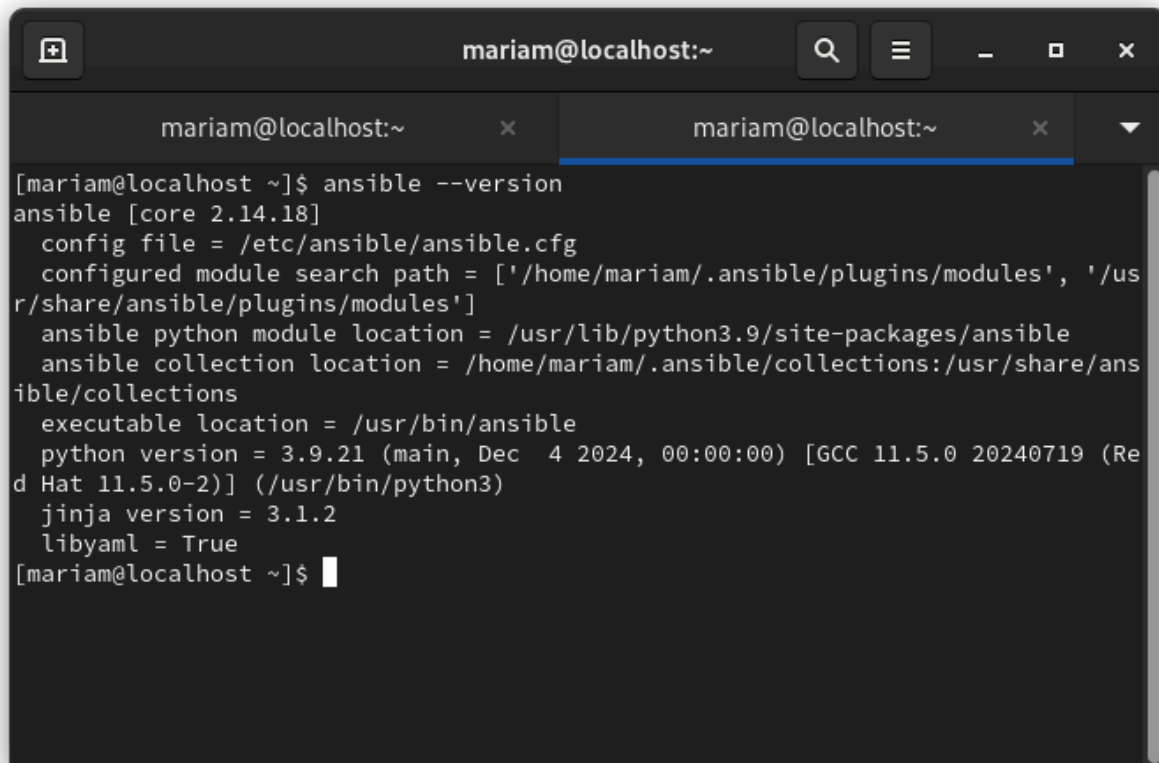


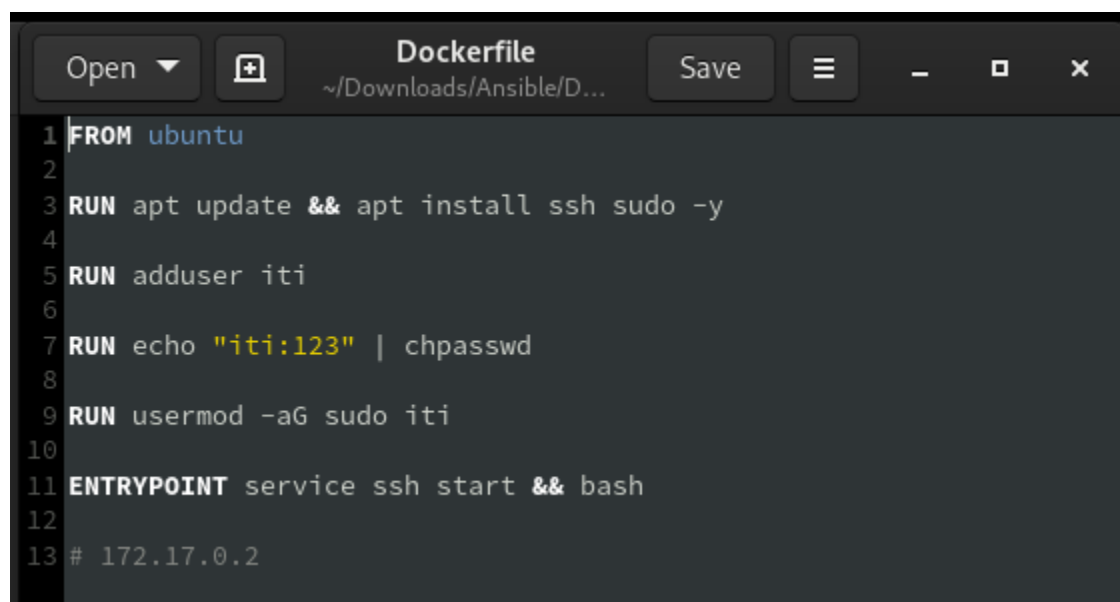
## 1- install ansible

A terminal window titled 'mariam@localhost:~' with two tabs. The active tab shows the command 'ansible --version' and its output. The output lists various configuration details for Ansible, including the config file, module search paths, Python module location, collection location, executable location, Python version (3.9.21), Jinja version (3.1.2), and libyaml status (True).

```
[mariam@localhost ~]$ ansible --version
ansible [core 2.14.18]
  config file = /etc/ansible/ansible.cfg
  configured module search path = ['/home/mariam/.ansible/plugins/modules', '/usr/share/ansible/plugins/modules']
  ansible python module location = /usr/lib/python3.9/site-packages/ansible
  ansible collection location = /home/mariam/.ansible/collections:/usr/share/ansible/collections
