

Configuración de clientes DHCP en varios SS.OO.

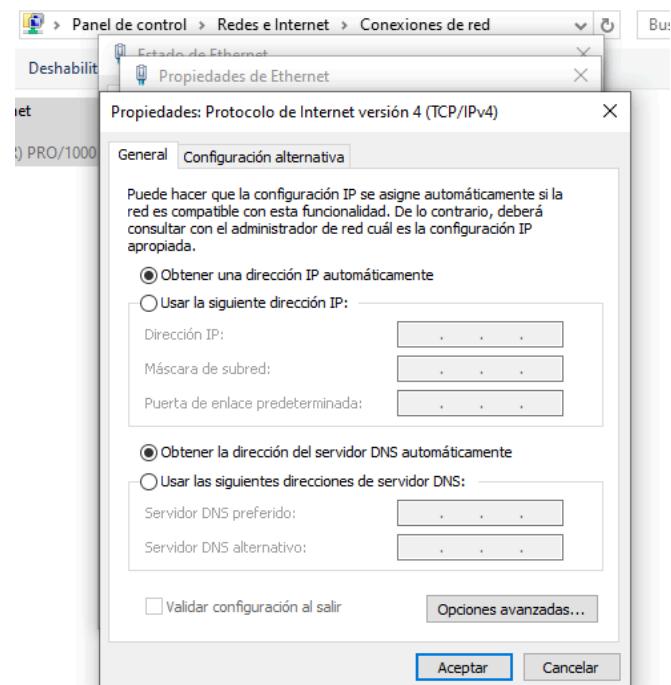
Práctica 1 - Unidad de Trabajo 1 SERVICIOS DE RED E INTERNET

En esta práctica vamos a documentar los pasos para configurar un cliente DHCP/IP estática en diversos Sistemas Operativos (con y sin G.U.I.) y en sus variantes en contenedor. Usaremos para ello las máquinas virtuales y contenedores en Proxmox/AWS/GNS3 y

1.- configura un interfaz de red de máquinas con los siguientes SS.OO.:
SISTEMAS OPERATIVOS

a) WINDOWS 10/11/Server 2016+ (VM o real)

DHCP (ejercicio 1)



ejercicio 2

```
Administrator: Símbolo del sistema
Microsoft Windows [Versión 10.0.19045.3803]
(c) Microsoft Corporation. Todos los derechos reservados.

C:\Windows\system32>ipconfig

Configuración IP de Windows

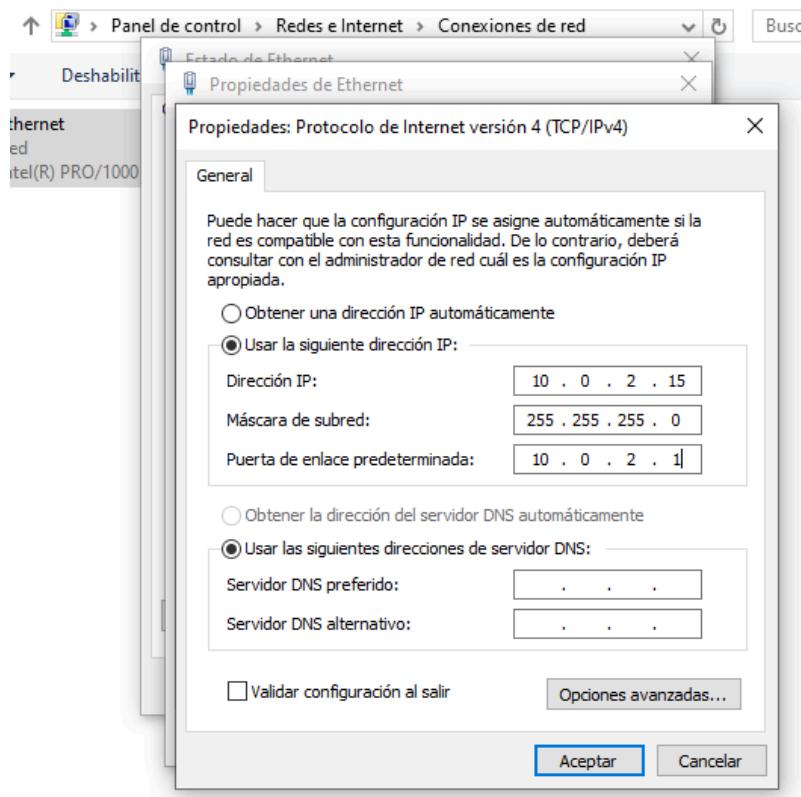
Adaptador de Ethernet Ethernet:

    Sufijo DNS específico para la conexión. . . : institutodh.net
    Vínculo: dirección IPv6 local. . . : fe80::aa53:9fc9:1fd5:4717%6
    Dirección IPv4. . . . . : 10.0.2.15
    Máscara de subred . . . . . : 255.255.255.0
    Puerta de enlace predeterminada . . . . : 10.0.2.2

C:\Windows\system32>
```

