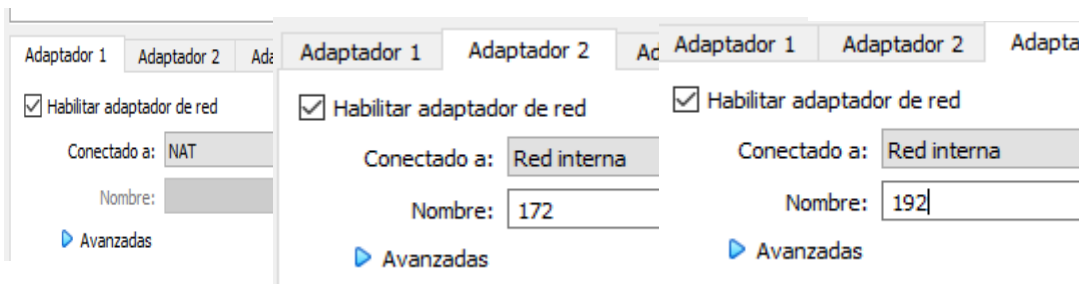


Manual : Tarea 4-6 Instala y configura un servidor DHCP y DNS en Ubuntu

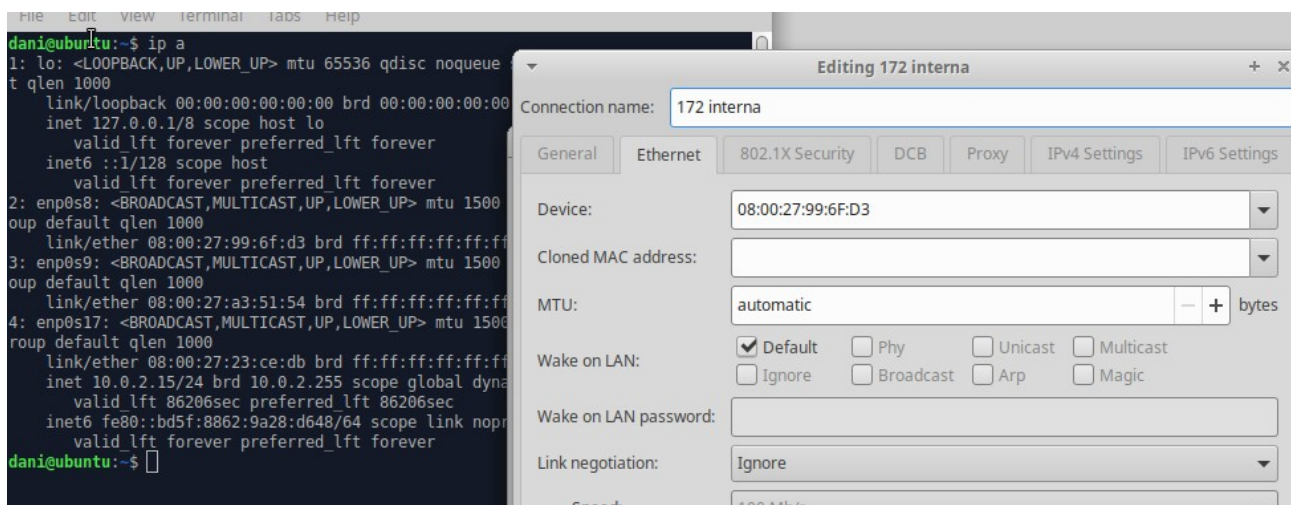
Creamos una maquina virtual con xubuntu y nos vamos a la parte de opciones dentro de la parte de opciones configuramos los adaptadores para que dos esten en red interna y otra en nat .

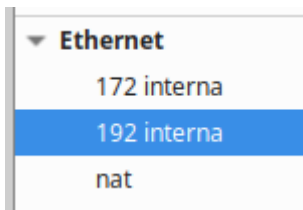


Dentro de la maquina virtual nos vamos a la consola y ponemos el comando ip a y vemos la direccion mac de las ip que no reconoce

```
2: enp0s8: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc fq_codel
    link/ether 08:00:27:99:6f:d3 brd ff:ff:ff:ff:ff:ff
3: enp0s9: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc fq_codel
    link/ether 08:00:27:a3:51:54 brd ff:ff:ff:ff:ff:ff
4: enp0s17: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc fq_codel
    link/ether 08:00:27:23:ce:db brd ff:ff:ff:ff:ff:ff
    inet 10.0.2.15/24 brd 10.0.2.255 scope global dynamic noprefixroute
        valid_lft 86206sec preferred_lft 86206sec
    inet6 fe80::bd5f:8862:9a28:d648/64 scope link noprefixroute
        valid_lft forever preferred_lft forever
```

