Lab 3.1 : Preparation of Lab Environment

Preparation

Before you begin, run the **nusactl login** command to login your account. Credentials for login is same with your registered credentials in this platform (ADINUSA).

```
student@podX-controller:~$ nusactl login
```

After login, run the **nusactl start anadm-003-1** command. This command runs the start script and pre-configures your lab environment.

```
student@podX-controller:~$ nusactl start anadm-003-1
```

This guide is intended to independently setup the Automation with Ansible lab environment on a Virtual Box. This training uses 3 virtual machine with detailed specifications as follows.

No	Virtual Machine	Spesification	Nat network (enp0s3)	Host-Only Network (enp0s8)	Internal Network (enp0s9)
1	Ansible-controller	1vcpu, 1GB Ram	192.168.0.11/24	10.10.10.11/24	10.7.7.10/24
2	Ansible-managed1	1vcpu, 1GB Ram	192.168.0.12/24	10.10.10.12/24	10.7.7.20/24
3	Ansible-managed2	1vcpu, 1GB Ram	192.168.0.13/24	10.10.10.13/24	10.7.7.30/24

In this lab environment we use the Ubuntu 22.04 OS, the image has been prepared below. For the specifications above are recommended vm specifications, you can adjust to the performance of your computer. There are 3 networks, namely NAT Network for internet access needs and Host-Only Network for remote VM needs from the Host and internal network used for communication between vm

Here's what you need to do before moving on to the next stage:

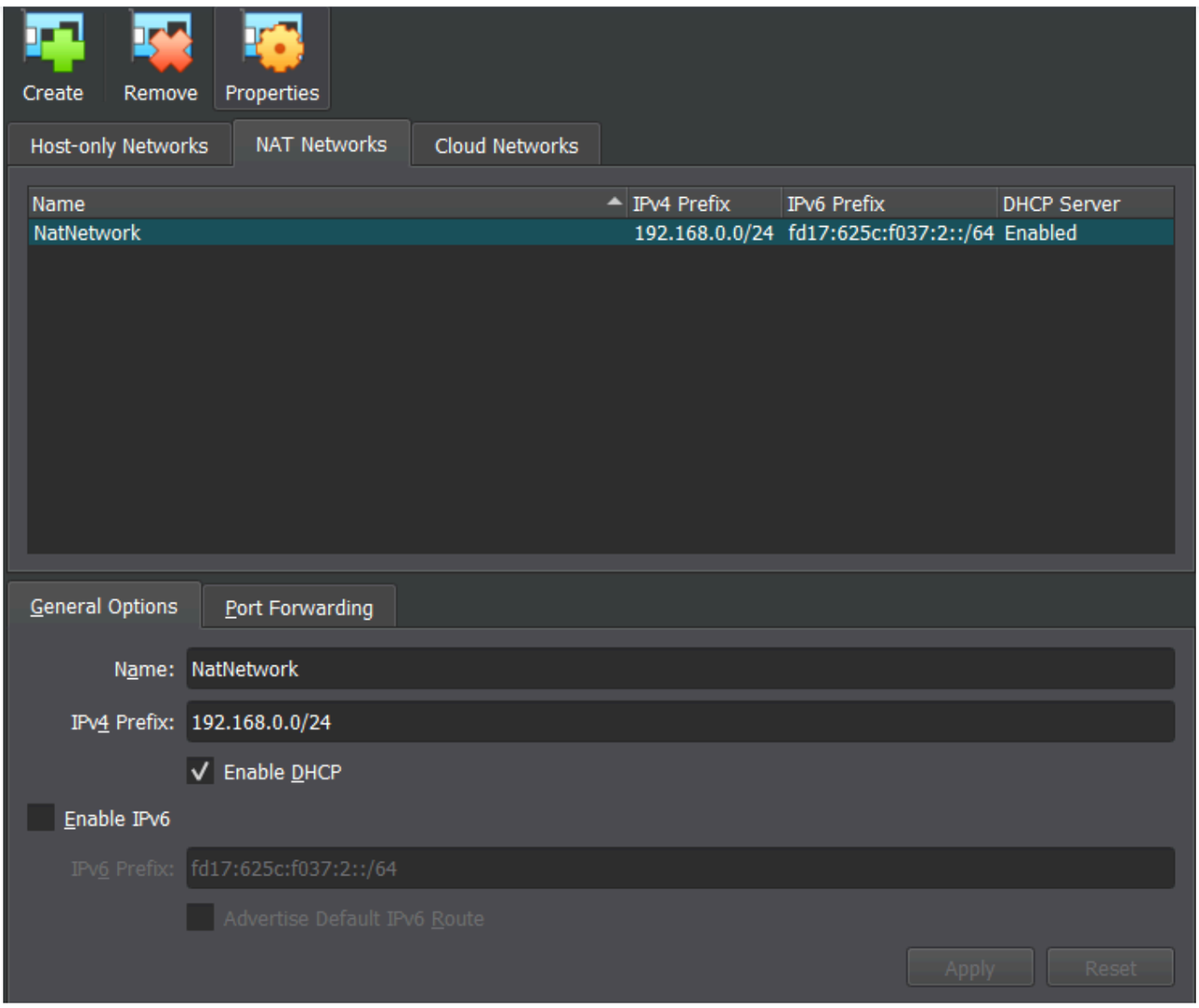
1. Download and install VirtualBox version 7 or newer according to the OS you are using.
The latest version of **VirtualBox** can be found here

2. Download this image that contains the Ubuntu 22.04 OS and the prepared lab environment.
Download **BTA-Server.ova** **OneDrive**, **GoogleDrive**, **MediaFire**

Setup NAT Network

1. To create a new NAT Network, click **File** menu, select the **Tools** option and select **Network Manager** Option.

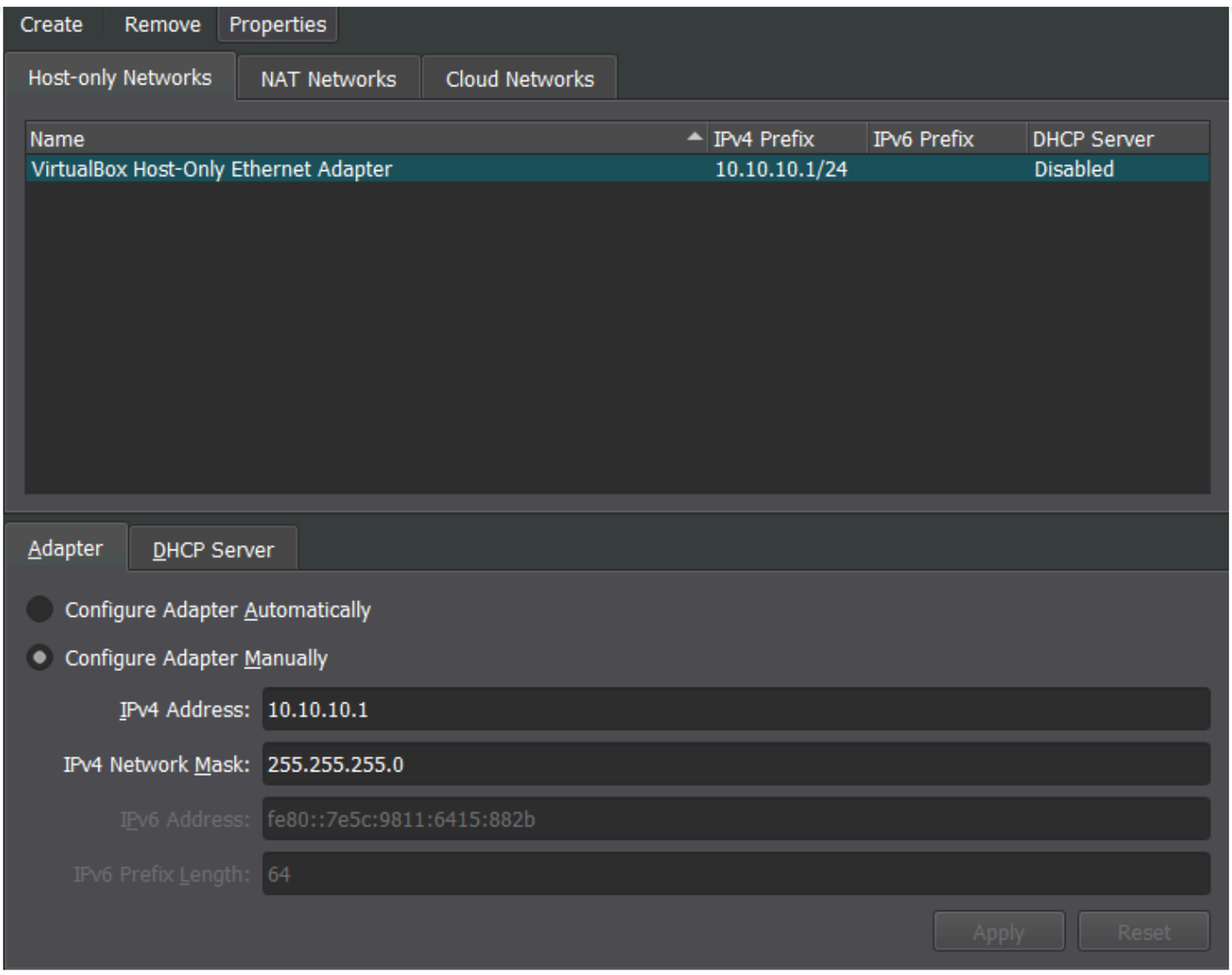
2. On the Network tab, select **NAT network** menu and select **Create**.



