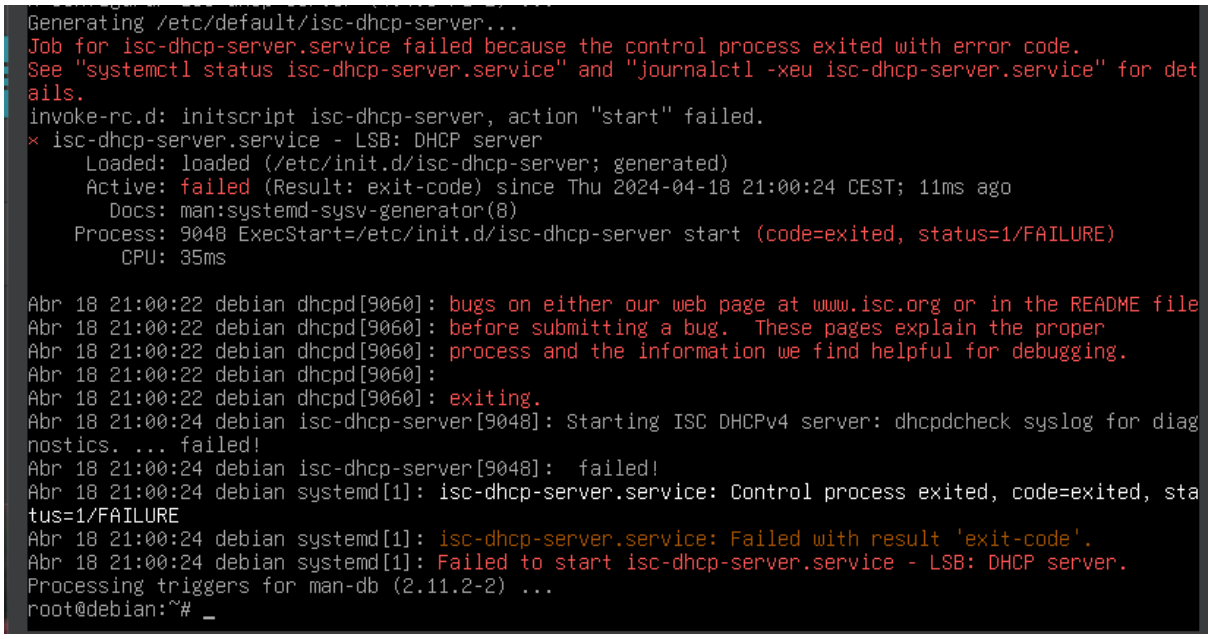
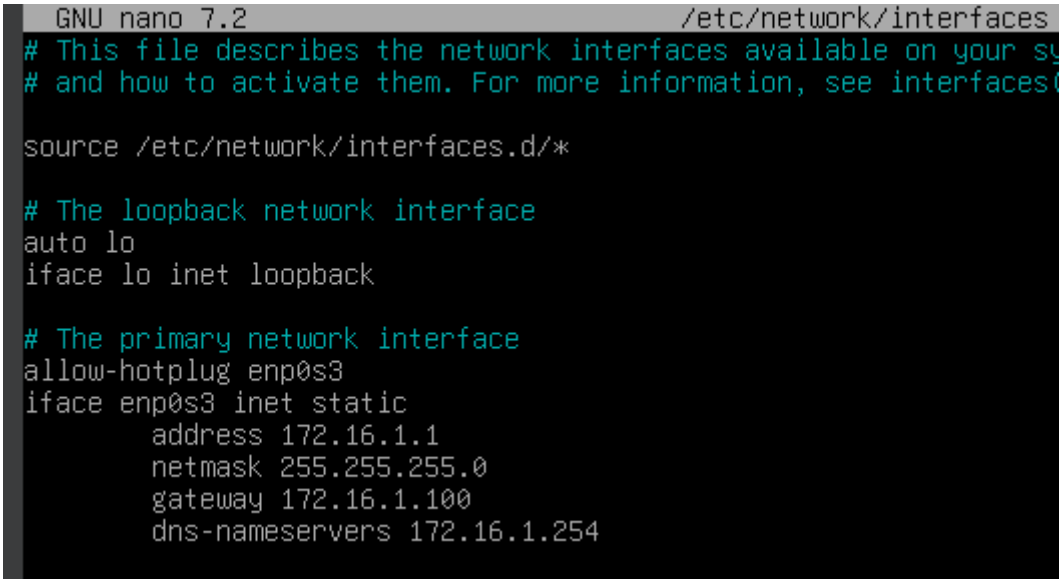
DHCP

Seguindo a documentación proporcionada terás que:

1. Instala un servidor DHCP nunha máquina Debian Server. Ollo porque non coincide nin a nomenclatura nin a infraestrutura de rede co que nos temos e teremos. Fai as adaptacións pertinentes. Saca capturas do servizo arrincado.



