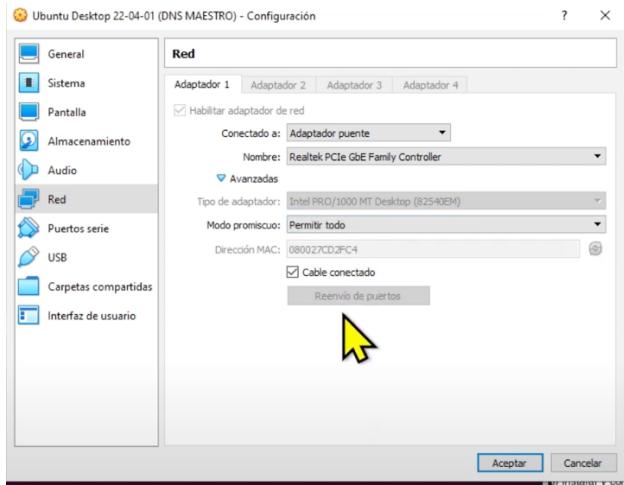


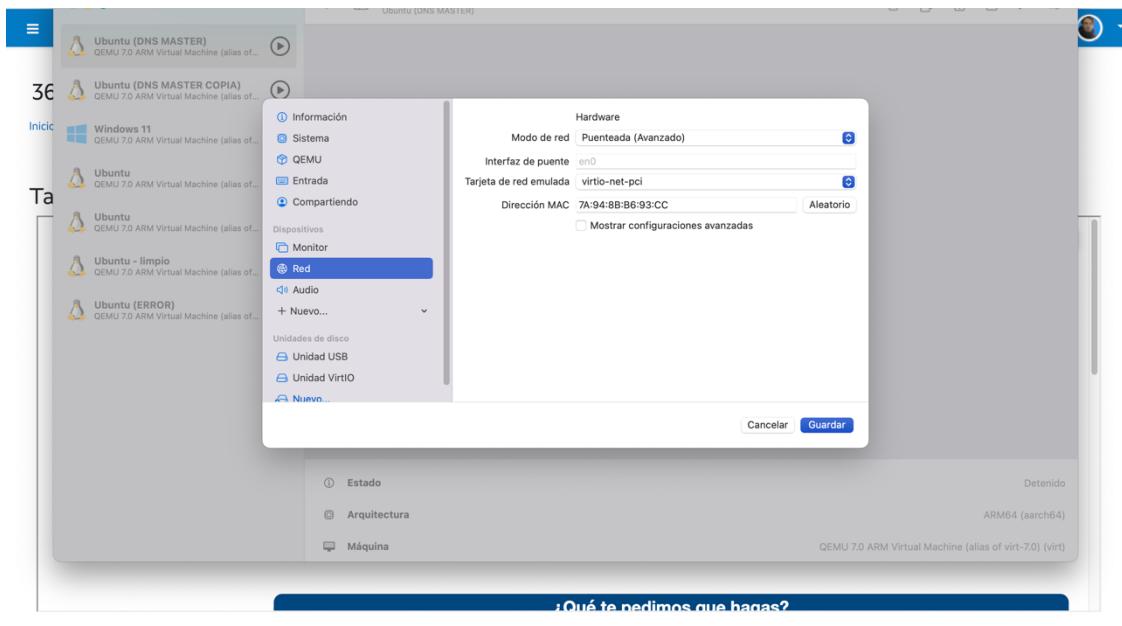
ACTIVIDAD 5 – SERGIO GARCÍA LÓPEZ

PASO 1 DEL GUIÓN:

Configurar Virtual Box



En mi caso estoy trabajando con UTM en Mac

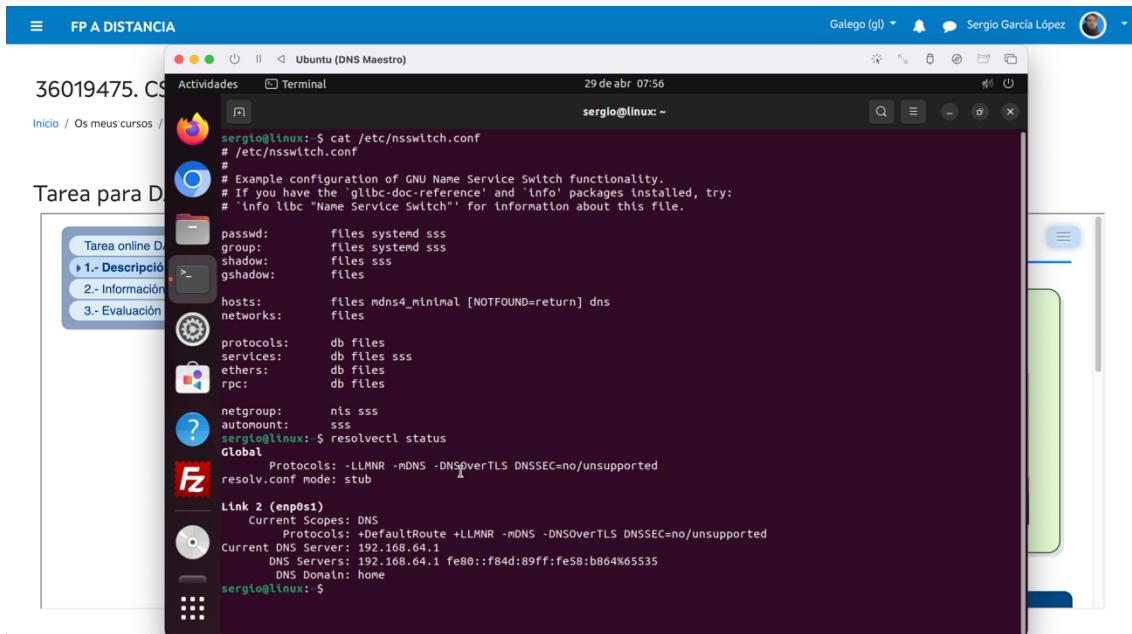


Nos conectamos como superadmin:

`sudo su`

Comprobamos como está actualmente configurada la resolución de nombres:

`resolvectl status`

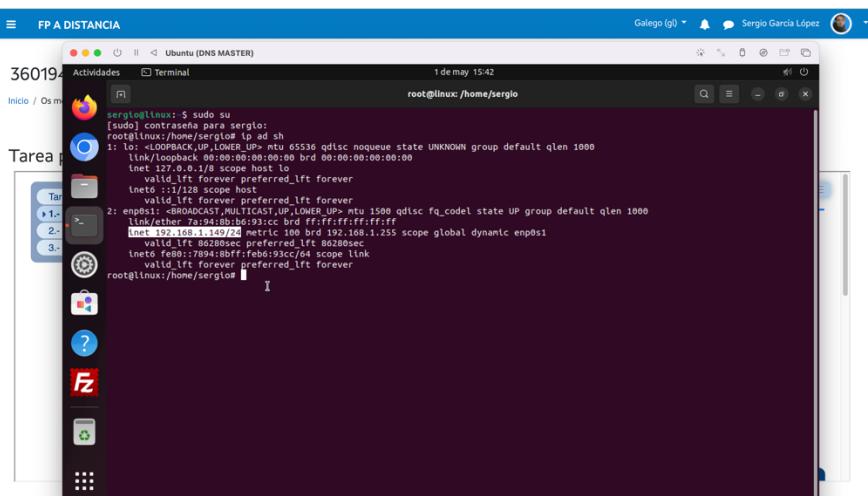


El archivo donde se guardan las configuraciones por defecto para el cliente DNS se puede ver:

`man resolv.conf`

Comprobamos como tenemos nuestra ip. Al principio es dinámica (nuestro objetivo es tenerla estática):

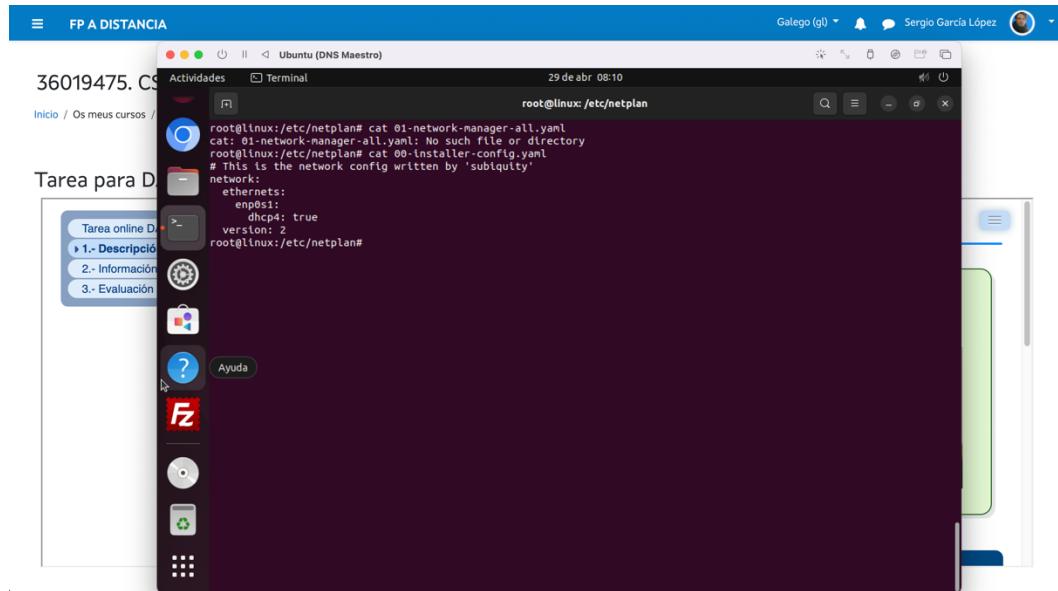
`ip ad sh`



Vamos a configurar la ip de forma estática:

```
cd /etc/netplan/
```

cat 01-network-manager-all.yaml (A mi este archivo no me sale tengo otro que es 00-installer-config.yaml y que es el que voy a modificar)

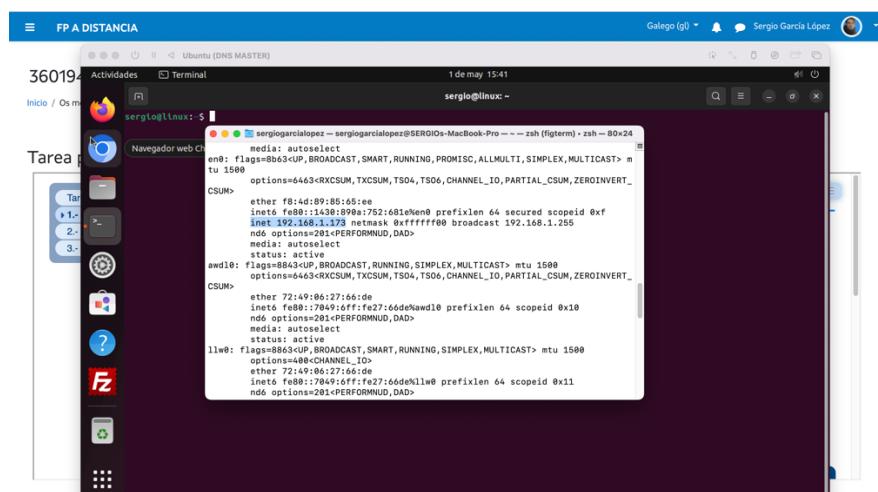


Lo anterior es lo que hay dentro del archivo 00-installer-config.yaml inicialmente

Configuraremos estáticamente la dirección ip de la interfaz de red:

Las ips deben de estar en el rango de mis ips

Para saber la ip del equipo local, abrimos una consola en mac e introducimos el comando ifconfig: Los 3 primeros octetos tienen que ser igual.

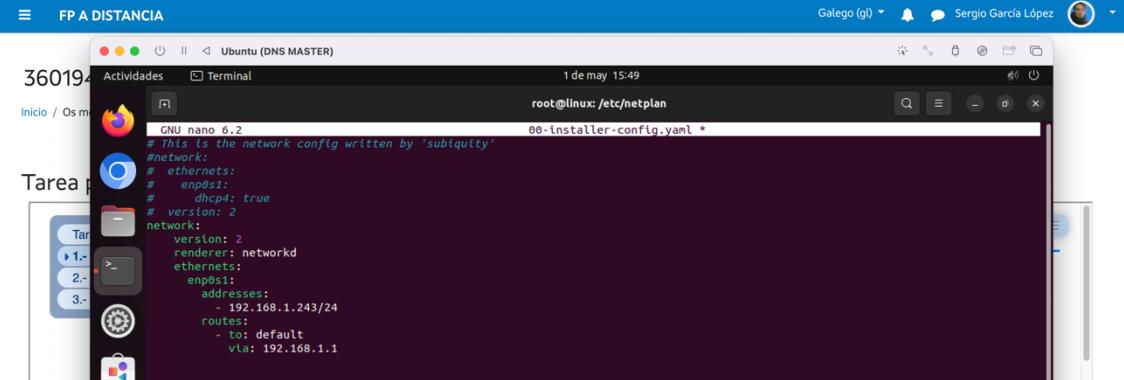


Si el equipo es Windows ipconfig /all

Configuramos la ip:

nano /etc/netplan/00-installer-config.yaml

(Ojo! En mi caso estoy conectado en `endp0s1` no en `endp0s3` como el profesor. Yo estoy en wifi y el profesor por ethernet)



```
GNU nano 6.2
# This is the network config written by 'subiquity'
network:
  # interfaces:
  #   enp0s1:
  #     dhcp4: true
  #     version: 2
  network:
    version: 2
    renderer: networkd
    ethernets:
      enp0s1:
        addresses:
          - 192.168.1.243/24
        routes:
          - to: default
            via: 192.168.1.1
```

