

Administración de Sistemas Operativos y Redes de Computadoras

Practica 1



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Abstract. En este documento se redacta el proceso y la configuración de las máquinas virtuales de la entrega.

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1 FreeBSD

1.1 Resumen de Instalación.

La instalación de FreeBSD es bastante sencilla a pesar de que es totalmente a través de la terminal, solo hay que seguir los pasos y estar atento a la hora de configurar la instalación, además he instalado el entorno gráfico usando este [tutorial](#).

1.2 Configuración de Red.

1.2.1 Comando: ifconfig.

Mostrar la configuración y el estado de los adaptadores.

```
$ ifconfig
em0: flags=8863<UP,BROADCAST,RUNNING,SIMPLEX,MULTICAST> metric 0 mtu 1500
    options=481009b<RXCSUM, TXCSUM, VLAN_MTU, VLAN_HWTAGGING, VLAN_HWCSUM, VLAN_HWFILTER, NOMAP>
    ether 08:00:27:ea:51:cf
    inet6 fe80::a00:27ff:feea:51cf%em0 prefixlen 64 scopeid 0x1
    inet 10.0.2.6 netmask 0xfffff00 broadcast 10.0.2.255
    media: Ethernet autoselect (1000baseT <full-duplex>)
    status: active
    nd6 options=23<PERFORMNUD, ACCEPT_RTADV, AUTO_LINKLOCAL>
em1: flags=8863<UP,BROADCAST,RUNNING,SIMPLEX,MULTICAST> metric 0 mtu 1500
    options=481009b<RXCSUM, TXCSUM, VLAN_MTU, VLAN_HWTAGGING, VLAN_HWCSUM, VLAN_HWFILTER, NOMAP>
    ether 08:00:27:f2:32:fa
    inet 192.168.56.104 netmask 0xfffff00 broadcast 192.168.56.255
    media: Ethernet autoselect (1000baseT <full-duplex>)
    status: active
    nd6 options=29<PERFORMNUD, IFDISABLED, AUTO_LINKLOCAL>
lo0: flags=8049<UP,LOOPBACK,RUNNING,MULTICAST> metric 0 mtu 16384
    options=680003<RXCSUM, TXCSUM, LINKSTATE, RXCSUM_IPV6, TXCSUM_IPV6>
    inet6 ::1 prefixlen 128
    inet6 fe80::1%lo0 prefixlen 64 scopeid 0x3
    inet 127.0.0.1 netmask 0xff000000
    groups: lo
    nd6 options=21<PERFORMNUD, AUTO_LINKLOCAL>
$
```

1.2.2 Comando: service netif restart.

Reinicia los adaptadores, aplica los cambios en /etc/rc.conf.

1.2.3 Archivos de configuración de red.

```
$ cat /etc/rc.conf
hostname=""
ifconfig_em0="DHCP"
ifconfig_em0_ipv6="inet6 accept_rtadv"
ifconfig_em1="DHCP"

$ sudo service netif restart
Stopping dhclient.
dhclient not running? (check /var/run/dhclient/dhclient.em1.pid).
Stopping Network: lo0 em0 em1.

Starting Network: lo0 em0 em1.
lo0: flags=8049<UP,LOOPBACK,RUNNING,MULTICAST> metric 0 mtu 16384
    options=680003<RXCSUM, TXCSUM, LINKSTATE, RXCSUM_IPV6, TXCSUM_IPV6>
    inet6 ::1 prefixlen 128
    inet6 fe80::1%lo0 prefixlen 64 scopeid 0x3
    inet 127.0.0.1 netmask 0xff000000
    groups: lo
    nd6 options=21<PERFORMNUD, AUTO_LINKLOCAL>
```

1.3 Prueba de Redes:

1.3.1 Ping: Host => Guest.

```

nd6 options=23<PERFORMOD,ACCEPT_RTADV,AUTO
em1: flags=8863<UP,BROADCAST,RUNNING,SIMPLEX,MULTI
options=481009b<RXCSUM,TXCSUM,VLAN_MTU,VLAN
ether 08:00:27:f2:32:fa
inet 192.168.56.104 netmask 0xffffffff00 broa
media: Ethernet autoselect (1000baseT <full

C:\ Símbolo del sistema

C:\Users\SAPro>ping 192.168.56.104

Haciendo ping a 192.168.56.104 con 32 bytes de datos:
Respuesta desde 192.168.56.104: bytes=32 tiempo=1ms TTL=64
Respuesta desde 192.168.56.104: bytes=32 tiempo=11ms TTL=64

```

1.3.2 Ping: Guest => Host.

```

$ ping 192.168.56.1
PING 192.168.56.1 (192.168.56.1): 56 data bytes
64 bytes from 192.168.56.1: icmp_seq=0 ttl=128 time=0.544 ms
64 bytes from 192.168.56.1: icmp_seq=1 ttl=128 time=1.023 ms
^C
--- 192.168.56.1 ping statistics ---
2 packets transmitted, 2 packets received, 0.0% packet loss
round-trip min/avg/max/stddev = 0.544/0.784/1.023/0.239 ms
$

```

1.3.3 Ping: Guest => Internet.

```

$ ping www.google.es
PING www.google.es (216.58.215.131): 56 data bytes
64 bytes from 216.58.215.131: icmp_seq=0 ttl=114 time=17.274 ms
64 bytes from 216.58.215.131: icmp_seq=1 ttl=114 time=17.024 ms
64 bytes from 216.58.215.131: icmp_seq=2 ttl=114 time=17.380 ms

```

1.4 Lista de paquetes instalados.

En este SO hemos usado el gestor de paquetes PKG para instalar el software requerido.

- Paquetes Programador:
 - Visual Studio Code: `sudo pkg install vscode`
 - VIM: `sudo pkg install vim`
 - Git: `sudo pkg install git`
 - Eclipse: `sudo pkg install eclipse`
- Paquetes Oficinista:
 - LibreOffice: `sudo pkg install libreoffice`
 - TextAdept: `sudo pkg install textadept`
 - Chromium: `sudo pkg install chromium`

- Paquetes Multimedia:
 - Gimp: sudo pkg install gimp
 - Audacity: sudo pkg install audacity

2 Rocky Linux.

2.1 Resumen de Instalación.

La instalación de este SO es extremadamente sencilla, la GUI nos guía paso a paso por cada parte de la configuración de la instalación, de tal manera que es muy fácil personalizar el particionado, actualización de paquetes, hora, tipo de teclado, particiones SWAP y otros de manera muy cómoda y casi automática.

2.2 Configuración de Red.

2.2.1 Comando: ifconfig.

Mostrar la configuración y el estado de los adaptadores.

```
enp0s3: flags=4163<UP,BROADCAST,RUNNING,MULTICAST> mtu 1500
    inet 10.0.2.5 netmask 255.255.255.0 broadcast 10.0.2.255
    inet6 fe80::a00:27ff:feef:342a prefixlen 64 scopeid 0x20<link>
    ether 08:00:27:ef:34:2a txqueuelen 1000 (Ethernet)
    RX packets 6227 bytes 9097745 (8.6 MiB)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 987 bytes 72018 (70.3 KiB)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

enp0s8: flags=4163<UP,BROADCAST,RUNNING,MULTICAST> mtu 1500
    inet 192.168.56.102 netmask 255.255.255.0 broadcast 192.168.56.255
    inet6 fe80::a00:27ff:fe9c:15ba prefixlen 64 scopeid 0x20<link>
    ether 08:00:27:9c:15:ba txqueuelen 1000 (Ethernet)
    RX packets 9 bytes 3190 (3.1 KiB)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 74 bytes 8736 (8.5 KiB)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

lo: flags=73<UP,LOOPBACK,RUNNING> mtu 65536
    inet 127.0.0.1 netmask 255.0.0.0
    inet6 ::1 prefixlen 128 scopeid 0x10<host>
    loop txqueuelen 1000 (Local Loopback)
    RX packets 24 bytes 2514 (2.4 KiB)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 24 bytes 2514 (2.4 KiB)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0
```


2.2.2 Comando: systemctl restart NetworkManager.

Reinicia los adaptadores de red y aplica la nueva configuración.

```

sep 28 17:09:24 localhost.localdomain systemd[1]: Stopping Network Manager...
sep 28 17:09:24 localhost.localdomain NetworkManager[3290]: <info> [1664377764.2151] >
sep 28 17:09:24 localhost.localdomain systemd[1]: NetworkManager.service: Deactivated >
sep 28 17:09:24 localhost.localdomain systemd[1]: Stopped Network Manager.
[administrator@localhost ~]$ sudo systemctl restart NetworkManager
[administrator@localhost ~]$ sudo systemctl status NetworkManager
● NetworkManager.service - Network Manager
   Loaded: loaded (/usr/lib/systemd/system/NetworkManager.service; enabled; vendor p
   Active: active (running) since Wed 2022-09-28 17:09:36 CEST; 2s ago
     Docs: man:NetworkManager(8)
    Main PID: 3643 (NetworkManager)
      Tasks: 4 (limit: 23442)
     Memory: 3.4M
        CPU: 98ms
    CGroup: /system.slice/NetworkManager.service
            └─3643 /usr/sbin/NetworkManager --no-daemon

sep 28 17:09:37 localhost.localdomain NetworkManager[3643]: <info> [1664377777.9781] >
sep 28 17:09:37 localhost.localdomain NetworkManager[3643]: <info> [1664377777.9784] >
sep 28 17:09:38 localhost.localdomain NetworkManager[3643]: <info> [1664377778.0002] >
sep 28 17:09:38 localhost.localdomain NetworkManager[3643]: <info> [1664377778.0083] >
sep 28 17:09:38 localhost.localdomain NetworkManager[3643]: <info> [1664377778.0092] >
sep 28 17:09:38 localhost.localdomain NetworkManager[3643]: <info> [1664377778.0120] >
sep 28 17:09:38 localhost.localdomain NetworkManager[3643]: <info> [1664377778.0134] >
sep 28 17:09:38 localhost.localdomain NetworkManager[3643]: <info> [1664377778.0201] >
sep 28 17:09:38 localhost.localdomain NetworkManager[3643]: <info> [1664377778.0210] >
sep 28 17:09:38 localhost.localdomain NetworkManager[3643]: <info> [1664377778.0233] >
[administrator@localhost ~]$

```

2.2.3 Archivos de configuración de la red.

```

[administrator@localhost ~]$ cat /etc/sysconfig/network-scripts/ifcfg-enp0s8
ONBOOT=yes
[administrator@localhost ~]$ cat /etc/sysconfig/network-scripts/ifcfg-enp0s3
ONBOOT=yes
[administrator@localhost ~]$

```


2.3 Prueba de Redes.

2.4 Ping: Host => Guest.

```

enp0s8: flags=4163<UP,BROADCAST,RUNNING,MULTICAST> mtu 1500
    inet 192.168.56.102 netmask 255.255.255.0 broadcast 19
    inet6 fe80::a00:27ff:fe9c:15ba prefixlen 64 scopeid 0x
    ether 08:00:27:9c:15:ba txqueuelen 1000 (Ethernet)
    RX packets 52 bytes 14357 (14.0 KiB)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 453 bytes 53805 (52.5 KiB)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions

```

 Símbolo del sistema

```

C:\Users\SAPro>ping 192.168.56.102

Haciendo ping a 192.168.56.102 con 32 bytes de datos:
Respuesta desde 192.168.56.102: bytes=32 tiempo<1m TTL=64
Respuesta desde 192.168.56.102: bytes=32 tiempo<1m TTL=64

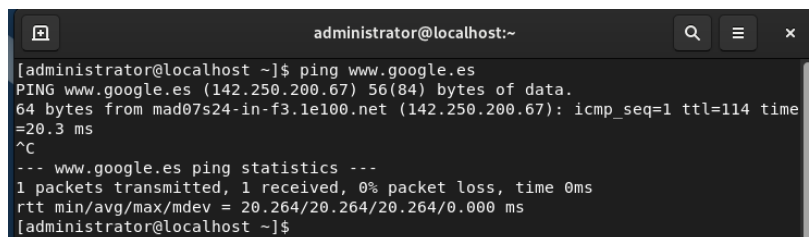
Estadísticas de ping para 192.168.56.102:

```

2.5 Ping: Guest => Host.

```
[administrator@localhost ~]$ ping 192.168.56.1
PING 192.168.56.1 (192.168.56.1) 56(84) bytes of data.
64 bytes from 192.168.56.1: icmp_seq=1 ttl=128 time=0.551 ms
64 bytes from 192.168.56.1: icmp_seq=2 ttl=128 time=0.553 ms
^C
192.168.56.1 ping statistics:
```