  executable location = /usr/bin/ansible
  python version = 3.9.21 (main, Dec  4 2024, 00:00:00) [GCC 11.5.0 20240719 (Red Hat 11.5.0-2)] (/usr/bin/python3)
  jinja version = 3.1.2
  libyaml = True
[mariam@localhost ~]$
```

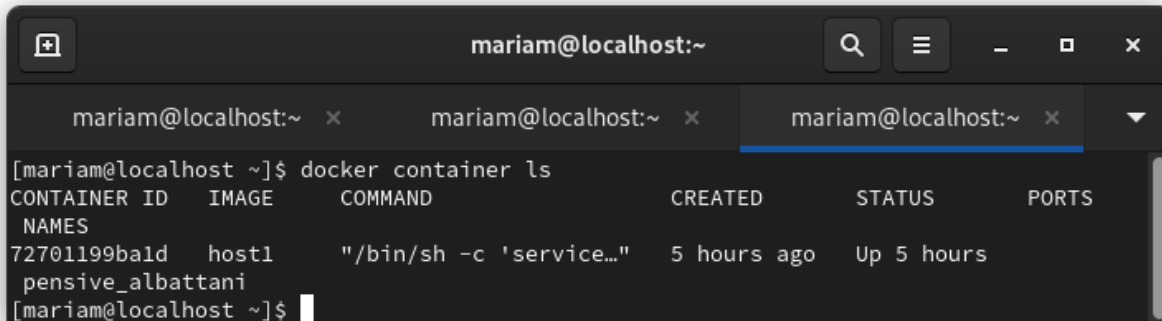
## 2- create a new user on host 1

- Create dockerfile

A Dockerfile editor window titled 'Dockerfile' with a path of '~/.Downloads/Ansible/D...'. It contains a Dockerfile with 13 lines of code to create a new user 'iti' on an Ubuntu base image, install SSH, and set up the environment.

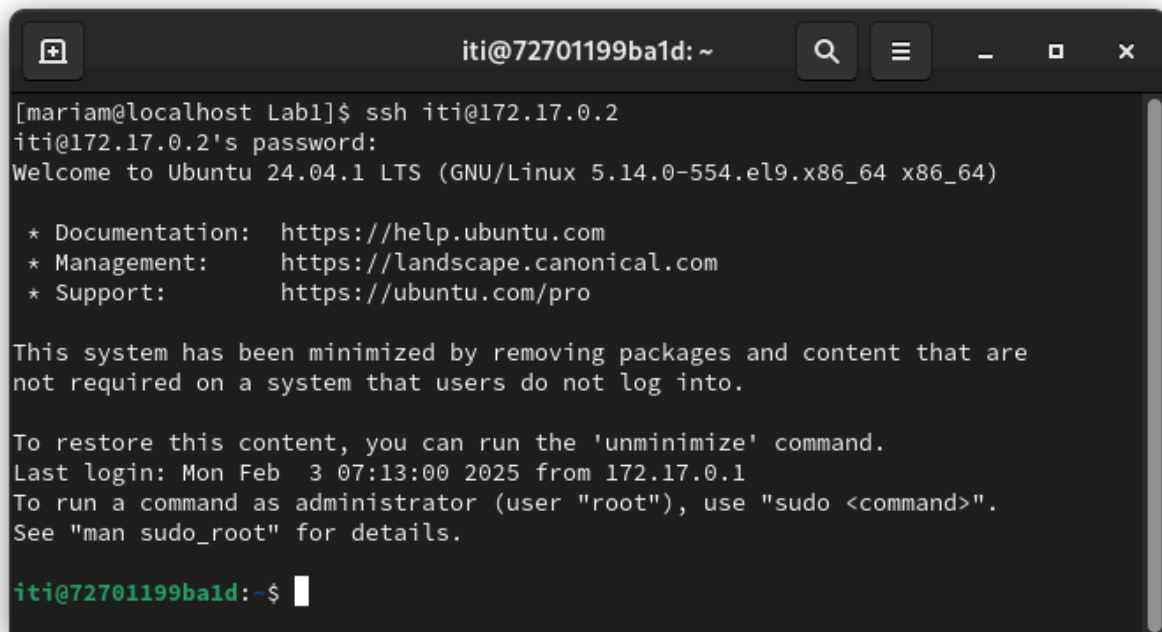
```
1 FROM ubuntu
2
3 RUN apt update && apt install ssh sudo -y
4
5 RUN adduser iti
6
7 RUN echo "iti:123" | chpasswd
8
9 RUN usermod -aG sudo iti
10
11 ENTRYPOINT service ssh start && bash
12
13 # 172.17.0.2
```