Setup Host-Only Network

1. For Host-Only Network configuration, select **Host-Only Network** in menu.

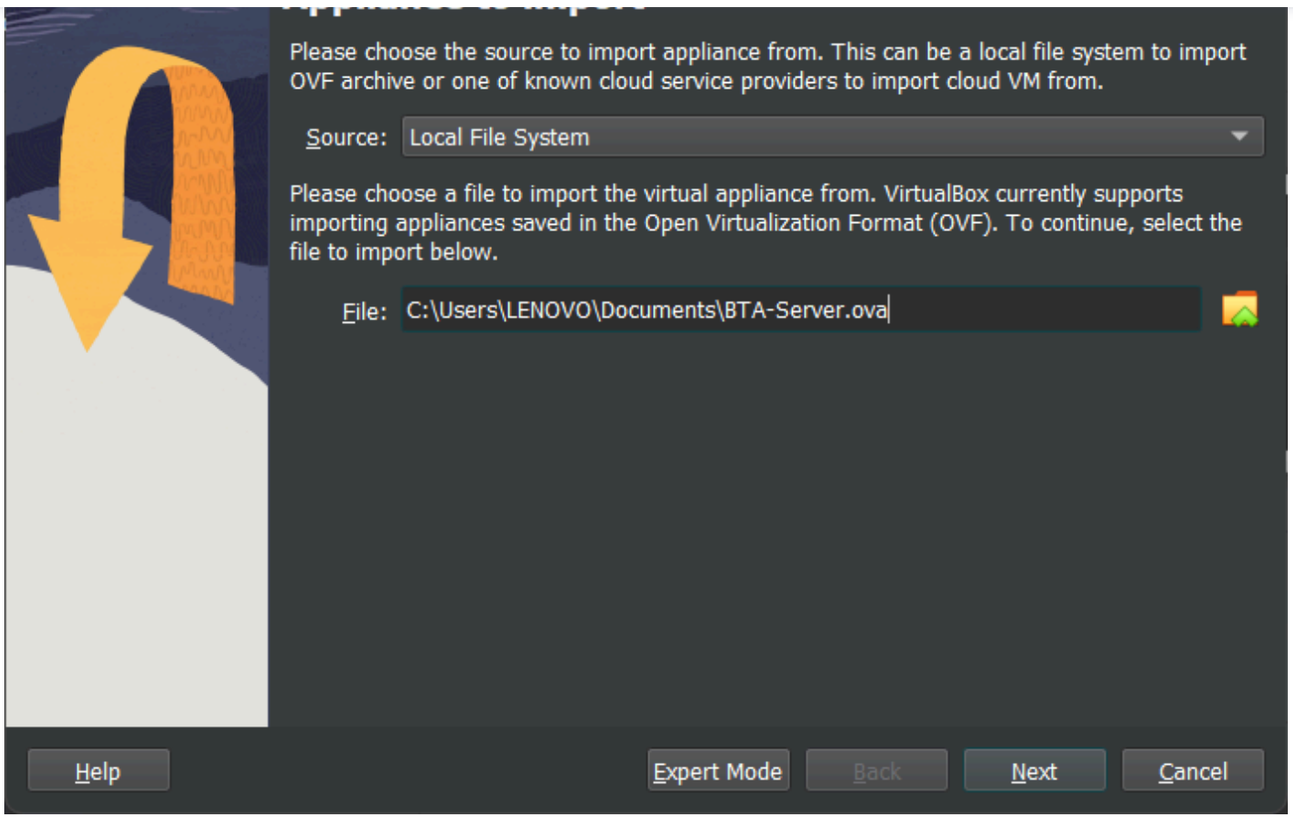
2. In **Host-Only Network Menu** on the **Adapter** tab enter IP **10.10.10.1**, netmask **255.255.255.0**, **Disable DHCP** and then **Apply**.

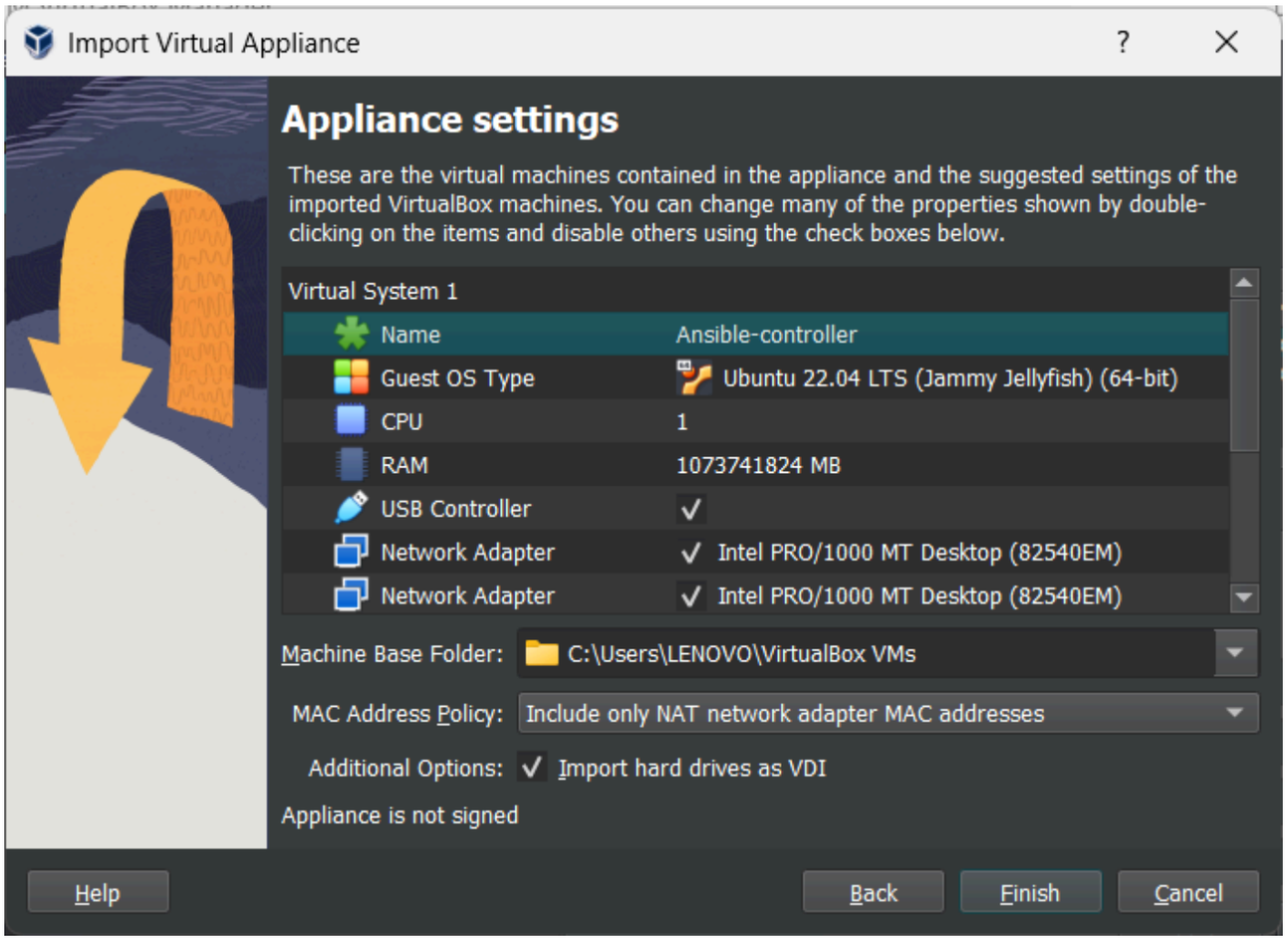


Import VM

1. To import a vm, click the **File** menu and select **Import Appliance...**

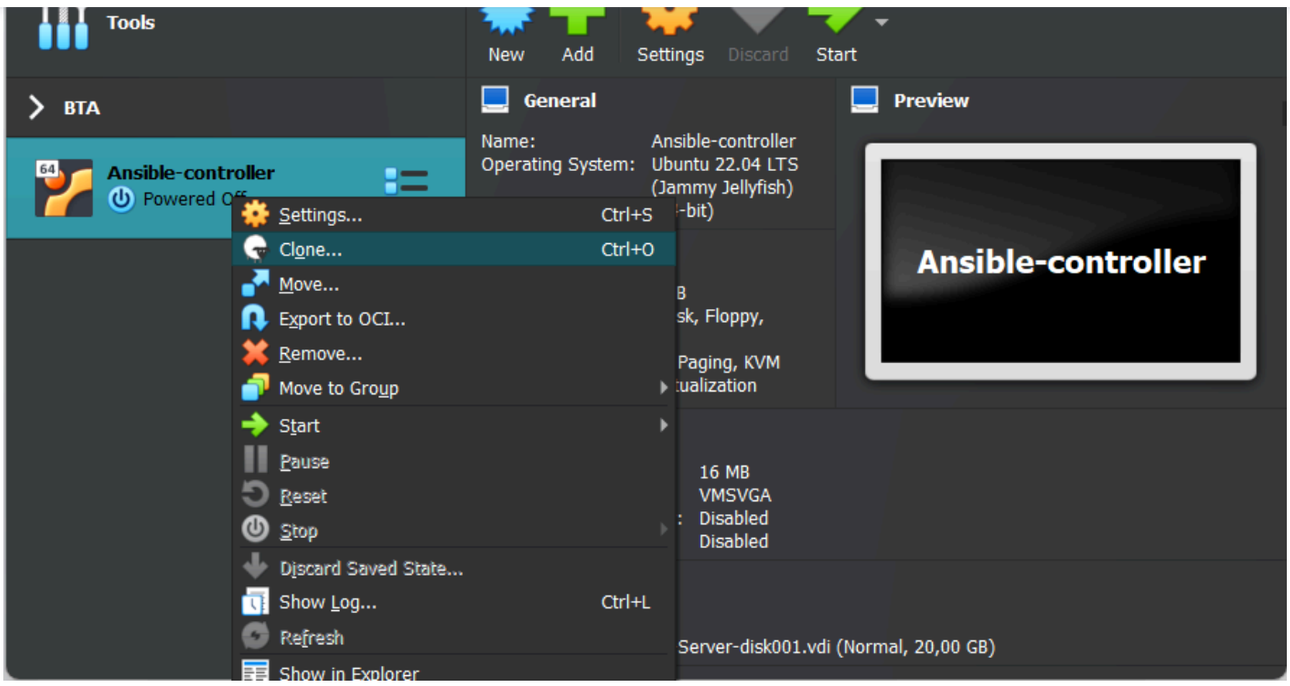
2. On the import virtual Appliance tab, in the **File** column enter the ova file that was downloaded previously, then click **Next**, change the name to **Ansible-controller** then **Finish** and wait for the process.