2.6 Ping: Guest => Internet.



```
administrator@localhost:~
[administrator@localhost ~]$ ping www.google.es
PING www.google.es (142.250.200.67) 56(84) bytes of data.
64 bytes from mad07s24-in-f3.1e100.net (142.250.200.67): icmp_seq=1 ttl=114 time
=20.3 ms
^C
--- www.google.es ping statistics ---
1 packets transmitted, 1 received, 0% packet loss, time 0ms
rtt min/avg/max/mdev = 20.264/20.264/20.264/0.000 ms
[administrator@localhost ~]$
```

2.7 Lista de paquetes instalados.

- Paquetes Programador:
 - Visual Studio Code: `sudo rpm --import https://packages.microsoft.com/keys/microsoft.asc` `sudo nano /etc/yum.repos.d/vscode.repo` [code] `name=Visual Studio Code` `baseurl=https://packages.microsoft.com/yumrepos/vscode` `enabled=1` `gpgcheck=1` `gpgkey=https://packages.microsoft.com/keys/microsoft.asc` `sudo dnf install code`
 - VIM: `sudo dnf install vim`
 - Python: `sudo dnf install python3-idle.x86_64` Sublime: `sudo dnf config-manager --add-repo https://download.sublimetext.com/rpm/stable/x86_64/sublime-text.repo` `sudo dnf install sublime-text`
 - emacs: `sudo dnf install emacs.x86_64`
- Paquetes Oficinista:
 - LibreOffice: `sudo dnf install LibreOffice-base.x86_64`
 - Firefox: `sudo dnf install firefox.x86_64`
 - seahorse: `sudo dnf install seahorse.x86_64`
- Paquetes Multimedia:
 - Gimp: `sudo dnf install gimp.x86_64`
 - connections: `sudo dnf install.x86_64`

3 Debian.

3.1 Resumen de Instalación.

La instalación de este SO es extremadamente sencilla, la GUI nos guía paso a paso por cada parte de la configuración de la instalación, de tal manera que es muy fácil personalizar el particionado, actualización de paquetes, hora, tipo de teclado, particiones SWAP y otros de manera muy cómoda y casi automática.

3.2 Configuración de Red.

3.2.1 Comando: ip a.

Mostrar la configuración y el estado de los adaptadores.

```
administrator@debian:~$ ip a
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 pfifo_fast state UP group default qlen 1000
    link/ether 08:00:27:3c:28:38 brd ff:ff:ff:ff:ff:ff
    inet 10.0.2.7/24 brd 10.0.2.255 scope global dynamic enp0s3
        valid_lft 560sec preferred_lft 560sec
    inet6 fe80::a00:27ff:fe3c:2838/64 scope link
        valid_lft forever preferred_lft forever
3: enp0s8: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc pfifo_fast state UP group default qlen 1000
    link/ether 08:00:27:e1:01:14 brd ff:ff:ff:ff:ff:ff
    inet 192.168.56.105/24 brd 192.168.56.255 scope global dynamic enp0s8
        valid_lft 563sec preferred_lft 563sec
    inet6 fe80::a00:27ff:fee1:114/64 scope link
        valid_lft forever preferred_lft forever
administrator@debian:~$
```

3.2.2 Comando: service networking restart.

Reinicia los adaptadores de red y aplica la nueva configuración.

```

administrator@debian:~$ sudo service networking restart
administrator@debian:~$ sudo service networking status
● networking.service - Raise network interfaces
   Loaded: loaded (/lib/systemd/system/networking.service; enabled; vendor pr
   Active: active (exited) since Wed 2022-09-28 14:44:10 CDT; 7s ago
     Docs: man:interfaces(5)
  Process: 1942 ExecStart=/sbin/ifup -a --read-environment (code=exited, stat
 Main PID: 1942 (code=exited, status=0/SUCCESS)
    Tasks: 8 (limit: 4662)
   Memory: 3.1M
      CPU: 115ms
   CGroup: /system.slice/networking.service
           └─1957 /sbin/dhclient -4 -v -i -pf /run/dhclient.enp0s3.pid -lf /v
             └─1991 /sbin/dhclient -4 -v -i -pf /run/dhclient.enp0s8.pid -lf /v

```

3.3 Archivos de configuración de la red.

```

administrator@debian:~$ cat /etc/network/interfaces
# This file describes the network interfaces available on your system
# and how to activate them. For more information, see interfaces(5).

source /etc/network/interfaces.d/*

# The loopback network interface
auto lo enp0s3 enp0s8
iface lo inet loopback

iface enp0s3 inet dhcp
iface enp0s8 inet dhcp

```

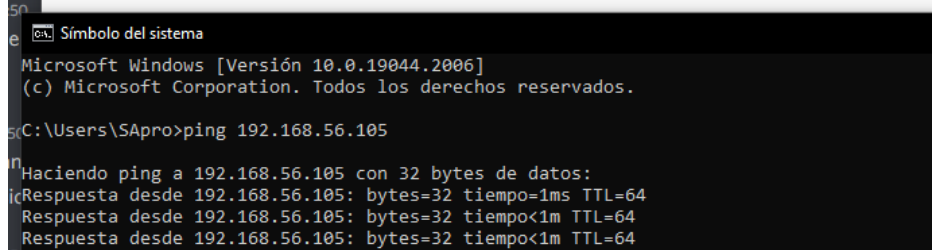
3.4 Prueba de Redes.

3.4.1 Ping: Host => Guest.

```

...
default qlen 1000
    link/ether 08:00:27:e1:01:14 brd ff:ff:ff:ff:ff:ff
    inet 192.168.56.105/24 brd 192.168.56.255 scope global dynamic enp0s8
        valid_lft 486sec preferred_lft 486sec
    inet6 fe80::a00:27ff:fe01:114/64 scope link
        valid_lft forever preferred_lft forever
administrator@debian:~$

```



```

Microsoft Windows [Versión 10.0.19044.2006]
(c) Microsoft Corporation. Todos los derechos reservados.

C:\Users\SAPro>ping 192.168.56.105

Haciendo ping a 192.168.56.105 con 32 bytes de datos:
Respuesta desde 192.168.56.105: bytes=32 tiempo=1ms TTL=64
Respuesta desde 192.168.56.105: bytes=32 tiempo<1m TTL=64
Respuesta desde 192.168.56.105: bytes=32 tiempo<1m TTL=64

```

3.4.2 Ping: Guest => Host.

```
administrator@debian:~$ ping 192.168.56.1
PING 192.168.56.1 (192.168.56.1) 56(84) bytes of data.
64 bytes from 192.168.56.1: icmp_seq=1 ttl=128 time=0.600 ms
64 bytes from 192.168.56.1: icmp_seq=2 ttl=128 time=1.54 ms
64 bytes from 192.168.56.1: icmp_seq=3 ttl=128 time=1.01 ms
^C
--- 192.168.56.1 ping statistics ---
3 packets transmitted, 3 received, 0% packet loss, time 2024ms
rtt min/avg/max/mdev = 0.600/1.050/1.539/0.384 ms
administrator@debian:~$
```

3.4.3 Ping: Guest => Internet.

```
administrator@debian:~$ ping www.google.es
PING www.google.es (142.250.184.3) 56(84) bytes of data.
64 bytes from mad41s10-in-f3.1e100.net (142.250.184.3): icmp_seq=1 ttl=114 time=18.7 ms
64 bytes from mad41s10-in-f3.1e100.net (142.250.184.3): icmp_seq=2 ttl=114 time=16.4 ms
^C
--- www.google.es ping statistics ---
2 packets transmitted, 2 received, 0% packet loss, time 1001ms
rtt min/avg/max/mdev = 16.379/17.542/18.705/1.163 ms
administrator@debian:~$ █
```

3.5 Lista de paquetes instalados.

- Paquetes Programador:
 - nano: sudo apt install nano
 - pandoc: sudo apt install pandoc
 - vim: sudo apt install vim
 - python: sudo apt install python
 - java: sudo apt install openjdk-11-jdk
- Paquetes Oficinista:
 - LibreOffice: sudo apt update apt install libreoffice
 - Firefox: sudo apt install firefox
 - Okular: sudo apt update okular
- Paquetes Multimedia:
 - VLC: sudo apt install vlc
 - Gimp: sudo apt install snapd sudo snap install gimp
 - Audacity: sudo apt install audacity

4 Elementary.

4.1 Resumen de Instalación.

La instalación de este SO es extremadamente sencilla, la GUI nos guía paso a paso por cada parte de la configuración de la instalación, de tal manera que es muy fácil personalizar el particionado, actualización de paquetes, hora, tipo de teclado, particiones SWAP y otros de manera muy cómoda y casi automática.

4.2 Configuración de Red.

4.2.1 Comando: ip a.

```
administrator@VirtualBox13c981b1:~$ ip a
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:ce:b0:b8 brd ff:ff:ff:ff:ff:ff
    inet 10.0.2.7/24 brd 10.0.2.255 scope global dynamic noprefixroute enp0s3
        valid_lft 485sec preferred_lft 485sec
    inet6 fe80::668e:e9e8:53e9:e698/64 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 08:00:27:37:ca:70 brd ff:ff:ff:ff:ff:ff
    inet 192.168.56.107/24 brd 192.168.56.255 scope global dynamic noprefixroute enp0s8
        valid_lft 485sec preferred_lft 485sec
    inet6 fe80::5f43:2905:566d:43ad/64 scope link noprefixroute
        valid_lft forever preferred_lft forever
administrator@VirtualBox13c981b1:~$
```

4.2.2 Comando: systemctl restart network-manager.

```
administrator@VirtualBox13c981b1:~$ sudo service network-manager restart
administrator@VirtualBox13c981b1:~$ sudo service network-manager status
● NetworkManager.service - Network Manager
   Loaded: loaded (/lib/systemd/system/NetworkManager.service; enabled; vendor preset: enabled)
   Active: active (running) since Fri 2022-09-30 14:18:22 UTC; 2s ago
     Docs: man:NetworkManager(8)
    Main PID: 3821 (NetworkManager)
      Tasks: 4 (limit: 7018)
     Memory: 3.9M
    CGroup: /system.slice/NetworkManager.service
            └─3821 /usr/sbin/NetworkManager --no-daemon

sep 30 14:18:23 VirtualBox13c981b1 NetworkManager[3821]: <info> [1664547503.1997] device (enp0s8): sta
sep 30 14:18:23 VirtualBox13c981b1 NetworkManager[3821]: <info> [1664547503.2013] device (enp0s3): sta
sep 30 14:18:23 VirtualBox13c981b1 NetworkManager[3821]: <info> [1664547503.2030] manager: NetworkMana
sep 30 14:18:23 VirtualBox13c981b1 NetworkManager[3821]: <info> [1664547503.2080] manager: NetworkMana
sep 30 14:18:23 VirtualBox13c981b1 NetworkManager[3821]: <info> [1664547503.2123] policy: set 'Conexió
sep 30 14:18:23 VirtualBox13c981b1 NetworkManager[3821]: <info> [1664547503.2164] device (enp0s3): Act
sep 30 14:18:23 VirtualBox13c981b1 NetworkManager[3821]: <info> [1664547503.2258] device (enp0s8): sta
sep 30 14:18:23 VirtualBox13c981b1 NetworkManager[3821]: <info> [1664547503.2356] device (enp0s8): Act
sep 30 14:18:23 VirtualBox13c981b1 NetworkManager[3821]: <info> [1664547503.2374] manager: startup com
sep 30 14:18:23 VirtualBox13c981b1 NetworkManager[3821]: <info> [1664547503.4017] manager: NetworkMana
administrator@VirtualBox13c981b1:~$
```

4.3 Archivos de configuración de la red.

En Elementary Os la configuración de red se realiza de manera automática.

