

PRÁCTICA 1. LECCIÓN 1.2

Configuración de red

Cuando se configura la red se crea una tarjeta de red tipo NAT (ventaja: directamente a través del ordenador anfitrión podemos salir a internet porque virtual box implementa un servidor de tipo NAT). Vamos a crear una tarjeta de tipo "host-only" que solamente permite conectarte con el host (virtual box crea una de tipo host only que permite comunicarte desde el host hasta la máquina). Todas las máquinas que creamos han de tener las dos tarjetas de red, NAT y Host-Only. Otra ventaja que tiene HO es que si hay varias máquinas virtuales conectadas, permite la comunicación simultánea entre dichas máquinas.

Documentación tipos de tarjetas en "Ayuda > Virtual Networking > ..."

1. Nos metemos en Configuración > Red > Adaptador 2 y lo ponemos en Solo Anfitrión.
2. Iniciamos la máquina.
3. Una vez dentro ejecutamos ip a
4. Nos metemos en el fichero /etc/neplan/00....yaml y lo editamos así:

```
# This is the network config written by 'subiquity'
network:
  ethernets:
    enp0s3:
      dhcp4: true
    enp0s8:
      addresses:
        - 192.168.56.10/24
  version: 2
```

5. Hacemos ping a 192.168.56.10 desde VM
6. Hacemos ping a 192.168.56.10 desde nuestra terminal
7. Configuración del prompt de nuestro equipo; configuramos la variable \$PS1. Para ello, vamos a irnos al fichero

PRÁCTICA 1. LECCIÓN 2

Instalación de Rocky

1. Hacemos los mismos pasos que en Ubuntu para crear la máquina pero sin crear el disco nuevo.

2. Iniciar máquina Press tab para obtener toda la configuración.
3. Añadir la opción inst.text.
4. Modo texto.
5. Español, España, confirmar particionado automático, usar todo el espacio, usar LVM, crear user, meter en administrator, groups wheel., la hora (madrid 28).
6. Instalación ...
7. Hacer todo ahora con root (sudo bash).
8. Hacemos lsblk y vemos el árbol.

```
[quintinmr@localhost ~]$ lsblk
NAME                MAJ:MIN RM  SIZE RO TYPE MOUNTPOINTS
sda                  8:0    0   12G  0 disk
├─sda1               8:1    0    1G  0 part /boot
└─sda2               8:2    0   11G  0 part
   └─r1-root          253:0    0   9.8G  0 lvm  /
      └─r1-swap        253:1    0   1.2G  0 lvm  [SWAP]
sr0                  11:0    1 1024M  0 rom
```

```
[quintinmr@localhost ~]$ _
```

9. Hacemos pvdisplay para mostrar información sobre los volúmenes físicos del equipo.

```
[root@localhost quintinmrl]# pvdisplay
--- Physical volume ---
PV Name                /dev/sda2
VG Name                r1
PV Size                <11.00 GiB / not usable 3.00 MiB
Allocatable            yes (but full)
PE Size                4.00 MiB
Total PE               2815
Free PE                0
Allocated PE           2815
PV UUID                RJogBP-sXzx-wsPn-pFz6-lYUj-zGwq-LUtT1b
```

```
[root@localhost quintinmrl]# vgdisplay
--- Volume group ---
VG Name                r1
System ID
Format                lvm2
Metadata Areas         1
Metadata Sequence No   3
VG Access              read/write
VG Status              resizable
MAX LV                 0
Cur LV                2
Open LV                2
Max PV                 0
Cur PV                1
Act PV                 1
VG Size                <11.00 GiB
PE Size                4.00 MiB
Total PE               2815
Alloc PE / Size        2815 / <11.00 GiB
Free PE / Size         0 / 0
VG UUID                YQmmd4-C3Iy-0fSD-gay6-k8GQ-AIsX-wBWYhf
```

10. Haciendo vgdisplay nos muestra información del volume group. A lo que va con estos comandos es que si nos fijamos en el campo Free, vemos que está a 0 y por lo tanto lo que tendré que hacer :

