

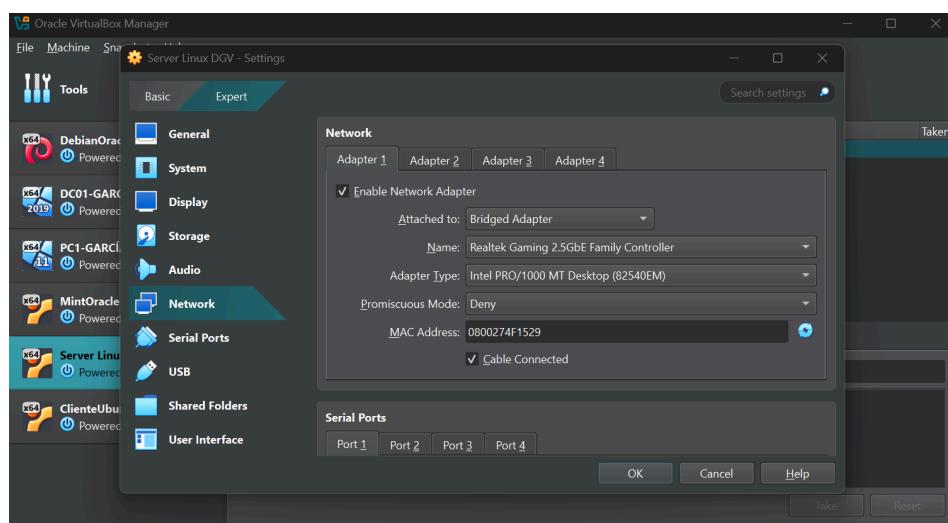
## 1. Configuración

1

# IPTABLES

## 1. Configuración

1.



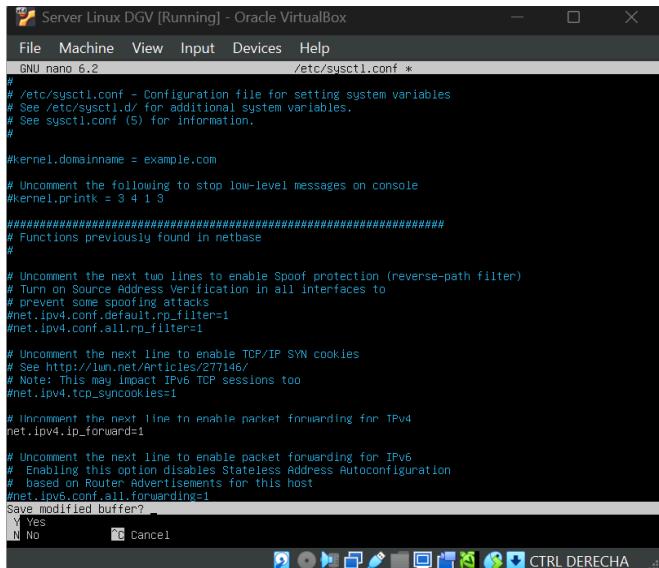
Primero dejo la primera tarjeta del servidor como adaptador puente.

```
admdgv@serverdgv:~$ cat /proc/sys/net/ipv4/ip_forward
0
admdgv@serverdgv:~$
```

Verificamos el valor de la variable ip\_forward, al ser 0 tendremos que cambiarlo

```
admdgv@serverdgv:~$ sudo nano /etc/sysctl.conf
[sudo] password for admdgv: _____
```

Editamos el fichero /etc/sysctl.conf.