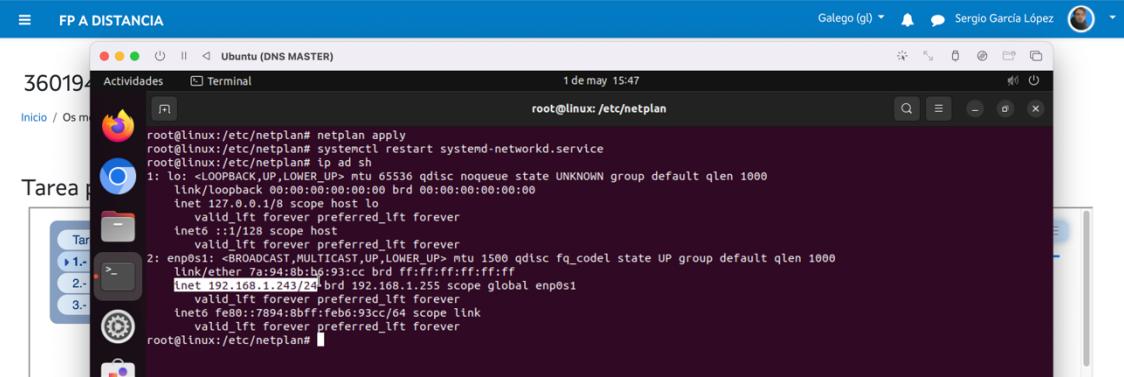
Aplicamos la configuración con:

`netplan apply`

`systemctl restart systemd-networkd.service`

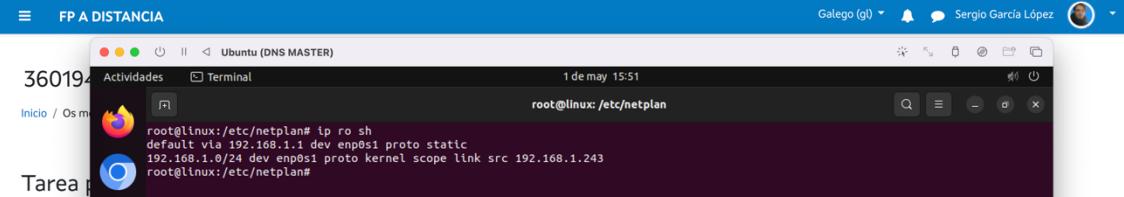
Comprobamos que la ip se ha modificado (es la misma que la introducida):

`ip ad sh`



```
root@linux:/etc/netplan# netplan apply
root@linux:/etc/netplan# systemctl restart systemd-networkd.service
root@linux:/etc/netplan# ip ad sh
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
    inet6 ::1/128 scope host
        valid_lft forever preferred_lft forever
2: enp0s1: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc fq_codel state UP group default qlen 1000
    link/ether 7a:94:8b:b6:93:cc brd ff:ff:ff:ff:ff:ff
    inet 192.168.1.243/24 brd 192.168.1.255 scope global enp0s1
        valid_lft forever preferred_lft forever
    inet6 fe80::7a94:8bff:feb6:93cc/64 scope link
        valid_lft forever preferred_lft forever
root@linux:/etc/netplan#
```

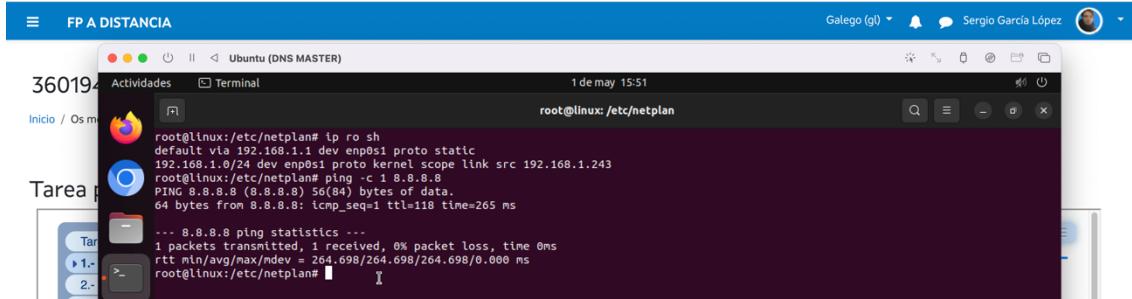
`ip ro sh`



```
root@linux:/etc/netplan# ip ro sh
default via 192.168.1.1 dev enp0s1 proto static
192.168.1.0/24 dev enp0s1 proto kernel scope link src 192.168.1.243
root@linux:/etc/netplan#
```

Comprobamos si tenemos conexión a internet:

```
ping -c 1 8.8.8.8
```



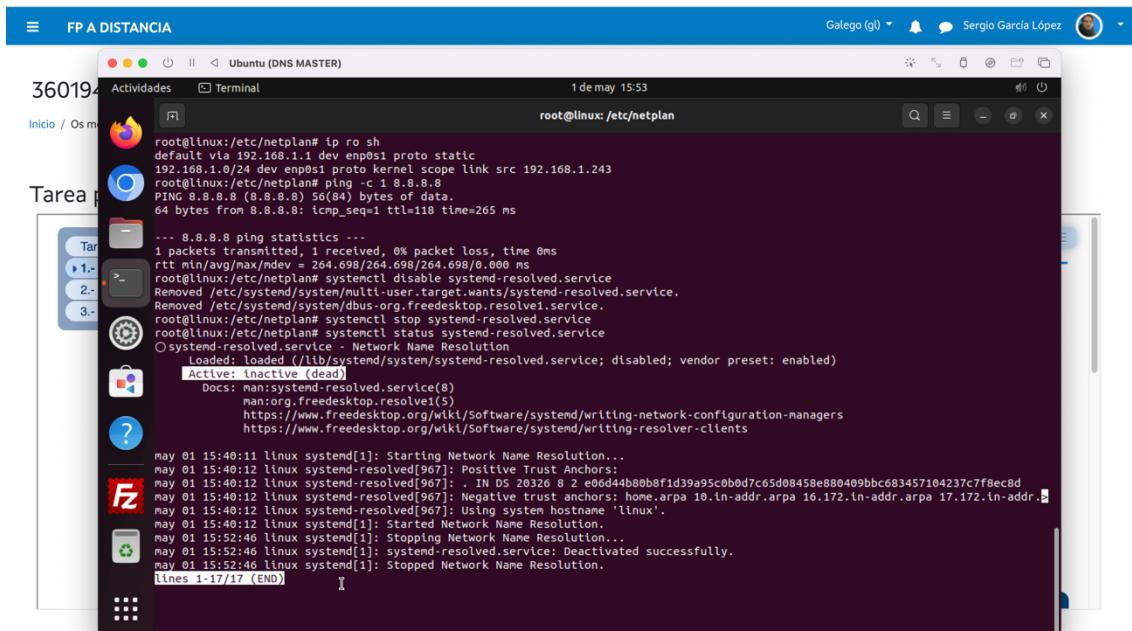
A screenshot of a Linux desktop environment showing a terminal window titled "Ubuntu (DNS MASTER)". The terminal window is open to a root shell. The user has run the command "ping -c 1 8.8.8.8" and received the following output:

```
root@linux:/etc/netplan# ping -c 1 8.8.8.8
PING 8.8.8.8 (8.8.8.8) 56(84) bytes of data.
64 bytes from 8.8.8.8: icmp_seq=1 ttl=118 time=265 ms
...
... 8.8.8.8 ping statistics ...
1 packets transmitted, 1 received, 0% packet loss, time 0ms
rtt min/avg/max/mdev = 264.698/264.698/264.698/0.000 ms
root@linux:/etc/netplan#
```

Vamos a parar el demonio que se encarga de la resolución de nombres

```
systemctl disable systemd-resolved.service
systemctl stop systemd-resolved.service
```

```
systemctl status systemd-resolved.service
```



A screenshot of a Linux desktop environment showing a terminal window titled "Ubuntu (DNS MASTER)". The terminal window is open to a root shell. The user has run the command "systemctl status systemd-resolved.service" and received the following output:

```
root@linux:/etc/netplan# systemctl status systemd-resolved.service
● systemd-resolved.service - Network Name Resolution
   Loaded: loaded (/lib/systemd/system/systemd-resolved.service; disabled; vendor preset: enabled)
     Active: inactive (dead)
       Docs: man:systemd-resolved.service(8)
              man:org.freedesktop.resolve1(5)
              https://www.freedesktop.org/wiki/Software/systemd/writing-network-configuration-managers
              https://www.freedesktop.org/wiki/Software/systemd/writing-resolver-clients
may 01 15:40:11 linux systemd[1]: Starting Network Name Resolution...
may 01 15:40:12 linux systemd-resolved[967]: Positive Trust Anchors:
may 01 15:40:12 linux systemd-resolved[967]:   IN DS 20326 8 2 e0dd4a080bf1d39a95cb0d7c65d08458e880409bbc683457104237c7f8ec8d
may 01 15:40:12 linux systemd-resolved[967]: Negative trust anchors: home.arpa 10.ln-addr.arpa 16.172.ln-addr.arpa 17.172.ln-addr.
may 01 15:40:12 linux systemd-resolved[967]: Using sysv hostname 'Linux'.
may 01 15:40:12 linux systemd[1]: Started Network Name Resolution.
may 01 15:52:46 linux systemd[1]: Stopping Network Name Resolution...
may 01 15:52:46 linux systemd[1]: systemd-resolved.service: Deactivated successfully.
may 01 15:52:46 linux systemd[1]: Stopped Network Name Resolution.
lines 1-17/17 (END)
```

Nos movemos hasta /etc

```
cd /etc
```

Vemos que hay un enlace resolv.conf

```
ls -la resolv.conf
```

```
root@linux:/etc# ls -la resolv.conf
lrwxrwxrwx 1 root root 39 ago  9  2022 resolv.conf -> ../run/systemd/resolve/stub-resolv.conf
root@linux:/etc#
```

Borramos este enlace

`rm resolv.conf`

```
root@linux:/etc# ls -la resolv.conf
ls: cannot access 'resolv.conf': No such file or directory
root@linux:/etc#
```

Reiniciamos el network manager

`systemctl restart NetworkManager`

Creamos el archivo resolv.conf

`nano /etc/resolv.conf`

```
GNU nano 6.2
# Generado por persona
nameserver 127.0.0.1
nameserver 8.8.8.8
search empresa-tarea-daw05.local
```

Comprobamos si resuelve nombres:

`ping www.google.es`

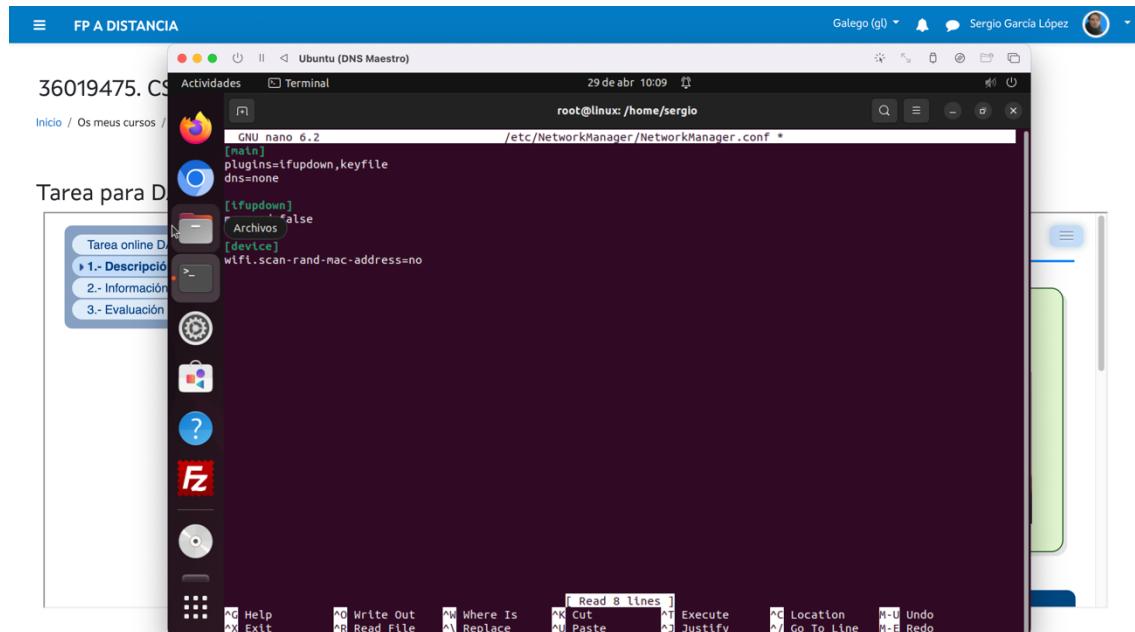
```
PING www.google.es (142.250.200.131) 56(84) bytes of data.
64 bytes from mad4isis14-in-f3.1e100.net (142.250.200.131): icmp_seq=1 ttl=118 time=16.8 ms
64 bytes from mad4isis14-in-f3.1e100.net (142.250.200.131): icmp_seq=2 ttl=118 time=39.5 ms
64 bytes from mad4isis14-in-f3.1e100.net (142.250.200.131): icmp_seq=3 ttl=118 time=44.1 ms
^C
--- www.google.es ping statistics ---
3 packets transmitted, 3 received, 0% packet loss, time 2007ms
rtt min/avg/max/mdev = 16.829/33.502/44.142/11.938 ms
root@linux:/etc#
```

Nota: Que no devuelva el ping no hace necesariamente que no esté resolviendo nombres. Hay que comprobar si traduce el nombre en una IP por ejemplo.

