

EDITAMOS EL NETPLAN PARA AÑADIR EL ADAPTADOR NUEVO

```
xavi@ubuntusv: ~ 103x27
GNU nano 6.2 /etc/netplan/00-installer-config.yaml
# This is the network config written by 'subiquity'
network:
  ethernets:
    enp0s3:
      dhcp4: true
    enp0s8:
      dhcp4: false
      addresses:
        - 192.168.56.101/24
  version: 2
```

APLICAMOS EL COMANDO **NETPLAN APPLY**

HACEMOS IP A PARA COMPROBAR QUE ESTÁ ACTIVO (enp0s8)

```
xavi@ubuntusv:~$ sudo netplan apply
xavi@ubuntusv:~$ 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 08:00:27:4f:cc:49 brd ff:ff:ff:ff:ff:ff
    inet 10.0.2.15/24 metric 100 brd 10.0.2.255 scope global dynamic enp0s3
        valid_lft 86399sec preferred_lft 86399sec
    inet6 fe80::a00:27ff:fe4f:cc49/64 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 08:00:27:28:b9:d1 brd ff:ff:ff:ff:ff:ff
    inet 192.168.56.101/24 brd 192.168.56.255 scope global enp0s8
        valid_lft forever preferred_lft forever
    inet6 fe80::a00:27ff:fe28:b9d1/64 scope link
        valid_lft forever preferred_lft forever
xavi@ubuntusv:~$
```

HACEMOS PING DESDE LAS DOS MÁQUINAS PARA COMPROBAR QUE SE VEN

```
Last login: Mon Nov 14 14:40:24 2022 from 10.0.2.2
xavi@ubuntu:~$ 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=64 time=0.577 ms
64 bytes from 192.168.56.1: icmp_seq=2 ttl=64 time=1.51 ms
64 bytes from 192.168.56.1: icmp_seq=3 ttl=64 time=1.10 ms
^C
--- 192.168.56.1 ping statistics ---
3 packets transmitted, 3 received, 0% packet loss, time 2002ms
rtt min/avg/max/mdev = 0.577/1.062/1.508/0.381 ms
xavi@ubuntu:~$
```

```
xavi@xavilaptop:~ 103x27
altname wlp3s0
inet 192.168.17.116/22 brd 192.168.19.255 scope global dynamic noprefi
    valid_lft 38194sec preferred_lft 38194sec
inet6 fe80::dc0b:91df:5184:741f/64 scope link noprefixroute
    valid_lft forever preferred_lft forever
4: docker0: <NO-CARRIER,BROADCAST,MULTICAST,UP> mtu 1500 qdisc noqueue stat
    link/ether 02:42:90:29:65:d1 brd ff:ff:ff:ff:ff:ff
    inet 172.17.0.1/16 brd 172.17.255.255 scope global docker0
        valid_lft forever preferred_lft forever
5: vboxnet0: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc fq_codel stat
    link/ether 0a:00:27:00:00:00 brd ff:ff:ff:ff:ff:ff
    inet 192.168.56.1/24 brd 192.168.56.255 scope global vboxnet0
        valid_lft forever preferred_lft forever
    inet6 fe80::800:27ff:fe00:0/64 scope link
        valid_lft forever preferred_lft forever
[xavi@xavilaptop] - [~] - [2497]
[$] ping 192.168.56.101
PING 192.168.56.101 (192.168.56.101) 56(84) bytes of data.
64 bytes from 192.168.56.101: icmp_seq=1 ttl=64 time=0.435 ms
64 bytes from 192.168.56.101: icmp_seq=2 ttl=64 time=0.892 ms
64 bytes from 192.168.56.101: icmp_seq=3 ttl=64 time=0.379 ms
^C
--- 192.168.56.101 ping statistics ---
```

CONFIGURAMOS LOS ARCHIVOS DENTRO DE **SITES-AVAILABLE** PARA INDICAR LA CONFIGURACIÓN DE CADA SITIO. ES DECIR, HACEMOS UNA COPIA DE 000-default.conf con —> `sudo cp 000-default.conf web1.conf`

```
VirtualHost 192.168.50.101:8081>
# The ServerName directive sets the request scheme, hostname
# the server uses to identify itself. This is used when cre
# redirection URLs. In the context of virtual hosts, the Se
# specifies what hostname must appear in the request's Host
# match this virtual host. For the default virtual host (th
# value is not decisive as it is used as a last resort host
# However, you must set it for any further virtual host exp
ServerName www.web1-xaviqo.cat

ServerAdmin webmaster@localhost
DocumentRoot /var/www/w1

# Available loglevels: trace8, ..., trace1, debug, info, no
# error, crit, alert, emerg.
# It is also possible to configure the loglevel for particu
# modules, e.g.
#LogLevel info ssl:warn

ErrorLog ${APACHE_LOG_DIR}/error.log
CustomLog ${APACHE_LOG_DIR}/access.log combined

# For most configuration files from conf-available/, which
G Help      ^O Write Out  ^W Where Is   ^K Cut        ^T Execute
X Exit      ^R Read File  ^\ Replace    ^U Paste      ^J Justify
```

CREAMOS LOS ARCHIVOS index.html en cada directorio

```
xavi@ubuntu:~$ sudo touch index.html
-bash: syntax error near unexpected token `newline'
xavi@ubuntu:~$ ls
xavi@ubuntu:~$ sudo nano index.html
xavi@ubuntu:~$ cd ../web2
xavi@ubuntu:~$ ls
xavi@ubuntu:~$ sudo nano index.html
xavi@ubuntu:~$ cd ../web3
xavi@ubuntu:~$ sudo nano index.html
xavi@ubuntu:~$
```

