

Práctica 9

2024

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Administración de Sistemas y Redes

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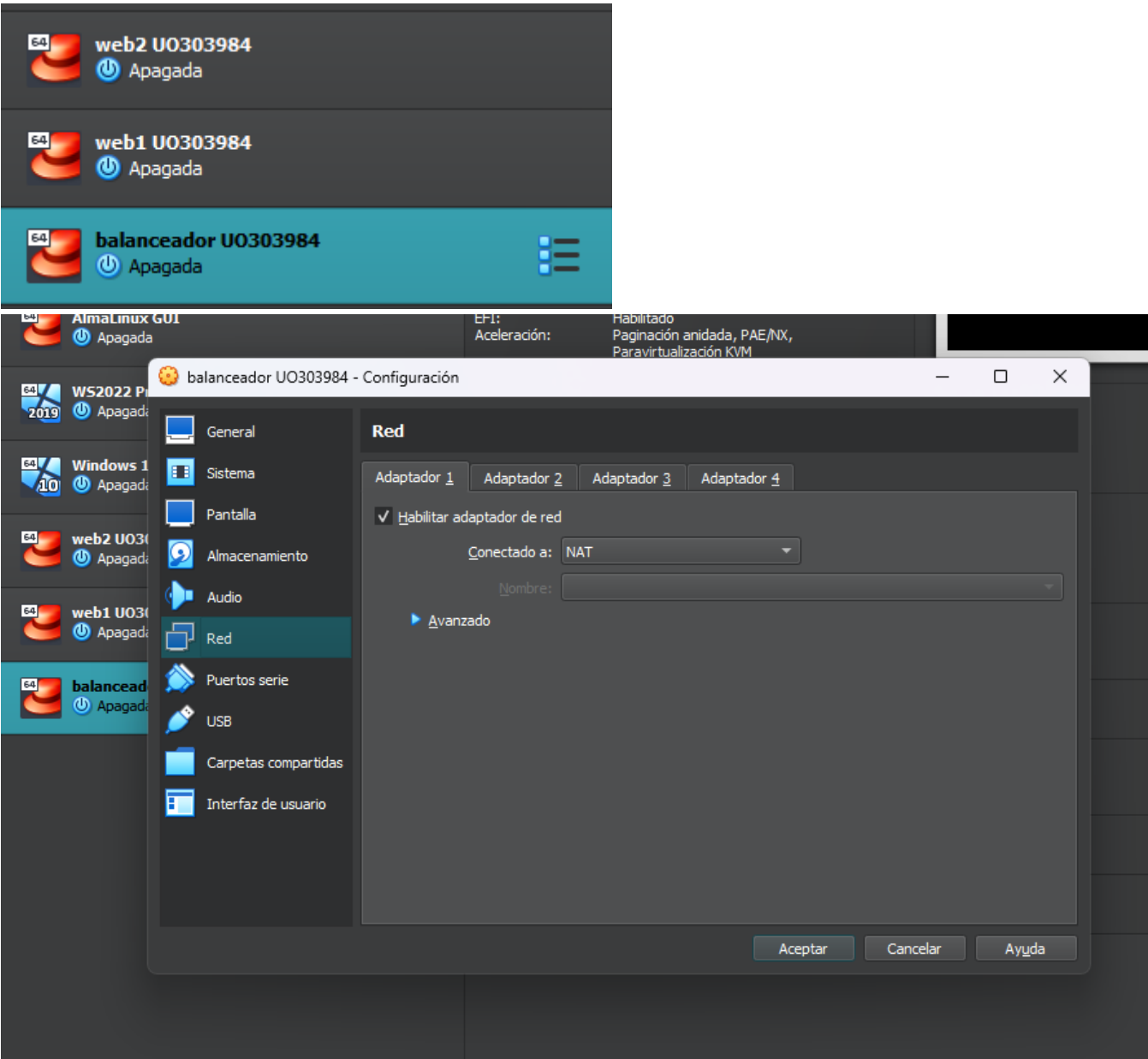
Balanceo de carga con HAProxy 1

Almacenamiento de red (SAN) con iSCSI: 15

Consideraciones de seguridad (opcional): ¡Error! Marcador no definido.

Balanceo de carga con HAProxy

1. Configuración de tres máquinas virtuales: balanceador, web1 , web2.

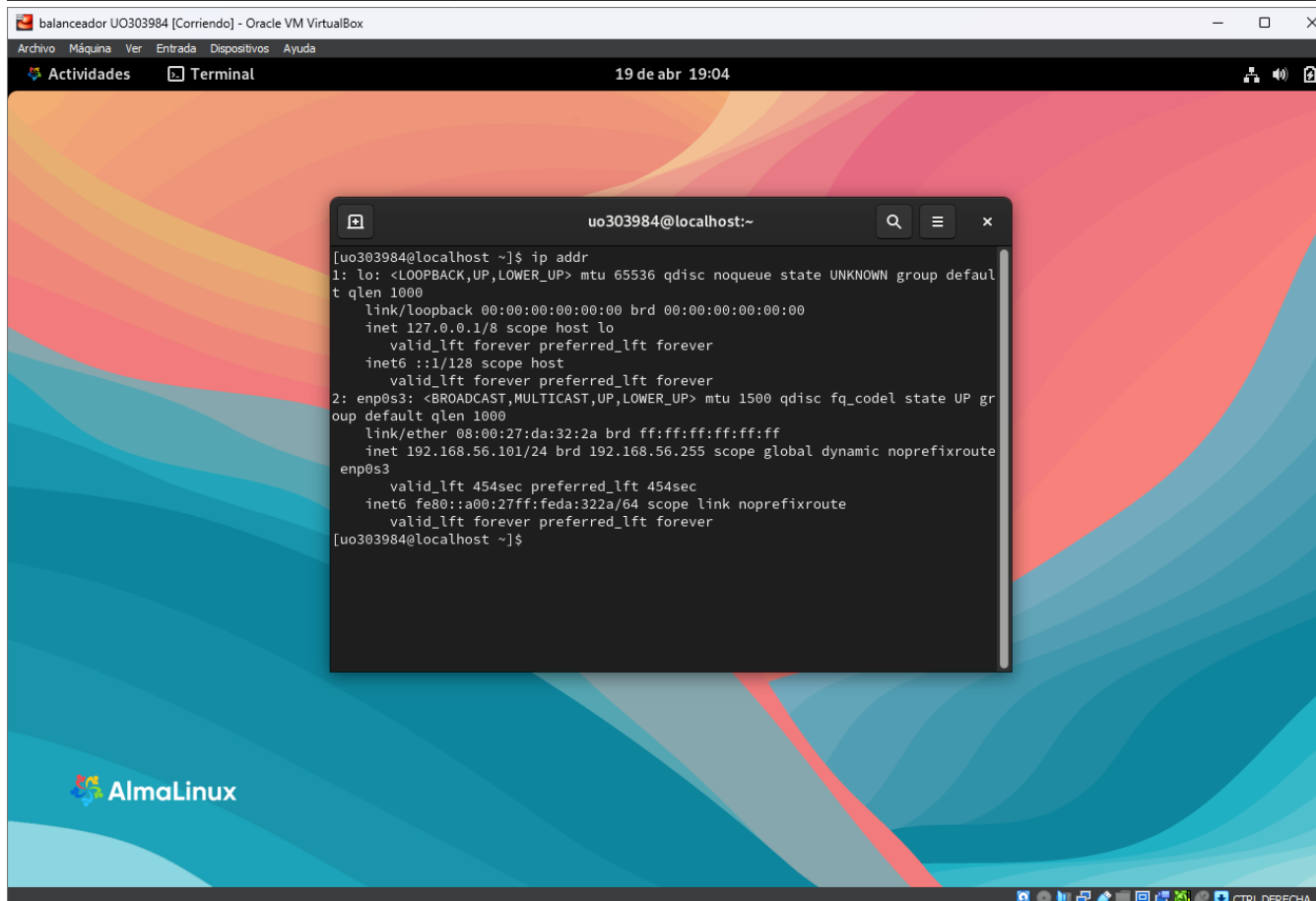
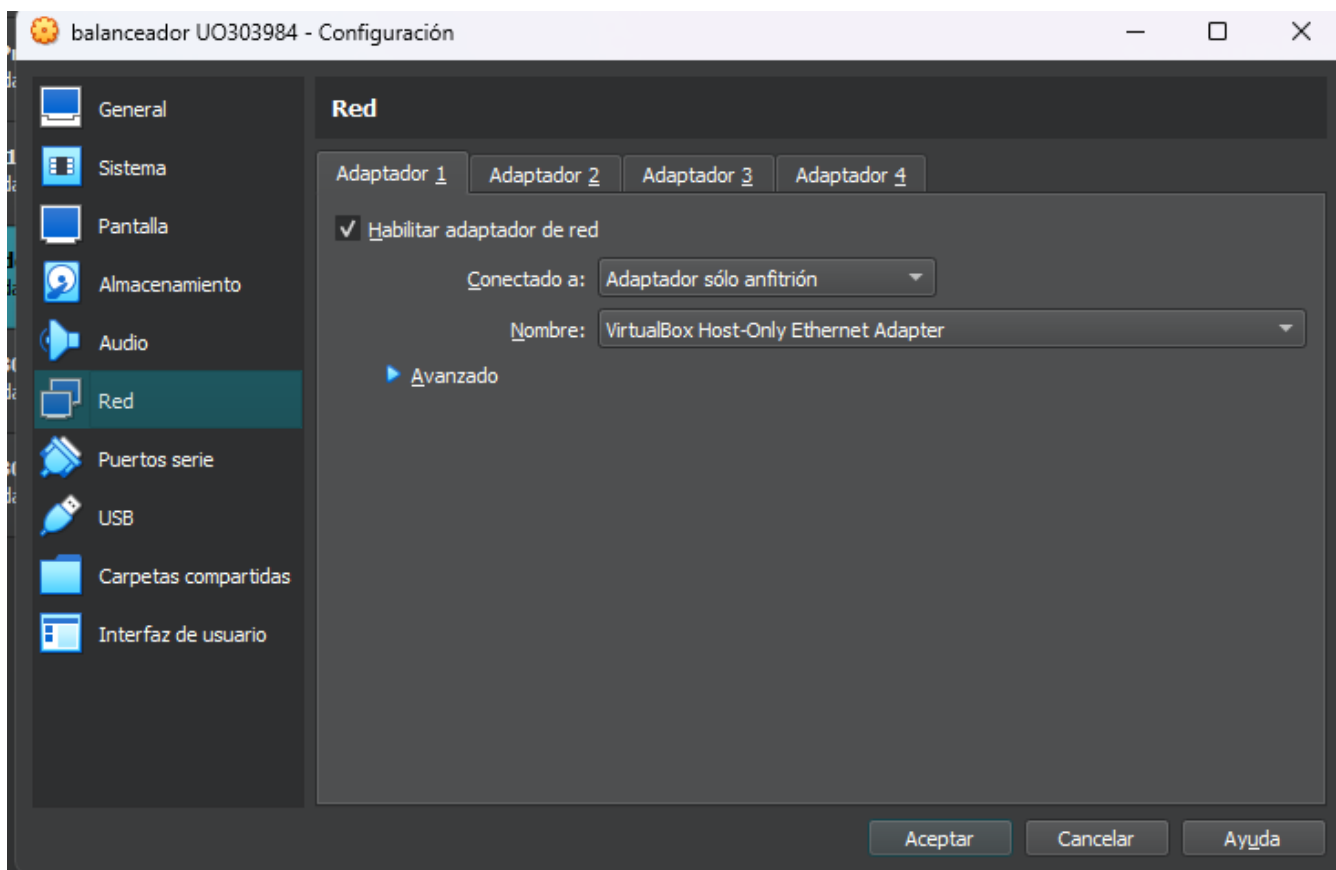


