

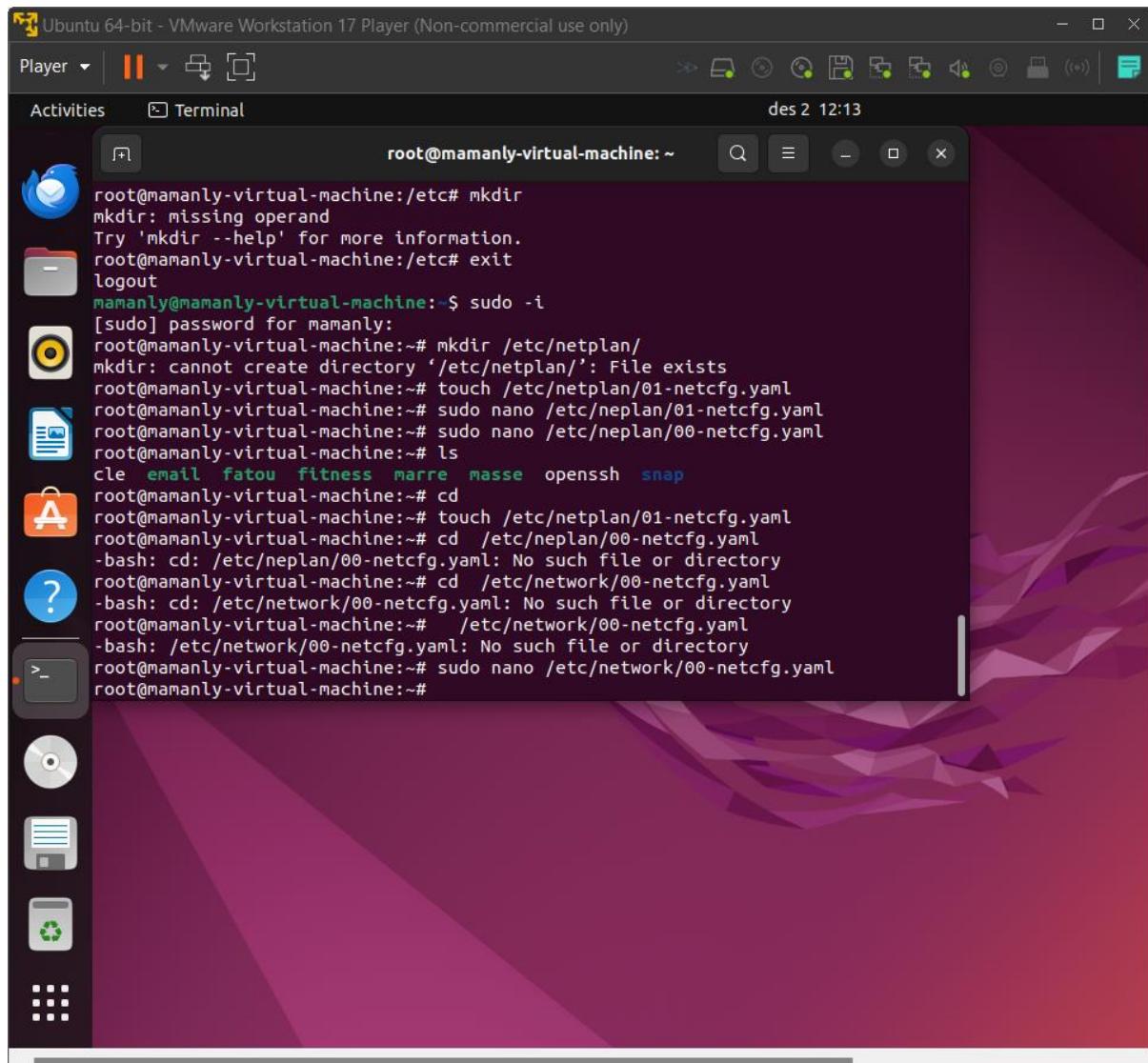
TP: Téléchargement DE HEARTBEAT AVEC LUNIX

HEARTBEAT **Heartbeat** fait partie de la suite de gestion de clusters Linux HA (High-Availability). Il fonctionne en assurant la communication entre les nœuds d'un cluster pour surveiller leur état. Si un nœud tombe en panne, Heartbeat bascule les ressources critiques vers un autre nœud disponible.

1- Ubuntu

Tout d'abord nous allons utiliser deux machine virtuel pour pouvoir faire le travail

Nous allons commencer avec ubuntu en mettant en place le fichier



```
Ubuntu 64-bit - VMware Workstation 17 Player (Non-commercial use only)
Player | ||| □ | Activities Terminal des 2 12:13
Activities Terminal
root@mamanly-virtual-machine:~/etc# mkdir
mkdir: missing operand
Try 'mkdir --help' for more information.
root@mamanly-virtual-machine:~/etc# exit
logout
mamanly@mamanly-virtual-machine:~$ sudo -i
[sudo] password for mamanly:
root@mamanly-virtual-machine:~# mkdir /etc/netplan/
mkdir: cannot create directory '/etc/netplan/': File exists
root@mamanly-virtual-machine:~# touch /etc/netplan/01-netcfg.yaml
root@mamanly-virtual-machine:~# sudo nano /etc/neplan/01-netcfg.yaml
root@mamanly-virtual-machine:~# sudo nano /etc/neplan/00-netcfg.yaml
root@mamanly-virtual-machine:~# ls
cle email fatou fitness marre masse openssh snap
root@mamanly-virtual-machine:~# cd
root@mamanly-virtual-machine:~# touch /etc/netplan/01-netcfg.yaml
root@mamanly-virtual-machine:~# cd /etc/neplan/00-netcfg.yaml
-bash: cd: /etc/neplan/00-netcfg.yaml: No such file or directory
root@mamanly-virtual-machine:~# cd /etc/network/00-netcfg.yaml
-bash: cd: /etc/network/00-netcfg.yaml: No such file or directory
root@mamanly-virtual-machine:~# /etc/network/00-netcfg.yaml
-bash: /etc/network/00-netcfg.yaml: No such file or directory
root@mamanly-virtual-machine:~# sudo nano /etc/network/00-netcfg.yaml
root@mamanly-virtual-machine:~#
```

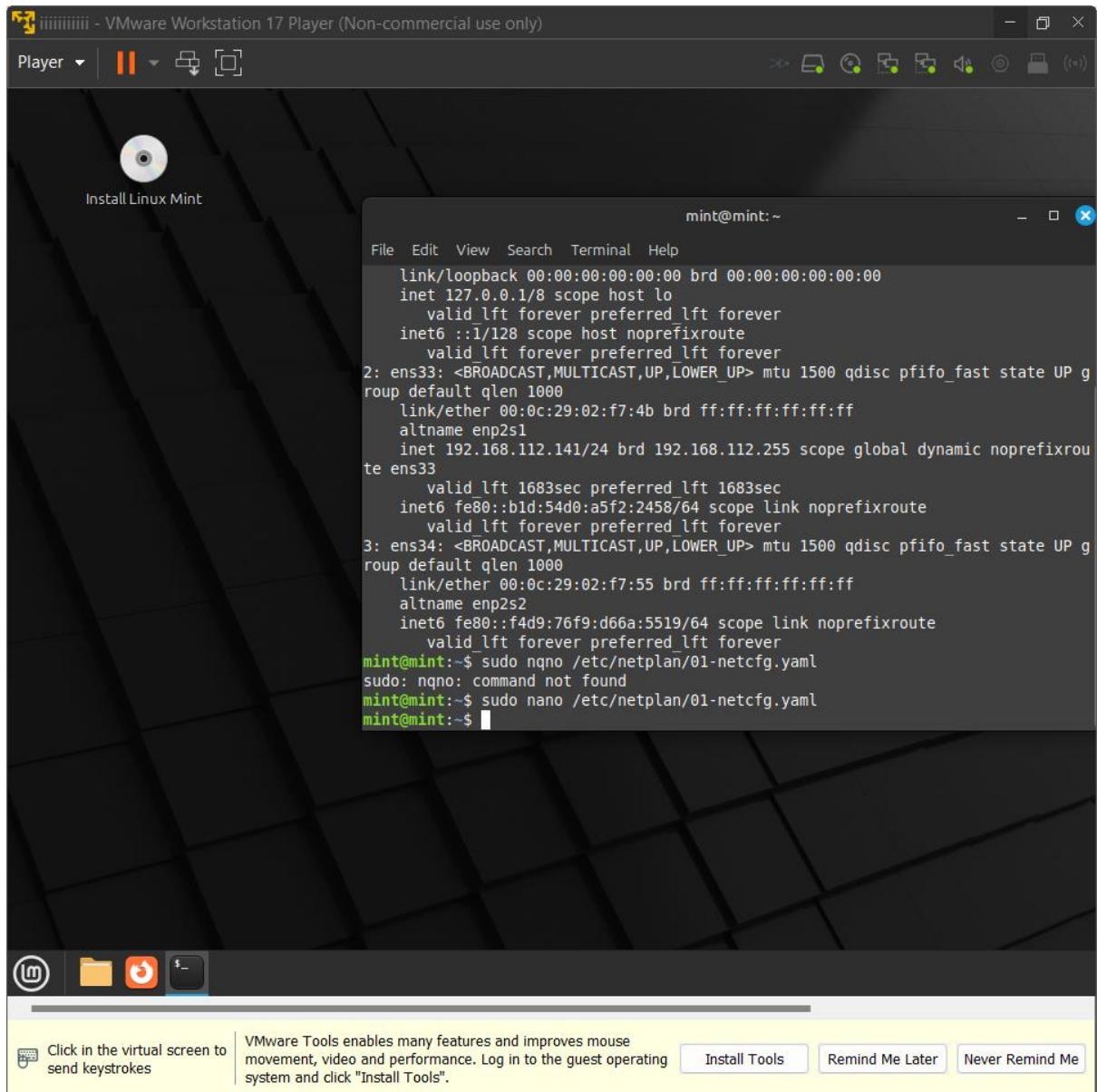
nous sommes connecté en route pour pouvoir entrer dans nano mais d'abord si le fichier n'existe pas on est dans l'obligation de le mettre en place mais aussi elle peut changer de nom

```
GNU nano 6.2          /etc/network/00-netcfg.yaml *
network:
  version: 2
  renderer:
  ethernets:
    ens33:
      dhcp4: true
    ens37:
      dhcp4: false
      addresses:
        - 192.168.100.2/24
```

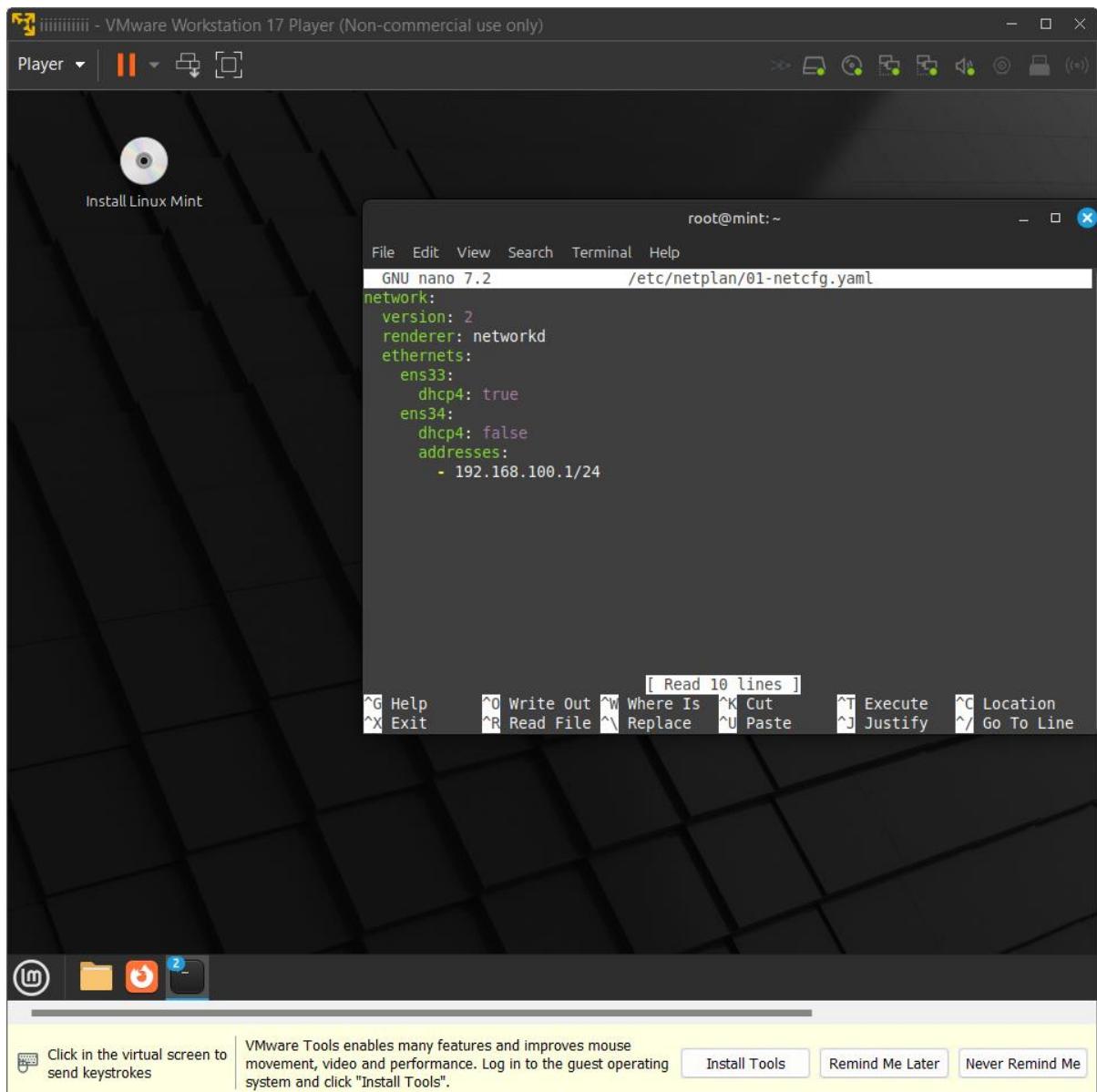
Voici les commandes tapées dans SUDO NANO /ETC/NETWOKR/00-NETCFG-YAML

