

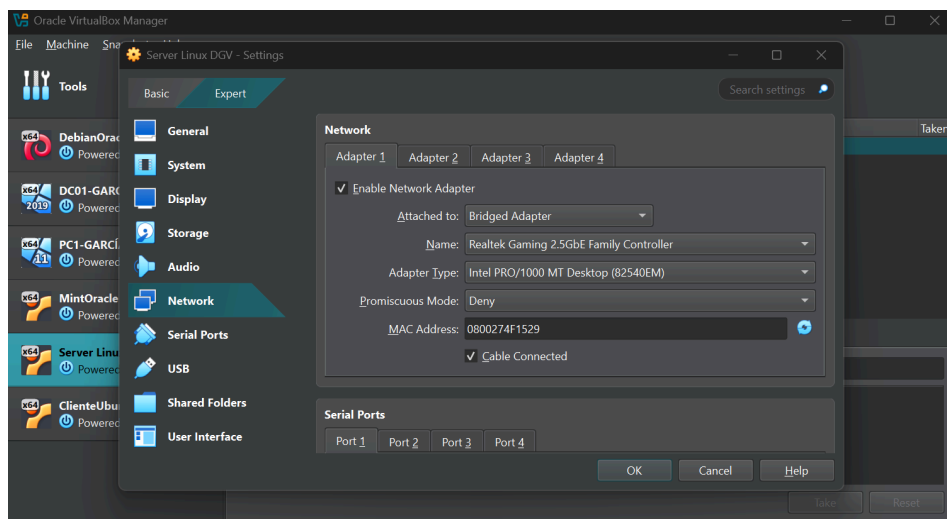
1. Configuración

1

IPTABLES

1. Configuración

1.



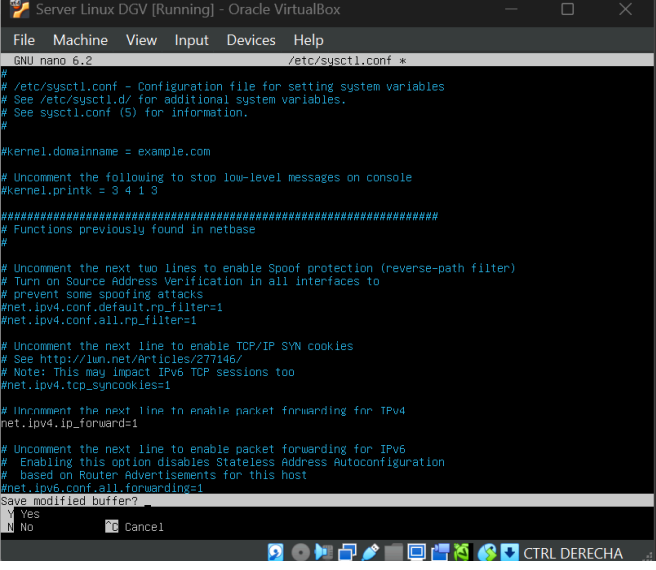
Primero dejo la primera tarjeta del servidor como adaptador puente.

```
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.

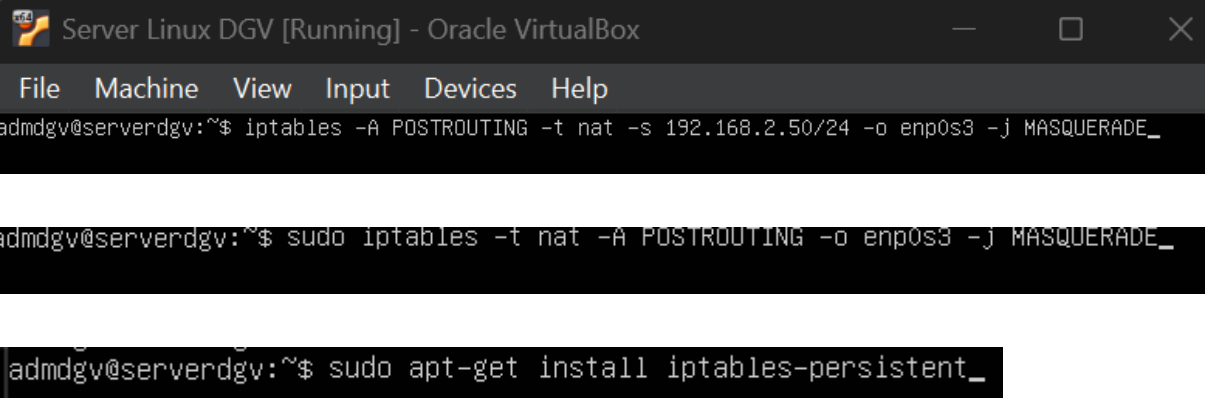


```
Server Linux DGV [Running] - Oracle VirtualBox
File Machine View Input Devices Help
GNU nano 6.2 /etc/sysctl.conf *
#
# /etc/sysctl.conf - Configuration file for setting system variables
# See /etc/sysctl.d/ for additional system variables.
# See sysctl.conf (5) for information.
#
#kernel.domainname = 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://jun.net/articles/277146/
# 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
CTRL DERECHA
```

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.