- Create a container from it



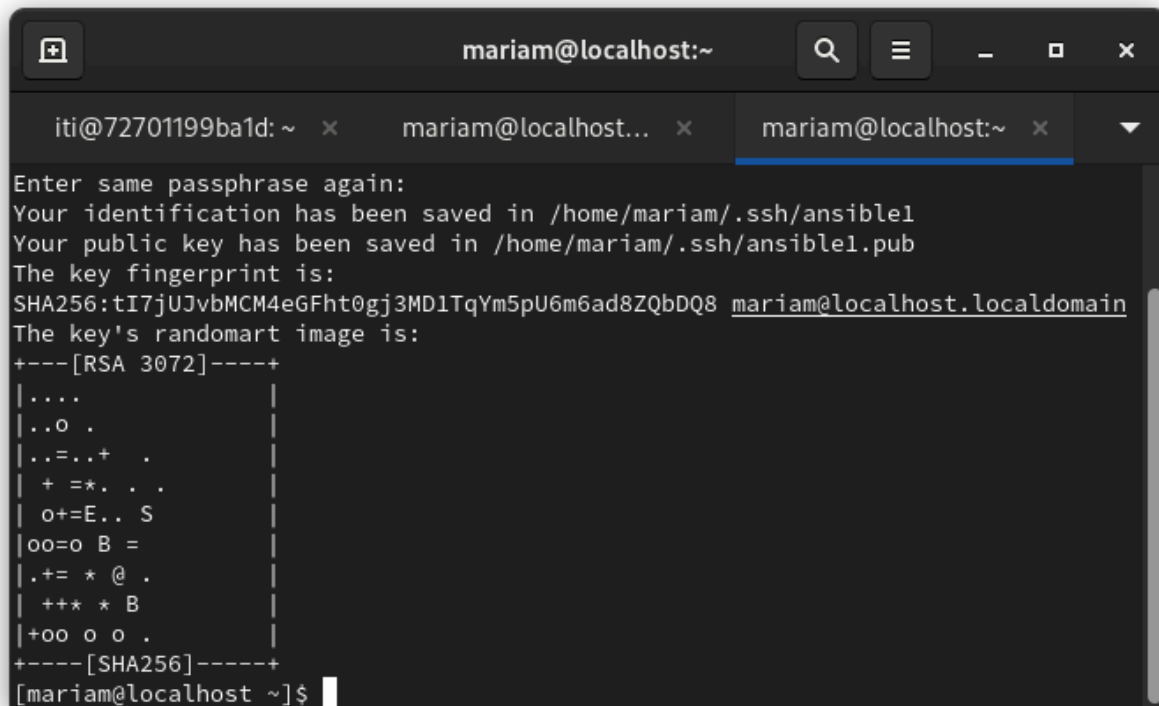
```
mariam@localhost:~  
[mariam@localhost ~]$ docker container ls  
CONTAINER ID   IMAGE     COMMAND                  CREATED    STATUS    PORTS  
72701199ba1d   host1     "/bin/sh -c 'service... 5 hours ago Up 5 hours  
pensive_albattani  
[mariam@localhost ~]$
```

- 3- make sure you can ssh into host 1 (using password)



