kB]
```

```
s Terminal Apr 2 13:59
vboxuser@dhharshinism: ~
(pybabel) in auto mode
Setting up python3-ntlm-auth (1.4.0-1) ...
Setting up python3-pycryptodome (3.11.0+dfsg1-3ubuntu0.1) ...
Setting up python3-kerberos (1.1.14-3.1build5) ...
Setting up python3-libcloud (3.2.0-2) ...
Setting up python3-jinja2 (3.0.3-1ubuntu0.4) ...
Setting up python3-requests-kerberos (0.12.0-2) ...
Setting up ansible (2.10.7+merged+base+2.10.8+dfsg-1) ...
Setting up python3-requests-ntlm (1.1.0-1.1) ...
Setting up python3-winrm (0.3.0-2) ...
Processing triggers for desktop-file-utils (0.26-1ubuntu3) ...
Processing triggers for gnome-menus (3.36.0-1ubuntu3) ...
Processing triggers for libc-bin (2.35-0ubuntu3) ...
Processing triggers for man-db (2.10.2-1) ...
Processing triggers for mailcap (3.70+nmu1ubuntu1) ...
vboxuser@dhharshinism:~$ ansible --version
ansible 2.10.8
  config file = None
  configured module search path = ['/home/vboxuser/.ansible/plugins/modules', '/usr/share/ansible/plugins/modules']
  ansible python module location = /usr/lib/python3/dist-packages/ansible
  executable location = /usr/bin/ansible
  python version = 3.10.12 (main, Feb 4 2025, 14:57:36) [GCC 11.4.0]
vboxuser@dhharshinism:~$
```

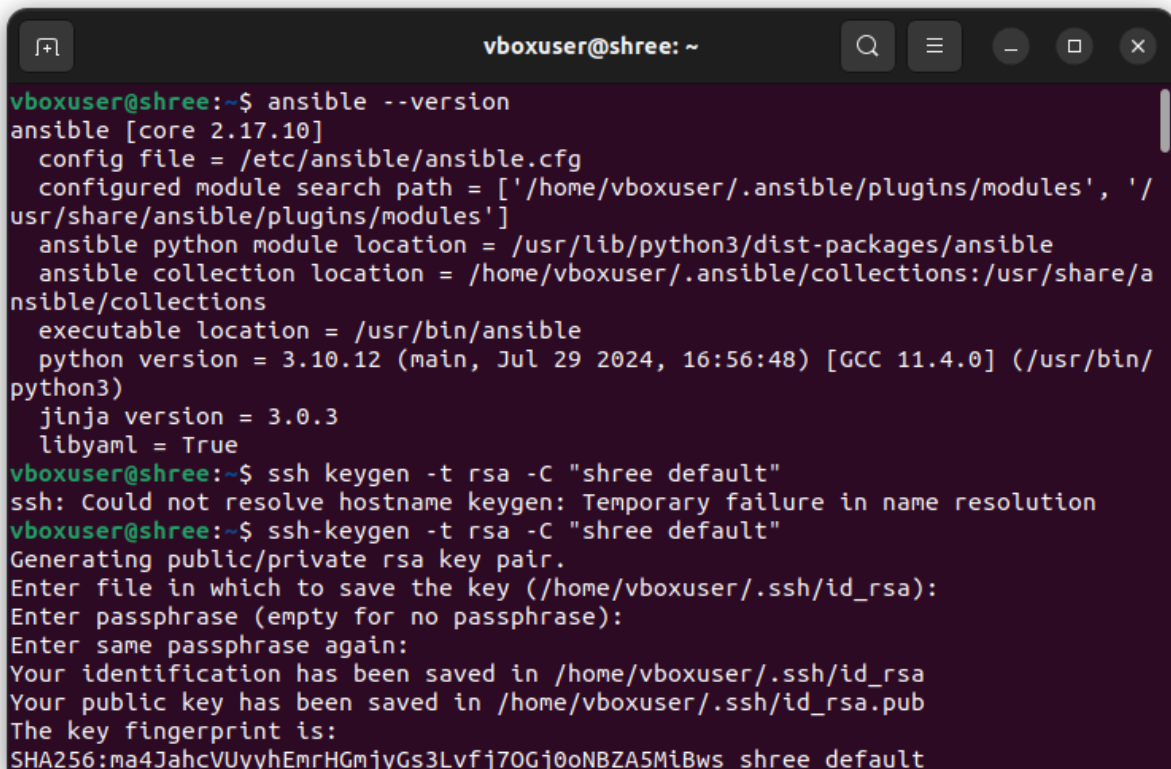
Step 3: Check for ansible installation using “ansible --version”

Error: UTF-8 encoding expected for ansible, run the following commands

- `sudo nano /etc/default/locale`
- Update the encoding to UTF-8
`LANG="en_US.UTF-8"`
`LC_CTYPE="en_US.UTF-8"`
- (Or)
- Run the below command in terminal
`sudo update-locale LANG=en_US.UTF-8 LC_CTYPE=en_US.UTF-8`
- Restart

To create SSH key,

1. `ssh-keygen -t rsa -C "demo_default"`
2. `ls -la .ssh`
3. `cat .ssh/id_rsa.pub`
4. `cat .ssh/id_rsa`