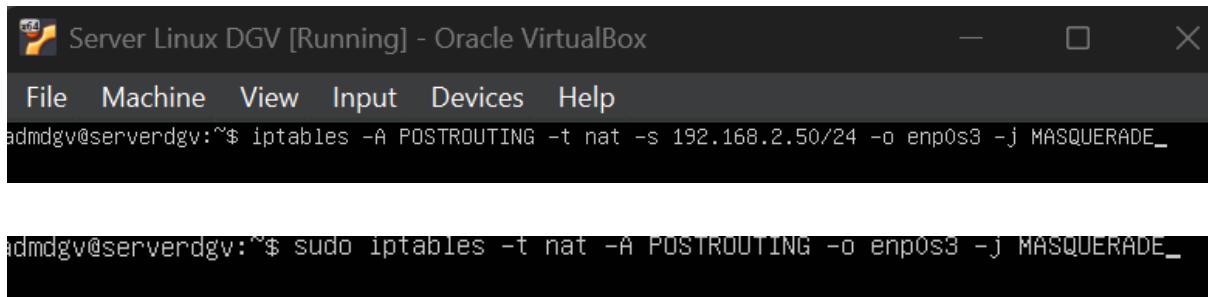
```
GNU nano 6.2          /etc/sysctl.conf *
```

```
# /etc/sysctl.conf - Configuration file for setting system variables
# See /etc/sysctl.d/ for additional system variables.
# See sysctl.conf (5) for information.
#
#kernel.domainname = example.com
# Uncomment the following to stop low-level messages on console
#kernel.printk = 3 4 1 3
#####
# Functions previously found in netbase
#
# Uncomment the next two lines to enable Spoof protection (reverse-path filter)
# Turn on Source Address Verification in all interfaces to
# prevent some spoofing attacks
#net.ipv4.conf.default.rp_filter=1
#net.ipv4.conf.all.rp_filter=1
#
# Uncomment the next line to enable TCP/IP SYN cookies
# See http://lwn.net/Articles/27146/
# Note: This may impact IPv6 TCP sessions too
#net.ipv4.tcp_syncookies=1
#
# Uncomment the next line to enable packet forwarding for IPv4
net.ipv4.ip_forward=1
#
# Uncomment the next line to enable packet forwarding for IPv6
# Enabling this option disables Stateless Address Autoconfiguration
# based on Router Advertisements for this host
#net.ipv6.conf.all.forwarding=1
Save modified buffer?
Y Yes
N No
  C Cancel
```

Establezco net.ipv4.ip\_forward=1 (le quito el #)

```
admdgv@serverdgv:~$ sudo sysctl -p /etc/sysctl.conf
```

Finalmente, ejecutamos el siguiente comando para que el servicio quede a 1.



```
admdgv@serverdgv:~$ sudo iptables -A POSTROUTING -t nat -s 192.168.2.50/24 -o enp0s3 -j MASQUERADE
```

```
admdgv@serverdgv:~$ sudo iptables -t nat -A POSTROUTING -o enp0s3 -j MASQUERADE
```

```
admdgv@serverdgv:~$ sudo apt-get install iptables-persistent
```

Instalo iptables-persistent para guardar los cambios cuando cierre el servidor.  
(Esto sería el ejercicio 13)