```
Server Linux DGV [Running] - Oracle VirtualBox
File Machine View Input Devices Help
admdgv@serverdgv:~$ 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

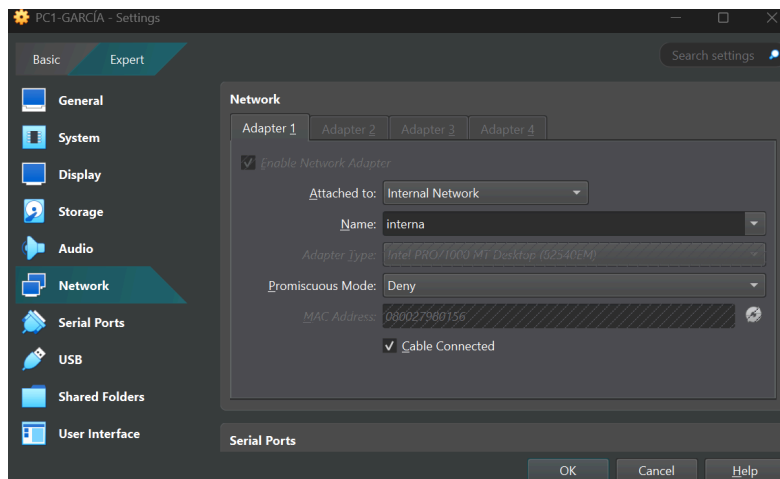
Separate IP addresses with commas

```
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
```

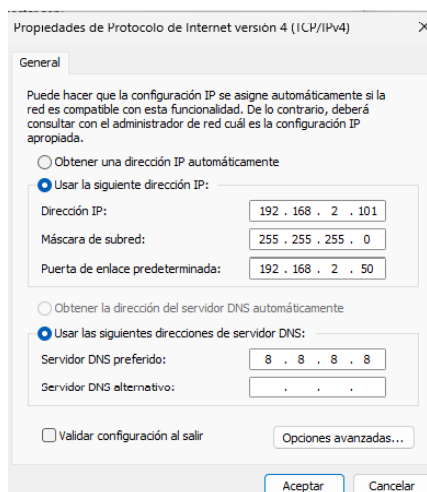
```
david@david-VirtualBox:~$ ping 8.8.8.8
PING 8.8.8.8 (8.8.8.8) 56(84) bytes of data.
64 bytes from 8.8.8.8: icmp_seq=1 ttl=117 time=15.6 ms
64 bytes from 8.8.8.8: icmp_seq=2 ttl=117 time=9.84 ms
64 bytes from 8.8.8.8: icmp_seq=3 ttl=117 time=10.3 ms
64 bytes from 8.8.8.8: icmp_seq=4 ttl=117 time=11.6 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.



```
Adaptador de Ethernet LANDGV:

Sufijo DNS específico para la conexión. . . :
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
Respuesta desde 192.168.2.50: bytes=32 tiempo<1m TTL=64
Respuesta desde 192.168.2.50: bytes=32 tiempo<1m TTL=64
Respuesta desde 192.168.2.50: bytes=32 tiempo<1m 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
```

```
Server Linux DGV [Running] - Oracle VirtualBox
File Machine View Input Devices Help
GNU nano 6.2 iptables.sh *
#!/bin/bash

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

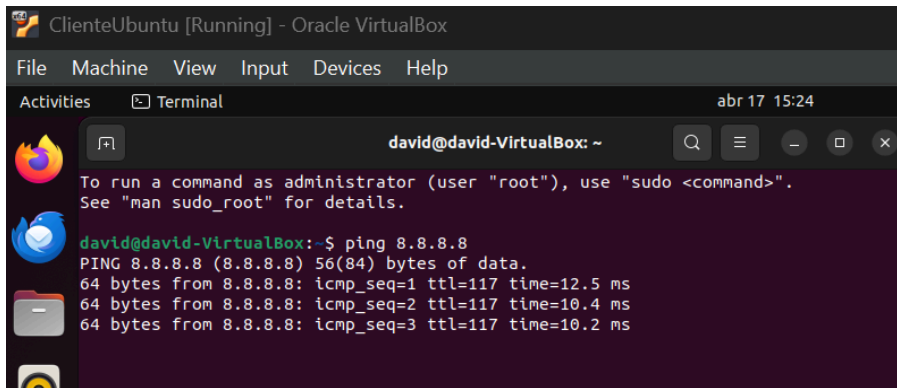
Edito un sh que ejecute el comando.