4.4 Prueba de Redes.

4.4.1 Ping: Host => Guest.

```

administrator@VirtualBox13c981b1:~$ ip a
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:ce:b0:b8 brd ff:ff:ff:ff:ff:ff
    inet 10.0.2.7/24 brd 10.0.2.255 scope global dynamic noprefixroute enp0s3
        valid_lft 341sec preferred_lft 341sec
    inet6 fe80::668e:e9e8:53e9:e698/64 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 08:00:27:37:ca:70 brd ff:ff:ff:ff:ff:ff
    inet 192.168.56.107/24 brd 192.168.56.255 scope global dynamic noprefixroute enp0s8
        valid_lft 342sec preferred_lft 342sec
    inet6 fe80::5f43:2905:566d:43ad/64 scope link noprefixroute
        valid_lft forever preferred_lft forever
administrator@VirtualBox13c981b1:~$

C:\Users\Sapro>ping 192.168.56.107

Haciendo ping a 192.168.56.107 con 32 bytes de datos:
Respuesta desde 192.168.56.107: bytes=32 tiempo<1m TTL=64
Respuesta desde 192.168.56.107: bytes=32 tiempo<1m TTL=64
Respuesta desde 192.168.56.107: bytes=32 tiempo<1m TTL=64
Respuesta desde 192.168.56.107: bytes=32 tiempo<1m TTL=64

Estadísticas de ping para 192.168.56.107:
    Paquetes: enviados = 4, recibidos = 4, perdidos = 0
              (0% perdidos),
    Tiempos aproximados de ida y vuelta en milisegundos:
        Mínimo = 0ms, Máximo = 0ms, Media = 0ms
C:\Users\Sapro>

```

4.4.2 Ping: Guest => Host.

```

administrator@VirtualBox13c981b1:~$ ping 192.168.56.1
PING 192.168.56.1 (192.168.56.1) 56(84) bytes of data.
64 bytes from 192.168.56.1: icmp_seq=1 ttl=128 time=0.663 ms
64 bytes from 192.168.56.1: icmp_seq=2 ttl=128 time=0.466 ms
^C
--- 192.168.56.1 ping statistics ---
2 packets transmitted, 2 received, 0% packet loss, time 1006ms
rtt min/avg/max/mdev = 0.466/0.564/0.663/0.098 ms
administrator@VirtualBox13c981b1:~$

```

4.4.3 Ping: Guest => Internet.

```

administrator@VirtualBox13c981b1:~$ ping www.google.es
PING www.google.es (142.250.185.3) 56(84) bytes of data.
64 bytes from mad41s11-in-f3.1e100.net (142.250.185.3): icmp_seq=1 ttl=114 time=19.8 ms
64 bytes from mad41s11-in-f3.1e100.net (142.250.185.3): icmp_seq=2 ttl=114 time=20.3 ms

```

4.5 Lista de paquetes instalados.

- Paquetes Programador:
 - Visual Studio Code: `sudo apt update sudo apt install snapd sudo snap install code --classic`
 - VIM: `sudo apt install vim` Git: `sudo apt install git`
 - Eclipse: `sudo apt update sudo apt install snapd sudo snap install eclipse --classic`
- Paquetes Oficinista:
 - LibreOffice: `sudo apt install libreoffice-base`
 - Firefox: `sudo apt install firefox`
 - Skype: `sudo apt update sudo apt install -y curl apt-transport-https curl -sSL https://repo.skype.com/data/SKYPE-GPG-KEY | sudo gpg --dearmor -o /usr/share/keyrings/skecho "deb [arch=amd64 signed-by=/usr/share/keyrings/skype-keyring.gpg] https://repo.skype.com/deb sudo apt update sudo apt install -y skypeforlinux`
 - pandoc: `sudo apt install pandoc`
- Paquetes Multimedia:
 - VLC: `sudo apt install vlc` Spotify: `14 curl -sS https://download.spotify.com/debian/pubkey_0D811D58.gpg | sudo apt-key add - echo "deb http://repository.spotify.com stable non-free" | sudo tee /etc/apt/sources.list.d/spotify sudo apt-get update && sudo apt-get install spotify-client`
 - Gimp: `sudo apt install snapd sudo snap install gimp`
 - Audacity: `sudo add-apt-repository ppa:ubuntuhandbook1/audacity sudo apt-get update sudo apt-get install audacity`

5 OpenSuse.

5.1 Resumen de Instalación.

La instalación de este SO es extremadamente sencilla, la GUI nos guía paso a paso por cada parte de la configuración de la instalación, de tal manera que es muy fácil personalizar el particionado, actualización de paquetes, hora, tipo de teclado, particiones SWAP y otros de manera muy cómoda y casi automática.

5.2 Configuración de Red.

5.2.1 Comando: ip a.

```

administrator@localhost:~> ip a
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN
    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 pfifo_fast
    link/ether 08:00:27:d1:ea:7c brd ff:ff:ff:ff:ff:ff
    inet 10.0.2.15/24 brd 10.0.2.255 scope global dynamic noprefixroute
        valid_lft 384sec preferred_lft 384sec
    inet6 fe80::a00:27ff:fed1:ea7c/64 scope link noprefixroute
        valid_lft forever preferred_lft forever
3: enp0s8: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc pfifo_fast
    link/ether 08:00:27:26:0b:69 brd ff:ff:ff:ff:ff:ff
    inet 192.168.56.109/24 brd 192.168.56.255 scope global dynamic noprefixroute
        valid_lft 385sec preferred_lft 385sec
    inet6 fe80::a00:27ff:fe26:b69/64 scope link noprefixroute
        valid_lft forever preferred_lft forever
administrator@localhost:~>

```

5.2.2 Comando: systemctl restart NetworkManager.

```

administrator@localhost:~> systemctl status NetworkManager
● NetworkManager.service - Network Manager
   Loaded: loaded (/usr/lib/systemd/system/NetworkManager.service; enabled; vendor preset: enabled)
   Drop-In: /usr/lib/systemd/system/NetworkManager.service.d
            └─ NetworkManager-ovs.conf
   Active: active (running) since Fri 2022-09-30 16:25:48 CEST; 6 days ago
     Docs: man:NetworkManager(8)
    Main PID: 802 (NetworkManager)
      Tasks: 5 (limit: 4915)
         CPU: 1.021s
    CGroup: /system.slice/NetworkManager.service
            └─ 802 /usr/sbin/NetworkManager --no-daemon
               5147 /sbin/dhclient -d -q -sf /usr/libexec/nm-dhcp-helper -pf /run/NetworkManager
               5148 /sbin/dhclient -d -q -sf /usr/libexec/nm-dhcp-helper -pf /run/NetworkManager

Warning: some journal files were not opened due to insufficient permissions.
administrator@localhost:~>

```

5.3 Archivos de configuración de la red.

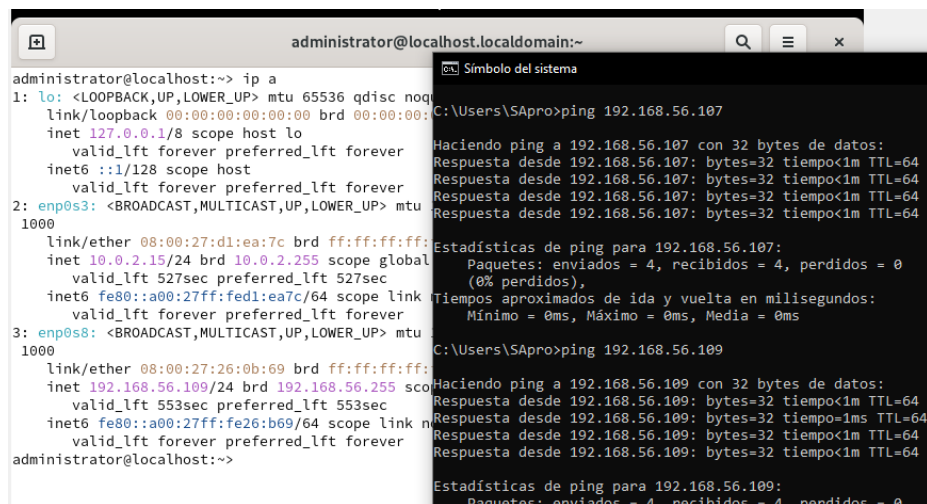
```

administrator@localhost:~> sudo cat /etc/NetworkManager/system-connections/enp0s*
[sudo] password for administrator:
[connection]
id=enp0s3
permissions=
interface-name=enp0s3
type=ethernet
[ipv4]
method=auto
[ipv6]
method=auto
[connection]
id=enp0s8
permissions=
interface-name=enp0s8
type=ethernet
[ipv4]
method=auto
[ipv6]
method=auto
administrator@localhost:~>

```

5.4 Prueba de Redes.

5.4.1 Ping: Host => Guest.



The screenshot shows a terminal window with the title 'administrator@localhost.localdomain:~'. The user has run the command 'ip a', which displays the network configuration for the system. The output shows three interfaces: 'lo' (loopback), 'enp0s3' (ethernet), and 'enp0s8' (ethernet). The 'lo' interface has the IP address 127.0.0.1. The 'enp0s3' interface has the IP address 10.0.2.15. The 'enp0s8' interface has the IP address 192.168.56.255. The user has also run the command 'ping 192.168.56.107', which shows the results of the ping test. The output indicates that the ping was successful, with 4 packets sent and 4 packets received, and a 0% packet loss. The user has also run the command 'ping 192.168.56.109', which shows the results of the ping test. The output indicates that the ping was successful, with 4 packets sent and 4 packets received, and a 0% packet loss.

```

administrator@localhost:~> ip a
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UP
    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 1000 state UP
    link/ether 08:00:27:d1:ea:7c brd ff:ff:ff:ff:ff:ff
    inet 10.0.2.15/24 brd 10.0.2.255 scope global dynamic nopromisc
        valid_lft 527sec preferred_lft 527sec
    inet6 fe80::a00:27ff:fed1:ea7c/64 scope link
        valid_lft forever preferred_lft forever
3: enp0s8: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1000 state UP
    link/ether 08:00:27:26:0b:69 brd ff:ff:ff:ff:ff:ff
    inet 192.168.56.109/24 brd 192.168.56.255 scope global dynamic nopromisc
        valid_lft 553sec preferred_lft 553sec
    inet6 fe80::a00:27ff:fe26:b69/64 scope link
        valid_lft forever preferred_lft forever
administrator@localhost:~>

```

```

C:\Users\Sapro>ping 192.168.56.107
Haciendo ping a 192.168.56.107 con 32 bytes de datos:
Respuesta desde 192.168.56.107: bytes=32 tiempo<1m TTL=64
Respuesta desde 192.168.56.107: bytes=32 tiempo<1m TTL=64
Respuesta desde 192.168.56.107: bytes=32 tiempo<1m TTL=64
Respuesta desde 192.168.56.107: bytes=32 tiempo<1m TTL=64

Estadísticas de ping para 192.168.56.107:
    Paquetes: enviados = 4, recibidos = 4, perdidos = 0
            (0% perdidos),
    Tiempos aproximados de ida y vuelta en milisegundos:
        Mínimo = 0ms, Máximo = 0ms, Media = 0ms

C:\Users\Sapro>ping 192.168.56.109
Haciendo ping a 192.168.56.109 con 32 bytes de datos:
Respuesta desde 192.168.56.109: bytes=32 tiempo<1m TTL=64
Respuesta desde 192.168.56.109: bytes=32 tiempo<1m TTL=64
Respuesta desde 192.168.56.109: bytes=32 tiempo<1m TTL=64
Respuesta desde 192.168.56.109: bytes=32 tiempo<1m TTL=64

Estadísticas de ping para 192.168.56.109:
    Paquetes: enviados = 4, recibidos = 4, perdidos = 0
            (0% perdidos),
    Tiempos aproximados de ida y vuelta en milisegundos:
        Mínimo = 0ms, Máximo = 0ms, Media = 0ms

```

5.4.2 Ping: Guest => Host.

```

administrator@localhost:~> ping 192.168.56.1
PING 192.168.56.1 (192.168.56.1) 56(84) bytes of data.
64 bytes from 192.168.56.1: icmp_seq=1 ttl=128 time=0.804 ms
64 bytes from 192.168.56.1: icmp_seq=2 ttl=128 time=0.502 ms
64 bytes from 192.168.56.1: icmp_seq=3 ttl=128 time=0.665 ms
^C
--- 192.168.56.1 ping statistics ---
3 packets transmitted, 3 received, 0% packet loss, time 2032ms
rtt min/avg/max/mdev = 0.502/0.657/0.804/0.123 ms
administrator@localhost:~>

```

5.4.3 Ping: Guest => Internet.

```
administrator@localhost:~> ping www.google.es
PING www.google.es (216.58.209.67) 56(84) bytes of data.
64 bytes from mad07s22-in-f3.1e100.net (216.58.209.67): icmp_seq=1 ttl=115 time=16.2 ms
64 bytes from mad07s22-in-f3.1e100.net (216.58.209.67): icmp_seq=2 ttl=115 time=18.5 ms
64 bytes from mad07s22-in-f3.1e100.net (216.58.209.67): icmp_seq=3 ttl=115 time=16.5 ms
```

5.5 Lista de paquetes instalados.

- Paquetes Programador:
 - Visual Studio Code: `sudo rpm --import https://packages.microsoft.com/keys/microsoft.asc sudo zypper addrepo https://packages.microsoft.com/yumrepos/vscode vscode sudo zypper refresh sudo zypper install code`
 - VIM: `sudo zypper install vim`
 - Atom: `wget -c https://atom.io/download/rpm -O atom.x86_64.rpm sudo zypper install atom.x86_64.rpm Eclipse: sudo zypper install eclipse-jdt`
- Paquetes Oficinista:
 - LibreOffice: `sudo zypper install libreoffice-base`
 - Firefox: `sudo zypper install MozillaFirefox`
 - Discord: `sudo zypper install discord`
 - Pandoc: `sudo zypper install pandoc`
- Paquetes Multimedia:
 - VLC: `sudo zypper install vlc deepin-music-player: sudo zypper install deepin-music-player`
 - Gimp: `sudo zypper install gimp`
 - Gradio: `sudo zypper install gradio`