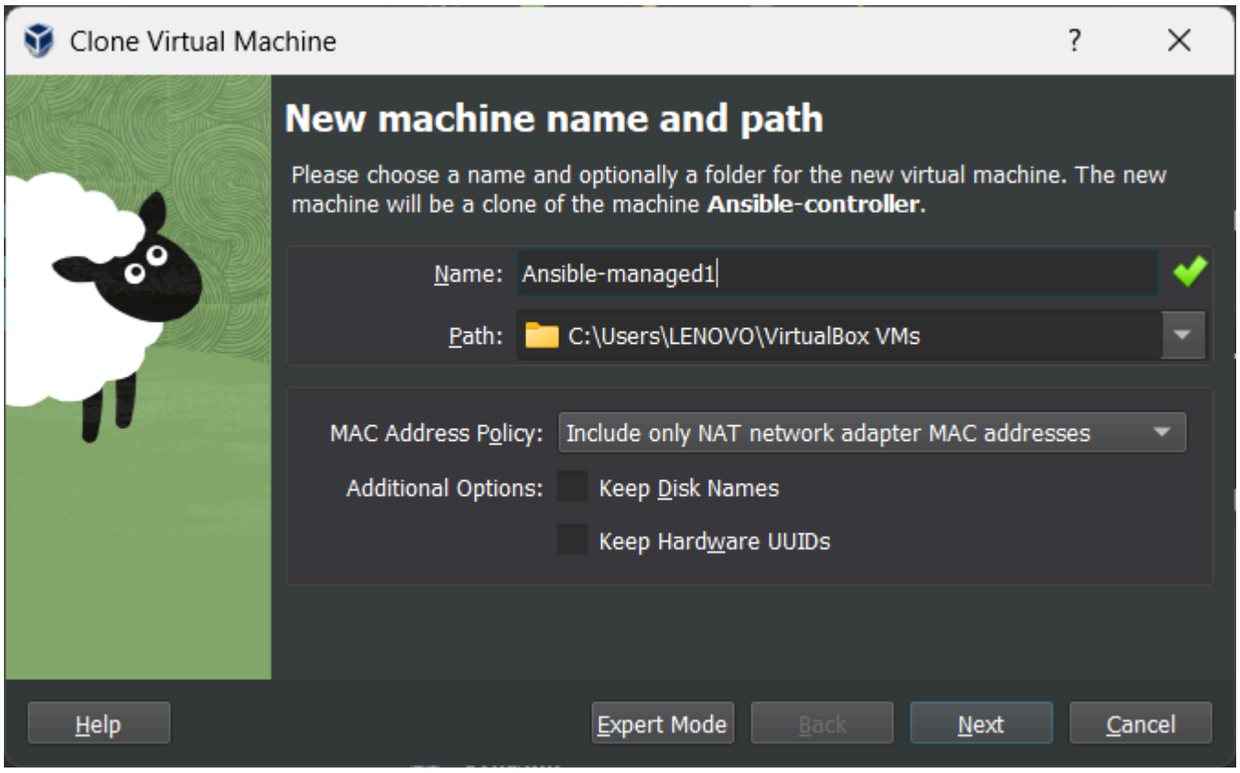


Clone VM

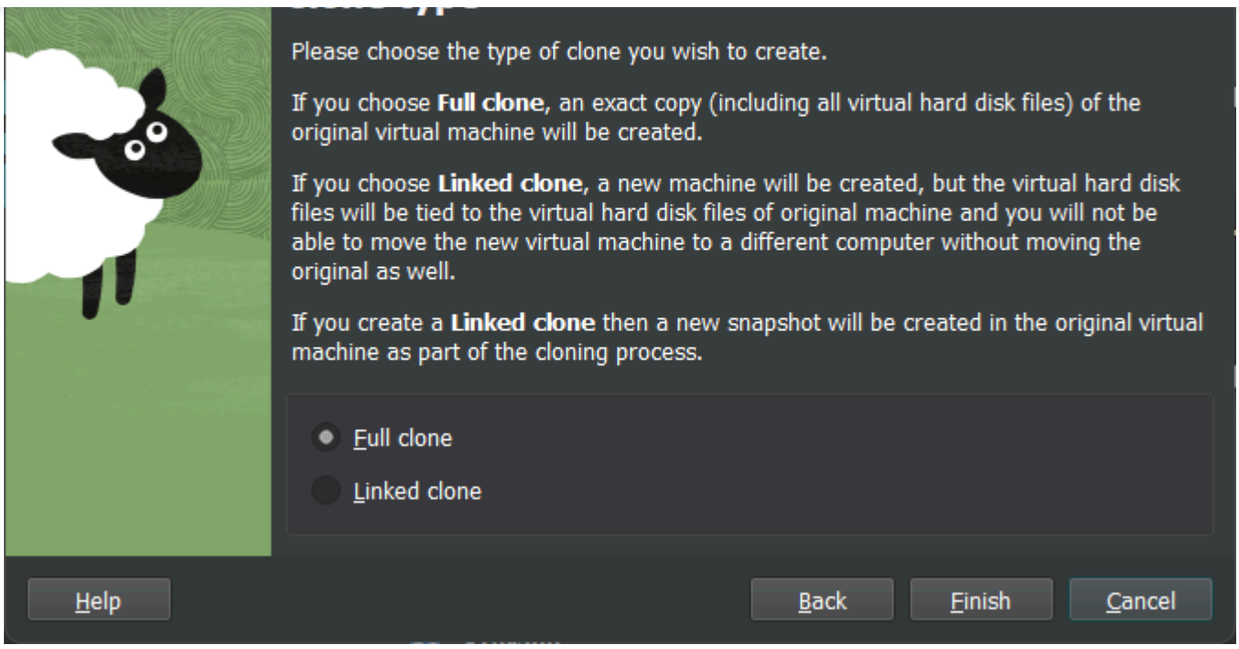
1. Right-click on the **Ansible-controller** vm and select **Clone**.



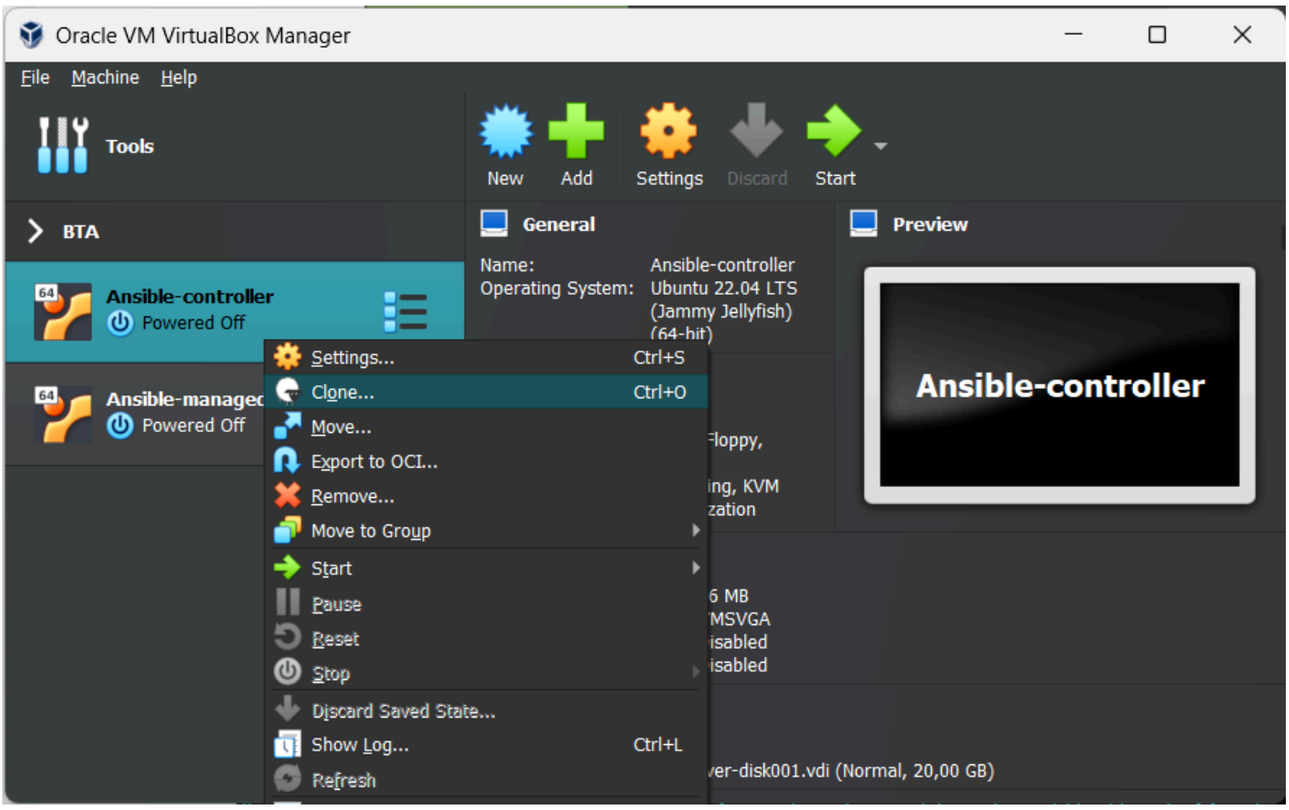
2. Change the name to **Ansible-managed1** and click **Next**



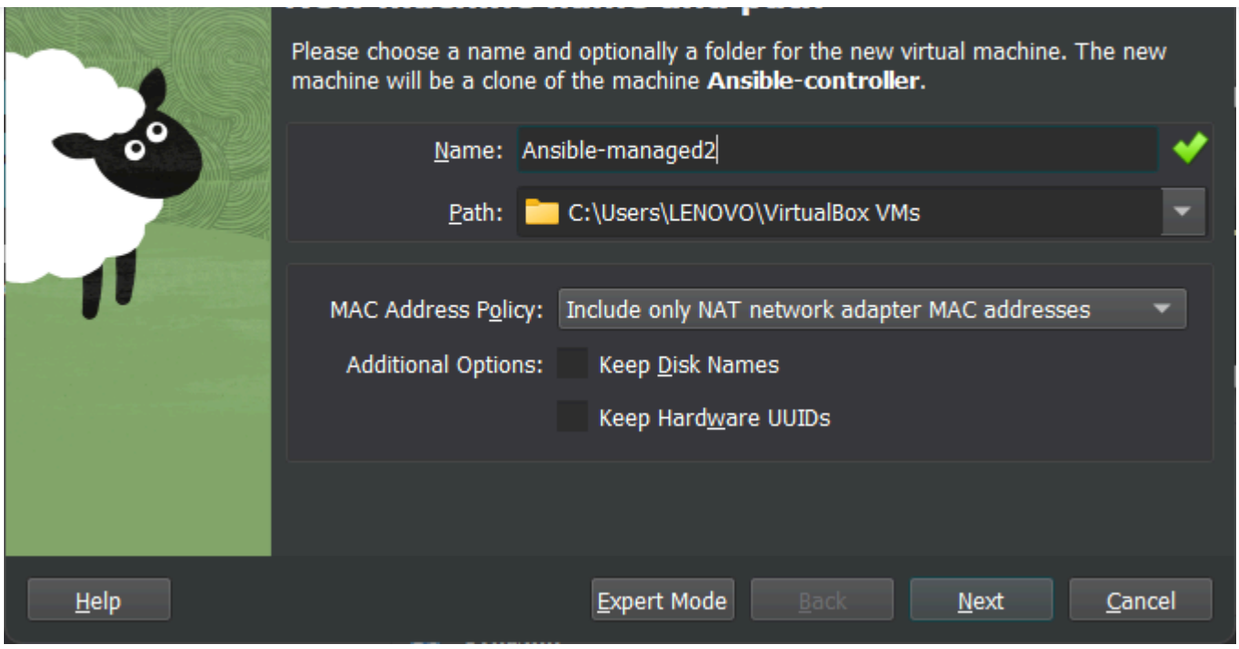
3. In Clone Type select **Full Clone** and click **Finish**