```
vboxuser@shree: ~  
vboxuser@shree:~$ ansible --version  
ansible [core 2.17.10]  
  config file = /etc/ansible/ansible.cfg  
  configured module search path = ['/home/vboxuser/.ansible/plugins/modules', '/usr/share/ansible/plugins/modules']  
  ansible python module location = /usr/lib/python3/dist-packages/ansible  
  ansible collection location = /home/vboxuser/.ansible/collections:/usr/share/ansible/collections  
  executable location = /usr/bin/ansible  
  python version = 3.10.12 (main, Jul 29 2024, 16:56:48) [GCC 11.4.0] (/usr/bin/python3)  
  jinja version = 3.0.3  
  libyaml = True  
vboxuser@shree:~$ ssh-keygen -t rsa -C "shree default"  
ssh: Could not resolve hostname keygen: Temporary failure in name resolution  
vboxuser@shree:~$ ssh-keygen -t rsa -C "shree default"  
Generating public/private rsa key pair.  
Enter file in which to save the key (/home/vboxuser/.ssh/id_rsa):  
Enter passphrase (empty for no passphrase):  
Enter same passphrase again:  
Your identification has been saved in /home/vboxuser/.ssh/id_rsa  
Your public key has been saved in /home/vboxuser/.ssh/id_rsa.pub  
The key fingerprint is:  
SHA256:ma4JahcVUyyhEmrHGmJyGs3Lvffj70Gj0oNBZA5MiBws shree default
```