2. Instalación de servidor web HAProxy en las máquinas correspondientes.

```
-----
Total                               74 kB/s | 2.2 MB    00:29
AlmaLinux 9 - AppStream              1.3 MB/s | 3.1 kB    00:00
Importando llave GPG 0xB86B3716:
ID usuario: "AlmaLinux OS 9 <packager@almalinux.org>"
Huella   : BF18 AC28 7617 8908 D6E7 1267 D36C B86C B86B 3716
Desde    : /etc/pki/rpm-gpg/RPM-GPG-KEY-AlmaLinux-9
La llave ha sido importada exitosamente
Ejecutando verificación de operación
Verificación de operación exitosa.
Ejecutando prueba de operaciones
Prueba de operación exitosa.
Ejecutando operación
  Preparando      :                               1/1
  Ejecutando scriptlet: haproxy-2.4.22-3.el9_3.x86_64 1/1
  Instalando      : haproxy-2.4.22-3.el9_3.x86_64 1/1
  Ejecutando scriptlet: haproxy-2.4.22-3.el9_3.x86_64 1/1
  Verificando     : haproxy-2.4.22-3.el9_3.x86_64 1/1

Instalado:
  haproxy-2.4.22-3.el9_3.x86_64

¡Listo!
[uo303984@localhost ~]$
```



web1 UO303984 [Corriendo] - Oracle VM VirtualBox

Archivo Máquina Ver Entrada Dispositivos Ayuda

Actividades Terminal 19 de abr 19:05

```
uo303984@localhost:~$ ip addr
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 08:00:27:58:86:d0 brd ff:ff:ff:ff:ff:ff
    inet 192.168.56.102/24 brd 192.168.56.255 scope global dynamic noprefixroute enp0s3
        valid_lft 379sec preferred_lft 379sec
    inet6 fe80::a00:27ff:fe58:86d0/64 scope link noprefixroute
        valid_lft forever preferred_lft forever
[uo303984@localhost ~]$
```

AlmaLinux

web2 UO303984 [Corriendo] - Oracle VM VirtualBox

Archivo Máquina Ver Entrada Dispositivos Ayuda

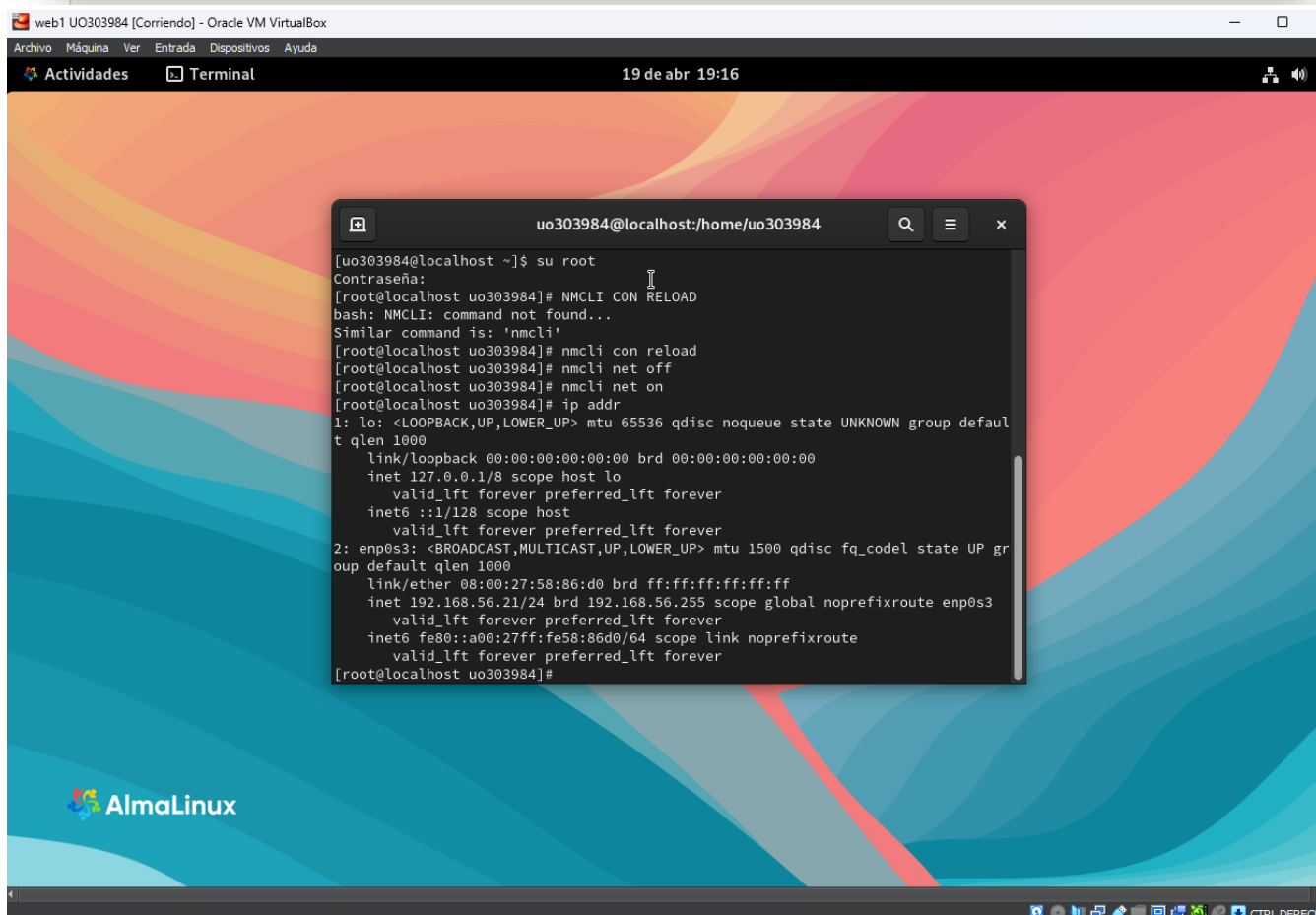
Actividades Terminal 19 de abr 19:06

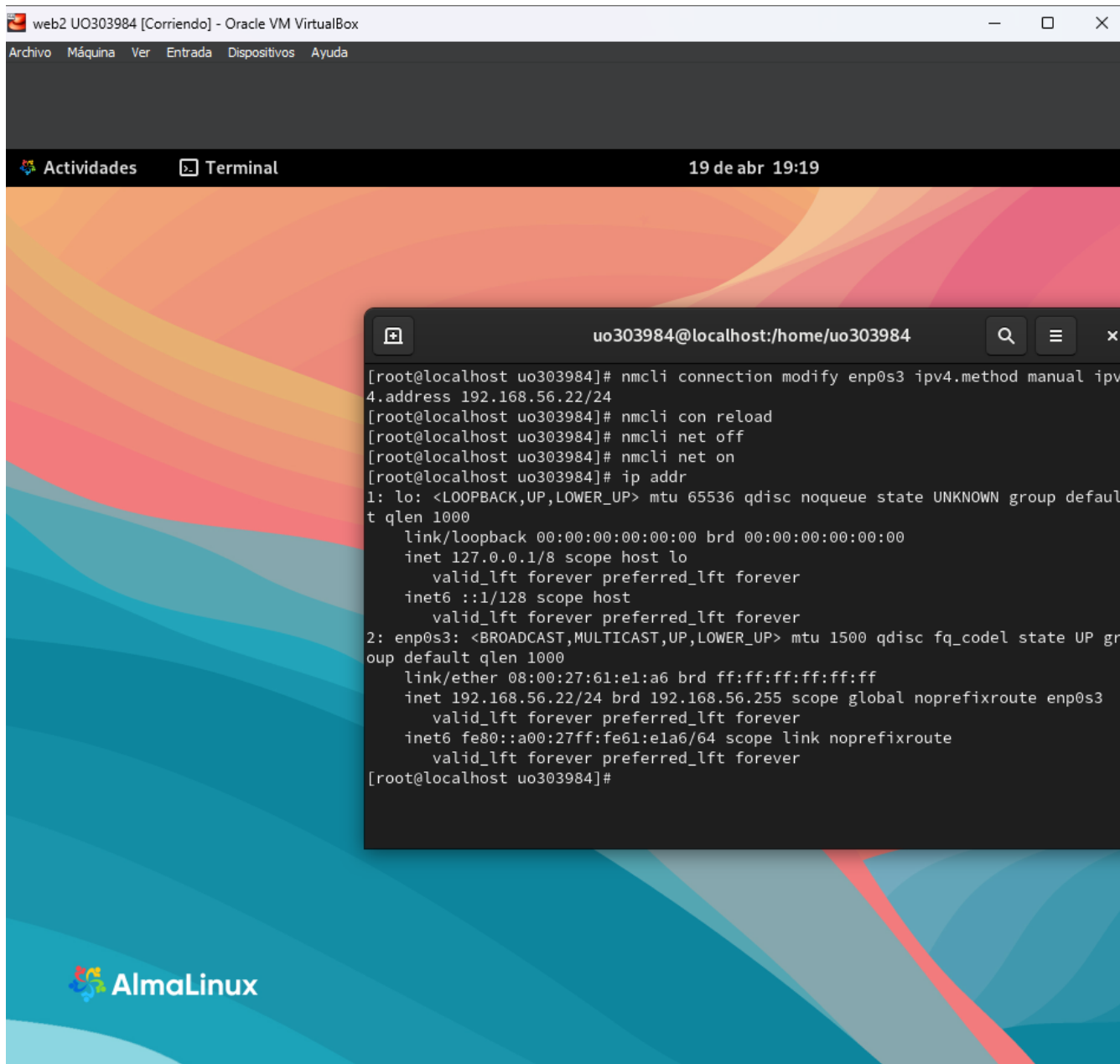
```
uo303984@localhost:~$ ip addr
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN group default qlen 1000
    link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00
    inet 127.0.0.1/8 scope host lo
        valid_lft forever preferred_lft forever
    inet6 ::1/128 scope host
        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 08:00:27:61:e1:a6 brd ff:ff:ff:ff:ff:ff
    inet 192.168.56.103/24 brd 192.168.56.255 scope global dynamic noprefixroute enp0s3
        valid_lft 302sec preferred_lft 302sec
    inet6 fe80::a00:27ff:fe61:e1a6/64 scope link noprefixroute
        valid_lft forever preferred_lft forever
[uo303984@localhost ~]$
```

AlmaLinux

```
u0303984@localhost:/home/u0303984

[root@localhost u0303984]# nmcli connection modify enp0s3 ipv4.method manual ipv
4.address 192.168.56.20/24
[root@localhost u0303984]# nmcli con reload
[root@localhost u0303984]# nmcli net off
[root@localhost u0303984]# nmcli net on
[root@localhost u0303984]# ip addr
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN group defaul
t 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 gr
oup default qlen 1000
    link/ether 08:00:27:da:32:2a brd ff:ff:ff:ff:ff:ff
    inet 192.168.56.20/24 brd 192.168.56.255 scope global noprefixroute enp0s3
        valid_lft forever preferred_lft forever
    inet6 fe80::a00:27ff:feda:322a/64 scope link noprefixroute
        valid_lft forever preferred_lft forever
[root@localhost u0303984]#
```