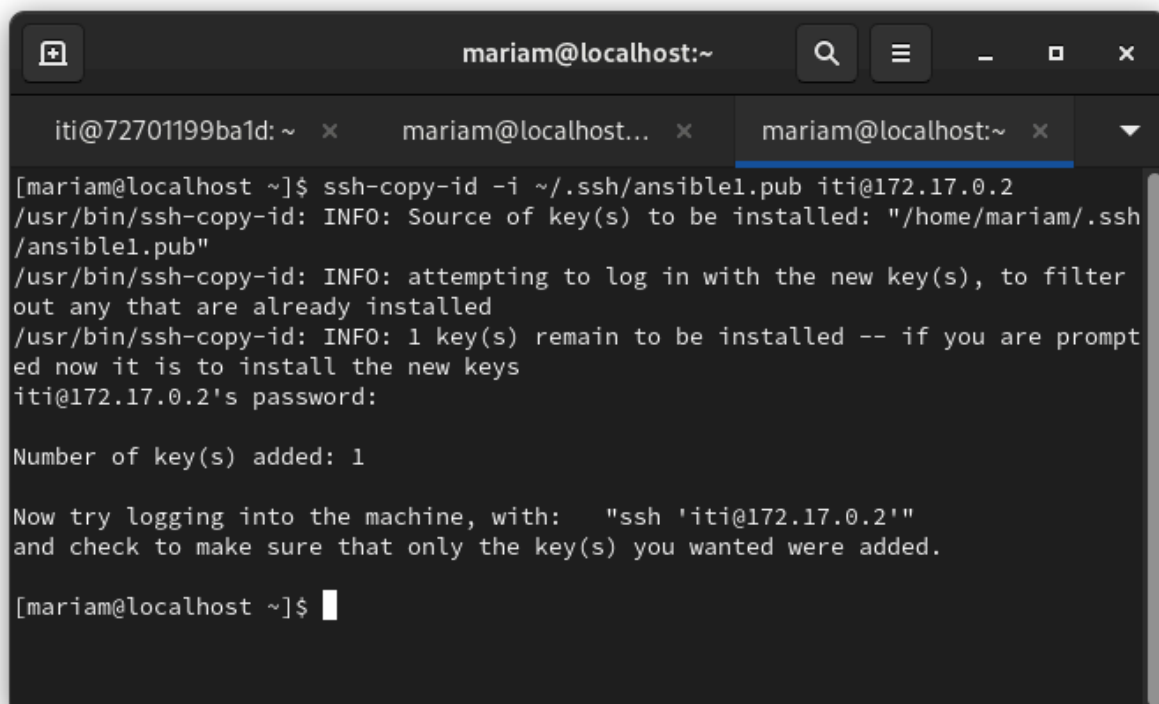
```
iti@72701199ba1d: ~  
[mariam@localhost Lab1]$ ssh iti@172.17.0.2  
iti@172.17.0.2's password:  
Welcome to Ubuntu 24.04.1 LTS (GNU/Linux 5.14.0-554.el9.x86_64 x86_64)  
  
* Documentation:  https://help.ubuntu.com  
* Management:    https://landscape.canonical.com  
* Support:       https://ubuntu.com/pro  
  
This system has been minimized by removing packages and content that are  
not required on a system that users do not log into.  
  
To restore this content, you can run the 'unminimize' command.  
Last login: Mon Feb  3 07:13:00 2025 from 172.17.0.1  
To run a command as administrator (user "root"), use "sudo <command>".  
See "man sudo_root" for details.  
  
iti@72701199ba1d:~$
```

#### 4- generate ssh key pair on control machine



```
mariam@localhost:~  
iti@72701199ba1d: ~ x mariam@localhost... x mariam@localhost:~ x  
Enter same passphrase again:  
Your identification has been saved in /home/mariam/.ssh/ansible1  
Your public key has been saved in /home/mariam/.ssh/ansible1.pub  
The key fingerprint is:  
SHA256:tI7jUJvbMCM4eGFht0gj3MD1TqYm5pU6m6ad8ZQbDQ8 mariam@localhost.localdomain  
The key's randomart image is:  
+---[RSA 3072]-----+  
|...|  
|..O.|  
|..=..+|  
| + =*..|  
| o+=E..S|  
|oo=o B =|  
|.+= * @ .|  
| ++* * B|  
|+oo o o .|  
+-----[SHA256]-----+  
[mariam@localhost ~]$
```

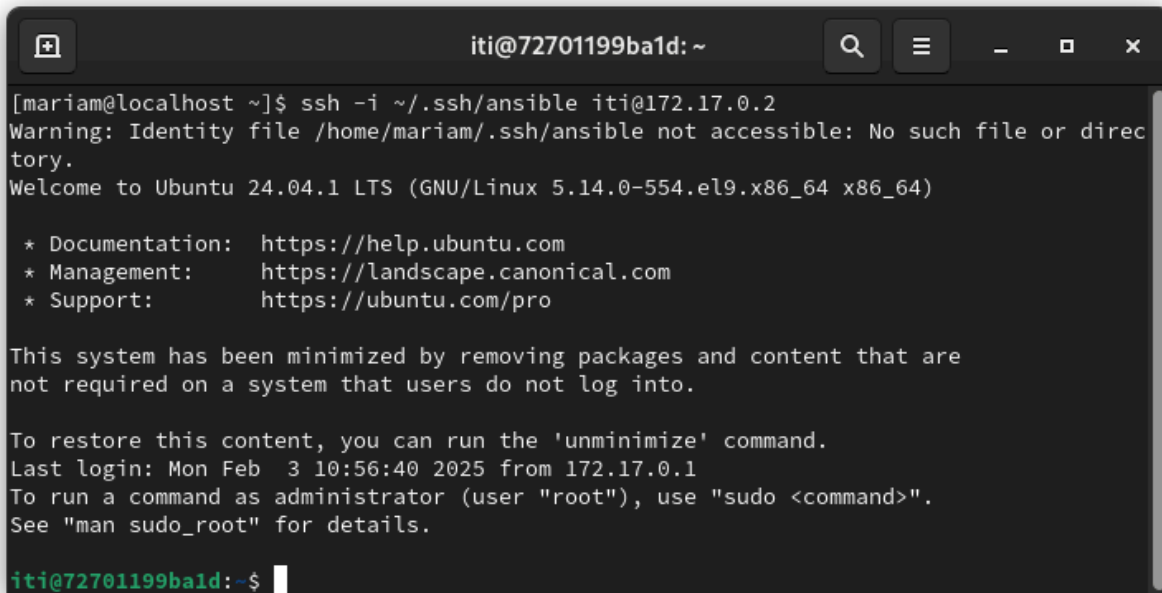
#### 5- copy the public key to host 1



```
mariam@localhost:~  
iti@72701199ba1d: ~ x mariam@localhost... x mariam@localhost:~ x  
[mariam@localhost ~]$ ssh-copy-id -i ~/.ssh/ansible1.pub iti@172.17.0.2  
/usr/bin/ssh-copy-id: INFO: Source of key(s) to be installed: "/home/mariam/.ssh/ansible1.pub"  
/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  
iti@172.17.0.2's password:  
  
Number of key(s) added: 1  
  
Now try logging into the machine, with: "ssh 'iti@172.17.0.2'"  
and check to make sure that only the key(s) you wanted were added.  
  
[mariam@localhost ~]$
```