2- LINUX MINT

C'est la deuxième machine virtuelle on va faire la même chose que sur UBUNTU

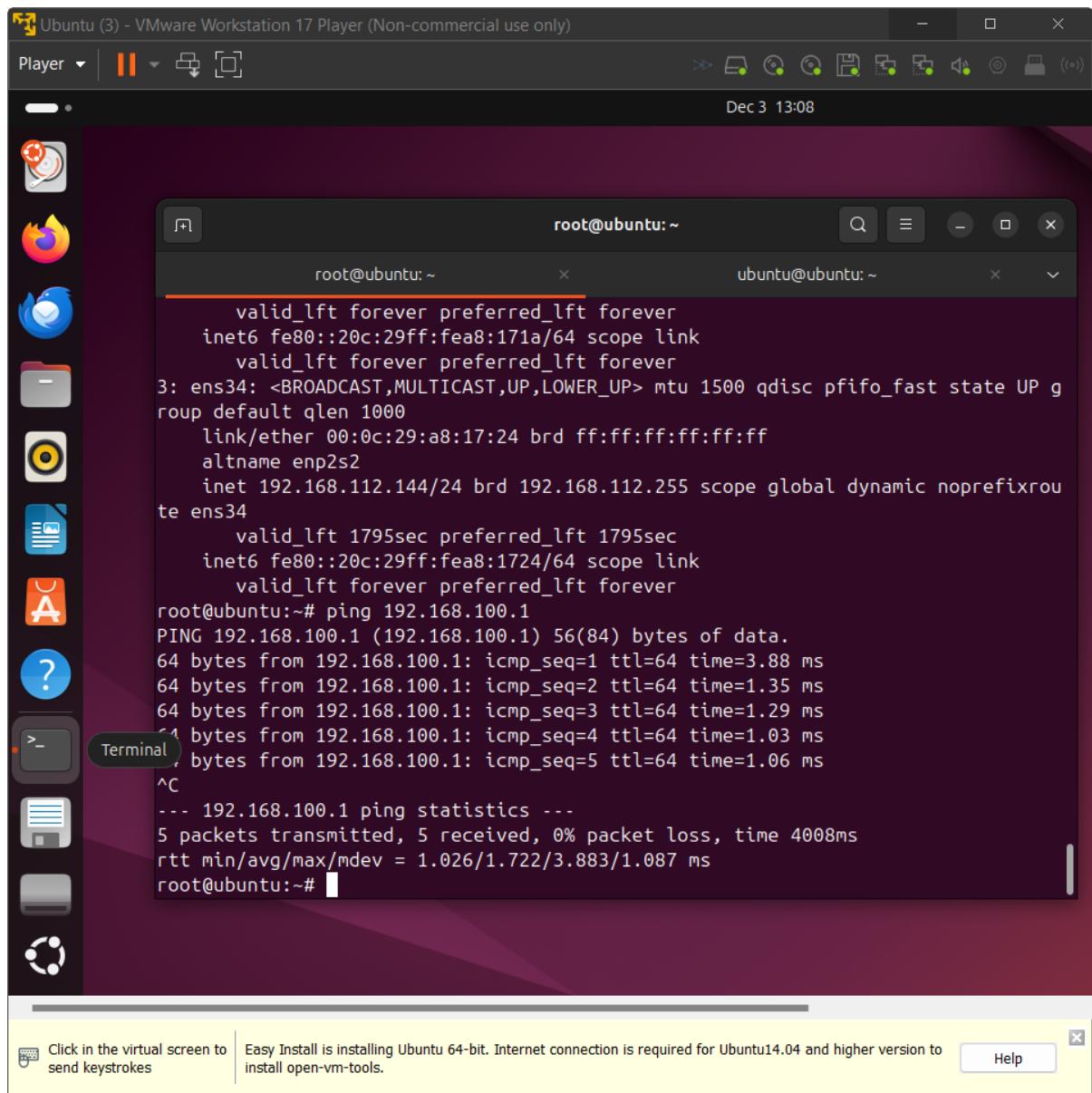


Ensuite ,après avoir fait ou tapé sudo nano nous allons tapé les même commandes que Ubuntu