Modificar la configuración de NetworkManager para que

- no arranque automáticamente systemd-resolved.service
- no nos modifique /etc/resolv.conf:

nano /etc/NetworkManager/NetworkManager.conf



Comprobamos que el servicio está corriendo:

systemctl status systemd-networkd.service

```
root@linux:/etc# ping www.google.es
PING www.google.es (142.256.200.131) 56(84) bytes of data.
64 bytes from mad41s14-in-f3.1e100.net (142.256.200.131): icmp_seq=1 ttl=18 time=16.8 ms
64 bytes from mad41s14-in-f3.1e100.net (142.256.200.131): icmp_seq=2 ttl=18 time=39.5 ms
64 bytes from mad41s14-in-f3.1e100.net (142.256.200.131): icmp_seq=3 ttl=18 time=44.1 ms
...
--- www.google.es ping statistics ---
3 packets transmitted, 3 received, 0% packet loss, time 2007ms
rtt min/avg/max/mdev = 16.829/33.502/44.142/11.938 ms
root@linux:/etc# nano /etc/NetworkManager/NetworkManager.conf
root@linux:/etc# systemctl status systemd-networkd.service
● systemd-networkd.service - Network Configuration
   Loaded: loaded (/lib/systemd/system/systemd-networkd.service; enabled; vendor preset: enabled)
     Active: active (running) since Mon 2023-05-01 15:50:37 UTC; 16min ago
       Docs: man:systemd-networkd.socket
           Main PID: 3391 (systemd-network)
             Status: "Processing requests..."
              Tasks: 1 (limit: 11732)
            Memory: 1.3M
             CPU: 47ms
            CPUTime: 3391 /lib/systemd/systemd-networkd
          Help: https://www.freedesktop.org/software/systemd/man/systemd-networkd.html
          Troubleshoot: https://www.freedesktop.org/software/systemd/man/systemd-networkd.html#Troubleshooting
root@linux:/etc# may 01 15:50:37 linux systemd[1]: Starting Network Configuration...
may 01 15:50:37 linux systemd-networkd[3391]: enp0s1: Link UP
may 01 15:50:37 linux systemd-networkd[3391]: enp0s1: Gained carrier
may 01 15:50:37 linux systemd-networkd[3391]: lo: Link UP
may 01 15:50:37 linux systemd-networkd[3391]: lo: Gained carrier
may 01 15:50:37 linux systemd-networkd[3391]: enp0s1: Gained IPv6LL
may 01 15:50:37 linux systemd-networkd[3391]: Enumeration completed
may 01 15:50:37 linux systemd[1]: Started Network Configuration.
root@linux:/etc#
```

Verificamos que las ips son las que configuramos:

ip ad sh

```
root@linux:/etc# ip ad sh
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: enp0s1 <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc fq_codel state UP group default qlen 1000
    link/ether 7a:94:8b:b6:93:cc brd ff:ff:ff:ff:ff:ff
        inet 192.168.1.243/24 brd 192.168.1.255 scope global enp0s1
            valid_lft forever preferred_lft forever
        inet6 fe80::7a94:8bff:feb6:93cc/64 scope link
            valid_lft forever preferred_lft forever
root@linux:/etc#
```

ip ro sh

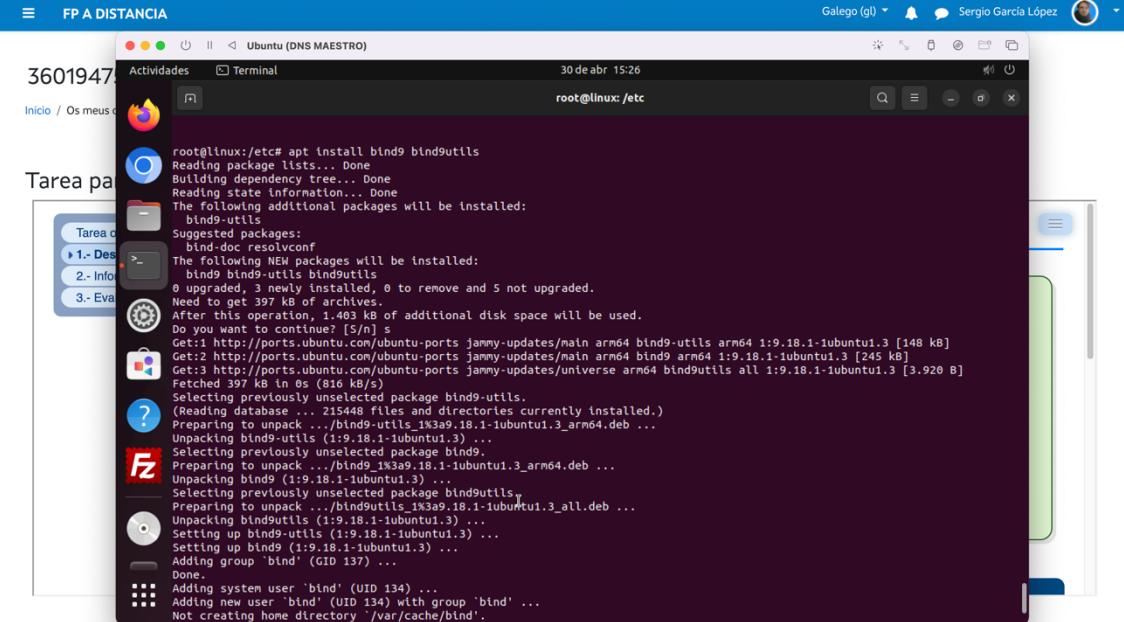
```
root@linux:/etc# ip ro sh
default via 192.168.1.1 dev enp0s1 proto static
192.168.1.0/24 dev enp0s1 proto kernel scope link src 192.168.1.243
root@linux:/etc#
```

ping -c 1 8.8.8.8

```
root@linux:/etc# ping -c 1 8.8.8.8
PING 8.8.8.8 (8.8.8.8) 56(84) bytes of data.
64 bytes from 8.8.8.8: icmp_seq=1 ttl=18 time=168 ms
...
--- 8.8.8.8 ping statistics ---
1 packets transmitted, 1 received, 0% packet loss, time 0ms
root@linux:/etc#
```

Vamos a instalar los paquetes que necesitamos:

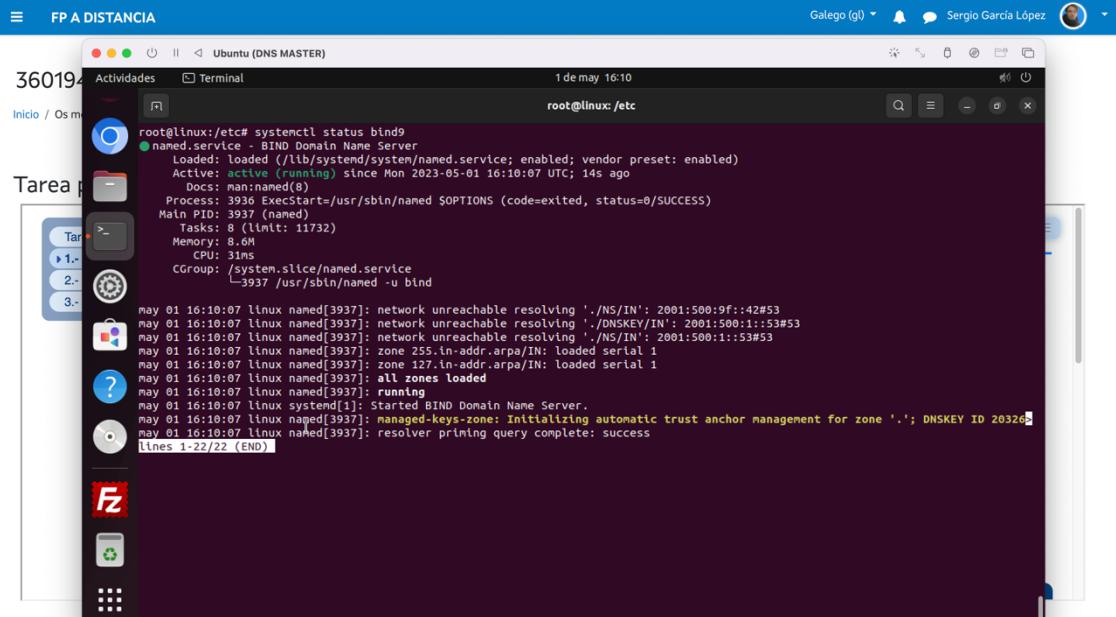
```
apt install bind9 bind9utils
```



```
root@linux:/etc# apt install bind9 bind9utils
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following additional packages will be installed:
  bind9-utils
  bind9-doc-resolvconf
The following NEW packages will be installed:
  bind9 bind9-utils bind9utils
0 upgraded, 3 newly installed, 0 to remove and 5 not upgraded.
Need to get 397 kB of archives.
After this operation, 1,403 kB of additional disk space will be used.
Do you want to continue? [S/n] s
Get:1 http://ports.ubuntu.com/ubuntu-ports jammy-updates/main arm64 bind9-utils arm64 1:9.18.1-1ubuntu1.3 [148 kB]
Get:2 http://ports.ubuntu.com/ubuntu-ports jammy-updates/main arm64 bind9 arm64 1:9.18.1-1ubuntu1.3 [245 kB]
Get:3 http://ports.ubuntu.com/ubuntu-ports jammy-updates/universe arm64 bind9utils all 1:9.18.1-1ubuntu1.3 [3,926 B]
Fetched 397 kB in 0s (816 kB/s)
Selecting previously unselected package bind9-utils.
(Reading database ... 215448 files and directories currently installed.)
Preparing to unpack .../bind9-utils_1%3a9.18.1-1ubuntu1.3_arm64.deb ...
Unpacking bind9-utils (1:9.18.1-1ubuntu1.3) ...
Selecting previously unselected package bind9.
Preparing to unpack .../bind9_1%3a9.18.1-1ubuntu1.3_arm64.deb ...
Unpacking bind9 (1:9.18.1-1ubuntu1.3) ...
Selecting previously unselected package bind9utils.
Preparing to unpack .../bind9utils_1%3a9.18.1-1ubuntu1.3_all.deb ...
Unpacking bind9utils (1:9.18.1-1ubuntu1.3) ...
Setting up bind9-utils (1:9.18.1-1ubuntu1.3) ...
Setting up bind9 (1:9.18.1-1ubuntu1.3) ...
Adding group 'bind' (GID 137) ...
done.
Adding system user 'bind' (UID 134) ...
Adding new user 'bind' (UID 134) with group 'bind' ...
Not creating home directory '/var/cache/bind'.
```

Comprobamos si está corriendo bind9:

```
systemctl status bind9
```



```
root@linux:/etc# systemctl status bind9
● named.service - BIND Domain Name Server
   Loaded: loaded (/lib/systemd/system/named.service; enabled; vendor preset: enabled)
   Active: active (running) since Mon 2023-05-01 16:10:07 UTC; 14s ago
     Docs: man:named(8)
   Process: 3936 ExecStart=/usr/sbin/named $OPTIONS (code=exited, status=0/SUCCESS)
 Main PID: 3937 (named)
   Tasks: 8 (limit: 11732)
    Memory: 8.6M
      CPU: 31ms
     CGroup: /system.slice/named.service
             └─3937 /usr/sbin/named -u bind

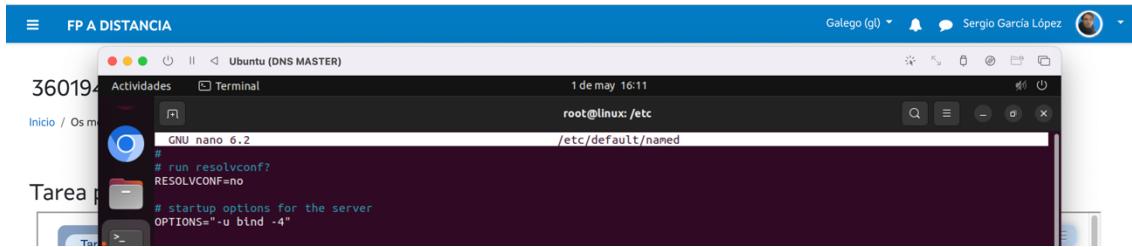
may 01 16:10:07 linux named[3937]: network unreachable resolving './NS/IN': 2001:500:9f::42#53
may 01 16:10:07 linux named[3937]: network unreachable resolving './DNSKEY/IN': 2001:500:1::53#53
may 01 16:10:07 linux named[3937]: network unreachable resolving './NS/IN': 2001:500:1::53#53
may 01 16:10:07 linux named[3937]: zone 255.in-addr.arpa/IN: loaded serial 1
may 01 16:10:07 linux named[3937]: zone 127.in-addr.arpa/IN: loaded serial 1
may 01 16:10:07 linux named[3937]: all zones loaded
may 01 16:10:07 linux systemd[1]: Started BIND Domain Name Server.
may 01 16:10:07 linux named[3937]: managed-keys-zone: Initializing automatic trust anchor management for zone '.'; DNSKEY ID 20326
may 01 16:10:07 linux named[3937]: resolver priming query complete: success
[lines 1-22/22 (END)]
```

Para ver el manual con todas las opciones:

```
man named
```

Vamos a decirle al Bind que trabaje solo con IPv4:

```
nano /etc/default/named
```



Reiniciamos el servicio para que coja los cambios:

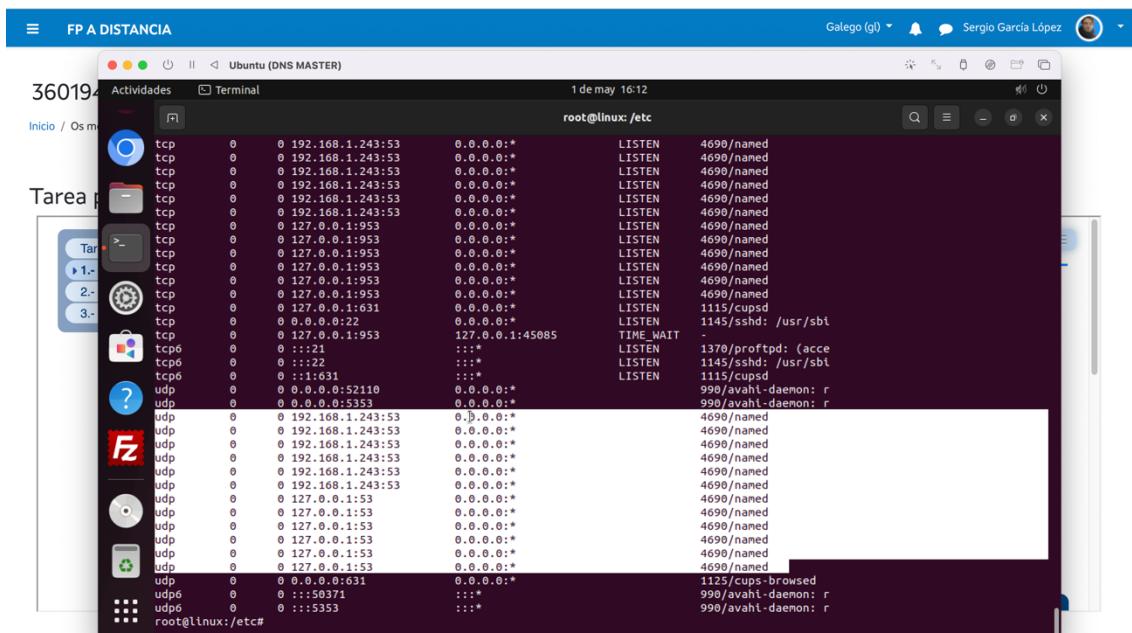
systemctl restart bind9

Comprobamos que está corriendo:

```
systemctl status bind9
```

netstat -putan

Vemos que corre en el puerto 53 y que está utilizando las IPs que definimos con anterioridad. (Es el paquete con nombre “named”)