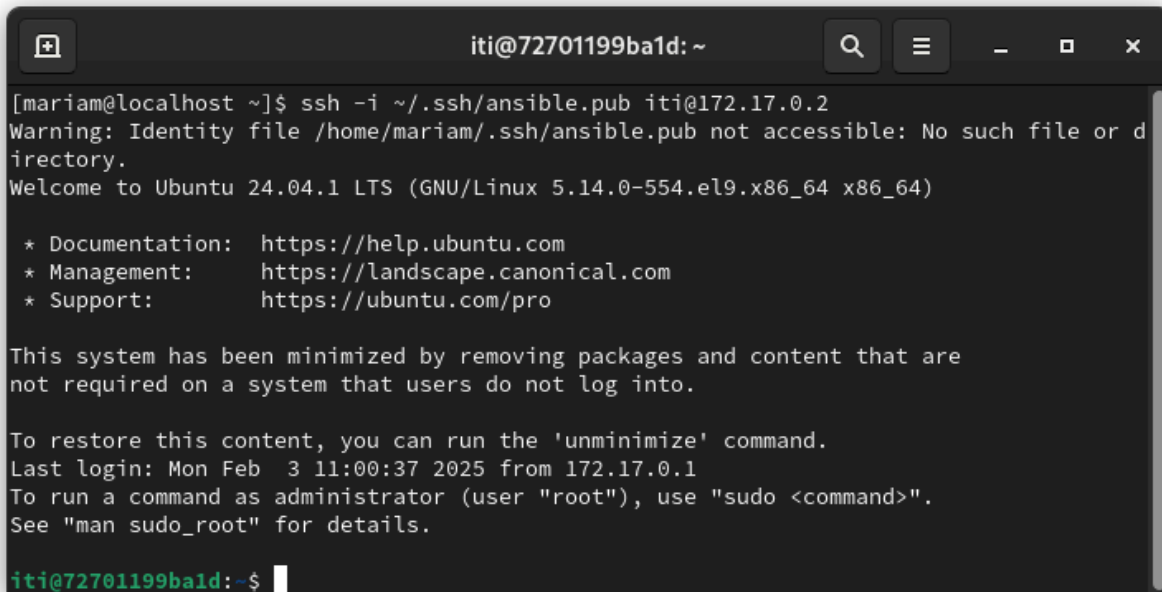
6- make sure you can ssh into host 1 (using prv/pub)

- Prv



```
iti@72701199ba1d: ~  
[mariam@localhost ~]$ ssh -i ~/.ssh/ansible iti@172.17.0.2  
Warning: Identity file /home/mariam/.ssh/ansible not accessible: No such file or directory.  
Welcome to Ubuntu 24.04.1 LTS (GNU/Linux 5.14.0-554.el9.x86_64 x86_64)  
  
* Documentation:  https://help.ubuntu.com  
* Management:    https://landscape.canonical.com  
* Support:       https://ubuntu.com/pro  
  
This system has been minimized by removing packages and content that are  
not required on a system that users do not log into.  
  
To restore this content, you can run the 'unminimize' command.  
Last login: Mon Feb  3 10:56:40 2025 from 172.17.0.1  
To run a command as administrator (user "root"), use "sudo <command>".  
See "man sudo_root" for details.  
  
iti@72701199ba1d:~$
```

