

Administración de Sistemas Operativos y Redes de Computadores

2021-22

Práctica 1

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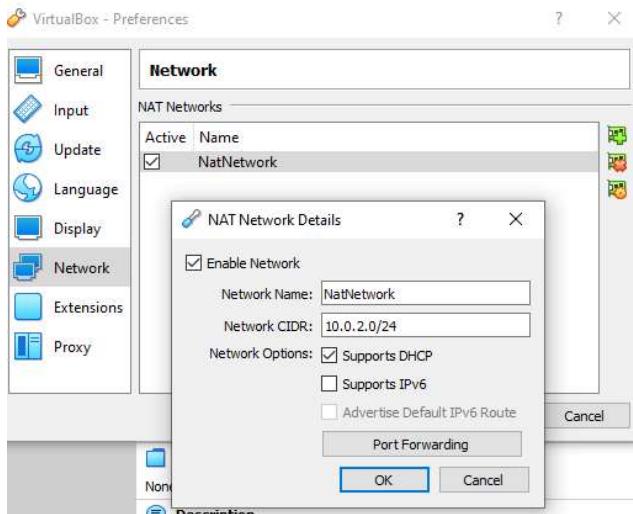
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Índice

<i>Configuraciones previas.....</i>	3
<i>Comparación entre sistemas operativos.....</i>	5
<i>Instalación de sistemas operativos</i>	
<i>Linux Mint.....</i>	6
<i>OpenSuse.....</i>	12
<i>Haiku.....</i>	16
<i>Manjaro Linux.....</i>	20
<i>Elementary OS.....</i>	24
<i>Windows Server 2022.....</i>	27
<i>Fedora 34.....</i>	31
<i>Deepin.....</i>	35
<i>GhostBSD.....</i>	40

Configuraciones previas:

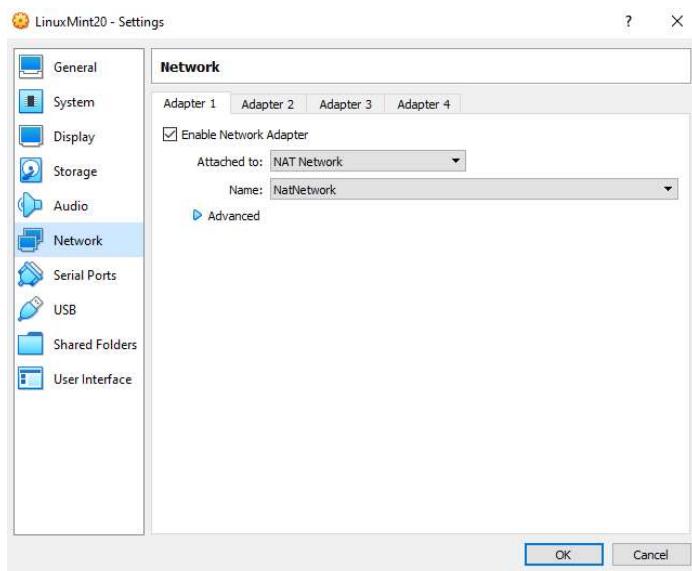
Para configurar la red para todas las máquinas virtuales de VirtualBox primero abrimos el menú Archivo – Preferencias, y en la pestaña de Redes creamos la red NatNetwork para que la maquina virtual pueda tener acceso a internet:



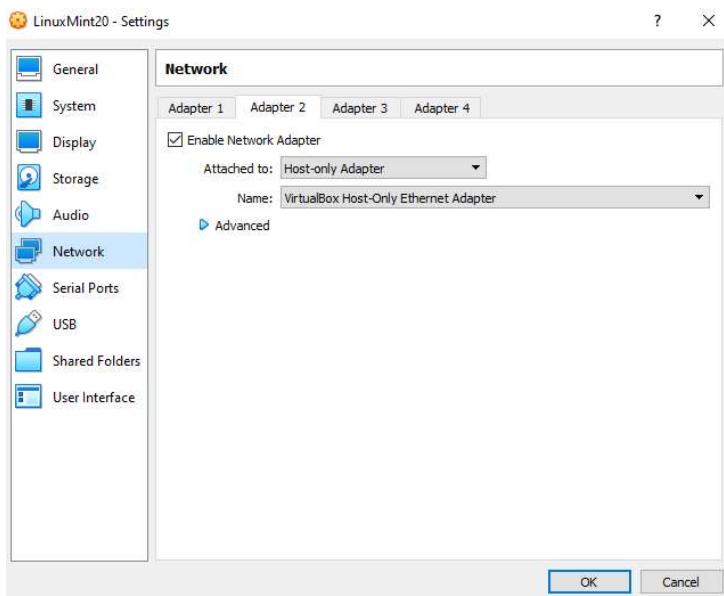
Luego abrimos la ventana de ajustes (settings) para cada nueva máquina virtual que vayamos creando:



En la pestaña de redes, seleccionamos como primer adaptador la red NatNetwork que hemos creado:



Y como segundo adaptador el adaptador de Solo-anfitrión, para que haya conexión entre el anfitrión (host) y la máquina virtual:



Una vez hecho esto podemos ejecutar la maquina virtual, nos pedirá que insertemos el disco (ISO en nuestro caso) para que el sistema pueda ejecutarse desde ahí.

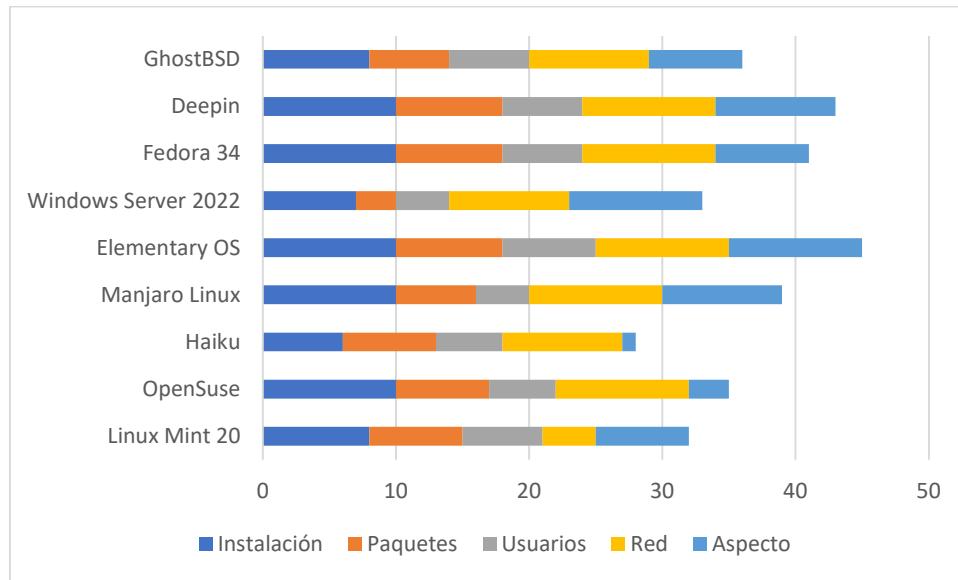
Comparación entre Sistemas Operativos:

En la siguiente tabla comparo los diferentes sistemas operativos basándome en mi experiencia personal y la sencillez de la configuración, en un rango de 0 a 10, siendo 0 una muy mala experiencia, y siendo 10 una muy buena experiencia.

Para puntuar se han tenido en cuenta los siguientes factores:

- Instalación: Facilidad para instalar el sistema operativo.
- Paquetes: Facilidad para instalar paquetes.
- Usuarios: Facilidad para crear usuarios.
- Red: Facilidad para configurar la red.
- Aspecto: Valoración personal del aspecto del sistema operativo.

SO	Instalación	Paquetes	Usuarios	Red	Aspecto
Linux Mint 20	8	7	6	4	7
OpenSuse	10	7	5	10	3
Haiku	6	7	5	9	1
Manjaro Linux	10	6	4	10	9
Elementary OS	10	8	7	10	10
Windows Server 2022	7	3	4	9	10
Fedora 34	10	8	6	10	7
Deepin	10	8	6	10	9
GhostBSD	8	6	6	9	7



Instalación de los sistemas operativos:

Linux Mint 20:

- Instalación:

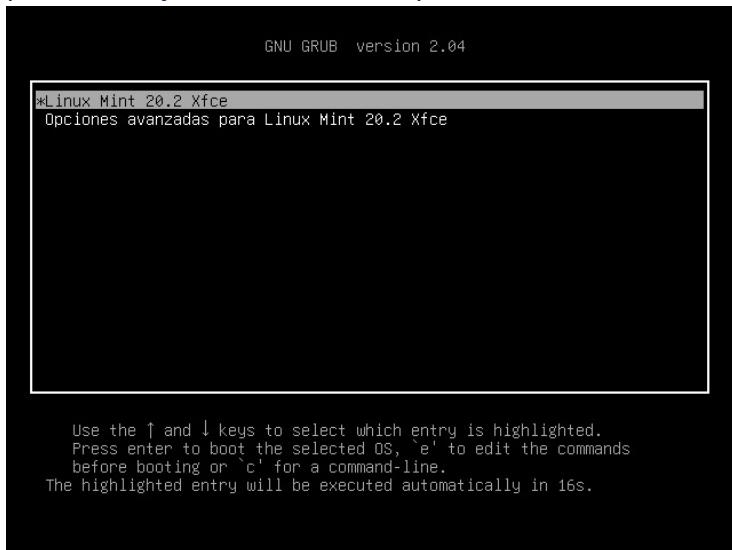
La instalación de este sistema operativo es muy simple, al encender la maquina hay que elegir la primera opción, que es iniciar el Linux Mint.



Y luego para instalar el SO, hay que ejecutar el archivo que se encuentra en el escritorio, “Install Linux Mint”, y seguir los pasos que ofrece el instalador, (Selección de idioma, creación de usuario).



Una vez terminada la instalación reiniciamos la máquina, y la próxima vez que se inicia podremos ejecutar el sistema operativo desde GRUB.



- **Conexión a la red:**

Para activar la conexión a la red deberemos entrar en el terminal, y situarnos en “/etc/network”, donde luego accederemos al archivo interfaces usando “sudo nano interfaces”, e introducir las siguientes líneas en el fichero:

```
Terminal - nikita@np31-Linux:/etc/network
Archivo Editar Ver Terminal Pestañas Ayuda
GNU nano 4.8           interfaces                         Modificado
d/interfaces(5) file used by ifup(8) and ifdown(8)
# Include files from /etc/network/interfaces.d:
source-directory /etc/network/interfaces.d

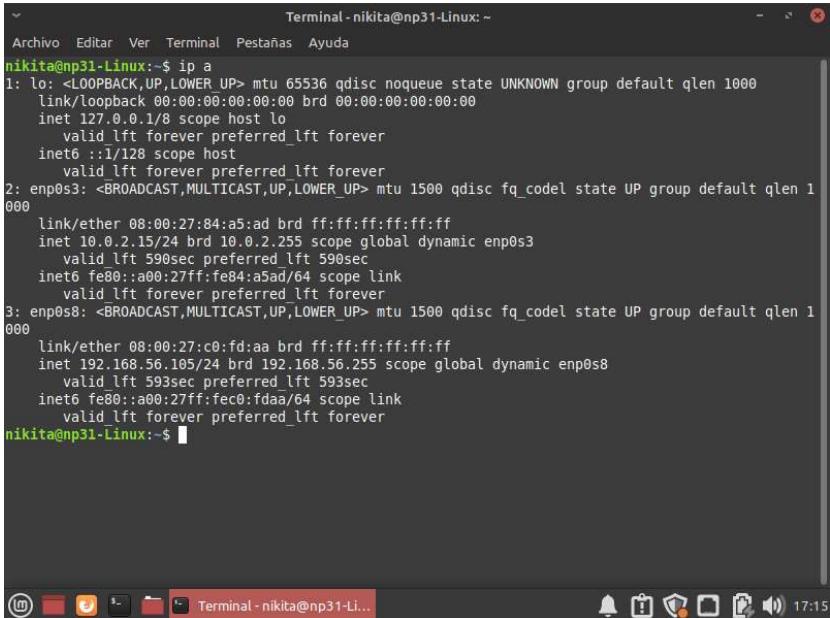
auto lo
iface lo inet loopback

auto enp0s3
iface enp0s3 inet dhcp

auto enp0s8
iface enp0s8 inet dhcp
```

The screenshot shows a terminal window titled "Terminal - nikita@np31-Linux:/etc/network". The window contains the configuration for the "/etc/network/interfaces" file. It includes definitions for the "lo" interface (loopback) and two network interfaces, "enp0s3" and "enp0s8", both configured with DHCP. The terminal window has a standard Linux desktop interface at the bottom, including icons for file operations and system status.

Una vez hecho esto reiniciamos el gestor de red con el comando “sudo /etc/init.d/networking restart”, y con el comando “ip a” podemos comprobar que ya estamos conectados a la red solo-anfitrión (enp0s3) y a la red NatNetwork(internet, enp0s8):

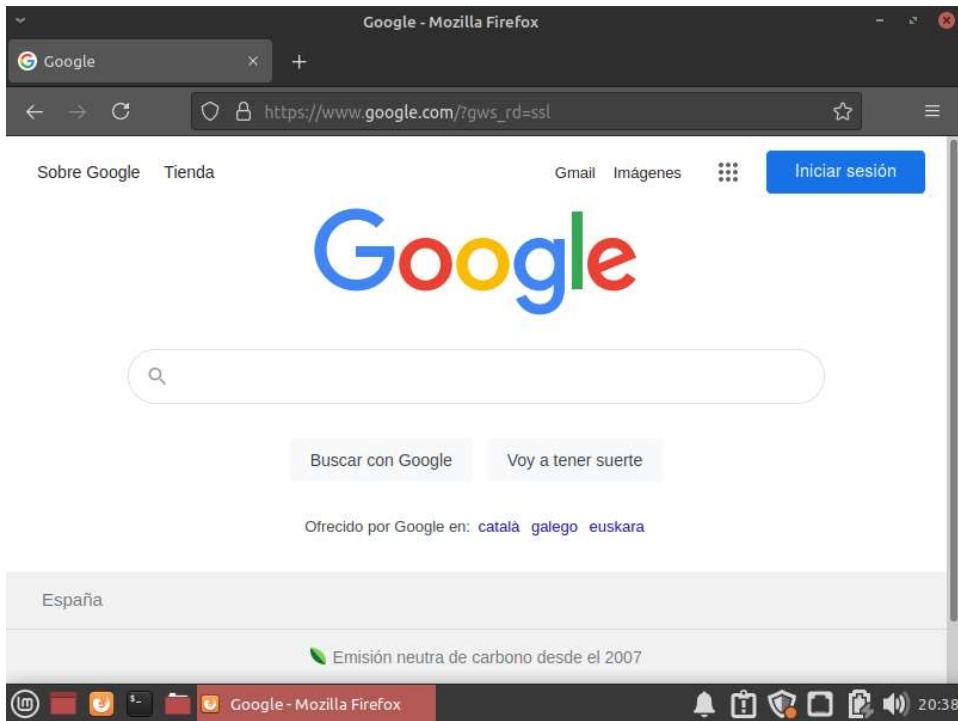


```

Terminal - nikita@np31-Linux: ~
Archivo Editar Ver Terminal Pestañas Ayuda
nikita@np31-Linux:~$ 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 08:00:27:84:a5:ad brd ff:ff:ff:ff:ff:ff
    inet 10.0.2.15/24 brd 10.0.2.255 scope global dynamic enp0s3
        valid_lft 590sec preferred_lft 590sec
    inet6 fe80::a00:27ff:fe84:a5ad/64 scope link
        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:c0:fd:aa brd ff:ff:ff:ff:ff:ff
    inet 192.168.56.105/24 brd 192.168.56.255 scope global dynamic enp0s8
        valid_lft 593sec preferred_lft 593sec
    inet6 fe80::a00:27ff:fec0:fd8a/64 scope link
        valid_lft forever preferred_lft forever
nikita@np31-Linux: ~

```

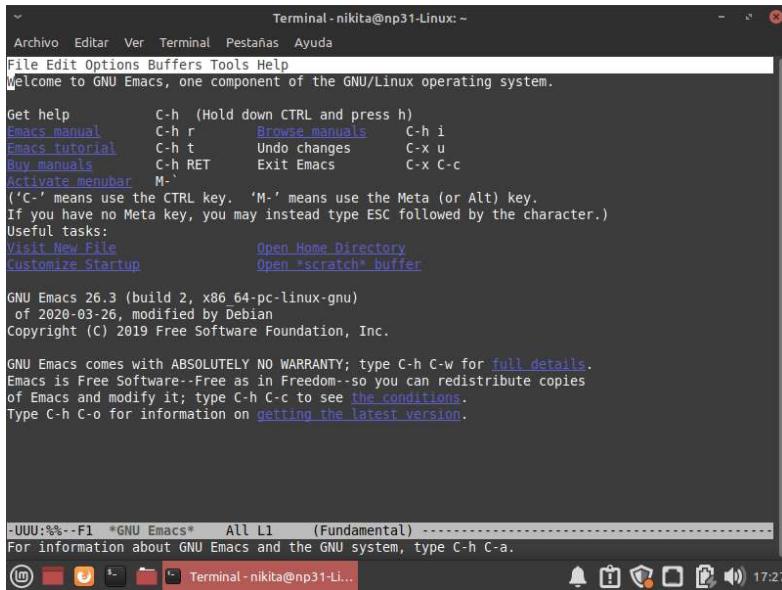
Comprobamos que funciona la red Nat:



- **Instalar paquetes:**

Para instalar paquetes antes que nada deberemos ejecutar el comando “sudo apt-get update”, para que nos actualiza los repositorios de donde vamos a instalar los paquetes.

Y luego podemos instalar paquetes como por ejemplo el Emacs-nox, con “sudo apt-get install emacs-nox”, y una vez instalado se puede ejecutar utilizando el comando emacs-nox.



The screenshot shows a terminal window titled "Terminal - nikita@np31-Linux: ~". The window displays the GNU Emacs welcome message, which includes information about keyboard shortcuts, useful tasks, and copyright details. The terminal is running on a Linux system with a dark theme.

```

Terminal - nikita@np31-Linux: ~
Archivo Editar Ver Terminal Pestañas Ayuda
File Edit Options Buffers Tools Help
Welcome to GNU Emacs, one component of the GNU/Linux operating system.

Get help      C-h (Hold down CTRL and press h)
emacs manual  C-h r      Browse manuals  C-h i
emacs tutorial  C-h t     Undo changes    C-x u
Guy manuals   C-h RET    Exit Emacs     C-x C-c
Activate menubar M-`

('C-' means use the CTRL key. 'M-' means use the Meta (or Alt) key.
If you have no Meta key, you may instead type ESC followed by the character.)

Useful tasks:
Visit New File      Open Home Directory
Customize Startup  Open `scratch' buffer

GNU Emacs 26.3 (build 2, x86_64-pc-linux-gnu)
of 2020-03-26, modified by Debian
Copyright (C) 2019 Free Software Foundation, Inc.

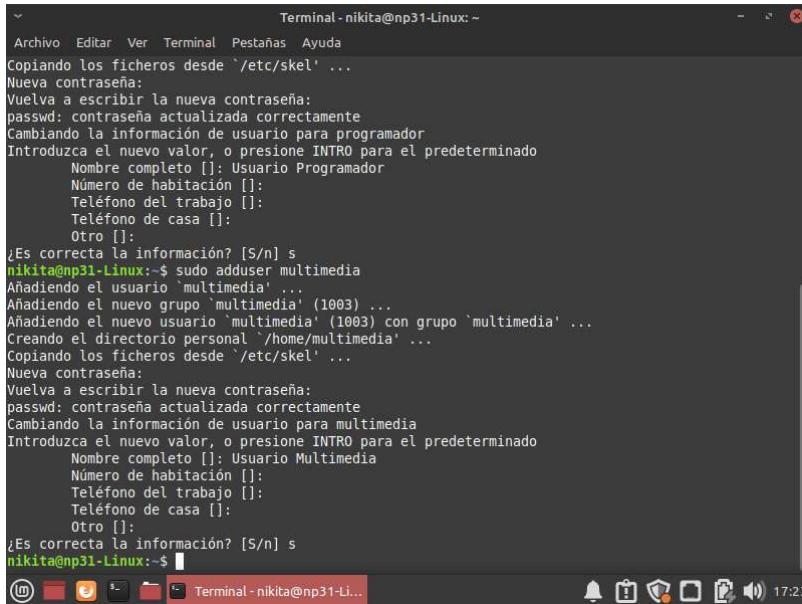
GNU Emacs comes with ABSOLUTELY NO WARRANTY; type C-h C-w for full details.
Emacs is Free Software--Free as in Freedom--so you can redistribute copies
of Emacs and modify it; type C-h C-c to see the conditions.
Type C-h C-o for information on getting the latest version.

-UUU:%%--F1  *GNU Emacs*  All L1  (Fundamental) -----
For information about GNU Emacs and the GNU system, type C-h C-a.
@  Terminal - nikita@np31-Li...  17:27

```

- **Crear usuarios:**

Para crear usuarios simplemente utilizamos el comando “sudo adduser oficina” para crear el usuario oficina, y seguimos introduciendo la información que nos vaya pidiendo por el terminal.