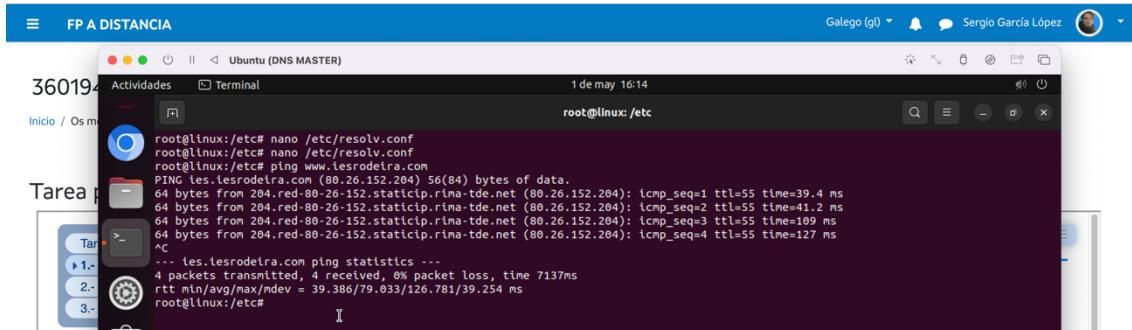
Vamos a comprobar si ya resuelve nombres:

`nano /etc/resolv.conf`



Comprobamos si resuelve haciendo un ping a una página en la que no hayamos estado previamente:

ping www.iesrodeira.com



Nos movemos a la carpeta donde están las configuraciones DNS:

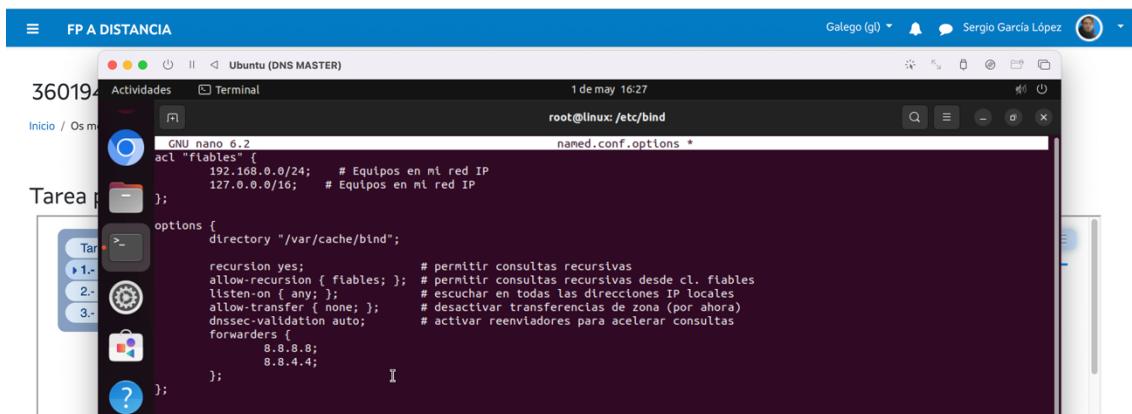
cd /etc/bind

Hacemos una copia de seguridad del archivo de configuración:

cp named.conf.options named.conf.options.bak

Y modificamos el archivo de configuración (copiamos directamente desde el guión, pero ojo que hay que modificar la IP de Equipos en mi red):

nano named.conf.options



Restablecemos el servicio:

```
systemctl restart bind9
```

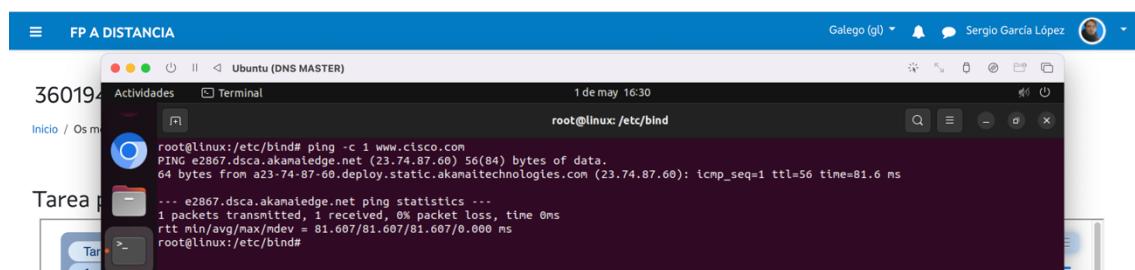
Comprobamos que funciona:

```
named-checkconf named.conf.options  
(si no responde nada es que está ok)
```

```
systemctl status bind9  
netstat -putan
```

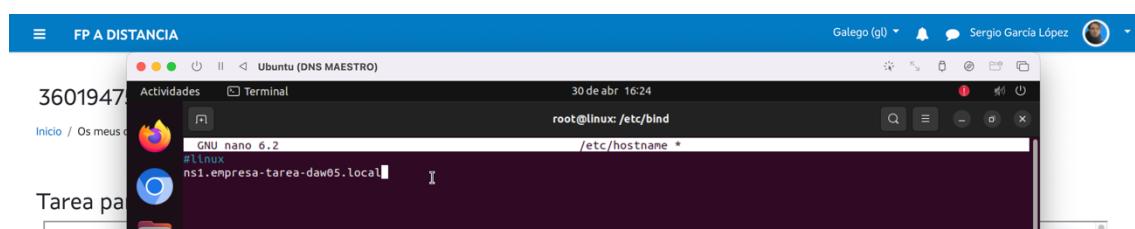
Comprobamos que resuelve nombres:

```
ping -c 1 www.cisco.com  
ping -c 1 www.xunta.gal (Esta página está configurada para no responder paquetes)  
ping -c 1 www.edu.xunta.gal (Esta página está configurada para no responder paquetes)
```



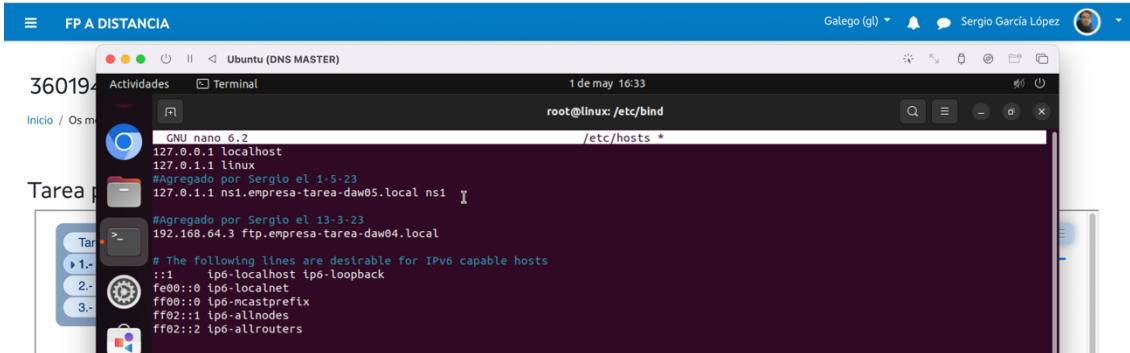
Vamos a cambiar el nombre del host (por defecto es Linux):

```
nano /etc/hostname
```



Modificamos el fichero host para que resuelva el nombre anterior:

`nano /etc/hosts`



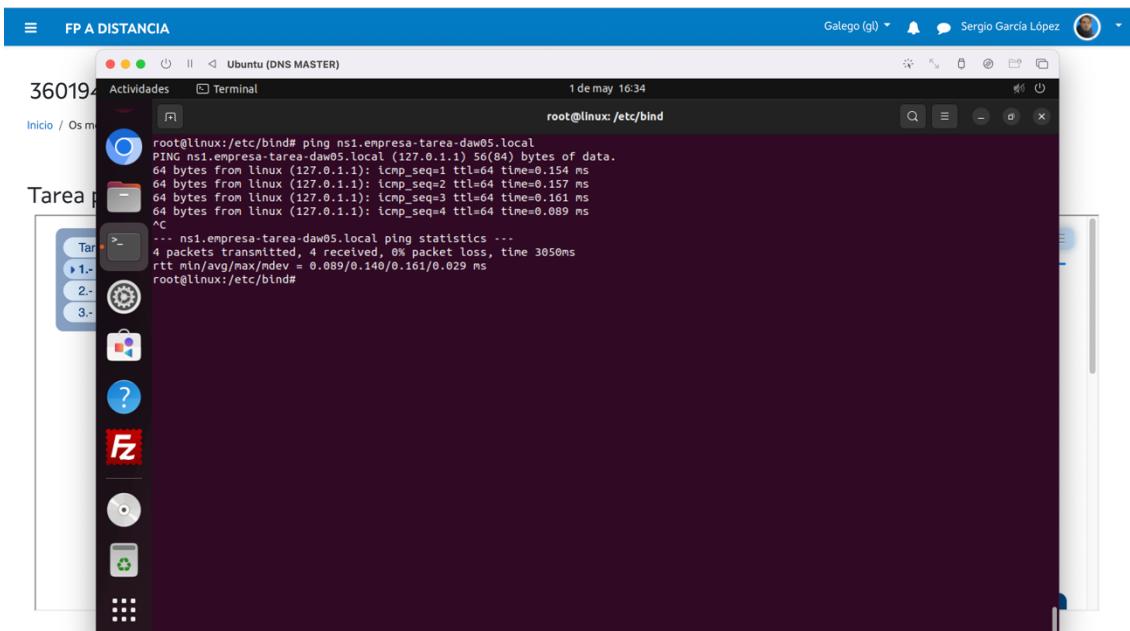
```
GNU nano 6.2
127.0.0.1 localhost
127.0.1.1 llinux
#Agregado por Sergio el 1-5-23
127.0.1.1 ns1.empresa-tarea-daw05.local ns1
#Agregado por Sergio el 13-3-23
192.168.64.3 ftp.empresa-tarea-daw04.local

# The following lines are desirable for IPv6 capable hosts
::1 ip6-localhost ip6-loopback
fe00::0 ip6-localnet
ff00::0 ip6-mcastprefix
ff02::1 ip6-allnodes
ff02::2 ip6-allrouters
```

Comprobamos que resuelva el nombre:

`ping 1 ns1`

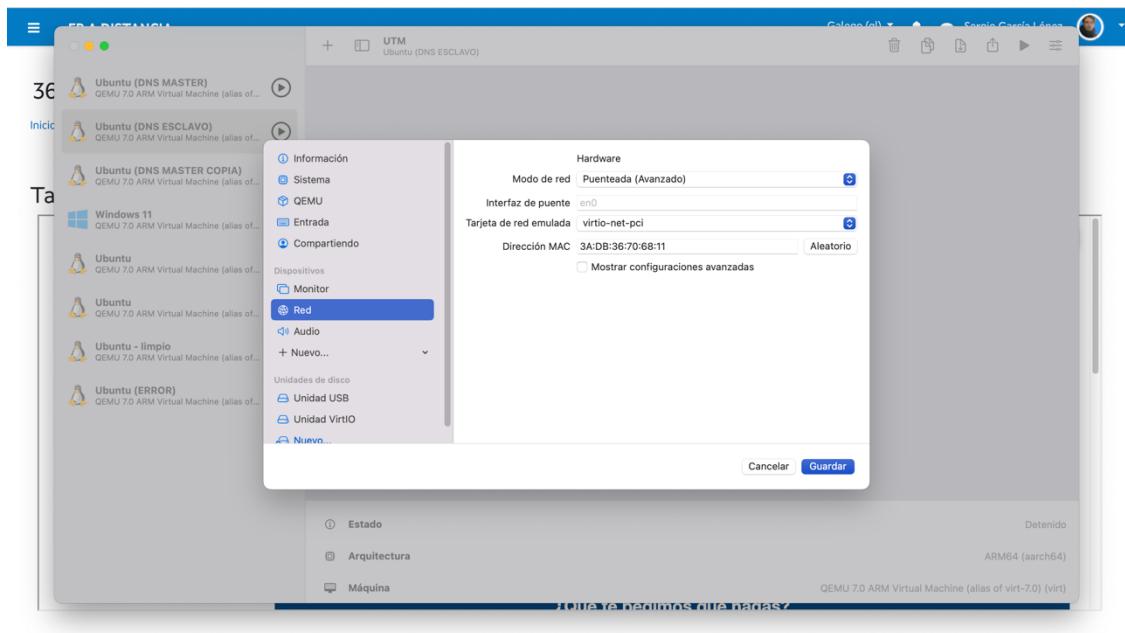
`ping ns1.empresa-tarea-daw05.local`



```
root@llinux:/etc/bind# ping ns1.empresa-tarea-daw05.local
PING ns1.empresa-tarea-daw05.local (127.0.1.1) 56(84) bytes of data.
64 bytes from linux (127.0.1.1): icmp_seq=1 ttl=64 time=0.154 ms
64 bytes from linux (127.0.1.1): icmp_seq=2 ttl=64 time=0.157 ms
64 bytes from linux (127.0.1.1): icmp_seq=3 ttl=64 time=0.161 ms
64 bytes from linux (127.0.1.1): icmp_seq=4 ttl=64 time=0.089 ms
^C
--- ns1.empresa-tarea-daw05.local ping statistics ---
4 packets transmitted, 4 received, 0% packet loss, time 3050ms
rtt min/avg/max/mdev = 0.089/0.140/0.161/0.029 ms
root@llinux:/etc/bind#
```