Abrimos las opciones de la red y comprobamos cual de las redes son con las direcciones mac y las renombramos para tener mas claro cual es cada una





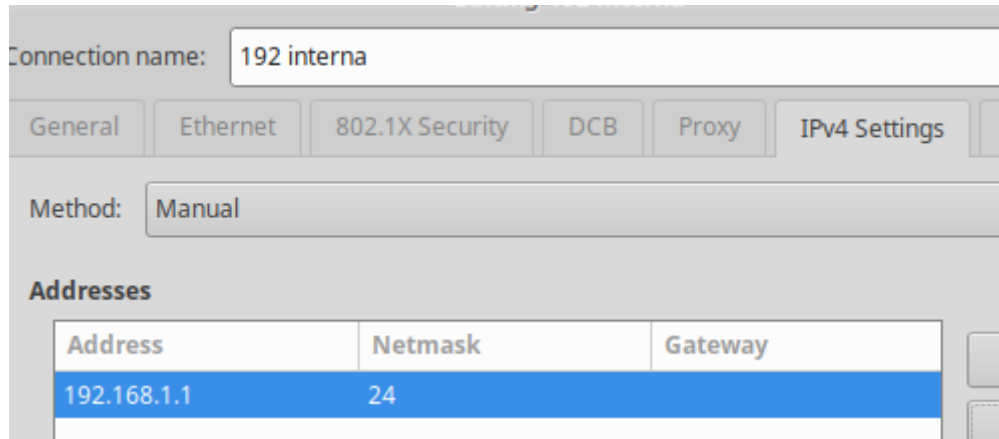
Una vez ya renombradas todos los adaptadores ahora , iremos a la configuración de los llamados “172 red interna y 192 red interna”

Y ponemos la mascara y ip y ip

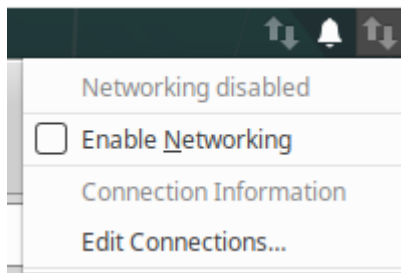
192.168.1.1

172.16.1.1

De la misma manera que viene en la siguiente foto se hace con la otra



Activamos y desactivamos esta opción para que recargen las conexiones



Nos volvemos a meter a la terminal y vemos si ahora le asignan las ips correspondientes a las redes internas .

```

valid_lft forever preferred_lft forever
2: enp0s8: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500
    link/ether 08:00:27:99:6f:d3 brd ff:ff:ff:ff:ff:ff
    inet 172.16.1.1/24 brd 172.16.1.255 scope global
        valid_lft forever preferred_lft forever
    inet6 fe80::bb02:7d03:40:c9b1/64 scope link
        valid_lft forever preferred_lft forever
3: enp0s9: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500
    link/ether 08:00:27:a3:51:54 brd ff:ff:ff:ff:ff:ff
    inet 192.168.1.1/24 brd 192.168.1.255 scope global
        valid_lft forever preferred_lft forever
    inet6 fe80::d8c2:728f:abc:7be0/64 scope link
        valid_lft forever preferred_lft forever
4: enp0s17: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500
    link/ether 08:00:27:23:ce:db brd ff:ff:ff:ff:ff:ff
    inet 10.0.2.15/24 brd 10.0.2.255 scope global
        valid_lft forever preferred_lft forever

```

Actualizamos con get update

Y instalamos bind9

```
root@ubuntu:/home/dani# apt-get install bind9
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following additional packages will be installed:
  snapd
Suggested packages:
  bind9-doc resolvconf
The following NEW packages will be installed:
  bind9
The following packages will be upgraded:
  snapd
1 upgraded, 1 newly installed, 0 to remove and 11 not upgraded.
1 not fully installed or removed.
Need to get 397 kB/34.7 MB of archives.
After this operation, 39.6 MB of additional disk space will be used.
Do you want to continue? [Y/n] y
Get:1 http://us.archive.ubuntu.com/ubuntu bionic-updates/main amd64 bind9 amd64 9.11.4-1ubuntu1.1 [397 kB]
Fetched 397 kB in 0s (3.681 kB/s)
```