## 2.

Cancel **Wired** Apply

Details Identity **IPv4** IPv6 Security

**IPv4 Method**  Automatic (DHCP)  Link-Local Only  
 Manual  Disable  
 Shared to other computers

**Addresses**

Address	Netmask	Gateway	
192.168.2.100	255.255.255.0	192.168.2.50	

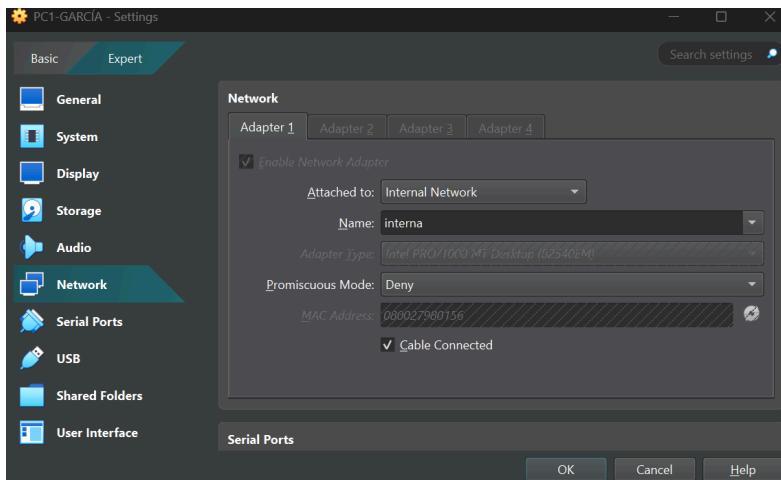
**DNS** Automatic   
8.8.8.8  
Separate IP addresses with commas

```
2: enp0s3: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc fq_codel state UP group default qlen 1000
  link/ether 08:00:27:26:1e:c6 brd ff:ff:ff:ff:ff:ff
    inet 192.168.2.100/24 brd 192.168.2.255 scope global noprefixroute enp0s3
      valid_lft forever preferred_lft forever
    inet6 fe80::6070:c4e0:5cde:7ce4/64 scope link noprefixroute
      valid_lft forever preferred_lft forever
david@david-VirtualBox:~$
```

```
david@david-VirtualBox:~$ ping 192.168.2.50
PING 192.168.2.50 (192.168.2.50) 56(84) bytes of data.
64 bytes from 192.168.2.50: icmp_seq=1 ttl=64 time=5.28 ms
64 bytes from 192.168.2.50: icmp_seq=2 ttl=64 time=1.10 ms
64 bytes from 192.168.2.50: icmp_seq=3 ttl=64 time=29.6 ms
64 bytes from 192.168.2.50: icmp_seq=4 ttl=64 time=1.12 ms
64 bytes from 192.168.2.50: icmp_seq=5 ttl=64 time=0.637 ms
64 bytes from 192.168.2.50: icmp_seq=6 ttl=64 time=1.18 ms
64 bytes from 192.168.2.50: icmp_seq=7 ttl=64 time=29.6 ms
64 bytes from 192.168.2.50: icmp_seq=8 ttl=64 time=1.48 ms
64 bytes from 192.168.2.50: icmp_seq=9 ttl=64 time=29.9 ms
64 bytes from 192.168.2.50: icmp_seq=10 ttl=64 time=29.3 ms
```

```
david@david-VirtualBox:~$ ping 8.8.8.8
PING 8.8.8.8 (8.8.8.8) 56(84) bytes of data.
64 bytes from 8.8.8.8: icmp_seq=1 ttl=117 time=15.6 ms
64 bytes from 8.8.8.8: icmp_seq=2 ttl=117 time=9.84 ms
64 bytes from 8.8.8.8: icmp_seq=3 ttl=117 time=10.3 ms
64 bytes from 8.8.8.8: icmp_seq=4 ttl=117 time=11.6 ms
64 bytes from 8.8.8.8: icmp_seq=5 ttl=117 time=40.3 ms
64 bytes from 8.8.8.8: icmp_seq=6 ttl=117 time=9.44 ms
64 bytes from 8.8.8.8: icmp_seq=7 ttl=117 time=9.90 ms
64 bytes from 8.8.8.8: icmp_seq=8 ttl=117 time=35.9 ms
64 bytes from 8.8.8.8: icmp_seq=9 ttl=117 time=9.78 ms
```

### 3.



En el cliente windows dejo solo la tarjeta de red interna.

### 4.

Propiedades de Protocolo de Internet versión 4 (TCP/IPv4)

General

Puede hacer que la configuración IP se asigne automáticamente si la red es compatible con esta funcionalidad. De lo contrario, deberá consultar con el administrador de red cuál es la configuración IP apropiada.

Obtener una dirección IP automáticamente  
 Usar la siguiente dirección IP:

Dirección IP: 192 . 168 . 2 . 101  
Máscara de subred: 255 . 255 . 255 . 0  
Puerta de enlace predeterminada: 192 . 168 . 2 . 50

Obtener la dirección del servidor DNS automáticamente  
 Usar las siguientes direcciones de servidor DNS:

Servidor DNS preferido: 8 . 8 . 8 . 8  
Servidor DNS alternativo: . . .

Validar configuración al salir

Adaptador de Ethernet LANDGV:

```
Sufijo DNS específico para la conexión. . : fe80::3d31:73ec:210:7ba0%3
Vínculo: dirección IPv6 local. . . : fe80::3d31:73ec:210:7ba0%3
Dirección IPv4. . . . . : 192.168.2.101
Máscara de subred . . . . . : 255.255.255.0
Puerta de enlace predeterminada . . . . : 192.168.2.50
```