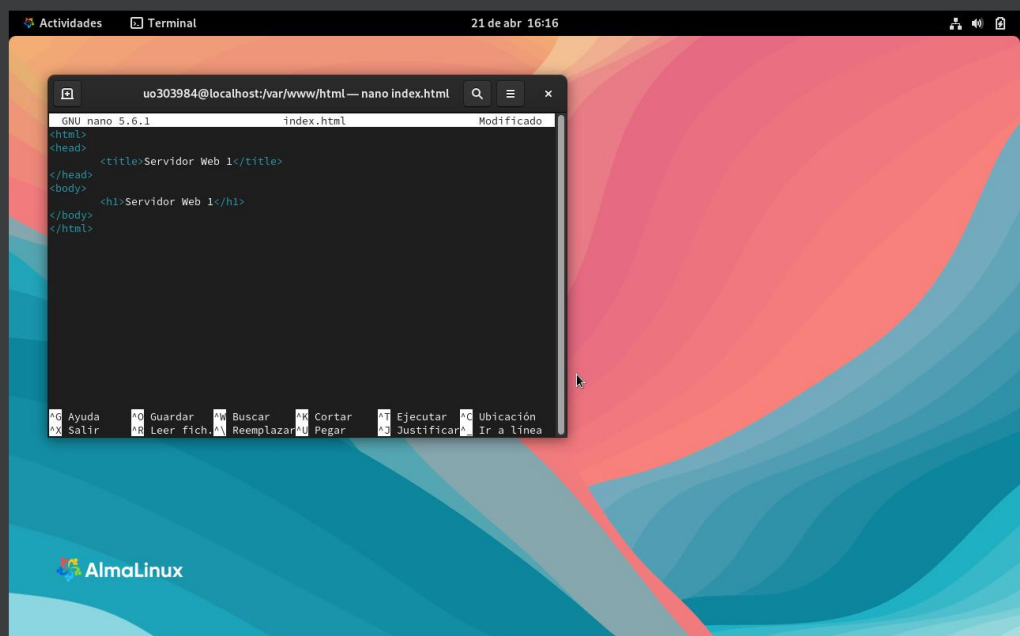


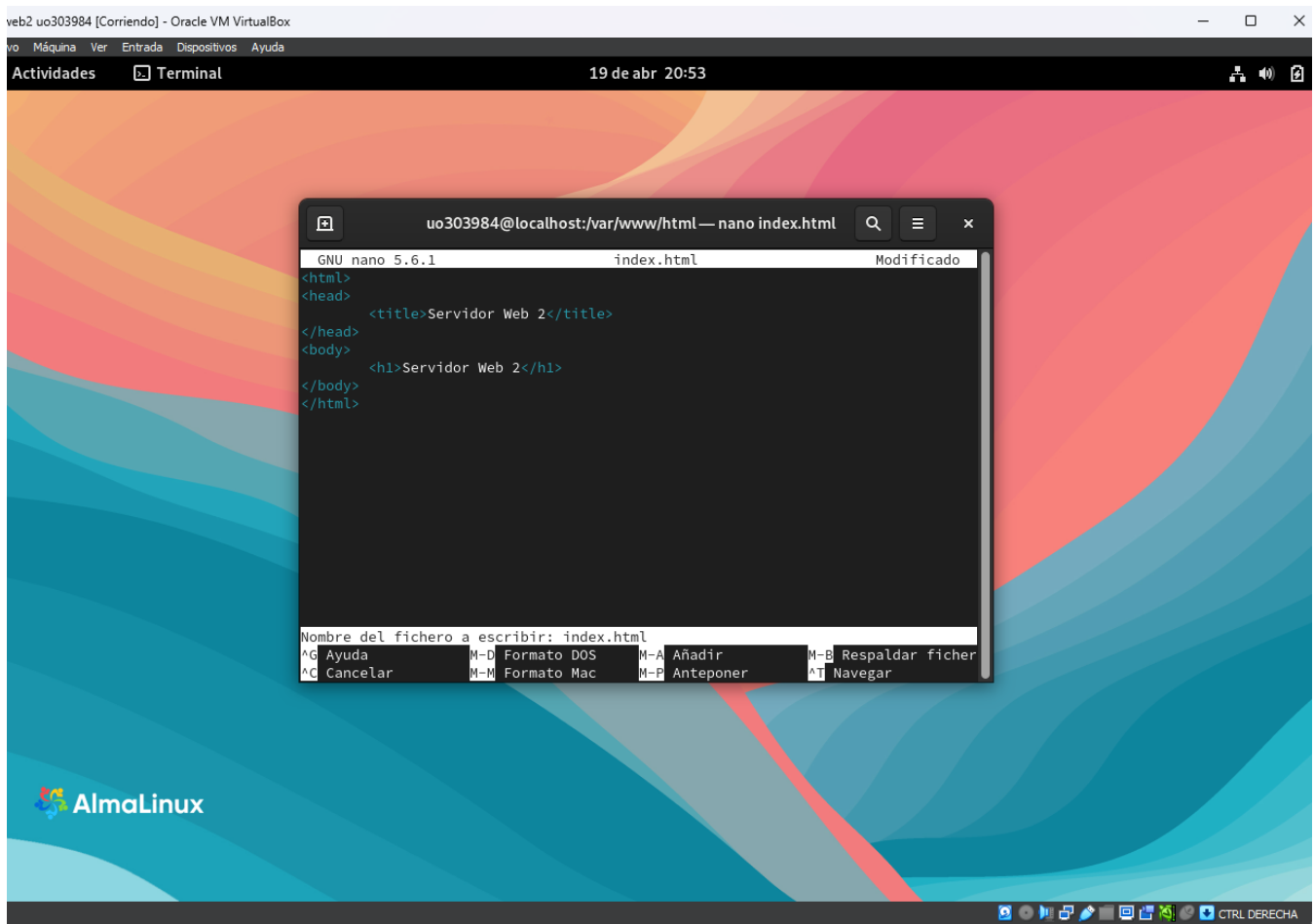
```
[root@localhost uo303984]# ping 192.168.56.21
PING 192.168.56.21 (192.168.56.21) 56(84) bytes of data.
64 bytes from 192.168.56.21: icmp_seq=1 ttl=64 time=16.7 ms
64 bytes from 192.168.56.21: icmp_seq=2 ttl=64 time=4.65 ms
64 bytes from 192.168.56.21: icmp_seq=3 ttl=64 time=3.13 ms
64 bytes from 192.168.56.21: icmp_seq=4 ttl=64 time=3.02 ms
64 bytes from 192.168.56.21: icmp_seq=5 ttl=64 time=2.86 ms
64 bytes from 192.168.56.21: icmp_seq=6 ttl=64 time=3.03 ms
64 bytes from 192.168.56.21: icmp_seq=7 ttl=64 time=3.04 ms
64 bytes from 192.168.56.21: icmp_seq=8 ttl=64 time=2.91 ms
64 bytes from 192.168.56.21: icmp_seq=9 ttl=64 time=2.09 ms
^C
--- 192.168.56.21 ping statistics ---
```



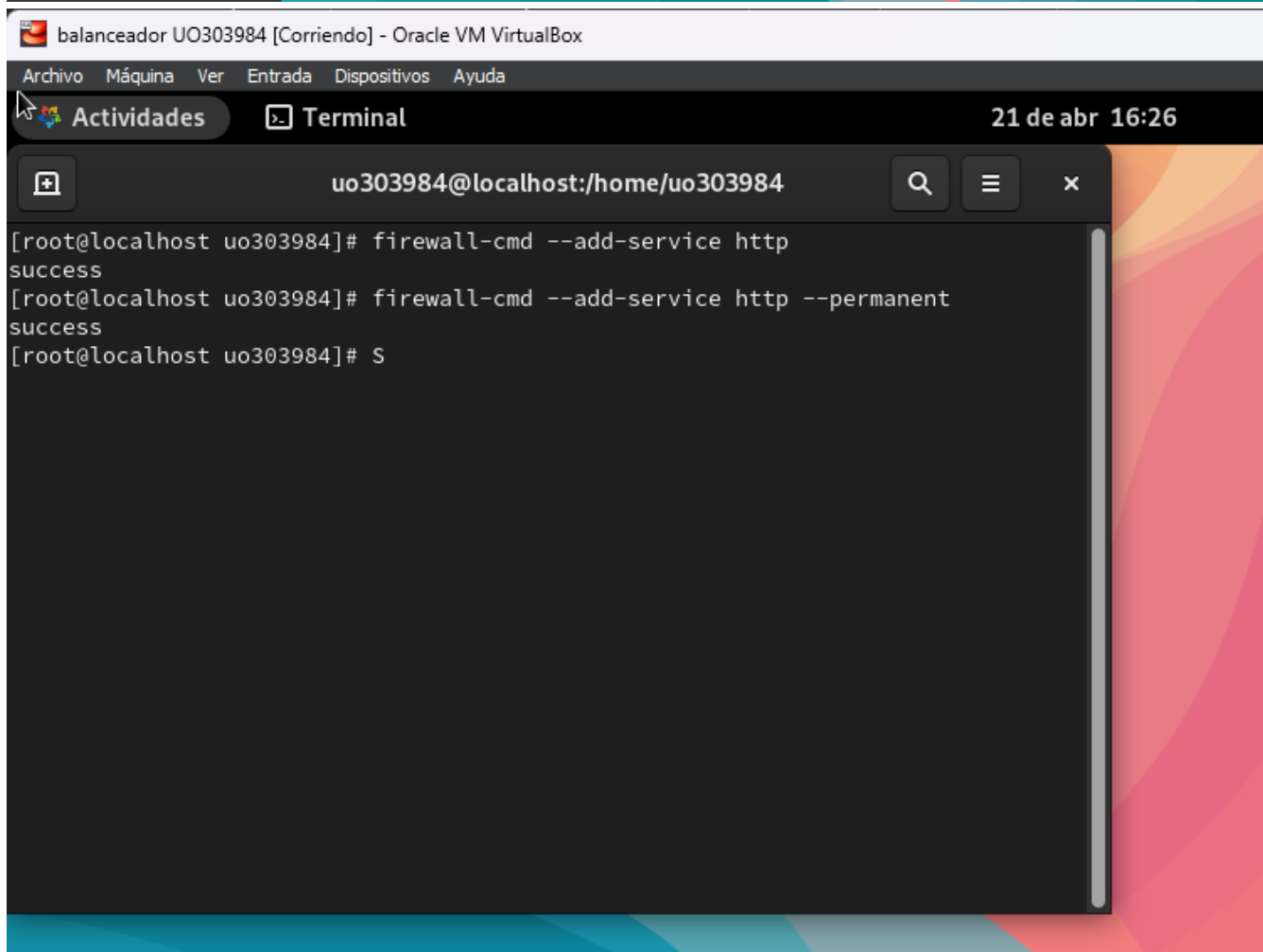
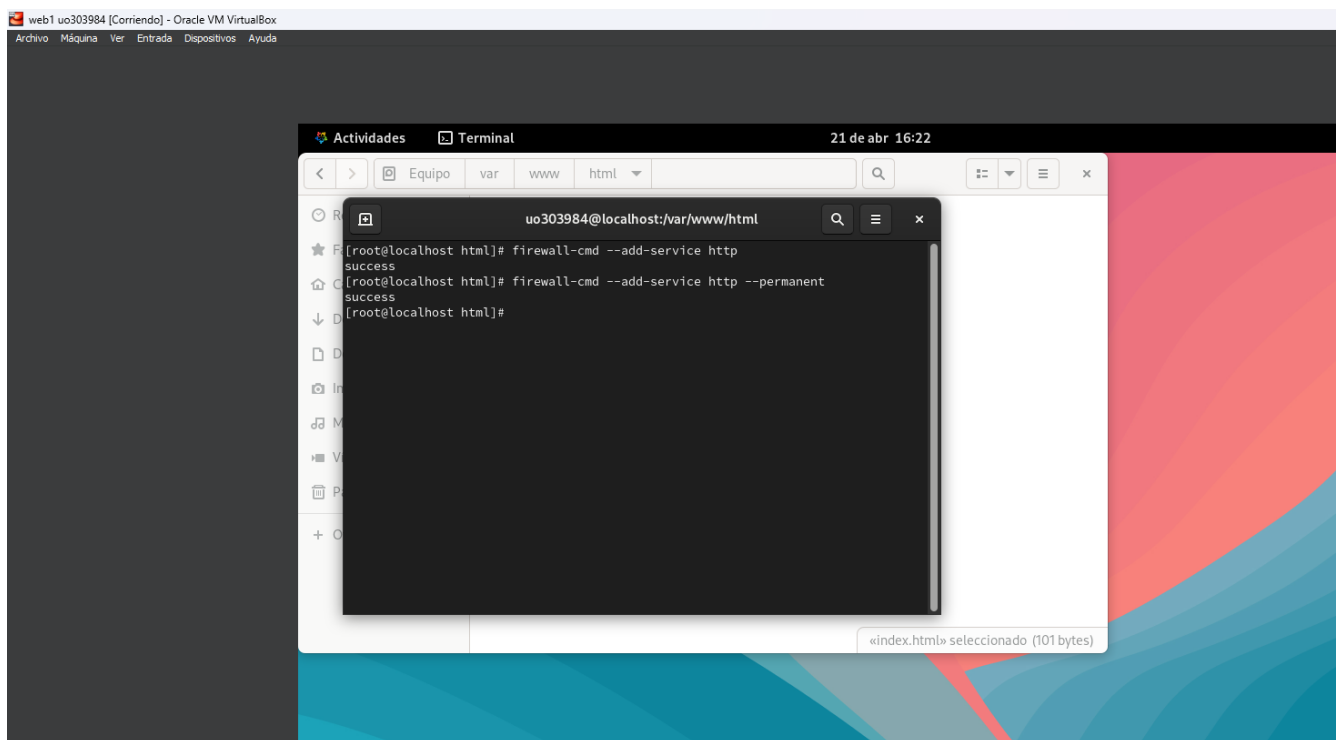
```
--- 192.168.56.21 ping statistics ---
9 packets transmitted, 9 received, 0% packet loss, time 8175ms
rtt min/avg/max/mdev = 2.089/4.599/16.672/4.313 ms
[root@localhost uo303984]# ping 192.168.56.22
PING 192.168.56.22 (192.168.56.22) 56(84) bytes of data.
64 bytes from 192.168.56.22: icmp_seq=1 ttl=64 time=17.4 ms
64 bytes from 192.168.56.22: icmp_seq=2 ttl=64 time=1.95 ms
64 bytes from 192.168.56.22: icmp_seq=3 ttl=64 time=1.13 ms
64 bytes from 192.168.56.22: icmp_seq=4 ttl=64 time=1.00 ms
64 bytes from 192.168.56.22: icmp_seq=5 ttl=64 time=1.13 ms
64 bytes from 192.168.56.22: icmp_seq=6 ttl=64 time=1.03 ms
^C
--- 192.168.56.22 ping statistics ---
6 packets transmitted, 6 received, 0% packet loss, time 5014ms
rtt min/avg/max/mdev = 1.001/3.940/17.400/6.027 ms
```