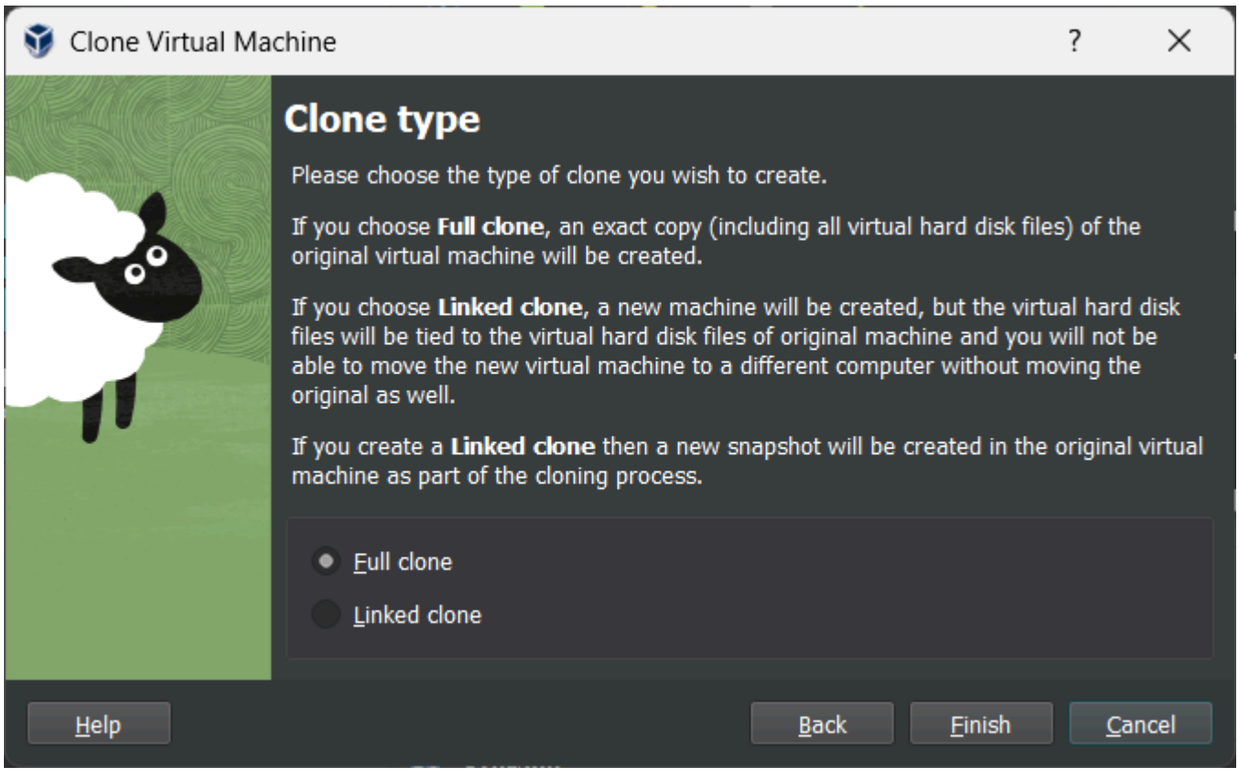
4. Right-click on the **Ansible-controller** vm again and select **Clone**



5. Change the name to **Ansible-managed2** and click **Next**



6. In Clone Type select **Full Clone** and click **Finish**



Network Configuration and Hosts Configuration on VM Ansible-controller

1. Turn on the vm Ansible-controller with click start

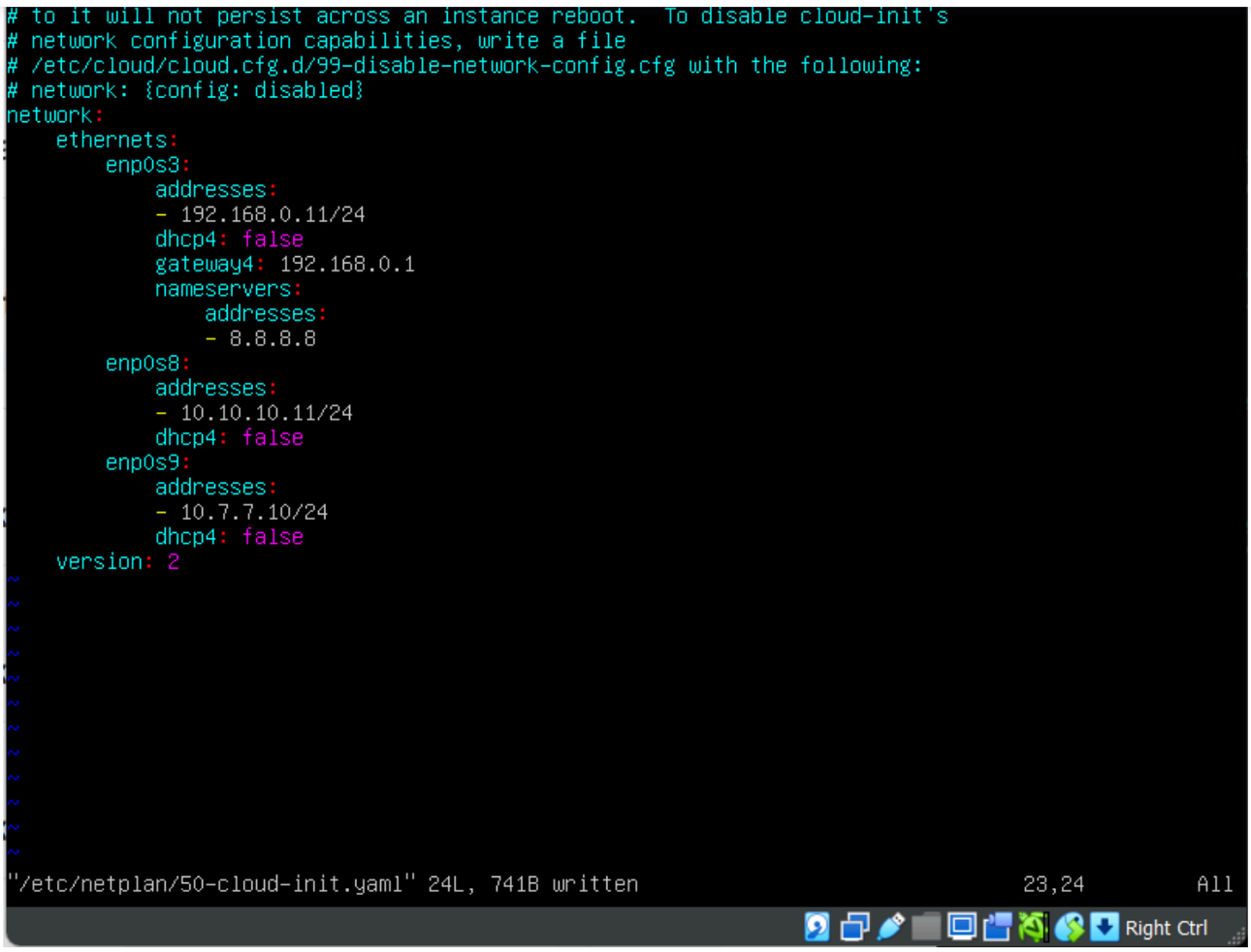
2. The console will then open. Login with the following credentials :

user: **student**

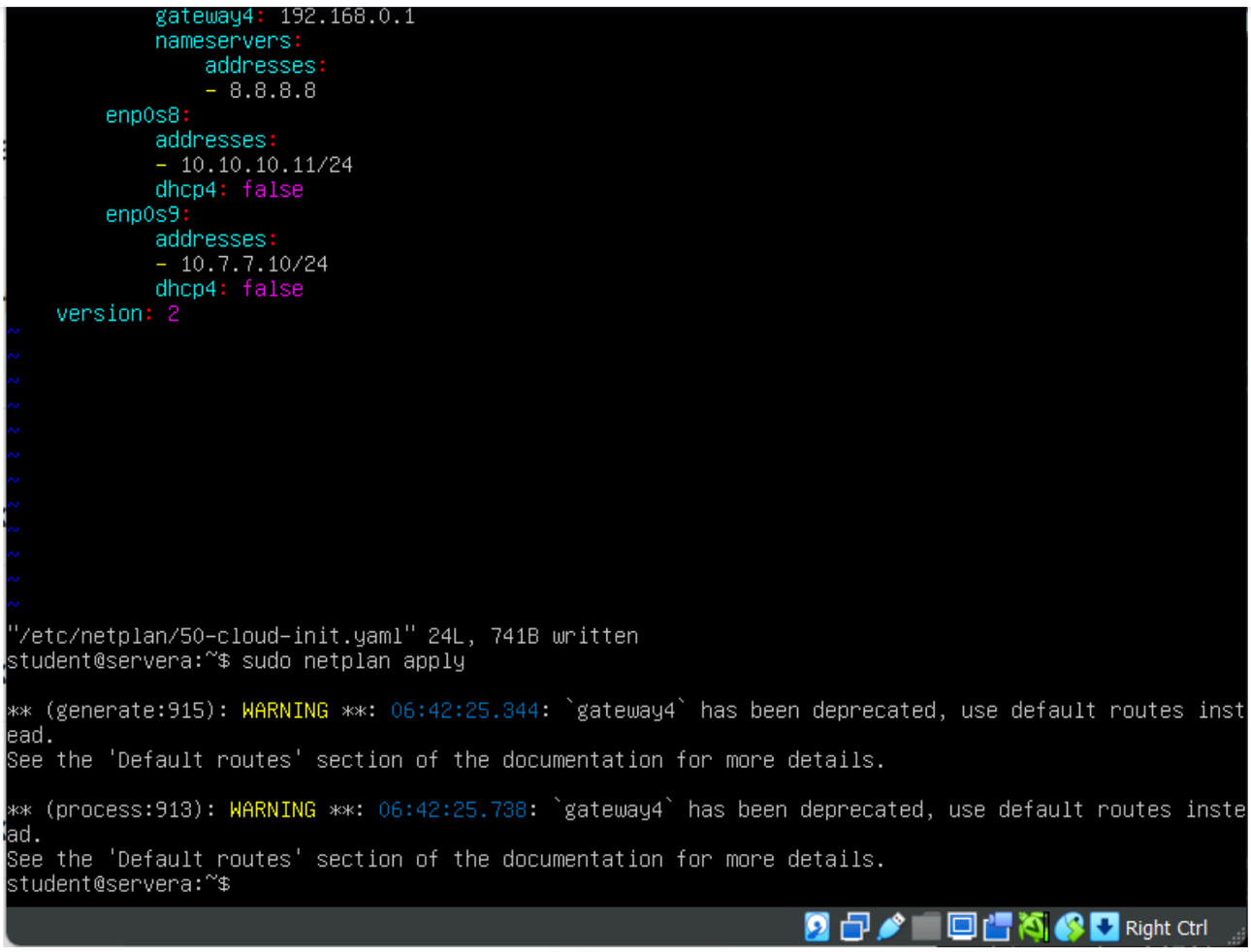
password: **Adinusa2023**

You are free to change the password.