PASO 2 DEL GUIÓN:

Clonamos la máquina virtual anterior creada. Importante generar una nueva dirección MAC



Arrancamos como admin:

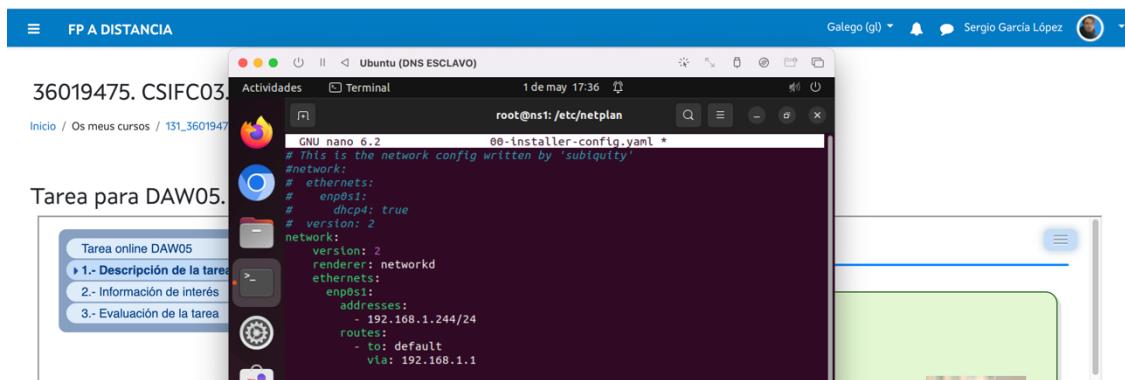
sudo su

Vamos a cambiar la dirección IP:

cd /etc/netplan

En mi caso el archivo de configuración es **00-installer-config.yaml** y no **01-network-manager-all.yaml**:

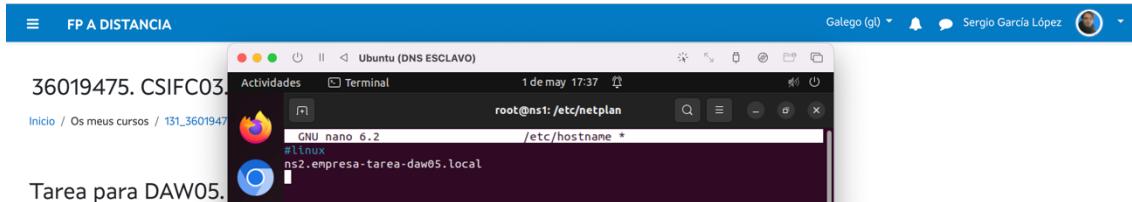
nano 00-installer-config.yaml



Modificamos el hostname:

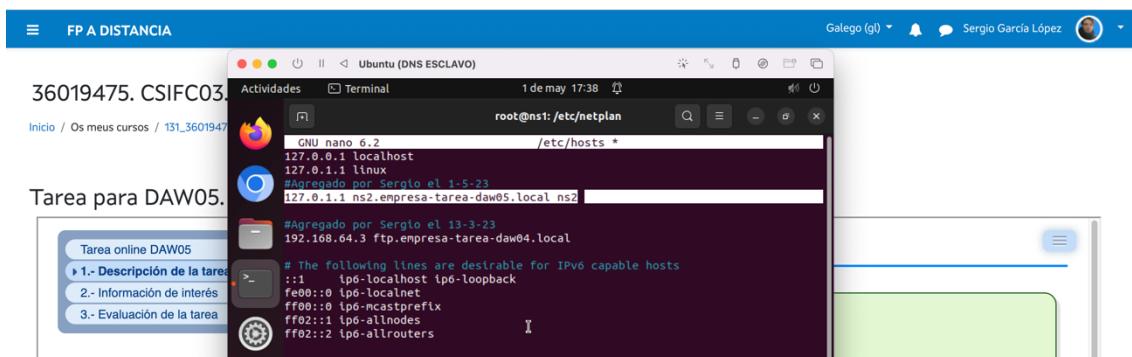
```
cd /etc
```

```
nano /etc/hostname
```



Cambio el fichero hosts:

```
nano /etc/hosts
```



Reiniciamos para que coja todos los cambios (Podríamos ir haciéndolo poco a poco, haciendo netplan apply, restart, ping, etc. Para ir comprobando que todo funciona):

```
reboot
```

Arrancamos como superadmin:

```
sudo su
```

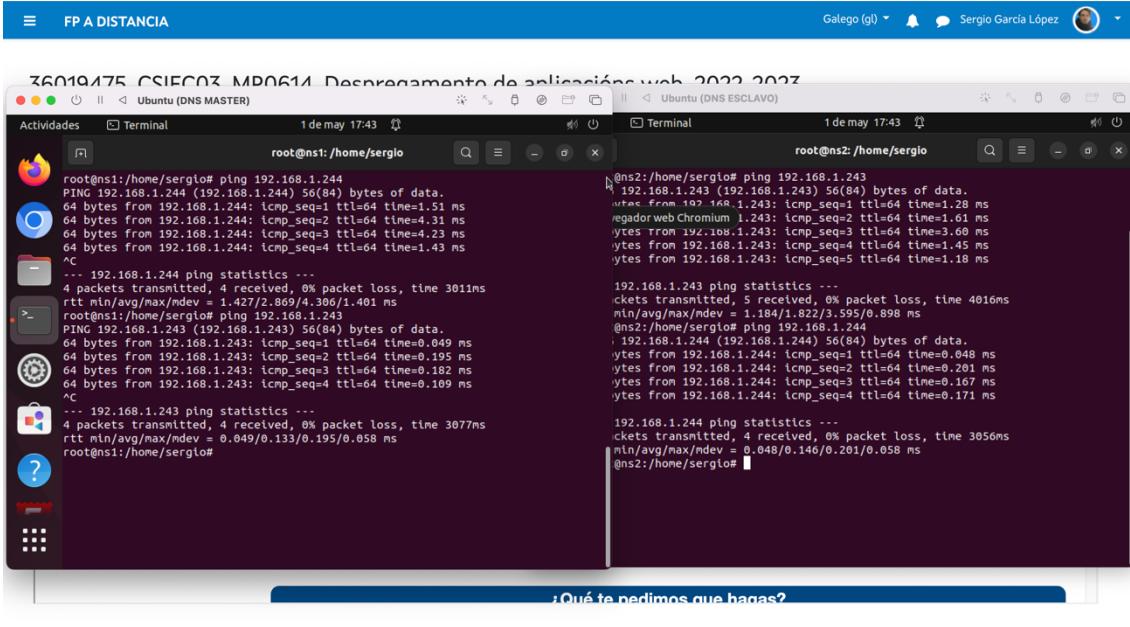
PASO 3 DEL GUIÓN:

Arrancamos las dos máquinas virtuales (maestro y esclavo)

Comprobamos que tenemos acceso desde el esclavo al maestro y viceversa (las IPs serán la que hayamos configurado previamente):

ping 192.168.1.243

ping 192.168.1.244



The screenshot shows two terminal windows side-by-side. Both are running on Ubuntu (DNS MASTER) and show the command 'root@ns1:/home/sergio# ping 192.168.1.243'. The left window shows the output for host ns1, and the right window shows the output for host ns2. Both hosts successfully ping each other.

```
root@ns1:/home/sergio# ping 192.168.1.243
PING 192.168.1.243 (192.168.1.243) 56(84) bytes of data.
64 bytes from 192.168.1.243: icmp_seq=1 ttl=64 time=1.51 ms
64 bytes from 192.168.1.243: icmp_seq=2 ttl=64 time=4.31 ms
64 bytes from 192.168.1.243: icmp_seq=3 ttl=64 time=4.23 ms
64 bytes from 192.168.1.243: icmp_seq=4 ttl=64 time=1.43 ms
^C
--- 192.168.1.244 ping statistics ---
4 packets transmitted, 4 received, 0% packet loss, time 301ms
rtt min/avg/max/mdev = 1.427/2.869/4.306/1.401 ms
root@ns1:/home/sergio# ping 192.168.1.243
PING 192.168.1.243 (192.168.1.243) 56(84) bytes of data.
64 bytes from 192.168.1.243: icmp_seq=1 ttl=64 time=0.049 ms
64 bytes from 192.168.1.243: icmp_seq=2 ttl=64 time=0.195 ms
64 bytes from 192.168.1.243: icmp_seq=3 ttl=64 time=0.182 ms
64 bytes from 192.168.1.243: icmp_seq=4 ttl=64 time=0.109 ms
^C
--- 192.168.1.243 ping statistics ---
4 packets transmitted, 4 received, 0% packet loss, time 3077ms
rtt min/avg/max/mdev = 0.049/0.133/0.195/0.058 ms
root@ns1:/home/sergio#
root@ns2:/home/sergio# ping 192.168.1.243
PING 192.168.1.243 (192.168.1.243) 56(84) bytes of data.
64 bytes from 192.168.1.243: icmp_seq=1 ttl=64 time=1.28 ms
bytes from 192.168.1.243: icmp_seq=2 ttl=64 time=1.61 ms
bytes from 192.168.1.243: icmp_seq=3 ttl=64 time=3.60 ms
bytes from 192.168.1.243: icmp_seq=4 ttl=64 time=1.45 ms
bytes from 192.168.1.243: icmp_seq=5 ttl=64 time=1.18 ms
192.168.1.243 ping statistics ---
5 packets transmitted, 5 received, 0% packet loss, time 4016ms
min/avg/max/mdev = 1.184/1.822/3.595/0.898 ms
root@ns2:/home/sergio# ping 192.168.1.244
PING 192.168.1.244 (192.168.1.244) 56(84) bytes of data.
64 bytes from 192.168.1.244: icmp_seq=1 ttl=64 time=0.648 ms
64 bytes from 192.168.1.244: icmp_seq=2 ttl=64 time=0.201 ms
64 bytes from 192.168.1.244: icmp_seq=3 ttl=64 time=0.167 ms
64 bytes from 192.168.1.244: icmp_seq=4 ttl=64 time=0.171 ms
192.168.1.244 ping statistics ---
4 packets transmitted, 4 received, 0% packet loss, time 3056ms
min/avg/max/mdev = 0.048/0.146/0.201/0.058 ms
root@ns2:/home/sergio#
```

Podemos comprobar los hostnames:

hostname

Nos identificamos como superusuario:

sudo su

Vamos a configurar los datos de zona en el servidor Maestro:

cd /etc/bind

nano /etc/bind/named.conf.local

Nota: La ip debe ser la que configuramos previamente para el servidor esclavo

```

root@ns1:/etc/bind# nano /etc/bind/named.conf.local
...
zone "empresa-tarea-daw05.local" {
    type master;
    file "/var/lib/bind/master/db.empresa-tarea-daw05.local.hosts";
    allow-transfer{192.168.1.244;};
    notify yes;
};

root@ns2:/home/sergio# nano /etc/bind/named.conf.local
...
zone "empresa-tarea-daw05.local" {
    type master;
    file "/var/lib/bind/master/db.empresa-tarea-daw05.local.hosts";
    allow-transfer{192.168.1.244;};
    notify yes;
};

```

Vamos a configurar los datos de zona (como no tenemos los directorios tenemos que crearlos):

`cd /var/lib/bind`

`mkdir master`

Cambiamos el propietario del directorio master y los permisos:

||

```

root@ns1:/home/sergio# cd /var/lib/bind
root@ns1:/etc/bind# nano /etc/bind/named.conf.local
root@ns1:/etc/bind# cd /var/lib/bind
root@ns1:/var/lib/bind# mkdir master
root@ns1:/var/lib/bind# ll
total 12
drwxrwxr-x 3 root bind 4096 may 1 17:55 .
drwxr-xr-x 72 root root 4096 may 1 16:10 ../
drwxr-xr-x 2 root root 4096 may 1 17:55 master/
root@ns1:/var/lib/bind#

```

`chown root:bind /var/lib/bind/master`
`chmod g+w /var/lib/bind/master`

||

```

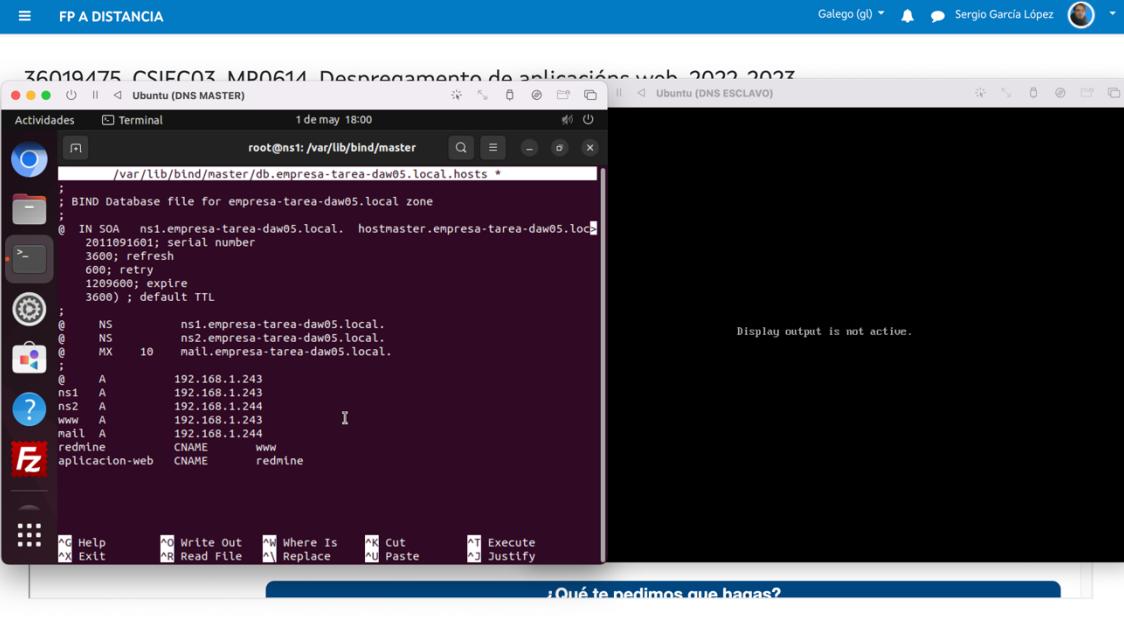
root@ns1:/home/sergio# cd /etc/bind
root@ns1:/etc/bind# nano /etc/bind/named.conf.local
root@ns1:/etc/bind# cd /var/lib/bind
root@ns1:/var/lib/bind# mkdir master
root@ns1:/var/lib/bind# ll
total 12
drwxrwxr-x 3 root bind 4096 may 1 17:55 .
drwxr-xr-x 72 root root 4096 may 1 16:10 ../
drwxr-xr-x 2 root root 4096 may 1 17:55 master/
root@ns1:/var/lib/bind# chown root:bind /var/lib/bind/master
root@ns1:/var/lib/bind# chmod g+w /var/lib/bind/master
root@ns1:/var/lib/bind# ll
total 12
drwxrwxr-x 3 root bind 4096 may 1 17:55 .
drwxr-xr-x 72 root root 4096 may 1 16:10 ../
drwxr-xr-x 2 root bind 4096 may 1 17:55 master/
root@ns1:/var/lib/bind#