C:\Users\david>ping 192.168.2.50

```
Haciendo ping a 192.168.2.50 con 32 bytes de datos:
Respuesta desde 192.168.2.50: bytes=32 tiempo=1ms TTL=64

Estadísticas de ping para 192.168.2.50:
Paquetes: enviados = 4, recibidos = 4, perdidos = 0
(0% perdidos),
Tiempos aproximados de ida y vuelta en milisegundos:
Mínimo = 0ms, Máximo = 1ms, Media = 0ms
```

```
C:\Users\david>ping 8.8.8.8

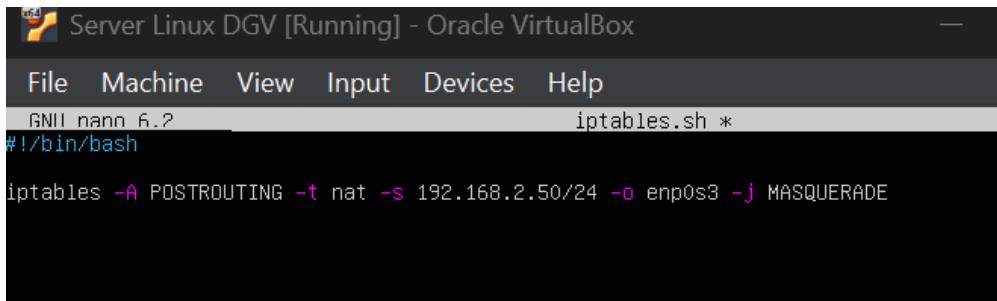
Haciendo ping a 8.8.8.8 con 32 bytes de datos:
Respuesta desde 8.8.8.8: bytes=32 tiempo=9ms TTL=117
Respuesta desde 8.8.8.8: bytes=32 tiempo=9ms TTL=117
Respuesta desde 8.8.8.8: bytes=32 tiempo=9ms TTL=117
Respuesta desde 8.8.8.8: bytes=32 tiempo=12ms TTL=117

Estadísticas de ping para 8.8.8.8:
  Paquetes: enviados = 4, recibidos = 4, perdidos = 0
            (0% perdidos),
  Tiempos aproximados de ida y vuelta en milisegundos:
    Mínimo = 9ms, Máximo = 12ms, Media = 9ms
```

5.

(para realizar esta parte escribo sudo iptables -F para borrar la configuración, ya que la hice permanente, y luego escribo sudo netfilter-persistent save)

```
admdgv@serverdgv:~$ nano iptables.sh
```

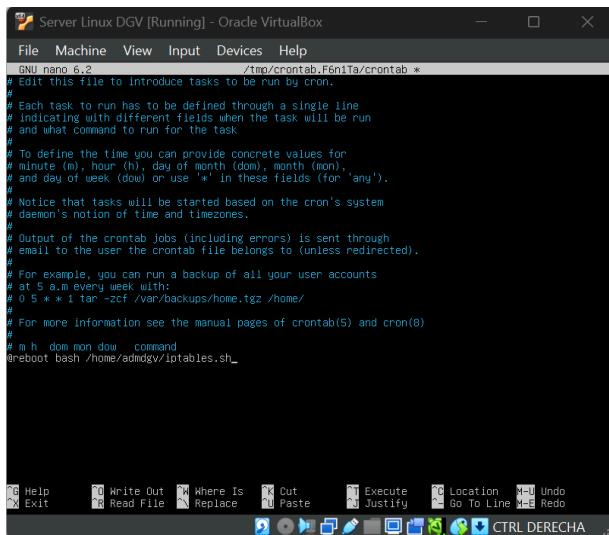


```
GNOME nano 6.2                               iptables.sh *
#!/bin/bash

iptables -A POSTROUTING -t nat -s 192.168.2.50/24 -o enp0s3 -j MASQUERADE
```

Edito un sh que ejecute el comando.