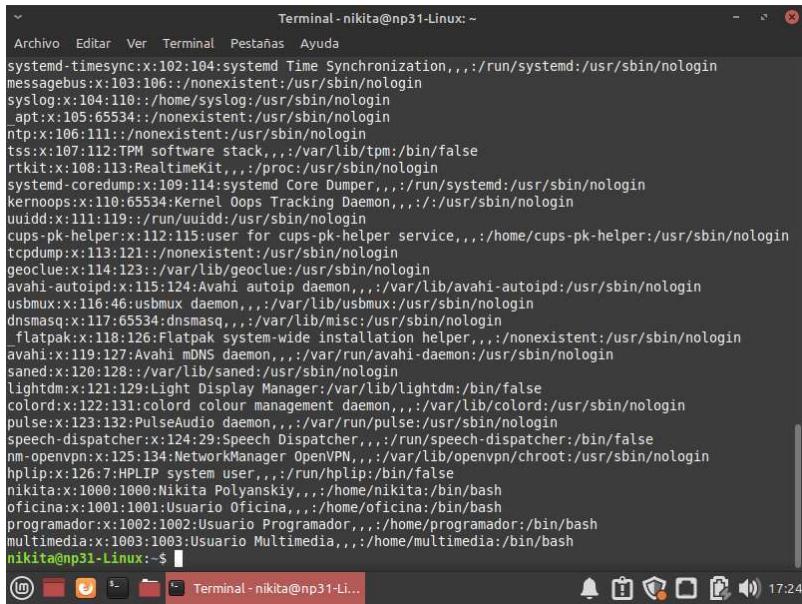
The screenshot shows a terminal window titled "Terminal - nikita@np31-Linux: ~". The user is running the "sudo adduser" command to create a new user account. The terminal prompts for the user's name, room number, work phone, home phone, and other details. The user responds with "Programador" for the name and "multimedia" for the group. The terminal also asks if the information is correct, and the user responds with "s".

```

Terminal - nikita@np31-Linux: ~
Archivo Editar Ver Terminal Pestañas Ayuda
Copiando los ficheros desde '/etc/skel' ...
Nueva contraseña:
Vuelva a escribir la nueva contraseña:
passwd: contraseña actualizada correctamente
Cambiando la información de usuario para programador
Introduzca el nuevo valor, o presione INTRO para el predeterminado
  Nombre completo []: Usuario Programador
  Número de habitación []:
  Teléfono del trabajo []:
  Teléfono de casa []:
  Otro []:
¿Es correcta la información? [S/n] s
nikita@np31-Linux:~$ sudo adduser multimedia
Añadiendo el usuario 'multimedia' ...
Añadiendo el nuevo grupo 'multimedia' (1003) ...
Añadiendo el nuevo usuario 'multimedia' (1003) con grupo 'multimedia' ...
Creando el directorio personal '/home/multimedia' ...
Copiando los ficheros desde '/etc/skel' ...
Nueva contraseña:
Vuelva a escribir la nueva contraseña:
passwd: contraseña actualizada correctamente
Cambiando la información de usuario para multimedia
Introduzca el nuevo valor, o presione INTRO para el predeterminado
  Nombre completo []: Usuario Multimedia
  Número de habitación []:
  Teléfono del trabajo []:
  Teléfono de casa []:
  Otro []:
¿Es correcta la información? [S/n] s
nikita@np31-Linux:~$ 
@  Terminal - nikita@np31-Li...  17:23

```

Para ver los usuarios podemos utilizar el comando “cat /etc/passwd”:

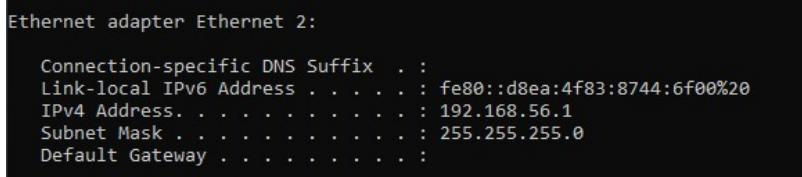


```
Terminal - nikita@np31-Linux: ~
Archivo Editar Ver Terminal Pestañas Ayuda
systemd-timesyncd:x:102:104:systemd Time Synchronization,,,:/run/systemd:/usr/sbin/nologin
messagebus:x:103:106::/nonexistent:/usr/sbin/nologin
syslog:x:104:110::/home/syslog:/usr/sbin/nologin
_apt:x:105:65534::/nonexistent:/usr/sbin/nologin
ntp:x:106:111::/nonexistent:/usr/sbin/nologin
tss:x:107:112:TPM software stack,,,:/var/lib/tpm:/bin/false
rtkit:x:108:113:RealtimeKit,,,:/proc:/sbin/nologin
systemd-coredump:x:109:114:systemd Core Dumper,,,:/run/systemd:/usr/sbin/nologin
kernoops:x:110:65534:Kernel Oops Tracking Daemon,,,:/usr/sbin/nologin
uuidd:x:111:119::/run/uuidd:/usr/sbin/nologin
cups-pk-helper:x:112:115:user for cups-pk-helper service,,,:/home/cups-pk-helper:/usr/sbin/nologin
tcpdump:x:113:121::/nonexistent:/usr/sbin/nologin
geoclue:x:114:123::/var/lib/geoclue:/usr/sbin/nologin
avahi-autoipd:x:115:124:Avahi autoip daemon,,,:/var/lib/avahi-autoipd:/usr/sbin/nologin
usbmux:x:116:46:usbmux daemon,,,:/var/lib/usbmux:/usr/sbin/nologin
dnsmasq:x:117:65534:dnsmasq,,,:/var/lib/misc:/usr/sbin/nologin
flatpak:x:118:126:Flatpak system-wide installation helper,,,:/nonexistent:/usr/sbin/nologin
avahi:x:119:127:Avahi mDNS daemon,,,:/var/run/avahi-daemon:/usr/sbin/nologin
saned:x:120:128::/var/lib/saned:/usr/sbin/nologin
lightdm:x:121:129:Light Display Manager:/var/lib/lightdm:/bin/false
colord:x:122:131:colord colour management daemon,,,:/var/lib/colord:/usr/sbin/nologin
pulse:x:123:132:PulseAudio daemon,,,:/var/run/pulse:/usr/sbin/nologin
speech-dispatcher:x:124:29:Speech Dispatcher,,,:/run/speech-dispatcher:/bin/false
nm-openvpn:x:125:134:NetworkManager OpenVPN,,,:/var/lib/openvpn/chroot:/usr/sbin/nologin
hplip:x:126:7:HPLIP system user,,,:/run/hplip:/bin/false
nikita:x:1000:1000:Nikita Polyanskiy,,,:/home/nikita:/bin/bash
oficina:x:1001:1001:Usuario Oficina,,,:/home/oficina:/bin/bash
programador:x:1002:1002:Usuario Programador,,,:/home/programador:/bin/bash
multimedia:x:1003:1003:Usuario Multimedia,,,:/home/multimedia:/bin/bash
nikita@np31-Linux:~
```

Como podemos ver al final de la imagen, hay 4 usuarios: nikita, oficina, programador y multimedia.

- **Ping dual:**

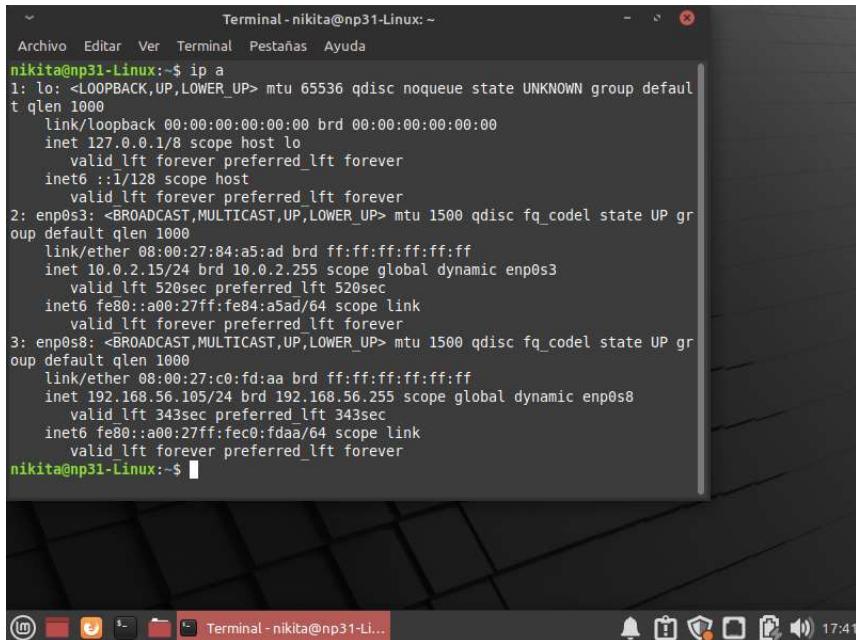
Mi IP de host: (ipconfig)



```
Ethernet adapter Ethernet 2:

Connection-specific DNS Suffix . :
Link-local IPv6 Address . . . . . : fe80::d8ea:4f83:8744:6f00%20
IPv4 Address . . . . . : 192.168.56.1
Subnet Mask . . . . . : 255.255.255.0
Default Gateway . . . . . :
```

Mi IP de Linux Mint 20: (ip a)



```
Terminal - nikita@np31-Linux: ~
Archivo Editar Ver Terminal Pestañas Ayuda
nikita@np31-Linux:~$ ip a
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN group default
    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 08:00:27:84:a5:ad brd ff:ff:ff:ff:ff:ff
    inet 10.0.2.15/24 brd 10.0.2.255 scope global dynamic enp0s3
        valid_lft 520sec preferred_lft 520sec
    inet6 fe80::a00:27ff:fe84:a5ad/64 scope link
        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:c0:fd:aa brd ff:ff:ff:ff:ff:ff
    inet 192.168.56.105/24 brd 192.168.56.255 scope global dynamic enp0s8
        valid_lft 343sec preferred_lft 343sec
    inet6 fe80::a00:27ff:fec0:fd80/64 scope link
        valid_lft forever preferred_lft forever
nikita@np31-Linux:~$
```

(192.168.56.105)

Ping de host a Linux:

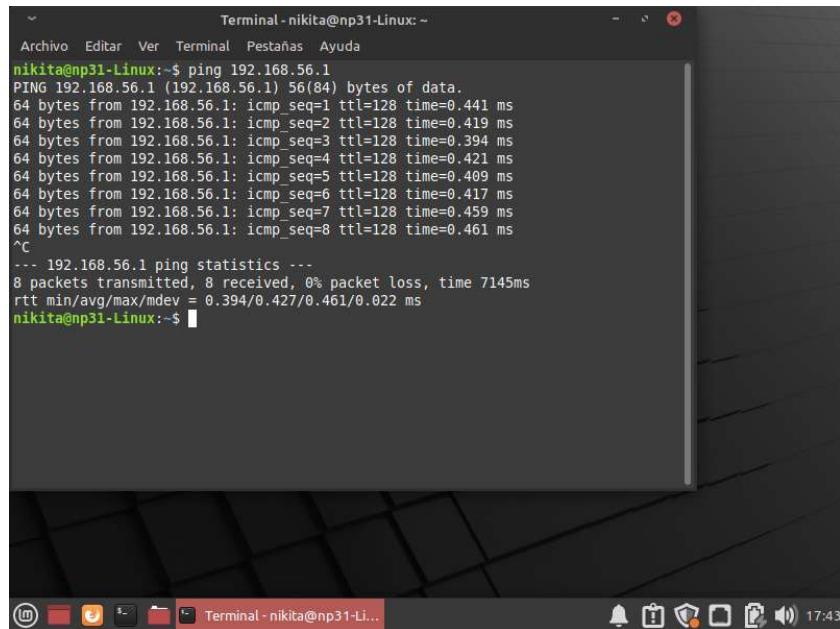
```
C:\Users\niktr>ping 192.168.56.105

Pinging 192.168.56.105 with 32 bytes of data:
Reply from 192.168.56.105: bytes=32 time<1ms TTL=64

Ping statistics for 192.168.56.105:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\Users\niktr>
```

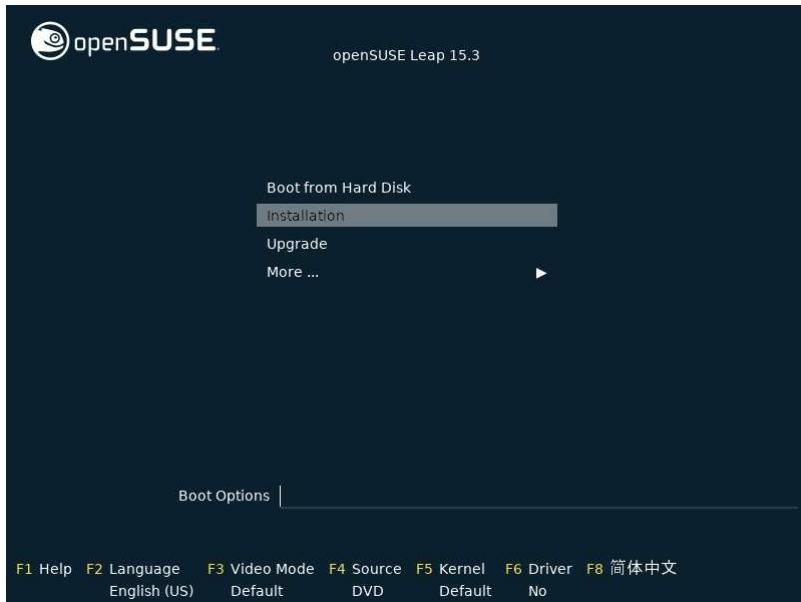
ping de linux a host:



Opensuse:

- Instalación:

Para instalar Opensuse cuando iniciamos la maquina elegimos la opción “Installation”:

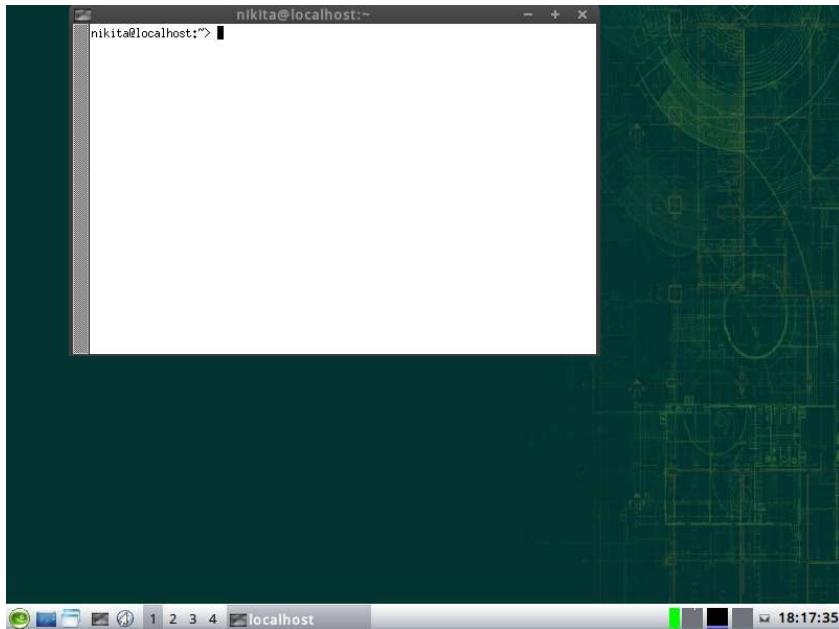


Luego seguiremos las indicaciones del entorno grafico de instalación, eligiendo el idioma, entorno grafico (En este caso he elegido el Escritorio genérico), la zona horaria y la creación de un nuevo usuario. Al finalizar el sistema se reiniciará, y podremos iniciar el sistema operativo.

The image contains two side-by-side screenshots of the openSUSE installation interface.

Left Screenshot: This is the "Language, Keyboard and License Agreement" step. It features a sidebar on the left with navigation links for "Preparation" (Network Autoseup, Installer Update, Repositories Initialization) and "Installation" (Welcome, Network Activation, System Analysis, Online Repositories, Add-On Products, Disk, Time Zone, User Settings). The main panel has sections for "Language" (set to English (US)), "Keyboard Layout" (set to English (US)), and "Keyboard Test". Below these is a "License Agreement" section containing the "LICENSE AGREEMENT openSUSE® Leap 15.3" text. At the bottom are "License Translations..." and "Next" buttons.

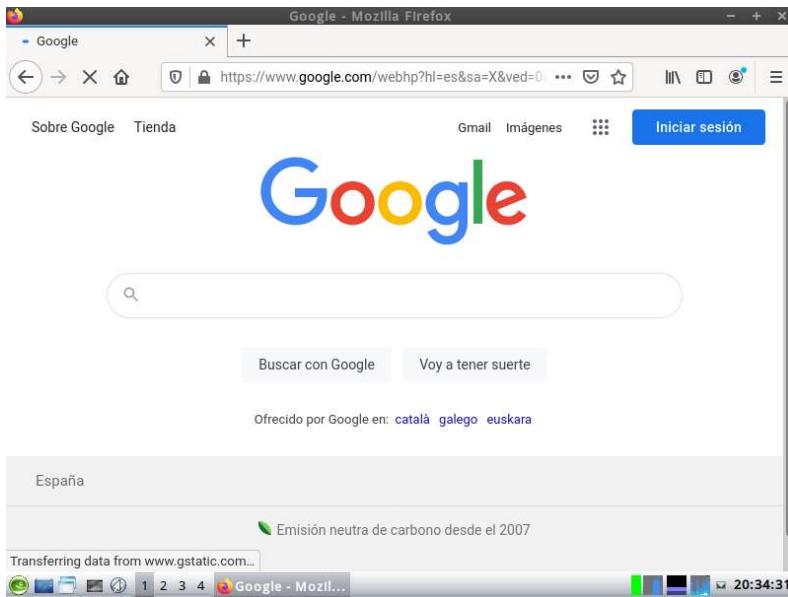
Right Screenshot: This is the "Advanced options for openSUSE Leap 15.3" step. It shows a green progress bar at the top with "5s" remaining. The main area displays the text "openSUSE Leap 15.3". At the bottom, there are "C: Command Line" and "E: Edit Entry" options.