```

Creamos y editamos el fichero (hay que incluir nuestras IPs):

```
cd master
```

```
nano /var/lib/bind/master/db.empresa-tarea-daw05.local.hosts
```



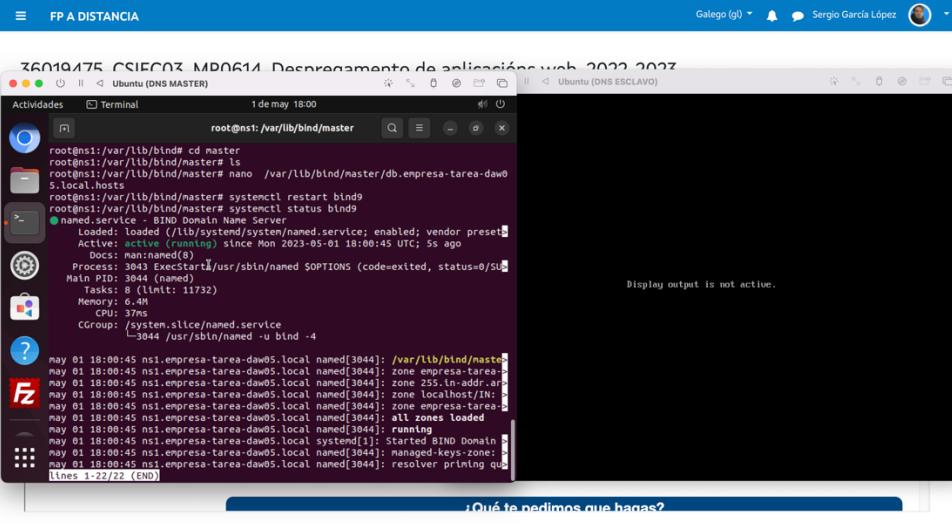
```
; BIND Database file for empresa-tarea-daw05.local zone
; 
@ IN SOA ns1.empresa-tarea-daw05.local. hostmaster.empresa-tarea-daw05.local. 2011091601; serial number
3600; refresh
600; retry
1209600; expire
3600 ) default TTL
;
@ NS ns1.empresa-tarea-daw05.local.
@ NS ns2.empresa-tarea-daw05.local.
@ MX 10 mail.empresa-tarea-daw05.local.
;
@ A 192.168.1.243
ns1 A 192.168.1.243
ns2 A 192.168.1.244
www A 192.168.1.243
mail A 192.168.1.244
redmine CNAME www
aplicacion-web CNAME redmine
```

Reiniciamos bind:

```
systemctl restart bind9
```

Comprobamos que esté corriendo bien:

```
systemctl status bind9
```

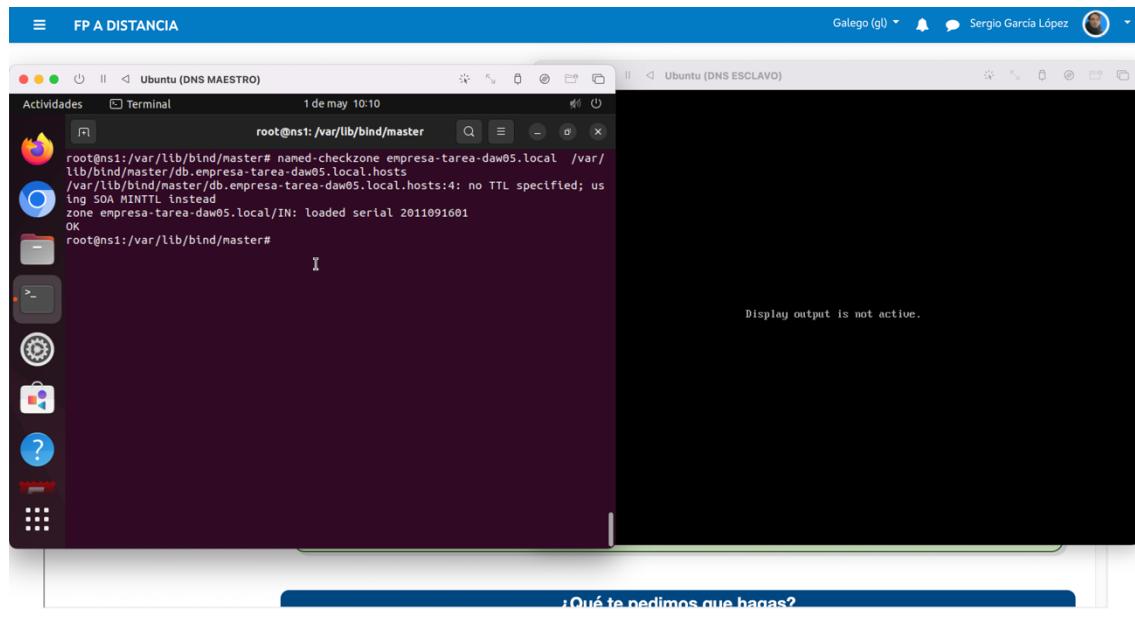


```
root@ns1:/var/lib/bind# cd master
root@ns1:/var/lib/bind# ls
root@ns1:/var/lib/bind# nano /var/lib/bind/master/db.empresa-tarea-daw05.local.hosts
root@ns1:/var/lib/bind# systemctl restart bind9
root@ns1:/var/lib/bind# systemctl status bind9
● named.service - BIND Domain Name Server
   Loaded: loaded (/lib/systemd/system/named.service; enabled; vendor preset: enabled)
   Active: active (running) since Mon 2023-05-01 18:00:45 UTC; 5s ago
     Docs: man:named(8)
   Process: ExecStart=/usr/sbin/named $OPTIONS (code=exited, status=0/SUCCESS)
   Main PID: 3044 (named)
      Tasks: 8 (limit: 11732)
        Memory: 6.4M
         CPU: 37ms
        CGroup: /system.slice/named.service
                 └─ 3044 /usr/sbin/named -u bind -4

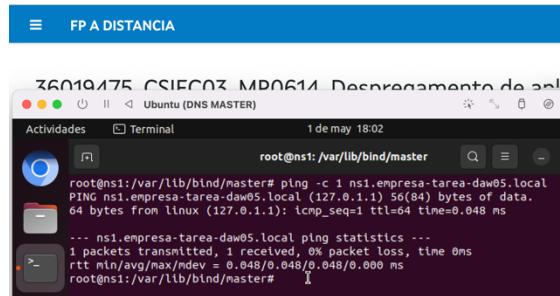
may 01 18:00:45 ns1.empresa-tarea-daw05.local named[3044]: /var/lib/bind/master/db.empresa-tarea-daw05.local.hosts
may 01 18:00:45 ns1.empresa-tarea-daw05.local named[3044]: zone empresa-tarea-daw05.local. 255.in-addr.arpa.:
may 01 18:00:45 ns1.empresa-tarea-daw05.local named[3044]: zone 255.in-addr.arpa.:
may 01 18:00:45 ns1.empresa-tarea-daw05.local named[3044]: zone localhost.:
may 01 18:00:45 ns1.empresa-tarea-daw05.local named[3044]: zone 1.:
may 01 18:00:45 ns1.empresa-tarea-daw05.local named[3044]: zone empresa-tarea-daw05.local.:
may 01 18:00:45 ns1.empresa-tarea-daw05.local named[3044]: zone 1.:
may 01 18:00:45 ns1.empresa-tarea-daw05.local named[3044]: zone all zones loaded
may 01 18:00:45 ns1.empresa-tarea-daw05.local named[3044]: running
may 01 18:00:45 ns1.empresa-tarea-daw05.local systemd[1]: Started BIND Domain Name Server.
may 01 18:00:45 ns1.empresa-tarea-daw05.local named[3044]: managed-keys-zone: >
may 01 18:00:45 ns1.empresa-tarea-daw05.local named[3044]: resolver priming queue
[lines 1-22/22 (END)]
```

Podemos comprobar la zona:

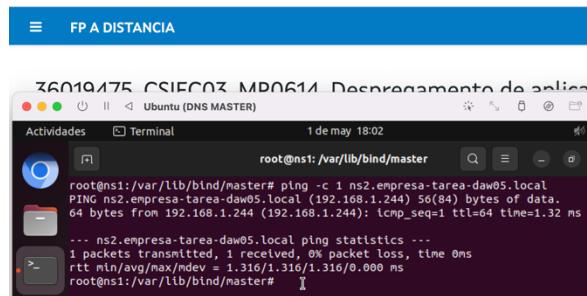
```
named-checkzone empresa-tarea-daw05.local /var/lib/bind/master/db.empresa-tarea-daw05.local.hosts
```



```
ping -c 1 ns1.empresa-tarea-daw05.local
```



```
ping -c 1 ns2.empresa-tarea-daw05.local
```

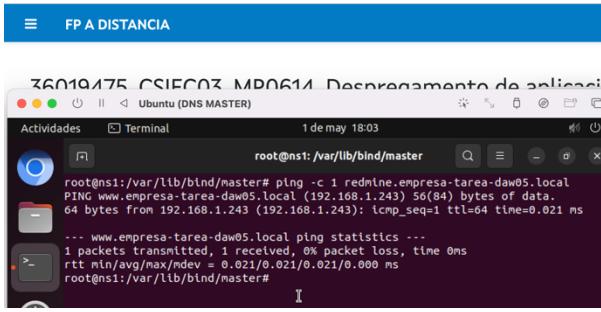


```
ping -c 1 www.empresa-tarea-daw05.local
```



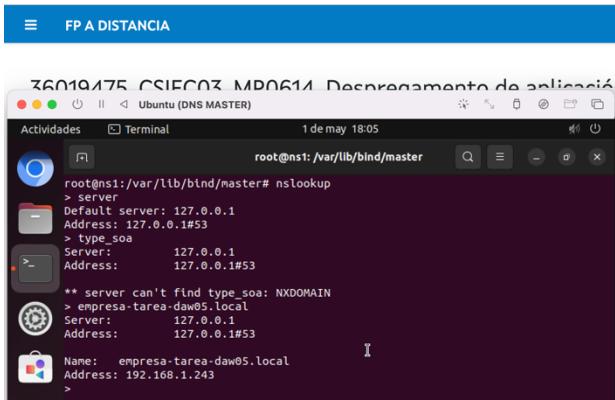
```
root@ns1:/var/lib/bind/master# ping -c 1 www.empresa-tarea-daw05.local
PING www.empresa-tarea-daw05.local (192.168.1.243) 56(84) bytes of data.
64 bytes from 192.168.1.243 (192.168.1.243): icmp_seq=1 ttl=64 time=0.071 ms
--- www.empresa-tarea-daw05.local ping statistics ---
1 packets transmitted, 1 received, 0% packet loss, time 0ms
rtt min/avg/max/mdev = 0.071/0.071/0.071/0.000 ms
root@ns1:/var/lib/bind/master#
```

```
ping -c 1 redmine.empresa-tarea-daw05.local
```



```
root@ns1:/var/lib/bind/master# ping -c 1 redmine.empresa-tarea-daw05.local
PING www.empresa-tarea-daw05.local (192.168.1.243) 56(84) bytes of data.
64 bytes from 192.168.1.243 (192.168.1.243): icmp_seq=1 ttl=64 time=0.021 ms
--- www.empresa-tarea-daw05.local ping statistics ---
1 packets transmitted, 1 received, 0% packet loss, time 0ms
rtt min/avg/max/mdev = 0.021/0.021/0.021/0.000 ms
root@ns1:/var/lib/bind/master#
```

```
nslookup
server
type=soa
empresa-tarea-daw05.local
```



```
root@ns1:/var/lib/bind/master# nslookup
> server
Default server: 127.0.0.1
Address: 127.0.0.1#53
> type=soa
Server:      127.0.0.1
Address:     127.0.0.1#53
** server can't find type_soa: NXDOMAIN
> empresa-tarea-daw05.local
Server:      127.0.0.1
Address:     127.0.0.1#53
>
Name:   empresa-tarea-daw05.local
Address: 192.168.1.243
>
```

```
exit
```