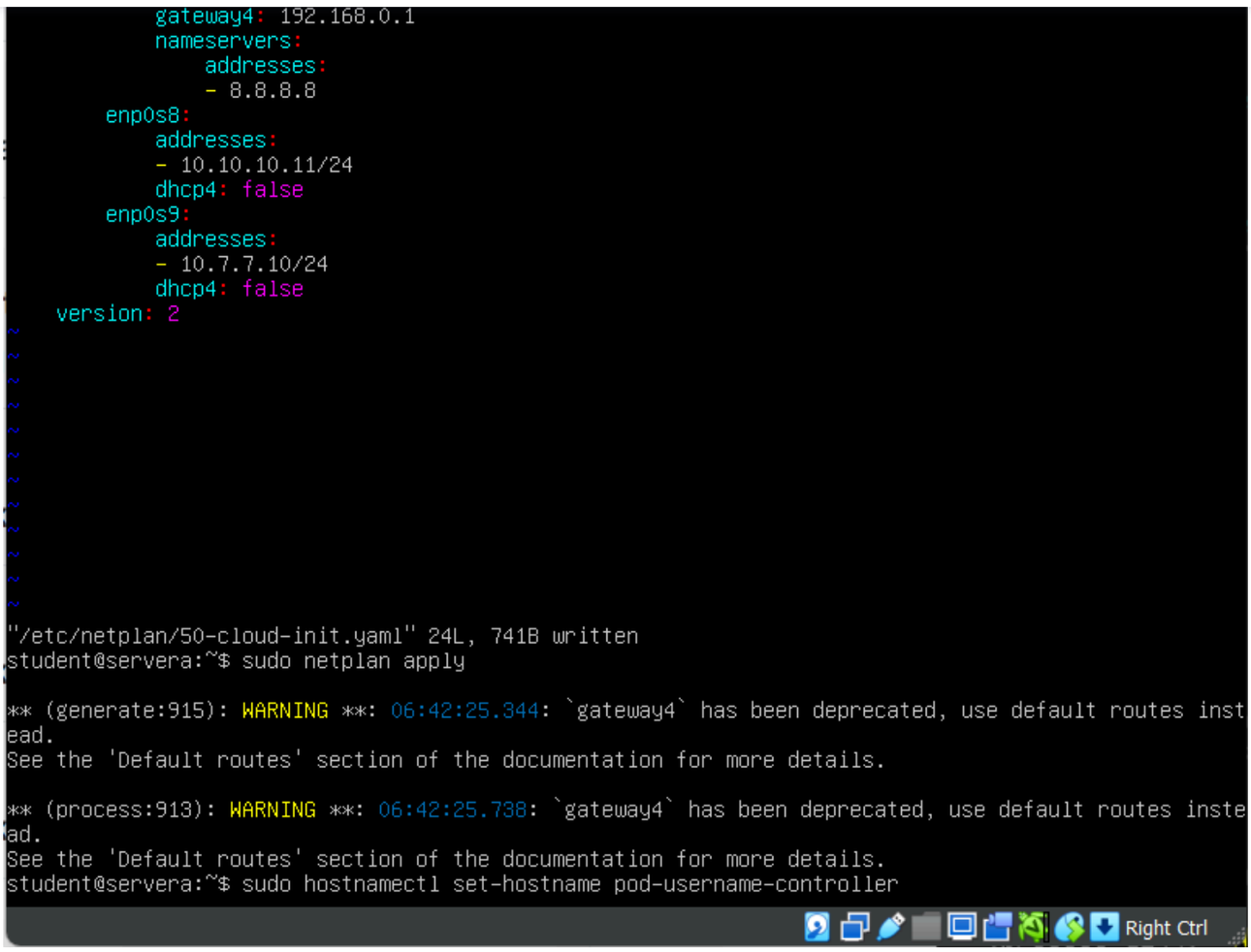
3. Edit **/etc/netplan/50-cloud-init.yaml** replace as below



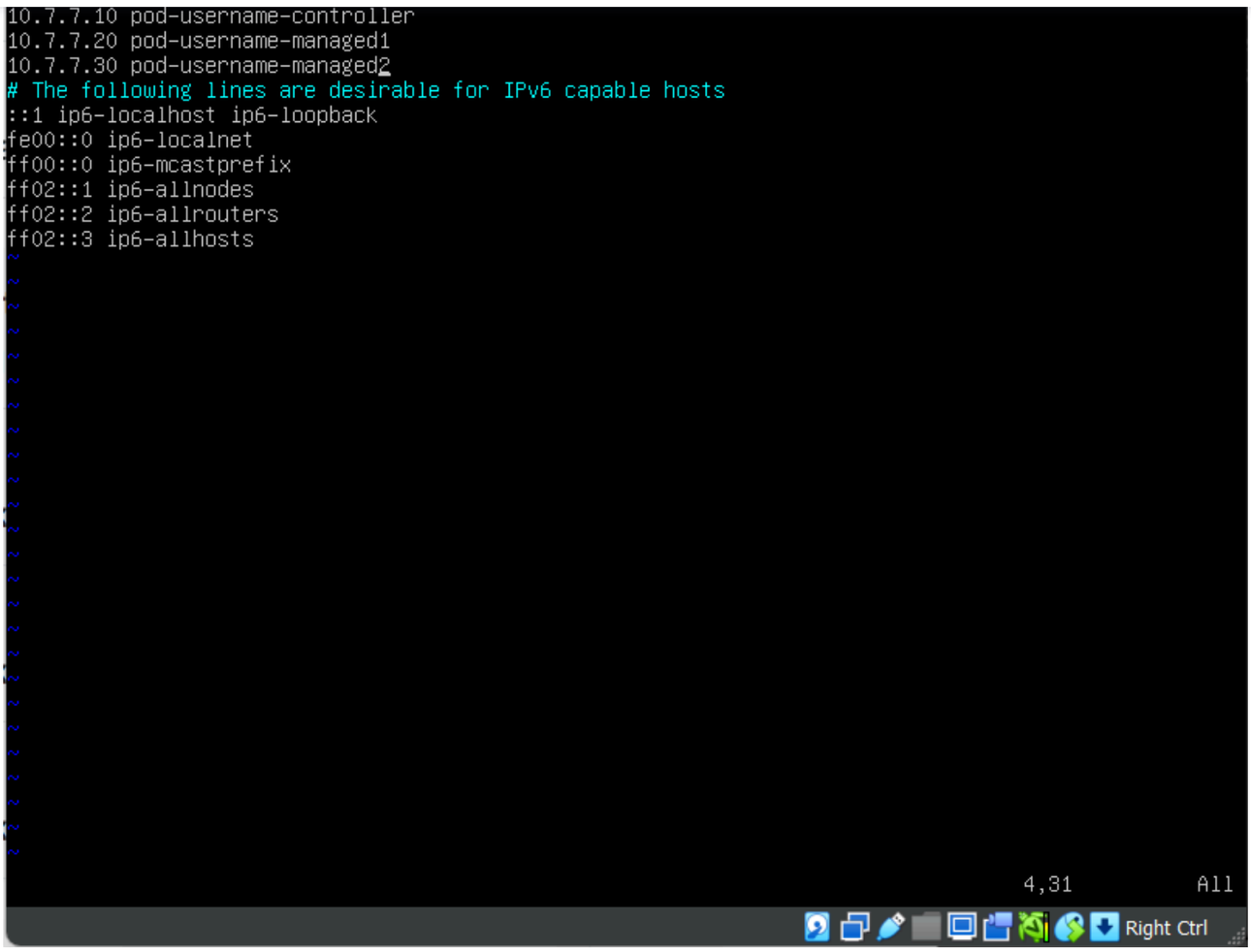
4. Use the **sudo netplan apply** command to apply the latest network configuration, then Verify with the **ip a** command.



5. Change hostname to **pod-username-controller**



6. Map host on /etc/hosts



Network Configuration and Hosts Configuration on VM Ansible-managed1

1. Turn on the vm Ansible-managed1 with click start

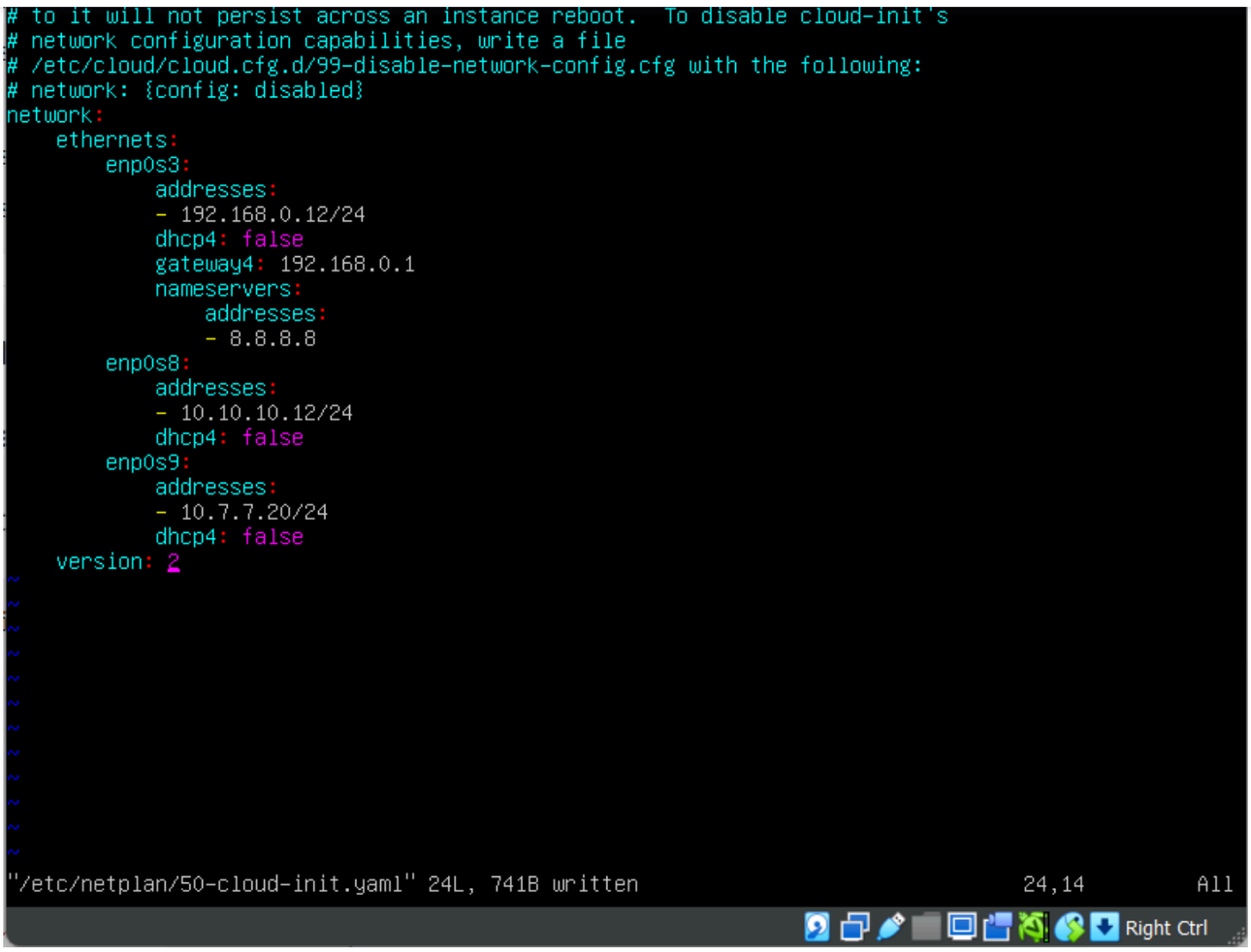
2. The console will then open. Login with the following credentials :