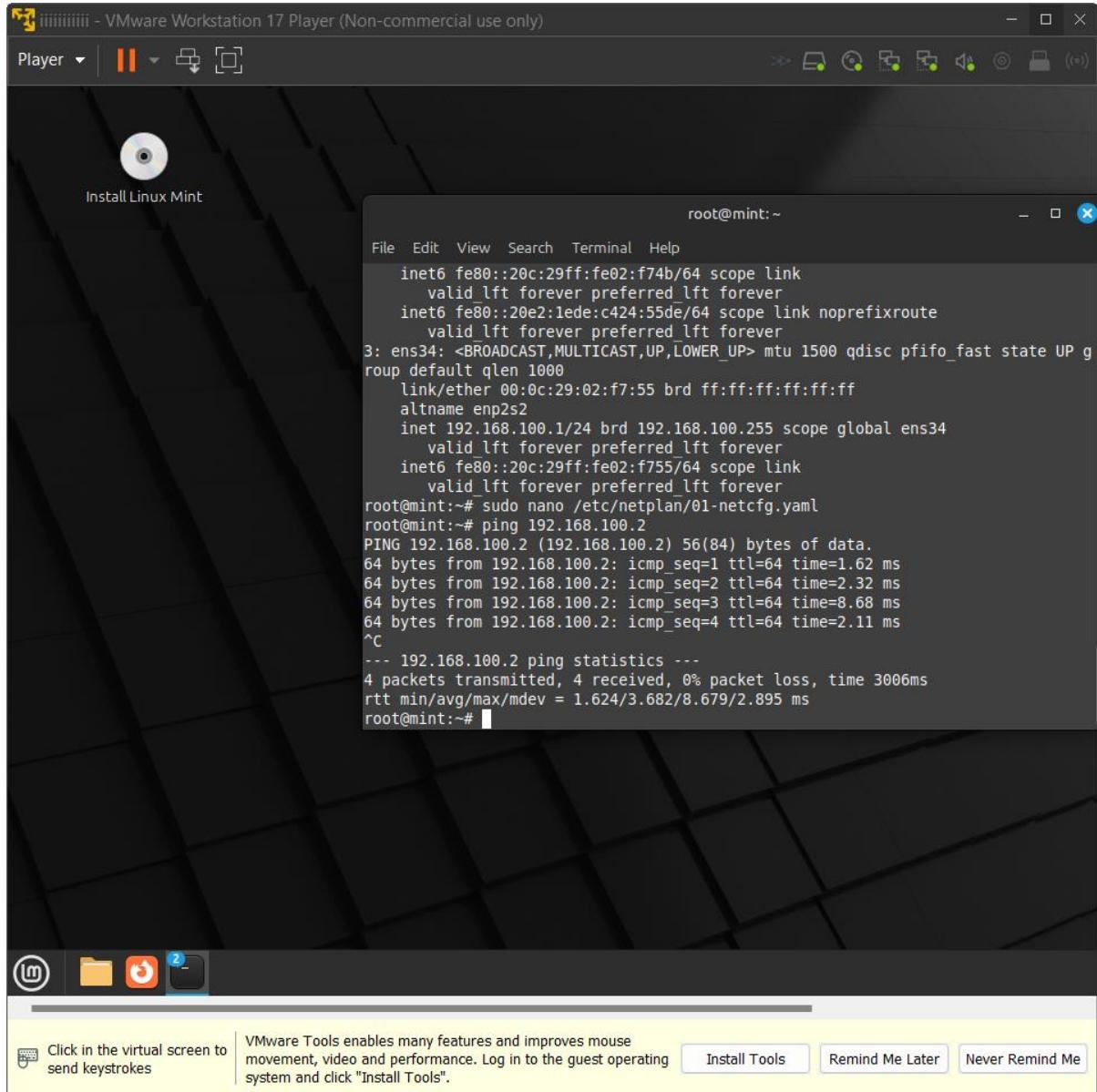


3/PING DES DEUX MACHINES

A/Ubuntu

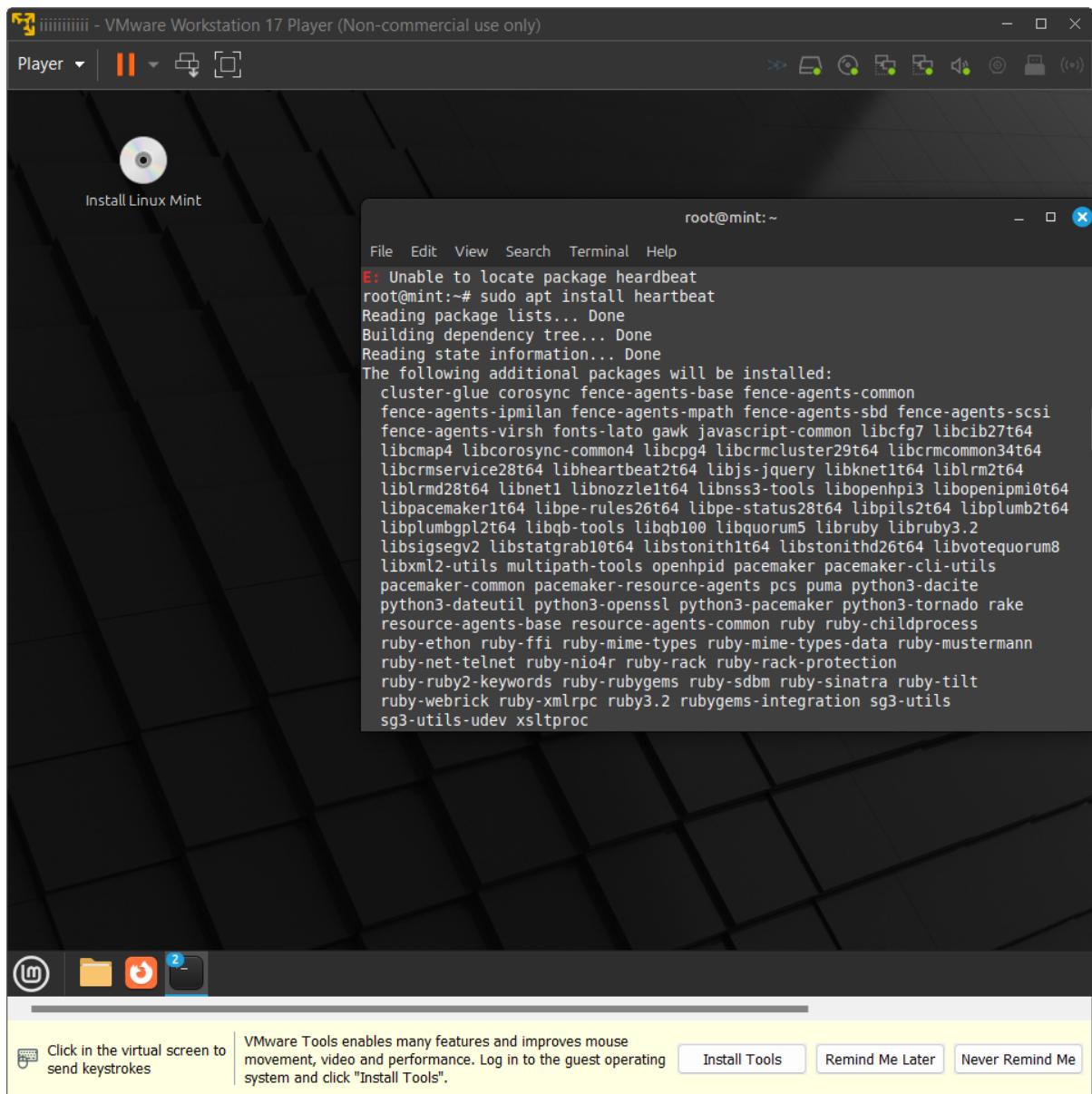


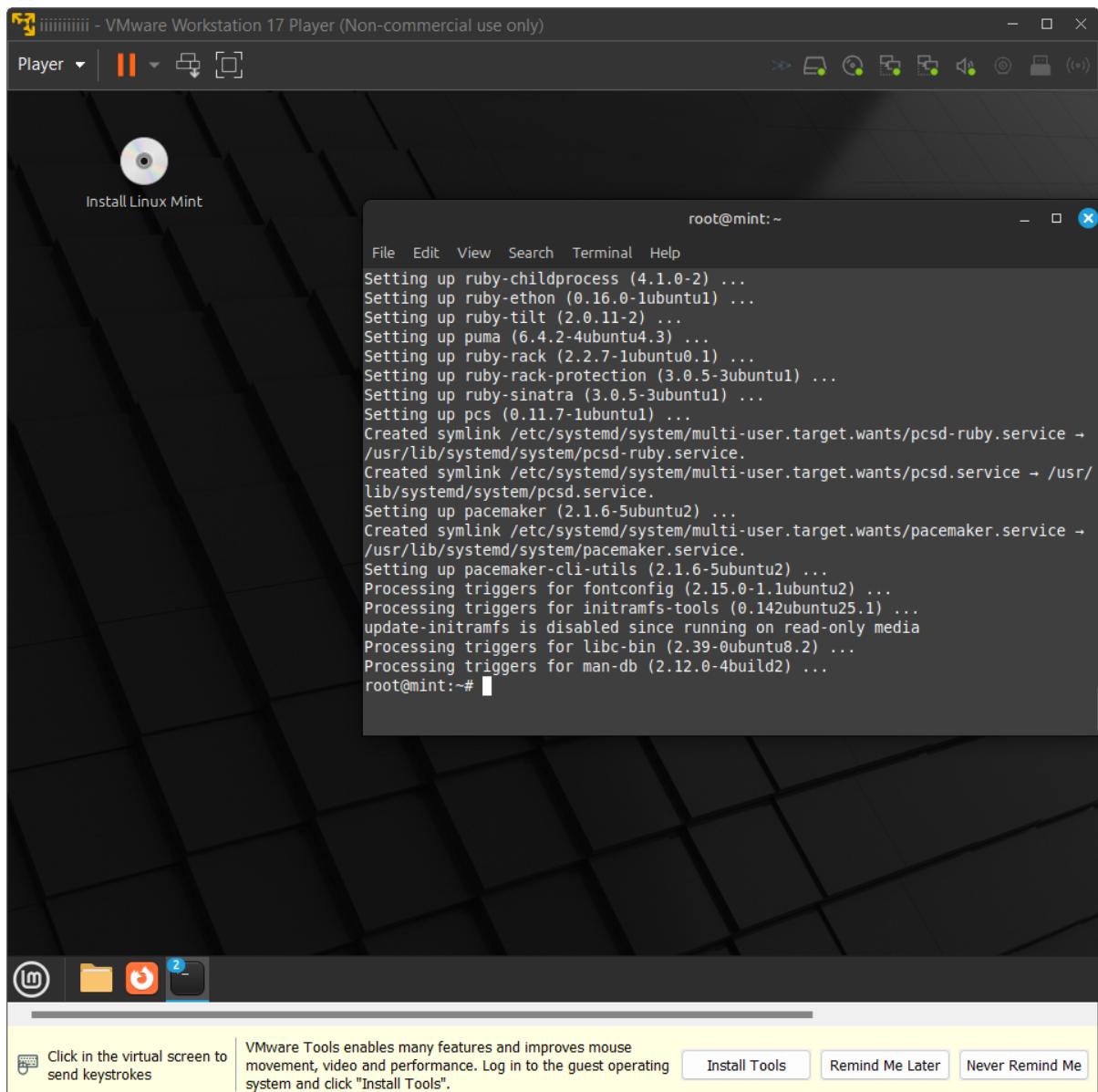
B/ Linux-mint



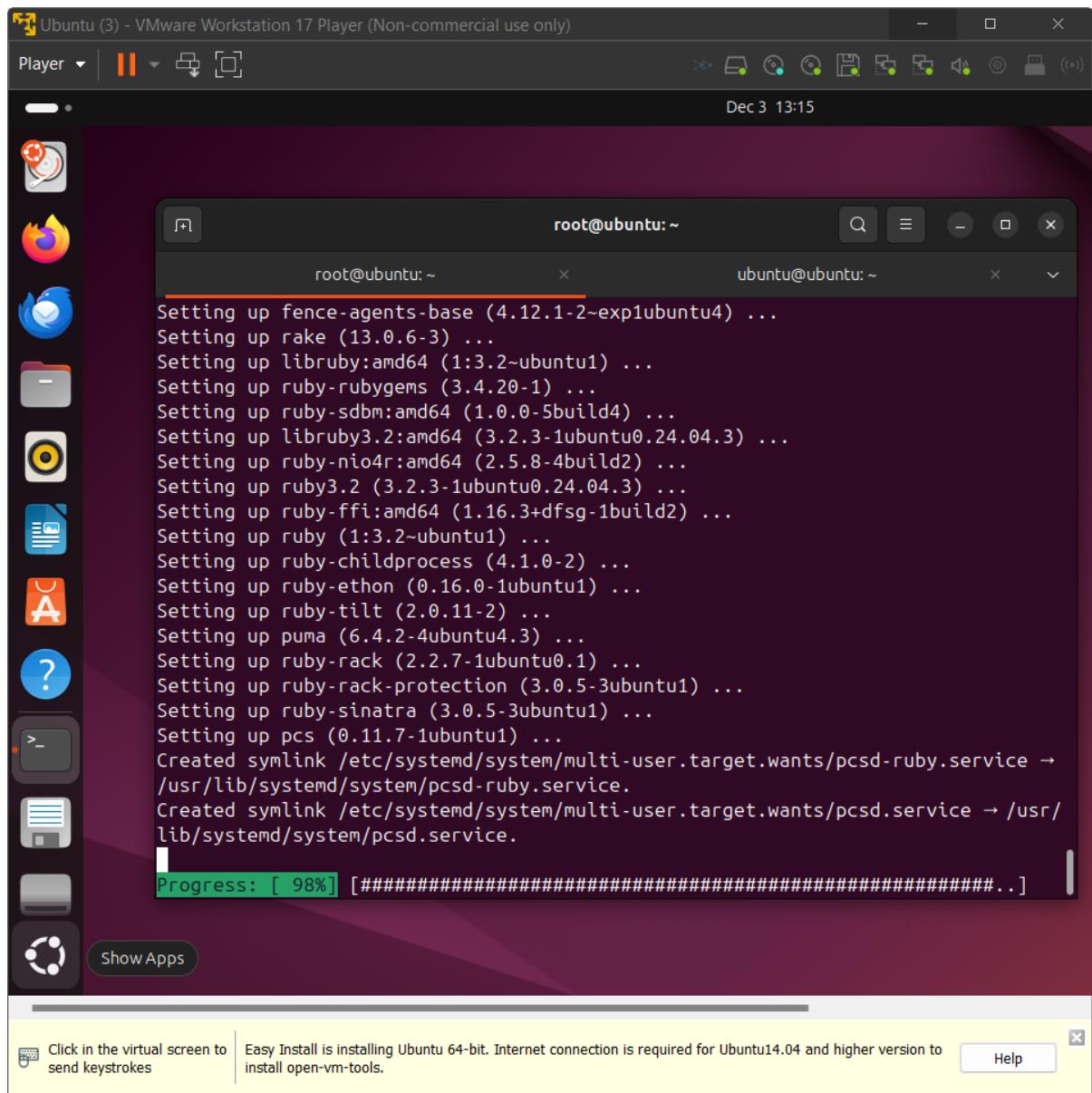
Installation de HEARTBEARD avec linux-mint et Ubuntu