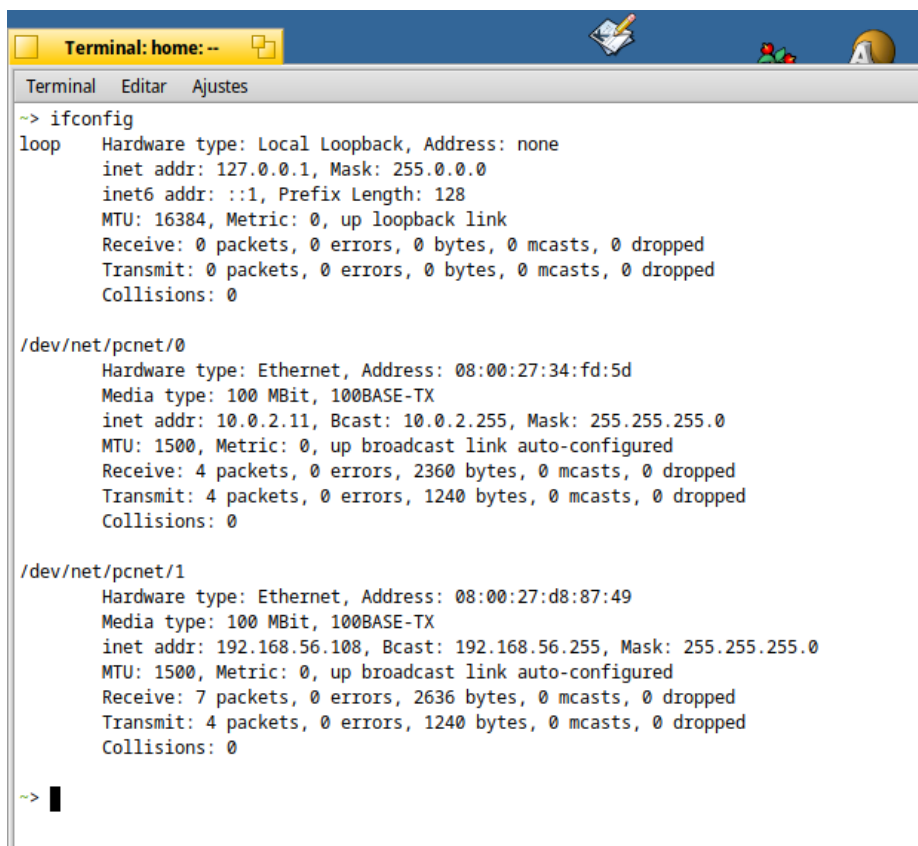
6 Haiku.

6.1 Resumen de Instalación.

La instalación de este SO es extremadamente sencilla, la GUI nos guía paso a paso por cada parte de la configuración de la instalación, de tal manera que es muy fácil personalizar el particionado, actualización de paquetes, hora, tipo de teclado, particiones SWAP y otros de manera muy cómoda y casi automática.

6.2 Configuración de Red.

6.2.1 Comando: ifconfig.



```
Terminal: home: --
Terminal  Editar  Ajustes

~> ifconfig
loop    Hardware type: Local Loopback, Address: none
        inet addr: 127.0.0.1, Mask: 255.0.0.0
        inet6 addr: ::1, Prefix Length: 128
        MTU: 16384, Metric: 0, up loopback link
        Receive: 0 packets, 0 errors, 0 bytes, 0 mcasts, 0 dropped
        Transmit: 0 packets, 0 errors, 0 bytes, 0 mcasts, 0 dropped
        Collisions: 0

/dev/net/pcnet/0
        Hardware type: Ethernet, Address: 08:00:27:34:fd:5d
        Media type: 100 MBit, 100BASE-TX
        inet addr: 10.0.2.11, Bcast: 10.0.2.255, Mask: 255.255.255.0
        MTU: 1500, Metric: 0, up broadcast link auto-configured
        Receive: 4 packets, 0 errors, 2360 bytes, 0 mcasts, 0 dropped
        Transmit: 4 packets, 0 errors, 1240 bytes, 0 mcasts, 0 dropped
        Collisions: 0

/dev/net/pcnet/1
        Hardware type: Ethernet, Address: 08:00:27:d8:87:49
        Media type: 100 MBit, 100BASE-TX
        inet addr: 192.168.56.108, Bcast: 192.168.56.255, Mask: 255.255.255.0
        MTU: 1500, Metric: 0, up broadcast link auto-configured
        Receive: 7 packets, 0 errors, 2636 bytes, 0 mcasts, 0 dropped
        Transmit: 4 packets, 0 errors, 1240 bytes, 0 mcasts, 0 dropped
        Collisions: 0

~> █
```

6.2.2 Comando: systemctl restart NetworkManager.

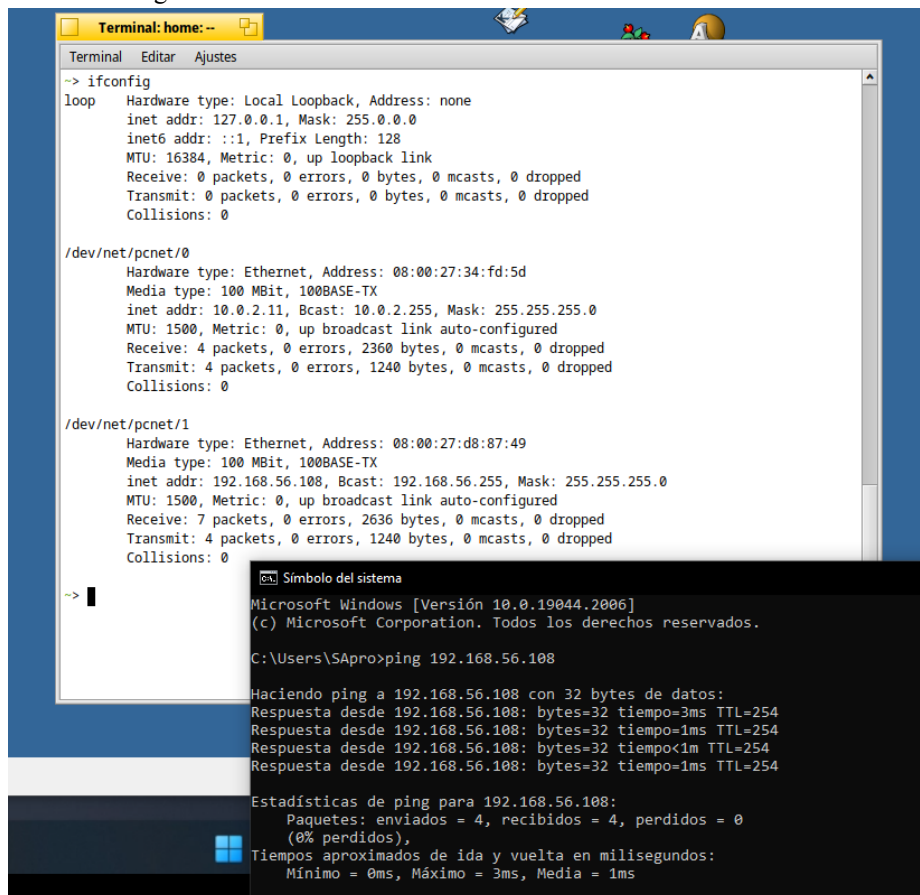
6.3 Archivos de configuración de la red.

```
~> sudo cat /system/settings/network/resolv.conf
bash: sudo: orden no encontrada
~> cat /system/settings/network/resolv.conf
# Static DNS entries
# Generated by Network preferences
nameserver      8.8.8.8
nameserver      8.8.4.4
nameserver      193.145.233.5
nameserver      193.145.233.6
# Dynamic DNS entries
# Added automatically by DHCP
# End of automatic DHCP additions

# End of automatic DHCP additions
DHCP additions
~> █
```

6.4 Prueba de Redes.

6.4.1 Ping: Host => Guest.



The screenshot shows two overlapping windows. The background window is a Linux terminal titled 'Terminal: home: --' with tabs for 'Terminal', 'Editar', and 'Ajustes'. It displays the output of the 'ifconfig' command for three network interfaces: 'loop', '/dev/net/pcnet/0', and '/dev/net/pcnet/1'. The 'loop' interface has address 127.0.0.1. The '/dev/net/pcnet/0' interface has address 10.0.2.11. The '/dev/net/pcnet/1' interface has address 192.168.56.108. The foreground window is a Windows command prompt titled 'Símbolo del sistema' with a Windows logo icon. It shows the command 'C:\Users\SAPro>ping 192.168.56.108' and its output, which indicates a successful ping with 4 packets sent and received, and a response time of 1ms.

```
~> ifconfig
loop      Hardware type: Local Loopback, Address: none
          inet addr: 127.0.0.1, Mask: 255.0.0.0
          inet6 addr: ::1, Prefix Length: 128
          MTU: 16384, Metric: 0, up loopback link
          Receive: 0 packets, 0 errors, 0 bytes, 0 mcasts, 0 dropped
          Transmit: 0 packets, 0 errors, 0 bytes, 0 mcasts, 0 dropped
          Collisions: 0

/dev/net/pcnet/0
Hardware type: Ethernet, Address: 08:00:27:34:fd:5d
Media type: 100 MBit, 100BASE-TX
inet addr: 10.0.2.11, Bcast: 10.0.2.255, Mask: 255.255.255.0
MTU: 1500, Metric: 0, up broadcast link auto-configured
Receive: 4 packets, 0 errors, 2360 bytes, 0 mcasts, 0 dropped
Transmit: 4 packets, 0 errors, 1240 bytes, 0 mcasts, 0 dropped
Collisions: 0

/dev/net/pcnet/1
Hardware type: Ethernet, Address: 08:00:27:d8:87:49
Media type: 100 MBit, 100BASE-TX
inet addr: 192.168.56.108, Bcast: 192.168.56.255, Mask: 255.255.255.0
MTU: 1500, Metric: 0, up broadcast link auto-configured
Receive: 7 packets, 0 errors, 2636 bytes, 0 mcasts, 0 dropped
Transmit: 4 packets, 0 errors, 1240 bytes, 0 mcasts, 0 dropped
Collisions: 0

~> █
```

```
Microsoft Windows [Versión 10.0.19044.2006]
(c) Microsoft Corporation. Todos los derechos reservados.

C:\Users\SAPro>ping 192.168.56.108

Haciendo ping a 192.168.56.108 con 32 bytes de datos:
Respuesta desde 192.168.56.108: bytes=32 tiempo=3ms TTL=254
Respuesta desde 192.168.56.108: bytes=32 tiempo=1ms TTL=254
Respuesta desde 192.168.56.108: bytes=32 tiempo<1m TTL=254
Respuesta desde 192.168.56.108: bytes=32 tiempo=1ms TTL=254

Estadísticas de ping para 192.168.56.108:
    Paquetes: enviados = 4, recibidos = 4, perdidos = 0
            (0% perdidos),
    Tiempos aproximados de ida y vuelta en milisegundos:
        Mínimo = 0ms, Máximo = 3ms, Media = 1ms
```

6.4.2 Ping: Guest => Host.

```
~> ping 192.168.56.1
PING 192.168.56.1 (192.168.56.1): 56 data bytes
64 bytes from 192.168.56.1: icmp_seq=0 ttl=128 time=8.471 ms
64 bytes from 192.168.56.1: icmp_seq=1 ttl=128 time=3.794 ms
64 bytes from 192.168.56.1: icmp_seq=2 ttl=128 time=1.300 ms
--- 192.168.56.1 ping statistics ---
3 packets transmitted, 3 packets received, 0% packet loss
round-trip min/avg/max/std-dev = 1.300/4.521/8.471/2.973 ms
```

6.4.3 Ping: Guest => Internet.

```
~> ping www.google.es
PING www.google.es (142.250.201.67): 56 data bytes
64 bytes from 142.250.201.67: icmp_seq=0 ttl=114 time=17.671 ms
64 bytes from 142.250.201.67: icmp_seq=1 ttl=114 time=18.534 ms
--- www.google.es ping statistics ---
2 packets transmitted, 2 packets received, 0% packet loss
```

6.5 Lista de paquetes instalados.

- Paquetes Programador:
 - Paladin: pkgman install paladin
 - Arduino: pkgman install arduino
 - GitQlient: pkgman install gitqlient
 - Notepadqq: pkgman install notepadqq
- Paquetes Oficinista:
 - BeShare: pkgman install beshare
 - Calibre: pkgman install calibre
 - GhostWriter: pkgman install ghostwriter
 - Kate: pkgman install kate
- Paquetes Multimedia:
 - ArtPaint: pkgman install artpaint
 - StreamRadio: pkgman install streamradio
 - Beam: pkgman install beam
 - UberTuber: pkgman install ubertuber

7 Windows Server.

7.1 Resumen de Instalación.

La instalación de este SO es extremadamente sencilla, la GUI nos guía paso a paso por cada parte de la configuración de la instalación, de tal manera que es muy fácil personalizar el particionado, actualización de paquetes, hora, tipo de teclado, particiones SWAP y otros de manera muy cómoda y casi automática.