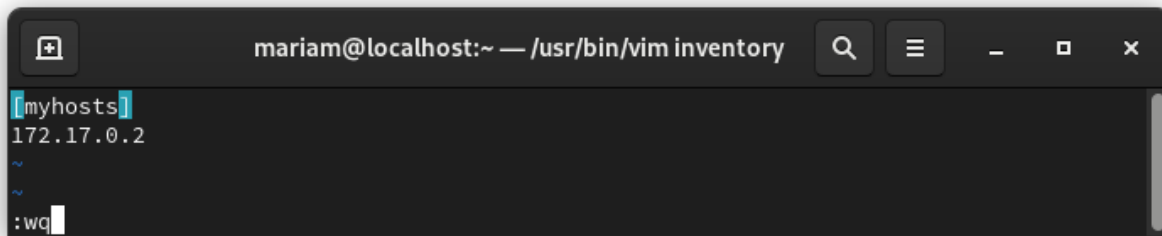
- Pub



```
iti@72701199ba1d: ~  
[mariam@localhost ~]$ ssh -i ~/.ssh/ansible.pub iti@172.17.0.2  
Warning: Identity file /home/mariam/.ssh/ansible.pub not accessible: No such file or directory.  
Welcome to Ubuntu 24.04.1 LTS (GNU/Linux 5.14.0-554.el9.x86_64 x86_64)  
  
* Documentation:  https://help.ubuntu.com  
* Management:    https://landscape.canonical.com  
* Support:       https://ubuntu.com/pro  
  
This system has been minimized by removing packages and content that are  
not required on a system that users do not log into.  
  
To restore this content, you can run the 'unminimize' command.  
Last login: Mon Feb  3 11:00:37 2025 from 172.17.0.1  
To run a command as administrator (user "root"), use "sudo <command>".  
See "man sudo_root" for details.  
  
iti@72701199ba1d:~$
```

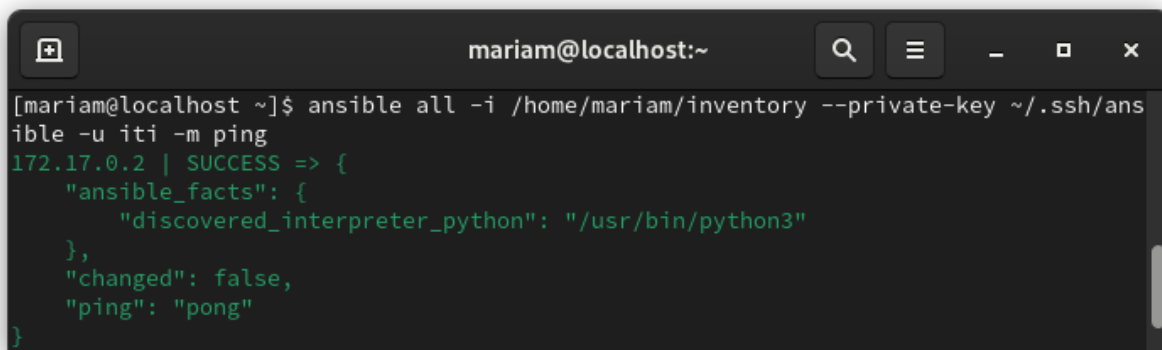
7- create the inventory file

8- put the IP of host 1 in the inventory file



```
mariam@localhost:~ — /usr/bin/vim inventory
[myhosts]
172.17.0.2
~
~
:wq
```

9- use the inventory file path in your ad-hoc command instead of using the ip hard-coded



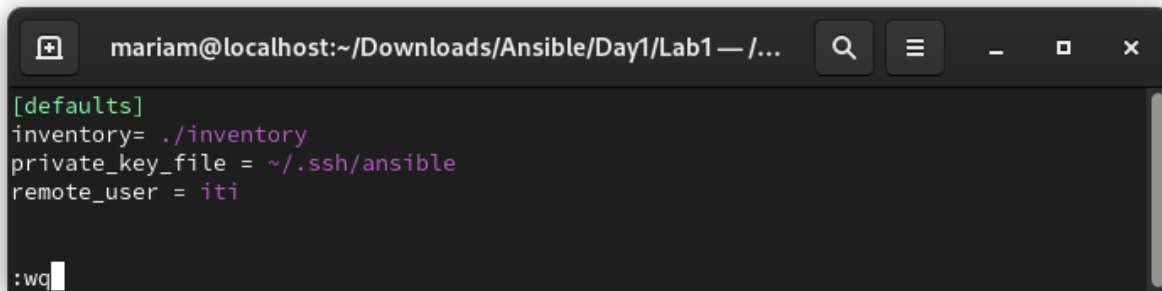
```
mariam@localhost:~
[mariam@localhost ~]$ ansible all -i /home/mariam/inventory --private-key ~/.ssh/ansible -u iti -m ping
172.17.0.2 | SUCCESS => {
  "ansible_facts": {
    "discovered_interpreter_python": "/usr/bin/python3"
  },
  "changed": false,
  "ping": "pong"
}
```