LINUX-MINT



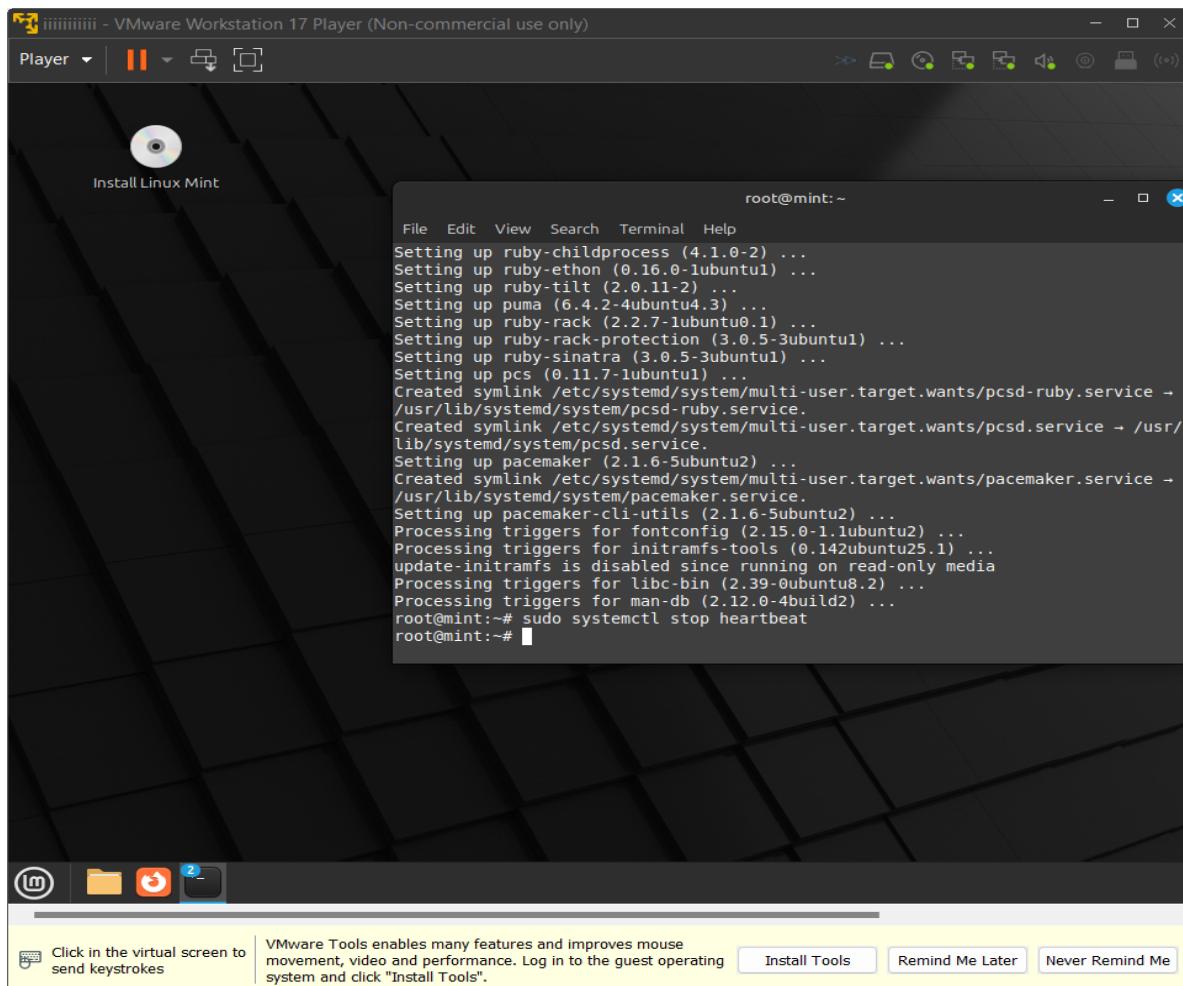


POUR UBUNTU



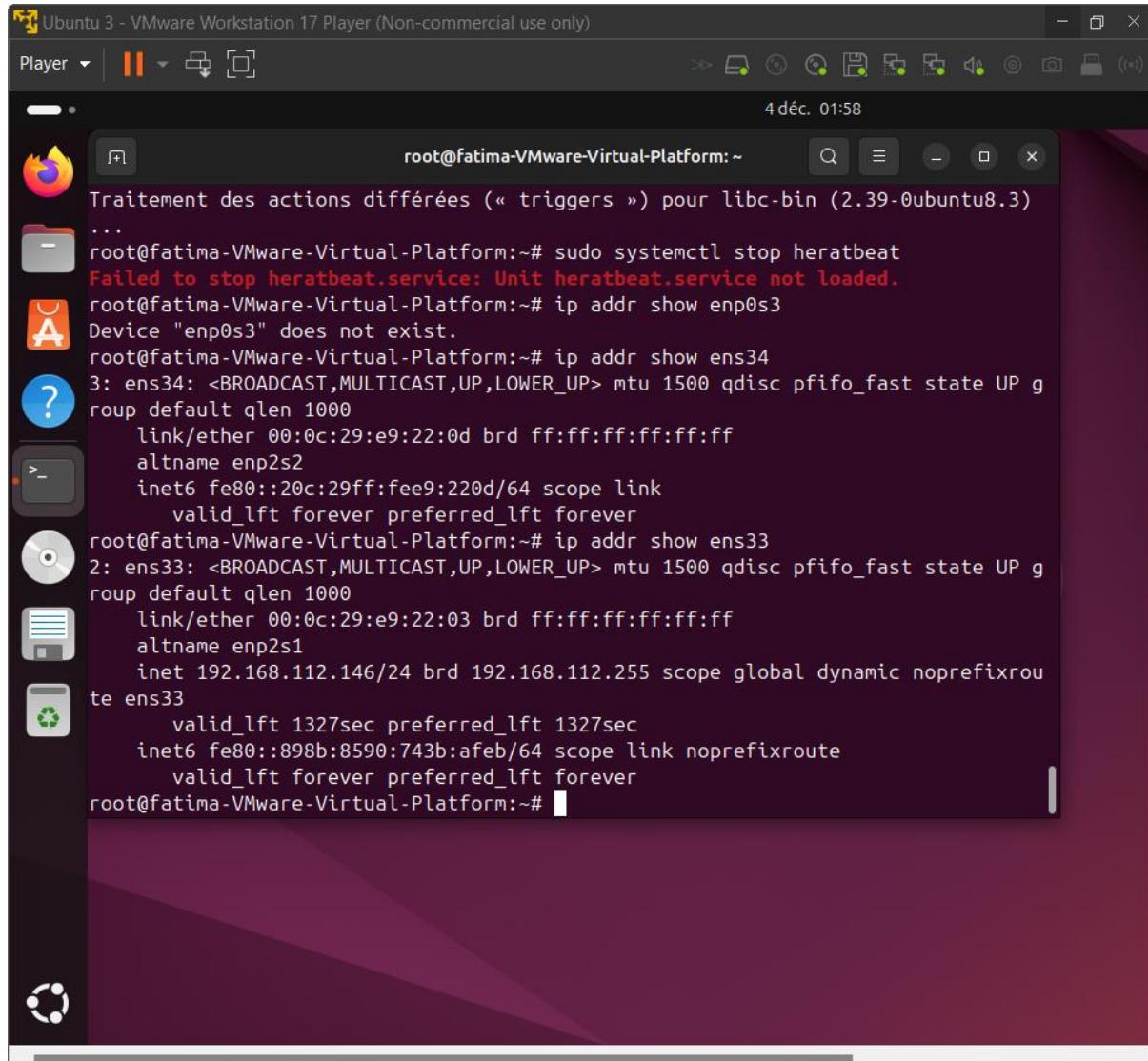
4/ Vérifiez que l'IP virtuelle bascule sur Linux Mint :

*sudo Systemctl stop Heartbeat



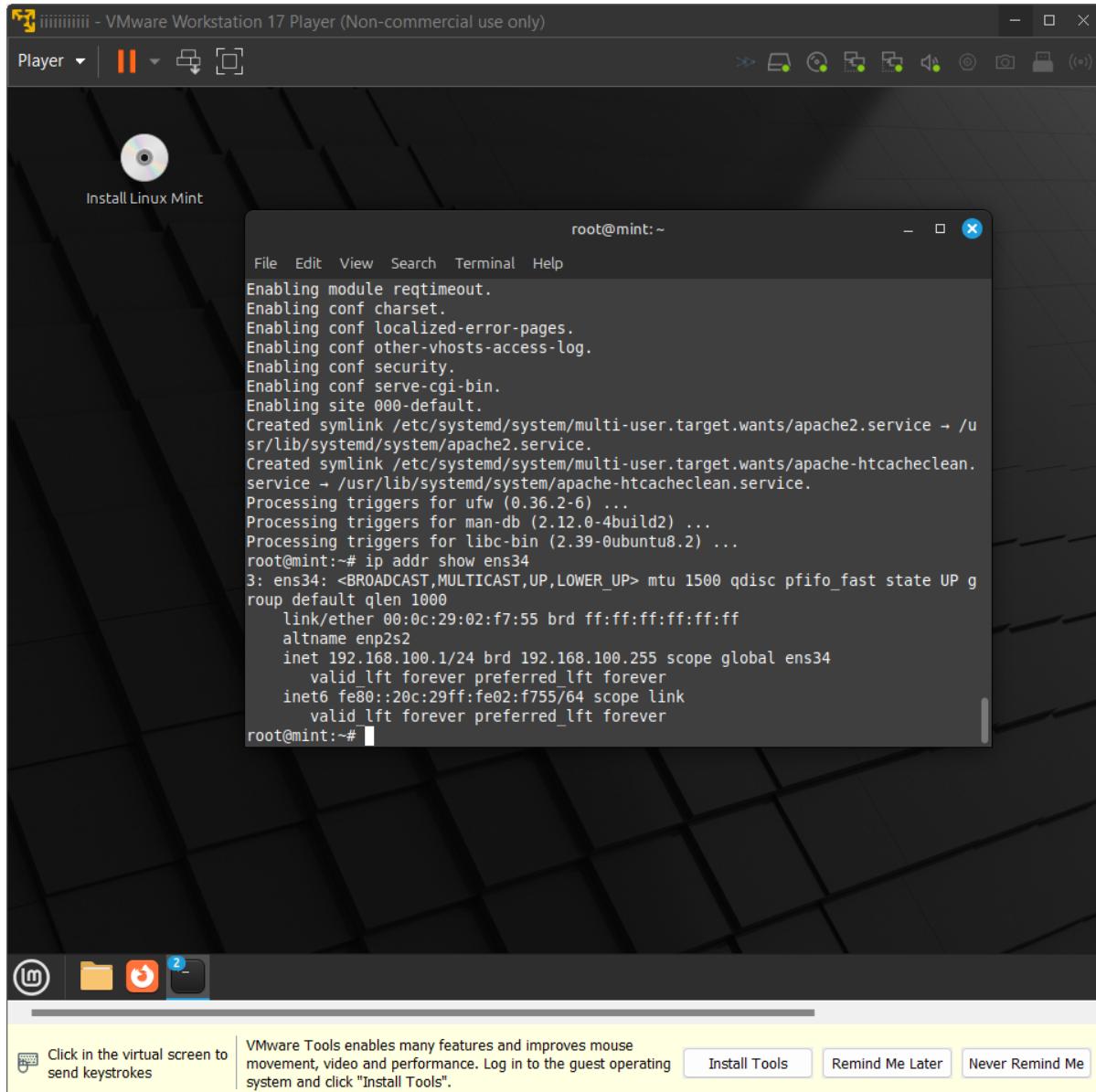
Ip addr show enp0s3

Relancez Heartbeat sur Ubuntu Server pour vérifier le retour

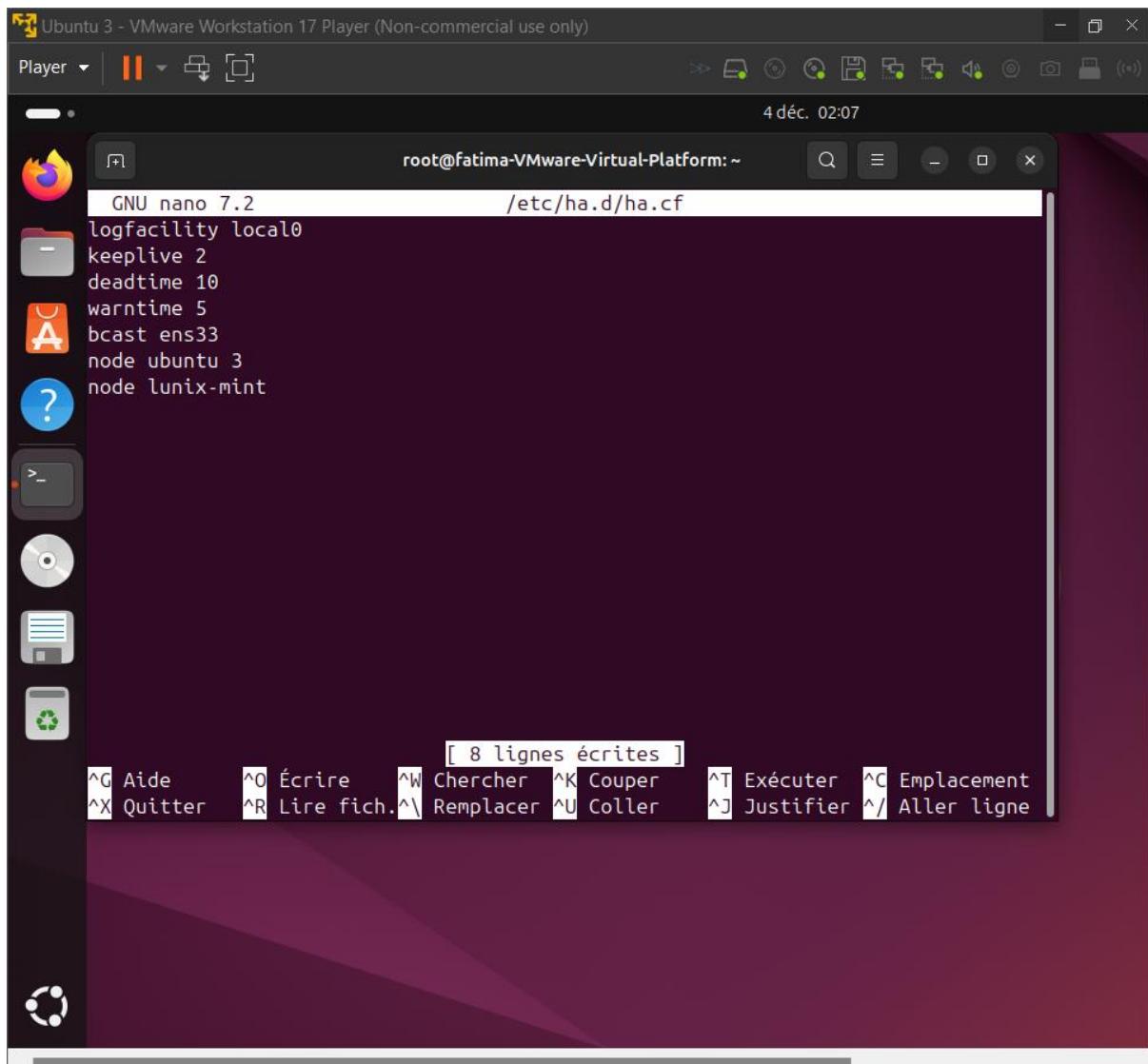


```
Traitement des actions différées (« triggers ») pour libc-bin (2.39-0ubuntu8.3)
...
root@fatima-VMware-Virtual-Platform:~# sudo systemctl stop heartbeat
Failed to stop heartbeat.service: Unit heartbeat.service not loaded.
root@fatima-VMware-Virtual-Platform:~# ip addr show enp0s3
Device "enp0s3" does not exist.
root@fatima-VMware-Virtual-Platform:~# ip addr show ens34
3: ens34: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc pfifo_fast state UP group default qlen 1000
    link/ether 00:0c:29:e9:22:0d brd ff:ff:ff:ff:ff:ff
    altname enp2s2
    inet6 fe80::20c:29ff:fee9:220d/64 scope link
        valid_lft forever preferred_lft forever
root@fatima-VMware-Virtual-Platform:~# ip addr show ens33
2: ens33: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc pfifo_fast state UP group default qlen 1000
    link/ether 00:0c:29:e9:22:03 brd ff:ff:ff:ff:ff:ff
    altname enp2s1
    inet 192.168.112.146/24 brd 192.168.112.255 scope global dynamic noprefixroute ens33
        valid_lft 1327sec preferred_lft 1327sec
        inet6 fe80::898b:8590:743b:afcb/64 scope link noprefixroute
            valid_lft forever preferred_lft forever
root@fatima-VMware-Virtual-Platform:~#
```