Una vez instalado bind9 , configuramos con el siguiente comando sudo ufw allow bind9

```
root@ubuntu:/home/dani# sudo ufw allow bind9
Rules updated
Rules updated (v6)
```

Establecemos el siguiente comando para trabajar unicamente con IPv4 sudo nano /etc/default/bind9
y una vez dentro en la parte de options añadimos “-4 “

```
# run resolvconf?
RESOLVCONF=no

# startup options for the server
OPTIONS="-u bind -4"
```

Ponemos el siguiente comando para recargar bind9 “sudo systemctl reload bind9 “

Desactivamos DNSSEC entrando en el nano “sudo nano /etc/bind/named.conf.options” , una vez dentro buscamos la siguiente directiva .

```
//=====
dnssec-validation auto;
```

Y la editamos ,y tambien editamos la parte que pone forwarders para que queda tal que asi

```
forwarders {
    192.168.200.1;
};

//=====
// If BIND logs error messages about the root key being
// you will need to update your keys. See https://www.
//=====
//
dnssec-validation auto;
dnssec-validation no;
auth-nxdomain no;    # conform to RFC1035
listen-on-v6 { any; };
```

Reiniciamos bind9 “systemctl restart bind9”

Y comprobamos su estatus con “systemctl status bind9”

Nos metemos en el siguiente nano
y borramos la # que esta antes de
net

```
GNU nano 2.9.3 /etc/sysctl.conf
#net.ipv4.conf.all.rp_filter=1
# Uncomment the next line to enable TCP/IP SYN cookies
# See http://lwn.net/Articles/277146/
# Note: This may impact IPv6 TCP sessions too
#net.ipv4.tcp_syncookies=1
# Uncomment the next line to enable packet forwarding for IPv4
net.ipv4.ip_forward=1
# Uncomment the next line to enable packet forwarding for IPv6
```

Instalamos dhcp con el comando :#apt-get install isc-dhcp-server

```
root@ubuntu:/home/dani# apt-get install isc-dhcp-server
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following additional packages will be installed:
  libirs-export160 libiscfg-export160
Suggested packages:
  isc-dhcp-server-ldap polycoreutils
The following NEW packages will be installed:
```

Una vez instalado

configuramos con nano /etc/dhcp/dhcpd.conf

Una vez aquí con ctrl + k borramos todas las lineas

```
GNU nano 2.9.3 /etc/dhcp/dhcpd.conf
# dhcpd.conf
# Sample configuration file for ISC dhcpd
# Attention: If /etc/ltsp/dhcpd.conf exists, that will be used as
# configuration file instead of this file.
# option definitions common to all supported networks...
option domain-name "example.org";
option domain-name-servers ns1.example.org, ns2.example.org;
default-lease-time 600;
max-lease-time 7200;
# The ddns-update-style parameter controls whether or not the server will
# attempt to update the dns database of the ip:
# behavior is defined by the 'ddns-update-style' parameter.
# have
```

Copiamos exactamente igual esto

```
ddns-update-style none;
default-lease-time 600;
max-lease-time 1000;
subnet 192.168.1.0 netmask 255.255.255.0 {
  range 192.168.1.150 192.168.1.190;
  option routers 192.168.1.1;
  option domain-name-servers 192.168.1.1;
}
subnet 172.16.1.0 netmask 255.255.255.0 {
  range 172.16.1.50 172.16.1.80;
  option routers 172.16.1.1;
  option domain-name-servers 172.16.1.1;
}
```

Una vez copiado guardamos con ctrl + o y ctrl + x

```
dns-update-style none;
default-lease-time 600;
max-lease-time 1000;

subnet 192.168.1.0 netmask 255.255.255.0 {
    range 192.168.1.150 192.168.1.190;
    option routers 192.168.1.1;
    option domain-name-servers 192.168.1.1;
}

subnet 172.16.1.0 netmask 255.255.255.0 {
    range 172.16.1.50 172.16.1.80;
    option routers 172.16.1.1;
    option domain-name-servers 172.16.1.1;
}

INTERFACESv4="enp0s8 enp0s9"
INTERFACESv6=""
```