user: **student**

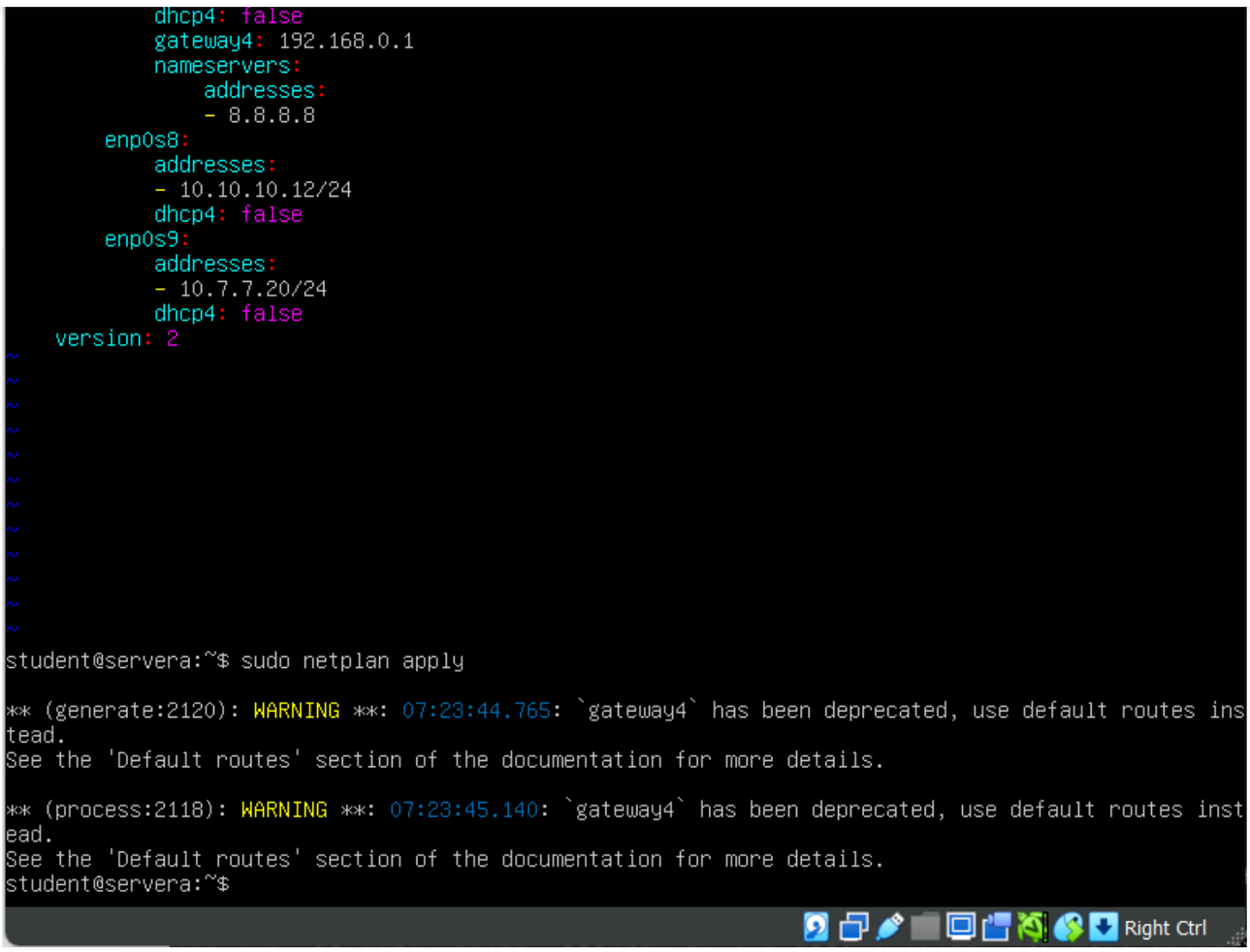
password: **Adinusa2023**

You are free to change the password.

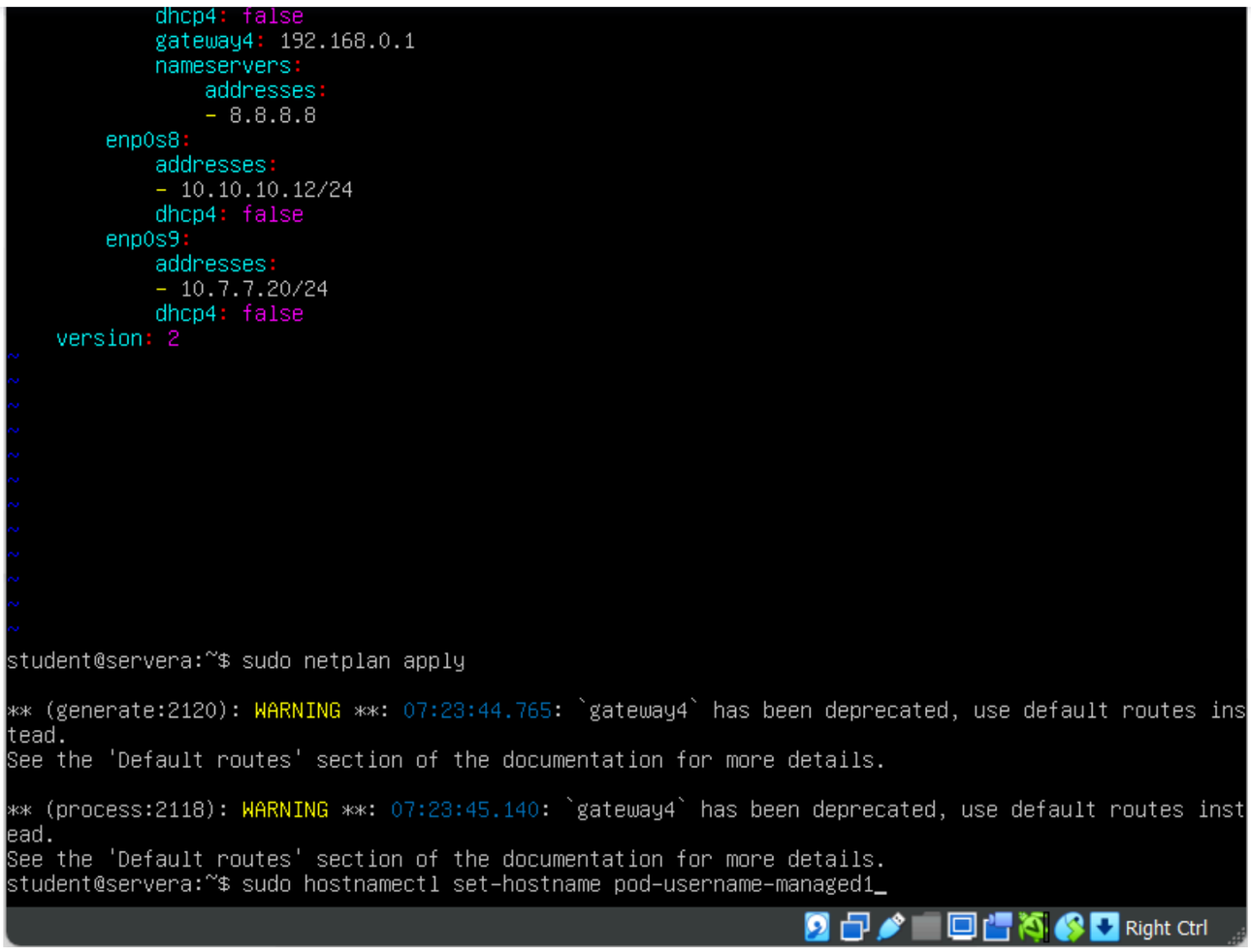
3. Edit **/etc/netplan/50-cloud-init.yaml** replace as below