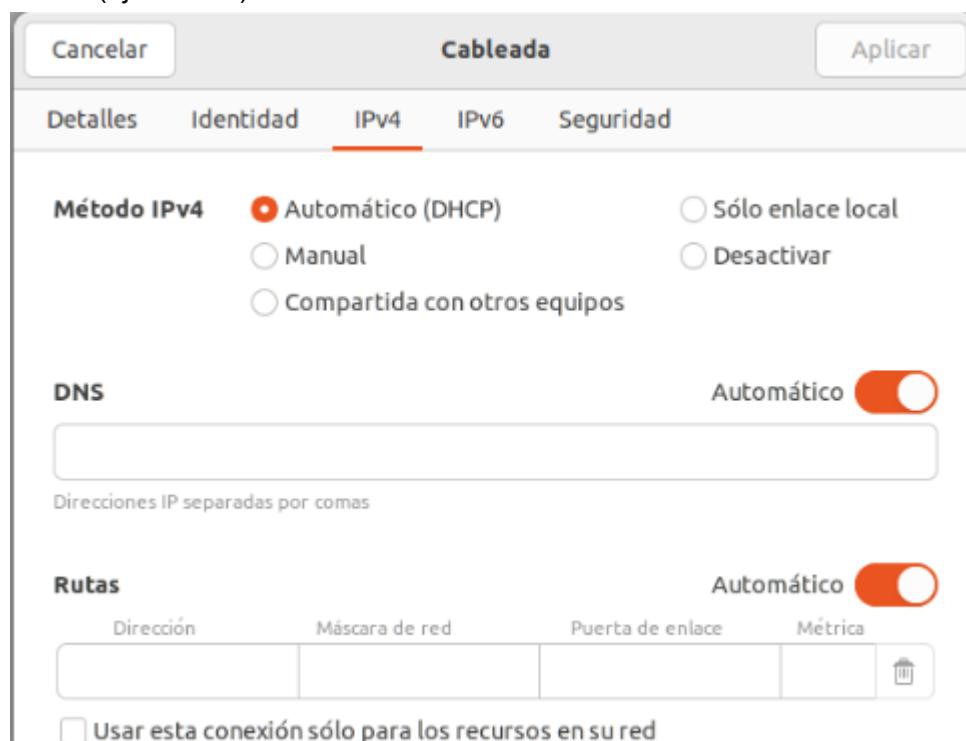
Estático (ejercicio 3)