- **Conexión a la red:**

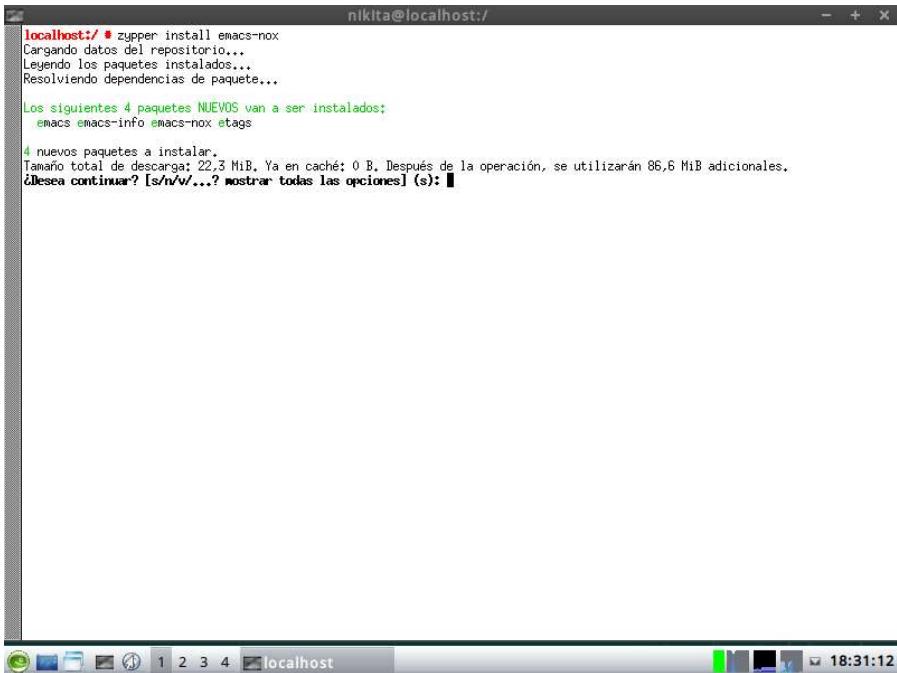
En este Sistema operativo no es necesario ajustar la red manualmente, ya se ha hecho automáticamente durante la instalación.

Comprobamos que funciona la red Nat:



- **Instalar paquetes:**

Para instalar paquetes primero deberemos activar el modo root (con el comando `su`), y luego instalar el paquete que queremos con el comando “`zypper install`”, en este caso instalaremos el `emacs-nox`:



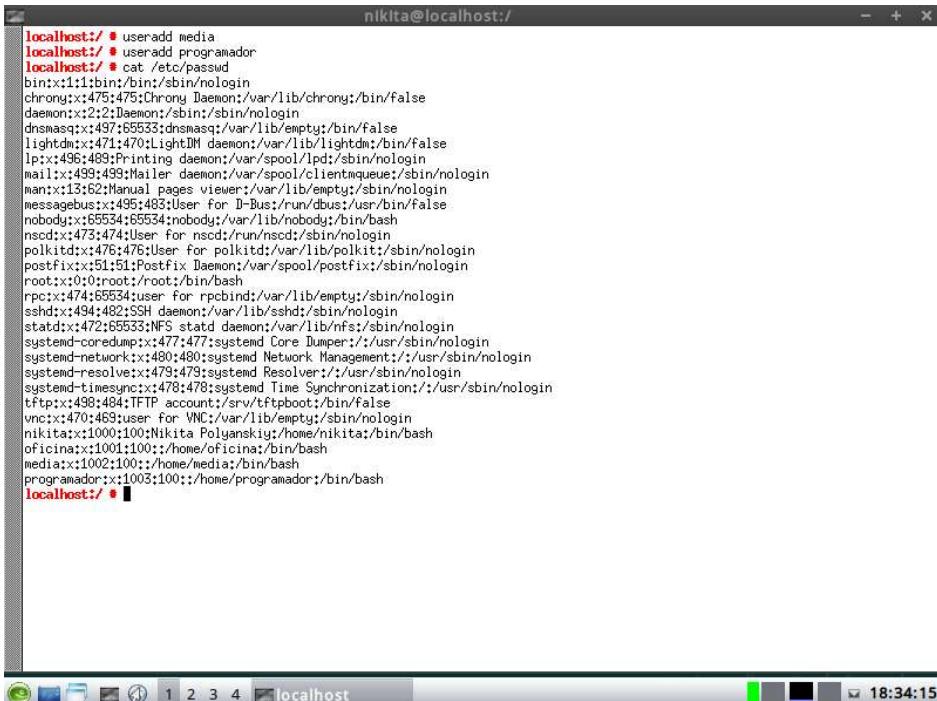
```
localhost:/ # zupper install emacs-nox
Cargando datos del repositorio...
Leyendo los paquetes instalados...
Resolviendo dependencias de paquete...

Los siguientes 4 paquetes NUEVOS van a ser instalados;
emacs emacs-info emacs-nox etags

4 nuevos paquetes a instalar.
Tamaño total de descarga: 22,3 MiB. Ya en caché: 0 B. Después de la operación, se utilizarán 86,6 MiB adicionales.
Desea continuar? [s/n/v/...? mostrar todas las opciones] (s):
```

- **Crear usuarios:**

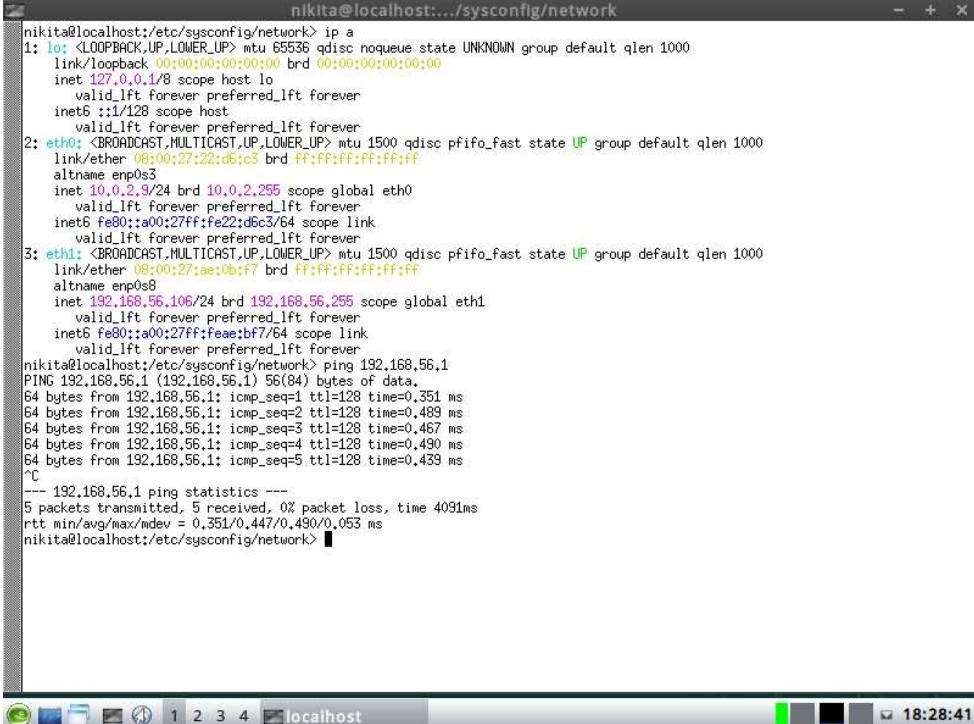
Para crear usuarios utilizamos el comando “useradd”, y para ver la lista de usuarios utilizamos “cat /etc/passwd”:



```
localhost:/ # useradd media
localhost:/ # useradd programador
localhost:/ # cat /etc/passwd
bin:x:1:bin:/bin:/sbin/nologin
chrony:x:4:514:51:chrony Daemon:/var/lib/chrony:/bin/false
daemon:x:22:21:Daemon:/sbin:/sbin/nologin
dnsmasq:x:497:65533:dnsmasq:/var/lib/empty:/bin/false
lightdm:x:471:470:LightDM daemon:/var/lib/lightdm:/bin/false
lp:x:496:489:Printing daemon:/var/spool/lpd:/sbin/nologin
mail:x:499:499:Mailer daemon:/var/spool/clientmqueue:/sbin/nologin
man:x:13:62:Manual pages viewer:/var/lib/empty:/sbin/nologin
messagebus:x:495:493:User for D-Bus:/run/dbus:/usr/bin/false
nobody:x:65534:65534:nobody:/var/lib/nobody:/bin/bash
nsqd:x:473:474:User for nsqd:/run/nsqd:/sbin/nologin
polkitd:x:476:476:User for polkitd:/var/lib/polkit:/sbin/nologin
postfix:x:5151:Postfix Daemon:/var/spool/postfix:/sbin/nologin
root:x:0:root:/root:/bin/bash
rpc:x:474:65534:user for rpcbind:/var/lib/empty:/sbin/nologin
sshd:x:494:482:SSH daemon:/var/lib/sshd:/sbin/nologin
statd:x:472:65533:NFS statd daemon:/var/lib/nfs:/sbin/nologin
systemd-coredump:x:477:477:systemd Core Dumper:/:/usr/sbin/nologin
systemd-network:x:480:480:systemd Network Management:/:/usr/sbin/nologin
systemd-resolve:x:479:479:systemd Resolver:/:/usr/sbin/nologin
systemd-timesync:x:478:478:systemd Time Synchronization:/:/usr/sbin/nologin
tftplib:x:498:484:TFTP account:/srv/tftpboot:/bin/false
vnc:x:470:463:user for VNC:/var/lib/empty:/sbin/nologin
nikita:x:1000:100:Nikita Polyanskiy:/home/nikita:/bin/bash
oficina:x:1001:100:/home/oficina:/bin/bash
media:x:1002:100:/home/media:/bin/bash
programador:x:1003:100:/home/programador:/bin/bash
localhost:/ #
```

- **Ping dual:**

De opensuse a host:

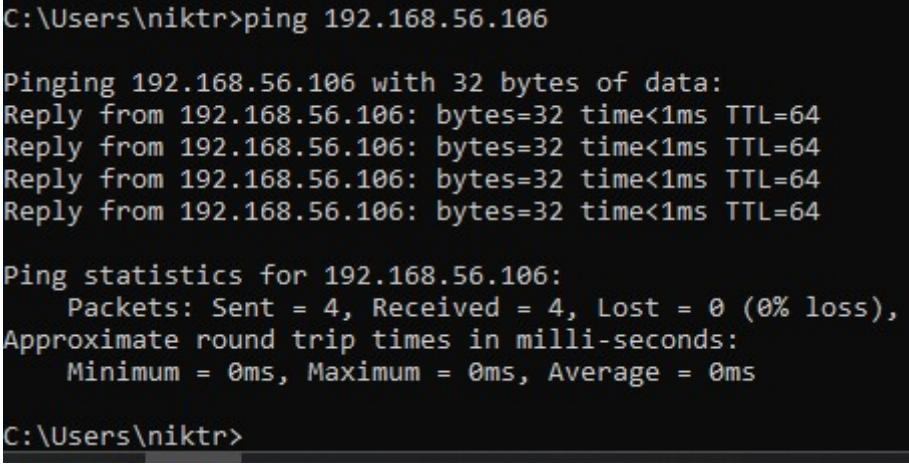


```

nikita@localhost:/etc/sysconfig/network> 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: eth0: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc pfifo_fast state UP group default qlen 1000
    link/ether 08:00:27:22:d6:c5 brd ff:ff:ff:ff:ff:ff
    altnet enp0s3
    inet 10.0.2.9/24 brd 10.0.2.255 scope global eth0
        valid_lft forever preferred_lft forever
    inet6 fe80::a00:27ff:fe22:d6c3/64 scope link
        valid_lft forever preferred_lft forever
3: eth1: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc pfifo_fast state UP group default qlen 1000
    link/ether 08:00:27:aet:0b:f7 brd ff:ff:ff:ff:ff:ff
    altnet enp0s8
    inet 192.168.56.106/24 brd 192.168.56.255 scope global eth1
        valid_lft forever preferred_lft forever
    inet6 fe80::a00:27ff:feaebf7/64 scope link
        valid_lft forever preferred_lft forever
nikita@localhost:/etc/sysconfig/network> 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=0.351 ms
64 bytes from 192.168.56.1: icmp_seq=2 ttl=128 time=0.489 ms
64 bytes from 192.168.56.1: icmp_seq=3 ttl=128 time=0.467 ms
64 bytes from 192.168.56.1: icmp_seq=4 ttl=128 time=0.490 ms
64 bytes from 192.168.56.1: icmp_seq=5 ttl=128 time=0.439 ms
^C
--- 192.168.56.1 ping statistics ---
5 packets transmitted, 5 received, 0% packet loss, time 409ms
rtt min/avg/max/mdev = 0.351/0.447/0.490/0.053 ms
nikita@localhost:/etc/sysconfig/network>

```

Del host a opensuse:



```

C:\Users\niktr>ping 192.168.56.106

Pinging 192.168.56.106 with 32 bytes of data:
Reply from 192.168.56.106: bytes=32 time<1ms TTL=64

Ping statistics for 192.168.56.106:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\Users\niktr>

```

Haiku:

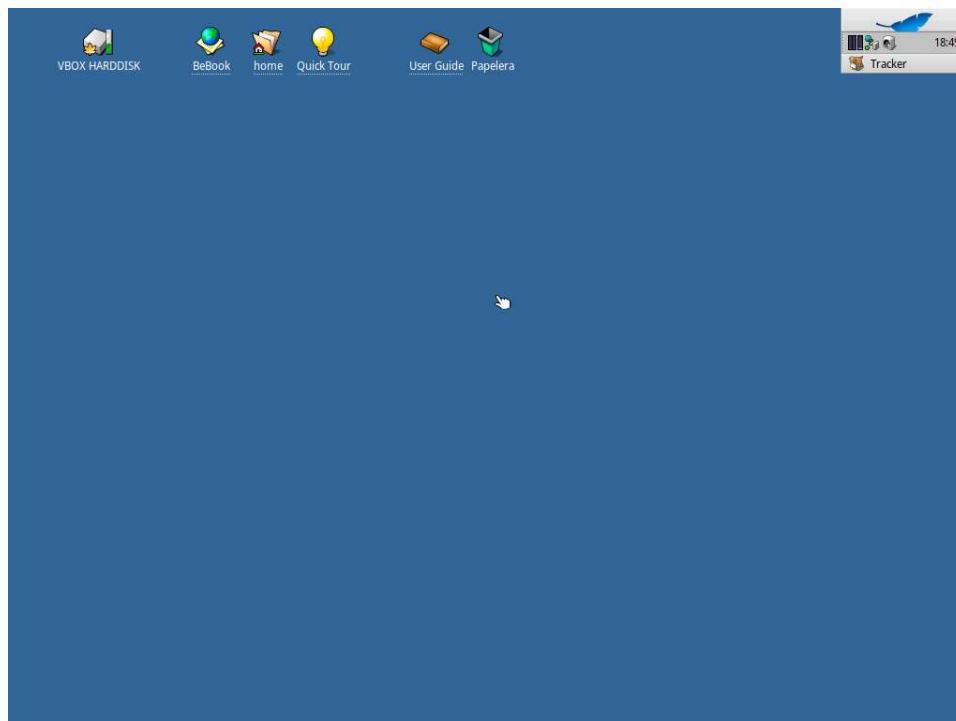
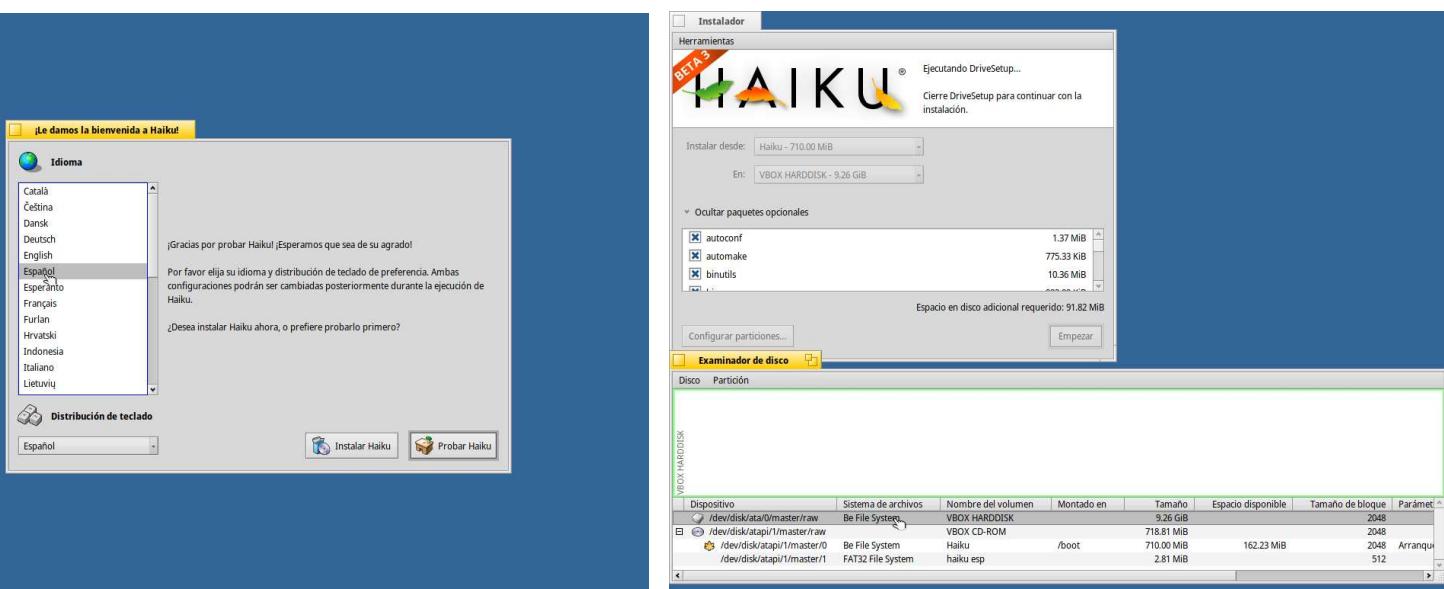
- **Instalación:**

Al instalar la maquina virtual deberemos elegir el sistema operativo: Otros x64.

Al iniciarse seguiremos las indicaciones del instalador para elegir el idioma y el disco:

Para instalar el sistema operativo deberemos formatear nuestro disco virtual en formato Be y le damos a empezar.

Una vez finalizado se reiniciará.