10.1 Añadirle un disco, añadirle más espacio. Para ello, apagamos la máquina y añadimos un nuevo disco (almacenamiento SATA). Encendemos de nuevo la máquina.

```
[quintinmr@localhost ~]$ lsblk
NAME                MAJ:MIN RM  SIZE RO TYPE MOUNTPOINTS
sda                  8:0    0   12G  0 disk
├─sda1               8:1    0    1G  0 part /boot
├─sda2               8:2    0   11G  0 part
│   └─r1-root        253:0    0   9.8G  0 lvm /
│       └─r1-swap     253:1    0    1.2G  0 lvm [SWAP]
sdb                  8:16    0   12G  0 disk
sr0                  11:0    1 1024M  0 rom
```

```
[quintinmr@localhost ~]$ _
```

10.2 Crear phisical volume y Añadir PV en VG: vamos a marcar el disco como phisical volume. Para ello, desde la terminal hacemos:

```
pvcreate /dev/sdb
```

```
pvdisplay
```

```
vgdisplay (vemos que free está a 0)
```

```
vgextend r1 /dev/sdb
```

```
vgdisplay y veremos un aumento de Gigas en Free
```

```

[root@localhost quintinmrl]# pvcreate /dev/sdb pvdisplay vgdisplay
No device found for pvdisplay.
No device found for vgdisplay.
Physical volume "/dev/sdb" successfully created.
[root@localhost quintinmrl]# vgextend r1 /dev/sdb vgdisplay
No device found for vgdisplay.
Command requires all devices to be found.
[root@localhost quintinmrl]# vgextend r1 /dev/sdb
Volume group "r1" successfully extended
[root@localhost quintinmrl]# vgdisplay
--- Volume group ---
UG Name                r1
System ID
Format                 lvm2
Metadata Areas         2
Metadata Sequence No   4
UG Access              read/write
UG Status              resizable
MAX LV                 0
Cur LV                2
Open LV                2
Max PV                 0
Cur PV                2
Act PV                 2
UG Size                22.99 GiB
PE Size                4.00 MiB
Total PE               5886
Alloc PE / Size        2815 / <11.00 GiB
Free PE / Size         3071 / <12.00 GiB
UG UUID                YQmmd4-C3Iy-0fSD-gay6-k8GQ-AIsX-wBWYhf

```

10.4 Crear LV (nvar): como es un engorro, vamos a instalar el teclado en español (yum install kbd y luego locale set-keymap es)

```
lvcreate -L 10G -n nvar r1
```

vgdisplay (vemos que nos hemos comido 10G)

lvdisplay (vemos que esos 10 G se han ido al LV que hemos creado)

```
[root@localhost quintinmr1]# lvcreate -L 10G -n nvar r1 vgdisplay
Physical Volume "vgdisplay" not found in Volume Group "r1".
[root@localhost quintinmr1]# lvcreate -L 10G -n nvar r1
Logical volume "nvar" created.
[root@localhost quintinmr1]# vgdisplay
--- Volume group ---
UG Name                r1
System ID
Format                 lvm2
Metadata Areas         2
Metadata Sequence No   5
UG Access              read/write
UG Status              resizable
MAX LV                 0
Cur LV                3
Open LV                2
Max PV                 0
Cur PV                2
Act PV                 2
UG Size                22.99 GiB
PE Size                4.00 MiB
Total PE               5886
Alloc PE / Size        5375 / <21.00 GiB
Free PE / Size         511 / <2.00 GiB
UG UUID                YQnmd4-C3Iy-0fSD-gay6-k8GQ-AIsX-wBWYhf
```

```
Block device           253:1

--- Logical volume ---
LV Path                /dev/r1/root
LV Name                root
UG Name                r1
LV UUID                WMo4P-fehz-DpKT-5R5N-b01L-01lk-UL7fUJ
LV Write Access        read/write
LV Creation host, time localhost.localdomain, 2023-03-05 16:03:26 +0100
LV Status              available
# open                 1
LV Size                9.79 GiB
Current LE             2507
Segments               1
Allocation             inherit
Read ahead sectors     auto
- currently set to    256
Block device           253:0

--- Logical volume ---
LV Path                /dev/r1/nvar
LV Name                nvar
UG Name                r1
LV UUID                36D8Iw-0zAz-XgcK-p93Q-woR6-S90f-NQEsu8
LV Write Access        read/write
LV Creation host, time localhost.localdomain, 2023-03-05 16:31:21 +0100
LV Status              available
# open                 0
LV Size                10.00 GiB
Current LE             2560
Segments               1
```

```

Segments      1
Allocation    inherit
Read ahead sectors  auto
- currently set to 256
Block device   253:2

[root@localhost quintinmr]#