es de red

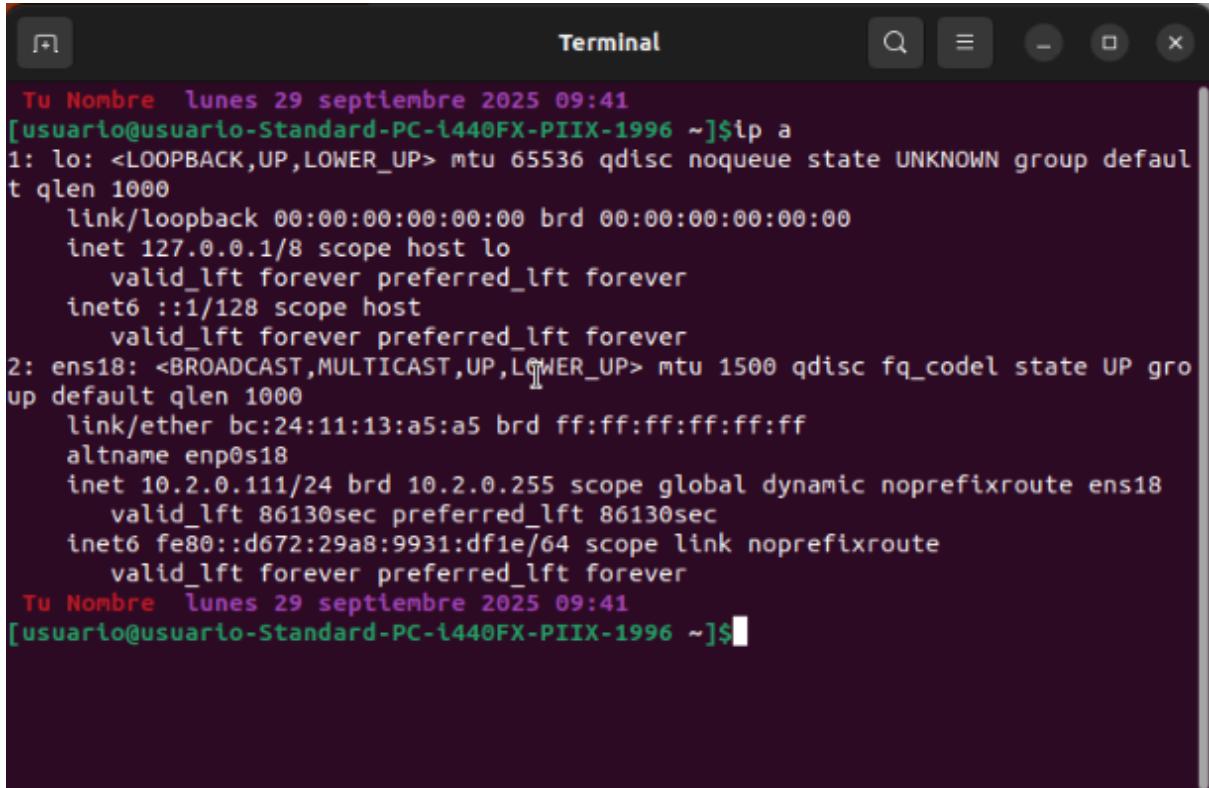


b) UBUNTU 20+ DESKTOP (PROXMOX)

DHCP (ejercicio 1)



ejercicio 2



```
Tu Nombre lunes 29 septiembre 2025 09:41
[usuario@usuario-Standard-PC-i440FX-PIIX-1996 ~]$ 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: ens18: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc fq_codel state UP group default qlen 1000
    link/ether bc:24:11:13:a5:a5 brd ff:ff:ff:ff:ff:ff
    altname enp0s18
    inet 10.2.0.111/24 brd 10.2.0.255 scope global dynamic noprefixroute ens18
        valid_lft 86130sec preferred_lft 86130sec
    inet6 fe80::d672:29a8:9931:df1e/64 scope link noprefixroute
        valid_lft forever preferred_lft forever
Tu Nombre lunes 29 septiembre 2025 09:41
[usuario@usuario-Standard-PC-i440FX-PIIX-1996 ~]$
```

Estatica (ejercicio 3)



The screenshot shows a configuration dialog for static IP settings. At the top, there are tabs for 'Cancelar' (Cancel), 'Cableada' (Cabling), and 'Aplicar' (Apply). Below these are tabs for 'Detalles', 'Identidad', 'IPv4' (which is selected and highlighted in red), 'IPv6', and 'Seguridad'. Under the 'IPv4' tab, the 'Método IPv4' section shows four options: 'Automático (DHCP)' (radio button unselected), 'Manual' (radio button selected with a red dot), 'Sólo enlace local' (radio button unselected), and 'Desactivar' (radio button unselected). Below this, the 'Direcciones' section contains three rows for IP configuration. The first row has fields for 'Dirección' (10.2.0.111), 'Máscara de red' (255.255.255.0), and 'Puerta de enlace' (10.2.0.1) which is highlighted with a red border. The second row is partially visible with empty fields. At the bottom, there is a 'DNS' section with a 'Automático' toggle switch (on) and a text input field for DNS addresses, with the placeholder 'Direcciones IP separadas por comas' (IP addresses separated by commas).

c) UBUNTU 20+ SERVER (AWS)

DHCP (ejercicio 1)

```
GNU nano 6.2                                         /etc/netplan/00-installer-config.yaml
# This is the network config written by 'subiquity'
network:
  version: 2
  ethernets:
    ens18:
      dhcp4: true
```

ejercicio 2

```
Armando viernes 26 septiembre 2025 07:23
[usuario@server2asir ~]$ip route
default via 10.2.4.1 dev ens18 proto static
10.2.4.0/24 dev ens18 proto kernel scope link src 10.2.4.102
Armando viernes 26 septiembre 2025 07:23
[usuario@server2asir ~]$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: ens18: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc fq_codel state UP group default qlen 1000
    link/ether bc:24:11:4b:0a:84 brd ff:ff:ff:ff:ff:ff
    altname enp0s18
    inet 10.2.4.102/24 brd 10.2.4.255 scope global ens18
        valid_lft forever preferred_lft forever
    inet6 fe80::be24:11ff:fe4b:a84/64 scope link
        valid_lft forever preferred_lft forever
Armando viernes 26 septiembre 2025 07:24
[usuario@server2asir ~]$
```