7.2 Configuración de Red.

7.2.1 Comando: ipconfig.

```
C:\Users\Administrator>ipconfig

Windows IP Configuration

Ethernet adapter Ethernet:

    Connection-specific DNS Suffix  . : 
    Link-local IPv6 Address . . . . . : fe80::814a:41bc:121f:c1b7%5
    IPv4 Address. . . . . : 192.168.56.107
    Subnet Mask . . . . . : 255.255.255.0
    Default Gateway . . . . . : 

Ethernet adapter Ethernet 2:

    Connection-specific DNS Suffix  . : home
    Link-local IPv6 Address . . . . . : fe80::6593:6ad5:79dc:71f0%7
    IPv4 Address. . . . . : 10.0.2.18
    Subnet Mask . . . . . : 255.255.255.0
    Default Gateway . . . . . : 10.0.2.1

C:\Users\Administrator>
```

7.3 Prueba de Redes.

7.3.1 Ping: Host => Guest.

```
C:\Users\Administrator>ipconfig

Windows IP Configuration

Ethernet adapter Ethernet:

    Connection-specific DNS Suffix  . : 
    Link-local IPv6 Address . . . . . : fe80::814a:41bc:121f:c1b7%5
    IPv4 Address. . . . . : 192.168.56.107
    Subnet Mask . . . . . : 255.255.255.0
    Default Gateway . . . . . : 

Ethernet adapter Ethernet 2:

    Connection-specific DNS Suffix  . : home
    Link-local IPv6 Address . . . . . : fe80::6593:6ad5:79dc:71f0%7
    IPv4 Address. . . . . : 10.0.2.18
    Subnet Mask . . . . . : 255.255.255.0
    Default Gateway . . . . . : 10.0.2.1

C:\Users\Administrator>

C:\Users\SAPro>ping 192.168.56.107

Haciendo ping a 192.168.56.107 con 32 bytes de datos:
Respuesta desde 192.168.56.107: bytes=32 tiempo<1m TTL=128
Respuesta desde 192.168.56.107: bytes=32 tiempo<1m TTL=128
Respuesta desde 192.168.56.107: bytes=32 tiempo<1m TTL=128

Estadísticas de ping para 192.168.56.107:
    Paquetes: enviados = 3, recibidos = 3, perdidos = 0
    (0% perdidos),
    Tiempos aproximados de ida y vuelta en milisegundos:
        Mínimo = 0ms, Máximo = 0ms, Media = 0ms
Control-C
^C
C:\Users\SAPro>
```


7.3.2 Ping: Guest => Host.

```
C:\Users\Administrator>ping 192.168.56.1

Pinging 192.168.56.1 with 32 bytes of data:
Reply from 192.168.56.1: bytes=32 time=1ms TTL=128
Reply from 192.168.56.1: bytes=32 time=1ms TTL=128
Reply from 192.168.56.1: bytes=32 time<1ms TTL=128
Reply from 192.168.56.1: bytes=32 time=1ms TTL=128

Ping statistics for 192.168.56.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 1ms, Average = 0ms

C:\Users\Administrator>_
```

7.3.3 Ping: Guest => Internet.

```
Administrator: Command Prompt - ping www.google.es

C:\Users\Administrator>ping www.google.es

Pinging www.google.es [172.217.168.163] with 32 bytes of data:
Reply from 172.217.168.163: bytes=32 time=19ms TTL=114
Reply from 172.217.168.163: bytes=32 time=19ms TTL=114
```

7.4 Lista de paquetes instalados.

- Paquetes Programador:
 - SublimeText: choco install sublimetext3
 - Firefox: choco install firefox
 - VSCode: choco install vscode
 - Atom: choco install atom
- Paquetes Oficinista:
 - VLC: choco install vlc
 - winamp: choco install winamp
 - audacity: choco install audacity
 - quicktime: choco install quicktime
 - pandoc: choco install pandoc
- Paquetes Multimedia:
 - libreoffice: choco install libreoffice
 - Scribus: choco install scribus
 - Calibre: choco install calibre
 - pdfcombine: choco install pdfcombine

8 Fedora 36.

8.1 Resumen de Instalación.

La instalación de este SO es extremadamente sencilla, la GUI nos guía paso a paso por cada parte de la configuración de la instalación, de tal manera que es muy fácil personalizar el particionado, actualización de paquetes, hora, tipo de teclado, particiones SWAP y otros de manera muy cómoda y casi automática.

8.2 Configuración de Red.

8.2.1 Comando: ip a.

```
[administrator@fedora ~]$ ip a
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc
    link/loopback 00:00:00:00:00:00 brd 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>
    link/ether 08:00:27:09:b3:48 brd ff:ff:ff:ff:ff:ff
    inet 10.0.2.15/24 brd 10.0.2.255 scope global
        valid_lft 332sec preferred_lft 332sec
    inet6 fe80::c59c:9816:52b4:93a7/64 scope link
        valid_lft forever preferred_lft forever
3: enp0s8: <BROADCAST,MULTICAST,UP,LOWER_UP>
    link/ether 08:00:27:80:56:99 brd ff:ff:ff:ff:ff:ff
    inet 192.168.56.108/24 brd 192.168.56.255 scope global
        valid_lft 344sec preferred_lft 344sec
    inet6 fe80::25bb:b2b4:e3f2:7573/64 scope link
        valid_lft forever preferred_lft forever
[administrator@fedora ~]$
```

8.2.2 Comando: systemctl restart NetworkManager.

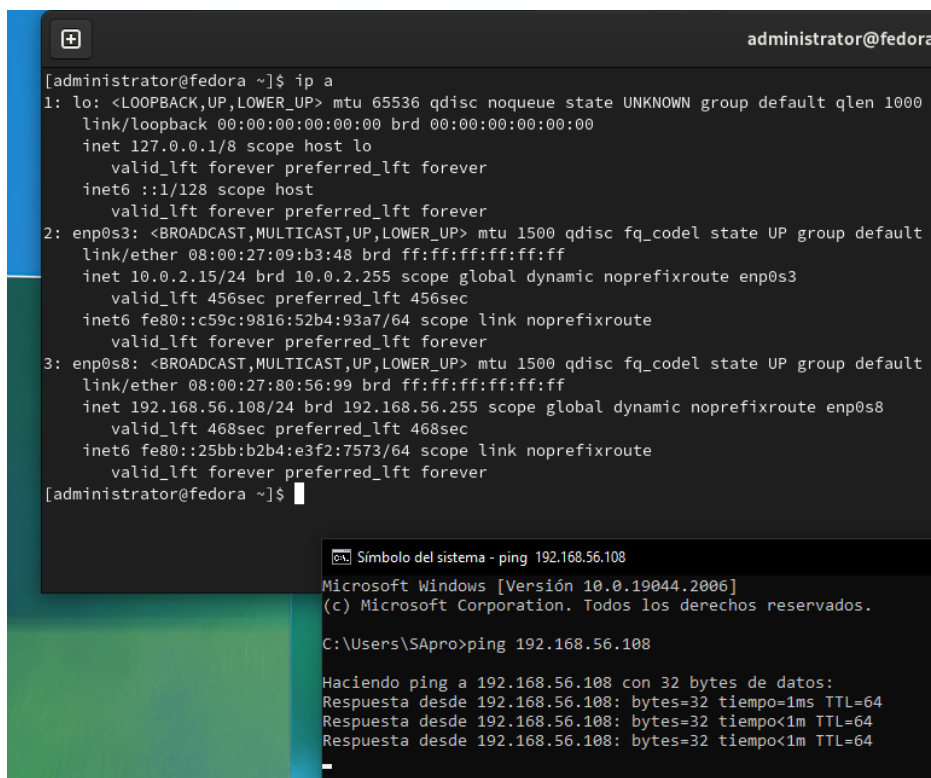
```
[administrator@fedora ~]$ sudo systemctl restart NetworkManager
[administrator@fedora ~]$ sudo systemctl status NetworkManager
● NetworkManager.service - Network Manager
   Loaded: loaded (/usr/lib/systemd/system/NetworkManager.service; enabled; vendor preset: enabled)
   Active: active (running) since Sat 2022-10-01 15:01:56 CEST; 14s ago
     Docs: man:NetworkManager(8)
    Main PID: 7106 (NetworkManager)
      Tasks: 4 (limit: 4671)
     Memory: 5.1M
        CPU: 123ms
    CGroup: /system.slice/NetworkManager.service
            └─7106 /usr/sbin/NetworkManager --no-daemon
```

8.3 Archivos de configuración de la red.

La configuración de red de este OS se realiza de forma automática.

8.4 Prueba de Redes.

8.4.1 Ping: Host => Guest.



The screenshot shows a terminal window with the following content:

```
[administrator@fedora ~]$ ip a
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
   link/ether 08:00:27:09:b3:48 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 456sec preferred_lft 456sec
   inet6 fe80::c59c:9816:52b4:93a7/64 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
   link/ether 08:00:27:80:56:99 brd ff:ff:ff:ff:ff:ff
   inet 192.168.56.108/24 brd 192.168.56.255 scope global dynamic noprefixroute enp0s8
       valid_lft 468sec preferred_lft 468sec
   inet6 fe80::25bb:b2b4:e3f2:7573/64 scope link noprefixroute
       valid_lft forever preferred_lft forever
[administrator@fedora ~]$
```

Below the terminal window, there is a Windows command prompt window showing the results of a ping test:

```
C:\Users\SAPro>ping 192.168.56.108

Haciendo ping a 192.168.56.108 con 32 bytes de datos:
Respuesta desde 192.168.56.108: bytes=32 tiempo=1ms TTL=64
Respuesta desde 192.168.56.108: bytes=32 tiempo<1m TTL=64
Respuesta desde 192.168.56.108: bytes=32 tiempo<1m TTL=64
-
```

8.4.2 Ping: Guest => Host.

```
[administrator@fedora Descargas]$ ping 192.168.56.1
PING 192.168.56.1 (192.168.56.1) 56(84) bytes of data.
64 bytes from 192.168.56.1: icmp_seq=1 ttl=128 time=2.50 ms
64 bytes from 192.168.56.1: icmp_seq=2 ttl=128 time=0.600 ms
64 bytes from 192.168.56.1: icmp_seq=3 ttl=128 time=0.387 ms
^C
--- 192.168.56.1 ping statistics ---
3 packets transmitted, 3 received, 0% packet loss, time 2011ms
rtt min/avg/max/mdev = 0.387/1.161/2.498/0.948 ms
[administrator@fedora Descargas]$
```

8.4.3 Ping: Guest => Internet.

```
[administrator@fedora ~]$ ping www.google.es
PING www.google.es (142.250.200.67) 56(84) bytes of data.
64 bytes from mad07s24-in-f3.1e100.net (142.250.200.67): icmp_seq=1 ttl=115 time=20.2 ms
64 bytes from mad07s24-in-f3.1e100.net (142.250.200.67): icmp_seq=2 ttl=115 time=20.1 ms
```

8.5 Lista de paquetes instalados.

- Paquetes Programador:
 - VIM: `sudo dnf install vim`
 - Python: `sudo dnf install python3-idle.x86_64`
 - java: `sudo dnf install java-11-openjdk.i686`
 - node: `sudo dnf install nodejs.x86_64`
- Paquetes Oficinista:
 - LibreOffice: `sudo dnf install libreoffice-base`
 - Calibre: `sudo dnf install calibre`
- Paquetes Multimedia:
 - Pitivi: `sudo dnf install pitivi`
 - Gimp: `sudo dnf install gimp`
 - Audacity: `sudo dnf install audacity`

9 Linux Mint.

9.1 Resumen de Instalación.

La instalación de este SO es extremadamente sencilla, la GUI nos guía paso a paso por cada parte de la configuración de la instalación, de tal manera que es muy fácil personalizar el particionado, actualización de paquetes, hora, tipo de teclado, particiones SWAP y otros de manera muy cómoda y casi automática.