2. Terás que montar unha infraestrutura sinxela na rede 172.16.X.0/24 que sirva enderezos IPs aos clientes, onde X será o teu posto na aula. O rango de enderezos a asignar serán entre o 10 e o 20. O servidor DHCP terá a IP X.X.X.1, o gateway terá a IP X.X.X.100, o servidor DNS a IP X.X.X.254 e o nome de dominio será "`si.local`". Saca capturas do arquivo de configuración final.



```
  GNU nano 7.2                          /etc/dhcp/dhcpd.conf
#}

# You can declare a class of clients and then do address allocation
# based on that.   The example below shows a case where all clients
# in a certain class get addresses on the 10.17.224/24 subnet, and all
# other clients get addresses on the 10.0.29/24 subnet.

#class "foo" {
#  match if substring (option vendor-class-identifier, 0, 4) = "SUNW";
#}

#shared-network 224-29 {
#  subnet 10.17.224.0 netmask 255.255.255.0 {
#    option routers rtr-224.example.org;
#  }
#  subnet 10.0.29.0 netmask 255.255.255.0 {
#    option routers rtr-29.example.org;
#  }
#  pool {
#    allow members of "foo";
#    range 10.17.224.10 10.17.224.250;
#  }
#  pool {
#    deny members of "foo";
#    range 10.0.29.10 10.0.29.230;
#  }
#}
subnet 172.16.1.0 netmask 255.255.255.0 {
        range 172.16.1.10 172.16.1.20;
        option domain-name-servers 172.16.1.254;
        option routers 172.16.1.100;
}


^G Axuda      ^O Gravar     ^W ¿U-lo?     ^K Cortar     ^T Executar   ^C Posición   M-U Desfacer
^X Saír       ^R Ler Fich   ^\ Substituir ^U Pegar      ^J Xustificar ^- Ir á liña  M-E Refacer
```

```
  GNU nano 7.2                          /etc/default/isc-dhcp-server *
# Defaults for isc-dhcp-server (sourced by /etc/init.d/isc-dhcp-server

# Path to dhcpd's config file (default: /etc/dhcp/dhcpd.conf).
#DHCPDv4_CONF=/etc/dhcp/dhcpd.conf
#DHCPDv6_CONF=/etc/dhcp/dhcpd6.conf

# Path to dhcpd's PID file (default: /var/run/dhcpd.pid).
#DHCPDv4_PID=/var/run/dhcpd.pid
#DHCPDv6_PID=/var/run/dhcpd6.pid

# Additional options to start dhcpd with.
#       Don't use options -cf or -pf here; use DHCPD_CONF/ DHCPD_PID i
#OPTIONS=""

# On what interfaces should the DHCP server (dhcpd) serve DHCP request
#       Separate multiple interfaces with spaces, e.g. "eth0 eth1".
INTERFACESv4="enp0s3"
INTERFACESv6=""
```