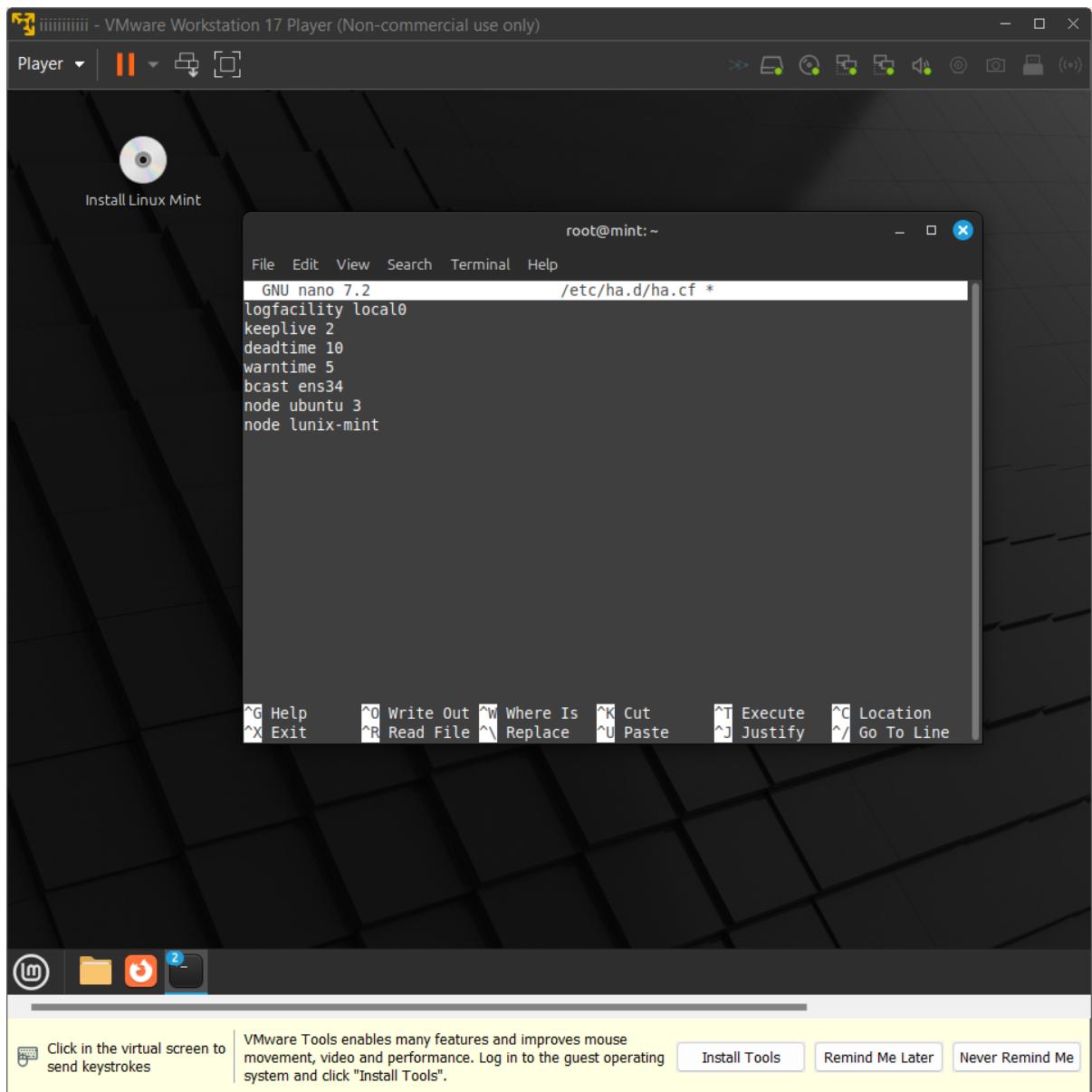
LINUX-MINT T2L2CHARGEMENT DE Apache2



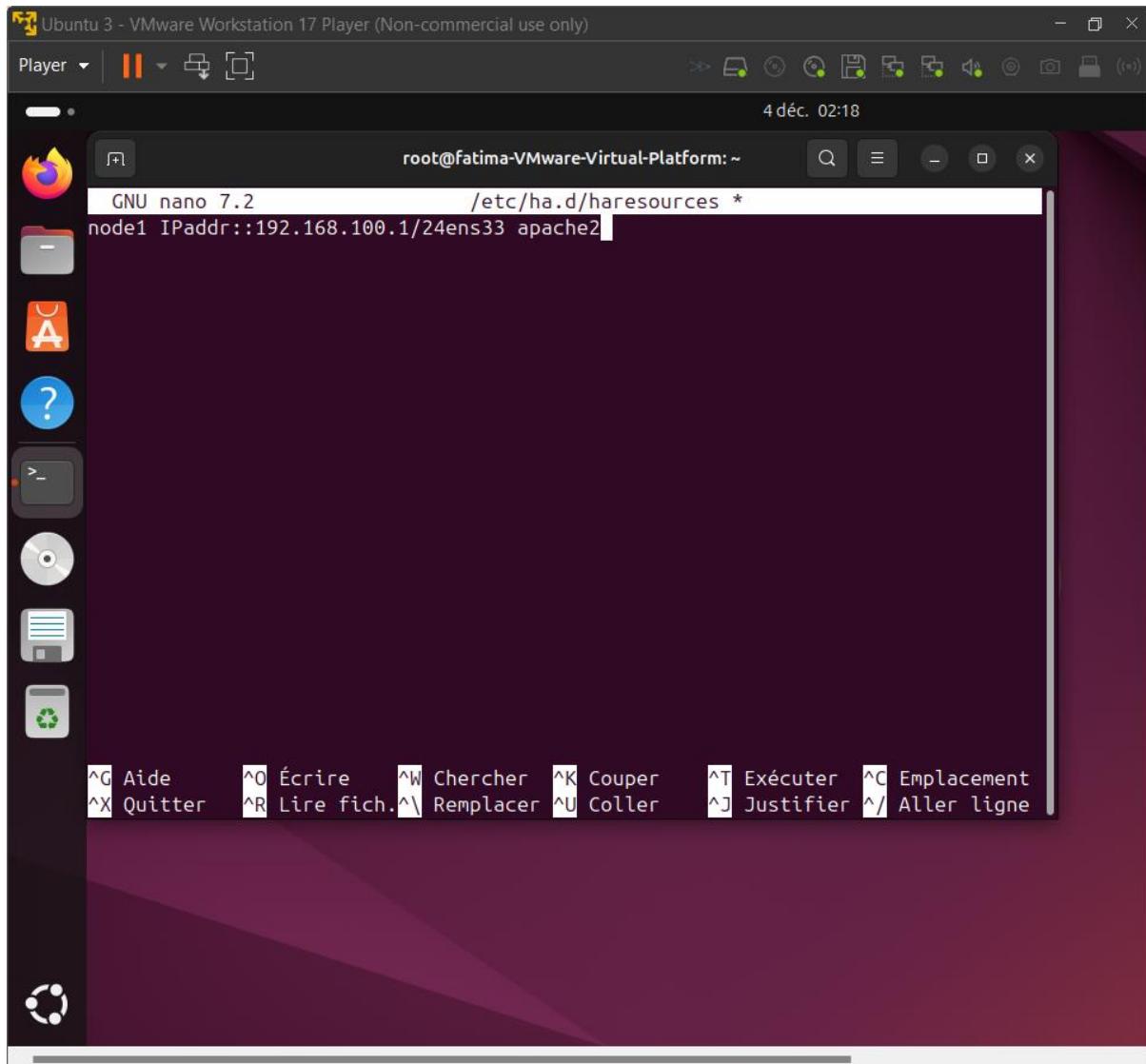
Configuration du fichier /etc/ha.d/ha.cf sur Ubuntu