```

11. Ahora lo que vamos a hacer es montar el /var en /mnt copiarlo y luego demonstarlo. Para darle formato a cualquier dispositivo:

11.1 mkfs -t ext4 /dev/r1/nvar (crea la tabla de inodos).

```

[root@localhost quintinmr]# mkfs -t ext4 /dev/r1/nvar
mke2fs 1.46.5 (30-Dec-2021)
Creating filesystem with 2621440 4k blocks and 655360 inodes
Filesystem UUID: 17c3a5d9-8a02-480f-8235-d3ef506b097a
Superblock backups stored on blocks:
    32768, 98304, 163840, 229376, 294912, 819200, 884736, 1605632

Allocating group tables: done
Writing inode tables: done
Creating journal (16384 blocks): done
Writing superblocks and filesystem accounting information: done

```

11.2 Ahora ya la podemos montar:

```
mount /dev/r1/nvar /mnt/nvar
```

Si ejecutamos mount a secas, veremos todo lo que está montado en el sistema.

```

[root@localhost /]# mount /dev/r1/nvar /mnt
[ 1219.422013] EXT4-fs (dm-2): mounted filesystem with ordered data mode. Quota mode: none.
[root@localhost /]# _

```

11.3 cd /mnt/nvar

11.4 ls -la

11.5 cd /

11.6 cd var/

11.7 Para asegurar que no nos dejamos nada atras, pasamos el directorio a modo mantenimiento, hacemos la copia y luego recuperamos:

```
systemctl isolate runlevel1.target
systemctl status (y vemos que está en "maintance")
```

```

[root@localhost ~]# systemctl status
● localhost.localdomain
   State: maintenance
     Jobs: 0 queued
  Failed: 1 units
   Since: Sun 2023-03-05 16:16:36 CET; 24min ago
    CGroup: /
           └─init.scope
                └─1 /usr/lib/systemd/systemd --switched-root --system --deserialize 30
           └─system.slice
                ├─dbus-broker.service
                │   └─1176 /usr/bin/dbus-broker-launch --scope system --audit
                │       └─1177 dbus-broker --log 4 --controller 9 --machine-id fac15be700d74f2b9c40f277db2c2
                ├─rescue.service
                │   └─1179 /usr/lib/systemd/systemd-sulogin-shell rescue
                │       └─1180 bash
                │           └─1200 systemctl status
                │               └─1201 less
                ├─systemd-journald.service
                │   └─584 /usr/lib/systemd/systemd-journald
                ├─systemd-udevd.service
                │   └─597 /usr/lib/systemd/systemd-udevd
                └─user.slice
                     └─user-1000.slice
                          └─user@1000.service
                               └─init.scope
                                    └─819 /usr/lib/systemd/systemd --user
                                        └─821 "(sd-pam)"
lines 1-27/27 (END)

```

```

cp -ar /var/* /mnt/nvar
(r recursivamente)
cd /mnt/nvar y comprobamos si se ha copiado
cd ..
cd ..
mv var var_old
mkdir var
umount /mnt/nvar
mount /dev/r1/nvar /var

```

```

[root@localhost nvar]# cd ..
[root@localhost mnt]# cd ..
[root@localhost /]# mv var var_old
[root@localhost /]# mkdir var
[root@localhost /]# umount /mnt/nvar/
[root@localhost /]# mount /dev/r1/nvar /var
[ 1581.266321] EXT4-fs (dm-2): mounted filesystem with ordered data mode. Quota mode: none.
[root@localhost /]# _

```

11.8 Si queremos que al apagar la máquina se guarde todo lo que hemos montado manualmente, tenemos que editar el fichero fstab:

```

nano /etc/fstab
umount /var

```

Nos metemos en el fichero y escribimos en la última línea:


```
/dev/r1/nvar /var ext4 defaults 0 0  
:qw
```

12. Probar que todo está bien montado: dentro del /etc/:

```
mount -a  
mount para ver lo montado  
lsblk y vemos si está ya fijo
```

```
[root@localhost ~]# lsblk  
NAME            MAJ:MIN RM  SIZE RO TYPE MOUNTPOINTS  
sda              8:0    0   12G  0 disk  
├─sda1           8:1    0    1G  0 part /boot  
├─sda2           8:2    0   11G  0 part  
│   └─r1-root    253:0   0   9.8G  0 lvm /  
│       └─r1-swap 253:1   0   1.2G  0 lvm [SWAP]  
sdb              8:16   0   12G  0 disk  
└─r1-nvar        253:2   0   10G  0 lvm /var  
sr0             11:0    1 1024M  0 rom  
[root@localhost ~]#
```