Escribo `contrab -e` para editar el archivo.

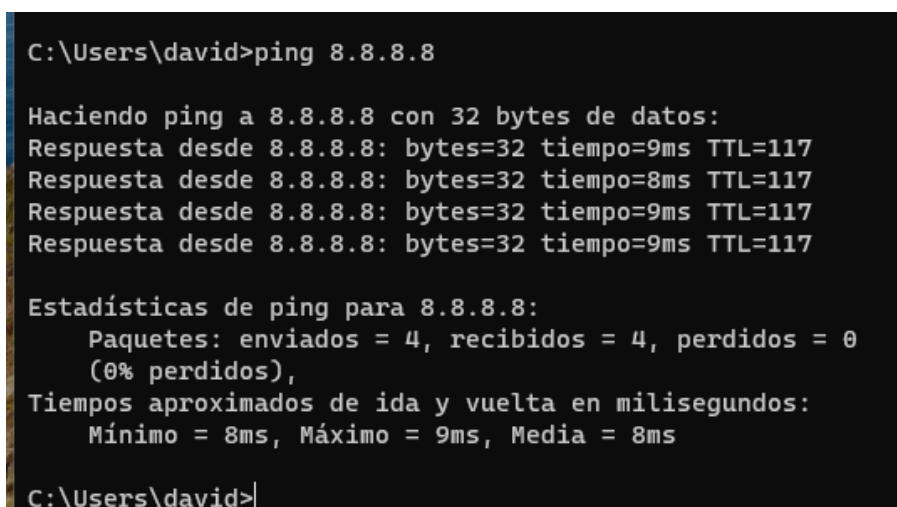
```
Server Linux DGV [Running] - Oracle VirtualBox
File Machine View Input Devices Help
GNU nano 6.2 /tmp/crontab.F6n1Ta/crontab *
# Edit this file to introduce tasks to be run by cron.
#
# Each task to run has to be defined through a single line
# indicating with different fields when the task will 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 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
@reboot bash /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 abr 17 15:24
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=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
```



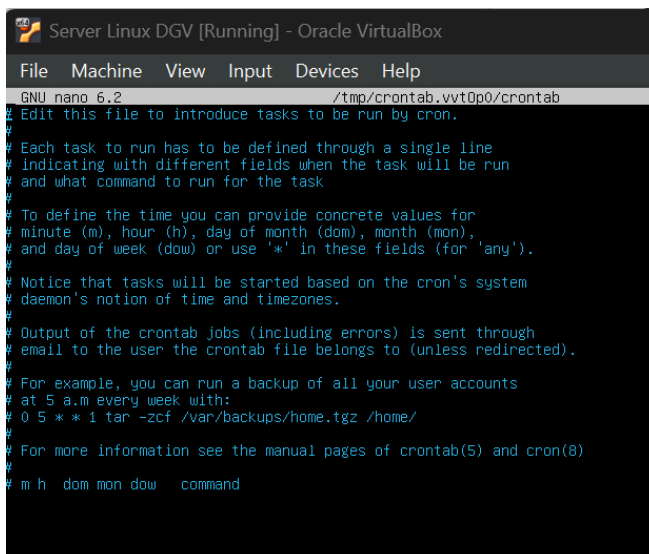
```
C:\Users\david>ping 8.8.8.8

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:
            Mínimo = 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.

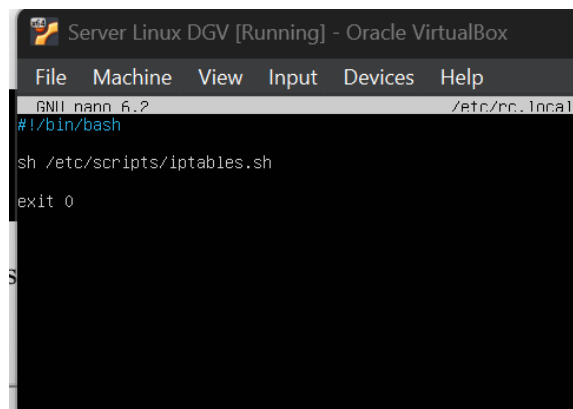
- 8.
- 9.
- 10.
- 11.

→ 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_
```



```
Server Linux DGV [Running] - Oracle VirtualBox
File Machine View Input Devices Help
GNU nano 6.2 /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  
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  
  
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](#)