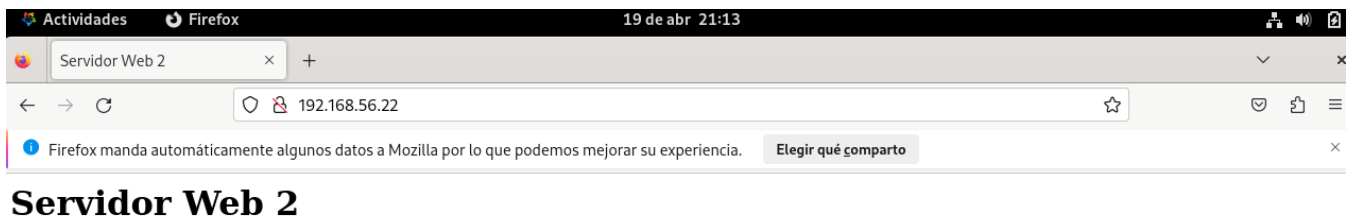
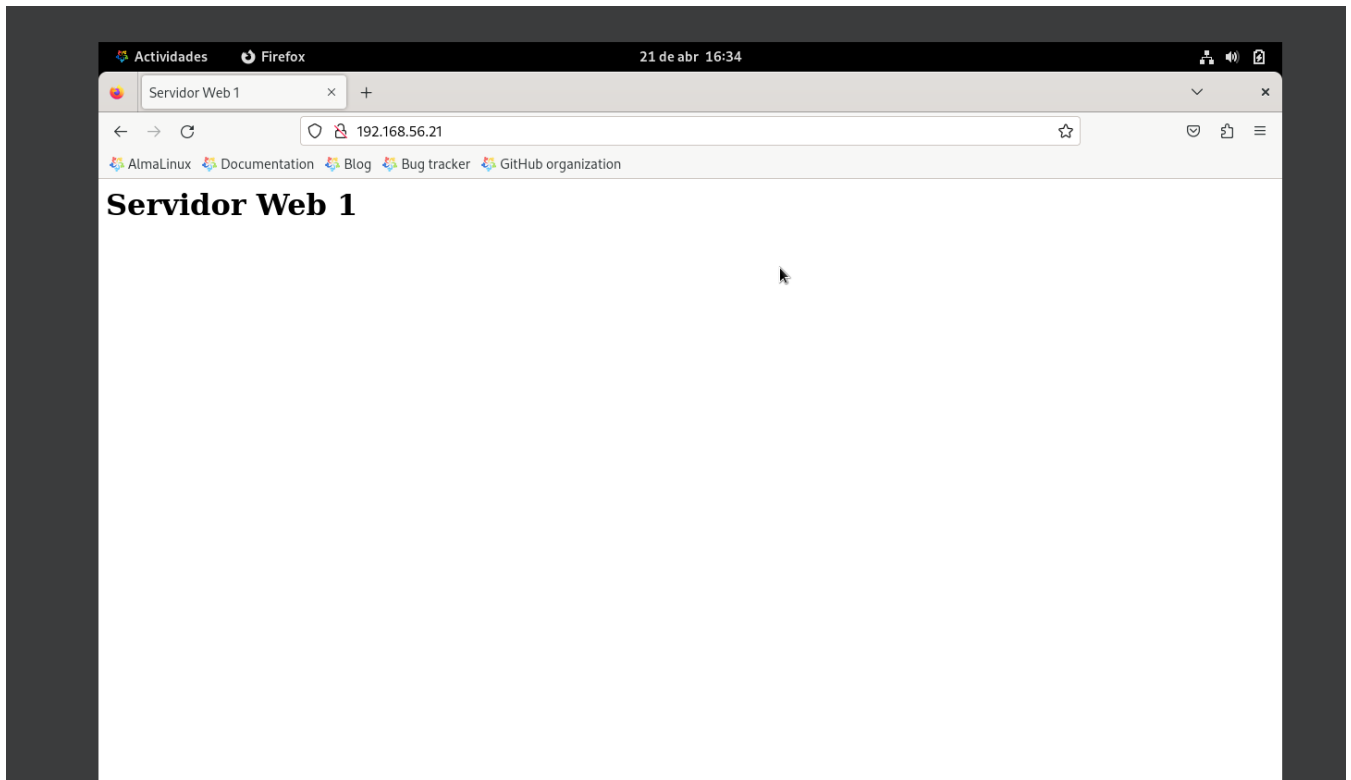
web1 uo303984 [Corriendo] - Oracle VM VirtualBox
Archivo Máquina Ver Entrada Dispositivos Ayuda





```
[root@localhost html]# firewall-cmd -add-service http
usage: 'firewall-cmd --help' for usage information or see firewall-cmd(1) man page
firewall-cmd: error: unrecognized arguments: -add-service http
[root@localhost html]# firewall-cmd --add-service http
success
[root@localhost html]# firewall-cmd --add-service http --permanent
success
[root@localhost html]# S
```





```
timeout check      10s
maxconn            3000

#-----
# main frontend which proxys to the backends
#-----
frontend main
  # bind *:5000
  bind *:80
  acl url_static    path_beg       -i /static /images /javascript /stylesheets
  acl url_static    path_end       -i .jpg .gif .png .css .js

  use_backend static      if url_static
  default_backend         app

#-----
# static backend for serving up images, stylesheets and such
#-----
backend static
  balance    roundrobin
  server     static 127.0.0.1:4331 check

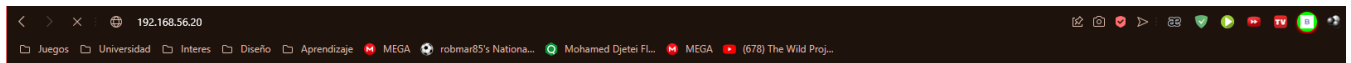
#-----
# round robin balancing between the various backends
#-----
backend app
  balance    roundrobin
  # server   app1 127.0.0.1:5001 check
  # server   app2 127.0.0.1:5002 check
  # server   app3 127.0.0.1:5003 check
  #server    app4 127.0.0.1:5004 check
  server web1 192.168.56.21:80 check
  server web2 192.168.56.22:80 check
```

AG Ayuda ^O Guardar ^W Buscar ^K Cortar ^T Ejecutar ^C Ubicación M-U Deshacer M-A Poner m

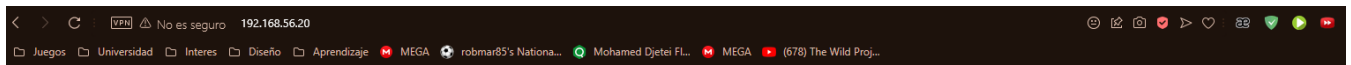
21 de abr 16:46

uo303984@localhost:/home/uo303984

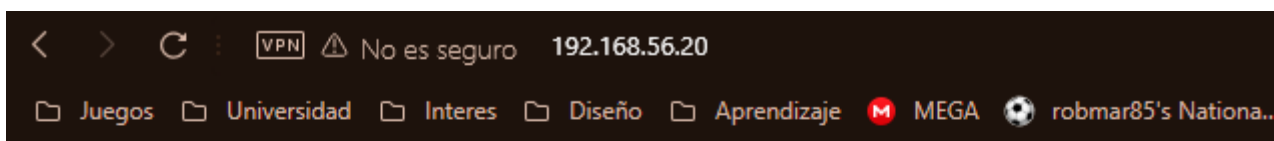
```
[root@localhost uo303984]# firewall-cmd --add-service http
success
[root@localhost uo303984]# firewall-cmd --add-service http --permanent
success
[root@localhost uo303984]# nano /etc/h
haproxy/ host.conf hostname hosts hp/
[root@localhost uo303984]# nano /etc/haproxy/haproxy.cfg
[root@localhost uo303984]# systemctl start haproxy.service
[root@localhost uo303984]# systemctl enable haproxy.service
Created symlink /etc/systemd/system/multi-user.target.wants/haproxy.service → /usr/lib/systemd/system/haproxy.service.
[root@localhost uo303984]#
```