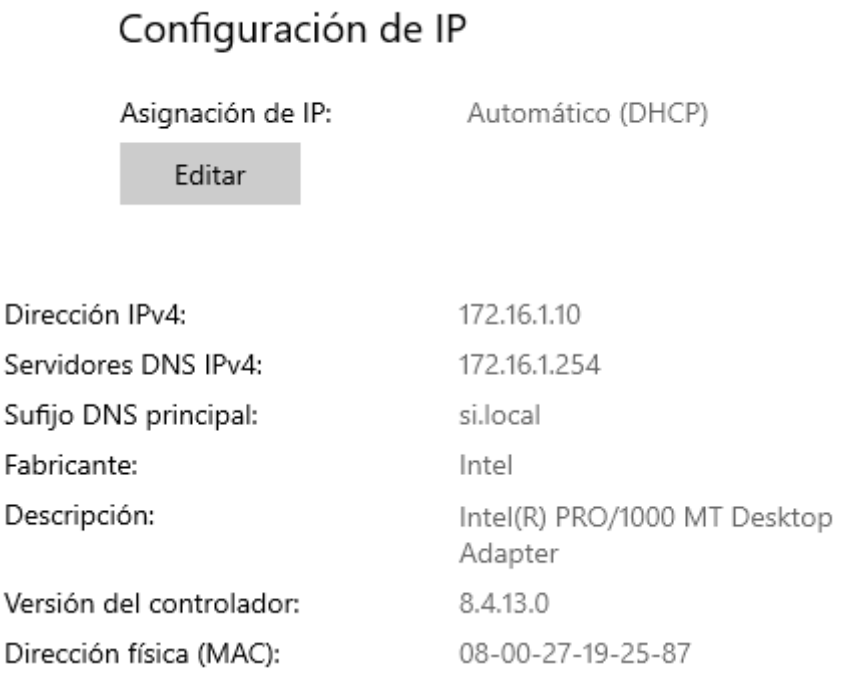
Comprobamos si la sintaxis es correcta con dhcpd -t:

```
ladmin@debian:~$ dhcpd -t
-bash: dhcpd: non se atopou a orde
ladmin@debian:~$ su -
Password:
root@debian:~# dhcpd -t
Internet Systems Consortium DHCP Server 4.4.3-P1
Copyright 2004-2022 Internet Systems Consortium.
All rights reserved.
For info, please visit https://www.isc.org/software/dhcp/
Config file: /etc/dhcp/dhcpd.conf
Database file: /var/lib/dhcp/dhcpd.leases
PID file: /var/run/dhcpd.pid
```

Refrescamos el servicio:

```
root@debian:~# service isc-dhcp-server restart
root@debian:~#
```

Voy a la máquina de windows donde tenía instalado el wireshark, y ya automáticamente detecta el dhcp:

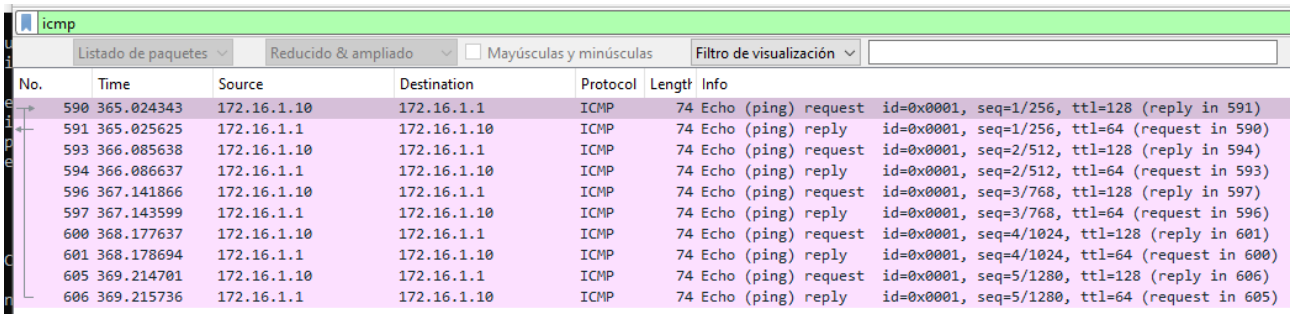


Reinicio con es comando sudo systemctl restart NetworkManager para refrescar la ip de ubunto una vez configuro la ip automática para que coja el dhcp.

```
alumno@alumno-VirtualBox:~$ sudo systemctl restart NetworkManager
alumno@alumno-VirtualBox:~$ ip a
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN group defau
lt 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 g
roup default qlen 1000
    link/ether 08:00:27:35:6a:6a brd ff:ff:ff:ff:ff:ff
    inet 172.16.1.11/24 brd 172.16.1.255 scope global dynamic noprefixroute enp
0s3
       valid_lft 499sec preferred_lft 499sec
    inet6 fe80::e57b:836c:be49:8b07/64 scope link noprefixroute
       valid_lft forever preferred_lft forever
```

3. Reutiliza a máquina que tiña o sniffer (se é que aínda a tes, senón terás que volver a instalalo) e captura a trama onde se fai a petición e a asignación de IP por DHCP entre un

cliente e o servidor DHCP. Saca unha captura onde se vexan eses datos (Sniffer e datos do interfaz xa coa configuración).