```
vboxuser@shree: ~  
libyaml = True  
vboxuser@shree:~$ ssh-keygen -t rsa -C "shree default"  
ssh: Could not resolve hostname keygen: Temporary failure in name resolution  
vboxuser@shree:~$ ssh-keygen -t rsa -C "shree default"  
Generating public/private rsa key pair.  
Enter file in which to save the key (/home/vboxuser/.ssh/id_rsa):  
Enter passphrase (empty for no passphrase):  
Enter same passphrase again:  
Your identification has been saved in /home/vboxuser/.ssh/id_rsa  
Your public key has been saved in /home/vboxuser/.ssh/id_rsa.pub  
The key fingerprint is:  
SHA256:ma4JahcVUyyhEmrHGMjyGs3LvFj70Gj0nBZA5MiBws shree default  
The key's randomart image is:  
+---[RSA 3072]-----+  
|E... .+.|  
|=0*. .+ .|  
|**.=. +|  
|+++.o . o|  
|.o+o o S|  
|.+=o. .|  
|ooo+o. .|  
|. +o++ o|  
| ooo=++|  
+-----[SHA256]-----+
```

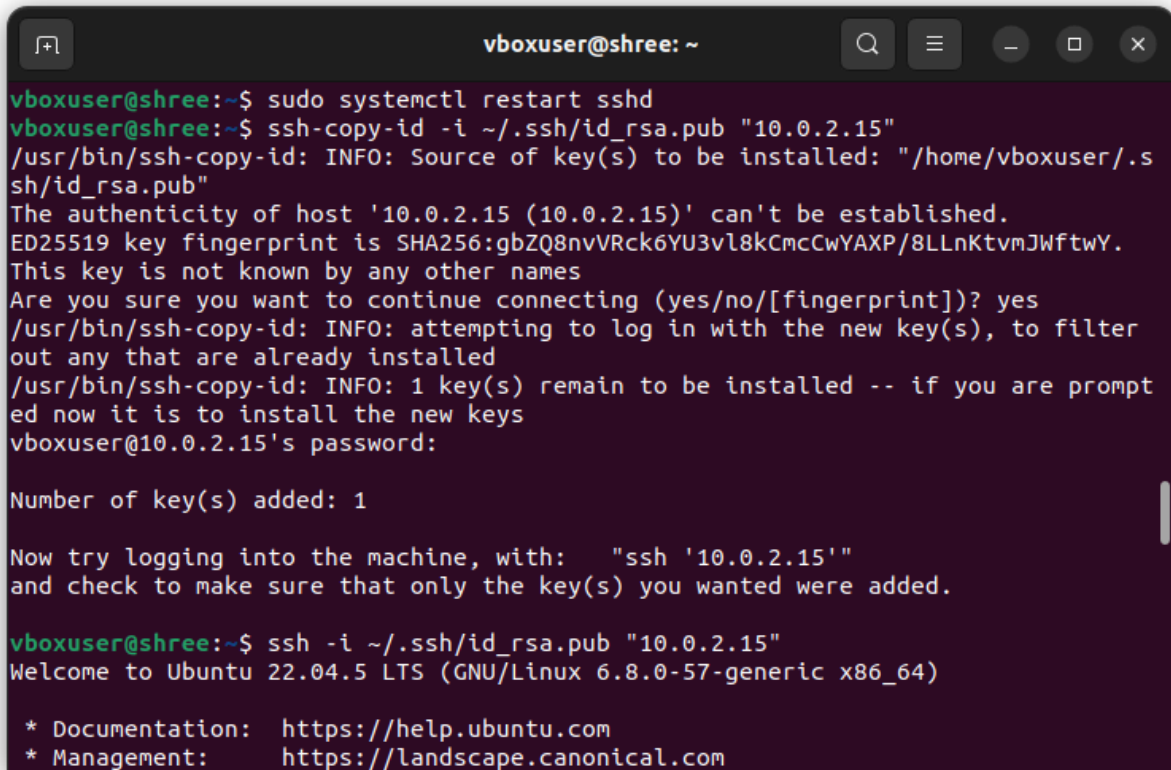
```
vboxuser@shree: ~  
vboxuser@shree:~$ ls -la .ssh  
total 16  
drwx----- 2 vboxuser vboxuser 4096 Apr  1 11:48 .  
drwxr-x--- 17 vboxuser vboxuser 4096 Apr  1 11:45 ..  
-rw----- 1 vboxuser vboxuser 2602 Apr  1 11:48 id_rsa  
-rw-r--r-- 1 vboxuser vboxuser  567 Apr  1 11:48 id_rsa.pub  
vboxuser@shree:~$ cat .ssh/id_rsa.pub  
ssh-rsa AAAAB3NzaC1yc2EAAAADAQABAAQGDk78RK19xg9LqaU9m6ez1dnc/+puwQJ5PzULGc4Vmo  
quG07ie1RfM5N3QtwxjSYJYKCja95Zf3dy0C829XcYfmRovgNPTSXhdDGP9+28WFHRsdL0cchEzgcJgN  
vIk90E5Lv0ELUuPE1sF77+eMP6oVvMV6Wxfi+5CHGIVHjERnZqXkYPr5X1WCYWrMJdfGcc0bPrHT4a7K  
61GZkb9HB/wGjatXw5IESe/AsXSqg8xI7+RQ7SbdZd0gx4k0IsnPjYu70aTKnvAXXZ+OQ5yNWkSBRBU2  
Ca4GavDGm5+iQLC30J9sl4pCUq8mhaZ3xDbLNDPBD36n9DGNDFhhW0bD5vX/R2yzt4kSycp4Pnzrtai  
M6haVQpacIKjd4ZwHT3/FbWvE8STMiA0zev4gMTy5Zn00Gi+7SEbCPp556nUqBdm0MfyWroqT/+zYHNW  
hY5jwNUo0Ds957jszEXHBE6vzFcJLJNOewxjLm09mY0pMyav9UNtnZWfyVn8JDtdkMFvXTU= shree d  
efault  
vboxuser@shree:~$ cat .ssh/id_rsa  
-----BEGIN OPENSSH PRIVATE KEY-----  
b3B1bnNzaC1rZKtdjEAAAAABG5vbMUAABAEbm9uZQAAAAAAAAAABAAABlwAAAAadzC2gtcn  
NhAAAAAwEAAQAAAYEayu/EstfcYPS6mLPZuns9XZ3P/qbsECeT81Cxn0FZqKrht04ntURT  
OTd0LcMY0mCWcGo2vewX93ctAvNvV3GH5kaL4DT00L4XQxj/ftvFhR0bHSznHIRM4HCYdb  
5ZPdBO579BC1LjXNbBe+/nJD+qFbzFel134vuQhxiFR4xEZ2a15GD6+V9VgmFqzCXXxgnD  
mz6x0+GuyutRmZG/Rwf8Bo2rV8OSBEnvwLF0qoPMSO/kU00m3WXDIeJNCLJz42Luzmkyp  
7wF12fjk0cjVpEgUQVNgmuBmrwxpufokCwtzifbJekQlKvJowmd8Q25TQwTw9+p/QxjQ0x  
YYVjmw+b1/0dss7eJEsNKeD5867Woj0oWLUKWnCCo3eGcB09/xW1rxPEkzIgNM3r+IDE8u
```