Servidor Web 1

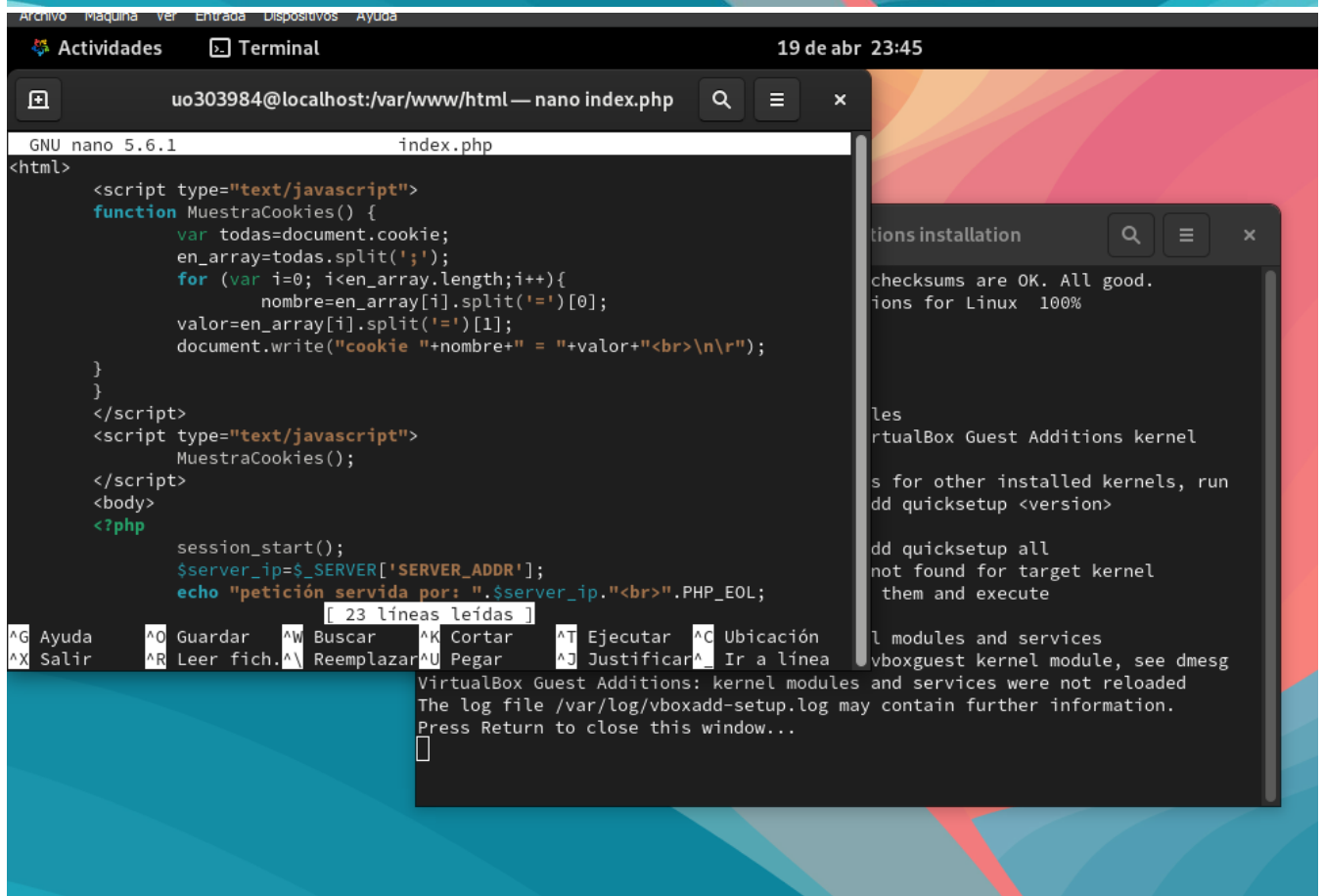
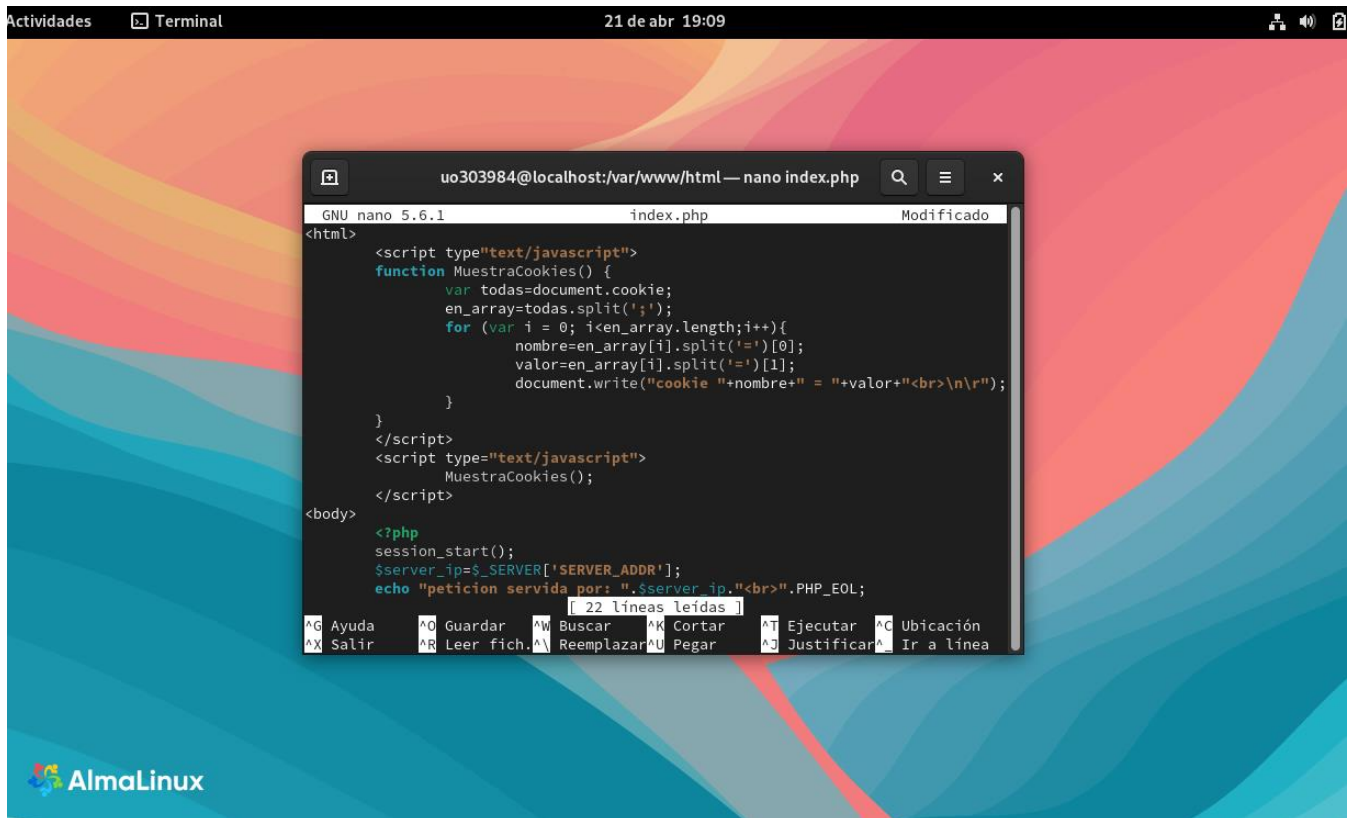


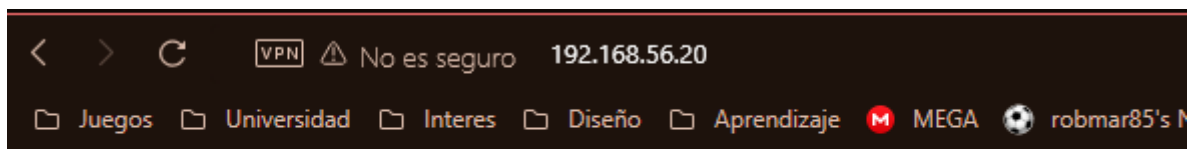
Servidor Web 2



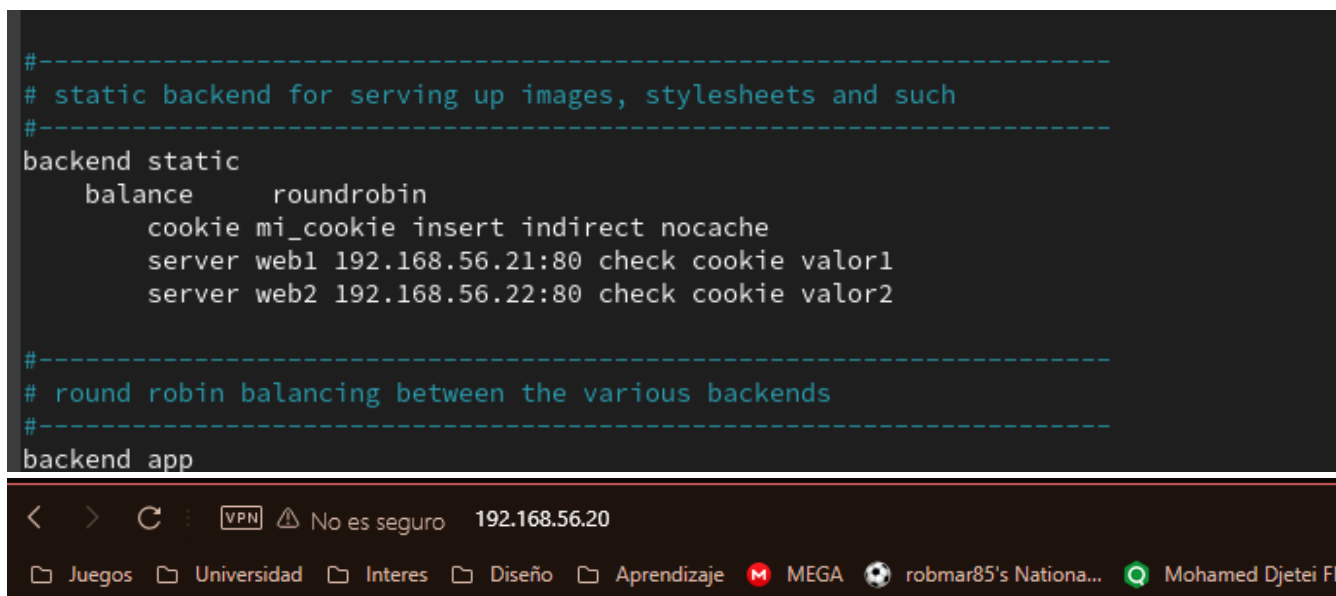
503 Service Unavailable

No server is available to handle this request.



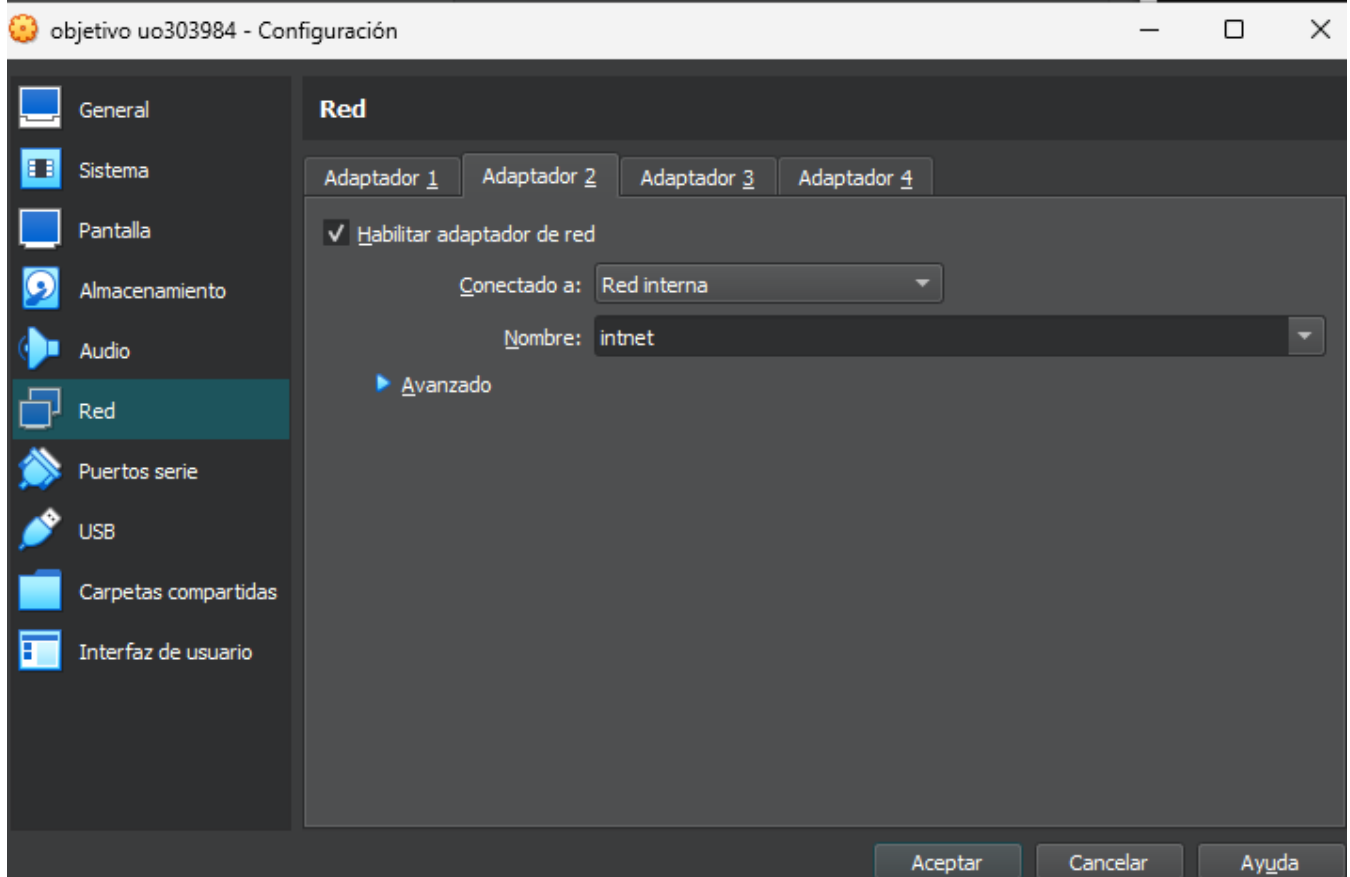
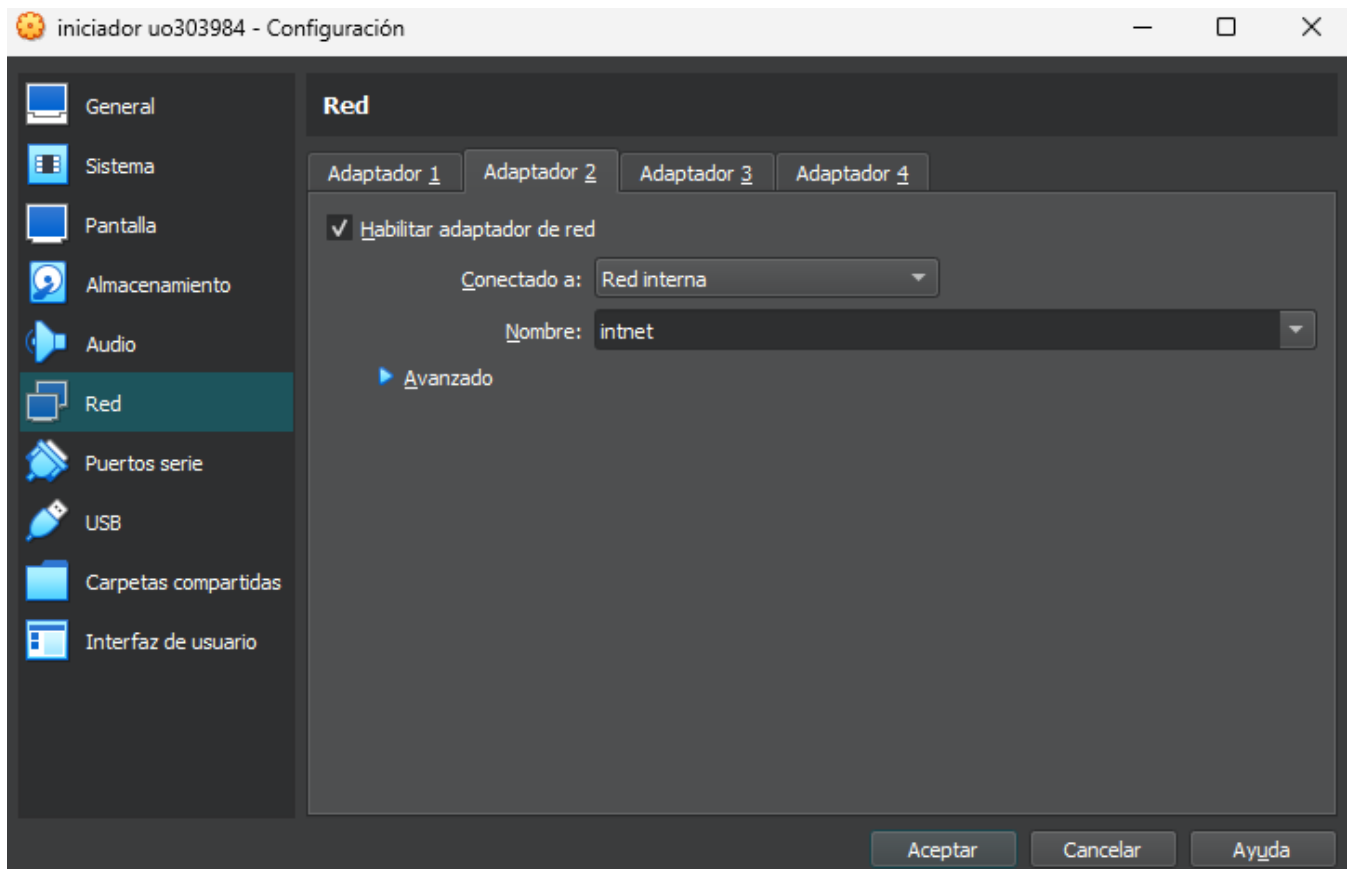