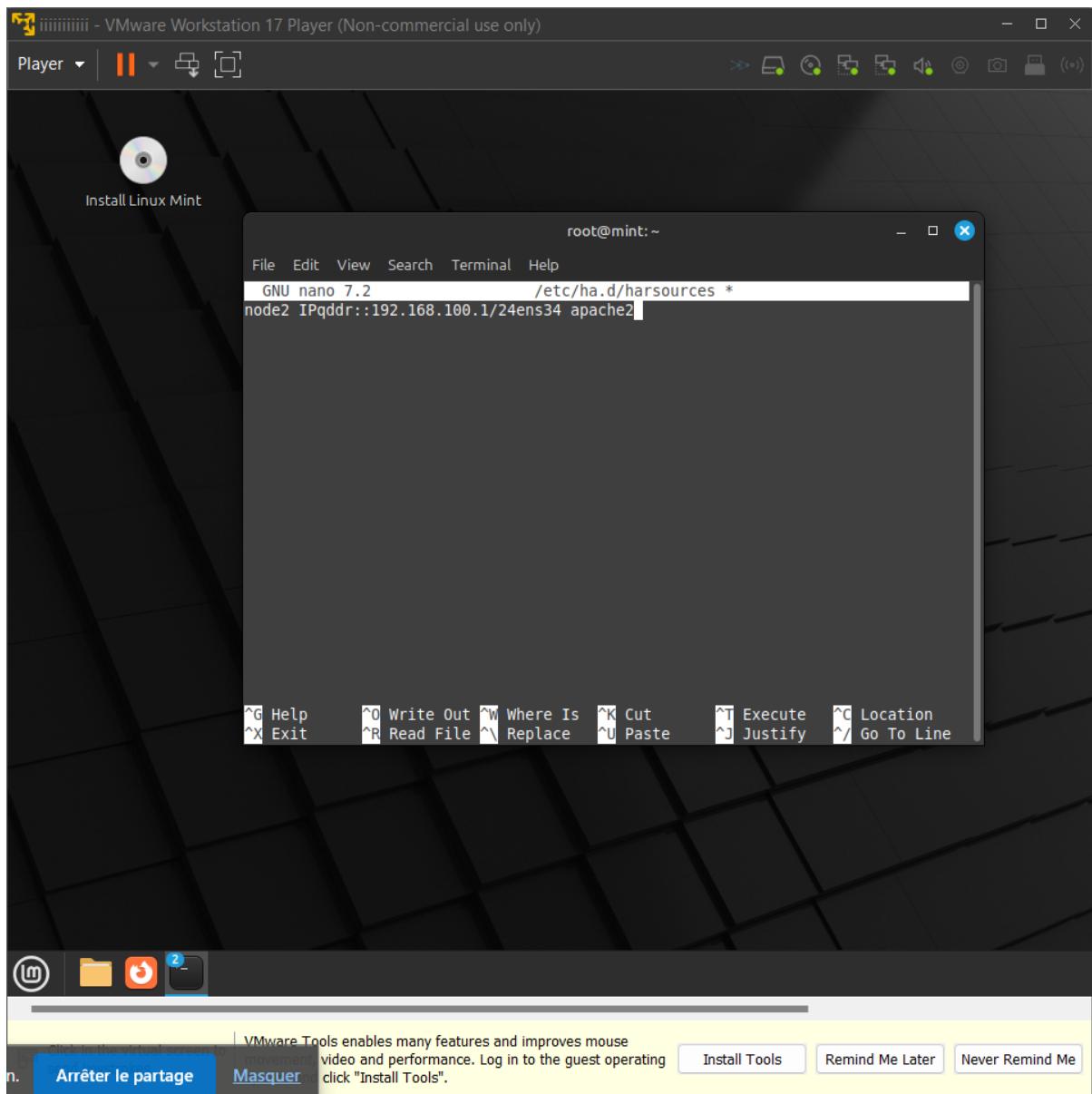
POUR LUNIX-MINT



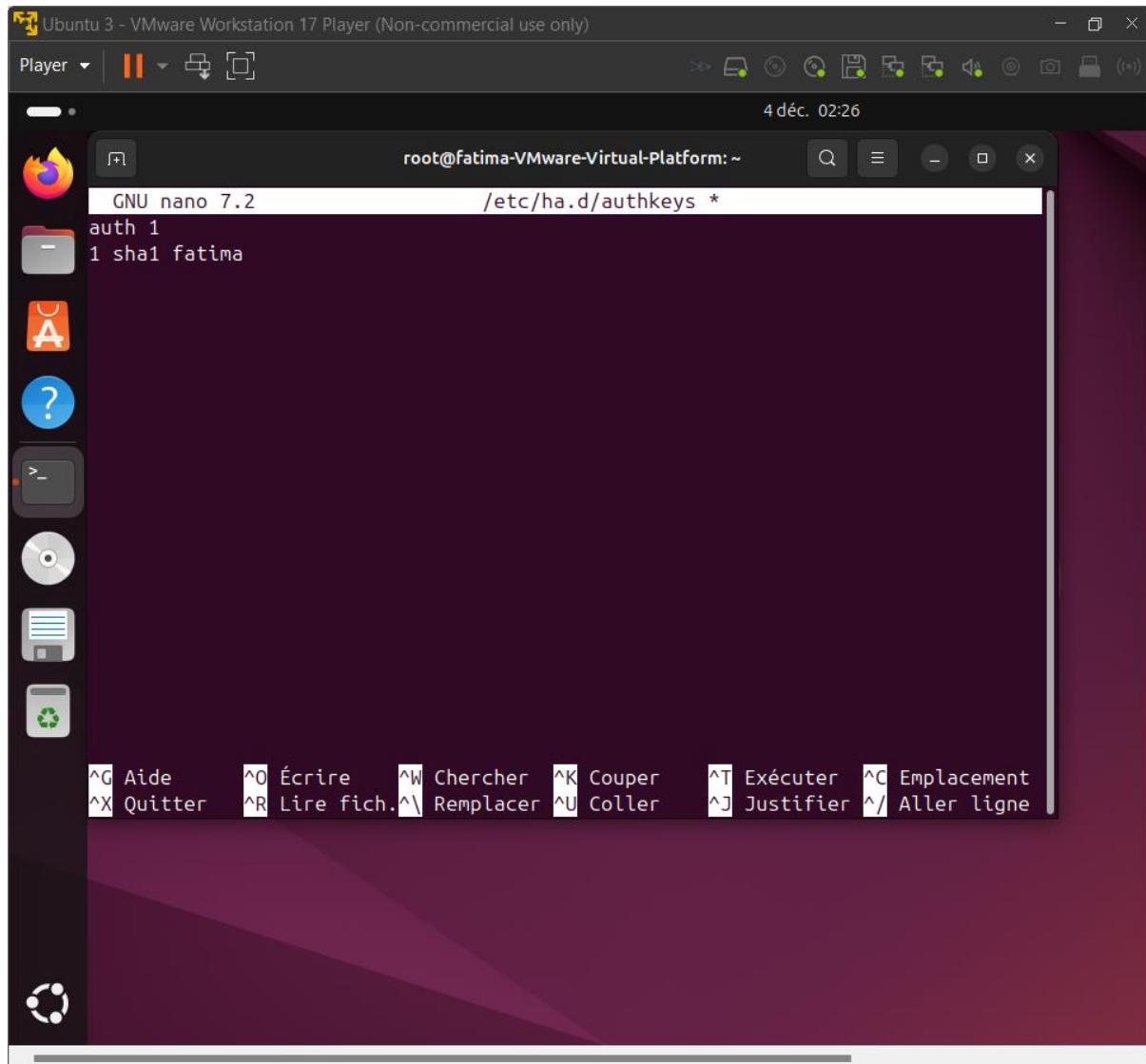
Sur Node1, créez ou modifiez ce fichier : Ubuntu



POUR LUNIX-MINT



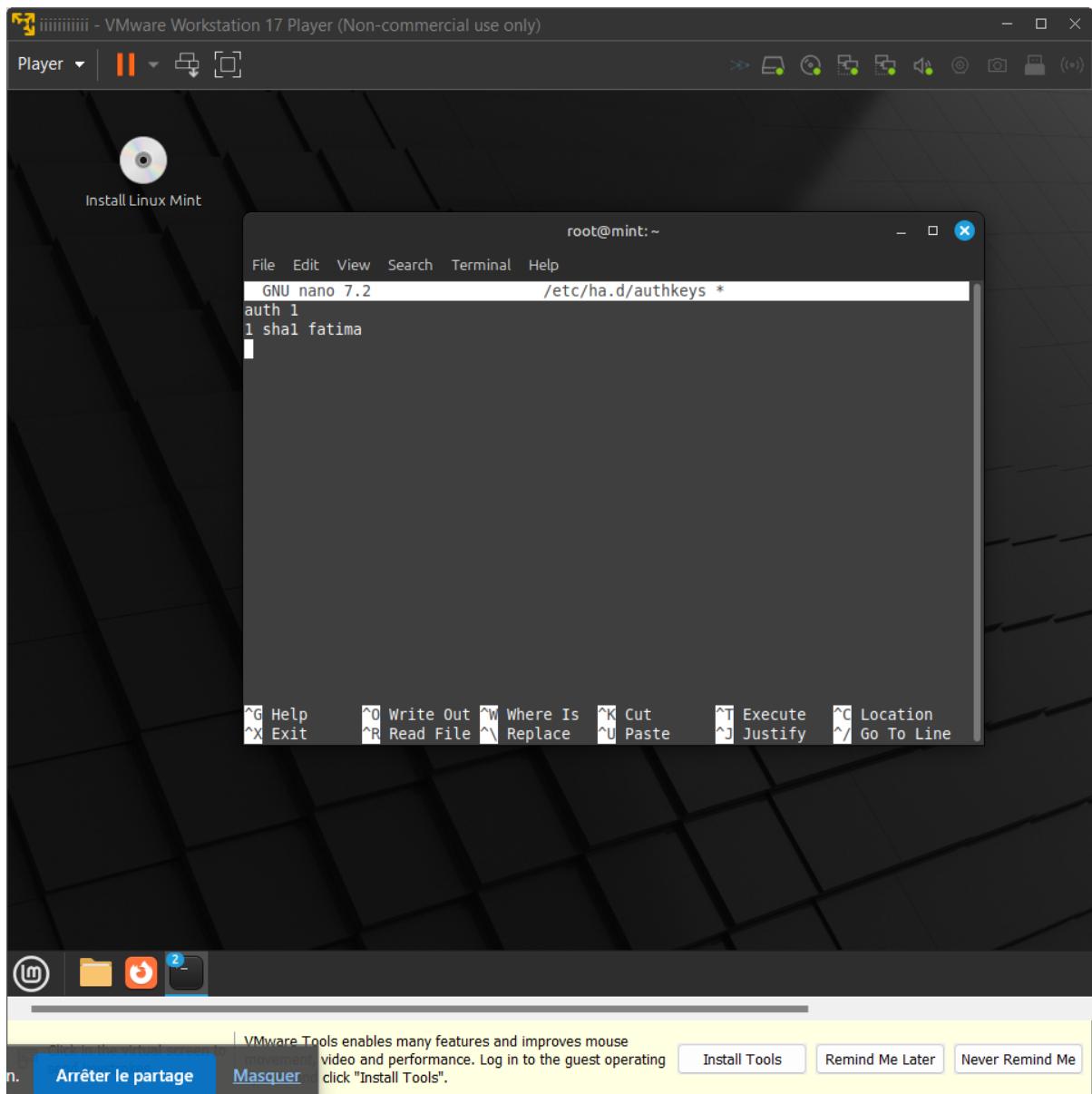
4.1 Fichier des clés d'authentification (/etc/ha.d/authkeys) Dans Ubuntu



The screenshot shows a terminal window titled "Ubuntu 3 - VMware Workstation 17 Player (Non-commercial use only)". The window title bar also includes "Player", "||", and a minimize/maximize button. The status bar at the top right shows the date and time: "4 déc. 02:26". The terminal window has a dark background and a light-colored text area. The title bar of the terminal says "root@fatima-VMware-Virtual-Platform: ~" and the command being run is "GNU nano 7.2 /etc/ha.d/authkeys *". Inside the text area, there is one line of text: "auth 1 1 sha1 fatima". Below the terminal window, the desktop environment is visible, featuring a dark purple background with various icons in the dock, including a browser, file manager, and system tray icons. A keyboard shortcut legend is displayed at the bottom of the terminal window.

```
auth 1 1 sha1 fatima
```

POUR LUNIX-MINT



: Intégrer Apache2 à Heartbeat

Désactivez le démarrage automatique d'Apache sur les deux machines :

Ubuntu 3 - VMware Workstation 17 Player (Non-commercial use only)

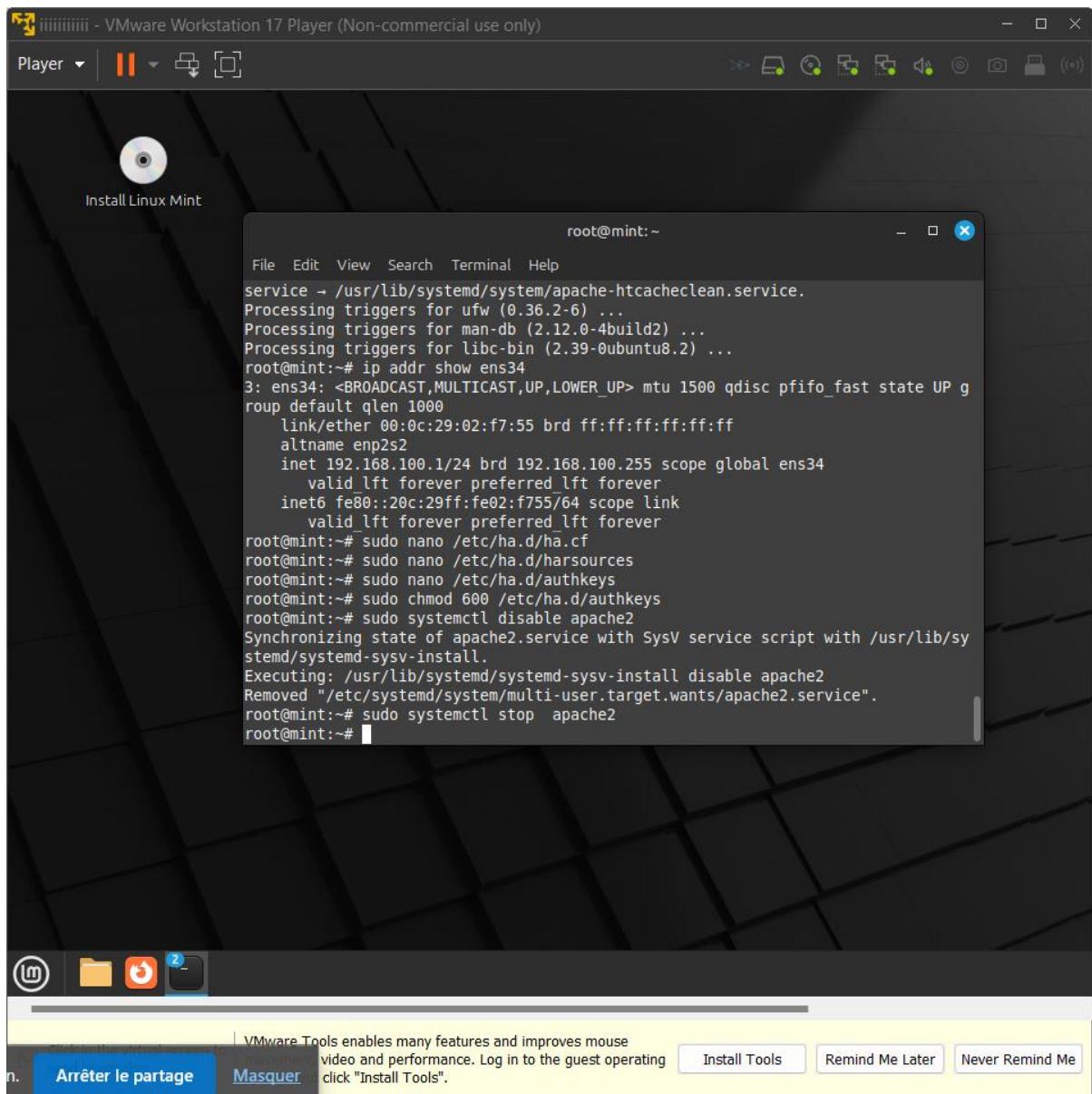
Player | || ▾ ▷ []