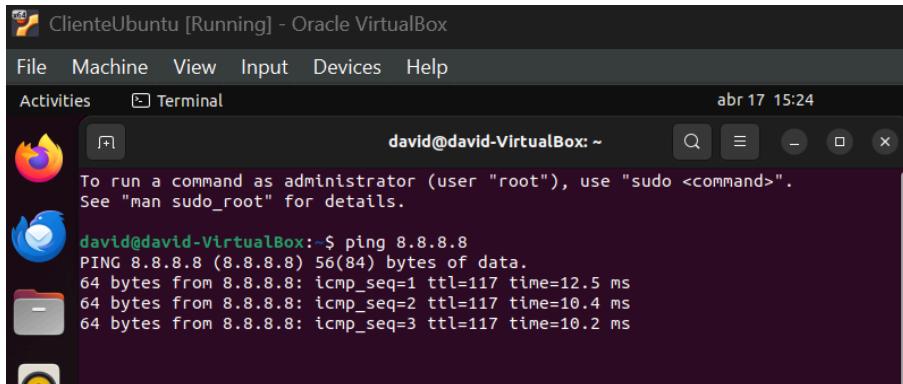
Escribo contrab -e para editar el archivo.



```
GNOME nano 6.2                               /tmp/crontab.F6n1Ta/crontab *
# Edit this file to introduce tasks to be run by cron.
#
# Each task to run has to be defined through a single line
# indicating with different fields when the task will be run
# and what command to run for the task
#
# To define the time you can provide concrete values for
# minute (m), hour (h), day of month (dom), month (mon),
# and day of week (dow) or use '*' in these fields (for 'any').
#
# Notice that tasks will be started based on the cron's system
# daemon's notion of time and timezone.
#
# Output of the crontab jobs (including errors) is sent through
# email to the user the crontab file belongs to (unless redirected).
#
# For example, you can run a backup of all your user accounts
# at 5 a.m every week with:
# 0 5 * * 1 tar -zcf /var/backups/home.tgz /home/
#
# For more information see the manual pages of crontab(5) and cron(8)
#
# m h dom mon dow   command
* * * * *       /home/admdgv/iptables.sh
```

Se quedaría tal que así, de modo que cada vez que iniciemos el servidor, se ejecutará.

6.



ClienteUbuntu [Running] - Oracle VirtualBox

File Machine View Input Devices Help

Activities Terminal david@david-VirtualBox: ~ abr 17 15:24

To run a command as administrator (user "root"), use "sudo <command>". See "man sudo\_root" for details.

david@david-VirtualBox:~\$ ping 8.8.8.8

PING 8.8.8.8 (8.8.8.8) 56(84) bytes of data.

64 bytes from 8.8.8.8: icmp\_seq=1 ttl=117 time=12.5 ms

64 bytes from 8.8.8.8: icmp\_seq=2 ttl=117 time=10.4 ms

64 bytes from 8.8.8.8: icmp\_seq=3 ttl=117 time=10.2 ms

C:\Users\david>ping 8.8.8.8

Haciendo ping a 8.8.8.8 con 32 bytes de datos:

Respuesta desde 8.8.8.8: bytes=32 tiempo=9ms TTL=117

Respuesta desde 8.8.8.8: bytes=32 tiempo=8ms TTL=117

Respuesta desde 8.8.8.8: bytes=32 tiempo=9ms TTL=117

Respuesta desde 8.8.8.8: bytes=32 tiempo=9ms TTL=117

Estadísticas de ping para 8.8.8.8:

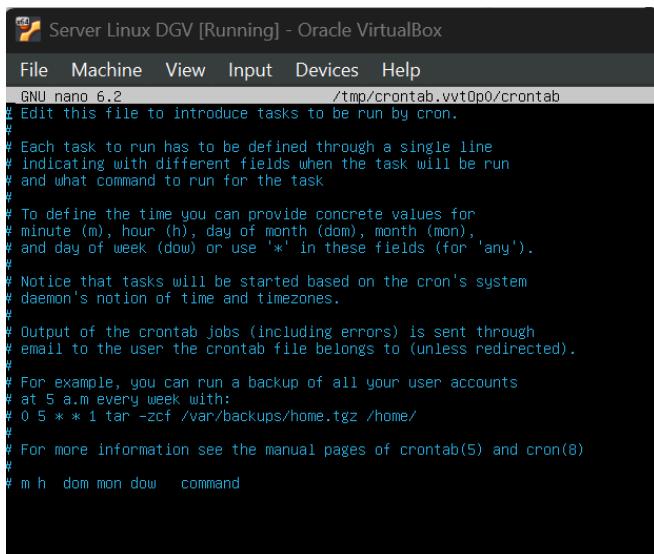
Paquetes: enviados = 4, recibidos = 4, perdidos = 0 (0% perdidos),

Tiempos aproximados de ida y vuelta en milisegundos:

Minimo = 8ms, Máximo = 9ms, Media = 8ms

C:\Users\david>

7.