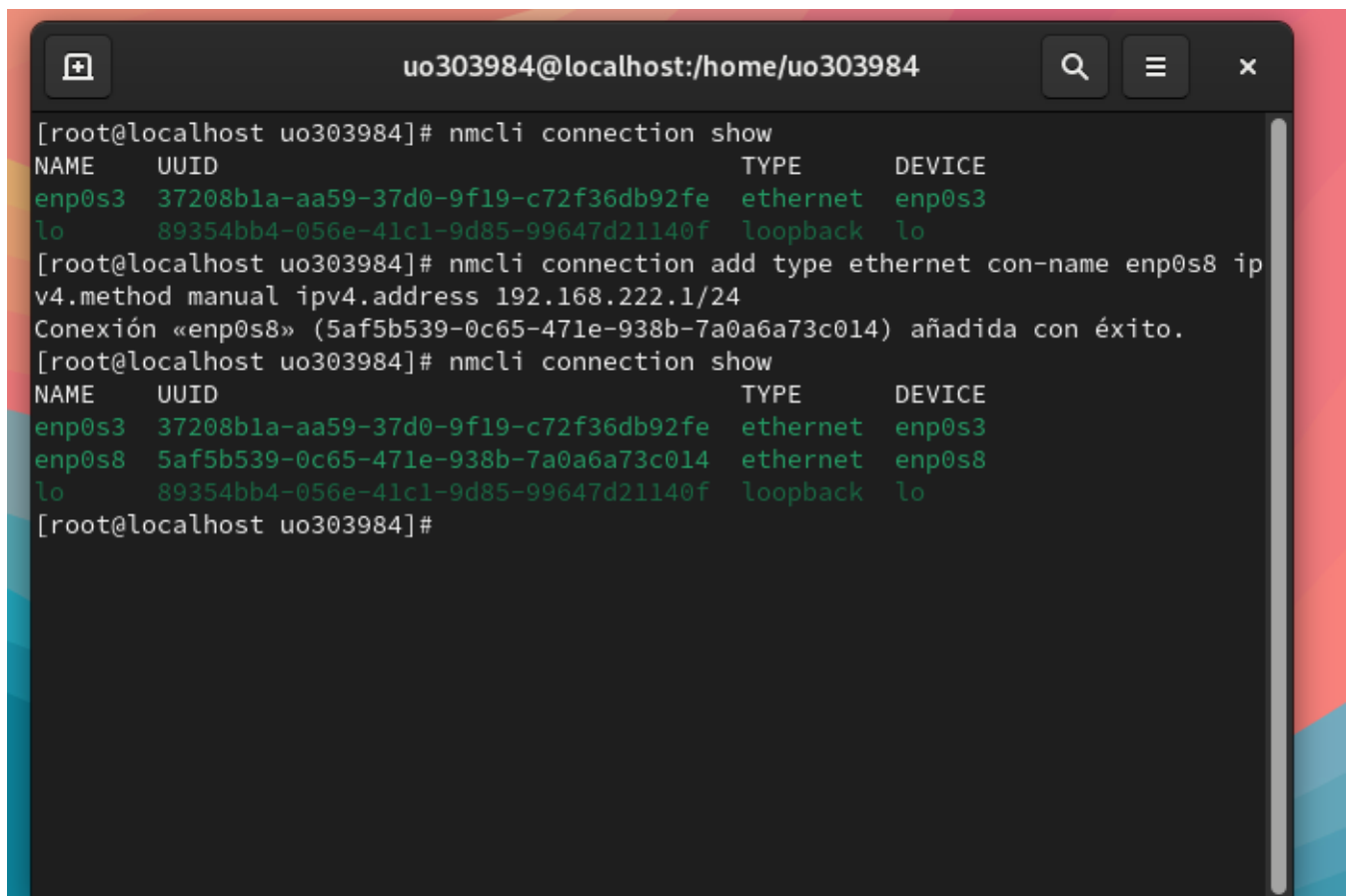
cookie PHPSESSID = sb9mdcfm7fvb7aup3b60sc75kb
peticion servida por: 192.168.56.21



cookie PHPSESSID = c681iftu39kj64custhdibvqkd
peticion servida por: 192.168.56.21

Almacenamiento de red (SAN) con iSCSI:





A terminal window titled "uo303984@localhost:/home/uo303984" with search, menu, and close buttons. The terminal shows the following commands and output:

```
[root@localhost uo303984]# nmcli connection show
```

NAME	UUID	TYPE	DEVICE
enp0s3	37208b1a-aa59-37d0-9f19-c72f36db92fe	ethernet	enp0s3
lo	89354bb4-056e-41c1-9d85-99647d21140f	loopback	lo

```
[root@localhost uo303984]# nmcli connection add type ethernet con-name enp0s8 ip  
v4.method manual ipv4.address 192.168.222.1/24  
Conexión «enp0s8» (5af5b539-0c65-471e-938b-7a0a6a73c014) añadida con éxito.  
[root@localhost uo303984]# nmcli connection show
```

NAME	UUID	TYPE	DEVICE
enp0s3	37208b1a-aa59-37d0-9f19-c72f36db92fe	ethernet	enp0s3
enp0s8	5af5b539-0c65-471e-938b-7a0a6a73c014	ethernet	enp0s8
lo	89354bb4-056e-41c1-9d85-99647d21140f	loopback	lo

```
[root@localhost uo303984]#
```

```
uo303984@localhost:/home/uo303984

[root@localhost uo303984]# nmcli connection show
NAME      UUID                                  TYPE      DEVICE
enp0s3    37208b1a-aa59-37d0-9f19-c72f36db92fe  ethernet  enp0s3
lo        99838b82-ff24-4bdc-ae51-07cb39c0a941  loopback  lo
[root@localhost uo303984]# nmcli connection add type ethernet con-name enp0s8 ip
v4.method manual ipv4.address 192.168.222.2/24
Conexión «enp0s8» (a7dffd3b-120b-42c0-aa2d-a8ea08686525) añadida con éxito.
[root@localhost uo303984]# nmcli connection show
NAME      UUID                                  TYPE      DEVICE
enp0s3    37208b1a-aa59-37d0-9f19-c72f36db92fe  ethernet  enp0s3
enp0s8    a7dffd3b-120b-42c0-aa2d-a8ea08686525  ethernet  enp0s8
lo        99838b82-ff24-4bdc-ae51-07cb39c0a941  loopback  lo
[root@localhost uo303984]#
```

```
[root@localhost uo303984]# nmcli connection show
NAME      UUID                                  TYPE      DEVICE
enp0s3    37208b1a-aa59-37d0-9f19-c72f36db92fe  ethernet  enp0s3
enp0s8    a7dffd3b-120b-42c0-aa2d-a8ea08686525  ethernet  enp0s8
lo        99838b82-ff24-4bdc-ae51-07cb39c0a941  loopback  lo
[root@localhost uo303984]# nmcli connection reload
[root@localhost uo303984]# nmcli connection show
NAME      UUID                                  TYPE      DEVICE
enp0s3    37208b1a-aa59-37d0-9f19-c72f36db92fe  ethernet  enp0s3
enp0s8    a7dffd3b-120b-42c0-aa2d-a8ea08686525  ethernet  enp0s8
lo        99838b82-ff24-4bdc-ae51-07cb39c0a941  loopback  lo
[root@localhost uo303984]# ping 192.168.222.1
PING 192.168.222.1 (192.168.222.1) 56(84) bytes of data.
64 bytes from 192.168.222.1: icmp_seq=1 ttl=64 time=18.4 ms
64 bytes from 192.168.222.1: icmp_seq=2 ttl=64 time=1.09 ms
64 bytes from 192.168.222.1: icmp_seq=3 ttl=64 time=2.52 ms
64 bytes from 192.168.222.1: icmp_seq=4 ttl=64 time=1.20 ms
^C
--- 192.168.222.1 ping statistics ---
4 packets transmitted, 4 received, 0% packet loss, time 3008ms
rtt min/avg/max/mdev = 1.092/5.804/18.410/7.299 ms
[root@localhost uo303984]#
```

Conexión «enp0s8» (5af5b539-0c65-471e-938b-7a0a6a73c014) añadida con éxito.

[root@localhost uo303984]# nmcli connection show

NAME	UUID	TYPE	DEVICE
enp0s3	37208b1a-aa59-37d0-9f19-c72f36db92fe	ethernet	enp0s3
enp0s8	5af5b539-0c65-471e-938b-7a0a6a73c014	ethernet	enp0s8
lo	89354bb4-056e-41c1-9d85-99647d21140f	loopback	lo

[root@localhost uo303984]# nmcli connection reload

[root@localhost uo303984]# nmcli connection show

NAME	UUID	TYPE	DEVICE
enp0s3	37208b1a-aa59-37d0-9f19-c72f36db92fe	ethernet	enp0s3
enp0s8	5af5b539-0c65-471e-938b-7a0a6a73c014	ethernet	enp0s8
lo	89354bb4-056e-41c1-9d85-99647d21140f	loopback	lo

[root@localhost uo303984]# ping 192.168.222.1

PING 192.168.222.1 (192.168.222.1) 56(84) bytes of data.