- **Conexión a la red:**

No hace falta configurar la red manualmente.

```

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

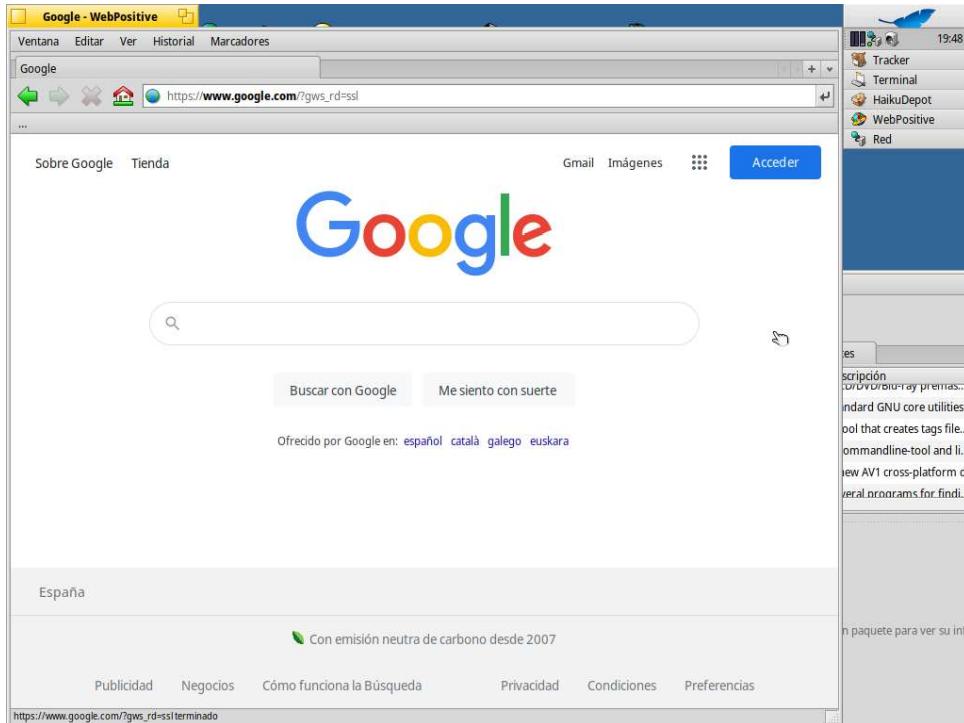
/dev/net/pcnet/0
      Hardware type: Ethernet, Address: 08:00:27:9f:40:63
      Media type: 100 Mbit, 100BASE-TX
      inet addr: 10.0.2.10, Bcast: 10.0.2.255, Mask: 255.255.255.0
      MTU: 1500, Metric: 0, up broadcast link auto-configured
      Receive: 4 packets, 0 errors, 2360 bytes, 0 mcasts, 0 dropped
      Transmit: 4 packets, 0 errors, 1240 bytes, 0 mcasts, 0 dropped
      Collisions: 0

/dev/net/pcnet/1
      Hardware type: Ethernet, Address: 08:00:27:5d:c0:2b
      Media type: 100 Mbit, 100BASE-TX
      inet addr: 192.168.56.107, Bcast: 192.168.56.255, Mask: 255.255.255.0
      MTU: 1500, Metric: 0, up broadcast link auto-configured
      Receive: 30 packets, 0 errors, 5218 bytes, 0 mcasts, 0 dropped
      Transmit: 6 packets, 0 errors, 1589 bytes, 0 mcasts, 0 dropped
      Collisions: 0

-> 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=2.408 ms
64 bytes from 192.168.56.1: icmp_seq=1 ttl=128 time=1.371 ms
64 bytes from 192.168.56.1: icmp_seq=2 ttl=128 time=0.863 ms
64 bytes from 192.168.56.1: icmp_seq=3 ttl=128 time=0.855 ms
64 bytes from 192.168.56.1: icmp_seq=4 ttl=128 time=0.573 ms
...
--- 192.168.56.1 ping statistics ---
5 packets transmitted, 5 packets received, 0% packet loss
round-trip min/avg/max/std-dev = 0.573/1.214/2.408/0.650 ms
-> 

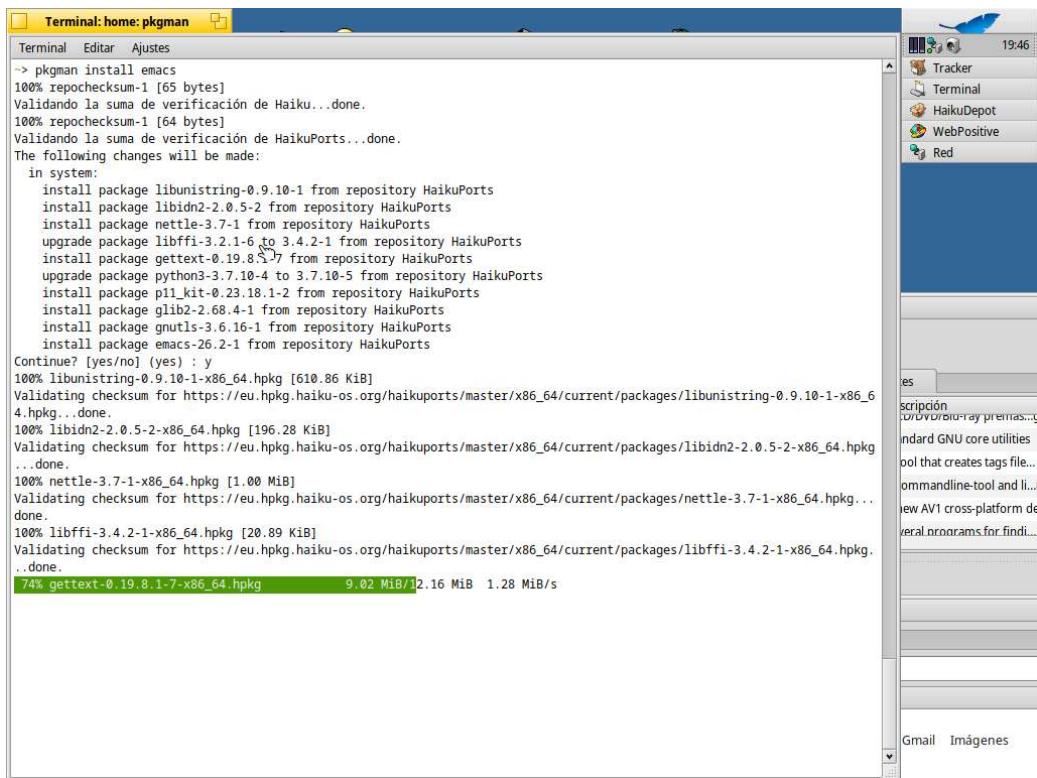
```

Comprobamos que funciona la redNat:



- **Instalar paquetes:**

Para instalar paquetes utilizamos el comando “pkgman install emacs”:



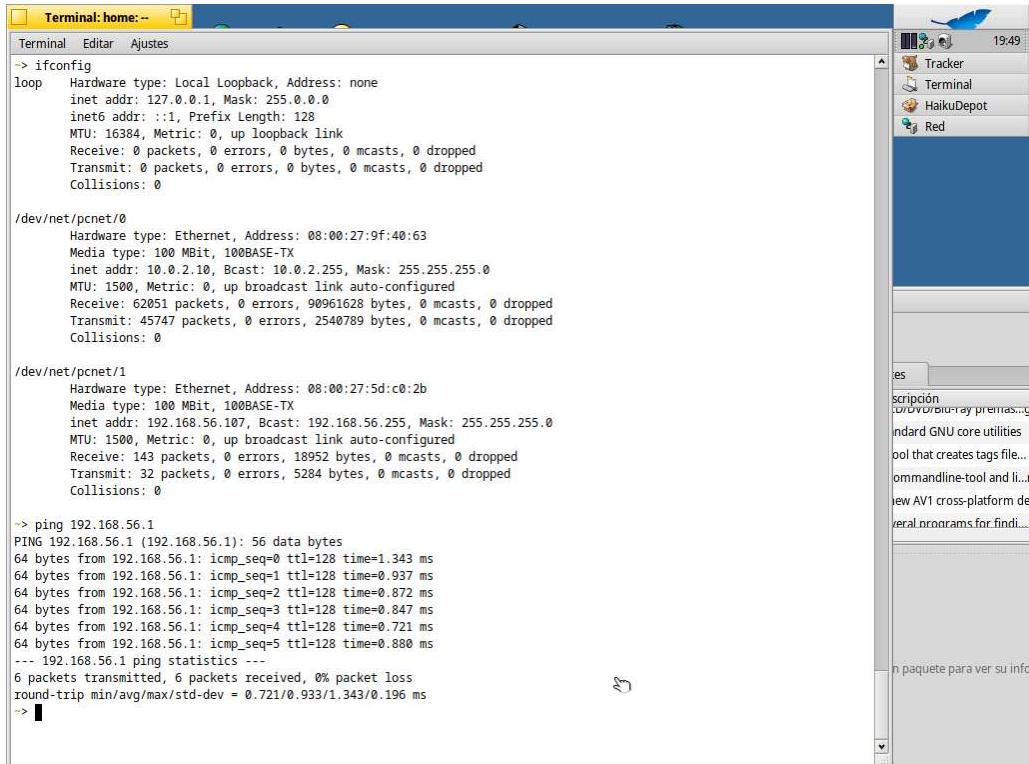
```

Terminal: home: pkgman
Terminal Editar Ajustes
-> pkgman install emacs
100% repochecksum-1 [65 bytes]
Validando la suma de verificación de Haiku...done.
100% repochecksum-1 [64 bytes]
Validando la suma de verificación de HaikuPorts...done.
The following changes will be made:
in system:
install package libunistring-0.9.10-1 from repository HaikuPorts
install package libidn2-2.0.5-2 from repository HaikuPorts
install package nettle-3.7-1 from repository HaikuPorts
upgrade package libffi-3.2.1-6 to 3.4.2-1 from repository HaikuPorts
install package gettext-0.19.8.1-7 from repository HaikuPorts
upgrade package python3-3.7.10-4 to 3.7.10-5 from repository HaikuPorts
install package p11-kit-0.23.18.1-2 from repository HaikuPorts
install package glib2-2.68.4-1 from repository HaikuPorts
install package gnutls-3.6.16-1 from repository HaikuPorts
install package emacs-26.2-1 from repository HaikuPorts
Continue? [yes/no] (yes) : y
100% libunistring-0.9.10-1-x86_64.hpkg [610.86 KiB]
Validating checksum for https://eu.hpkg.haiku-os.org/haikuports/master/x86_64/current/packages/libunistring-0.9.10-1-x86_6
4.hpkg...done.
100% libidn2-2.0.5-2-x86_64.hpkg [196.28 KiB]
Validating checksum for https://eu.hpkg.haiku-os.org/haikuports/master/x86_64/current/packages/libidn2-2.0.5-2-x86_64.hpk
...done.
100% nettle-3.7-1-x86_64.hpkg [1.00 MiB]
Validating checksum for https://eu.hpkg.haiku-os.org/haikuports/master/x86_64/current/packages/nettle-3.7-1-x86_64.hpk...
done.
100% libffi-3.4.2-1-x86_64.hpkg [20.89 KiB]
Validating checksum for https://eu.hpkg.haiku-os.org/haikuports/master/x86_64/current/packages/libffi-3.4.2-1-x86_64.hpk...
done.
74% gettext-0.19.8.1-7-x86_64.hpkg      9.02 MiB/12.16 MiB 1.28 MiB/s

```

- **Ping dual:**

De Haiku al host:



```

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: 08:00:27:9f:40:63
        Media type: 100 Mbit, 100BASE-TX
        inet addr: 10.0.2.10, Bcast: 10.0.2.255, Mask: 255.255.255.0
        MTU: 1500, Metric: 0, up broadcast link auto-configured
        Receive: 62051 packets, 0 errors, 90961628 bytes, 0 mcasts, 0 dropped
        Transmit: 45747 packets, 0 errors, 2540789 bytes, 0 mcasts, 0 dropped
        Collisions: 0

/dev/net/pcnet/1
        Hardware type: Ethernet, Address: 08:00:27:5d:c0:2b
        Media type: 100 Mbit, 100BASE-TX
        inet addr: 192.168.56.107, Bcast: 192.168.56.255, Mask: 255.255.255.0
        MTU: 1500, Metric: 0, up broadcast link auto-configured
        Receive: 143 packets, 0 errors, 18952 bytes, 0 mcasts, 0 dropped
        Transmit: 32 packets, 0 errors, 5284 bytes, 0 mcasts, 0 dropped
        Collisions: 0

-> 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=1.343 ms
64 bytes from 192.168.56.1: icmp_seq=1 ttl=128 time=0.937 ms
64 bytes from 192.168.56.1: icmp_seq=2 ttl=128 time=0.872 ms
64 bytes from 192.168.56.1: icmp_seq=3 ttl=128 time=0.847 ms
64 bytes from 192.168.56.1: icmp_seq=4 ttl=128 time=0.721 ms
64 bytes from 192.168.56.1: icmp_seq=5 ttl=128 time=0.880 ms
--- 192.168.56.1 ping statistics ---
6 packets transmitted, 6 packets received, 0% packet loss
round-trip min/avg/max/std-dev = 0.721/0.933/1.343/0.196 ms
->

```

Del host a Haiku:

```
C:\Users\niktr>ping 192.168.56.107

Pinging 192.168.56.107 with 32 bytes of data:
Reply from 192.168.56.107: bytes=32 time<1ms TTL=254
Reply from 192.168.56.107: bytes=32 time<1ms TTL=254
Reply from 192.168.56.107: bytes=32 time=1ms TTL=254
Reply from 192.168.56.107: bytes=32 time=1ms TTL=254

Ping statistics for 192.168.56.107:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 1ms, Average = 0ms

C:\Users\niktr>
```

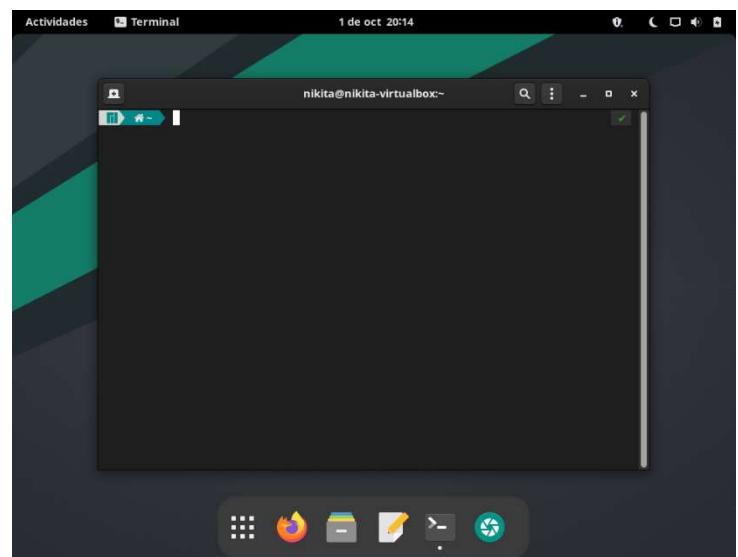
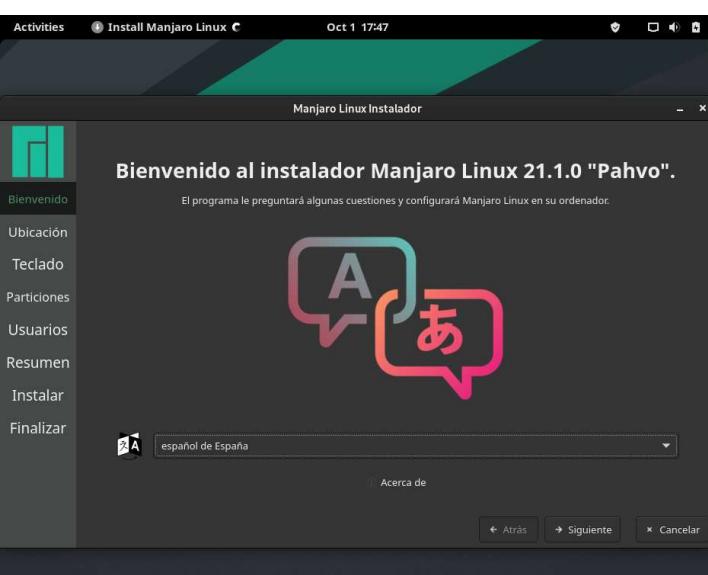
Manjaro Linux:

- Instalación:

Al iniciar la maquina elegimos la siguiente opción:

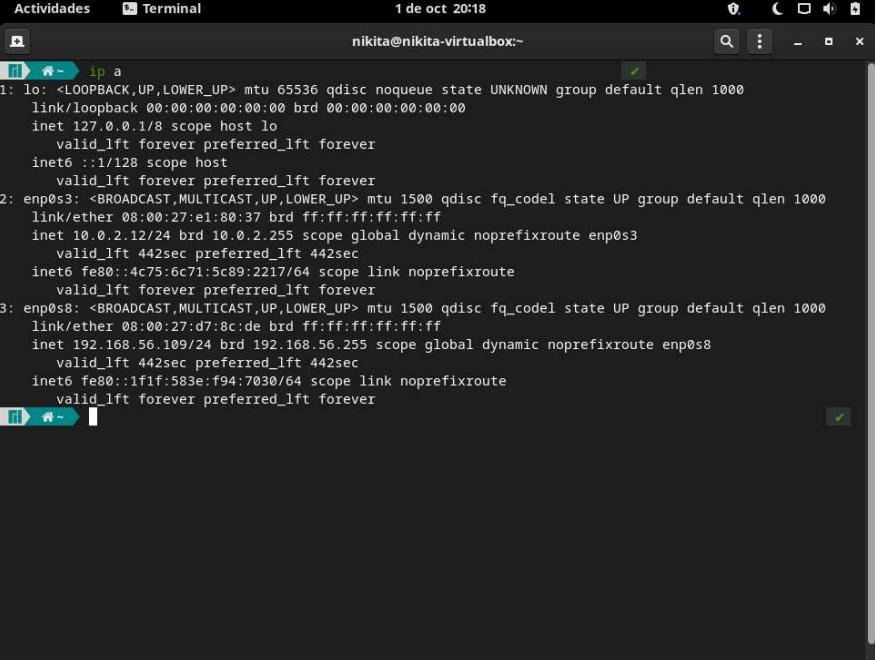


Una vez iniciado pulsamos en “Instalar Manjaro Linux” que aparece en el escritorio, y seguimos las indicaciones del instalador para elegir el idioma, crear un usuario, etc. Una vez instalado reiniciamos.



- **Conexión a la red:**

No es necesario configurar la red manualmente.



```
Actividades Terminal 1 de oct 20:18
nikita@nikita-virtualbox:~$ 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:e1:80:37 brd ff:ff:ff:ff:ff:ff
    inet 10.0.2.12/24 brd 10.0.2.255 scope global dynamic noprefixroute enp0s3
        valid_lft 442sec preferred_lft 442sec
    inet6 fe80::4c75:6c71:5c89:2217/64 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:d7:8c:de brd ff:ff:ff:ff:ff:ff
    inet 192.168.56.109/24 brd 192.168.56.255 scope global dynamic noprefixroute enp0s8
        valid_lft 442sec preferred_lft 442sec
    inet6 fe80::1f1f:583e:f94:7030/64 scope link noprefixroute
        valid_lft forever preferred_lft forever
```

Comprobamos que funciona la red Nat:



- **Instalar paquetes:**

Para instalar paquetes, Manjaro utiliza pacman, en este caso para instalar emacs-nox, ejecutamos el comando “sudo pacman -S emacs-nox”

```
Actividades Terminal 1 de oct 20:24 nikita@nikita-virtualbox:~
```

sudo pacman -S emacs-nox
resolviendo dependencias...
buscando conflictos entre paquetes...

Paquetes (1) emacs-nox-27.2-1

Tamaño total de la descarga: 37,30 MiB
Tamaño total de la instalación: 104,22 MiB

:: ¿Continuar con la instalación? [S/n] s
:: Obteniendo los paquetes...
emacs-nox-27.2-1-x86_64 37,3 MiB 1548 KiB/s 00:25 [##] 100%
(1/1) comprobando las claves del depósito [##] 100%
(1/1) verificando la integridad de los paquetes [##] 100%
(1/1) cargando los archivos de los paquetes [##] 100%
(1/1) comprobando conflictos entre archivos [##] 100%
(1/1) comprobando el espacio disponible en el disco [##] 100%
:: Procesando los cambios de los paquetes...
(1/1) instalando emacs-nox [##] 100%
:: Ejecutando los «hooks» de posinstalación...
(1/2) Arming ConditionNeedsUpdate...
(2/2) Updating the info directory file...
[305]