Server Linux DGV [Running] - Oracle VirtualBox

File Machine View Input Devices Help

GNU nano 6.2 /tmp/crontab.vvt0p0/crontab

# Edit this file to introduce tasks to be run by cron.

#

# Each task to run has to be defined through a single line

# indicating with different fields when the task will be run

# and what command to run for the task

#

# To define the time you can provide concrete values for

# minute (m), hour (h), day of month (dom), month (mon),

# and day of week (dow) or use '\*' in these fields (for 'any').

#

# Notice that tasks will be started based on the cron's system

# daemon's notion of time and timezones.

#

# Output of the crontab jobs (including errors) is sent through

# email to the user the crontab file belongs to (unless redirected).

#

# For example, you can run a backup of all your user accounts

# at 5 a.m every week with:

# 0 5 \* \* 1 tar -zcf /var/backups/home.tgz /home/

#

# For more information see the manual pages of crontab(5) and cron(8)

#

# m h dom mon dow command

Elimino la tarea de crontab y después reinicio el server.

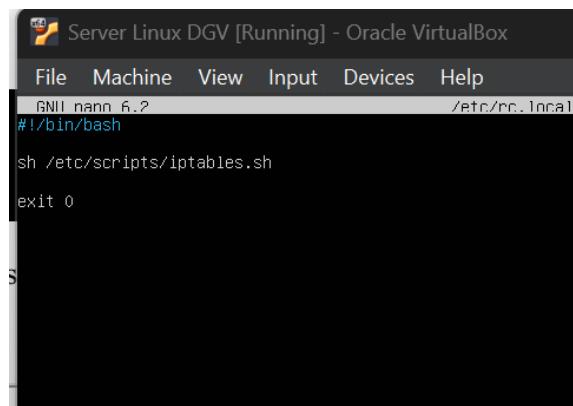
- 8.
- 9.
- 10.
- 11.

→ Hago todos los ejercicios relativos al rc aquí:

```
admdgv@serverdgv:~$ sudo mkdir /etc/scripts  
admdgv@serverdgv:~$ sudo mv iptables.sh /etc/scripts  
admdgv@serverdgv:~$ sudo chmod +x /etc/scripts/iptables.sh  
admdgv@serverdgv:~$ _
```

Creo la carpeta /etc/scripts y muevo el script iptables, finalmente le doy permisos de ejecución.

```
admdgv@serverdgv:~$ sudo nano /etc/rc.local
```



```
#!/bin/bash  
sh /etc/scripts/iptables.sh  
exit 0
```

```
admdgv@serverdgv:~$ sudo chmod +x /etc/rc.local
```

Creo el fichero rc.local y ejecutará nuestro script en el proceso de arranque.  
Le asigno permisos para que funcione correctamente.

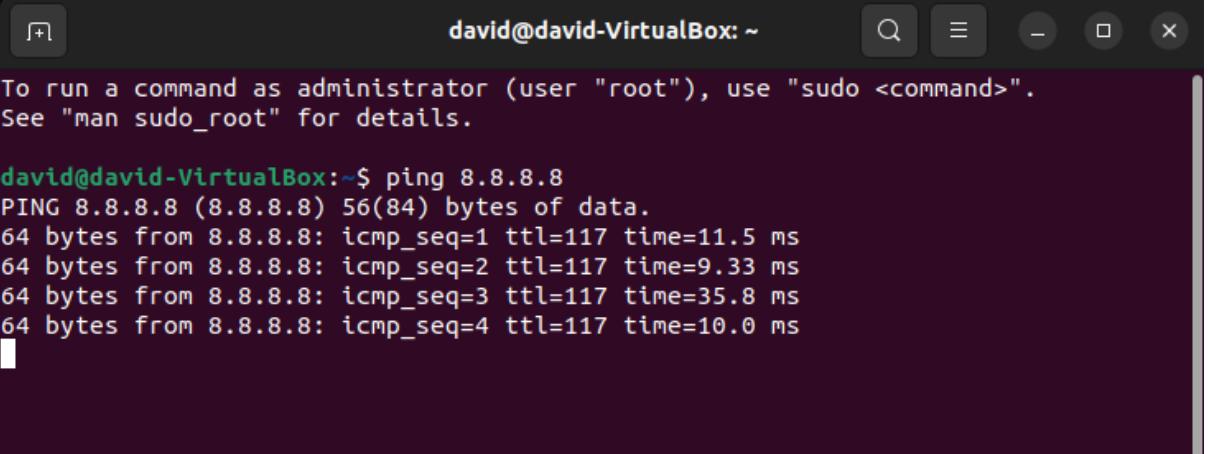
```
admdgv@serverdgv:~$ sudo systemctl enable rc-local
```

```
admdgv@serverdgv:~$ sudo reboot
```

```
admdgv@serverdgv:~$ sudo systemctl start rc-local.service  
[sudo] password for admdgv:  
Failed to start rc-local.service: Unit rc-local.service has a bad unit file setting.  
See system logs and 'systemctl status rc-local.service' for details.  
admdgv@serverdgv:~$ sudo systemctl status rc-local.service  
Warning: The unit file, source configuration file or drop-ins of rc-local.service changed on disk. ▶  
* rc-local.service  
    Loaded: bad-setting (Reason: Unit rc-local.service has a bad unit file setting.)  
      Drop-In: /usr/lib/systemd/system/rc-local.service.d  
              └─debian.conf  
        Active: inactive (dead)  
lines 1-6/6 (END)
```