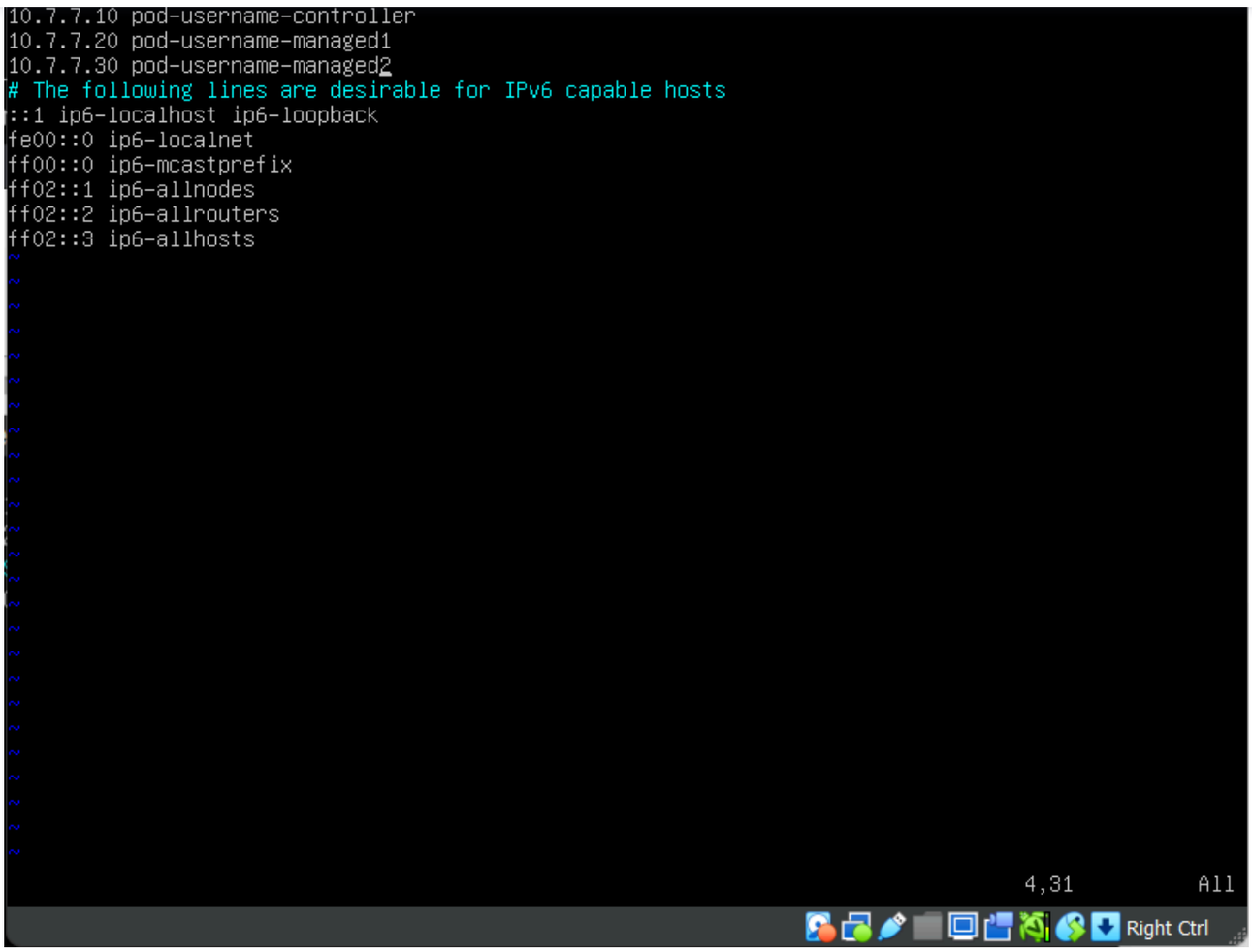
4. Use the **sudo netplan apply** command to apply the latest network configuration, then Verify with the **ip a** command.



5. Change hostname to **pod-username-managed1**



6. Map host on /etc/hosts



Network Configuration and Hosts Configuration on VM Ansible-managed2

1. Turn on the vm Ansible-managed2 with click start

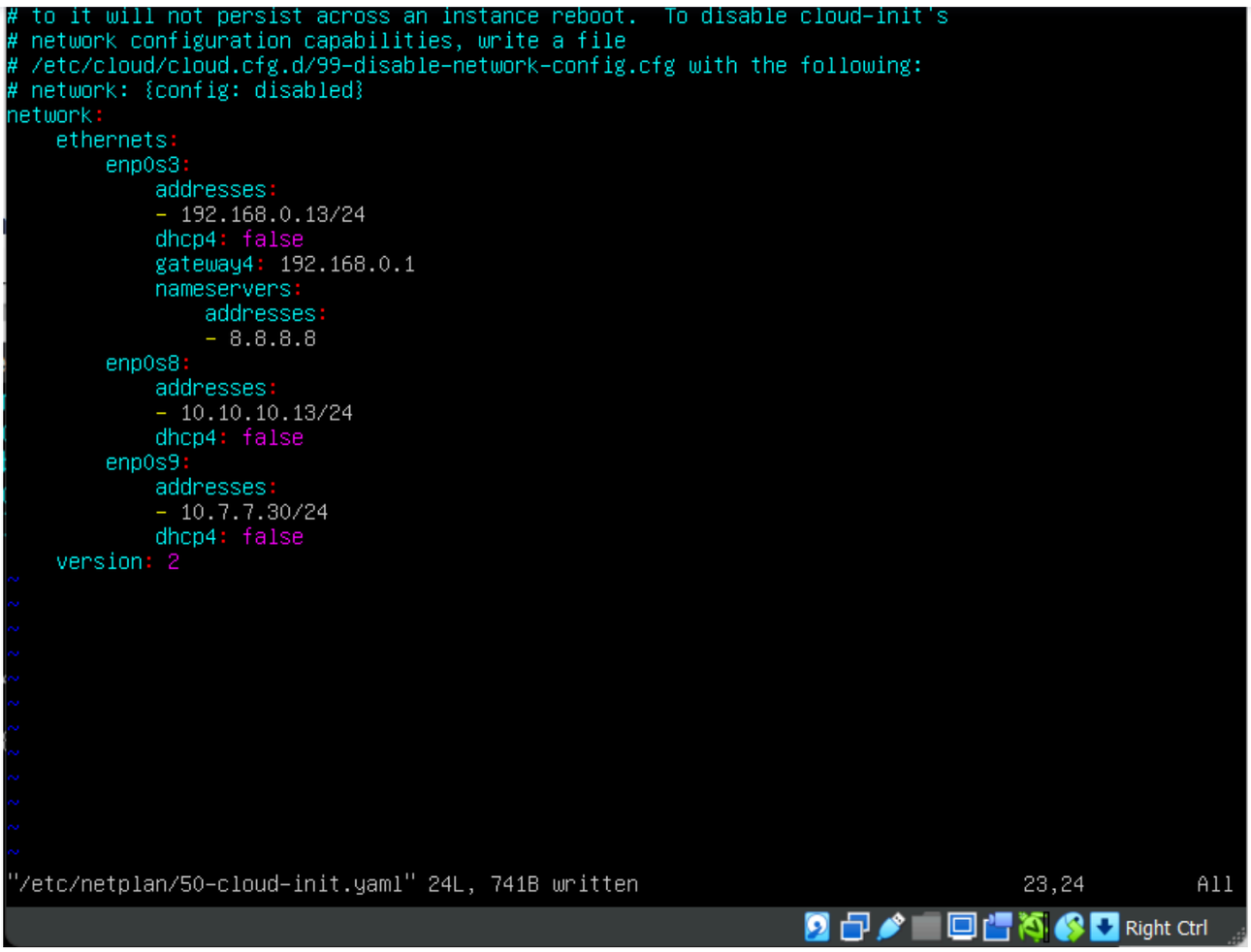
2. The console will then open. Login with the following credentials :

user: **student**

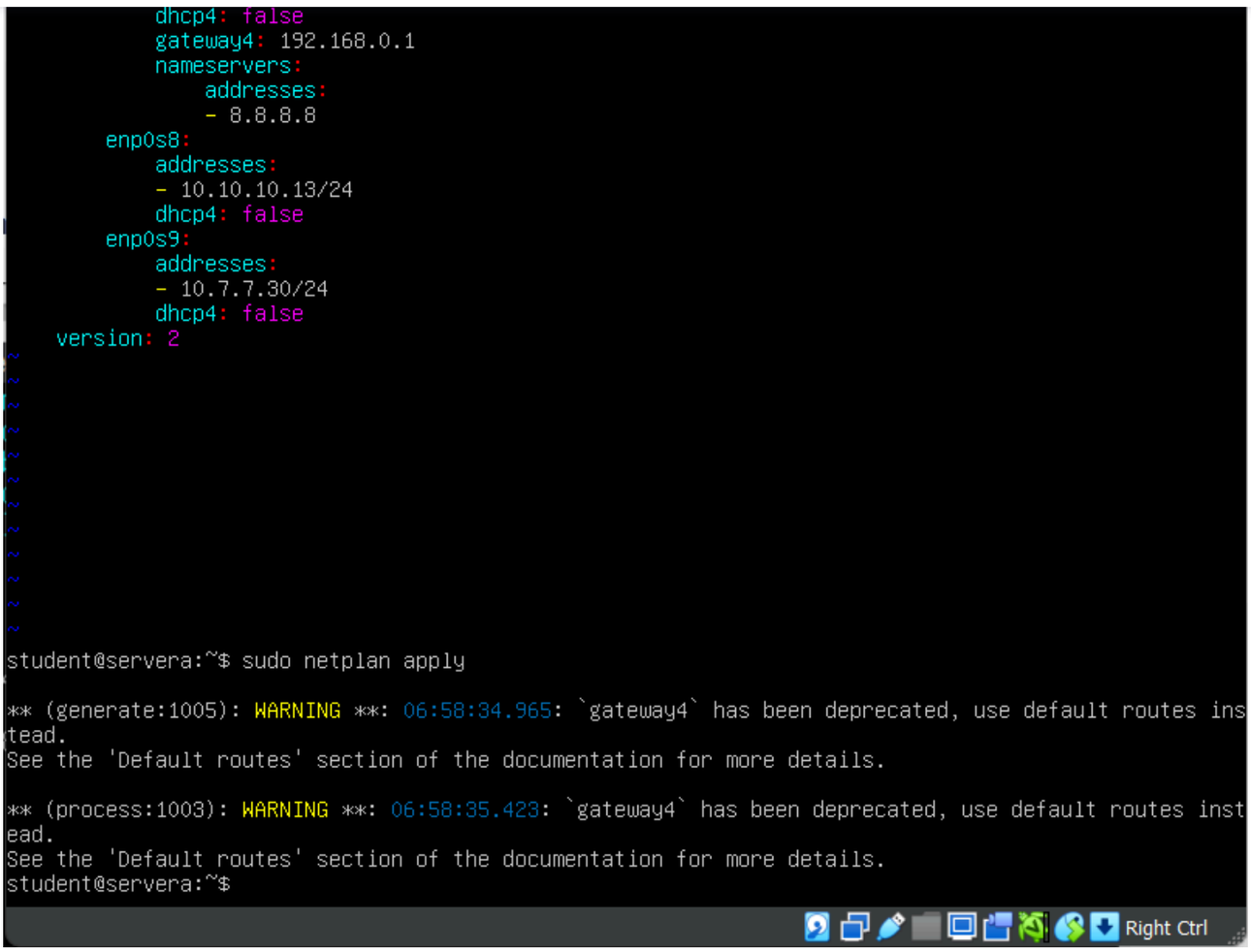
password: **Adinusa2023**

You are free to change the password.