```
vboxuser@shree: ~  
vboxuser@shree:~$ cat .ssh/id_rsa  
-----BEGIN OPENSSH PRIVATE KEY-----  
b3B1bnNzaC1rZXktdjEAAAAAAAAABG5vbUAAAAAAAAAAAAAAAAAAAAAAABlAAAAAdzc2gtcn  
NhAAAAAwEAAQAAAYEAYu/ESTfcYPS6mLPZuns9XZ3P/qbsECeT81Cxn0FZqKrht04ntURT  
OTd0LcMY0mCWGo2veWX93ctAvNvV3GH5kaL4DT00L4XQxj/ftvFhR0bHSznHIRM4HCYDb  
5ZPdBOS79BC1LjXNbBe+/njD+qFbZFe1l34vuQhxiFR4xEZ2a15GD6+V9VgmFqzCXXxgnd  
mz6x0+GuyutRmZG/Rwf8Bo2rV8OSBEnvwLF0qoPMSO/kU00m3WXdIMEJNCLJz42Luzmkyp  
7wF12fjk0cjVpEgUQVNgmUBmrwxpufokCwtzifbJeKQlKvJowmd8Q25TQwTw9+p/QxjQ0x  
YYVjmw+b1/0dss7eJEsnKeD5867Woj0oWLUKWnCCo3eGcB09/xW1rxPEkzIgNM3r+IDE8u  
WZ9NBovu0hGwj6eeep1KgXZjjH8lq6Kk//s2BzVoWoy8DVKNA7Pee47MxFxwR0r8xXCZST  
TnsMYy5jvZmDqTMmr/VDbZ2Vn8LZ/CQ7XZDBb101AAAFioxDFwXlw38FAAAAB3NzaC1yc2  
EAAAGBAMrvxerX3GD0uppT2bp7PV2dz/6m7BANK/NQsZzhWaiq4bTuJ7VEUzk3dC3DGNJg  
LgoKNr3ll/d3LQLzb1dxh+ZGi+A09NJeF0MY/37bxYUdGx0s5xyETOBwma2+WT3QTku/QQ  
ts48TWwXvv54w/qhW8xXpZd+L7kIcYhUeMRGdmpeRg+vlfVYJhasw18YJw5s+sdPhrsrr  
UZmRv0cH/AaNq1fDkgRJ78CxdKqDzEjv5FDtJt1l3SDHiTQiyc+Ni7s5pMqe8Bddn45DnI  
1aRIFeFTYJrgZq8Mabn6JAsLc4n2yXikJSryaFpnfENU0ME8Pf0MY0NMWGFY5sPm9f9  
HbLO3iRLJyng+f0u1qIzqFpVClpwgqN3hnAdPf8Vta8TxJMyIDTN6/iAxPLlmfTQaL7tIR  
sI+nnnqdSoF2Y4x/JauipP/7Ngc1aFjmPA1SjQ0z3nu0zMRccETq/MVwmUk057DGMuY72Z  
g6kzJq/1Q22dLZ/JWfwk012QwW9dNQAAAAMBAAEAAAGAXZzH4Dx+K02LjLhEVi0WbDjppY  
8nkvYm3hUpsXQUj2UwU+20PKRlfZ3Shm+aaivq4PvAL84S0XFUvqk8AcrZxURirsZ06KHF  
ukp0RXksvtBj2wwFGLb/PYNC6QgXE5gdHfz+DLKyZfEo9LqAheYyV++p6twNnR0tolwR0y  
TLwsLWHPsiImzgL7ebIjCZdTIOjtr/ZD80BfgHuaoJSSOQhmk4gnRuA/BPJK/fg7pM/YR  
TLFW/a1JGZ9h775ieM9SRNKITN+rcKw1H6QCQKEmKDVNdX1EWEWj7jTbtolsqxaif82jNV  
Yx100zgdcIML1WbgSKgGrp+vFI23b397eCU0R9lzEAcMhqtUHHcQ8BBHSXNaWRDlPxTrow
```