13. Reiniciar

14. `df -h`

15. dd (permite hacer copia a nivel raw):

```
sudo dd if=/dev/zero of=/var/basura.bin bs=1024M count=4096
```

```

[root@localhost quintinmr]# df -h
Filesystem      Size  Used Avail Use% Mounted on
devtmpfs        461M   0  461M   0% /dev
tmpfs           481M   0  481M   0% /dev/shm
tmpfs           193M  3.0M  190M   2% /run
/dev/mapper/rl-root 9.8G  984M  8.9G  10% /
/dev/sda1       1014M  166M  849M  17% /boot
/dev/mapper/rl-nvar 9.8G   66M  9.2G   1% /var
tmpfs           97M    0   97M   0% /run/user/1000
[root@localhost quintinmr]# dd if=/dev/zero of=/var/basura.bin bs=1024M count=4096
dd: error writing '/var/basura.bin': No space left on device
10+0 records in
9+0 records out
10378215424 bytes (10 GB, 9.7 GiB) copied, 74.8735 s, 139 MB/s
[root@localhost quintinmr]#

```

16. `df -h` (vemos si hemos petado /var (avail = 0))

17. `lvresize -L +5G /dev/rl/nvar`

18. `lvdisplay` (15 G) si hago `df -h` ¡hay todavía 10G (hay inodos solo para 10 G)!

```

[root@localhost quintinmr]# df -h
Filesystem      Size  Used Avail Use% Mounted on
devtmpfs        461M   0  461M   0% /dev
tmpfs           481M   0  481M   0% /dev/shm
tmpfs           193M  3.0M  190M   2% /run
/dev/mapper/rl-root 9.8G  984M  8.9G  10% /
/dev/sda1       1014M  166M  849M  17% /boot
/dev/mapper/rl-nvar 9.8G  9.8G   0 100% /var
tmpfs           97M    0   97M   0% /run/user/1000
[root@localhost quintinmr]# lvresize -L +5G /dev/rl/nvar
Insufficient free space: 1280 extents needed, but only 511 available
[root@localhost quintinmr]# lvresize -L +4G /dev/rl/nvar
Insufficient free space: 1024 extents needed, but only 511 available
[root@localhost quintinmr]# lvresize -L +1G /dev/rl/nvar
Size of logical volume rl/nvar changed from 10.00 GiB (2560 extents) to 11.00 GiB (2816 extents).
[ 253.067362] dm-2: detected capacity change from 20971520 to 23068672
Logical volume rl/nvar successfully resized.
[root@localhost quintinmr]# df -h
Filesystem      Size  Used Avail Use% Mounted on
devtmpfs        461M   0  461M   0% /dev
tmpfs           481M   0  481M   0% /dev/shm
tmpfs           193M  3.0M  190M   2% /run
/dev/mapper/rl-root 9.8G  984M  8.9G  10% /
/dev/sda1       1014M  166M  849M  17% /boot
/dev/mapper/rl-nvar 9.8G  9.8G   0 100% /var
tmpfs           97M    0   97M   0% /run/user/1000
[root@localhost quintinmr]# _

```

Como lo arreglo: `resize2fs /dev/rl/nvar` `df -h` (ver si se ha recuperado)

```
[root@localhost quintinmrl]# resize2fs /dev/rl/nvar
resize2fs 1.46.5 (30-Dec-2021)
Filesystem at /dev/rl/nvar is mounted on /var; on-line resizing required
old_desc_blocks = 2, new_desc_blocks = 2
[ 302.629687] EXT4-fs (dm-2): resizing filesystem from 2621440 to 2883584 blocks
[ 302.714699] EXT4-fs (dm-2): resized filesystem to 2883584
The filesystem on /dev/rl/nvar is now 2883584 (4k) blocks long.

[root@localhost quintinmrl]# df -h
Filesystem      Size  Used Avail Use% Mounted on
devtmpfs        461M   0  461M   0% /dev
tmpfs           481M   0  481M   0% /dev/shm
tmpfs           193M  3.0M  190M   2% /run
/dev/mapper/rl-root 9.8G  984M  8.9G  10% /
/dev/sda1       1014M  166M  849M  17% /boot
/dev/mapper/rl-nvar  11G   9.8G  441M  96% /var
tmpfs           97M    0   97M   0% /run/user/1000
[root@localhost quintinmrl]#
```