64 bytes from 192.168.222.1: icmp_seq=1 ttl=64 time=6.27 ms

64 bytes from 192.168.222.1: icmp_seq=2 ttl=64 time=0.063 ms

64 bytes from 192.168.222.1: icmp_seq=3 ttl=64 time=0.177 ms

64 bytes from 192.168.222.1: icmp_seq=4 ttl=64 time=0.124 ms

64 bytes from 192.168.222.1: icmp_seq=5 ttl=64 time=0.172 ms

^C

--- 192.168.222.1 ping statistics ---

5 packets transmitted, 5 received, 0% packet loss, time 4116ms

rtt min/avg/max/mdev = 0.063/1.361/6.272/2.455 ms

[root@localhost uo303984]#



uo303984@localhost:/home/uo303984



[root@localhost uo303984]# firewall-cmd --get-active-zones

public

interfaces: enp0s3 enp0s8

[root@localhost uo303984]#

firewall-cmd: error: unrecognized arguments: --get-actives-zones

[root@localhost uo303984]# firewall-cmd --get-active-zones

public

interfaces: enp0s3 enp0s8

[root@localhost uo303984]#

```
uo303984@localhost:/home/uo303984
└─sda1      8:1    0  600M  0 part /boot/efi
└─sda2      8:2    0    1G  0 part /boot
└─sda3      8:3    0 18,4G  0 part
  └─almalinux-root 253:0  0 16,4G  0 lvm /
    └─almalinux-swap 253:1  0    2G  0 lvm [SWAP]
sdb         8:16   0   20G  0 disk
sr0         11:0   1 1024M  0 rom
[root@localhost uo303984]# fallocate --lenght 1G fichero.dsk
fallocate: unrecognized option '--lenght'
Escriba 'fallocate --help' para obtener más información.
[root@localhost uo303984]# fallocate --length 1G fichero.dsk
[root@localhost uo303984]# lsblk
NAME                                MAJ:MIN RM  SIZE RO TYPE MOUNTPOINTS
sda                                8:0    0   20G  0 disk
└─sda1                            8:1    0  600M  0 part /boot/efi
└─sda2                            8:2    0    1G  0 part /boot
└─sda3                            8:3    0 18,4G  0 part
  └─almalinux-root                253:0  0 16,4G  0 lvm /
    └─almalinux-swap              253:1  0    2G  0 lvm [SWAP]
sdb                                8:16   0   20G  0 disk
sr0                                11:0   1 1024M  0 rom

[root@localhost uo303984]#
[root@localhost uo303984]#
```

```
uo303984@localhost:/home/uo303984

Verificando      : target-restore-2.1.75-1.el9.noarch      2/7
Verificando      : targetcli-2.1.53-7.el9.noarch          3/7
Verificando      : python3-configshell-1:1.1.28-7.el9.noarch 4/7
Verificando      : python3-kmod-0.9-32.el9.x86_64        5/7
Verificando      : python3-pyparsing-2.4.7-9.el9.noarch   6/7
Verificando      : python3-urwid-2.1.2-4.el9.x86_64       7/7

Instalado:
python3-configshell-1:1.1.28-7.el9.noarch  python3-kmod-0.9-32.el9.x86_64
python3-pyparsing-2.4.7-9.el9.noarch      python3-rtslib-2.1.75-1.el9.noarch
python3-urwid-2.1.2-4.el9.x86_64         target-restore-2.1.75-1.el9.noarch
targetcli-2.1.53-7.el9.noarch

¡Listo!
[root@localhost uo303984]# systemctl enable --now target
Created symlink /etc/systemd/system/multi-user.target.wants/target.service → /usr/lib/systemd/system/target.service.
[root@localhost uo303984]# firewall-cmd --add-service=iscsi-target --zone=internal --permanent
success
[root@localhost uo303984]# firewall-cmd --add-service=iscsi-target --zone=internal
success
[root@localhost uo303984]#
```

```
[root@localhost uo303984]# targetcli
Warning: Could not load preferences file /root/.targetcli/prefs.bin.
targetcli shell version 2.1.53
Copyright 2011-2013 by Datera, Inc and others.
For help on commands, type 'help'.

/> ls
o- / ..... [....]
  o- backstores ..... [....]
    o- block ..... [Storage Objects: 0]
    o- fileio ..... [Storage Objects: 0]
    o- pscsi ..... [Storage Objects: 0]
    o- ramdisk ..... [Storage Objects: 0]
    o- iscsi ..... [Targets: 0]
    o- loopback ..... [Targets: 0]
/> cd iscsi
/iscsi> create iqn.2023-02.as.servidor:1111
Created target iqn.2023-02.as.servidor:1111.
Created TPG 1.
Global pref auto_add_default_portal=true
Created default portal listening on all IPs (0.0.0.0), port 3260.
/iscsi> ls
o- iscsi ..... [Targets: 1]
  o- iqn.2023-02.as.servidor:1111 ..... [TPGs: 1]
    o- tpg1 ..... [no-gen-acls, no-auth]
      o- acls ..... [ACLs: 0]
      o- luns ..... [LUNs: 0]
      o- portals ..... [Portals: 1]
        o- 0.0.0.0:3260 ..... [OK]
/iscsi> cd /backstores/block
/backstores/block>
```

```

Created default portal listening on all IPs (0.0.0.0), port 3260.
/iscsi> ls
o- iscsi ..... [Targets: 1]
  o- iqn.2023-02.as.servidor:1111 ..... [TPGs: 1]
    o- tpg1 ..... [no-gen-acls, no-auth]
      o- acls ..... [ACLs: 0]
      o- luns ..... [LUNs: 0]
      o- portals ..... [Portals: 1]
        o- 0.0.0.0:3260 ..... [OK]
/backstores/block> create name=mi_disco_sdb dev=/dev/sdb
Created block storage object mi_disco_sdb using /dev/sdb.
/backstores/block> ls
o- block ..... [Storage Objects: 1]
  o- mi_disco_sdb ..... [/dev/sdb (20.0GiB) write-thru deactivated]
    o- alua ..... [ALUA Groups: 1]
      o- default_tg_pt_gp ..... [ALUA state: Active/optimized]
/backstores/block> cd /backstores/fileio
/backstores/fileio> create name=mi_fichero file_or_dev=fichero.dsk
Created fileio mi_fichero with size 1073741824
/backstores/fileio> ls
o- fileio ..... [Storage Objects: 1]
  o- mi_fichero ..... [fichero.dsk (1.0GiB) write-back deactivated]
    o- alua ..... [ALUA Groups: 1]
      o- default_tg_pt_gp ..... [ALUA state: Active/optimized]
/backstores/fileio>

```

```

    o- default_tg_pt_gp ..... [AL
/backstores/fileio> cd /iscsi/iqn.2023-02.as.servidor:1111/tpg1/portals/
/iscsi/iqn.20.../tpg1/portals> delete 0.0.0.0 3260
Deleted network portal 0.0.0.0:3260
/iscsi/iqn.20.../tpg1/portals> create 192.168.222.1
Using default IP port 3260
Created network portal 192.168.222.1:3260.
/iscsi/iqn.20.../tpg1/portals> S

```

```

Created network portal 192.168.222.1:3260.
/iscsi/iqn.20.../tpg1/portals> cd /iscsi/iqn.2023-02.as.servidor:1111/tpg1/luns
/iscsi/iqn.20...111/tpg1/luns> create /backstores/block/mi_disco_sdb
Created LUN 0.
/iscsi/iqn.20...111/tpg1/luns> create /backstores/fileio/mi_fichero
Created LUN 1.
/iscsi/iqn.20...111/tpg1/luns> ls
o- luns ..... [LUNs: 2]
  o- lun0 ..... [block/mi_disco_sdb (/dev/sdb) (default_tg_pt_gp)]
  o- lun1 ..... [fileio/mi_fichero (fichero.dsk) (default_tg_pt_gp)]
/iscsi/iqn.20...111/tpg1/luns> cd ../acls
/iscsi/iqn.20...111/tpg1/acls> create iqn.2023-02.as.cliente:2222
Created Node ACL for iqn.2023-02.as.cliente:2222
Created mapped LUN 1.
Created mapped LUN 0.
/iscsi/iqn.20...111/tpg1/acls> ls
o- acls ..... [ACLs: 1]
  o- iqn.2023-02.as.cliente:2222 ..... [Mapped LUNs: 2]
    o- mapped_lun0 ..... [lun0 block/mi_disco_sdb (rw)]
    o- mapped_lun1 ..... [lun1 fileio/mi_fichero (rw)]
/iscsi/iqn.20...111/tpg1/acls> exit
Global pref auto_save_on_exit=true
Configuration saved to /etc/target/saveconfig.json
[root@localhost uo303984]#

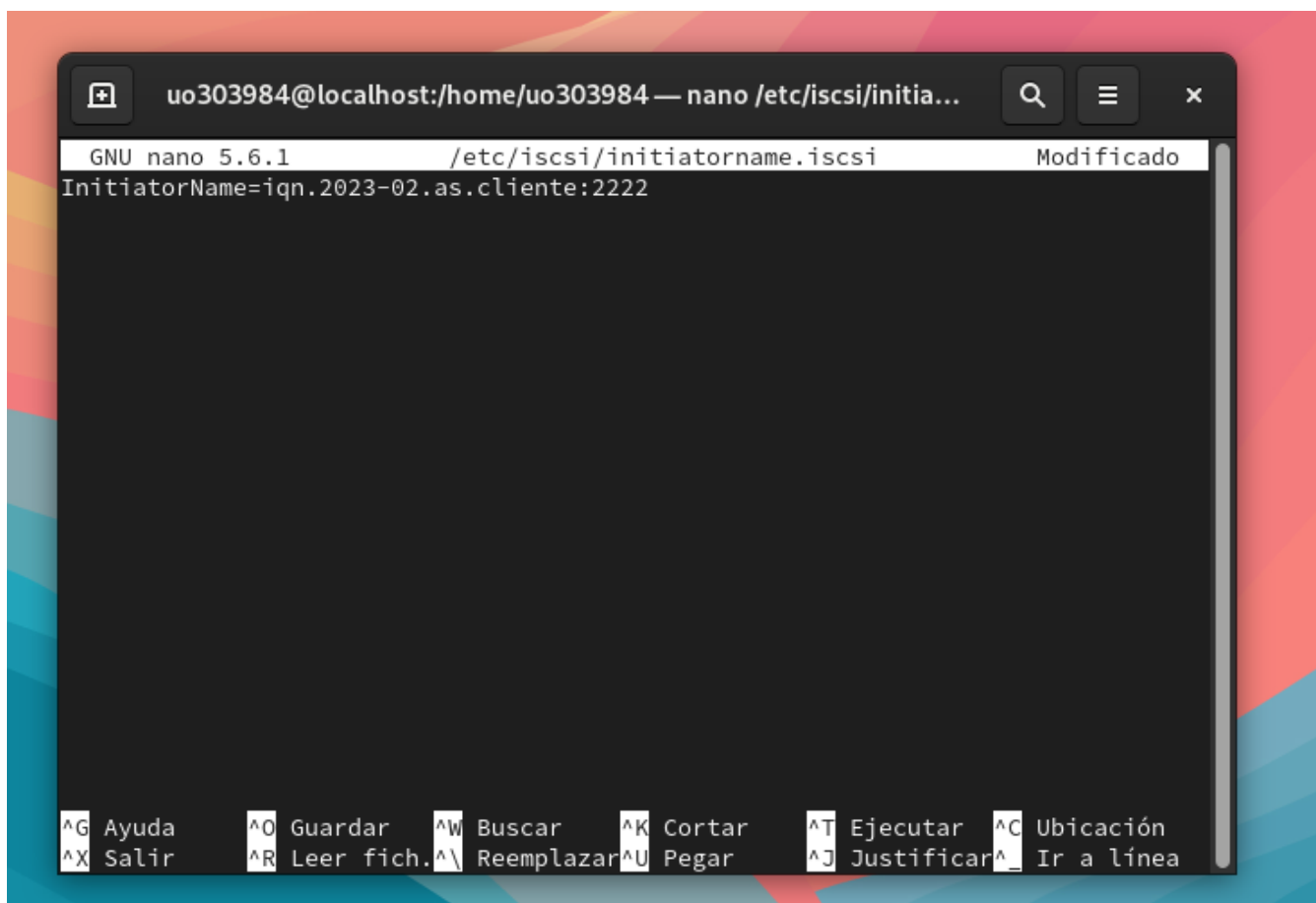
```



```
{
  "fabric_modules": [],
  "storage_objects": [
    {
      "aio": false,
      "alua_tpgs": [
        {
          "alua_access_state": 0,
          "alua_access_status": 0,
          "alua_access_type": 3,
          "alua_support_active_nonoptimized": 1,
          "alua_support_active_optimized": 1,
          "alua_support_offline": 1,
          "alua_support_standby": 1,
          "alua_support_transitioning": 1,
          "alua_support_unavailable": 1,
          "alua_write_metadata": 0,
          "implicit_trans_secs": 0,
          "name": "default_tg_pt_gp",
          "nonop_delay_msecs": 100,
          "preferred": 0,
          "tg_pt_gp_id": 0,
          "trans_delay_msecs": 0
        }
      ]
    },
    {
      "attributes": {
        "alua_support": 1,
        "block_size": 512,
        "emulate_3pc": 1,
        "emulate_caw": 1,
        "emulate_dpo": 1,