```
vboxuser@shree: ~  
vboxuser@shree:~$ sudo apt install openssh-server  
[sudo] password for vboxuser:  
Reading package lists... Done  
Building dependency tree... Done  
Reading state information... Done  
The following additional packages will be installed:  
  ncurses-term openssh-client openssh-sftp-server ssh-import-id  
Suggested packages:  
  keychain libpam-ssh monkeysphere ssh-askpass molly-guard  
The following NEW packages will be installed:  
  ncurses-term openssh-server openssh-sftp-server ssh-import-id  
The following packages will be upgraded:  
  openssh-client  
1 upgraded, 4 newly installed, 0 to remove and 209 not upgraded.  
Need to get 751 kB/1,653 kB of archives.  
After this operation, 6,046 kB of additional disk space will be used.  
Do you want to continue? [Y/n] y  
Get:1 http://in.archive.ubuntu.com/ubuntu jammy-updates/main amd64 openssh-sftp-  
server amd64 1:8.9p1-3ubuntu0.11 [38.7 kB]  
Get:2 http://in.archive.ubuntu.com/ubuntu jammy-updates/main amd64 openssh-serve  
r amd64 1:8.9p1-3ubuntu0.11 [435 kB]  
Get:3 http://in.archive.ubuntu.com/ubuntu jammy-updates/main amd64 ncurses-term  
all 6.3-2ubuntu0.1 [267 kB]  
Get:4 http://in.archive.ubuntu.com/ubuntu jammy/main amd64 ssh-import-id all 5.1
```


Step 4: To copy SSH key to the server,

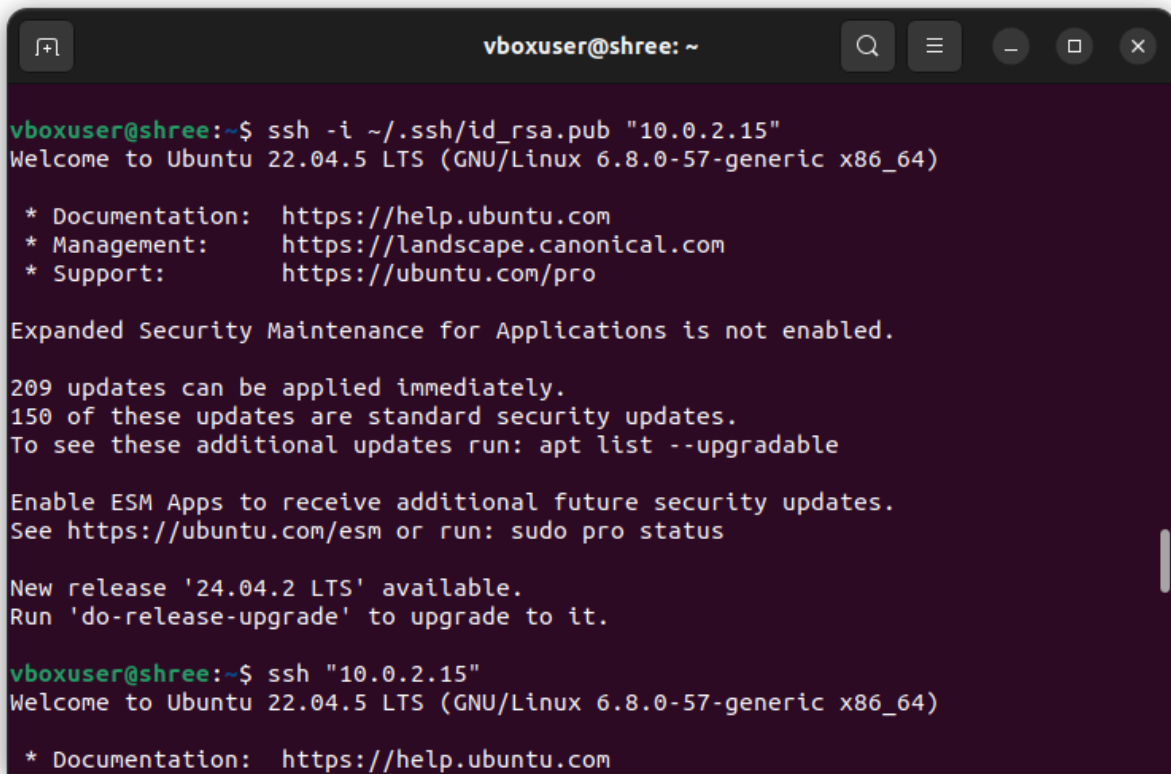
1. `ssh-copy-id -i ~/.ssh/id_rsa.pub "ipaddress" - 10.0.2.15`



```
vboxuser@shree: ~  
vboxuser@shree:~$ sudo systemctl restart sshd  
vboxuser@shree:~$ ssh-copy-id -i ~/.ssh/id_rsa.pub "10.0.2.15"  
/usr/bin/ssh-copy-id: INFO: Source of key(s) to be installed: "/home/vboxuser/.ssh/id_rsa.pub"  
The authenticity of host '10.0.2.15 (10.0.2.15)' can't be established.  
ED25519 key fingerprint is SHA256:gbZQ8nvVRck6YU3vL8kCmcCWYAXP/8LLnKtvmJWftwY.  
This key is not known by any other names  
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  
vboxuser@10.0.2.15's password:  
  
Number of key(s) added: 1  
  
Now try logging into the machine, with:  "ssh '10.0.2.15'"  
and check to make sure that only the key(s) you wanted were added.  
  
vboxuser@shree:~$ ssh -i ~/.ssh/id_rsa.pub "10.0.2.15"  
Welcome to Ubuntu 22.04.5 LTS (GNU/Linux 6.8.0-57-generic x86_64)  
  