4 déc. 02:36

```
root@fatima-VMware-Virtual-Platform:~# ip link
1: ens33: group default qlen 1000
    link/ether 00:0c:29:e9:22:03 brd ff:ff:ff:ff:ff:ff
    altname enp2s1
    inet 192.168.112.146/24 brd 192.168.112.255 scope global dynamic noprefixroute
        valid_lft 1327sec preferred_lft 1327sec
        inet6 fe80::898b:8590:743b:afeb/64 scope link noprefixroute
            valid_lft forever preferred_lft forever
root@fatima-VMware-Virtual-Platform:~# sudo systemctl start heartbeat
root@fatima-VMware-Virtual-Platform:~# sudo nano /etc/ha.d/ha.cf
root@fatima-VMware-Virtual-Platform:~# sudo nano /etc/ha.d/haresources
root@fatima-VMware-Virtual-Platform:~# sudo nano /etc/ha.d/haresources
root@fatima-VMware-Virtual-Platform:~# sudo nano /ect/ha.d/authkeys
root@fatima-VMware-Virtual-Platform:~# sudo nano /etc/ha.d/authkeys
root@fatima-VMware-Virtual-Platform:~# sudo chmod 600 /etc/ha.d/authkeys
root@fatima-VMware-Virtual-Platform:~# sudo systemctl disable apache2
Failed to disable unit: Unit file apache2.service does not exist.
root@fatima-VMware-Virtual-Platform:~# sudo systemctl disable apache2
Synchronizing state of apache2.service with SysV service script with /usr/lib/systemd/systemd-sysv-install.
Executing: /usr/lib/systemd/systemd-sysv-install disable apache2
Removed "/etc/systemd/system/multi-user.target.wants/apache2.service".
root@fatima-VMware-Virtual-Platform:~# sudo systemctl stop apache2
root@fatima-VMware-Virtual-Platform:~#
```

sudo systemctl disable apache2

sudo systemctl stop apache2

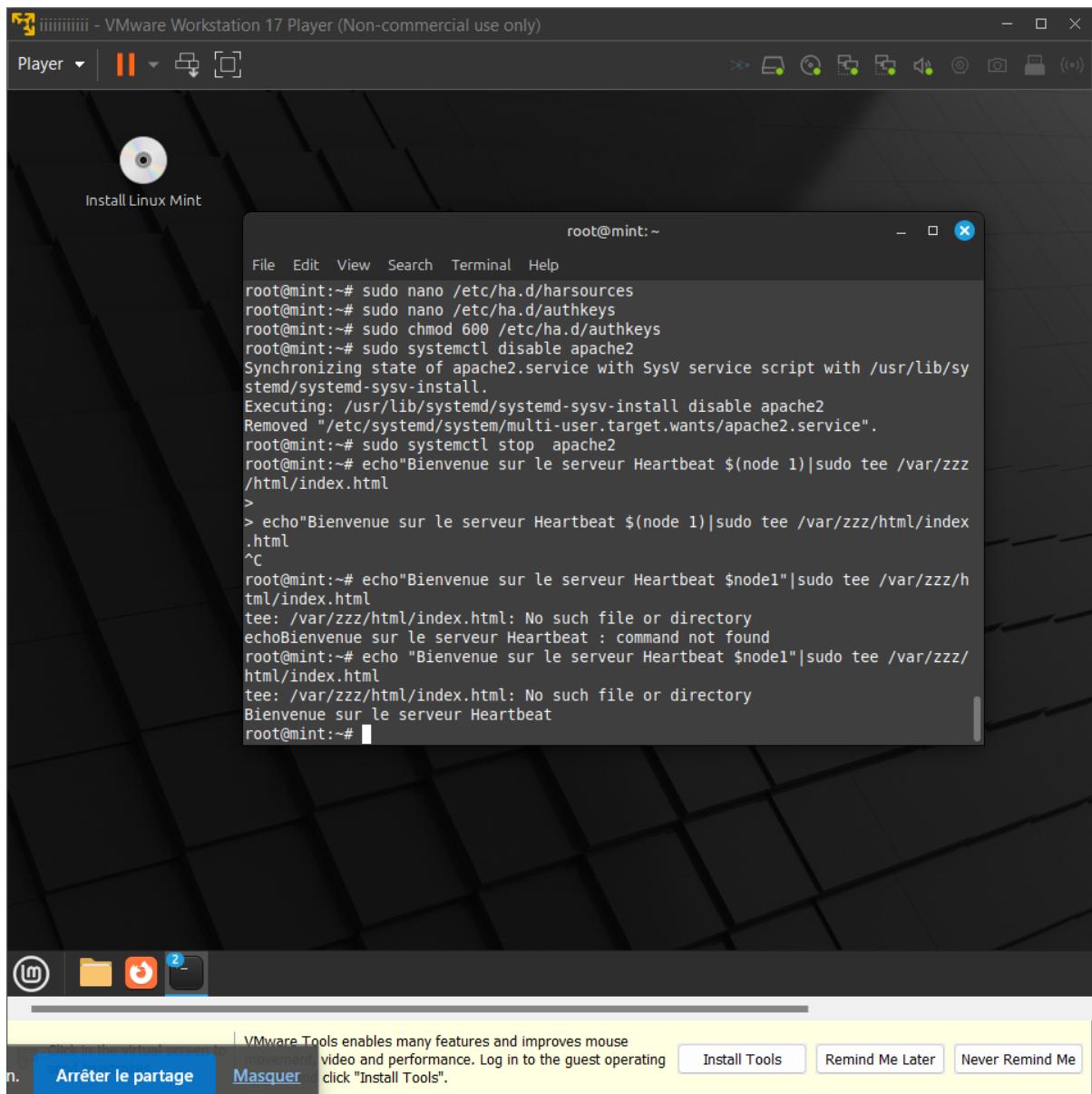


Elle nous permet de Créer une page HTML personnalisée (facultatif) sur les deux machines :

```
root@fatima-VMware-Virtual-Platform:~# sudo systemctl disable apache2
Failed to disable unit: Unit file apach2.service does not exist.
root@fatima-VMware-Virtual-Platform:~# sudo systemctl disable apache2
Synchronizing state of apache2.service with SysV service script with /usr/lib/
systemd/systemd-sysv-install.
Executing: /usr/lib/systemd/systemd-sysv-install disable apache2
Removed "/etc/systemd/system/multi-user.target.wants/apache2.service".
root@fatima-VMware-Virtual-Platform:~# sudo systemctl stop apache2
root@fatima-VMware-Virtual-Platform:~# echo "Bienvenue sur le serveur Heartbeat$(n
ode 2)|sudo tee /var/www/html/index.html
> ^C
root@fatima-VMware-Virtual-Platform:~# echo "Bienvenue sur le serveur Heartbeat$n
ode 2"|sudo tee /var/www/html/index.html
echo Bienvenue sur le serveur Heartbeat 2 : commande introuvable
root@fatima-VMware-Virtual-Platform:~# echo "Bienvenue sur le serveur Heartbeat$n
ode 2"|sudo tee /var/www/html/index.html
echo Bienvenue sur le serveur Heartbeat 2 : commande introuvable
root@fatima-VMware-Virtual-Platform:~# echo "Bienvenue sur le serveur Heartbeat $
node 2"|sudo tee /var/www/html/index.html
echo Bienvenue sur le serveur Heartbeat 2 : commande introuvable
root@fatima-VMware-Virtual-Platform:~# echo "Bienvenue sur le server Heartbeat $
node2"|sudo tee /var/www/html/index.html
Bienvenue sur le server Heartbeat
root@fatima-VMware-Virtual-Platform:~#
```

Pour ubuntu

Pour linux-mint

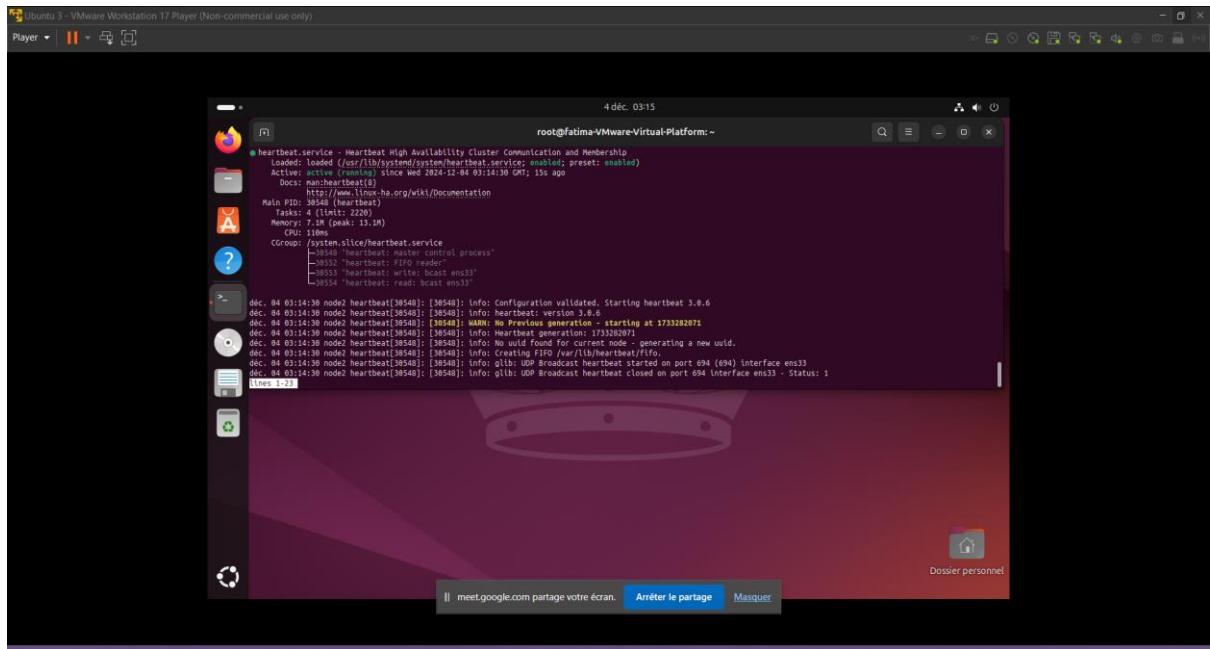


Étape 4 : Démarrer Heartbeat

Sur les deux machines, démarrez le service Heartbeat :

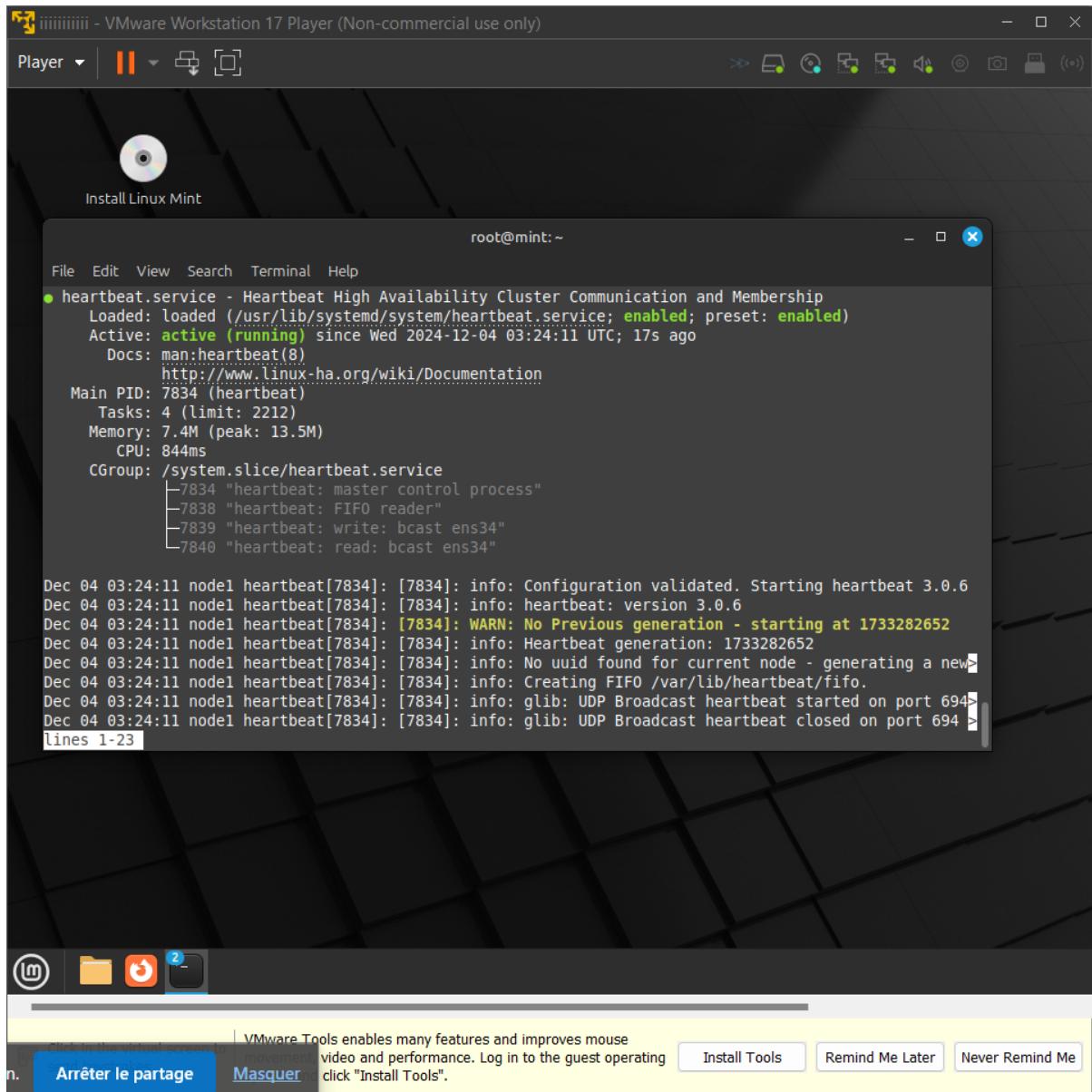
```
sudo systemctl start heartbeat
```

Vérifiez que le service est actif :