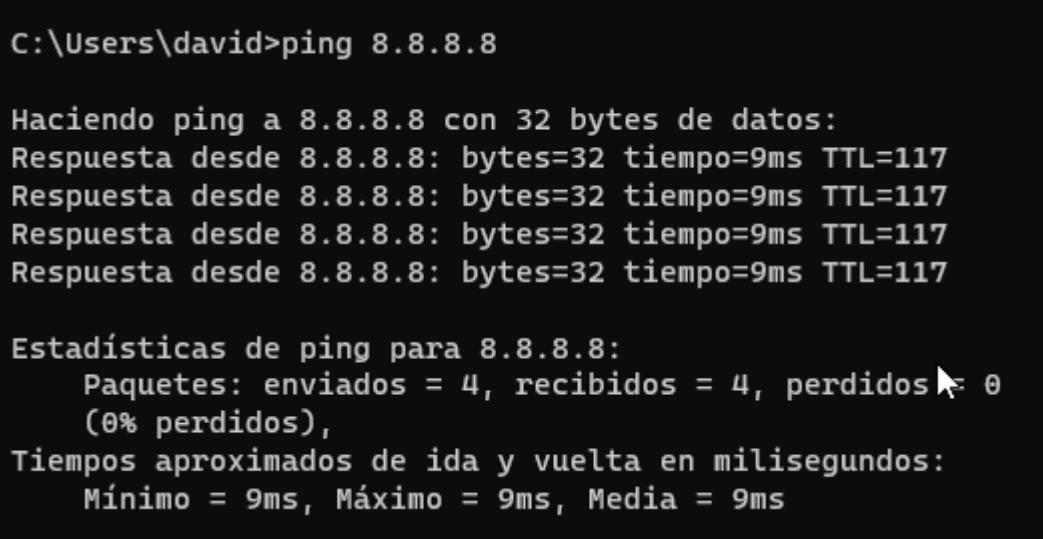
(por alguna razón me da error, pero he seguido los pasos indicados y debería funcionar)

12.



```
david@david-VirtualBox: ~
To run a command as administrator (user "root"), use "sudo <command>".
See "man sudo_root" for details.

david@david-VirtualBox:~$ ping 8.8.8.8
PING 8.8.8.8 (8.8.8.8) 56(84) bytes of data.
64 bytes from 8.8.8.8: icmp_seq=1 ttl=117 time=11.5 ms
64 bytes from 8.8.8.8: icmp_seq=2 ttl=117 time=9.33 ms
64 bytes from 8.8.8.8: icmp_seq=3 ttl=117 time=35.8 ms
64 bytes from 8.8.8.8: icmp_seq=4 ttl=117 time=10.0 ms
```



```
C:\Users\david>ping 8.8.8.8

Haciendo ping a 8.8.8.8 con 32 bytes de datos:
Respuesta desde 8.8.8.8: bytes=32 tiempo=9ms TTL=117

Estadísticas de ping para 8.8.8.8:
    Paquetes: enviados = 4, recibidos = 4, perdidos = 0
                (0% perdidos),
Tiempos aproximados de ida y vuelta en milisegundos:
    Mínimo = 9ms, Máximo = 9ms, Media = 9ms
```

Bibliografía: [🐧 Crear ROUTER LINUX en UBUNTU SERVER - YouTube How to Enable /etc/rc.local with Systemd - LinuxBabe](#)