9.2 Configuración de Red.

9.2.1 Comando: ip a.

```
administrator@pc:~$ ip a
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN
    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 noqueue state UP
    link/ether 08:00:27:63:44:a5 brd ff:ff:ff:ff:ff:ff
    inet 10.0.2.14/24 brd 10.0.2.255 scope global enp0s3
        valid_lft 447sec preferred_lft 447sec
    inet6 fe80::d671:af76:620d:beda/64 scope link
        valid_lft forever preferred_lft forever
3: enp0s8: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc noqueue state UP
    link/ether 08:00:27:f5:20:f0 brd ff:ff:ff:ff:ff:ff
    inet 192.168.56.112/24 brd 192.168.56.255 scope global enp0s8
        valid_lft 447sec preferred_lft 447sec
    inet6 fe80::e530:6e5c:f63d:2aef/64 scope link
        valid_lft forever preferred_lft forever
administrator@pc:~$
```

9.2.2 Comando: systemctl restart NetworkManager.

```
administrator@pc:~$ sudo systemctl restart NetworkManager
[sudo] contraseña para administrator:
administrator@pc:~$ sudo systemctl status NetworkManager
● NetworkManager.service - Network Manager
   Loaded: loaded (/lib/systemd/system/NetworkManager.service; enabled; vendor preset: enabled)
   Active: active (running) since Sat 2022-10-01 15:06:22 CEST; 4min ago
     Docs: man:NetworkManager(8)
   Main PID: 2689 (NetworkManager)
    Tasks: 4 (limit: 5817)
   Memory: 4.2M
   CGroup: /system.slice/NetworkManager.service
           └─2689 /usr/sbin/NetworkManager --no-daemon
```

9.3 Archivos de configuración de la red.

El archivo de configuración es /etc/network/interfaces pero la configuración de red de este OS se realiza de forma automática.

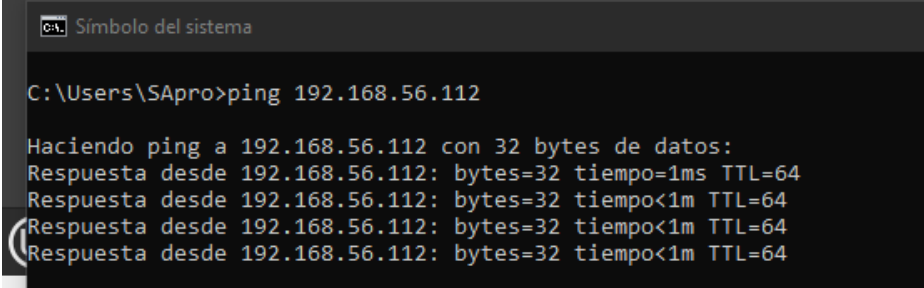
9.4 Prueba de Redes.

9.4.1 Ping: Host => Guest.

```

link/ether 08:00:27:f5:20:f0 brd ff:ff:ff:ff:ff:ff
inet 192.168.56.112/24 brd 192.168.56.255 scope global dynamic no
    valid_lft 543sec preferred_lft 543sec
inet6 fe80::e530:6e5c:f63d:2aef/64 scope link noprefixroute
    valid_lft forever preferred_lft forever
administrator@pc:~$

```



```

C:\Users\SAPro>ping 192.168.56.112

Haciendo ping a 192.168.56.112 con 32 bytes de datos:
Respuesta desde 192.168.56.112: bytes=32 tiempo=1ms TTL=64
Respuesta desde 192.168.56.112: bytes=32 tiempo<1m TTL=64
Respuesta desde 192.168.56.112: bytes=32 tiempo<1m TTL=64
Respuesta desde 192.168.56.112: bytes=32 tiempo<1m TTL=64

```

9.4.2 Ping: Guest => Host.

```

administrator@pc:~/Descargas$ ping 192.168.56.1
PING 192.168.56.1 (192.168.56.1) 56(84) bytes of data.
64 bytes from 192.168.56.1: icmp_seq=1 ttl=128 time=2.87 ms
64 bytes from 192.168.56.1: icmp_seq=2 ttl=128 time=1.16 ms
64 bytes from 192.168.56.1: icmp_seq=3 ttl=128 time=1.77 ms
^C
--- 192.168.56.1 ping statistics ---
3 packets transmitted, 3 received, 0% packet loss, time 2005ms
rtt min/avg/max/mdev = 1.163/1.937/2.874/0.707 ms
administrator@pc:~/Descargas$

```

9.4.3 Ping: Guest => Internet.

```

administrator@pc:~$ ping www.google.es
PING www.google.es (142.250.184.3) 56(84) bytes of data.
64 bytes from mad41s10-in-f3.1e100.net (142.250.184.3): icmp_seq=1 ttl=114 time=16.1 ms
64 bytes from mad41s10-in-f3.1e100.net (142.250.184.3): icmp_seq=2 ttl=114 time=15.9 ms
64 bytes from mad41s10-in-f3.1e100.net (142.250.184.3): icmp_seq=3 ttl=114 time=15.9 ms

```

9.5 Lista de paquetes instalados.

- Paquetes Programador:
 - NetBeans: sudo apt install netbeans
 - Geany: sudo apt install geany
 - node: sudo apt install nodejs
 - python: sudo apt install python3
- Paquetes Oficinista:
 - LibreOffice: sudo apt install libre-office
 - pandoc: sudo apt install pandoc

- Paquetes Multimedia:
 - Hypnotix: sudo apt install hypnotix
 - Rhythmbox: sudo apt install rhythmbox
 - Audacity: sudo apt install audacity
 - gimp: sudo apt install gimp

10 Manjaro Linux.

10.1 Resumen de Instalación.

La instalación de este SO es extremadamente sencilla, la GUI nos guía paso a paso por cada parte de la configuración de la instalación, de tal manera que es muy fácil personalizar el particionado, actualización de paquetes, hora, tipo de teclado, particiones SWAP y otros de manera muy cómoda y casi automática.

10.2 Configuración de Red.

El archivo de configuración de red es: /etc/systemd/network/interfaz

10.2.1 Comando: ifconfig.

```
[administrator@admin-virtualBox ~]$ ifconfig
enp0s3: flags=4163<UP,BROADCAST,RUNNING,MULTICAST> mtu 1500
    inet 10.0.2.9 netmask 255.255.255.0 broadcast 10.0.2.255
    inet6 fe80::4754:56a3:2f6c:9614 prefixlen 64 scopeid 0x20<link>
    ether 08:00:27:99:e2:ae txqueuelen 1000 (Ethernet)
    RX packets 39409 bytes 59398579 (56.6 MiB)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 2144 bytes 137242 (134.0 KiB)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

enp0s8: flags=4163<UP,BROADCAST,RUNNING,MULTICAST> mtu 1500
    inet 192.168.56.101 netmask 255.255.255.0 broadcast 192.168.56.255
    inet6 fe80::f818:e51d:fd65:57e7 prefixlen 64 scopeid 0x20<link>
    ether 08:00:27:e7:6b:91 txqueuelen 1000 (Ethernet)
    RX packets 28 bytes 6151 (6.0 KiB)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 31 bytes 4428 (4.3 KiB)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

lo: flags=73<UP,LOOPBACK,RUNNING> mtu 65536
    inet 127.0.0.1 netmask 255.0.0.0
    inet6 ::1 prefixlen 128 scopeid 0x10<host>
    loop txqueuelen 1000 (Local Loopback)
    RX packets 11 bytes 1697 (1.6 KiB)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 11 bytes 1697 (1.6 KiB)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0
```


10.2.2 Comando: systemctl restart NetworkManager

```

[administrator@admin-virtualBox ~]$ sudo systemctl restart NetworkManager
[administrator@admin-virtualBox ~]$ sudo systemctl status NetworkManager
● NetworkManager.service - Network Manager
   Loaded: loaded (/usr/lib/systemd/system/NetworkManager.service; enabled; vendor preset: enabled)
   Drop-In: /usr/lib/systemd/system/NetworkManager.service.d
            └─NetworkManager-ovs.conf
   Active: active (running) since Sun 2022-10-02 13:37:28 CEST; 1s ago
     Docs: man:NetworkManager(8)
   Main PID: 1470 (NetworkManager)
      Tasks: 4 (limit: 7514)
    Memory: 3.9M
       CPU: 100ms
   CGroup: /system.slice/NetworkManager.service
           └─1470 /usr/bin/NetworkManager --no-daemon

oct 02 13:37:28 admin-virtualBox NetworkManager[1470]: <info> [1664710648.9508] device (
oct 02 13:37:28 admin-virtualBox NetworkManager[1470]: <info> [1664710648.9532] manager:
oct 02 13:37:28 admin-virtualBox NetworkManager[1470]: <info> [1664710648.9550] manager:
oct 02 13:37:28 admin-virtualBox NetworkManager[1470]: <info> [1664710648.9553] policy:
oct 02 13:37:28 admin-virtualBox NetworkManager[1470]: <info> [1664710648.9756] device (
oct 02 13:37:28 admin-virtualBox NetworkManager[1470]: <info> [1664710648.9778] device (
oct 02 13:37:28 admin-virtualBox NetworkManager[1470]: <info> [1664710648.9799] device (
oct 02 13:37:28 admin-virtualBox NetworkManager[1470]: <info> [1664710648.9838] manager:
oct 02 13:37:28 admin-virtualBox NetworkManager[1470]: <info> [1664710648.9862] manager:
oct 02 13:37:28 admin-virtualBox NetworkManager[1470]: <info> [1664710648.9969] agent-ma
[administrator@admin-virtualBox ~]$

```

10.3 Archivos de configuración de la red.

10.4 Prueba de Redes.

10.4.1 Ping: Host => Guest.

```

[administrator@admin-virtualBox ~]$ ifconfig
enp0s3: flags=4163<UP,BROADCAST,RUNNING,MULTICAST> mtu 1500
    inet 10.0.2.9 netmask 255.255.255.0 broadcast 10.0.2.255
    inet6 fe80::4754:56a3:2f6c:9614 prefixlen 64 scopeid 0x20<link>
    ether 08:00:27:99:e2:ae txqueuelen 1000 (Ethernet)
    RX packets 39495 bytes 59410661 (56.6 MiB)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 2221 bytes 143588 (140.2 KiB)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

enp0s8: flags=4163<UP,BROADCAST,RUNNING,MULTICAST> mtu 1500
    inet 192.168.56.101 netmask 255.255.255.0 broadcast 192.168.56.255
    inet6 fe80::f818:e51d:fd65:57e7 prefixlen 64 scopeid 0x20<link>
    ether 08:00:27:e7:6b:91 txqueuelen 1000 (Ethernet)
    RX packets 53 bytes 12245 (11.9 KiB)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 43 bytes 5820 (5.6 KiB)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

lo: flags=73<UP,LOOPBACK,RUNNING> mtu 65536
    inet 127.0.0.1 netmask 255.0.0.0
    inet6 ::1 prefixlen 128 scopeid 0x10<host>
    loop txqueuelen 1000 (Local Loopback)
    RX packets 13 bytes 1849 (1.8 KiB)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 13 bytes 1849 (1.8 KiB)

```

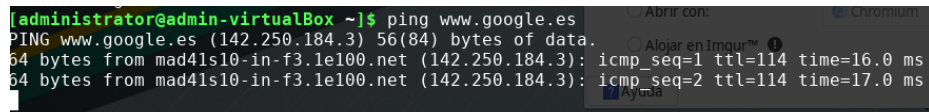
10.4.2 Ping: Guest => Host.

```

[administrator@admin-virtualBox ~]$ ping 192.168.56.1
PING 192.168.56.1 (192.168.56.1) 56(84) bytes of data:
64 bytes from 192.168.56.1: icmp_seq=1 ttl=128 time=1.78 ms
64 bytes from 192.168.56.1: icmp_seq=2 ttl=128 time=2.43 ms
^C
--- 192.168.56.1 ping statistics ---
2 packets transmitted, 2 received, 0% packet loss, time 1002ms
rtt min/avg/max/mdev = 1.779/2.106/2.433/0.327 ms
[administrator@admin-virtualBox ~]$

```

10.4.3 Ping: Guest => Internet.



```
[administrator@admin-virtualBox ~]$ ping www.google.es
PING www.google.es (142.250.184.3) 56(84) bytes of data:
64 bytes from mad41s10-in-f3.1e100.net (142.250.184.3): icmp_seq=1 ttl=114 time=16.0 ms
64 bytes from mad41s10-in-f3.1e100.net (142.250.184.3): icmp_seq=2 ttl=114 time=17.0 ms
```

10.5 Lista de paquetes instalados.

- Paquetes Programador:
 - Geany: sudo pacman -S geany
 - VIM: sudo pacman -S vim
 - Atom: sudo pacman -S atom
 - Arduino: sudo pacman -S arduino
- Paquetes Oficinista:
 - LibreOffice: sudo pacman -S libreoffice
 - Chromium: sudo pacman -S chromium
 - Kate: sudo pacman -S kate
- Paquetes Multimedia:
 - VLC: sudo pacman -S vlc
 - Audacity: sudo pacman -S audacity
 - Gimp: sudo pacman -S gimp
 - Clementine: sudo pacman -S clementine

11 GhostBSD.

11.1 Resumen de Instalación.

La instalación de GhostBSD se realiza mediante un entorno de texto, en el podremos elegir todas las opciones de configuración que deseemos.