- **Crear usuarios:**

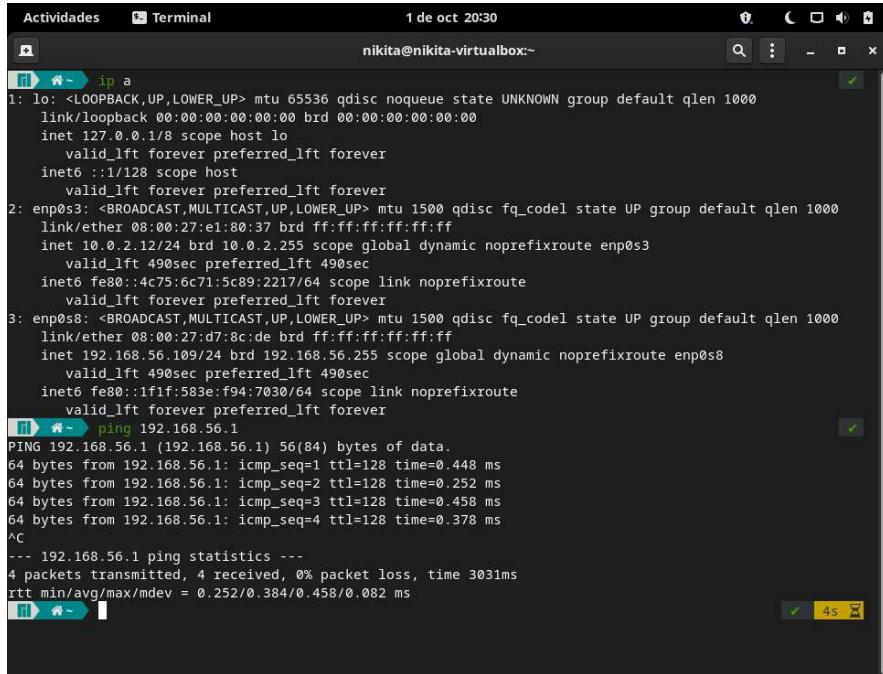
Para crear el usuario “oficina” utilizamos el comando “`sudo useradd -m oficina`”, y para ver todos los usuarios el comando “`cat /etc/passwd`”, y como podemos ver a continuación, están los usuarios Nikita, oficina, multimedia, y programador:

```
Actividades Terminal 1 de oct 20:28
nikita@nikita-virtualbox:~>

ftp:x:14:11::/srv/ftp:/usr/bin/nologin
http:x:33:33::/srv/http:/usr/bin/nologin
systemd-journal-remote:x:981:981:systemd Journal Remote:/:/usr/bin/nologin
systemd-network:x:980:980:systemd Network Management:/:/usr/bin/nologin
systemd-oom:x:979:979:systemd Userspace OOM Killer:/:/usr/bin/nologin
systemd-resolve:x:978:978:systemd Resolver:/:/usr/bin/nologin
systemd-timesync:x:977:977:systemd Time Synchronization:/:/usr/bin/nologin
systemd-coredump:x:976:976:systemd Core Dumper:/:/usr/bin/nologin
uuid:x:68:68::/usr/bin/nologin
dhcpcd:x:975:975:dhcpcd privilege separation:/:/usr/bin/nologin
dnsmasq:x:974:974:dnsmasq daemon:/:/usr/bin/nologin
rpc:x:32:32:Rpcbind Daemon:/var/lib/rpcbind:/usr/bin/nologin
avahi:x:973:973:Avahi mDNS/DNS-SD daemon:/:/usr/bin/nologin
colord:x:972:972:Color management daemon:/var/lib/colord:/usr/bin/nologin
cups:x:209:209:cups helper user:/:/usr/bin/nologin
flatpak:x:971:971:Flatpak system helper:/:/usr/bin/nologin
gdm:x:120:120:Gnome Display Manager:/var/lib/gdm:/usr/bin/nologin
geoclue:x:970:970:Geoinformation service:/var/lib/geoclue:/usr/bin/nologin
git:x:969:969:git daemon user:/:/usr/bin/git-shell
nm-openconnect:x:968:968:NetworkManager OpenConnect:/:/usr/bin/nologin
nm-openvpn:x:967:967:NetworkManager OpenVPN:/:/usr/bin/nologin
ntp:x:87:87:Network Time Protocol:/var/lib/ntp:/bin/false
openvpn:x:966:966:OpenVPN:/:/usr/bin/nologin
polkitd:x:102:102:PolicyKit daemon:/:/usr/bin/nologin
rtkit:x:133:133:RealtimeKit:/proc:/usr/bin/nologin
saned:x:965:965:SANE daemon user:/:/usr/bin/nologin
tss:x:964:964:tss user for tpm2:/:/usr/bin/nologin
usbmux:x:140:140:usbmux user:/:/usr/bin/nologin
nikita:x:1000:1001:Nikita Polyanskiy:/home/nikita:/bin/zsh
oficina:x:1001:1002::/home/oficina:/bin/zsh
multimedia:x:1002:1003::/home/multimedia:/bin/zsh
programador:x:1003:1004::/home/programador:/bin/zsh
```

- **Ping dual:**

De Manjaro al host:



```
Actividades Terminal 1 de oct 20:30 nikita@nikita-virtualbox:~ 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:e1:80:37 brd ff:ff:ff:ff:ff:ff
    inet 10.0.2.12/24 brd 10.0.2.255 scope global dynamic noprefixroute enp0s3
        valid_lft 490sec preferred_lft 490sec
    inet6 fe80::4c75:6c71:5c89:2217/64 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:d7:8c:de brd ff:ff:ff:ff:ff:ff
    inet 192.168.56.109/24 brd 192.168.56.255 scope global dynamic noprefixroute enp0s8
        valid_lft 490sec preferred_lft 490sec
    inet6 fe80::1f1f:583e:f94:7030/64 scope link noprefixroute
        valid_lft forever preferred_lft forever
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=0.448 ms
64 bytes from 192.168.56.1: icmp_seq=2 ttl=128 time=0.252 ms
64 bytes from 192.168.56.1: icmp_seq=3 ttl=128 time=0.458 ms
64 bytes from 192.168.56.1: icmp_seq=4 ttl=128 time=0.378 ms
^C
--- 192.168.56.1 ping statistics ---
4 packets transmitted, 4 received, 0% packet loss, time 3031ms
rtt min/avg/max/mdev = 0.252/0.384/0.458/0.082 ms
```

Del host a Manjaro:

```
C:\Users\niktr>ping 192.168.56.109

Pinging 192.168.56.109 with 32 bytes of data:
Reply from 192.168.56.109: bytes=32 time<1ms TTL=64

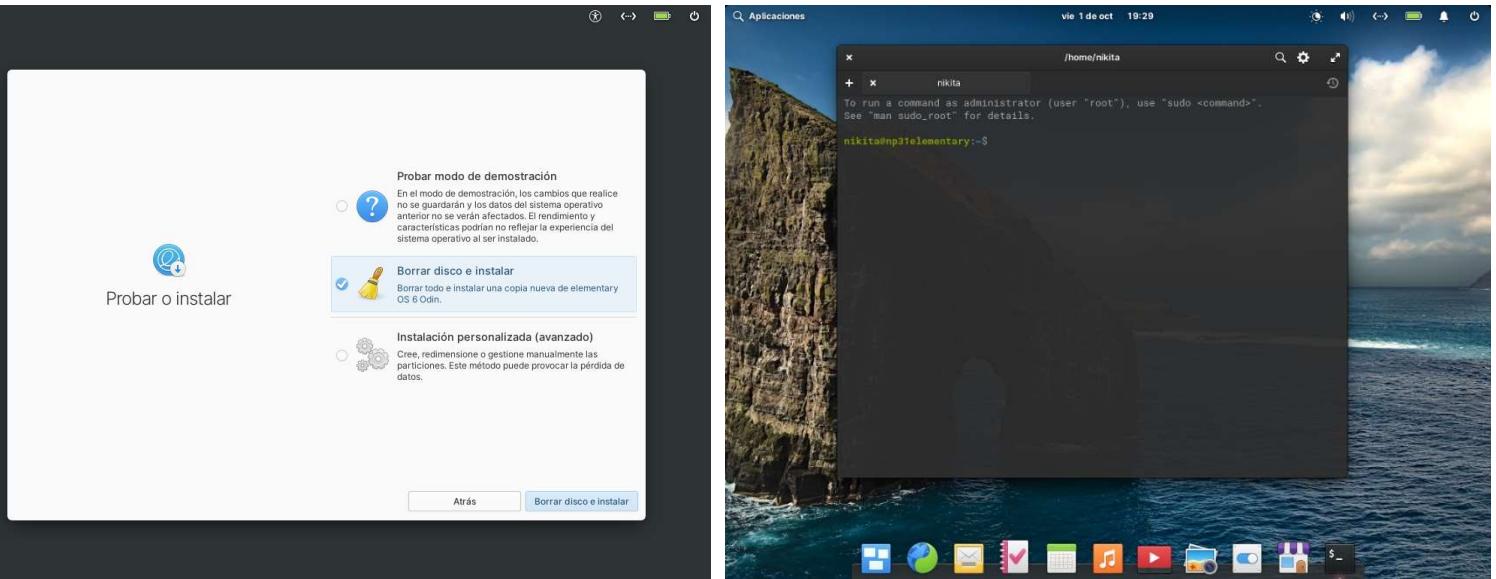
Ping statistics for 192.168.56.109:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\Users\niktr>
```

Elementary OS:

- **Instalación:**

Primero elegiremos el idioma y luego elegiremos la siguiente opción, y seguiremos los pasos de instalación:



- **Conexión a la red:**

No es necesario modificar los archivos de configuración de red.

```

    nikita@np3:~$ 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: <NO-SILOUP,BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc fq_codel state UP group default qlen 1000
        link/ether 08:00:27:f3:ab:5b brd ff:ff:ff:ff:ff:ff
        inet 192.168.56.1/24 brd 192.168.56.255 scope global dynamic noprefixroute enp0s3
            valid_lft 367sec preferred_lft 367sec
            inet6 fe80::d080:df0! brd ff:ff:ff:ff:ff:ff scope link noprefixroute
                valid_lft forever preferred_lft forever
    3: enp0s8: <NO-SILOUP,BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc fq_codel state UP group default qlen 1000
        link/ether 08:00:27:bb:5b:01 brd ff:ff:ff:ff:ff:ff
        inet 192.168.56.110/24 brd 192.168.56.255 scope global dynamic noprefixroute enp0s8
            valid_lft 367sec preferred_lft 367sec
            inet6 fe80::2a62:c53b:c25:de5/64 scope link noprefixroute
                valid_lft forever preferred_lft forever
    nikita@np3:~$ 
  
```

Comprobamos que funciona la red Nat:



- **Instalar paquetes:**

Para instalar paquetes utilizamos el comando “sudo apt install”:



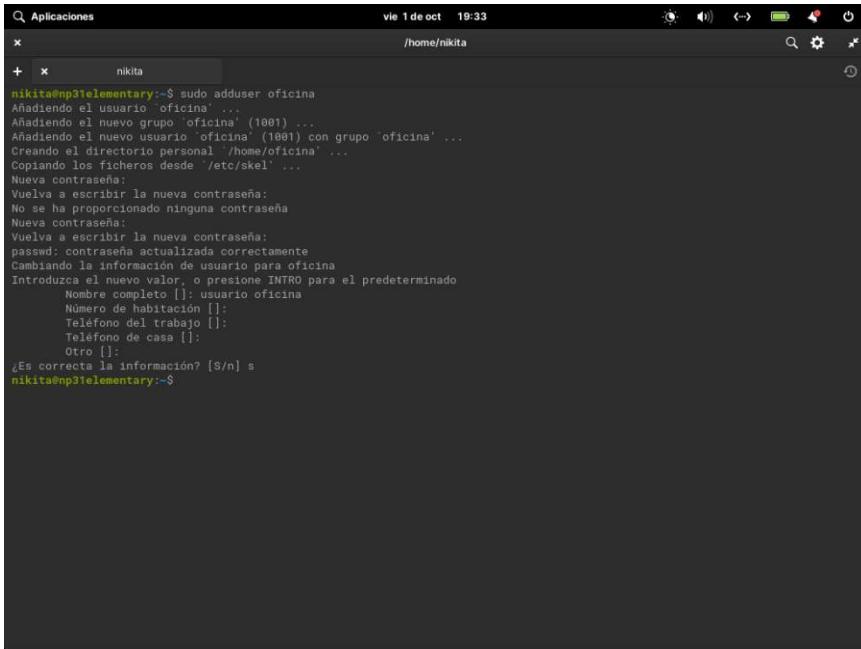
```

nikita@np31elementary:~$ sudo apt install emacs-nox
[sudo] contraseña para nikita:
Leyendo lista de paquetes... Hecho
Creando árbol de dependencias
Leyendo la información de estado... Hecho
Se instalarán los siguientes paquetes adicionales:
  emacs-bin-common emacs-common emacs-el
Paquetes sugeridos:
  mailutils emacs-common-non-dfsg ncurses-term
Se instalarán los siguientes paquetes NUEVOS:
  emacs-bin-common emacs-common emacs-el emacs-nox
0 actualizados, 4 nuevos se instalarán, 0 para eliminar y 91 no actualizados.
Se necesita descargar 32,5 MB de archivos.
Se utilizarán 128 MB de espacio de disco adicional después de esta operación.
,Desea continuar? [s/n] s
Des:1 http://mirrors.ubuntu.com/mirrors.txt Mirrorlist [346 B]
Des:2 http://mirror.tedra.es/ubuntu focal/universe amd64 emacs-common all 1:26.3+1-1ubuntu2 [13,3 MB]
Des:5 http://ubuntu.cica.es/ubuntu focal/universe amd64 emacs-nox amd64 1:26.3+1-1ubuntu2 [3.183 kB]
Des:3 http://ftp.calid.cat/pub/distribucions/ubuntu/archive focal/universe amd64 emacs-bin-common amd64 1:26.3+1-1ubuntu2 [112 kB]
57% [Trabajando]

```

- **Crear usuarios:**

Para añadir nuevos usuarios utilizamos el comando “sudo adduser”:



```

nikita@np31elementary:~$ sudo adduser oficina
Añadiendo el usuario 'oficina' ...
Añadiendo el nuevo grupo 'oficina' (1001) ...
Añadiendo el nuevo usuario 'oficina' (1001) con grupo 'oficina' ...
Creando el directorio personal '/home/oficina' ...
Copiando los ficheros desde '/etc/skel' ...
Nueva contraseña:
Vuelva a escribir la nueva contraseña:
No se ha proporcionado ninguna contraseña
Nueva contraseña:
Vuelva a escribir la nueva contraseña:
passwd: contraseña actualizada correctamente
Cambiendo la información de usuario para oficina
Introduzca el nuevo valor, o presione INTRO para el predeterminado
  Nombre completo []: usuario oficina
  Número de habitación []:
  Teléfono del trabajo []:
  Teléfono de casa []:
  Otro []
,¿Es correcta la información? [S/n] s
nikita@np31elementary:~$ 

```

Para ver la lista de los usuarios usamos “cat /etc/passwd”, donde al final podemos ver los 4 usuarios (Nikita,oficina,programador,multimedia):

```

nikita@np3elementary:~$ who
  uucp:x:10:10:uucp:/var/spool/uucp:/usr/sbin/nologin
  proxy:x:13:13:proxy:/bin:/usr/sbin/nologin
  www-data:x:33:33:www-data:/var/www:/usr/sbin/nologin
  backup:x:34:34:backup:/var/backups:/usr/sbin/nologin
  list:x:38:38:Mailing List Manager:/var/list:/usr/sbin/nologin
  irc:x:39:39:ircd:/var/run/ircd:/usr/sbin/nologin
  gnats:x:41:41:Gnats Bug-Reporting System (admin):/var/lib/gnats:/usr/sbin/nologin
  nobody:x:65534:65534:nobody:/nonexistent:/usr/sbin/nologin
  systemd-network:x:100:102:systemd Network Management,,,:/run/systemd:/usr/sbin/nologin
  systemd-resolve:x:101:103:systemd Resolver,,,:/run/systemd:/usr/sbin/nologin
  systemd-timesync:x:102:104:systemd Time Synchronization,,,:/run/systemd:/usr/sbin/nologin
  messagebus:x:103:106:/nonexistent:/usr/sbin/nologin
  syslog:x:104:110:/home/syslog:/usr/sbin/nologin
  _apt:x:105:65534:/nonexistent:/usr/sbin/nologin
  tss:x:106:111:TPM software stack,,,:/var/lib/tpm:/bin/false
  uidd:x:107:114:/run/uuid:/usr/sbin/nologin
  tcpdump:x:108:116:/nonexistent:/usr/sbin/nologin
  avahi-autoipd:x:109:117:Avahi autoip daemon,,,:/var/lib/avahi-autoipd:/usr/sbin/nologin
  usbmux:x:110:46:usbmux daemon,,,:/var/lib/usbmux:/usr/sbin/nologin
  rtkit:x:111:118:RealtimeKit,,,:/proc:/usr/sbin/nologin
  dnsmasq:x:112:65534:dnsmasq,,,:/var/lib/misc:/usr/sbin/nologin
  cups-pk-helper:x:113:121:user for cups-pk-helper service,,,:/home/cups-pk-helper:/usr/sbin/nologin
  lightdm:x:114:122:Light Display Manager:/var/lib/lightdm:/bin/false
  speech-dispatcher:x:115:29:Speech Dispatcher,,,:/run/speech-dispatcher:/bin/false
  avahi:x:116:124:Avahi mDNS daemon,,,:/var/run/avahi-daemon:/usr/sbin/nologin
  kernoops:x:117:65534:Kernel Ooops Tracking Daemon,,,:/var/lib/nologin
  named:x:118:106:/var/lib/named:/usr/sbin/nologin
  nm-openvpn:x:119:127:NetworkManager OpenVPN,,,:/var/lib/openvpn/chrroot:/usr/sbin/nologin
  hplip:x:120:7:HPLIP system user,,,:/run/hplip:/bin/false
  uordx:x:121:120:User for colord management daemon,,,:/var/lib/colord:/usr/sbin/nologin
  geoclue:x:122:129:/lib/geoclue:/usr/sbin/nologin
  pulseaudio:x:123:130:Flatpak system-wide installation helper,,,:/nonexistent:/usr/sbin/nologin
  pulse:x:124:131:PulseAudio,,,:/var/run/pulse:/usr/sbin/nologin
  systemd-coredump:x:999:999:systemd Core Dumper,,,:/usr/sbin/nologin
  nikita:x:1000:1000:Nikita Polyanskiy,,,:/home/nikita:/bin/bash
  oficina:x:1001:1001:usuario oficina,,,:/home/oficina:/bin/bash
  programador:x:1002:1002:usuario programador,,,:/home/programador:/bin/bash
  multimedia:x:1003:1003:usuario multimedia,,,:/home/multimedia:/bin/bash
  nikita@np3elementary:~$ 

```

- Ping dual:

De Elementary a host:

```

nikita@np3elementary:~$ 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 ff:ff:ff:ff:ff:ff
    inet 127.0.0.1/8 brd 127.255.255.255 scope host lo
        valid_lft forever preferred_lft forever
    inet6 ::1/128 brd 127.0.0.1 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:f3:a0:5b brd ff:ff:ff:ff:ff:ff
    inet 10.0.2.13/24 brd 10.0.2.255 scope global dynamic noprefixroute enp0s3
        valid_lft 388sec preferred_lft 388sec
    inet6 fe80::d0a0:8f01:ad6d:f49/64 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:bb:5b:01 brd ff:ff:ff:ff:ff:ff
    inet 192.168.56.110/24 brd 192.168.56.255 scope global dynamic noprefixroute enp0s8
        valid_lft 388sec preferred_lft 388sec
    inet6 fe80::2a62:c53b:c25:d5/64 scope link noprefixroute
        valid_lft forever preferred_lft forever
nikita@np3elementary:~$ 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=0.696 ms
64 bytes from 192.168.56.1: icmp_seq=2 ttl=128 time=0.526 ms
64 bytes from 192.168.56.1: icmp_seq=3 ttl=128 time=0.488 ms
64 bytes from 192.168.56.1: icmp_seq=4 ttl=128 time=0.298 ms
64 bytes from 192.168.56.1: icmp_seq=5 ttl=128 time=0.495 ms
```
--- 192.168.56.1 ping statistics ---
3 packets transmitted, 5 received, 0% packet loss, time 4084ms
rtt min/avg/max/mdev = 0.298/0.500/0.696/0.126 ms
nikita@np3elementary:~$

```

Del host a Elementary:

```

C:\Users\niktr>ping 192.168.56.110

Pinging 192.168.56.110 with 32 bytes of data:
Reply from 192.168.56.110: bytes=32 time<1ms TTL=64