- Testing: running an ad-hoc command using ip hard-coded



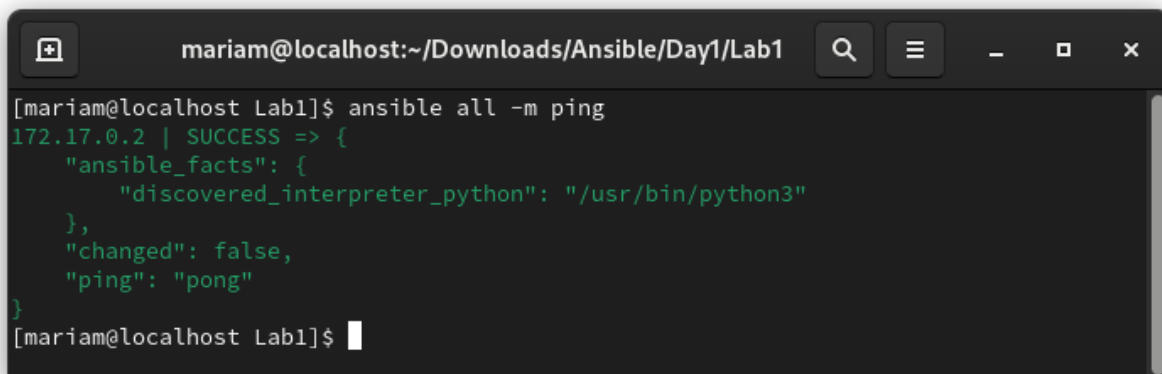
```
mariam@localhost:~
[mariam@localhost ~]$ ansible all -i 172.17.0.2, --private-key ~/.ssh/ansible -u iti -m command -a "echo heyyyyyyyyyyyyyyyyyy"
172.17.0.2 | CHANGED | rc=0 >>
heyyyyyyyyyyyyyyyyyy
[mariam@localhost ~]$ ansible all -i 172.17.0.2, --private-key ~/.ssh/ansible -u iti -m command -a "pwd"
172.17.0.2 | CHANGED | rc=0 >>
/home/iti
[mariam@localhost ~]$
```

- 10- create the config file
- 11- insert values in it



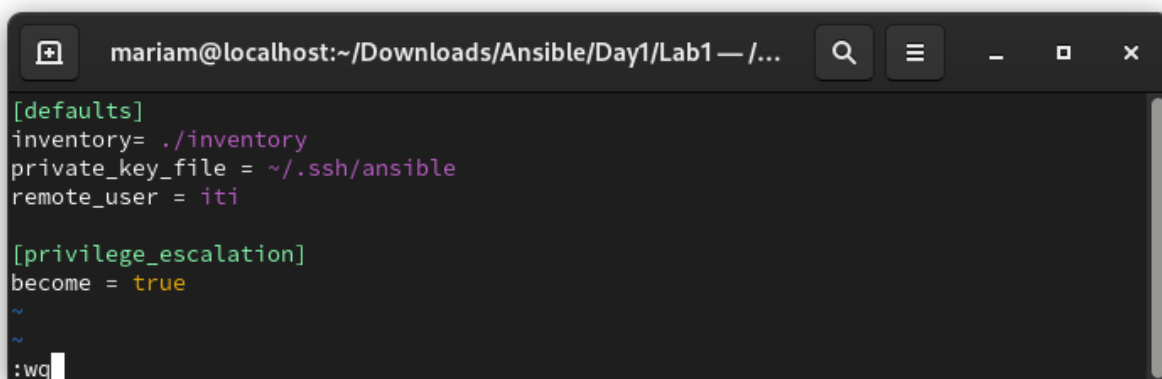
```
mariam@localhost:~/Downloads/Ansible/Day1/Lab1 — /...  
[defaults]  
inventory= ./inventory  
private_key_file = ~/.ssh/ansible  
remote_user = iti  
:wq
```

- 12- run the minimized ad-hoc command



```
mariam@localhost:~/Downloads/Ansible/Day1/Lab1  
[mariam@localhost Lab1]$ ansible all -m ping  
172.17.0.2 | SUCCESS => {  
  "ansible_facts": {  
    "discovered_interpreter_python": "/usr/bin/python3"  
  },  
  "changed": false,  
  "ping": "pong"  
}  
[mariam@localhost Lab1]$
```

- 13- insert the ad-hoc command escalation in cfg file



```
mariam@localhost:~/Downloads/Ansible/Day1/Lab1 — /...  
[defaults]  
inventory= ./inventory  
private_key_file = ~/.ssh/ansible  
remote_user = iti  
  
[privilege_escalation]  
become = true  
~  
~  
:wq
```

14- that outputs an error: missing sudo password

```
mariam@localhost:~/Downloads/Ansible/Day1/Lab1
[mariam@localhost Lab1]$ ansible all -m command -a "whoami"
172.17.0.2 | FAILED | rc=-1 >>
Missing sudo password
[mariam@localhost Lab1]$
```