Comprobación:

```
dig www.empresa-tarea-daw05.local
```

The screenshot shows a dual-terminal session on a Linux desktop environment. Both terminals are running the command `dig www.empresa-tarea-daw05.local`. The left terminal, titled "Ubuntu (DNS MAESTRO)", is on host `ns1` and shows the response from host `ns2`. The right terminal, titled "Ubuntu (DNS ESCLAVO)", is on host `ns2` and shows the response from host `ns1`. Both responses are identical, indicating a successful DNS query.

```
root@ns1:/home/sergio# dig www.empresa-tarea-daw05.local
; <>> DLG 9.18.1-1ubuntu1.3-Ubuntu <>> www.empresa-tarea-daw05.local
;; global options: +cmd
;; Got answer:
;; WARNING: .local is reserved for Multicast DNS
;; You are currently testing what happens when an mDNS query is leaked to DNS
;; >>>HEADER<< opcode: QUERY, status: NOERROR, id: 57030
;; flags: qr a rd ra; QUERY: 1, ANSWER: 1, AUTHORITY: 0, ADDITIONAL: 1
;; OPT PSEUDOSECTION:
; EDNS: version: 0, flags:; udp: 1232
; COOKIE: 173dd8a3fe7ac8be01000000644f9dd2c8fd02bf5f68566c (good)
;; QUESTION SECTION:
;www.empresa-tarea-daw05.local. IN A
;; ANSWER SECTION:
www.empresa-tarea-daw05.local. 3600 IN A 192.168.64.23
;; Query time: 0 msec
;; SERVER: 127.0.0.1#53(127.0.0.1) (UDP)
;; WHEN: Mon May 01 11:09:06 UTC 2023
;; MSG SIZE rcvd: 102
root@ns1:/home/sergio# 

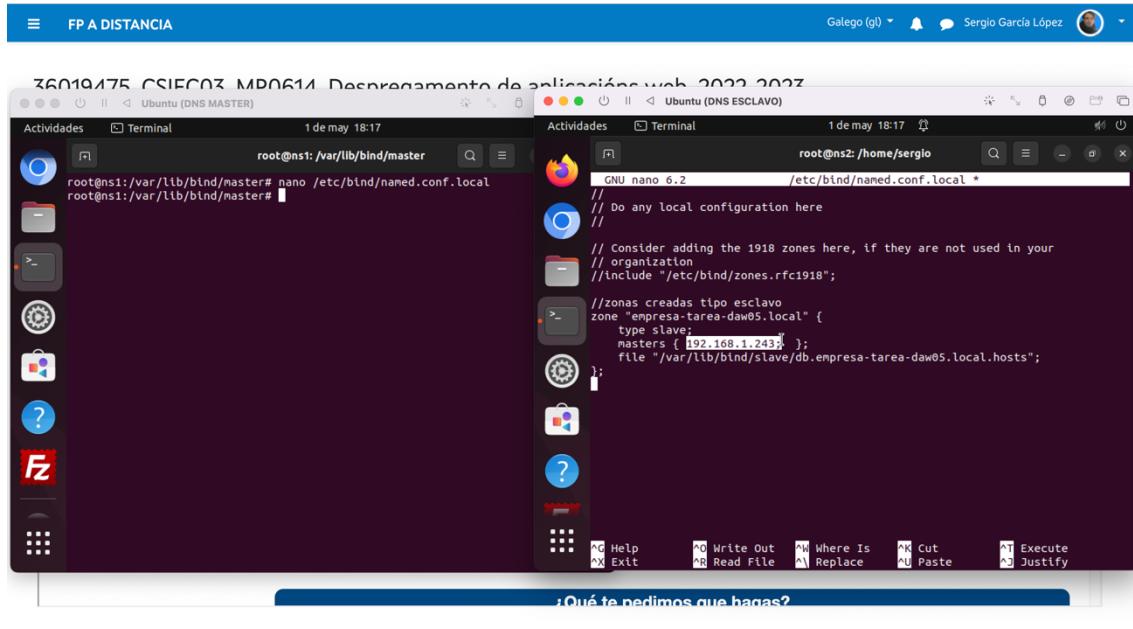
root@ns2:/home/sergio# dig www.empresa-tarea-daw05.local
; <>> DLG 9.18.1-1ubuntu1.3-Ubuntu <>> www.empresa-tarea-daw05.local
;; global options: +cmd
;; Got answer:
;; WARNING: .local is reserved for Multicast DNS
;; You are currently testing what happens when an mDNS query is leaked to DNS
;; >>>HEADER<< opcode: QUERY, status: NXDOMAIN, id: 30502
;; flags: qr rd ra ad; QUERY: 1, ANSWER: 0, AUTHORITY: 1, ADDITIONAL: 1
;; OPT PSEUDOSECTION:
; NS: version: 0, flags:; udp: 1232
; COOKIE: 9116241b1a833ca301000000644f9cfacblac4393a51eff (good)
;; QUESTION SECTION:
;www.empresa-tarea-daw05.local. IN A
;; AUTHORITY SECTION:
a.root-servers.net. 79602 IN SOA a.root-servers.net. nstld.veris
grs.com. 2023050100 1800 900 604800 86400
;; Query time: 0 msec
;; SERVER: 127.0.0.1#53(127.0.0.1) (UDP)
;; WHEN: Mon May 01 11:05:30 UTC 2023
;; MSG SIZE rcvd: 161
root@ns2:/home/sergio# 
```

PASO 4 DEL GUIÓN:

Nos vamos al Servidor Esclavo

```
nano /etc/bind/named.conf.local
```

La ip que tenemos que poner es la del master



Creamos el directorio para la zona y le damos permisos:

```
mkdir /var/lib/bind/slave  
cd /var/lib/bind  
chown root:bind /var/lib/bind/slave  
chmod g+w /var/lib/bind/slave
```

Restablecemos el servicio:

```
systemctl restart bind9
```

Comprobamos que funciona:

```
ping -c 1 ns1.empresa-tarea-daw05.local  
ping -c 1 ns2.empresa-tarea-daw05.local  
ping -c 1 www.empresa-tarea-daw05.local
```

```
root@ns2:/var/lib/bind# ping -c 1 ns1.empresa-tarea-daw05.local
PING ns1.empresa-tarea-daw05.local (192.168.1.243) 56(84) bytes of data.
64 bytes from 192.168.1.243 (192.168.1.243): icmp_seq=1 ttl=64 time=1.92 ms

root@ns2:/var/lib/bind# ping -c 1 ns2.empresa-tarea-daw05.local
PING ns2.empresa-tarea-daw05.local (127.0.1.1) 56(84) bytes of data.
64 bytes from linux (127.0.1.1): icmp_seq=1 ttl=64 time=0.151 ms

root@ns2:/var/lib/bind# ping -c 1 www.empresa-tarea-daw05.local
PING www.empresa-tarea-daw05.local (192.168.1.243) 56(84) bytes of data.
64 bytes from 192.168.1.243 (192.168.1.243): icmp_seq=1 ttl=64 time=1.23 ms

root@ns2:/var/lib/bind#
```

```
set type=SOA  
empresa-tarea-daw05.local
```

```
root@ns2:/var/lib/bind# nslookup
> set type=SOA
> empresa-tarea-daw05.local
Server:      127.0.0.1
Address:     127.0.0.1#53

empresa-tarea-daw05.local
  origin = ns1.empresa-tarea-daw05.local
  mail addr = hostmaster.empresa-tarea-daw05.local
  serial = 2011091601
  refresh = 3600
  retry = 600
  expire = 1209600
  minimum = 3600
```

Comprobación:

dig www.empresa-tarea-daw05.local

```
36019175 CSIECOZ MR0614 Despachoamento de aplicações web 2022/2023
Ubuntu (BWS ESCLAVO) Ubuntu (BWS ESCLAVO)
Actividades Terminal 1 de may 18:33 Terminal 1 de may 18:33
root@ns1:/var/lib/bind/master root@ns2:/var/lib/bind
root@ns1:/var/lib/bind/master# nano /etc/bind/named.local
root@ns1:/var/lib/bind/master# dig www.empresa-tarea-daw05.local
;; global options: +cmd
;; Got answer:
;; WARNING: local is reserved for Multicast DNS
;; You are currently testing what happens when a mDNS query is leaked to DNS
;; ANSWER SECTION: www.empresa-tarea-daw05.local. IN A
;; Flags: qr aa rd; QUERY: 1, ANSWER: 1, AUTHORITY: 0, ADDITIONAL: 1

;; OPT PSEUDOSECTION:
EDNS: version: 0, flags: udp; id: 1232
COOKIE: d2d971224139d28d0100000064590601cad3f4a0bd3abf (good)
;; QUESTION SECTION:
;www.empresa-tarea-daw05.local. IN A
;; ANSWER SECTION:
www.empresa-tarea-daw05.local. 3600 IN A 192.168.1.243

;; Query time: 0 msec
;; SERVER: 127.0.0.1#53(127.0.0.1) (UDP)
;; WHEN: Mon May 01 18:33:57 UTC 2023
;; MSG SIZE rcvd: 102

root@ns1:/var/lib/bind/master# > Dns 9.18.1-ubuntu1.3-Ubuntu <>> www.empresa-tarea-daw05.local
local is reserved: +cmd
at answer:
WARNING: local is reserved for Multicast DNS
you are currently testing what happens when an mDNS query is leaked to DNS
dig www.empresa-tarea-daw05.local
;; global options: +cmd
;; Got answer:
;; WARNING: local is reserved for Multicast DNS
;; You are currently testing what happens when a mDNS query is leaked to DNS
;; ANSWER SECTION: www.empresa-tarea-daw05.local. IN A
;; Flags: qr aa rd; QUERY: 1, ANSWER: 1, AUTHORITY: 0, ADDITIONAL: 1

;; OPT PSEUDOSECTION:
EDNS: version: 0, flags: udp; id: 1232
COOKIE: fcacf2c40adeaf0108000645905fadfdcb6560ce9a965 (good)
;; QUESTION SECTION:
;www.empresa-tarea-daw05.local. IN A
;; ANSWER SECTION:
www.empresa-tarea-daw05.local. 3600 IN A 192.168.1.243

;; Query time: 0 msec
;; SERVER: 127.0.0.1#53(127.0.0.1) (UDP)
;; WHEN: Mon May 01 18:33:57 UTC 2023
;; MSG SIZE rcvd: 102

@ns2:/var/lib/bind
```

PASO 5 DEL GUIÓN:

En el servidor Maestro

Configuración del servicio LPAD:

Instalamos:

```
apt install slapd ldap-utils
```

de contraseña del puse admin

Comprobamos:

```
netstat -putan  
systemctl status slapd
```

Z60101A175 CSIEFC03Z MP061A Despliegamiento de aplicaciones web 2022_2023

The screenshot shows two terminal windows side-by-side. The left window is titled 'Ubuntu (DNS MASTER)' and the right is 'Ubuntu (DNS ESCLAVO)'. Both terminals show the command 'root@ns1:/var/lib/bind# systemctl status slapd' and its output. The output indicates that the 'slapd.service' is active (running) since Mon 2023-05-01 18:41:37 UTC, with a 1min 11s ago duration. It lists various process details including ExecStart, Tasks, Memory, CPU usage, and a CGroup path. The logs at the bottom show several informational messages from the 'slapd' daemon starting up.

```
root@ns1:/var/lib/bind# systemctl status slapd
● slapd.service - LSB: OpenLDAP standalone server (Lightweight Directory Access Protocol)
   Loaded: loaded (/etc/init.d/slapd; generated)
   Drop-In: /usr/lib/systemd/system/slapd.service.d
             └─slapd-remain-after-exit.conf
     Active: active (running) since Mon 2023-05-01 18:41:37 UTC; 1min 11s ago
       Docs: man:systemd-sysv-generator(8)
   Process: 3413 ExecStart=/etc/init.d/slapd start (code=exited, status=0/SUCCESS)
   Tasks: 3 (limit: 11732)
  Memory: 3.3M
    CPU: 18ms
   CGroup: /system.slice/slapd.service
           └─3420 /usr/sbin/slapd -h "ldapi:/// -g openldap -u open

may 01 18:41:37 ns1.empresa-tarea-daw05.local systemd[1]: Starting LSB: OpenLDAP...
may 01 18:41:37 ns1.empresa-tarea-daw05.local slapd[3413]: * Starting OpenLDAP...
may 01 18:41:37 ns1.empresa-tarea-daw05.local slapd[3419]: (@#) $OpenLDAP: sl...
                                         Ubuntu Dev...
may 01 18:41:37 ns1.empresa-tarea-daw05.local slapd[3420]: slapd starting
may 01 18:41:37 ns1.empresa-tarea-daw05.local slapd[3413]: ...done.
may 01 18:41:37 ns1.empresa-tarea-daw05.local systemd[1]: Started LSB: OpenLDAP...
```