POUR Ubuntu

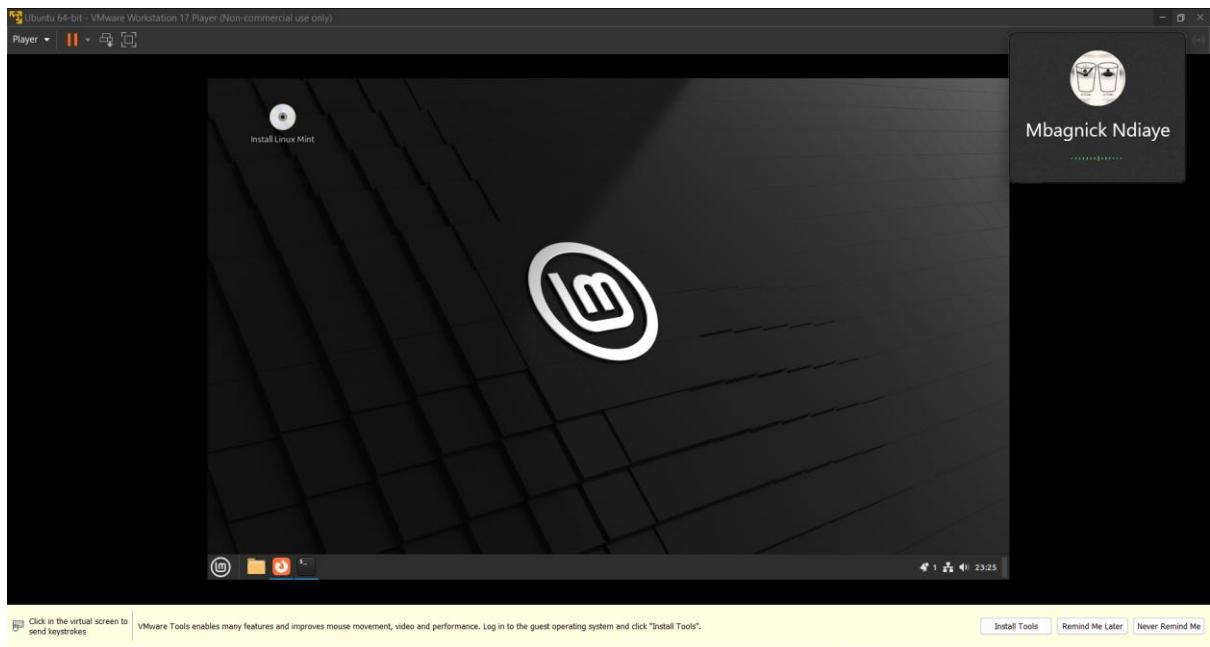
-Pour Lunix-Mint



Etape5: TESTE sur la machine Client

Nous allons télécharger une machine cliente qui va nous servir à faire les tests

Nous avons téléchargé Une deuxieme machine LUNIX-MINT



Après ce téléchargement nous allons faire le ping entre les servers et la machine cliente

Ubuntu 64-bit - VMware Workstation 17 Player (Non-commercial use only)

Player | Connection failed

Activation of network

File Edit View Search Terminal Help

Install Linux

```
mint@mint:~
```

```
group default qlen 1000
    link/ether 00:0c:29:62:36:52 brd ff:ff:ff:ff:ff:ff
    altname enp2s1
    inet 192.168.112.137/24 brd 192.168.112.255 scope global dynamic noprefixroute
        ens3
            valid_lft 1277sec preferred_lft 1277sec
            inet6 fe80::dde4:1aa8:6281:ce98/64 scope link noprefixroute
                valid_lft forever preferred_lft forever
3: ens34: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc pfifo_fast state UP group default qlen 1000
    link/ether 00:0c:29:62:36:5c brd ff:ff:ff:ff:ff:ff
    altname enp2s2
    inet6 fe80::928:e44f:c693:5acf/64 scope link noprefixroute
        valid_lft forever preferred_lft forever
mint@mint:~$ ping 192.168.112.142
PING 192.168.112.142 (192.168.112.142) 56(84) bytes of data.
64 bytes from 192.168.112.142: icmp_seq=1 ttl=64 time=7.08 ms
64 bytes from 192.168.112.142: icmp_seq=2 ttl=64 time=1.88 ms
64 bytes from 192.168.112.142: icmp_seq=3 ttl=64 time=1.22 ms
^C
--- 192.168.112.142 ping statistics ---
3 packets transmitted, 3 received, 0% packet loss, time 2004ms
rtt min/avg/max/mdev = 1.217/3.394/7.084/2.623 ms
mint@mint:~$
```

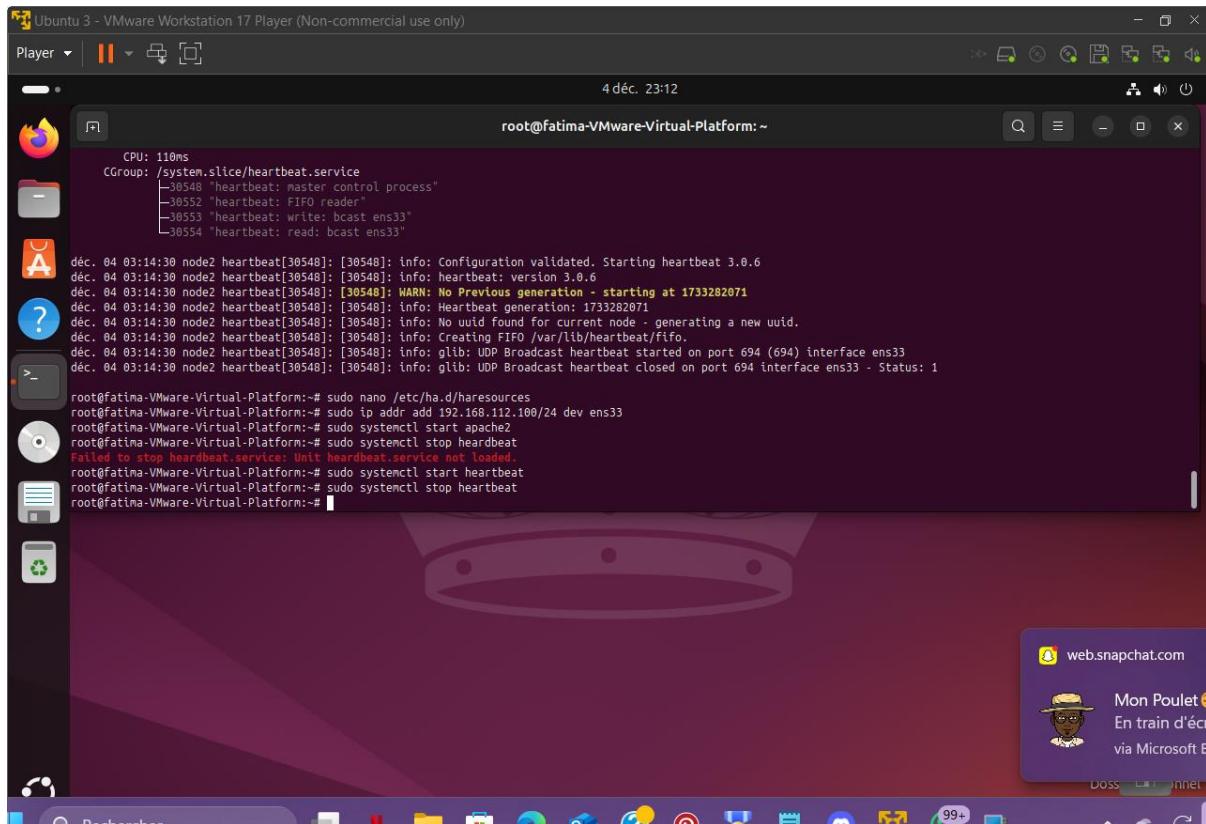
Click in the virtual screen to send keystrokes

VMware Tools enables many features and improves mouse movement, video and performance. Log in to the guest operating system and click "Install Tools".

Install Tools Remind Me Later Never Remind Me

Nous avons fait le ping avec l'adresse de server virtuel et sa passe

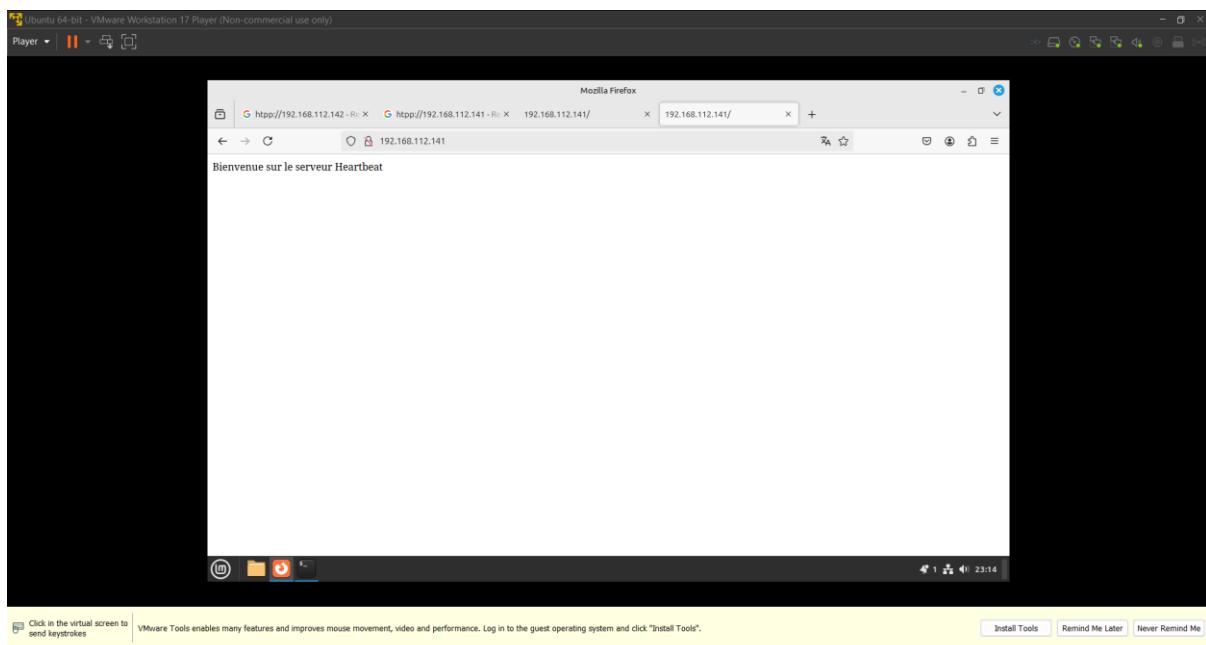
Nous allons passer eteindre l'une des server pour pouvoir faire le teste



nous avons eteind Ubuntu vu en utilisant la commande

SUDO SYSTEMCTL STOP HEARTBEAT

POUR POUVOIR FAIRE LE TESTE DANS LA MACHINE CLIENTE



Voilà et nous avons terminer le travail de la redondances matérielles
en qu'à de panne de l'un des server