11.2 Configuración de Red.

11.2.1 Comando: ifconfig.

```
[administrator@administrator-ghostbsd-pc ~]$ ifconfig
em0: flags=8863<UP,BROADCAST,RUNNING,SIMPLEX,MULTICAST> metric 0 mtu 1500
    options=481009b<RXCSUM, TXCSUM, VLAN_MTU, VLAN_HWTAGGING, VLAN_HWCSUM, VLAN_HWFILTER, NOMAP>
    ether 08:00:27:5c:f1:43
    inet 10.0.2.4 netmask 0xfffff00 broadcast 10.0.2.255
    media: Ethernet autoselect (1000baseT <full-duplex>)
    status: active
    nd6 options=29<PERFORMNUD, IFDISABLED, AUTO_LINKLOCAL>
em1: flags=8863<UP,BROADCAST,RUNNING,SIMPLEX,MULTICAST> metric 0 mtu 1500
    options=481009b<RXCSUM, TXCSUM, VLAN_MTU, VLAN_HWTAGGING, VLAN_HWCSUM, VLAN_HWFILTER, NOMAP>
    ether 08:00:27:db:83:bf
    inet 192.168.56.114 netmask 0xfffff00 broadcast 192.168.56.255
    media: Ethernet autoselect (1000baseT <full-duplex>)
    status: active
    nd6 options=29<PERFORMNUD, IFDISABLED, AUTO_LINKLOCAL>
lo0: flags=8049<UP,LOOPBACK,RUNNING,MULTICAST> metric 0 mtu 16384
    options=680003<RXCSUM, TXCSUM, LINKSTATE, RXCSUM_IPV6, TXCSUM_IPV6>
    inet6 ::1 prefixlen 128
    inet6 fe80::1%lo0 prefixlen 64 scopeid 0x3
    inet 127.0.0.1 netmask 0xff000000
    groups: lo
    nd6 options=21<PERFORMNUD, AUTO_LINKLOCAL>
[administrator@administrator-ghostbsd-pc ~]$
```

11.2.2 Comando: service netif restart.

Reinicia los adaptadores de red.

```
[administrator@administrator-ghostbsd-pc ~]$ sudo service netif restart
Password:
dhclient not running? (check /var/run/dhclient/dhclient.em0.pid).
dhclient not running? (check /var/run/dhclient/dhclient.em1.pid).
Stopping Network: lo0 em0 em1.
lo0: flags=8048<LOOPBACK,RUNNING,MULTICAST> metric 0 mtu 16384
    options=680003<RXCSUM, TXCSUM, LINKSTATE, RXCSUM_IPV6, TXCSUM_IPV6>
    groups: lo
    nd6 options=21<PERFORMNUD, AUTO_LINKLOCAL>
em0: flags=8c22<BROADCAST, OACTIVE, SIMPLEX, MULTICAST> metric 0 mtu 1500
    options=481009b<RXCSUM, TXCSUM, VLAN_MTU, VLAN_HWTAGGING, VLAN_HWCSUM, VLAN_HWFILTER, NOMAP>
    ether 08:00:27:5c:f1:43
    media: Ethernet autoselect
    status: no carrier
    nd6 options=29<PERFORMNUD, IFDISABLED, AUTO_LINKLOCAL>
em1: flags=8c22<BROADCAST, OACTIVE, SIMPLEX, MULTICAST> metric 0 mtu 1500
    options=481009b<RXCSUM, TXCSUM, VLAN_MTU, VLAN_HWTAGGING, VLAN_HWCSUM, VLAN_HWFILTER, NOMAP>
```

11.3 Archivos de configuración de la red.

```
GNU nano 6.4 /etc/rc.conf
zfs_enable="YES"
kld_list="linux linux64 cuse fusefs"
linux_enable="YES"
ntpd_enable="YES"
ntpd_sync_on_start="YES"
devfs_enable="YES"
devfs_system_ruleset="devfsrules_common"
dbus_enable="YES"
lightdm_enable="YES"
webcamd_enable="YES"
cupsd_enable="YES"
avahi_daemon_enable="YES"
avahi_dnsconfd_enable="YES"
moused_enable="YES"
ipfw_enable="YES"
firewall_enable="YES"
ifconfig_em0="DHCP"
ifconfig_em1="DHCP"
vboxguest_enable="YES"
vboxservice_enable="YES"
keymap="es.acc.kbd"
hostname="administrator-ghostbsd-pc"
```

11.4 Prueba de Redes.

11.4.1 Ping: Host => Guest.

```
[administrator@administrator-ghostbsd-pc ~]$ ifconfig
em0: flags=8863<UP,BROADCAST,RUNNING,SIMPLEX,MULTICAST> metric 0 mtu 1500
    options=481009b<RXCSUM, TXCSUM, VLAN_MTU, VLAN_HWTAGGING, VLAN_HWCSUM, VLAN_HWFILTER>
    ether 08:00:27:5c:f1:43
    inet 10.0.2.4 netmask 0xfffff00 broadcast 10.0.2.255
    media: Ethernet autoselect (1000baseT <full-duplex>)
    status: active
    nd6 options=29<PERFORMNUD,IFDISABLED,AUTO_LINKLOCAL>
em1: flags=8863<UP,BROADCAST,RUNNING,SIMPLEX,MULTICAST> metric 0 mtu 1500
    options=481009b<RXCSUM, TXCSUM, VLAN_MTU, VLAN_HWTAGGING, VLAN_HWCSUM, VLAN_HWFILTER>
    ether 08:00:27:db:83:bf
    inet 192.168.56.114 netmask 0xfffff00 broadcast 192.168.56.255
    media: Ethernet autoselect (1000baseT <full-duplex>)
    status: active
    nd6 options=29<PERFORMNUD,IFDISABLED,AUTO_LINKLOCAL>
lo0: flags=8049<UP,LOOPBACK,RUNNING,MULTICAST> metric 0 mtu 16384
    options=680003<RXCSUM, TXCSUM, LINKSTATE, RXCSUM_IPV6, TXCSUM_IPV6>
```

```
C:\Users\Sapro>ping 192.168.56.114
La solicitud de ping no pudo encontrar el host 192.168.56.114. Compruebe el nombre o la dirección IP y vuelva a intentarlo.

C:\Users\Sapro>ping 192.168.56.114

Haciendo ping a 192.168.56.114 con 32 bytes de datos:
Respuesta desde 192.168.56.114: bytes=32 tiempo=1ms TTL=64
Respuesta desde 192.168.56.114: bytes=32 tiempo<1m TTL=64
Respuesta desde 192.168.56.114: bytes=32 tiempo=2ms TTL=64
Respuesta desde 192.168.56.114: bytes=32 tiempo<1m TTL=64

Estadísticas de ping para 192.168.56.114:
    Paquetes: enviados = 4, recibidos = 4, perdidos = 0
              (0% perdidos),
    Tiempos aproximados de ida y vuelta en milisegundos:
        Mínimo = 0ms, Máximo = 2ms, Media = 0ms
```

11.4.2 Ping: Guest => Host.

```
[administrator@administrator-ghostbsd-pc ~/Descargas]$ ping 192.168.56.1
PING 192.168.56.1 (192.168.56.1): 56 data bytes
64 bytes from 192.168.56.1: icmp_seq=0 ttl=128 time=2.681 ms
64 bytes from 192.168.56.1: icmp_seq=1 ttl=128 time=3.018 ms
64 bytes from 192.168.56.1: icmp_seq=2 ttl=128 time=2.601 ms
^C
--- 192.168.56.1 ping statistics ---
3 packets transmitted, 3 packets received, 0.0% packet loss
round-trip min/avg/max/stddev = 2.601/2.767/3.018/0.181 ms
[administrator@administrator-ghostbsd-pc ~/Descargas]$
```

11.4.3 Ping: Guest => Internet.

```
Archivo  Editar  Ver  Buscar  Terminal  Ayuda
[administrator@administrator-ghostbsd-pc ~]$ ping www.google.es
PING www.google.es (142.250.184.3): 56 data bytes
64 bytes from 142.250.184.3: icmp_seq=0 ttl=114 time=16.308 ms
64 bytes from 142.250.184.3: icmp_seq=1 ttl=114 time=17.453 ms
```

11.5 Lista de paquetes instalados.

- Paquetes Programador:
 - Visual Studio Code: `sudo pkg install vscode`
 - VIM: `sudo pkg install vim`
 - Git: `sudo pkg install git`
 - Eclipse: `sudo pkg install eclipse-4.16`
- Paquetes Oficinista:
 - TextAdept: `sudo pkg install textadept-11.0.a.3`
 - Chromium: `sudo pkg install chromium-92.0.4515.159`
- Paquetes Multimedia:
 - Gradio: `sudo pkg install gradio-7.3`
 - Spotify-Lightweight: `sudo pkg install spotify-qt-3.6`
 - Gimp: `sudo pkg install gimp-app-2.10.24_7,1`
 - Audacity: `sudo pkg install audacity-3.0.2_1`

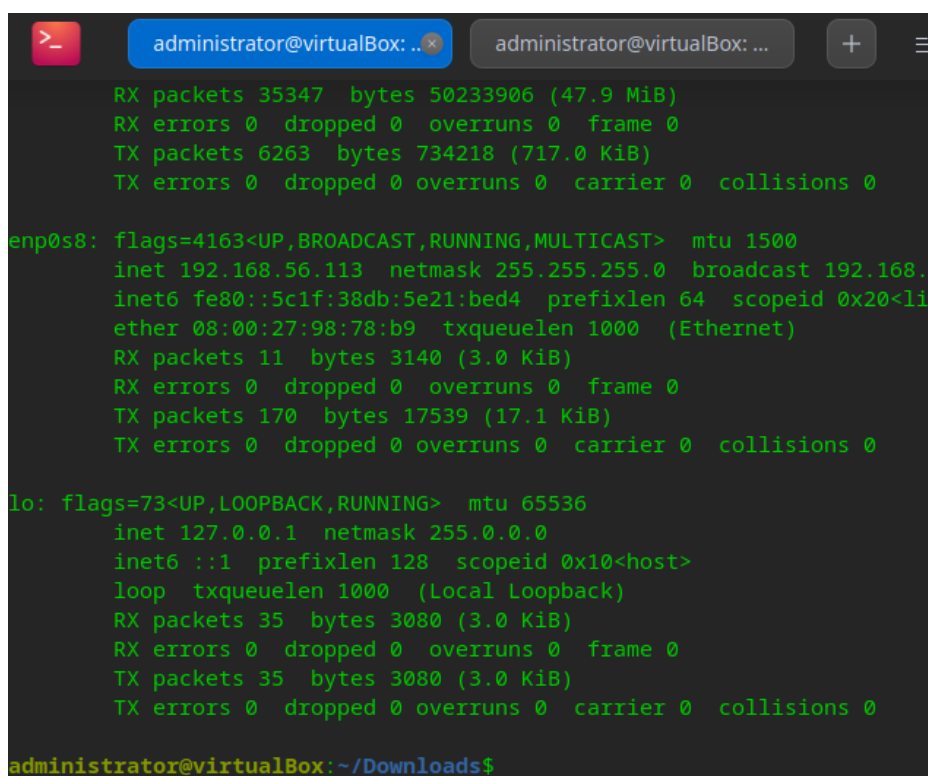
12 Deepin23.

12.1 Resumen de Instalación.

La instalación de este SO es extremadamente sencilla, la GUI nos guía paso a paso por cada parte de la configuración de la instalación, de tal manera que es muy fácil personalizar el particionado, actualización de paquetes, hora, tipo de teclado, particiones SWAP y otros de manera muy cómoda y casi automática.