```

```
uo303984@localhost:/home/uo303984
[roo@localhost uo303984]# dnf -y install iscsi-initiator-utils
Error al cargar el complemento "config_manager": '*prog'
AlmaLinux 9 - AppStream          1.7 MB/s | 11 MB      00:06
AlmaLinux 9 - BaseOS             1.7 MB/s | 6.9 MB     00:04
AlmaLinux 9 - Extras             20 kB/s | 17 kB       00:00
El paquete iscsi-initiator-utils-6.2.1.4-3.git2a8f9d8.el9.x86_64 ya está instala
do.
Dependencias resueltas.
Nada por hacer.
¡Listo!
[roo@localhost uo303984]#
```



```
uo303984@localhost:/home/uo303984 — nano /etc/iscsi/initia...
GNU nano 5.6.1 /etc/iscsi/initiatorname.iscsi Modificado
InitiatorName=iqn.2023-02.as.cliente:2222

^G Ayuda      ^O Guardar    ^W Buscar     ^K Cortar     ^T Ejecutar   ^C Ubicación
^X Salir      ^R Leer fich. ^\ Reemplazar ^U Pegar      ^J Justificar ^_ Ir a línea
```

```
[root@localhost uo303984]# iscsiadm --mode=discovery --type=sendtargets --portal=192.168.222.1
192.168.222.1:3260,1 iqn.2023-02.as.servidor:1111
[root@localhost uo303984]#
```

```
192.168.222.1:3260,1 iqn.2023-02.as.servidor:1111
[root@localhost uo303984]# iscsiadm --mode=node --targetname=iqn.2023-02.as.servidor:1111 --portal=192.168.222.1 --login
logging in to [iface: default, target: iqn.2023-02.as.servidor:1111, portal: 192.168.222.1,3260]
Login to [iface: default, target: iqn.2023-02.as.servidor:1111, portal: 192.168.222.1,3260] successful.
[root@localhost uo303984]#
```

```
[root@localhost uo303984]# iscsiadm --mode=node --targetname=iqn.2023-02.as.servidor:1111 --portal=192.168.222.1 --login
logging in to [iface: default, target: iqn.2023-02.as.servidor:1111, portal: 192.168.222.1,3260]
iscsiadm: Could not login to [iface: default, target: iqn.2023-02.as.servidor:1111, portal: 192.168.222.1,3260].
iscsiadm: initiator reported error (24 - iSCSI login failed due to authorization failure)
```

```

[.
[root@localhost uo303984]# lsblk
NAME                                MAJ:MIN RM  SIZE RO TYPE MOUNTPOINTS
sda                                 8:0    0   20G  0 disk
├─sda1                             8:1    0   600M  0 part /boot/efi
├─sda2                             8:2    0    1G  0 part /boot
├─sda3                             8:3    0  18,4G  0 part
│   ├─almalinux-root               253:0    0  16,4G  0 lvm /
│   └─almalinux-swap               253:1    0    2G  0 lvm [SWAP]
sdb                                8:16    0   20G  0 disk
sdc                                8:32    0    1G  0 disk
sr0                                11:0    1  1024M  0 rom
[root@localhost uo303984]# cat /proc/scsi/scsi
Attached devices:
Host: scsi2 Channel: 00 Id: 00 Lun: 00
  Vendor: ATA      Model: VBOX HARDDISK   Rev: 1.0
  Type:   Direct-Access                ANSI SCSI revision: 05
Host: scsi1 Channel: 00 Id: 00 Lun: 00
  Vendor: VBOX     Model: CD-ROM      Rev: 1.0
  Type:   CD-ROM                ANSI SCSI revision: 05
Host: scsi3 Channel: 00 Id: 00 Lun: 00
  Vendor: LIO-ORG  Model: mi_disco_sdb Rev: 4.0
  Type:   Direct-Access                ANSI SCSI revision: 06
Host: scsi3 Channel: 00 Id: 00 Lun: 01
  Vendor: LIO-ORG  Model: mi_fichero   Rev: 4.0
  Type:   Direct-Access                ANSI SCSI revision: 06
[root@localhost uo303984]#

```

hecho

```

[root@localhost uo303984]# blkid /dev/sdb1
/dev/sdb1: UUID="6096a1fc-2623-410a-a8a0-3023e9b07e14" TYPE="ext4" PARTUUID="7e871438-01"
[root@localhost uo303984]#

```

```

uo303984@localhost:/home/uo303984 — nano /etc/fstab
GNU nano 5.6.1 /etc/fstab Modificado

#
# /etc/fstab
# Created by anaconda on Mon Feb  5 17:47:48 2024
#
# Accessible filesystems, by reference, are maintained under '/dev/disk/'.
# See man pages fstab(5), findfs(8), mount(8) and/or blkid(8) for more info.
#
# After editing this file, run 'systemctl daemon-reload' to update systemd
# units generated from this file.
#
/dev/mapper/almalinux-root / xfs defaults 0 0
UUID=7ecad345-fa56-4f90-bdd0-a481bf68f536 /boot xfs defau>
UUID=6069a1fc-2623-410a-a8a0-3023e9b07e14 /mnt/disco ext4 _netdev 0 0
UUID=F3E1-D665 /boot/efi vfat umask=0077,shortname=wi>
/dev/mapper/almalinux-swap none swap defaults 0 0

^G Ayuda ^O Guardar ^W Buscar ^K Cortar ^T Ejecutar ^C Ubicación
^X Salir ^R Leer fich. ^\ Reemplazar ^U Pegar ^J Justificar ^_ Ir a línea

```

```

root@localhost uo303984]# blkid /dev/sdb1
dev/sdb1: UUID="6096a1fc-2623-410a-a8a0-3023e9b07e14" TYPE="ext4" PARTUUID="7e8
1438-01"
root@localhost uo303984]# nano /etc/fstab
root@localhost uo303984]# systemctl status iscsi
  iscsi.service - Login and scanning of iSCSI devices
    Loaded: loaded (/usr/lib/systemd/system/iscsi.service; enabled; preset: en>
    Active: active (exited) since Sun 2024-04-21 21:03:14 CEST; 8min ago
    Docs: man:iscsiadm(8)
          man:iscsid(8)
    Process: 1117 ExecStart=/usr/sbin/iscsiadm -m node --loginall=automatic (co>
    Main PID: 1117 (code=exited, status=0/SUCCESS)
    CPU: 17ms

br 21 21:03:13 localhost.localdomain systemd[1]: Starting Login and scanning o>
br 21 21:03:14 localhost.localdomain iscsiadm[1117]: Logging in to [iface: def>
br 21 21:03:14 localhost.localdomain iscsiadm[1117]: Login to [iface: default,>
br 21 21:03:14 localhost.localdomain systemd[1]: Finished Login and scanning o>
ines 1-13/13 (FND)

```

```
[root@localhost uo303984]# df
Filesystem              bloques de 1K  Usados  Disponibles  Uso%  Montado en
devtmpfs                 4096         0       4096        0%  /dev
tmpfs                   894840         0     894840        0%  /dev/shm
tmpfs                   357936      6556     351380        2%  /run
/dev/mapper/almalinux-root 17141760 4691280    12450480       28%  /
/dev/sda2                983040     299128     683912       31%  /boot
/dev/sda1                613160      7180     605980        2%  /boot/efi
tmpfs                   178968         96     178872        1%  /run/user/1000
/dev/sdb1               20433492      24     19370148        1%  /mnt/disco
```

```
[root@localhost uo303984]# cat /proc/scsi/scsi
Attached devices:
Host: scsi1 Channel: 00 Id: 00 Lun: 00
  Vendor: VBOX      Model: CD-ROM          Rev: 1.0
  Type:   CD-ROM          ANSI SCSI revision: 05
Host: scsi2 Channel: 00 Id: 00 Lun: 00
  Vendor: ATA       Model: VBOX HARDDISK   Rev: 1.0
  Type:   Direct-Access  ANSI SCSI revision: 05
Host: scsi3 Channel: 00 Id: 00 Lun: 00
  Vendor: LIO-ORG   Model: mi_disco_sdb    Rev: 4.0
  Type:   Direct-Access  ANSI SCSI revision: 06
Host: scsi3 Channel: 00 Id: 00 Lun: 01
  Vendor: LIO-ORG   Model: mi_fichero      Rev: 4.0
  Type:   Direct-Access  ANSI SCSI revision: 06
[root@localhost uo303984]#
```

```
[root@localhost uo303984]# iscsiadm --mode node --targetname iqn.2023-02.as.servidor:1111
--portal 192.168.222.1 --logout
Logging out of session [sid: 1, target: iqn.2023-02.as.servidor:1111, portal: 192.168.222.1,3260]
Logout of [sid: 1, target: iqn.2023-02.as.servidor:1111, portal: 192.168.222.1,3260] successful.
[root@localhost uo303984]#
```

```
[root@localhost uo303984]# lsblk
NAME                MAJ:MIN RM   SIZE RO TYPE MOUNTPOINTS
sda                  8:0    0    20G  0 disk
├─sda1                8:1    0    600M  0 part /boot/efi
├─sda2                8:2    0     1G  0 part /boot
└─sda3                8:3    0   18,4G  0 part
   ├─almalinux-root 253:0    0   16,4G  0 lvm  /
   └─almalinux-swap 253:1    0     2G  0 lvm  [SWAP]
sdb                  8:16    0    20G  0 disk
sr0                  11:0    1   1024M  0 rom

[root@localhost uo303984]# targetcli
targetcli shell version 2.1.53
Copyright 2011-2013 by Datera, Inc and others.
For help on commands, type 'help'.

/iscsi/iqn.20...111/tpg1/acls> cd /iscsi/iqn.2023-02.as.servidor:1111/tpg1
/iscsi/iqn.20...dor:1111/tpg1> set attribute authentication=1
Parameter authentication is now '1'.
/iscsi/iqn.20...dor:1111/tpg1> cd /iscsi/iqn.2023-02.as.servidor:1111/tpg1/acls/iqn.2023-02.as.cliente:2222/
/iscsi/iqn.20...cliente:2222> set auth userid=mi_usuario
Parameter userid is now 'mi_usuario'.
/iscsi/iqn.20...cliente:2222> set auth password=mi_clave
Parameter password is now 'mi_clave'.
/iscsi/iqn.20...cliente:2222>
```

```
# To manually startup the session set to "manual". The default is automatic.
node.startup = automatic

# For "automatic" startup nodes, setting this to "Yes" will try logins on each
# available iface until one succeeds, and then stop. The default "No" will try
# logins on all available ifaces simultaneously.
node.leading_login = No
```

```
# *****
# CHAP Settings
# *****
```

```
# To enable CHAP authentication set node.session.auth.authmethod
# to CHAP. The default is None.
node.session.auth.authmethod = CHAP
node.session.auth.username = mi_usuario
node.session.auth.password = mi_clave
# To configure which CHAP algorithms to enable set
# node.session.auth.chap_algs to a comma seperated list.
# The algorithms should be listen with most prefered first.
# Valid values are MD5, SHA1, SHA256, and SHA3-256.
# The default is MD5.
#node.session.auth.chap_algs = SHA3-256,SHA256,SHA1,MD5
```

```
# To set a CHAP username and password for initiator
# authentication by the target(s), uncomment the following lines:
#node.session.auth.username = username
```

^G Ayuda	^O Guardar	^W Buscar	^K Cortar	^T Ejecutar	^C Ubicación	M-U Deshacer
^X Salir	^R Leer fich.	^V Reemplazar	^U Pegar	^J Justificar	^_ Ir a línea	M-E Rehacer

```
[root@localhost uo303984]# iscsiadm --mode node --targetname iqn.2023-02.as.servidor:1111
--portal 192.168.222.1 --op delete
[root@localhost uo303984]# iscsiadm --mode=discovery --type=sendtargets --portal=192.168.
222.1
192.168.222.1:3260,1 iqn.2023-02.as.servidor:1111
```