Estático (ejercicio 3)

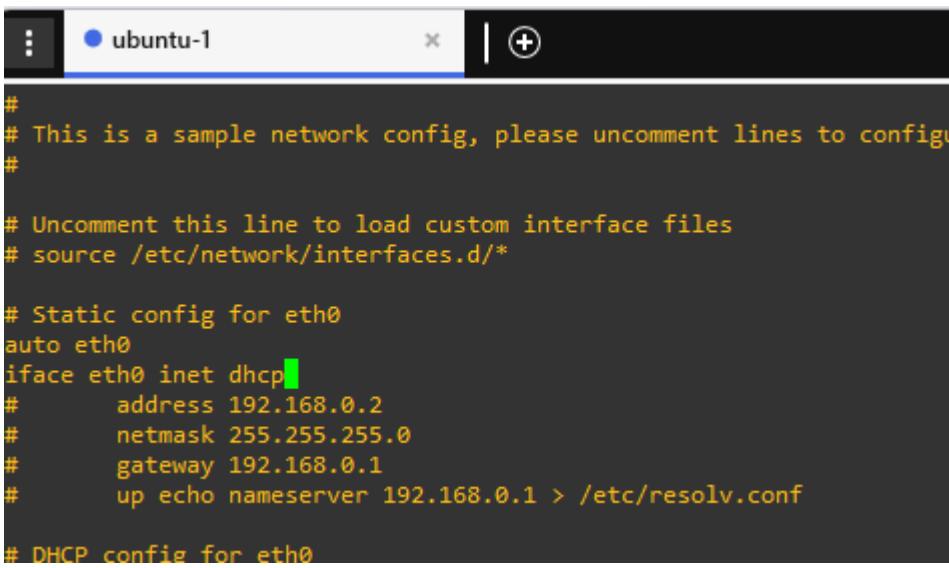
```
Armando viernes 26 septiembre 2025 07:17
[usuario@server2asir ~]$sudo nano /etc/netplan/00-installer-config.yaml _
```

```
GNU nano 6.2                                         /etc/netplan/00-installer-config.yaml
# This is the network config written by 'subiquity'
network:
  version: 2
  ethernets:
    ens18:
      dhcp4: false
      dhcp6: false
      addresses:
        - 10.2.4.102/24
      routes:
        - to: 0.0.0.0/0
          via: 10.2.4.1
      nameservers:
        addresses: [8.8.8.8,8.8.4.4]
```

d) UBUNTU 20+ EN CONTENEDOR (GNS3)

dhcp (ejercicio1)

```
root@ubuntu-1:/# /gns3/bin/busybox vi /etc/network/interfaces
```



```
# This is a sample network config, please uncomment lines to config
#
# Uncomment this line to load custom interface files
# source /etc/network/interfaces.d/*

# Static config for eth0
auto eth0
iface eth0 inet dhcp
#     address 192.168.0.2
#     netmask 255.255.255.0
#     gateway 192.168.0.1
#     up echo nameserver 192.168.0.1 > /etc/resolv.conf

# DHCP config for eth0
```

ejercicio 2

```
root@ubuntu-1:/# /gns3/bin/busybox ip a
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue 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
20: eth0: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc fq_codel qlen 1000
    link/ether 02:42:d5:16:6e:00 brd ff:ff:ff:ff:ff:ff
    inet 10.255.1.6/21 scope global eth0
        valid_lft forever preferred_lft forever
21: eth1: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc fq_codel qlen 1000
    link/ether 02:42:d5:16:6e:01 brd ff:ff:ff:ff:ff:ff
    inet6 fe80::42:d5ff:fe16:6e01/64 scope link
        valid_lft forever preferred_lft forever
22: eth2: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc fq_codel qlen 1000
    link/ether 02:42:d5:16:6e:02 brd ff:ff:ff:ff:ff:ff
    inet6 fe80::42:d5ff:fe16:6e02/64 scope link
        valid_lft forever preferred_lft forever
root@ubuntu-1:/# /gns3/bin/busybox ip r
default via 10.255.0.1 dev eth0 metric 220
10.255.0.0/21 dev eth0 scope link src 10.255.1.6
root@ubuntu-1:/#
```

estático (ejercicio 3)

```

#
# This is a sample network config, please uncomment lines to configu
#
# Uncomment this line to load custom interface files
# source /etc/network/interfaces.d/*

# Static config for eth0
auto eth0
iface eth0 inet static
    address 10.255.1.6
    netmask 255.255.248.0
    gateway 10.255.1.1
    up echo nameserver 192.168.0.1 > /etc/resolv.conf

# DHCP config for eth0
#auto eth0
#iface eth0 inet dhcp
#    hostname ubuntu-1