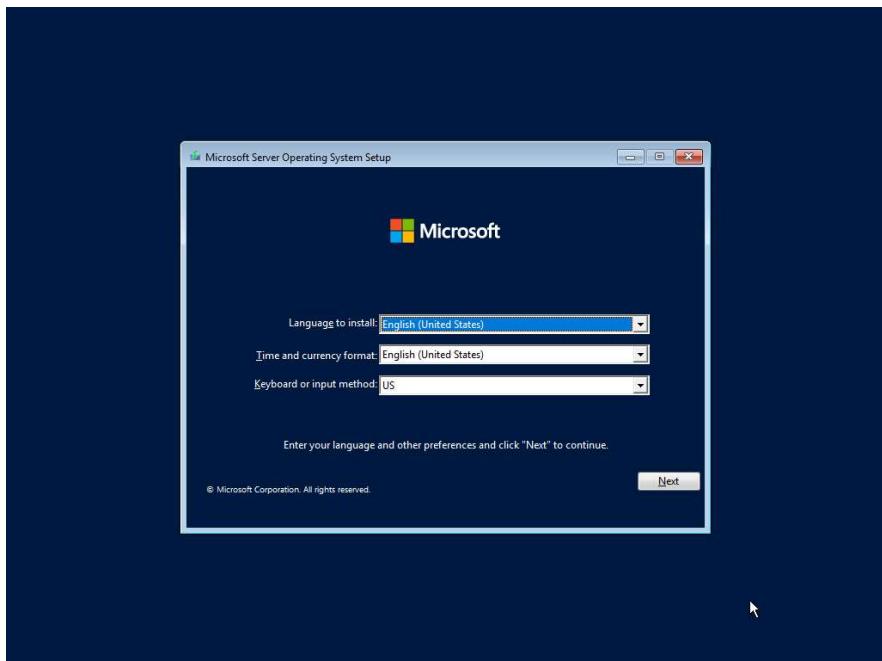
Ping statistics for 192.168.56.110:
 Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
 Approximate round trip times in milli-seconds:
 Minimum = 0ms, Maximum = 0ms, Average = 0ms
C:\Users\niktr>

```

## Windows Server 2022:

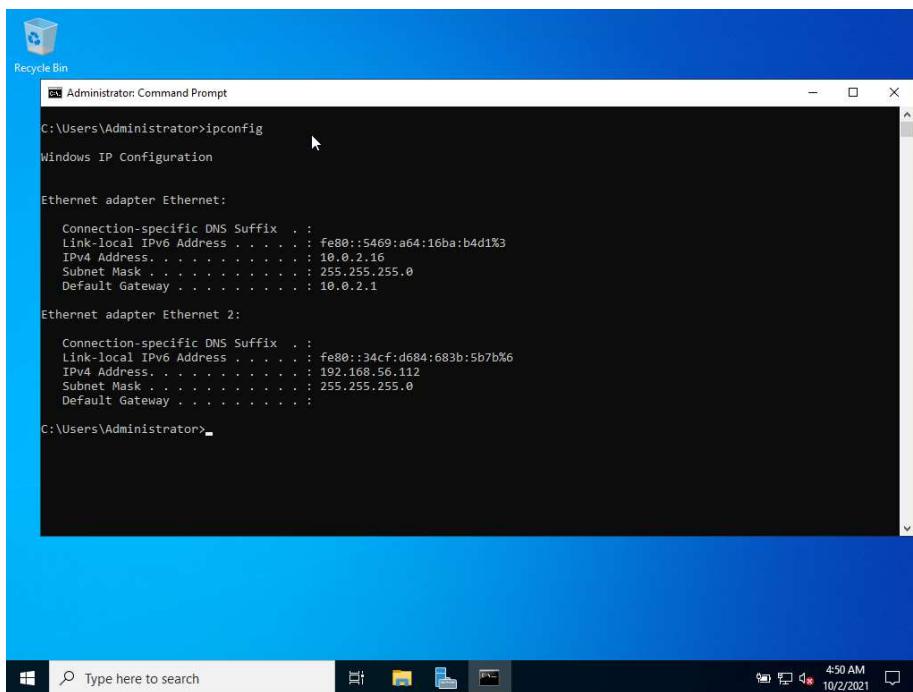
- **Instalación:**

Al iniciar la maquina elegimos nuestro idioma de instalación, e introducimos la clave de validación, y seguimos los pasos de instalación del entorno grafico



- **Conexión a la red:**

Una vez terminada la instalación, podemos ver que no es necesario configurar la red manualmente. (ipconfig)



## Comprobamos que funciona la redNat:



- **Instalar paquetes:**

Para poder instalar paquetes primero deberemos instalar Chocolatey, desde la terminal de powershell con el siguiente comando:

```
Set-ExecutionPolicy Bypass -Scope Process -Force; `
```

```
iex ((New-Object
System.Net.WebClient).DownloadString('https://chocolatey.org/install.ps1'))
```

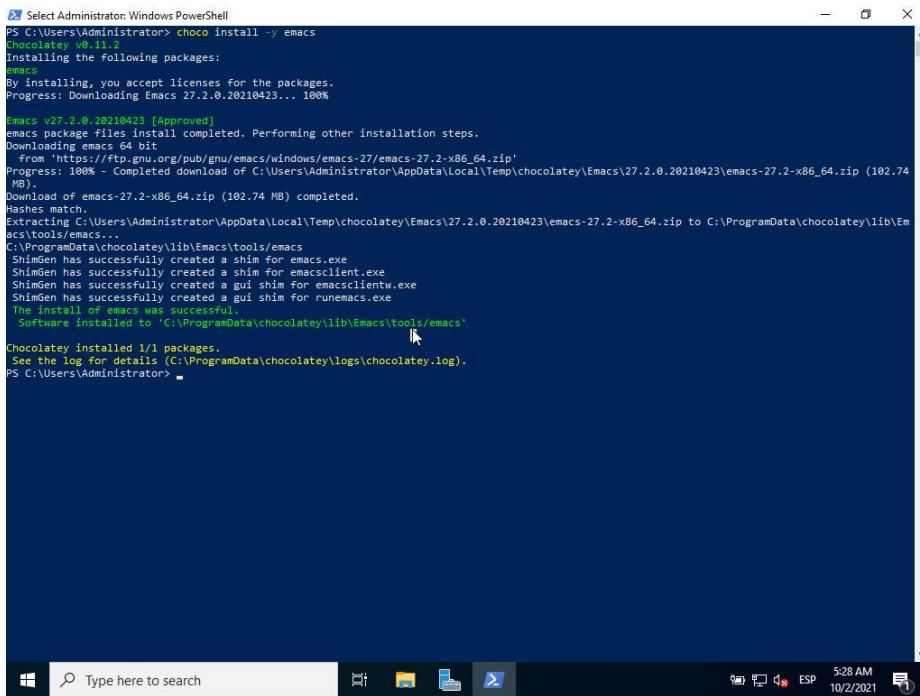
```
PS C:\Users\Administrator> Set-ExecutionPolicy Bypass -Scope Process -Force; `>>> iex ((New-Object System.Net.WebClient).DownloadString('https://chocolatey.org/install.ps1'))`>>> PS C:\Users\Administrator>
Install the latest Power
Windows PowerShell
Copyright (C) Microsoft Corporation. All rights reserved.

PowerShell for new features and improvements! https://aka.ms/PSWindows
Forcing web requests to allow TLS v1.2 (Required for requests to Chocolatey.org)
Getting latest version of the Chocolatey package for download.
Not using proxy.
Getting Chocolatey from https://community.chocolatey.org/api/v2/package/chocolatey/0.11.2.
Downloading: https://community.chocolatey.org/api/v2/package/chocolatey/0.11.2 to C:\Users\ADMINI~1\AppData\Local\Temp\chocolatey\chocoInstall\chocolatey.zip
Not using proxy.
Extracting C:\Users\ADMINI~1\AppData\Local\Temp\chocolatey\chocoInstall\chocolatey.zip to C:\Users\ADMINI~1\AppData\Local\Temp\chocolatey\chocoInstall
Install
Creating Chocolatey on the local machine
Creating ChocolateyInstall as an environment variable (targeting 'Machine')
Setting ChocolateyInstall to 'C:\ProgramData\chocolatey'
WARNING: It's very likely you will need to close and reopen your shell
before you can use choco.
Restricting write permissions to Administrators.
Registering Chocolatey as the Chocolatey package repository.
The packages themselves go to 'C:\ProgramData\chocolatey\lib'
(i.e. C:\ProgramData\chocolatey\lib\yourPackageName).
A shim file for the command line goes to 'C:\ProgramData\chocolatey\bin'
and points to an executable in 'C:\ProgramData\chocolatey\lib\yourPackageName'.

Creating Chocolatey Folders if they do not already exist.
WARNING: You can safely ignore errors related to missing log files when
upgrading from a version of Chocolatey less than 0.9.9.
'Batch file could not be found' is also safe to ignore.
'The system cannot find the path specified' - also safe.
Chocolatey has been installed successfully.
Attempting to locate it from bootstrapper.
PATH environment variable does not have C:\ProgramData\chocolatey\bin in it. Adding...
WARNING: Not setting tab completion: Profile file does not exist at
'C:\Users\Administrator\Documents\WindowsPowerShell\Microsoft.PowerShell_profile.ps1'.
Chocolatey (choco.exe) is now ready.
You can call 'choco' from either the command line or powershell by typing choco.
Run choco /? for a list of functions.
You may need to shut down and restart powershell and/or consoles
first prior to using choco.
Ensuring Chocolatey commands are on the path
Ensuring chocolatey.nupkg is in the lib folder
PS C:\Users\Administrator>
```



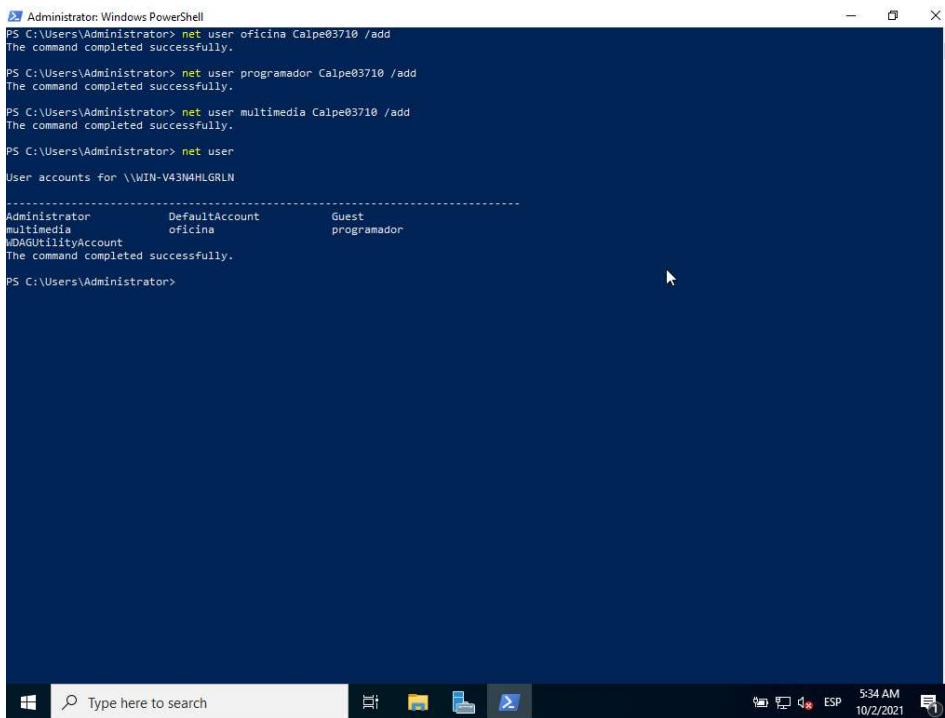
Para instalar un paquete utilizamos el comando “choco install -y emacs”:



```
PS C:\Users\Administrator> choco install -y emacs
Chocolatey v0.11.2
Installing the following packages:
emacs
By installing, you accept licenses for the packages.
Progress: Downloading Emacs 27.2.0.20210423... 100%
Emacs V27.2.0.20210423 [Approved]
emacs package files install completed. Performing other installation steps.
Downloading Emacs 64 bit
 From 'https://ftp.gnu.org/pub/gnu/emacs/windows/emacs-27/emacs-27.2-x86_64.zip'
Progress: 100% - Completed download of C:\Users\Administrator\AppData\Local\Temp\chocolatey\Emacs\27.2.0.20210423\emacs-27.2-x86_64.zip (102.74 MB).
Download of emacs-27.2-x86_64.zip (102.74 MB) completed.
Hashes match.
Extracting C:\Users\Administrator\AppData\Local\Temp\chocolatey\Emacs\27.2.0.20210423\emacs-27.2-x86_64.zip to C:\ProgramData\chocolatey\lib\emacs\tools\emacs...
C:\ProgramData\chocolatey\lib\emacs\tools\emacs
ShimGen has successfully created a shim for emacs.exe
ShimGen has successfully created a shim for emacsclient.exe
ShimGen has successfully created a gui shim for emacsclientw.exe
ShimGen has successfully created a gui shim for runemacs.exe
The install of emacs was successful.
 Software installed to 'C:\ProgramData\chocolatey\lib\emacs\tools\emacs'
Chocolatey installed 1/1 packages.
 See the log for details (C:\ProgramData\chocolatey\logs\chocolatey.log).
PS C:\Users\Administrator>
```

- **Crear usuarios:**

Para crear usuarios utilizamos el comando “net user %nombreusuario% %contraseña% /add”, y para ver la lista de usuarios “net user”:



```
PS C:\Users\Administrator> net user oficina Calpe03710 /add
The command completed successfully.

PS C:\Users\Administrator> net user programador Calpe03710 /add
The command completed successfully.

PS C:\Users\Administrator> net user multimedia Calpe03710 /add
The command completed successfully.

PS C:\Users\Administrator> net user
User accounts for \\WIN-V43N4HLGRLN

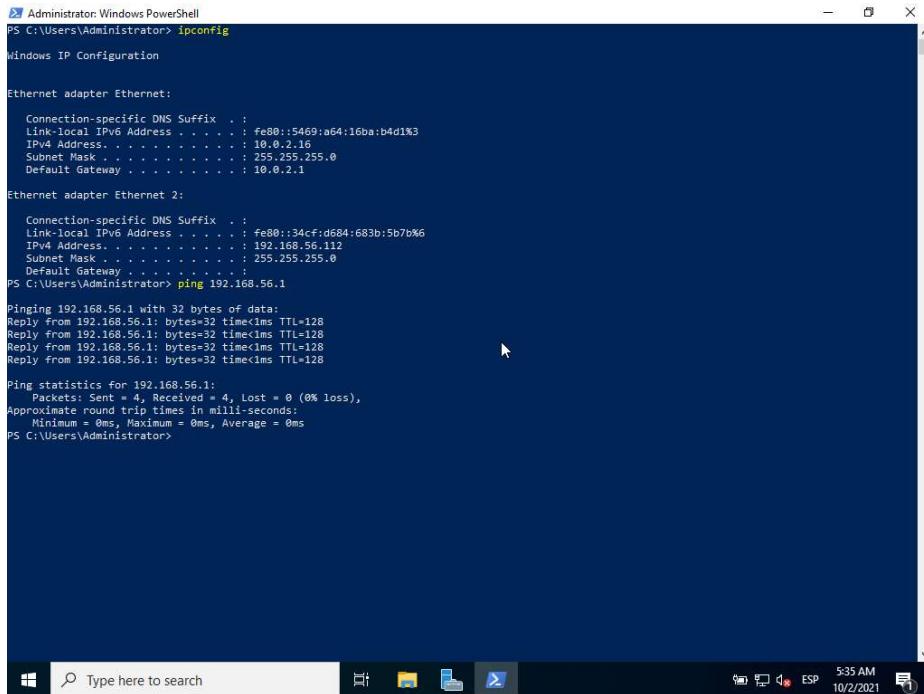
Administrator DefaultAccount Guest
multimedia oficina programador
NDAGUtilityAccount

The command completed successfully.

PS C:\Users\Administrator>
```

- **Ping dual:**

De Windows Server a host:



```

Administrator: Windows PowerShell
PS C:\Users\Administrator> ipconfig

Windows IP Configuration

Ethernet adapter Ethernet:
 Connection-specific DNS Suffix . :
 Link-local IPv6 Address : fe80::5469:a64:16ba:b4d1%3
 IPv4 Address : 10.0.2.16
 Subnet Mask : 255.255.255.0
 Default Gateway : 10.0.2.1

Ethernet adapter Ethernet 2:
 Connection-specific DNS Suffix . :
 Link-local IPv6 Address : fe80::34cf:d684:683b:5b7b%6
 IPv4 Address : 192.168.56.112
 Subnet Mask : 255.255.255.0
 Default Gateway :

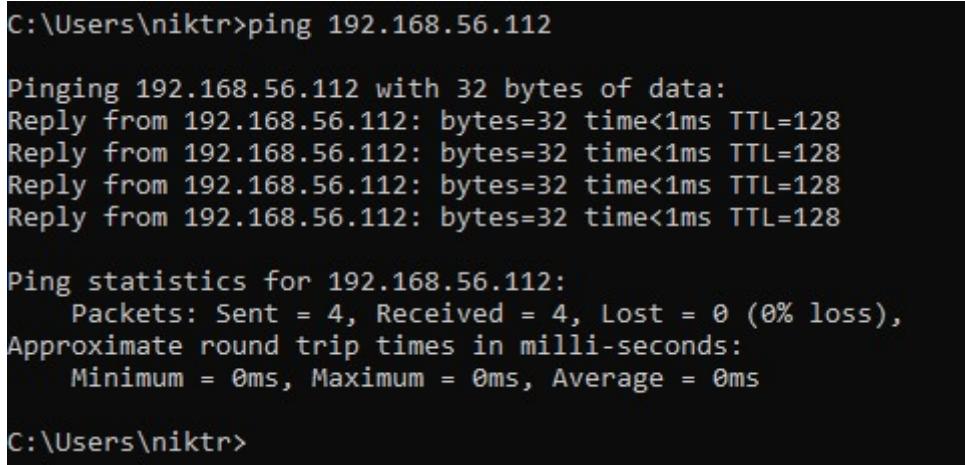
PS C:\Users\Administrator> ping 192.168.56.1

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

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 = 0ms, Average = 0ms
PS C:\Users\Administrator>

```

Del host a Windows server:



```

C:\Users\niktr>ping 192.168.56.112

Pinging 192.168.56.112 with 32 bytes of data:
Reply from 192.168.56.112: bytes=32 time<1ms TTL=128

Ping statistics for 192.168.56.112:
 Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
 Approximate round trip times in milli-seconds:
 Minimum = 0ms, Maximum = 0ms, Average = 0ms