Tarjet de red rocky

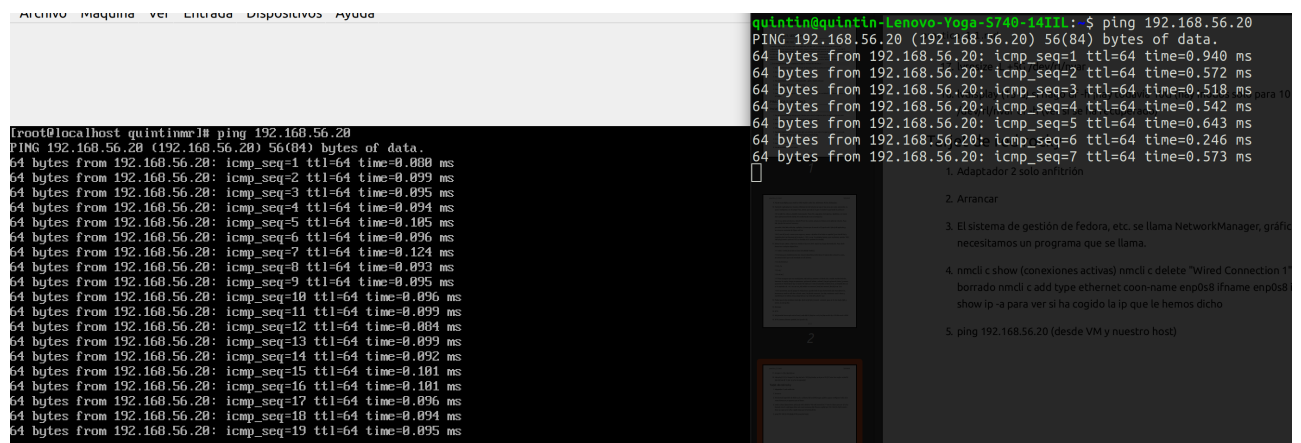
1. Adaptador 2 solo anfitrión
2. Arrancar
3. El sistema de gestión de fedora, etc. se llama NetworkManager, gráfico y para configurar todo esto necesitamos un programa que se llama.
4. nmcli c show (conexiones activas) nmcli c delete "Wired Connection 1" nmcli c show para ver si la ha borrado nmcli c add type ethernet conon-name enp0s8 ifname enp0s8 ip4 192.168.56.20/24 nmcli c show

```
[root@localhost quintinmrl]# nmcli c show
NAME                UUID                                  TYPE      DEVICE
enp0s3              37df9c28-d5f6-3458-a05c-59724faefb07 ethernet  enp0s3
Wired connection 1  4321897a-563e-373d-a81a-82f5cdbc9700 ethernet  enp0s8
[root@localhost quintinmrl]# nmcli c delete "Wired connection 1"
Connection 'Wired connection 1' (4321897a-563e-373d-a81a-82f5cdbc9700) successfully deleted.
[root@localhost quintinmrl]# nmcli c show
NAME                UUID                                  TYPE      DEVICE
enp0s3              37df9c28-d5f6-3458-a05c-59724faefb07 ethernet  enp0s3
[root@localhost quintinmrl]# nmcli c add type ethernet conon-name enp0s8 ip4 192.168.56.20/24
Error: invalid <setting>.<property> 'conon-name'.
[root@localhost quintinmrl]# nmcli c add type ethernet con-name enp0s8 ip4 192.168.56.20/24
Connection 'enp0s8' (b02e8980-ed49-4cd5-9e8d-1f639c3b7641) successfully added.
[root@localhost quintinmrl]# nmcli c show
NAME                UUID                                  TYPE      DEVICE
enp0s3              37df9c28-d5f6-3458-a05c-59724faefb07 ethernet  enp0s3
enp0s8              b02e8980-ed49-4cd5-9e8d-1f639c3b7641 ethernet  enp0s8
```