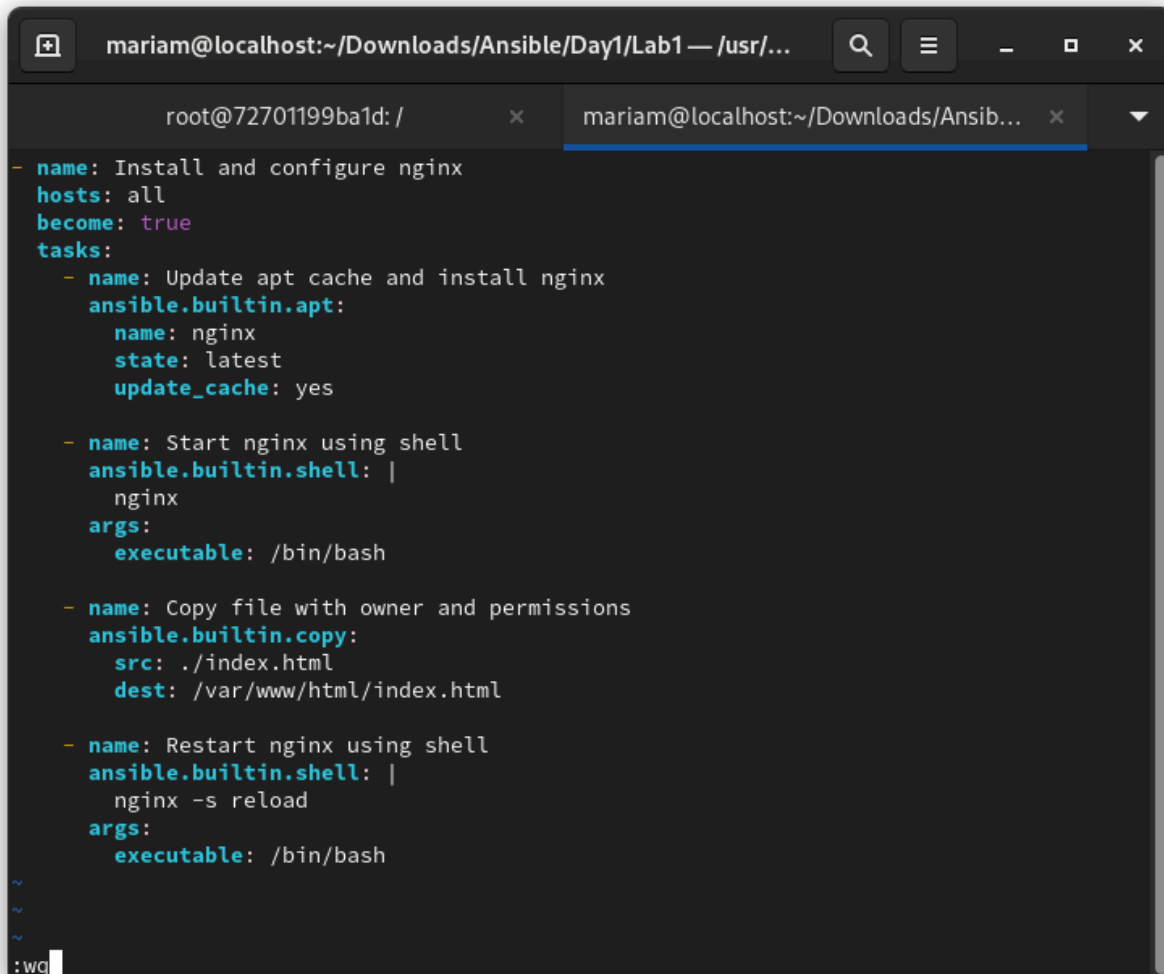
- to solve this issue

```
mariam@localhost:~/Downloads/Ansible/Day1/Lab1 — /...
[defaults]
inventory= ./inventory
private_key_file = ~/.ssh/ansible
remote_user = iti

[privilege_escalation]
become = true
become_ask_pass = true
"ansible.cfg" 8L, 147B 8,22 All
```

```
mariam@localhost:~/Downloads/Ansible/Day1/Lab1
[mariam@localhost Lab1]$ ansible all -m command -a "whoami"
BECOME password:
172.17.0.2 | CHANGED | rc=0 >>
root
[mariam@localhost Lab1]$
```

15- update cache,  
Install latest nginx  
Copy index.html from controller to host 1  
Restart nginx service



```
mariam@localhost:~/Downloads/Ansible/Day1/Lab1 — /usr/...
root@72701199ba1d: / x mariam@localhost:~/Downloads/Ansib... x
- name: Install and configure nginx
  hosts: all
  become: true
  tasks:
    - name: Update apt cache and install nginx
      ansible.builtin.apt:
        name: nginx
        state: latest
        update_cache: yes

    - name: Start nginx using shell
      ansible.builtin.shell: |
        nginx
      args:
        executable: /bin/bash

    - name: Copy file with owner and permissions
      ansible.builtin.copy:
        src: ./index.html
        dest: /var/www/html/index.html

    - name: Restart nginx using shell
      ansible.builtin.shell: |
        nginx -s reload
      args:
        executable: /bin/bash

~
~
~
:WQ
```



```
mariam@localhost:~/Downloads/Ansible/Day1/Lab1
root@1d0d893edb8e: /
mariam@localhost:~/Downloads/Ansibl...

[mariam@localhost Lab1]$ ansible-playbook playbook.yml
BECOME password:

PLAY [Install and configure nginx] *****

TASK [Gathering Facts] *****
ok: [172.17.0.2]

TASK [Update apt cache and install nginx] *****
changed: [172.17.0.2]

TASK [Start nginx using shell] *****
changed: [172.17.0.2]

TASK [Copy file with owner and permissions] *****
changed: [172.17.0.2]

TASK [Restart nginx using shell] *****
changed: [172.17.0.2]

PLAY RECAP *****
172.17.0.2 : ok=5    changed=4    unreachable=0    failed=0    skipped=0
           rescued=0    ignored=0

[mariam@localhost Lab1]$
```



# Nginx server

Lab by Mariam.