Editamos # nano /etc/default/isc-dhcp-server para que quede tal que asi

Salimos del nano , guardandolo antes

Reiniciamos el servicio dhcp con el comando: # systemctl restart isc-dhcp-server.service

Y comprobamos su estado con : # systemctl status isc-dhcp-server.service

```
root@ubuntu:/home/dani# nano etc/dhcp/dhcpd.conf
root@ubuntu:/home/dani# nano /etc/dhcp/dhcpd.conf
root@ubuntu:/home/dani# systemctl restart isc-dhcp-server.service
root@ubuntu:/home/dani# systemctl status isc-dhcp-server.service
● isc-dhcp-server.service - ISC DHCP IPv4 server
   Loaded: loaded (/lib/systemd/system/isc-dhcp-server.service; enabled; vendor preset: enabled)
   Active: active (running) since Thu 2022-03-03 02:01:23 PST; 4s ago
     Docs: man:dhcpd(8)
   Main PID: 15423 (dhcpd)
    Tasks: 1 (limit: 4659)
   CGroup: /system.slice/isc-dhcp-server.service
           └─15423 dhcpd -user dhcpd -group dhcpd -f -4 -pf /run/dhcp-server/d

Mar 03 02:01:23 ubuntu sh[15423]: Listening on LPF/enp0s9/08:00:27:a3:51:54/192.168.1.0
Mar 03 02:01:23 ubuntu dhcpd[15423]: Sending on LPF/enp0s9/08:00:27:a3:51:54/192.168.1.0
Mar 03 02:01:23 ubuntu sh[15423]: Sending on LPF/enp0s9/08:00:27:a3:51:54/192.168.1.0
Mar 03 02:01:23 ubuntu dhcpd[15423]: Listening on LPF/enp0s8/08:00:27:99:6f:d3/172.16.1.0
Mar 03 02:01:23 ubuntu sh[15423]: Listening on LPF/enp0s8/08:00:27:99:6f:d3/172.16.1.0
Mar 03 02:01:23 ubuntu dhcpd[15423]: Sending on LPF/enp0s8/08:00:27:99:6f:d3/172.16.1.0
Mar 03 02:01:23 ubuntu sh[15423]: Sending on LPF/enp0s8/08:00:27:99:6f:d3/172.16.1.0
Mar 03 02:01:23 ubuntu dhcpd[15423]: Sending on Socket/fallback/fallback-net
Mar 03 02:01:23 ubuntu sh[15423]: Sending on Socket/fallback/fallback-net
Mar 03 02:01:23 ubuntu dhcpd[15423]: Server starting service.
lines 1-19/19 (END)
```

Creamos un archivo nat.sh y lo configuramos así

```
GNU nano 2.9.3 nat.sh

iptables -F
iptables -t nat -F
iptables -t mangle -F

iptables -A FORWARD -i enp0s8 -j ACCEPT
iptables -A FORWARD -i enp0s9 -j ACCEPT

iptables -t nat -A POSTROUTING -o enp0s3 -j MASQUERADE
```

Y ponemos el comando `chmod a+x nat.sh` para darle permisos y poder ejecutarlo

Lo ejecutamos con el comando `./nat.sh`

```
root@ubuntu:/home/dani# chmod a+x nat.sh
root@ubuntu:/home/dani# ./nat.sh
```

Reiniciamos el servidor dhcp y el bind9 y vemos sus estatus .

Después nos conectamos con un servidor cliente al servidor

Red

Adaptador 1 Adaptador 2 Adaptador 3 Adaptador 4

☒ Habilitar adaptador de red

Conectado a: Red interna

Nombre: 172

Avanzadas

- 172
- 192
- intnet

Nos metemos dentro vemos que en la consola con el comando `ip a` a asignado una de los franjos de ip establecidos en la maquina principal

```
dani@ubuntu:~$ 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: enp0s17: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc fq_codel state UP group default qlen 1000
    link/ether 08:00:27:38:03:aa brd ff:ff:ff:ff:ff:ff
    inet 172.16.1.50/24 brd 172.16.1.255 scope global dynamic noprefixroute enp0s17
        valid_lft 593sec preferred_lft 593sec
    inet6 fe80::c890:15e0:4b74:3724/64 scope link noprefixroute
        valid_lft forever preferred_lft forever
dani@ubuntu:~$
```

Una vez comprobado esto

ya hemos terminado por completo con la practica

Franciso Javier Usero Sanchez 1SMR