* Documentation:  https://help.ubuntu.com  
* Management:    https://landscape.canonical.com
```

Step 5: To test the new key,

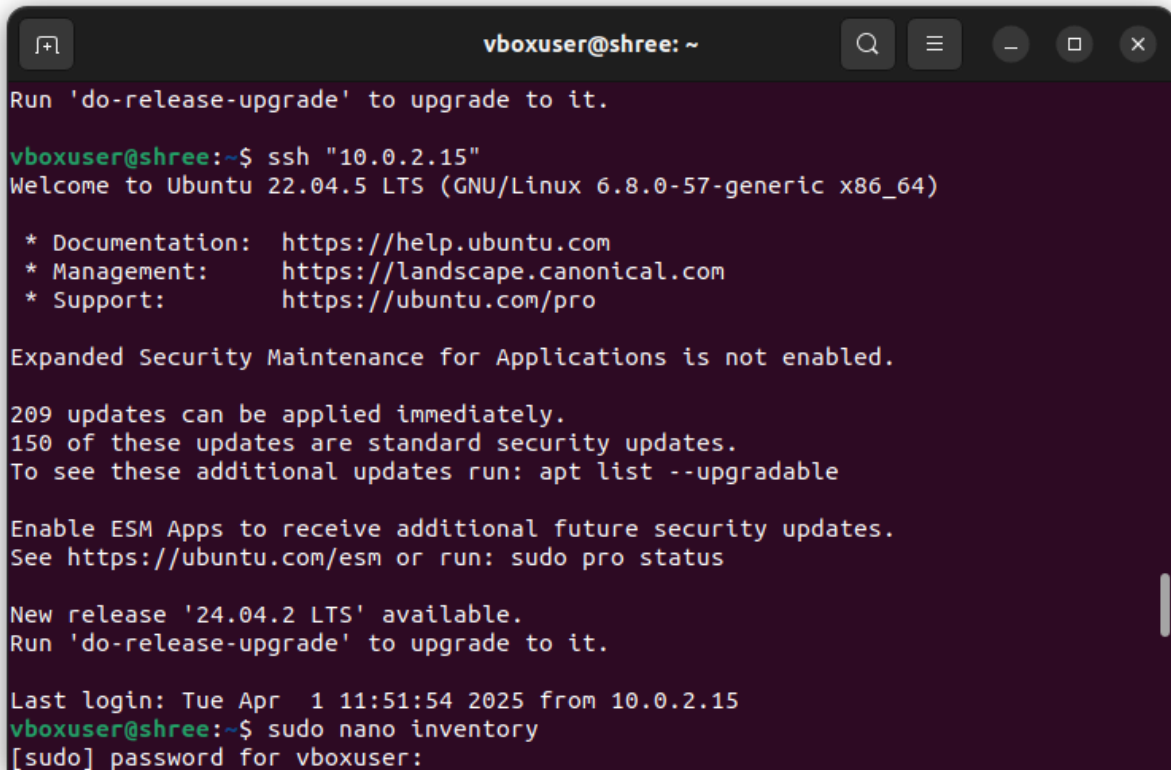
1. `ssh -i ~/.ssh/"Keyname" "Address"`



```
vboxuser@shree: ~  
vboxuser@shree:~$ ssh -i ~/.ssh/id_rsa.pub "10.0.2.15"  
Welcome to Ubuntu 22.04.5 LTS (GNU/Linux 6.8.0-57-generic x86_64)  
  
* Documentation:  https://help.ubuntu.com  
* Management:    https://landscape.canonical.com  
* Support:        https://ubuntu.com/pro  
  
Expanded Security Maintenance for Applications is not enabled.  
  
209 updates can be applied immediately.  
150 of these updates are standard security updates.  
To see these additional updates run: apt list --upgradable  
  
Enable ESM Apps to receive additional future security updates.  
See https://ubuntu.com/esm or run: sudo pro status  
  
New release '24.04.2 LTS' available.  
Run 'do-release-upgrade' to upgrade to it.  
  
vboxuser@shree:~$ ssh "10.0.2.15"  
Welcome to Ubuntu 22.04.5 LTS (GNU/Linux 6.8.0-57-generic x86_64)  
  
* Documentation:  https://help.ubuntu.com
```

Step 6: To connect to the server,

1.ssh "ipaddress"



```
vboxuser@shree: ~  
Run 'do-release-upgrade' to upgrade to it.  
vboxuser@shree:~$ ssh "10.0.2.15"  
Welcome to Ubuntu 22.04.5 LTS (GNU/Linux 6.8.0-57-generic x86_64)  
  
* Documentation:  https://help.ubuntu.com  
* Management:    https://landscape.canonical.com  
* Support:        https://ubuntu.com/pro  
  
Expanded Security Maintenance for Applications is not enabled.  
  
209 updates can be applied immediately.  
150 of these updates are standard security updates.  
To see these additional updates run: apt list --upgradable  
  
Enable ESM Apps to receive additional future security updates.  
See https://ubuntu.com/esm or run: sudo pro status  
  
New release '24.04.2 LTS' available.  
Run 'do-release-upgrade' to upgrade to it.  
  