4. Agora terás que facer reservas por MAC. Ao primeiro cliente terás que asignarlle sempre a IP X.X.X.15 e ao segundo X.X.X.17. Saca capturas do arquivo de configuración e dos resultados.

```
  GNU nano 7.2                                  /etc/dhcp/dhcpd.conf

#shared-network 224-29 {
#  subnet 10.17.224.0 netmask 255.255.255.0 {
#    option routers rtr-224.example.org;
#  }
#  subnet 10.0.29.0 netmask 255.255.255.0 {
#    option routers rtr-29.example.org;
#  }
#  pool {
#    allow members of "foo";
#    range 10.17.224.10 10.17.224.250;
#  }
#  pool {
#    deny members of "foo";
#    range 10.0.29.10 10.0.29.230;
#  }
#}
subnet 172.16.1.0 netmask 255.255.255.0 {
        range 172.16.1.10 172.16.1.20;
        option domain-name-servers 172.16.1.254;
        option routers 172.16.1.100;
}

host windows {
        hardware ethernet 08:00:27:19:25:87;
        fixed-address 172.16.1.15;
}

host Ubuntu {
        hardware ethernet 08:00:27:35:6a:6a;
        fixed-address 172.16.1.17;
}
```

Reiniciamos los clientes para que cojan la nueva configuración:

Ubuntu:

```
alumno@alumno-VirtualBox:~$ ip a
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN group defau
lt 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 g
roup default qlen 1000
    link/ether 08:00:27:35:6a:6a brd ff:ff:ff:ff:ff:ff
    inet 172.16.1.11/24 brd 172.16.1.255 scope global dynamic noprefixroute enp
0s3
       valid_lft 481sec preferred_lft 481sec
    inet 172.16.1.17/24 brd 172.16.1.255 scope global secondary dynamic noprefi
xroute enp0s3
       valid_lft 598sec preferred_lft 598sec
    inet6 fe80::e57b:836c:be49:8b07/64 scope link noprefixroute
       valid_lft forever preferred_lft forever
alumno@alumno-VirtualBox:~$ ping -c 3 172.16.1.1
PING 172.16.1.1 (172.16.1.1) 56(84) bytes of data.
64 bytes from 172.16.1.1: icmp_seq=1 ttl=64 time=1.12 ms
64 bytes from 172.16.1.1: icmp_seq=2 ttl=64 time=1.87 ms
64 bytes from 172.16.1.1: icmp_seq=3 ttl=64 time=1.18 ms
```

Windows:

```
Adaptador de Ethernet Ethernet:

   Sufijo DNS específico para la conexión. . : si.local
   Descripción . . . . . . . . . . . . . . . : Intel(R) PRO/1000 MT Desktop Adapter
   Dirección física. . . . . . . . . . . . . : 08-00-27-19-25-87
   DHCP habilitado . . . . . . . . . . . . . : sí
   Configuración automática habilitada . . . : sí
   Vínculo: dirección IPv6 local. . . : fe80::5101:c93b:5290:9b9f%5(Preferido)
   Dirección IPv4. . . . . . . . . . . . . . : 172.16.1.15(Preferido)
   Máscara de subred . . . . . . . . . . . . : 255.255.255.0
   Concesión obtenida. . . . . . . . . . . . : jueves, 2 de mayo de 2024 12:01:40
   La concesión expira . . . . . . . . . . . : jueves, 2 de mayo de 2024 12:12:03
   Puerta de enlace predeterminada . . . . . : 172.16.1.100
   Servidor DHCP . . . . . . . . . . . . . . : 172.16.1.1
   IAID DHCPv6 . . . . . . . . . . . . . . . : 101187623
   DUID de cliente DHCPv6. . . . . . . . . . : 00-01-00-01-2D-B3-04-BD-08-00-27-19-25-87
   Servidores DNS. . . . . . . . . . . . . . : 172.16.1.254
   NetBIOS sobre TCP/IP. . . . . . . . . . . : habilitado
```