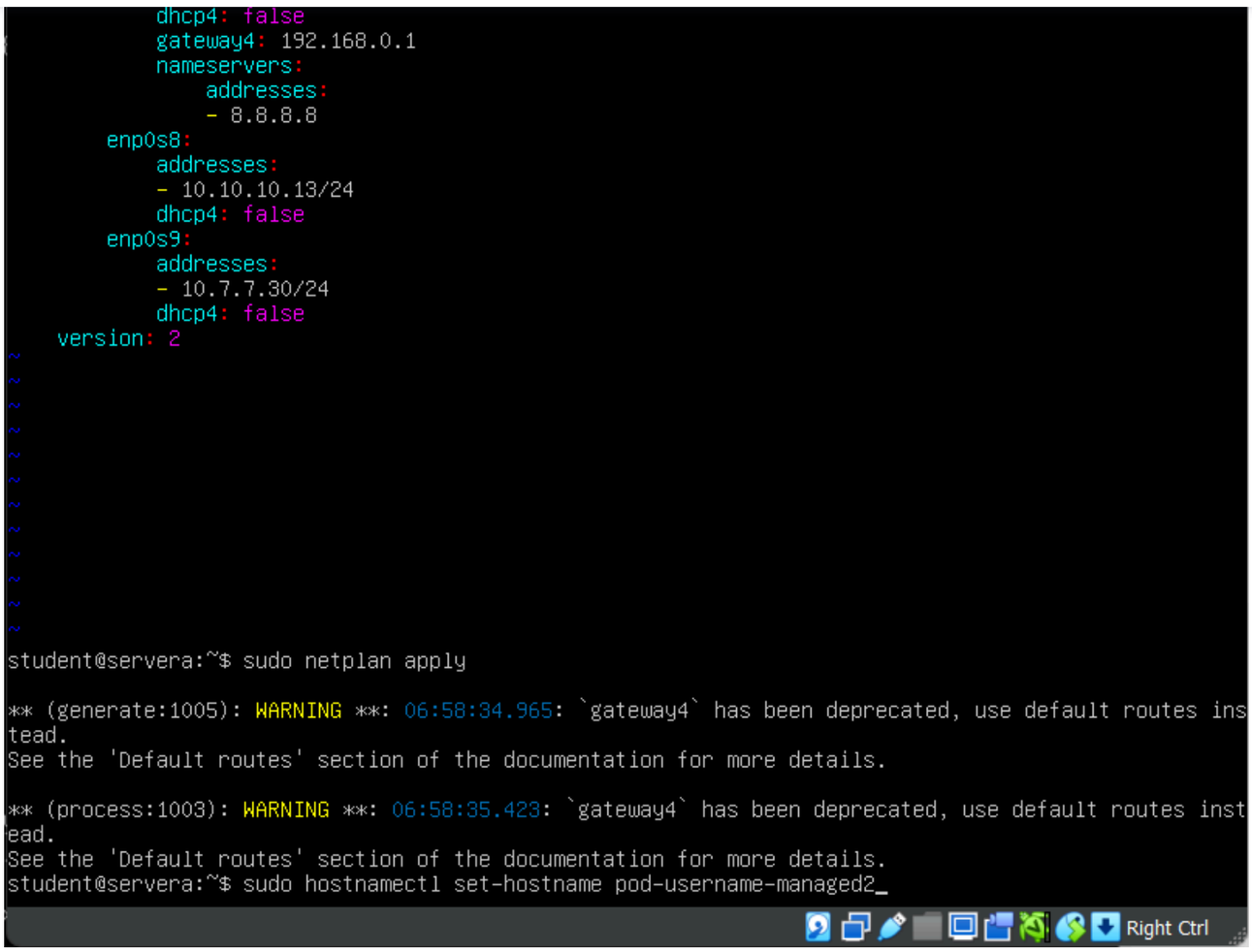
3. Edit **/etc/netplan/50-cloud-init.yaml** replace as below



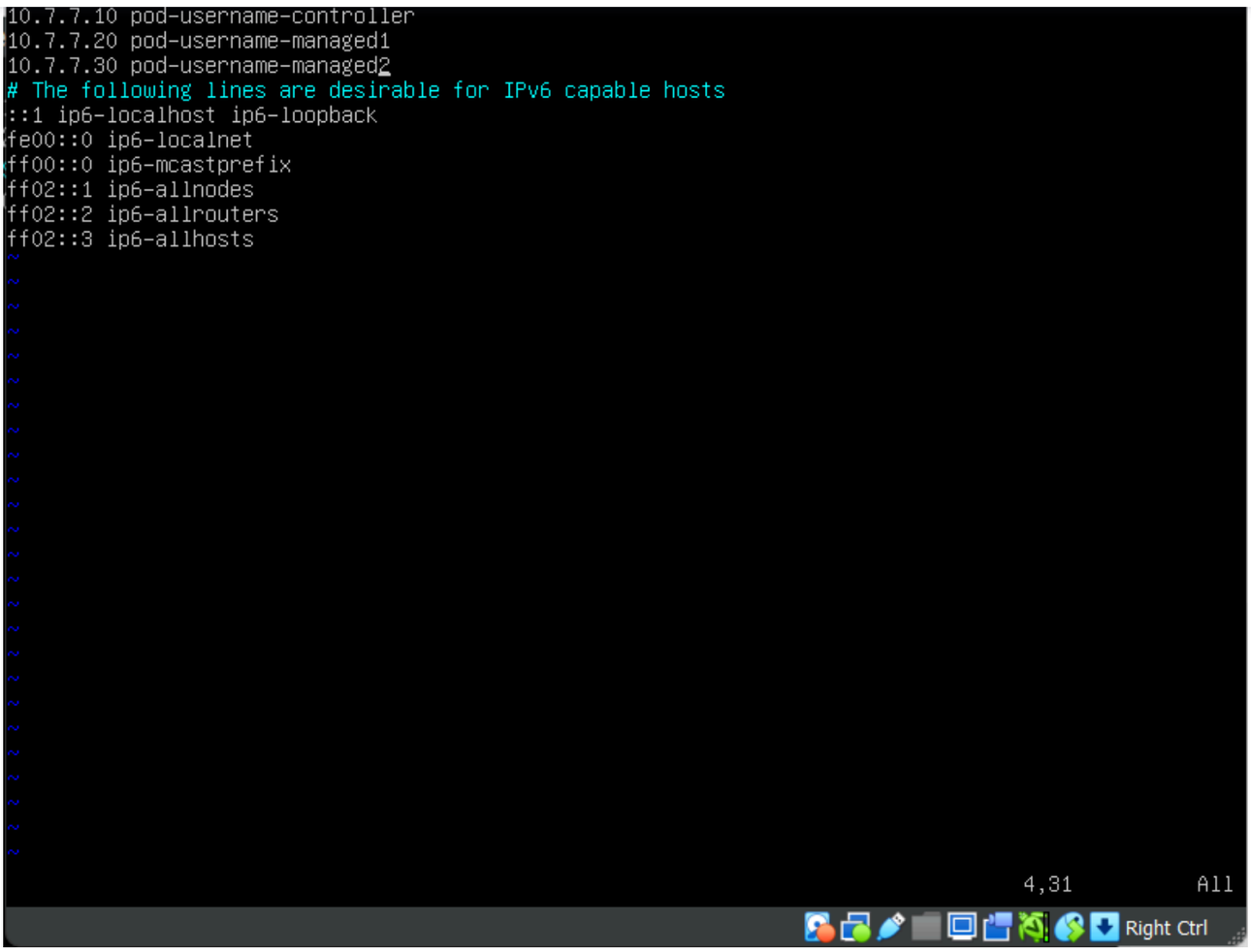
4. Use the **sudo netplan apply** command to apply the latest network configuration, then Verify with the **ip a** command.



5. Change hostname to **pod-username-managed2**



6. Map host on /etc/hosts



Create and Distribute SSH Keygen

Execute on all nodes

1. Create a ssh-keygen so you can ssh without a password

```
student@pod-username-controller:~$ ssh-keygen
student@pod-username-managed1:~$ ssh-keygen
student@pod-username-managed2:~$ ssh-keygen
```

2. Copy all public key from regular user to all nodes

```
student@pod-username-controller:~$ ssh-copy-id student@pod-username-controller
student@pod-username-controller:~$ ssh-copy-id student@pod-username-managed1
student@pod-username-controller:~$ ssh-copy-id student@pod-username-managed2
...
student@pod-username-managed1:~$ ssh-copy-id student@pod-username-controller
student@pod-username-managed1:~$ ssh-copy-id student@pod-username-managed1
student@pod-username-managed1:~$ ssh-copy-id student@pod-username-managed2
...
student@pod-username-managed2:~$ ssh-copy-id student@pod-username-controller
```

3. Check if the host can access without using a password (passwordless).

```
student@pod-username-controller:~$ ssh student@pod-username-controller "whoami; hos
student@pod-username-controller:~$ ssh student@pod-username-managed1 "whoami; hostr
student@pod-username-controller:~$ ssh student@pod-username-managed2 "whoami; hostr
...
student@pod-username-managed1:~$ ssh student@pod-username-controller "whoami; hostr
student@pod-username-managed1:~$ ssh student@pod-username-managed1 "whoami; hostnam
student@pod-username-managed1:~$ ssh student@pod-username-managed2 "whoami; hostnam
...
student@pod-username-managed2:~$ ssh student@pod-username-controller "whoami; hostr
student@pod-username-managed2:~$ ssh student@pod-username-managed1 "whoami; hostnam
student@pod-username-managed2:~$ ssh student@pod-username-managed2 "whoami; hostnam
```

4. Create swap file. **Only executed in the controller**

```
#creating a file which will be used for swap:
sudo fallocate -l 2G /swapfile

#Only the root user should be able to write and read the swap file. Set the correct
sudo chmod 600 /swapfile

#Use the mkswap utility to set up a Linux swap area on the file:
sudo mkswap /swapfile

#Activate the swap file using the following command:
sudo swapon /swapfile

#To make the change permanent open the /etc/fstab file. add to new line don't chang
#sudo vim /etc/fstab
#and paste the following line:
...
/swapfile swap swap defaults 0 0
...
#verify
sudo swapon --show
```

Configuring nusactl requirements

```
student@pod-username-controller:~$ vim /home/student/.nusactl/hosts.yaml
...
nodes:
  pod-controller: "10.7.7.10" #IP enp0s9 controller
  pod-managed1: "10.7.7.20" #IP enp0s9 Managed1
  pod-managed2: "10.7.7.30" #IP enp0s9 Managed2
ssh-key: "/home/student/.ssh/id_rsa" # must be static path
ssh-passwd: "academy123" # change the password and password must be same every node
```

Note : Be careful this **yaml** file is sensitive to indents and spaces make sure it is the same as the guide.

2. automate ssh-add automatically when logged in

```
sudo apt install -y keychain && echo "eval $(keychain -q --eval id_rsa)" >> .bashrc
```

Note :

- **don't skip this step. if you skip it you will experience an error when grading.**
- Replace the username text with your adinusa account username

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Tugas

Run the **nusactl grade anadm-003-1** command to assess your work.

```
student@pod-[username]-controller ~$ nusactl grade anadm-003-1
```

Then, run the **nusactl finish anadm-003-1** command to finish your work.

```
student@pod-[username]-controller ~$ nusactl finish anadm-003-1
```

> **Info!**
>
> Yey, kamu lulus pada **tugas ini**. Semoga sukses di tugas-tugas selanjutnya.

← Sebelumnya

Selanjutnya →