Last login: Tue Apr  1 11:51:54 2025 from 10.0.2.15  
vboxuser@shree:~$ sudo nano inventory  
[sudo] password for vboxuser:
```


Step 7: To connect with the machines provided in the inventory

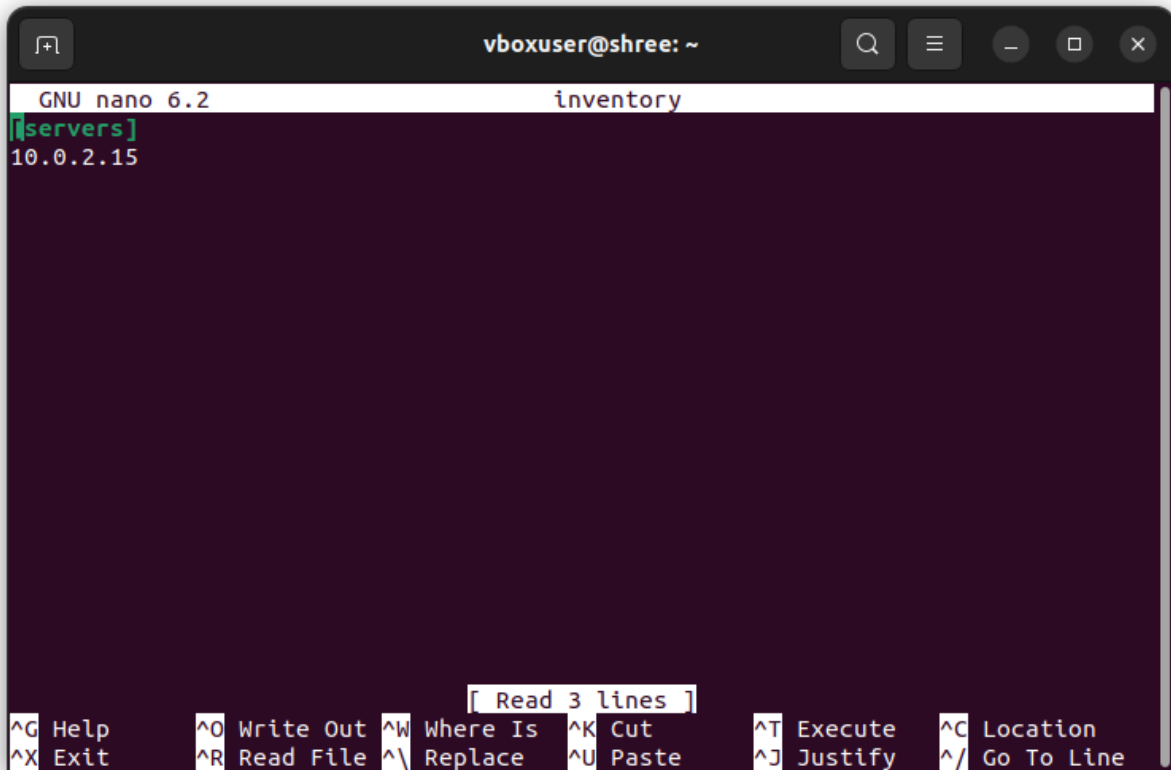
1.ansible all --key-file ~/.ssh ansible -i inventory -m ping

2. To create inventory

a.sudo nano inventory

b.To exit inventory ,

Ctrl+x -> shift Y -> Enter