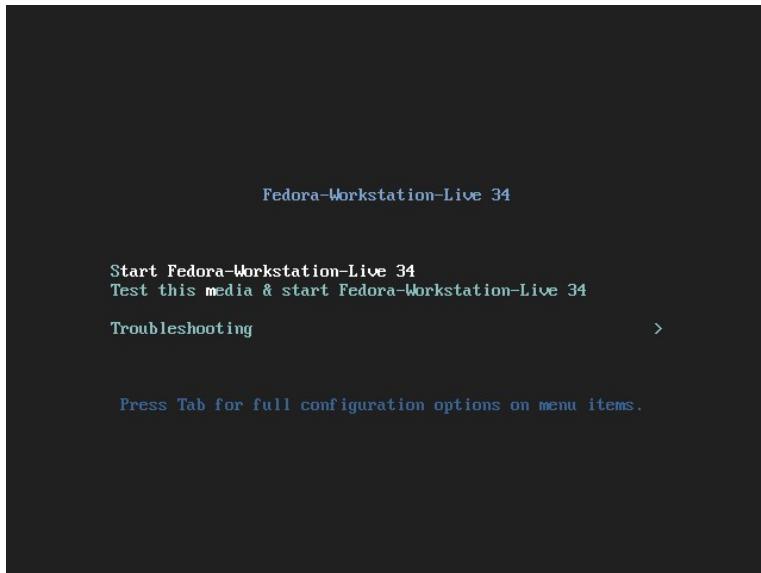
C:\Users\niktr>

```

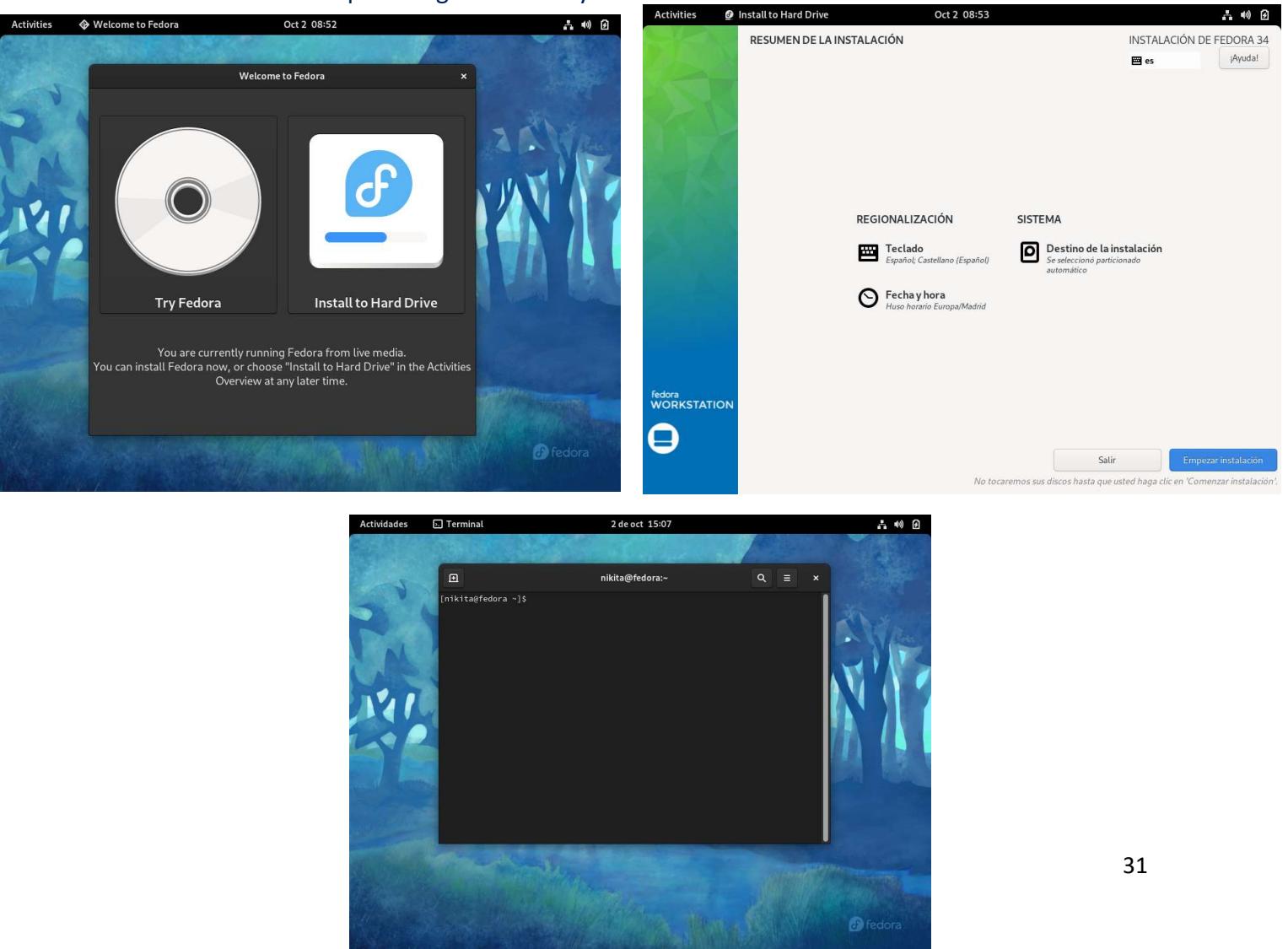
## Fedora34:

- **Instalación:**

Al iniciar la maquina seleccionamos la siguiente opción:

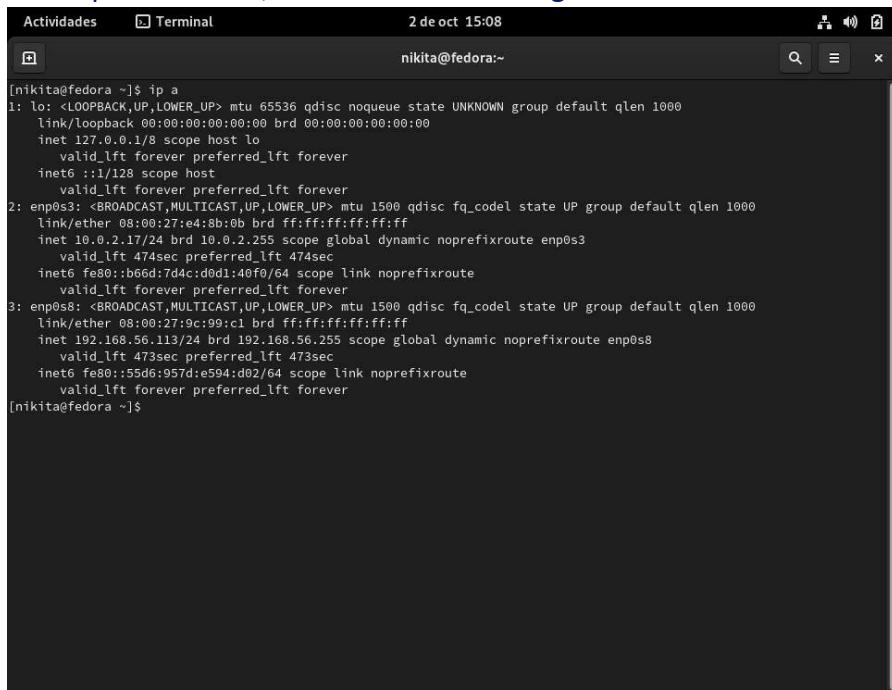


Una vez iniciado seleccionamos la instalación en disco duro y seguimos las indicaciones del instalador para elegir el idioma y el disco donde se instalará:



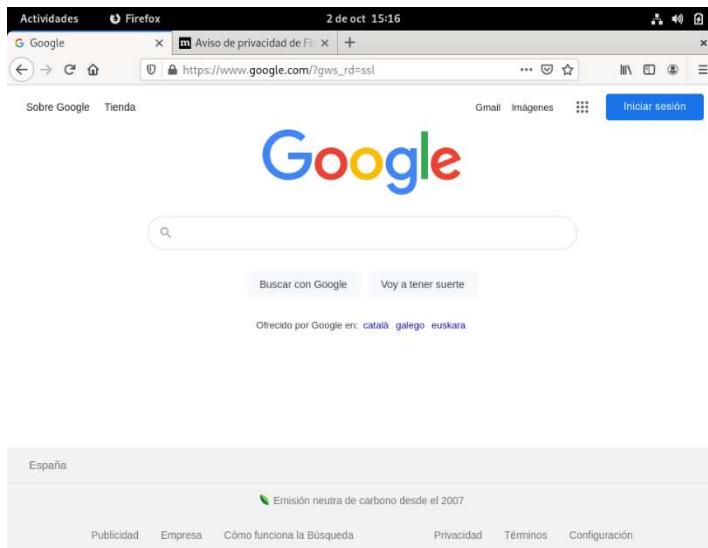
- **Conexión a la red:**

Como podemos ver, no es necesario configurar la red manualmente:



```
[nikita@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 qlen 1000
 link/ether 08:00:27:e4:b5:0b brd ff:ff:ff:ff:ff:ff
 inet 10.0.2.17/24 brd 10.0.2.255 scope global dynamic noprefixroute enp0s3
 valid_lft 474sec preferred_lft 474sec
 inet6 fe80::b66d:7d4c:d0f0:64 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 08:00:27:9c:99:c1 brd ff:ff:ff:ff:ff:ff
 inet 192.168.56.113/24 brd 192.168.56.255 scope global dynamic noprefixroute enp0s8
 valid_lft 473sec preferred_lft 473sec
 inet6 fe80::55d6:957d:e594:d02/64 scope link noprefixroute
 valid_lft forever preferred_lft forever
[nikita@fedora ~]$
```

Comprobamos que funciona la RedNat:



- **Instalar paquetes:**

Para instalar paquetes utilizamos el comando “sudo dnf install emacs-nox”:

```
[nikita@fedora ~]$ sudo dnf install emacs-nox
We trust you have received the usual lecture from the local System
Administrator. It usually boils down to these three things:
#1) Respect the privacy of others.
#2) Think before you type.
#3) With great power comes great responsibility.

[sudo] password for nikita:
Fedora 34 openh264 (From Cisco) - x86_64
Fedora Modular 34 - x86_64
Fedora Modular 34 - x86_64 - Updates
Fedora 34 - x86_64 - Updates
[6% [=====] 1.2 MB/s | 19 MB 00:07 ETA
```

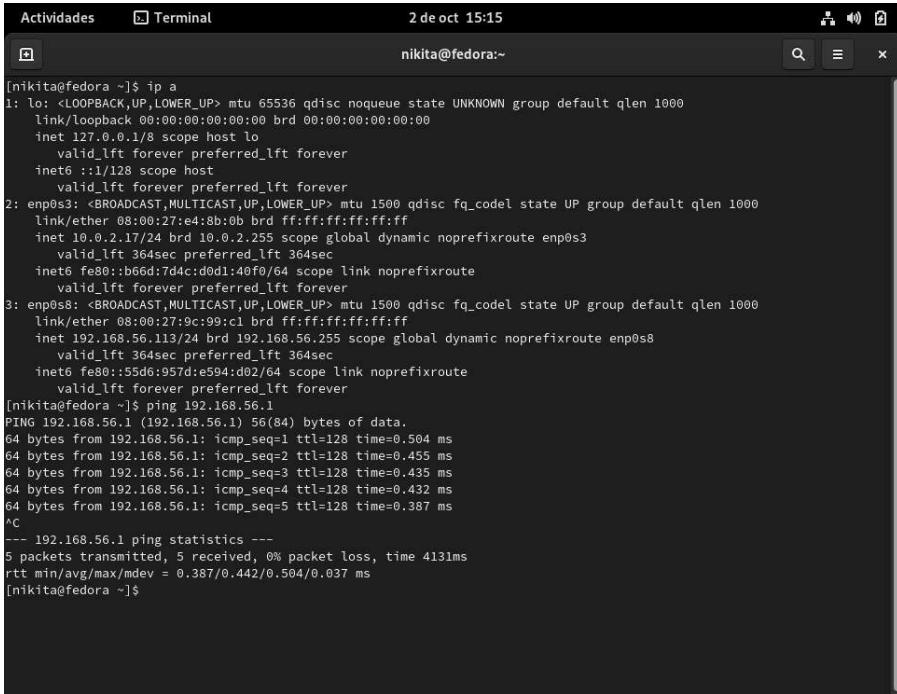
- **Crear usuarios:**

Para crear usuarios utilizamos el comando “sudo adduser oficina”, y para ver la lista de usuarios el comando “cat /etc/passwd”, y como podemos ver al final, hay 4 usuarios (Nikita, oficina, programador, multimedia):

```
nikita@fedora:~$ cat /etc/passwd
systemd-resolve:x:193:193:systemd Resolver:/sbin/nologin
systemd-oom:x:998:996:systemd Userspace OOM Killer:/sbin/nologin
systemd-timesync:x:997:995:systemd Time Synchronization:/sbin/nologin
tss:x:59:59:Account used for TPM access:/dev/null:/sbin/nologin
dbus:x:81:81:System message bus:/sbin/nologin
polkitd:x:996:994:User for polkitd:/sbin/nologin
avahi:x:70:70:Avahi mDNS/DNS-SD Stack:/var/run/avahi-daemon:/sbin/nologin
unbound:x:995:992:Unbound DNS resolver:/etc/unbound:/sbin/nologin
dnsmasq:x:994:991:Dnsmasq DHCP and DNS server:/var/lib/dnsmasq:/sbin/nologin
nm-openconnect:x:993:989:NetworkManager user for OpenConnect:/sbin/nologin
usbmuxd:x:113:113:usbmuxd user:/sbin/nologin
gluster:x:992:988:GlusterFS daemons:/run/gluster:/sbin/nologin
rtkit:x:172:172:RealtimeKit:/proc:/sbin/nologin
pipewire:x:991:987:PipeWire System Daemon:/var/run/pipewire:/sbin/nologin
geoclue:x:990:986:User for geoclue:/var/lib/geoclue:/sbin/nologin
chrony:x:989:984::/var/lib/chrony:/sbin/nologin
saslauthd:x:988:76:Saslauthd user:/run/saslauthd:/sbin/nologin
radvd:x:75:75:radvd user:/sbin/nologin
rpc:x:32:32:Rpcbind Daemon:/var/lib/rpcbind:/sbin/nologin
qemu:x:107:107:qemu user:/sbin/nologin
openvpn:x:987:982:OpenVPN:/etc/openvpn:/sbin/nologin
nm-openvpn:x:986:981:Default user for running openvpn spawned by NetworkManager:/sbin/nologin
color:x:985:980:User for colord:/var/lib/colord:/sbin/nologin
rpcuser:x:29:29:RPC Service User:/var/lib/nfs:/sbin/nologin
abrt:x:173:173::/etc/abrt:/sbin/nologin
flatpak:x:984:979:User for flatpak system helper:/sbin/nologin
gdm:x:42:42:/var/lib/gdm:/sbin/nologin
gnome-initial-setup:x:983:978::/run/gnome-initial-setup:/sbin/nologin
vboxadd:x:982:1::/var/run/vboxadd:/sbin/nologin
sshd:x:74:74:Privilege-separated SSH:/usr/share/empty.sshd:/sbin/nologin
tcpdump:x:72:72::/sbin/nologin
nikita:x:1000:1000:Nikita Polyanskiy:/home/nikita:/bin/bash
oficina:x:1001:1001::/home/oficina:/bin/bash
programador:x:1002:1002::/home/programador:/bin/bash
multimedia:x:1003:1003::/home/multimedia:/bin/bash
[nikita@fedora ~]$
```

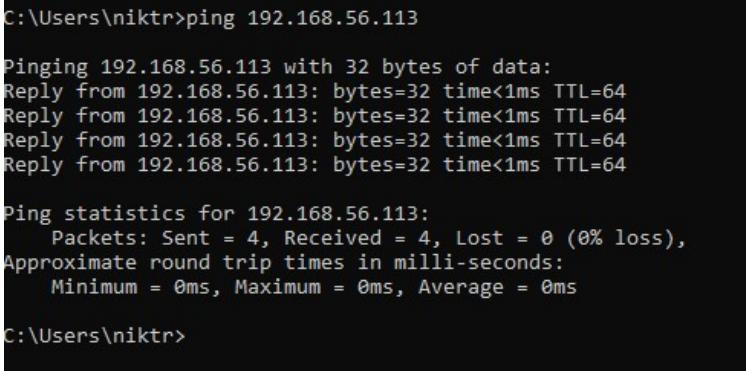
- **Ping dual:**

De Fedora al host:



```
[nikita@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 qlen 1000
 link/ether 08:00:27:e4:8b:0b brd ff:ff:ff:ff:ff:ff
 inet 10.0.2.17/24 brd 10.0.2.255 scope global dynamic noprefixroute enp0s3
 valid_lft 364sec preferred_lft 364sec
 inet6 fe80::b66d:7d4c:d0d1:40f0/64 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 08:00:27:9c:99:c1 brd ff:ff:ff:ff:ff:ff
 inet 192.168.56.113/24 brd 192.168.56.255 scope global dynamic noprefixroute enp0s8
 valid_lft 364sec preferred_lft 364sec
 inet6 fe80::55d6:957d:e594:d02/64 scope link noprefixroute
 valid_lft forever preferred_lft forever
[nikita@fedora ~]$ 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=0.504 ms
64 bytes from 192.168.56.1: icmp_seq=2 ttl=128 time=0.455 ms
64 bytes from 192.168.56.1: icmp_seq=3 ttl=128 time=0.435 ms
64 bytes from 192.168.56.1: icmp_seq=4 ttl=128 time=0.432 ms
64 bytes from 192.168.56.1: icmp_seq=5 ttl=128 time=0.387 ms
^C
--- 192.168.56.1 ping statistics ---
5 packets transmitted, 5 received, 0% packet loss, time 4131ms
rtt min/avg/max/mdev = 0.387/0.442/0.504/0.037 ms
[nikita@fedora ~]$
```

Del host a fedora:



```
C:\Users\niktr>ping 192.168.56.113

Pinging 192.168.56.113 with 32 bytes of data:
Reply from 192.168.56.113: bytes=32 time<1ms TTL=64

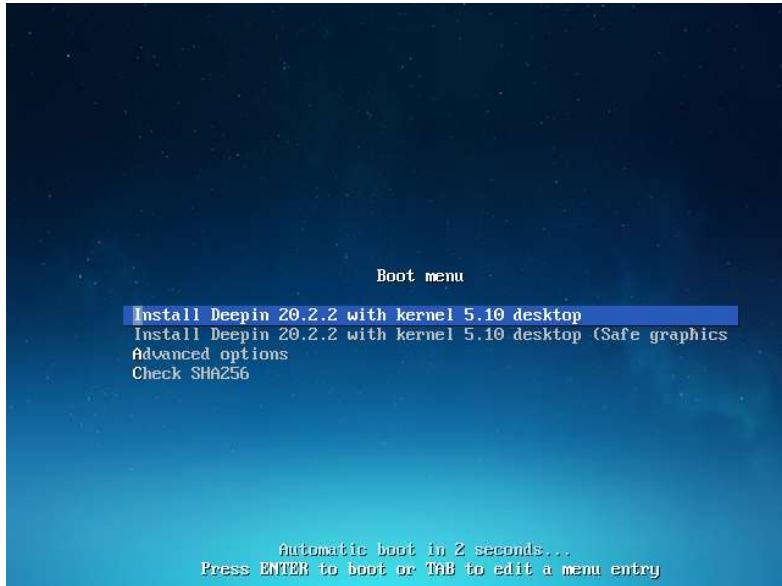
Ping statistics for 192.168.56.113:
 Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
 Approximate round trip times in milli-seconds:
 Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\Users\niktr>
```

## Deepin:

- **Instalación:**

Al iniciar la maquina seleccionamos la siguiente opción:

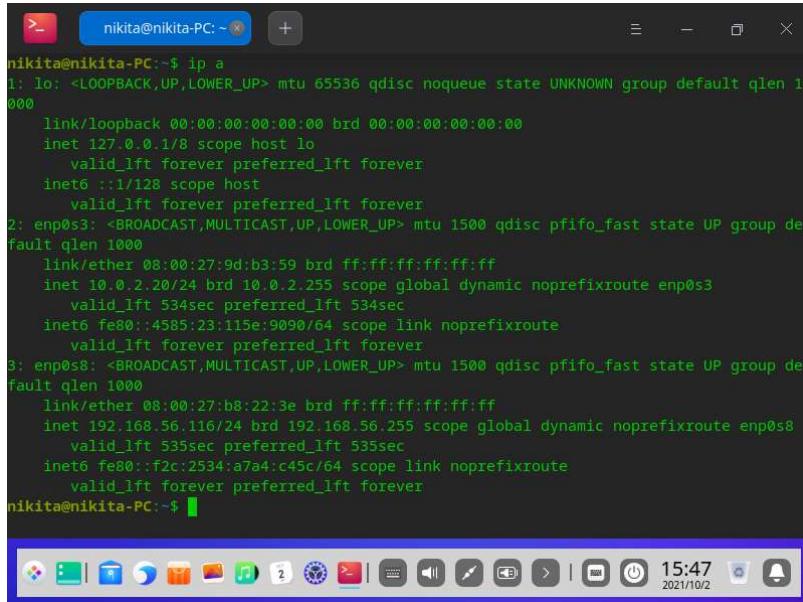


Luego seguiremos las indicaciones del instalador para elegir el idioma y crear el usuario:

The image contains two screenshots. The left screenshot shows the Deepin installer's progress bar at step 5, labeled 'Optimizando el sistema'. It also shows a message 'Aplicando cambios. Espere por favor...'. The right screenshot shows the Deepin desktop environment. A terminal window is open with the command 'nikita@nikita-PC: ~\$'. The desktop background features a colorful gradient. A taskbar at the bottom includes icons for various applications like a file manager, browser, and media players. The system tray shows the date and time as '15:46 2021/10/2'.

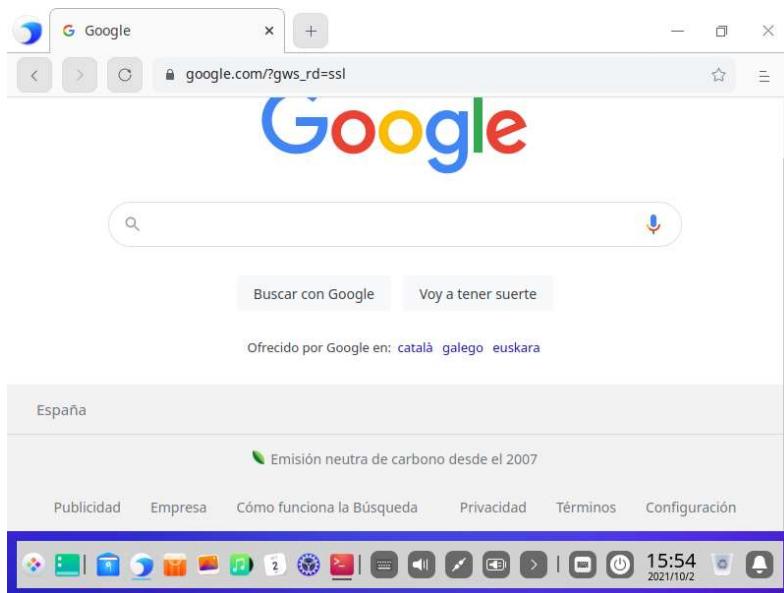
- **Conexión a la red:**

Como podemos ver, no es necesario configurar la red manualmente:



```
nikita@nikita-PC:~$ ip a
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN group default qlen 1
000
 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 08:00:27:9d:b3:59 brd ff:ff:ff:ff:ff:ff
 inet 10.0.2.20/24 brd 10.0.2.255 scope global dynamic noprefixroute enp0s3
 valid_lft 534sec preferred_lft 534sec
 inet6 fe80::4585:23:115e:9090/64 scope link noprefixroute
 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:b8:22:3e brd ff:ff:ff:ff:ff:ff
 inet 192.168.56.116/24 brd 192.168.56.255 scope global dynamic noprefixroute enp0s8
 valid_lft 535sec preferred_lft 535sec
 inet6 fe80::f2c:2534:a7a4:c45c/64 scope link noprefixroute
 valid_lft forever preferred_lft forever
nikita@nikita-PC:~$
```

Comprobamos que funciona la redNat:



- **Instalar paquetes:**

Para instalar paquetes primero deberemos actualizar los repositorios con el comando “sudo apt-get update”, y luego para instalar paquetes el comando “sudo apt-get install emacs-nox”:

```

libqtermwidget5-0 libsmi2l, libutempter0, libutf8proc2, libwireshark-data
libwireshark11, libwirerap8, libwscodecs2, libwsutil9, libx86-1, libxmlsec1-openssl,
qtermwidget5-data, squashfs-tools, x11-apps, x11-session-utils, xbitmaps, xinit
Utilice «sudo apt autoremove» para eliminarlos.
Se instalarán los siguientes paquetes adicionales:
 emacs-bin-common emacs-common emacs-el exim4-base exim4-config exim4-daemon-light
 guile-2.2-libs install-info libgsasl7 libkyotocabinet16v5 libmailutils5 libt1m0
 mailutils mailutils-common
Paquetes sugeridos:
 emacs-common-non-dfsg ncurses-term exim4-doc-html | exim4-doc-info eximon4
 spf-tools-perl swaks mailutils-mh mailutils-doc
Se instalarán los siguientes paquetes NUEVOS:
 emacs-bin-common emacs-common emacs-el emacs-nox exim4-base exim4-config
 exim4-daemon-light guile-2.2-libs install-info libgsasl7 libkyotocabinet16v5
 libmailutils5 libt1m0 mailutils mailutils-common
0 actualizados, 15 nuevos se instalarán, 0 para eliminar y 244 no actualizados.
Se necesita descargar 42,6 MB de archivos.
Se utilizarán 184 MB de espacio de disco adicional después de esta operación.
¿Desea continuar? [S/n] s
Des:1 https://community-packages.deepin.com/deepin_apricot/main amd64 install-info amd64
 6.5.0.dfsg.1-4+b1 [343 kB]
Des:2 https://community-packages.deepin.com/deepin_apricot/main amd64 emacs-common all 1
 :26.1+1-3.2+deb10u2 [13,4 MB]
18% [2 emacs-common 8.749 kB/13,4 MB 65%] 1.065 kB/s 31s

```

- **Crear usuarios:**

Para crear un nuevo usuario utilizaremos el comando “`sudo adduser oficina`”:

```

nikita@nikita-PC:~$ sudo adduser oficina
Añadiendo el usuario 'oficina' ...
Añadiendo el nuevo grupo 'oficina' (1001) ...
Añadiendo el nuevo usuario 'oficina' (1001) con grupo 'oficina' ...
Creando el directorio personal '/home/oficina' ...
Copiando los ficheros desde '/etc/skel' ...
Nueva contraseña:
Vuelva a escribir la nueva contraseña:
passwd: Error de manipulación del testigo de autenticación
passwd: no se ha cambiado la contraseña
¿Intentar de nuevo? [s/N] n
Cambiando la información de usuario para oficina
Introduzca el nuevo valor, o pulse INTRO para usar el valor predeterminado
 Nombre completo []: usuario oficina
 Número de habitación []:
 Teléfono del trabajo []:
 Teléfono de casa []:
 Otro []:
¿Es correcta la información? [S/n] s
nikita@nikita-PC:~$

```

Y para ver la lista de usuarios usamos “`cat /etc/passwd/`”, y al final podemos ver los 4 usuarios que tenemos (Nikita, oficina, multimedia, programador):

```
sstpc:x:104:110:Secure Socket Tunneling Protocol (SSTP) Client,,,:/var/run/sstpc:/bin/f
else
strongswan:x:105:65534::/var/lib/strongswan:/usr/sbin/nologin
messagebus:x:106:111::/nonexistent:/usr/sbin/nologin
tss:x:107:112:TPM2 software stack,,,:/var/lib/tpm:/bin/false
dnsmasq:x:108:65534:dnsmasq,,,:/var/lib/misc:/usr/sbin/nologin
usbmux:x:109:46:usbmux daemon,,,:/var/lib/usbmux:/usr/sbin/nologin
sshd:x:110:65534::/run/sshd:/usr/sbin/nologin
nm-openvpn:x:111:118:NetworkManager OpenVPN,,,:/var/lib/openvpn/chroot:/usr/sbin/nologin
nm-openconnect:x:112:119:NetworkManager OpenConnect plugin,,,:/var/lib/NetworkManager:/u
sr/sbin/nologin
pulse:x:113:121:PulseAudio daemon,,,:/var/run/pulse:/usr/sbin/nologin
deepin-anything-server:x:999:999::/home/deepin-anything-server:/sbin/nologin
hplip:x:114:7:HPLIP system user,,,:/var/run/hplip:/bin/false
geoclue:x:115:124::/var/lib/geoclue:/usr/sbin/nologin
lightdm:x:116:125:Light Display Manager:/var/lib/lightdm:/bin/false
deepin-sound-player:x:117:126::/var/lib/deepin-sound-player:/usr/sbin/nologin
systemd-coredump:x:998:998:systemd Core Dumper:/:/usr/sbin/nologin
nikita:x:1000:1000::/home/nikita:/bin/bash
Debian-exim:x:118:127::/var/spool/exim4:/usr/sbin/nologin
oficina:x:1001:1001:usuario oficina,,,:/home/oficina:/bin/bash
multimedia:x:1002:1002:usuario multimedia,,,:/home/multimedia:/bin/bash
programador:x:1003:1003:usuario programador,,,:/home/programador:/bin/bash
nikita@nikita-PC:~$
```

- **Ping dual:**

De Deepin al host:

```
valid_lft 474sec preferred_lft 474sec
inet6 fe80::4585:23:115e:9090/64 scope link noprefixroute
 valid_lft forever preferred_lft forever
3: enp0s8: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc pfifo_fast state UP group de
fault qlen 1000
 link/ether 08:00:27:b8:22:3e brd ff:ff:ff:ff:ff:ff
 inet 192.168.56.116/24 brd 192.168.56.255 scope global dynamic noprefixroute enp0s8
 valid_lft 447sec preferred_lft 447sec
 inet6 fe80::f2c:2534:a7a4:c45c/64 scope link noprefixroute
 valid_lft forever preferred_lft forever
nikita@nikita-PC:~$ 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=0.446 ms
64 bytes from 192.168.56.1: icmp_seq=2 ttl=128 time=0.287 ms
64 bytes from 192.168.56.1: icmp_seq=3 ttl=128 time=0.219 ms
64 bytes from 192.168.56.1: icmp_seq=4 ttl=128 time=0.165 ms
64 bytes from 192.168.56.1: icmp_seq=5 ttl=128 time=0.193 ms
64 bytes from 192.168.56.1: icmp_seq=6 ttl=128 time=0.187 ms
64 bytes from 192.168.56.1: icmp_seq=7 ttl=128 time=0.338 ms
^C
--- 192.168.56.1 ping statistics ---
7 packets transmitted, 7 received, 0% packet loss, time 134ms
rtt min/avg/max/mdev = 0.165/0.262/0.446/0.094 ms
nikita@nikita-PC:~$
```

Del host a deepin:

```
C:\Users\niktr>ping 192.168.56.116
Pinging 192.168.56.116 with 32 bytes of data:
Reply from 192.168.56.116: bytes=32 time<1ms TTL=64

Ping statistics for 192.168.56.116:
 Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
 Approximate round trip times in milli-seconds:
 Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\Users\niktr>
```

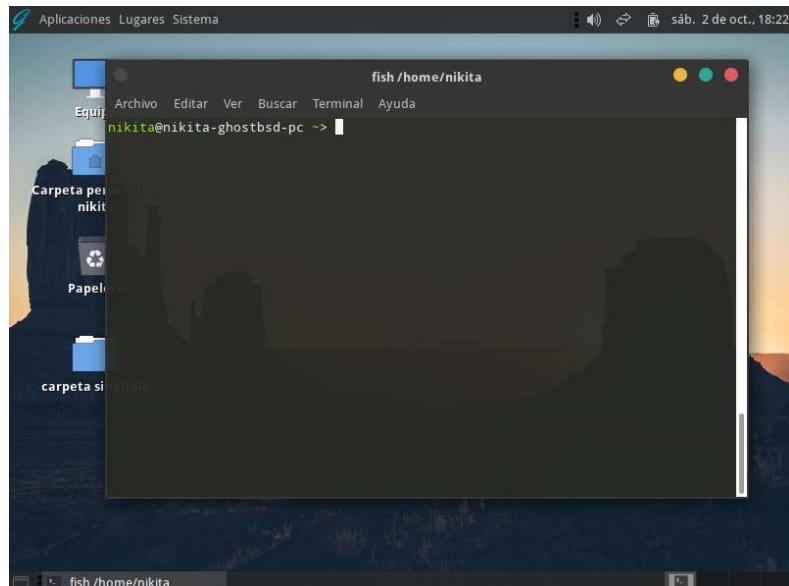
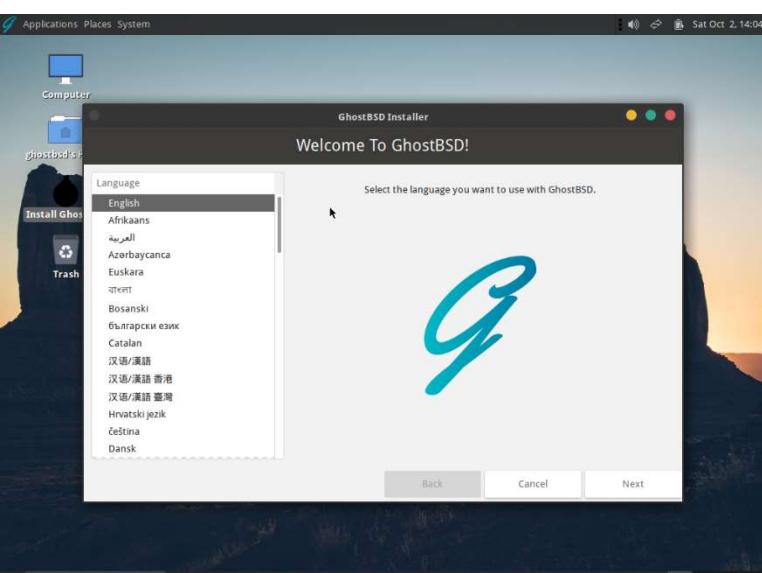
## GhostBSD:

- Instalación:

Al iniciar la maquina seleccionamos la siguiente opción:



Una vez iniciado, ejecutamos el instalador desde el escritorio, y seguiremos sus indicaciones para seleccionar el idioma y crear el usuario:



- **Conexión a la red:**

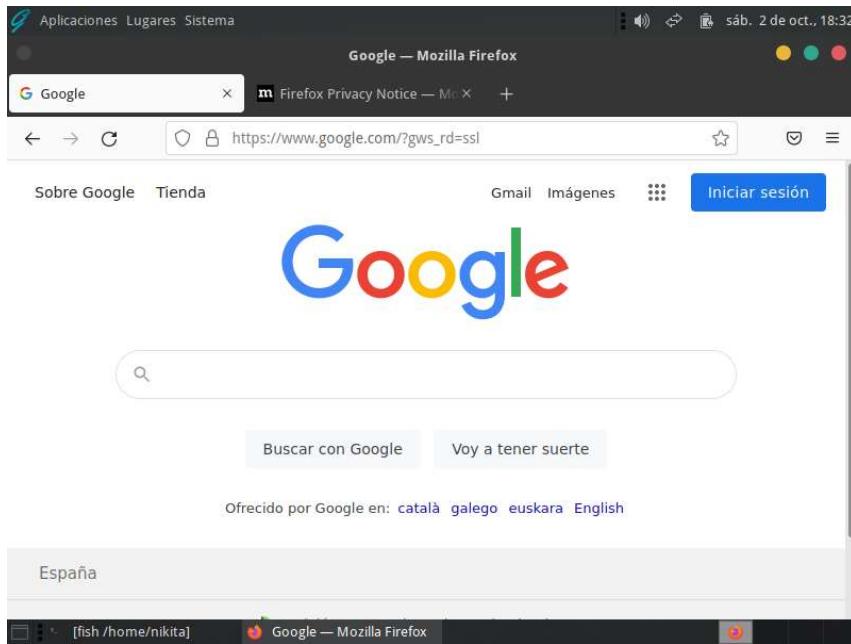
Como podemos ver, no es necesario configurar la red manualmente:

```

Aplicaciones Lugares Sistema fish /home/nikita
Archivo Editar Ver Buscar Terminal Ayuda
nikita@nikita-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 08:00:27:31:01:07
 inet 10.0.2.21 netmask 0xffffffff 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 08:00:27:5e:47:9b
 inet 192.168.56.117 netmask 0xffffffff broadcast 192.168.56.255
 media: Ethernet autoselect (1000baseT <full-duplex>)
 status: active
 nd6 options=21<PERFORMNUD,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>
nikita@nikita-ghostbsd-pc ~>

```

Comprobamos que funciona la redNat:



- **Instalar paquetes:**

Para instalar paquetes utilizamos el comando “sudo pkg install emacs”:

```
Aplicaciones Lugares Sistema
sudo pkg install emacs /home/nikita
Archivo Editar Ver Buscar Terminal Ayuda
nikita@nikita-ghostbsd-pc ~> sudo pkg install emacs
We trust you have received the usual lecture from the local System
Administrator. It usually boils down to these three things:
#1) Respect the privacy of others.
#2) Think before you type.
#3) With great power comes great responsibility.

Password:
Updating GhostBSD repository catalogue...
Fetching meta.conf: 100% 163 B 0.2kB/s 00:01
Fetching packagesite.pkg: 35% 2 MiB 581.6kB/s 00:08 ETA
```

- **Crear usuarios:**

Para crear usuarios utilizamos el comando “sudo adduser” e introducimos los datos que nos pida por el terminal:

```
Aplicaciones Lugares Sistema
sudo adduser /home/nikita
Archivo Editar Ver Buscar Terminal Ayuda
Login group [multimedia]:
Login group is multimedia. Invite multimedia into other groups? []:
Login class [default]:
Shell (sh csh tcsh bash zsh rzsh ksh93 fish git-shell nologin) [sh]:
Home directory [/home/multimedia]:
Home directory permissions (Leave empty for default):
Use password-based authentication? [yes]:
Use an empty password? (yes/no) [no]:
Use a random password? (yes/no) [no]:
Enter password:
Enter password again:
Use an empty password? (yes/no) [no]:
Use a random password? (yes/no) [no]:
Enter password:
Enter password again:
Use an empty password? (yes/no) [no]: yes
Lock out the account after creation? [no]:
Username : multimedia
Password : <blank>
Full Name : usuario multimedia
Uid : 1004
Class :
Groups : multimedia
Home : /home/multimedia
Home Mode :
Shell : /bin/sh
Locked : no
OK? (yes/no): yes
adduser: INFO: Successfully added (multimedia) to the user database.
Add another user? (yes/no):
```

Para ver la lista de usuarios utilizamos el comando “cat /etc/passwd”, y como podemos ver al final, hay 4 usuarios (Nikita, oficina, programador, multimedia):

```

Aplicaciones Lugares Sistema fish /home/nikita
Archivo Editar Ver Buscar Terminal Ayuda
bind:*:53:53:Bind Sandbox:::/usr/sbin/nologin
unbound:*:59:59:Unbound DNS Resolver:/var/unbound:/usr/sbin/nologin
proxy:*:62:62:Packet Filter pseudo-user:/nonexistent:/usr/sbin/nologin
_pflogd:*:64:64:pflogd privsep user:/var/empty:/usr/sbin/nologin
_dhcp:*:65:65:dhcp programs:/var/empty:/usr/sbin/nologin
uucp:*:66:66:UUCP pseudo-user:/var/spool/uucppublic:/usr/local/libexec/uucico
pop:*:68:6:Post Office Owner:/nonexistent:/usr/sbin/nologin
auditdstd:*:78:77:Auditdstd unprivileged user:/var/empty:/usr/sbin/nologin
www:*:80:80:World Wide Web Owner:/nonexistent:/usr/sbin/nologin
ntpd:*:123:123:NTP Daemon:/var/db/ntp:/usr/sbin/nologin
_ldap:*:160:160:LDAP unprivileged user:/var/empty:/usr/sbin/nologin
hast:*:845:845:HAST unprivileged user:/var/empty:/usr/sbin/nologin
tests:*:977:977:Unprivileged user for tests:/nonexistent:/usr/sbin/nologin
nobody:*:65534:65534:Unprivileged user:/nonexistent:/usr/sbin/nologin
_tss:*:601:601:TCG Software Stack user:/var/empty:/usr/sbin/nologin
messagebus:*:556:556:D-BUS Daemon User:/nonexistent:/usr/sbin/nologin
polkitd:*:565:565:Polkit Daemon User:/var/empty:/usr/sbin/nologin
avahi:*:558:558:Avahi Daemon User:/nonexistent:/usr/sbin/nologin
cups:*:193:193:Cups Owner:/nonexistent:/usr/sbin/nologin
colorl:*:970:970:colorl color management daemon:/nonexistent:/usr/sbin/nologin
cyrus:*:60:60:the cyrus mail server:/nonexistent:/usr/sbin/nologin
pulse:*:563:563:PulseAudio System User:/nonexistent:/usr/sbin/nologin
webcamd:*:145:145:Webcamd user:/var/empty:/usr/sbin/nologin
lightdm:*:164:164:Light Display Manager:/var/lib/lightdm-data:/usr/sbin/nologin
git_daemon:*:964:964:git daemon:/nonexistent:/usr/sbin/nologin
nikita:*:1002:1002:Nikita Polyanskiy:/home/nikita:/usr/local/bin/fish
oficina:*:1003:1003:usuario oficina:/home/oficina:/bin/sh
multimedia:*:1004:1004:usuario multimedia:/home/multimedia:/bin/sh
programador:*:1005:1005:usuario programador:/home/programador:/bin/sh
nikita@nikita-ghostbsd-pc ~>

```

- **Ping dual:**

De GhostBSD al host:

```

Aplicaciones Lugares Sistema fish /home/nikita
Archivo Editar Ver Buscar Terminal Ayuda
inet 10.0.2.21 netmask 0xffffffff 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 08:00:27:5e:47:9b
inet 192.168.56.117 netmask 0xffffffff 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 0xffffffff
groups: 1
nd6 options=21<PERFORMNUD,AUTO_LINKLOCAL>
nikita@nikita-ghostbsd-pc ~> 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=1.198 ms
64 bytes from 192.168.56.1: icmp_seq=1 ttl=128 time=0.494 ms
64 bytes from 192.168.56.1: icmp_seq=2 ttl=128 time=0.766 ms
64 bytes from 192.168.56.1: icmp_seq=3 ttl=128 time=0.860 ms
64 bytes from 192.168.56.1: icmp_seq=4 ttl=128 time=0.797 ms
^C
--- 192.168.56.1 ping statistics ---
5 packets transmitted, 5 packets received, 0.0% packet loss
round-trip min/avg/max/stddev = 0.494/0.823/1.198/0.225 ms
nikita@nikita-ghostbsd-pc ~>

```

Del host a GhostBSD:

```

C:\Users\niktr>ping 192.168.56.117

Pinging 192.168.56.117 with 32 bytes of data:
Reply from 192.168.56.117: bytes=32 time<1ms TTL=64

Ping statistics for 192.168.56.117:
 Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
 Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\Users\niktr>

```