ip -a para ver si ha cogido la ip que le hemos dicho

```
[root@localhost quintinmr]# ip -a address
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN group default qlen 1000
    link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00
    inet 127.0.0.1/8 scope host lo
        valid_lft forever preferred_lft forever
    inet6 ::1/128 scope host
        valid_lft forever preferred_lft forever
2: enp0s3: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc fq_codel state UP group default qlen 1000
    link/ether 08:00:27:66:fd:d7 brd ff:ff:ff:ff:ff:ff
    inet 10.0.2.15/24 brd 10.0.2.255 scope global dynamic noprefixroute enp0s3
        valid_lft 86072sec preferred_lft 86072sec
    inet6 fe80::a00:27ff:fe66:fd7/64 scope link noprefixroute
        valid_lft forever preferred_lft forever
3: enp0s8: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc fq_codel state UP group default qlen 1000
    link/ether 08:00:27:9e:2c:90 brd ff:ff:ff:ff:ff:ff
    inet 192.168.56.20/24 brd 192.168.56.255 scope global noprefixroute enp0s8
        valid_lft forever preferred_lft forever
    inet6 fe80::e5f2:a308:5486:f0c3/64 scope link noprefixroute
        valid_lft forever preferred_lft forever
[root@localhost quintinmr]#
```

5. ping 192.168.56.20 (desde VM y nuestro host)



```
quintin@quintin-Lenovo-Yoga-5740-14T1I: ~$ ping 192.168.56.20
PING 192.168.56.20 (192.168.56.20) 56(84) bytes of data:
64 bytes from 192.168.56.20: icmp_seq=1 ttl=64 time=0.940 ms
64 bytes from 192.168.56.20: icmp_seq=2 ttl=64 time=0.572 ms
64 bytes from 192.168.56.20: icmp_seq=3 ttl=64 time=0.518 ms
64 bytes from 192.168.56.20: icmp_seq=4 ttl=64 time=0.542 ms
64 bytes from 192.168.56.20: icmp_seq=5 ttl=64 time=0.643 ms
64 bytes from 192.168.56.20: icmp_seq=6 ttl=64 time=0.246 ms
64 bytes from 192.168.56.20: icmp_seq=7 ttl=64 time=0.573 ms
^C
1. Adaptador 2 solo anterior
2. Arrancar
3. El sistema de gestión de fedora, etc. se llama NetworkManager, gráfico
necesitamos un programa que se llama
4. nmcli c show (conexiones activas) nmcli c delete "Wired Connection 1"
borrado nmcli c add type ethernet conon-name enp0s8 ifname enp0s8
show ip -a para ver si ha cogido la ip que le hemos dicho
5. ping 192.168.56.20 (desde VM y nuestro host)
```

```
[root@localhost quintinmr]# ping 192.168.56.20
PING 192.168.56.20 (192.168.56.20) 56(84) bytes of data:
64 bytes from 192.168.56.20: icmp_seq=1 ttl=64 time=0.888 ms
64 bytes from 192.168.56.20: icmp_seq=2 ttl=64 time=0.899 ms
64 bytes from 192.168.56.20: icmp_seq=3 ttl=64 time=0.895 ms
64 bytes from 192.168.56.20: icmp_seq=4 ttl=64 time=0.894 ms
64 bytes from 192.168.56.20: icmp_seq=5 ttl=64 time=0.105 ms
64 bytes from 192.168.56.20: icmp_seq=6 ttl=64 time=0.896 ms
64 bytes from 192.168.56.20: icmp_seq=7 ttl=64 time=0.124 ms
64 bytes from 192.168.56.20: icmp_seq=8 ttl=64 time=0.893 ms
64 bytes from 192.168.56.20: icmp_seq=9 ttl=64 time=0.895 ms
64 bytes from 192.168.56.20: icmp_seq=10 ttl=64 time=0.896 ms
64 bytes from 192.168.56.20: icmp_seq=11 ttl=64 time=0.899 ms
64 bytes from 192.168.56.20: icmp_seq=12 ttl=64 time=0.884 ms
64 bytes from 192.168.56.20: icmp_seq=13 ttl=64 time=0.899 ms
64 bytes from 192.168.56.20: icmp_seq=14 ttl=64 time=0.892 ms
64 bytes from 192.168.56.20: icmp_seq=15 ttl=64 time=0.101 ms
64 bytes from 192.168.56.20: icmp_seq=16 ttl=64 time=0.101 ms
64 bytes from 192.168.56.20: icmp_seq=17 ttl=64 time=0.896 ms
64 bytes from 192.168.56.20: icmp_seq=18 ttl=64 time=0.894 ms
64 bytes from 192.168.56.20: icmp_seq=19 ttl=64 time=0.895 ms
```