12.2 Configuración de Red.

12.2.1 Comando: ifconfig.



```
administrator@virtualBox: ..x administrator@virtualBox: ... + ≡

RX packets 35347 bytes 50233906 (47.9 MiB)
RX errors 0 dropped 0 overruns 0 frame 0
TX packets 6263 bytes 734218 (717.0 KiB)
TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

enp0s8: flags=4163<UP,BROADCAST,RUNNING,MULTICAST> mtu 1500
inet 192.168.56.113 netmask 255.255.255.0 broadcast 192.168.
inet6 fe80::5c1f:38db:5e21:bed4 prefixlen 64 scopeid 0x20<li
ether 08:00:27:98:78:b9 txqueuelen 1000 (Ethernet)
RX packets 11 bytes 3140 (3.0 KiB)
RX errors 0 dropped 0 overruns 0 frame 0
TX packets 170 bytes 17539 (17.1 KiB)
TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

lo: flags=73<UP,LOOPBACK,RUNNING> mtu 65536
inet 127.0.0.1 netmask 255.0.0.0
inet6 ::1 prefixlen 128 scopeid 0x10<host>
loop txqueuelen 1000 (Local Loopback)
RX packets 35 bytes 3080 (3.0 KiB)
RX errors 0 dropped 0 overruns 0 frame 0
TX packets 35 bytes 3080 (3.0 KiB)
TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

administrator@virtualBox:~/Downloads$
```

12.2.2 Comando: systemctl restart NetworkManager.

```
administrator@virtualBox:~/Downloads$ sudo service NetworkManager restart
administrator@virtualBox:~/Downloads$ sudo service NetworkManager status
• NetworkManager.service - Network Manager
   Loaded: loaded (/lib/systemd/system/NetworkManager.service; enabled; vendor pre
   Active: active (running) since Sun 2022-10-02 15:16:23 CEST; 3s ago
     Docs: man:NetworkManager(8)
    Main PID: 7431 (NetworkManager)
      Tasks: 6 (limit: 3488)
     Memory: 5.8M
    CGroup: /system.slice/NetworkManager.service
            └─7431 /usr/sbin/NetworkManager --no-daemon
               └─7496 /sbin/dhclient -d -q -sf /usr/lib/NetworkManager/nm-dhcp-helper
                  └─7498 /sbin/dhclient -d -q -sf /usr/lib/NetworkManager/nm-dhcp-helper

oct 02 15:16:23 virtualBox NetworkManager[7431]: <info> [1664716583.7815] dhcp4 (
oct 02 15:16:23 virtualBox NetworkManager[7431]: <info> [1664716583.7817] dhcp4 (
oct 02 15:16:23 virtualBox dhclient[7498]: bound to 192.168.56.113 -- renewal in 2
oct 02 15:16:23 virtualBox NetworkManager[7431]: <info> [1664716583.8044] device
oct 02 15:16:23 virtualBox NetworkManager[7431]: <info> [1664716583.8187] device
oct 02 15:16:23 virtualBox NetworkManager[7431]: <info> [1664716583.8217] device
oct 02 15:16:23 virtualBox NetworkManager[7431]: <info> [1664716583.8386] device
oct 02 15:16:23 virtualBox NetworkManager[7431]: <info> [1664716583.8400] managet
```

12.3 Archivos de configuración de la red.

Los archivos de configuración de red están en /etc/network/interfaces.

12.4 Prueba de Redes.

12.4.1 Ping: Host => Guest.

```
enp0s8: flags=4163<UP,BROADCAST,RUNNING,MULTICAST> mtu
    inet 192.168.56.113 netmask 255.255.255.0 bro
    inet6 fe80::5c1f:38db:5e21:bed4 prefixlen 64
    ether 08:00:27:98:78:b9 txqueuelen 1000 (Ethe
    RX packets 13 bytes 4320 (4.2 KiB)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 213 bytes 20811 (20.3 KiB)

Símbolo del sistema - ping 192.168.56.113
Microsoft Windows [Versión 10.0.19044.2006]
(c) Microsoft Corporation. Todos los derechos reservados.

C:\Users\SAPro>ping 192.168.56.113

Haciendo ping a 192.168.56.113 con 32 bytes de datos:
Respuesta desde 192.168.56.113: bytes=32 tiempo=1ms TTL=64
Respuesta desde 192.168.56.113: bytes=32 tiempo=1ms TTL=64
Respuesta desde 192.168.56.113: bytes=32 tiempo=1ms TTL=64
```

12.4.2 Ping: Guest => Host.

```
administrator@virtualBox:~/Downloads$ ping 192.168.56.1
PING 192.168.56.1 (192.168.56.1) 56(84) bytes of data.
64 bytes from 192.168.56.1: icmp_seq=1 ttl=128 time=1.31 ms
64 bytes from 192.168.56.1: icmp_seq=2 ttl=128 time=0.398 ms
64 bytes from 192.168.56.1: icmp_seq=3 ttl=128 time=0.408 ms
^C
--- 192.168.56.1 ping statistics ---
3 packets transmitted, 3 received, 0% packet loss, time 3ms
rtt min/avg/max/mdev = 0.398/0.705/1.309/0.427 ms
administrator@virtualBox:~/Downloads$
```

12.4.3 Ping: Guest => Internet.

```
administrator@virtualBox:~/Downloads$ ping www.google.es
PING www.google.es (142.250.200.67) 56(84) bytes of data.
64 bytes from mad07s24-in-f3.1e100.net (142.250.200.67): icmp_seq=1 ttl=115 tim
64 bytes from mad07s24-in-f3.1e100.net (142.250.200.67): icmp_seq=2 ttl=115 tim
^C
```

12.5 Lista de paquetes instalados.

- Paquetes Programador:
 - Tora: sudo apt install -y tora
 - VIM: sudo apt -y vim
 - Pype: sudo apt -y pype
 - Idle3: sudo apt install -y idle3
- Paquetes Oficinista:
 - LibreOffice: sudo apt install -y libreoffice
 - Evolution: sudo apt install -y evolution
 - Calibre: sudo apt install -y calibre
 - Kbackup: sudo apt install -y kbackup
- Paquetes Multimedia:
 - VLC: sudo apt install -y vlc
 - HandBrake: sudo apt install -y handbrake
 - Gimp: sudo apt install -y gimp
 - Audacity: sudo apt install -y audacity

13 Gentoo.

13.1 Resumen de Instalación.

La instalación de esta distribución es extremadamente compleja, para poder instalarlo hay que descargar el paquete del sistema de ficheros, los binarios de arranque y el kernel, además de compilarlo. Personalmente, me he basado en varios vídeos de youtube y la documentación oficial de gentoo para instalarlo y he tardado alrededor de 14 horas en compilarlo y arrancarlo.

13.2 Configuración de Red.

13.2.1 Comando: ifconfig.

```

administrator@localhost ~ $ ifconfig
enp0s3: flags=4163<UP,BROADCAST,RUNNING,MULTICAST> mtu 1500
    inet 192.168.56.101 netmask 255.255.255.0 broadcast 192.168.56.255
    inet6 fe80::9b77:f050:c8d0:234 prefixlen 64 scopeid 0x20<link>
    ether 08:00:27:b0:88:d7 txqueuelen 1000 (Ethernet)
    RX packets 1 bytes 590 (590.0 B)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 22 bytes 1952 (1.9 KiB)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

enp0s8: flags=4163<UP,BROADCAST,RUNNING,MULTICAST> mtu 1500
    inet 10.0.2.12 netmask 255.255.255.0 broadcast 10.0.2.255
    inet6 fe80::d858:3819:dd31:563c prefixlen 64 scopeid 0x20<link>
    ether 08:00:27:08:bf:ca txqueuelen 1000 (Ethernet)
    RX packets 146 bytes 199222 (194.5 KiB)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 62 bytes 5647 (5.5 KiB)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

lo: flags=73<UP,LOOPBACK,RUNNING> mtu 65536
    inet 127.0.0.1 netmask 255.0.0.0
    inet6 ::1 prefixlen 128 scopeid 0x10<host>
    loop txqueuelen 1000 (Local Loopback)
    RX packets 0 bytes 0 (0.0 B)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 0 bytes 0 (0.0 B)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

```

—

13.2.2 Comando: systemctl restart NetworkManager.

```

administrator@localhost ~ $ sudo systemctl restart NetworkManager
administrator@localhost ~ $ sudo systemctl status NetworkManager
● NetworkManager.service - Network Manager
   Loaded: loaded (/lib/systemd/system/NetworkManager.service; enabled; v
   Active: active (running) since Sun 2022-10-02 15:28:49 CEST; 5s ago
     Docs: man:NetworkManager(8)
    Main PID: 2142 (NetworkManager)
      Tasks: 4 (limit: 5296)
     Memory: 2.9M
        CPU: 107ms
    CGroup: /system.slice/NetworkManager.service
            └─2142 /usr/sbin/NetworkManager --no-daemon

oct 02 15:28:49 localhost.localdomain NetworkManager[2142]: <info> [166471
oct 02 15:28:49 localhost.localdomain NetworkManager[2142]: <info> [166471
oct 02 15:28:49 localhost.localdomain NetworkManager[2142]: <info> [166471
oct 02 15:28:49 localhost.localdomain NetworkManager[2142]: <info> [166471
oct 02 15:28:49 localhost.localdomain NetworkManager[2142]: <info> [166471
oct 02 15:28:49 localhost.localdomain NetworkManager[2142]: <info> [166471

```

13.3 Archivos de configuración de la red.

```

administrator@localhost ~ $ cat /sys/class/net/
enp0s3/ enp0s8/ lo/
administrator@localhost ~ $ cat /sys/class/net/

```

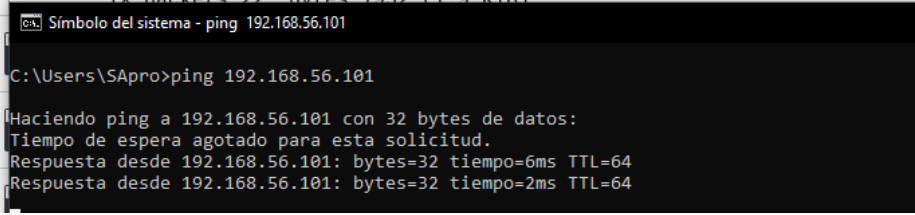
13.4 Prueba de Redes.

13.4.1 Ping: Host => Guest.

```

administrator@localhost ~ $ ifconfig
enp0s3: flags=4163<UP,BROADCAST,RUNNING,MULTICAST> mtu 1500
    inet 192.168.56.101 netmask 255.255.255.0 broadcast 192.168.56.255
    inet6 fe80::9b77:f050:c8d0:234 prefixlen 64 scopeid 0x20<link>
    ether 08:00:27:b0:88:d7 txqueuelen 1000 (Ethernet)
    RX packets 1 bytes 590 (590.0 B)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 22 bytes 1952 (1.9 KiB)

```



13.4.2 Ping: Guest => Host.

```
administrator@localhost ~ $ ping 192.168.56.1
PING 192.168.56.1 (192.168.56.1) 56(84) bytes of data.
64 bytes from 192.168.56.1: icmp_seq=1 ttl=128 time=2.53 ms
64 bytes from 192.168.56.1: icmp_seq=2 ttl=128 time=0.509 ms
64 bytes from 192.168.56.1: icmp_seq=3 ttl=128 time=2.70 ms
^C
--- 192.168.56.1 ping statistics ---
3 packets transmitted, 3 received, 0% packet loss, time 2129ms
rtt min/avg/max/mdev = 0.509/1.913/2.702/0.995 ms
administrator@localhost ~ $ █
```

13.4.3 Ping: Guest => Internet.

```
administrator@localhost ~ $ ping www.google.es
PING www.google.es (142.250.200.67) 56(84) bytes of data.
64 bytes from mad07s24-in-f3.1e100.net (142.250.200.67): icmp_seq=1 ttl=115 time=19.8 ms
S
64 bytes from mad07s24-in-f3.1e100.net (142.250.200.67): icmp_seq=2 ttl=115 time=20.5 ms
S
^C
--- www.google.es ping statistics ---
2 packets transmitted, 2 received, 0% packet loss, time 1007ms
rtt min/avg/max/mdev = 19.768/20.149/20.530/0.381 ms
administrator@localhost ~ $
```

13.5 Lista de paquetes instalados.

- Paquetes Programador:
 - Gedit: sudo emerge --ask app-editors/gedit
 - VIM: sudo emerge --ask app-editors/vim34
- Paquetes Oficinista:
 - Gnote: sudo emerge --ask app-misc/gnote
 - Scribus: sudo emerge --ask app-office/scribus
 - CoolReader: sudo emerge --ask app-text/coolReader
- Paquetes Multimedia:
 - VLC: sudo emerge --ask media-video/vlc
 - Lollypop: sudo emerge --ask media-sound/lollypop
 - Gimp: sudo emerge --ask media-gfx/gimp
 - Audacity: sudo emerge --ask media-sound/audacity