Localizar donde guarda los logs LDAP:

```
cd /var/log  
grep -R -i "slapd"
```

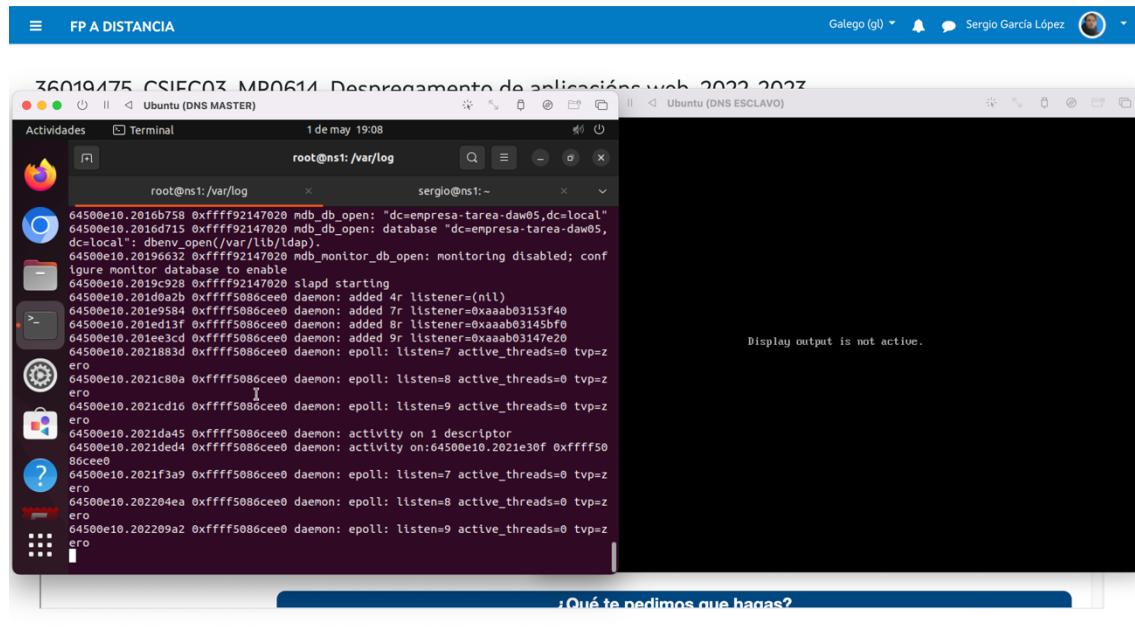
```
36010475 CSIE007 MDP611 Desenvolvimento de aplicações
  □ FPA A DISTANCIA
  □ Desarrollo de aplicaciones
  □ Ubuntu (DNS MASTER)
Actividades Terminal 1 de may 19:00
root@nsl:/var/log
2.04.2
dtko.log: [2023-05-01 18:41:36 status half-configured slapd:armd4 2.5.14+dfsg-0ubun
untb0.22.04.2
dtkg.log: [2023-05-01 18:41:37 status installed slapd:armd4 2.5.14+dfsg-0ubun
tub0.22.04.2
kern.log: May 1 18:41:36 nsl kernel: [ 3605.82070] apparmor="STATUS" operation="profile_load" profile="unconfined" name="/usr/sbin/sshd" pid=336 comm="apparmor_parser"
kern.log: May 1 18:41:36 nsl kernel: [ 3605.82070] apparmor="STATUS" operation="profile_load" profile="unconfined" name="/usr/sbin/ldap" pid=336 comm="apparmor_parser"
kern.log: May 1 18:41:36 nsl kernel: [ 3605.82070] apparmor="STATUS" operation="profile_load" profile="unconfined" name="/usr/sbin/ldap" pid=336 comm="apparmor_parser"
syslog: May 1 18:41:37 nsl slapd[3419]: g) OpenLDAP: slapd: 2.5.14+dfsg-0ubun
tub0.22.04.2 [Mar 12 2023 17:55:51] $#0@10.0.1.10Ubuntu Developers: slapd-devel-dts
cassandra.log: May 1 18:41:37 nsl slapd[3420]: slapd starting
syslog: May 1 18:41:37 nsl slapd[3419]: ...done.
apt/history.log: Commandline: apt install slapd-utils
apt/history.log: apt-db: /var/lib/ldbd/ldbd:armd4 (2.3.9-5.9, automatic), slapd:armd4 (2.5.
14+dfsg-0ubuntub0.22.04.2)
apt/tom.log: Selecting previously unselected package slapd.
apt/tom.log: Preparing to unpack .../slapd_2.5.14+dfsg-0ubuntub0.22.04.2_arm6d4.d
eb.
apt/tom.log: Unpacking slapd (2.5.14+dfsg-0ubuntub0.22.04.2) ...
apt/tom.log: Setting up slapd (2.5.14+dfsg-0ubuntub0.22.04.2) ...
grep: prep: command not found
grep: journal: command not found
root@nsl:/var/log/
```

Revisión de qué ficheros nos instalan los paquetes:

```
dpkg -L slapd | less  
dpkg -L ldap-utils | less
```

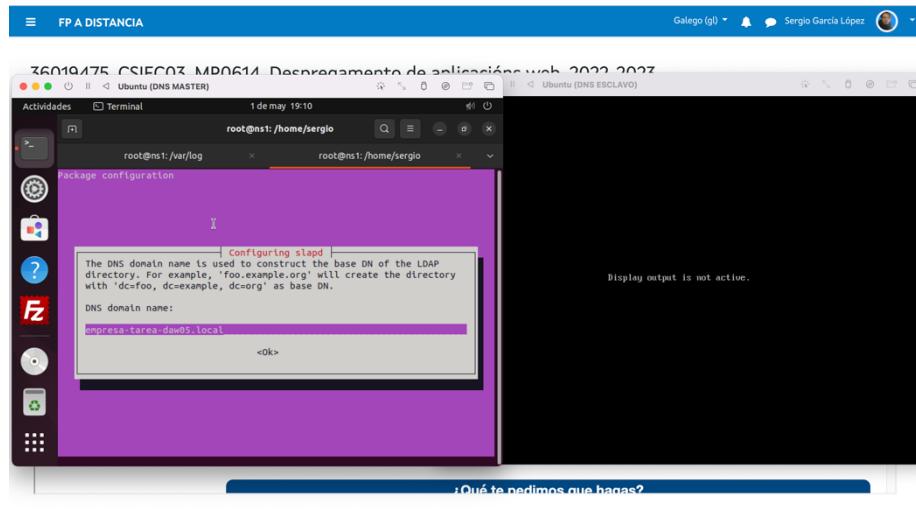
Arrancar el daemon en modo depuración:

```
systemctl stop slapd  
slapd -h "ldap:/// ldapi://" -g openldap -u openldap -F /etc/ldap/slapd.d -d -1
```

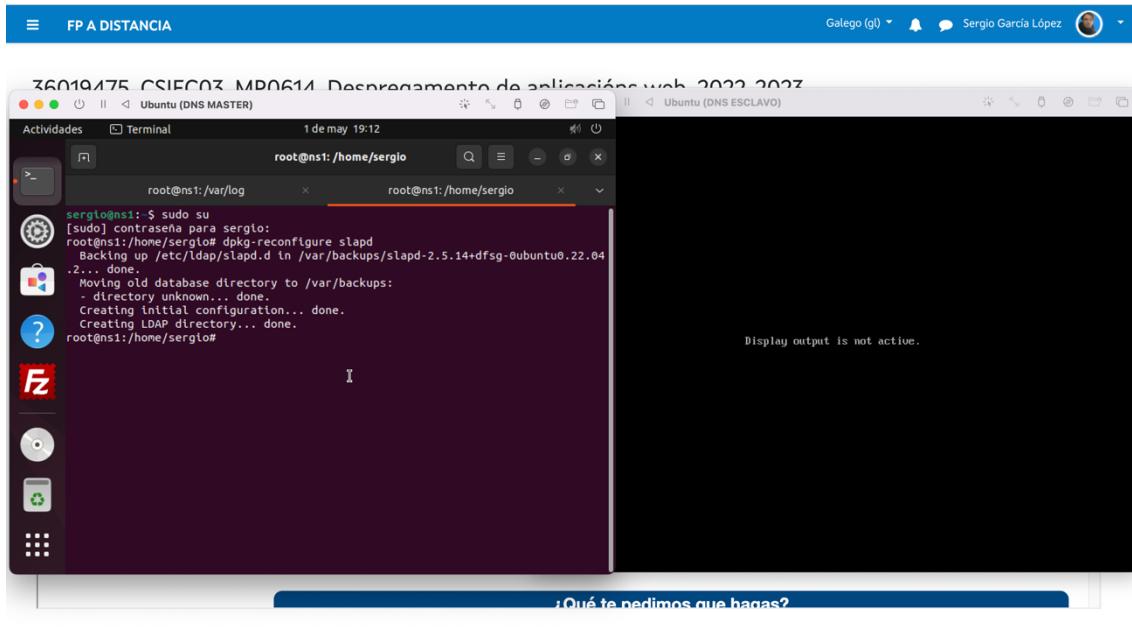


Configurar el servidor OpenLDAP para el nombre de dominio empresa-tarea-daw05.local:

```
dpkg-reconfigure slapd
```



Contraseña: admin



Crear una estructura básica para atender a una unidad organizativa que contenga el departamento de atención al cliente:

Nos movemos a la raíz:

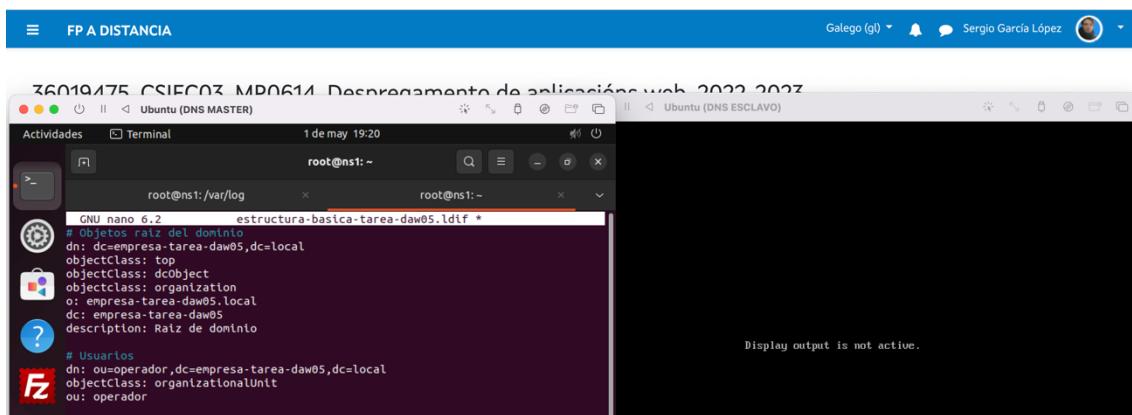
```
cd ~
```

Creamos la carpeta LDAP:

```
mkdir LDAP
```

Creamos el archivo y lo editamos:

```
nano estructura-basica-tarea-daw05.ldif
```



nano usuario-op1.ldif

The screenshot shows a terminal window titled 'FP A DISTANCIA' with the command 'root@ns1:~\$'. The user is running 'nano 6.2' to edit a file named 'usuario-op1.ldif'. The content of the file is as follows:

```
dn: uid=op1,ou=operador,dc=empresa-tarea-daw05,dc=local
objectClass: inetOrgPerson
objectClass: posixAccount
cn: Operador
sn: uno
loginShell: /bin/bash
uidNumber: 10011
gidNumber: 10011
homeDirectory: /home/op1
gecos: Pruebas DAW05
userPassword: oper
mail: op1@empresa-tarea-daw05.local
```

Below the terminal window, there is a message: 'Display output is not active.'

Arranco el slapdc:

systemctl start slapd

Ejecutamos los comandos de carga:

```
ldapadd -x -D cn=admin,dc=empresa-tarea-daw05,dc=local -w admin -f estructura-basica-tarea-daw05.ldif
```

The screenshot shows a terminal window titled 'FP A DISTANCIA' with the command 'root@ns1:~\$'. The user runs 'ldapadd -x -D cn=admin,dc=empresa-tarea-daw05,dc=local -w admin -f estructura-basica-tarea-daw05.ldif'. The output shows:

```
root@ns1:~# ldapadd -x -D cn=admin,dc=empresa-tarea-daw05,dc=local -w admin -f estructura-basica-tarea-daw05.ldif
adding new entry "dc=empresa-tarea-daw05,dc=local"
ldap_add: Already exists (68)
```

```
ldapadd -x -D cn=admin,dc=empresa-tarea-daw05,dc=local -w admin -f usuario-op1.ldif
```

The screenshot shows a terminal window titled 'FP A DISTANCIA' with the command 'root@ns1:~\$'. The user runs 'ldapadd -x -D cn=admin,dc=empresa-tarea-daw05,dc=local -w admin -f usuario-op1.ldif'. The output shows:

```
root@ns1:~# ldapadd -x -D cn=admin,dc=empresa-tarea-daw05,dc=local -w admin -f usuario-op1.ldif
adding new entry "uid=op1,ou=operador,dc=empresa-tarea-daw05,dc=local"
ldap_add: No such object (32)
matched DN: dc=empresa-tarea-daw05,dc=local
```

systemctl status slapd

```
root@ns1:~# systemctl status slapd
● slapd.service - LSB: OpenLDAP standalone server (Lightweight Directory Access Protocol)
   Loaded: loaded (/etc/init.d/slapd; generated)
   Drop-In: /usr/lib/systemd/system/slapd.service.d
             └─slapd-reload-after-exit.conf
     Active: active (running) since Mon 2023-05-01 20:02:38 UTC; 9min ago
       Docs: man:systemd-sysv-generator(8)
   Process: 4120 ExecStart=/etc/init.d/slapd start (code=exited, status=0/SUCCESS)
   Tasks: 3 (limit: 11732)
      Memory: 3.3M
         CPU: 34ms
        CGroup: /system.slice/slapd.service
                  └─/usr/sbin/slapd -h "ldap:/// ldapi://" -g openldap -u openldap -D "/var/lib/ldap" -s bdb -m 1024 -l /var/log/slapd.log -f /etc/ldap/slapd.d -h "ldap:// ldap:// ldapi://"

may 01 20:02:38 ns1.empresa-tarea-daw05.local systemd[1]: Starting LSB: OpenLDAP standalone server (Lightweight Directory Access Protocol)
may 01 20:02:38 ns1.empresa-tarea-daw05.local slapd[4120]: * Starting OpenLDAP server
may 01 20:02:38 ns1.empresa-tarea-daw05.local slapd[4120]: (@#) $OpenLDAP: slapd 2.4.40+git-10-g3a2a2a5c9c-1~22.04.1+deb12u1+1 2023-04-27T14:45:00+0000
may 01 20:02:38 ns1.empresa-tarea-daw05.local slapd[4127]: slapd starting
may 01 20:02:38 ns1.empresa-tarea-daw05.local slapd[4120]: ...done.
may 01 20:02:38 ns1.empresa-tarea-daw05.local systemd[1]: Started LSB: OpenLDAP standalone server (Lightweight Directory Access Protocol)

lines 1-20/20 (END)
```

PASO 6 DEL GUIÓN:

Vamos al Servidor Esclavo:

Instalamos las ldap-utils:

apt install ldap-utils

Revisar toda la estructura DIT del dominio empresa-tarea-daw05.local a través del servidor DNS esclavo:

Nota: En la IP hay que poner la del DNS Master

ldapsearch -D cn=admin,dc=empresa-tarea-daw05,dc=local -w admin -H ldap://192.168.1.243 -b 'dc=empresa-tarea-daw05,dc=local' '(objectclass=*)'

```
root@ns2:~# /var/lib/ldap/ldapsearch -D cn=admin,dc=empresa-tarea-daw05,dc=local -w admin -H ldap://192.168.1.243 -b 'dc=empresa-tarea-daw05,dc=local' '(objectclass=*)
# extended LDIF
#
# LDAPv3
# base <dc=empresa-tarea-daw05,dc=local> with scope subtree
# filter: (objectclass=*)
# requesting: ALL
#
# search result
# search: 2
# result: 0 Success
#
# numResponses: 2
# numEntries: 1
root@ns2:/var/lib/ldap#
```