```

e) ROUTER CISCO (PT o GNS3)

DHCP (actividad 1)

```

Router#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface G0/0
Router(config-if)#ip address dhcp
Router(config-if)#no shutdown
Router(config-if)#exit

```

actividad 2

```

Router#show ip interface brief
Interface          IP-Address      OK? Method Status          Protocol
GigabitEthernet0/0  10.255.1.8     YES  DHCP   up           up
GigabitEthernet0/1  unassigned     YES  unset  administratively down down
GigabitEthernet0/2  unassigned     YES  unset  administratively down down
GigabitEthernet0/3  unassigned     YES  unset  administratively down down
Router# 

Router#show dhcp lease
Temp IP addr: 10.255.1.8  for peer on Interface: GigabitEthernet0/0
Temp sub net mask: 255.255.248.0
    DHCP Lease server: 10.255.0.1, state: 5 Bound
    DHCP transaction id: 1359
    Lease: 86400 secs, Renewal: 43200 secs, Rebind: 75600 secs
Temp default-gateway addr: 10.255.0.1
    Next timer fires after: 11:57:53
    Retry count: 0  Client-ID: cisco-0c0d.c24c.0000-Gi0/0
    Client-ID hex dump: 636973636F2D306330642E633234632E
                                303030302D4769302F30
    Hostname: Router
Router#

```

Estático (ejercicio 3)

```

Router#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface G0/0
Router(config-if)#ip address 10.255.1.8 255.255.248.0
Router(config-if)#no shutdown
Router(config-if)#exit
Router(config)#

```

f) ROUTER MIKROTIK (GNS3)

```
[admin@RouterOS] > ip address print
Flags: X - disabled, I - invalid, D - dynamic
# ADDRESS           NETWORK           INTERFACE
0 D 10.255.1.7/21   10.255.0.0     ether1
[admin@RouterOS] >
```

Ponemos la ip en el navegador.

RouterOS v6.48.5 (long-term)

active

Mode Router Bridge

Address Acquisition Static Automatic PPPoE

IP Address 10.255.1.7

Netmask 255.255.248.0 (/21)

Gateway 10.255.0.1

MAC Address 0C:73:EB:7F:00:00

IP Address 0.0.0.0

Netmask 255.255.255.0 (/24)

Bridge All LAN Ports

DHCP Server

NAT

estático

Mode Router Bridge

Address Acquisition Static Automatic PPPoE

IP Address 10.255.1.7

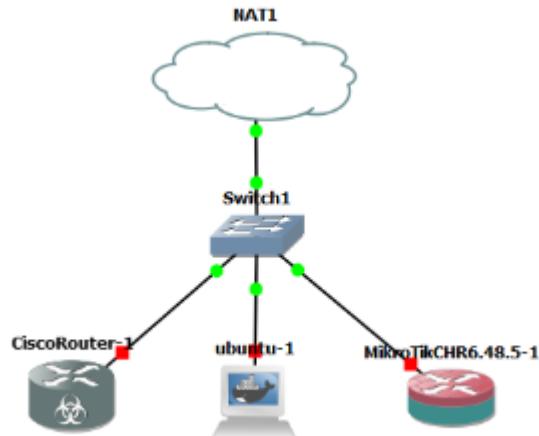
Netmask 255.255.248.0 (/21)

Gateway 10.255.1.7

DNS Servers ▾

MAC Address 0C:73:EB:7F:00:00

De manera que obtengan IP automáticamente.



- 2.- Comprueba en cada caso los parámetros de red obtenidos por DHCP en el interfaz. (IP, máscara, GW, DNSs, Sufijo DNS, tiempo de concesión, ...)
- 3.- Asigna la configuración de red de manera estática con los mismos parámetros obtenidos por DHCP.
- 4.- Cambia el nombre de tu máquina a tus iniciales (Ej. DJFR)
Documenta cada uno de los pasos para cada S.O. En aquellos que lo permitan, realiza tanto de manera gráfica como por consola.
No olvides el prompt personalizado en las shell de Linux.