```
GNU nano 6.2 inventory
[servers]
10.0.2.15
```

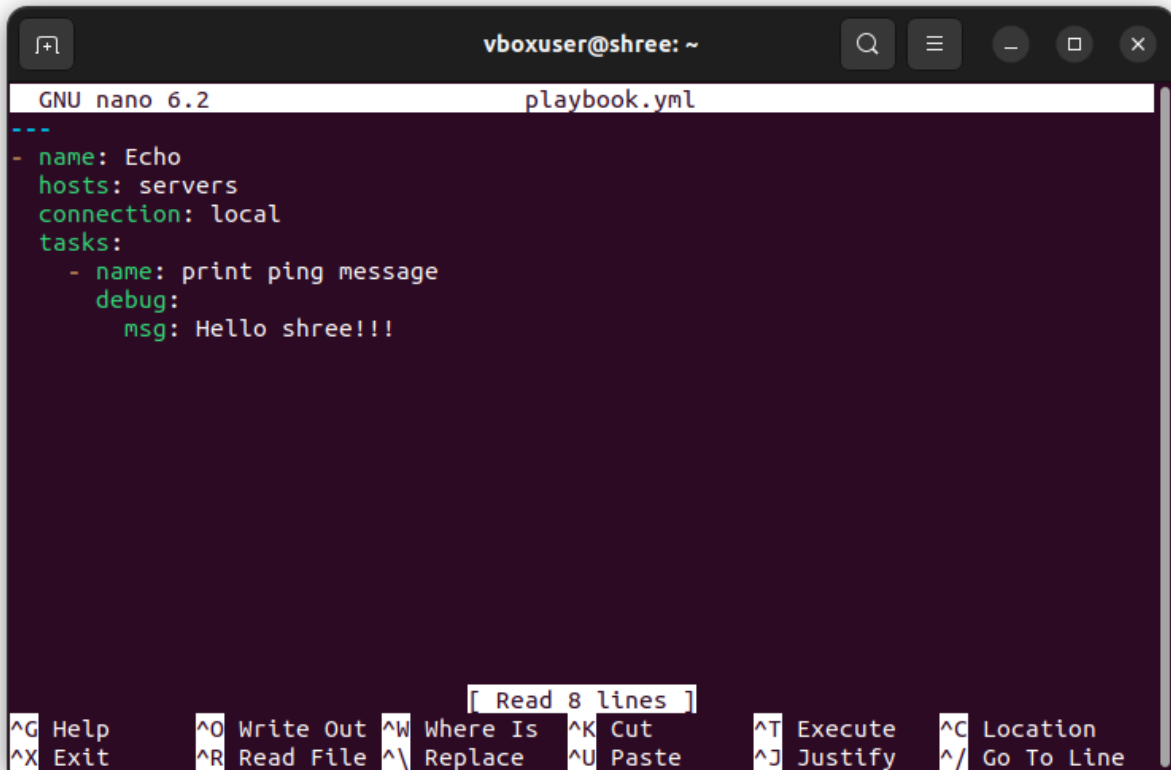
Read 3 lines

^G Help	^O Write Out	^W Where Is	^K Cut	^T Execute	^C Location
^X Exit	^R Read File	^_\ Replace	^U Paste	^J Justify	^/ Go To Line

```
vboxuser@shree: ~  
Last login: Tue Apr  1 11:51:54 2025 from 10.0.2.15  
vboxuser@shree:~$ sudo nano inventory  
[sudo] password for vboxuser:  
vboxuser@shree:~$ ansible all --key-file ~/.ssh/id_rsa -i inventory -m ping  
[WARNING]: Platform linux on host 10.0.2.15 is using the discovered Python  
interpreter at /usr/bin/python3.10, but future installation of another Python  
interpreter could change the meaning of that path. See  
https://docs.ansible.com/ansible-  
core/2.17/reference\_appendices/interpreter\_discovery.html for more information.  
10.0.2.15 | SUCCESS => {  
    "ansible_facts": {  
        "discovered_interpreter_python": "/usr/bin/python3.10"  
    },  
    "changed": false,  
    "ping": "pong"  
}  
vboxuser@shree:~$ ansible all -i inventory -m ping  
[WARNING]: Platform linux on host 10.0.2.15 is using the discovered Python  
interpreter at /usr/bin/python3.10, but future installation of another Python  
interpreter could change the meaning of that path. See  
https://docs.ansible.com/ansible-  
core/2.17/reference\_appendices/interpreter\_discovery.html for more information.  
10.0.2.15 | SUCCESS => {  
    "ansible_facts": {
```

Step 8: To execute playbook in ansible,

- 1.ansible-playbook -i inventory playbook.yml
- 2.To create a playbook -> sudo nano playbook.yml



```
GNU nano 6.2          playbook.yml
---
- name: Echo
  hosts: servers
  connection: local
  tasks:
    - name: print ping message
      debug:
        msg: Hello shree!!!

[ Read 8 lines ]
^G Help      ^O Write Out ^W Where Is  ^K Cut       ^T Execute  ^C Location
^X Exit      ^R Read File ^\ Replace   ^U Paste     ^J Justify  ^_ Go To Line
```

```
vboxuser@shree: ~  
    "ping": "pong"  
}  
vboxuser@shree:~$ sudo nano playbook.yml  
vboxuser@shree:~$ sudo nano inventory  
vboxuser@shree:~$ ansible-playbook -i inventory playbook.yml  
  
PLAY [Echo] *****  
  
TASK [Gathering Facts] *****  
[WARNING]: Platform linux on host 10.0.2.15 is using the discovered Python  
interpreter at /usr/bin/python3.10, but future installation of another Python  
interpreter could change the meaning of that path. See  
https://docs.ansible.com/ansible-  
core/2.17/reference\_appendices/interpreter\_discovery.html for more information.  
ok: [10.0.2.15]  
  
TASK [print ping message] *****  
ok: [10.0.2.15] => {  
    "msg": "Hello shree!!!"  
}  
  
PLAY RECAP *****  
10.0.2.15 : ok=2    changed=0    unreachable=0    failed=0    s  
kipped=0    rescued=0    ignored=0
```

RESULT:

Thus the installation and configuration of ansible is done.