Usamos el script **a2ensite**, indicando el archivo que hemos configurado en sites-available para activarlo y hacer un enlace simbólico en sites-enabled.

```
xavi@ubuntu:~$ cd /etc/apache2/sites-available/
xavi@ubuntu:~/etc/apache2/sites-available$ sudo a2ensite web1.conf
Enabling site web1.
To activate the new configuration, you need to run:
    systemctl reload apache2
xavi@ubuntu:~/etc/apache2/sites-available$ sudo a2ensite web2.conf
Enabling site web2.
To activate the new configuration, you need to run:
    systemctl reload apache2
xavi@ubuntu:~/etc/apache2/sites-available$ sudo a2ensite web3.conf
Enabling site web3.
To activate the new configuration, you need to run:
    systemctl reload apache2
xavi@ubuntu:~/etc/apache2/sites-available$ systemctl reload apache2.service
==== AUTHENTICATING FOR org.freedesktop.systemd1.manage-units ====
Authentication is required to reload 'apache2.service'.
Authenticating as: xavier (xavi)
Password:
==== AUTHENTICATION COMPLETE ====
xavi@ubuntu:~/etc/apache2/sites-available$
```

Editamos el **archivo `ports.cfg`** en **`/etc/apache2`** para poner a la escucha los puertos anteriormente configurados. Si reiniciamos, ya estará disponible todo lo configurado.

```

xavi@ubuntu:~$ nano /etc/apache2/ports.conf
GNU nano 6.2 ports.conf
# If you just change the port or add more ports here, you will
# have to change the VirtualHost statement in
# /etc/apache2/sites-enabled/000-default.conf

Listen 80
#Listen 8080
Listen 8081
Listen 8082
Listen 8083

<IfModule ssl_module>
    Listen 443
</IfModule>

<IfModule mod_gnutls.c>
    Listen 443
</IfModule>

```

CONFIGURAR DOMINIO EN RED LOCAL:

editamos nuestro archivo hosts (/etc/hosts) en la maquina principal tal y como se ve en la imagen

```
GNU nano 4.8 /etc/hosts
127.0.0.1    localhost
127.0.1.1    xavilaptop
192.168.56.101 web1-xaviqo.cat
192.168.56.101 web2-xaviqo.cat
192.168.56.101 web3-xaviqo.cat

# 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
```

Para configurar el dominio entramos en cada uno de los archivos (**web1.conf**,...) y editamos los documentos tal y como se ve en la imagen. *:80 en todos ellos y el dominio **SIN** www

```
xavi@ubuntusv: /etc/apache2/sites-available 78x27
GNU nano 6.2 web1.conf
<VirtualHost *:80>
# The ServerName directive sets the request scheme, hostname and port>
# the server uses to identify itself. This is used when creating
# redirection URLs. In the context of virtual hosts, the ServerName
# specifies what hostname must appear in the request's Host: header to
# match this virtual host. For the default virtual host (this file) t>
# value is not decisive as it is used as a last resort host regardles>
# However, you must set it for any further virtual host explicitly.
ServerName web1-xaviqo.cat

ServerAdmin webmaster@localhost
DocumentRoot /var/www/web1

# Available loglevels: trace8, ..., trace1, debug, info, notice, warn,
# error, crit, alert, emerg.
# It is also possible to configure the loglevel for particular
# modules, e.g.
#LogLevel info ssl:warn

ErrorLog ${APACHE_LOG_DIR}/error.log
CustomLog ${APACHE_LOG_DIR}/access.log combined

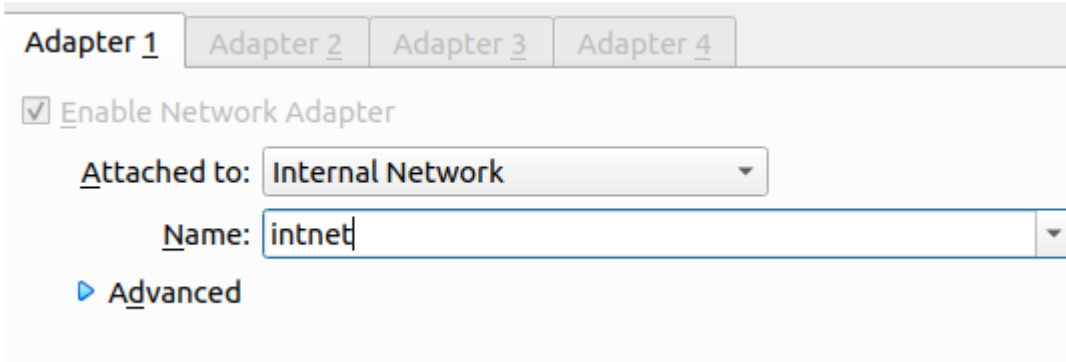
# For most configuration files from conf-available/, which are
[ Read 31 lines ]
^G Help      ^O Write Out ^W Where Is  ^K Cut       ^T Execute
^X Exit      ^R Read File ^\ Replace   ^U Paste     ^J Justify
```

volvemos a ejecutar el script. **sudo a2ensite web***, **sudo a2dissite web***, **sudo systemctl reload apache2.service**

```
ls /etc/apache2/sites-enabled/  
a2dissite web*  
sudo a2dissite web*  
ls /etc/apache2/sites-enabled/  
a2ensite web*  
sudo a2ensite web*
```

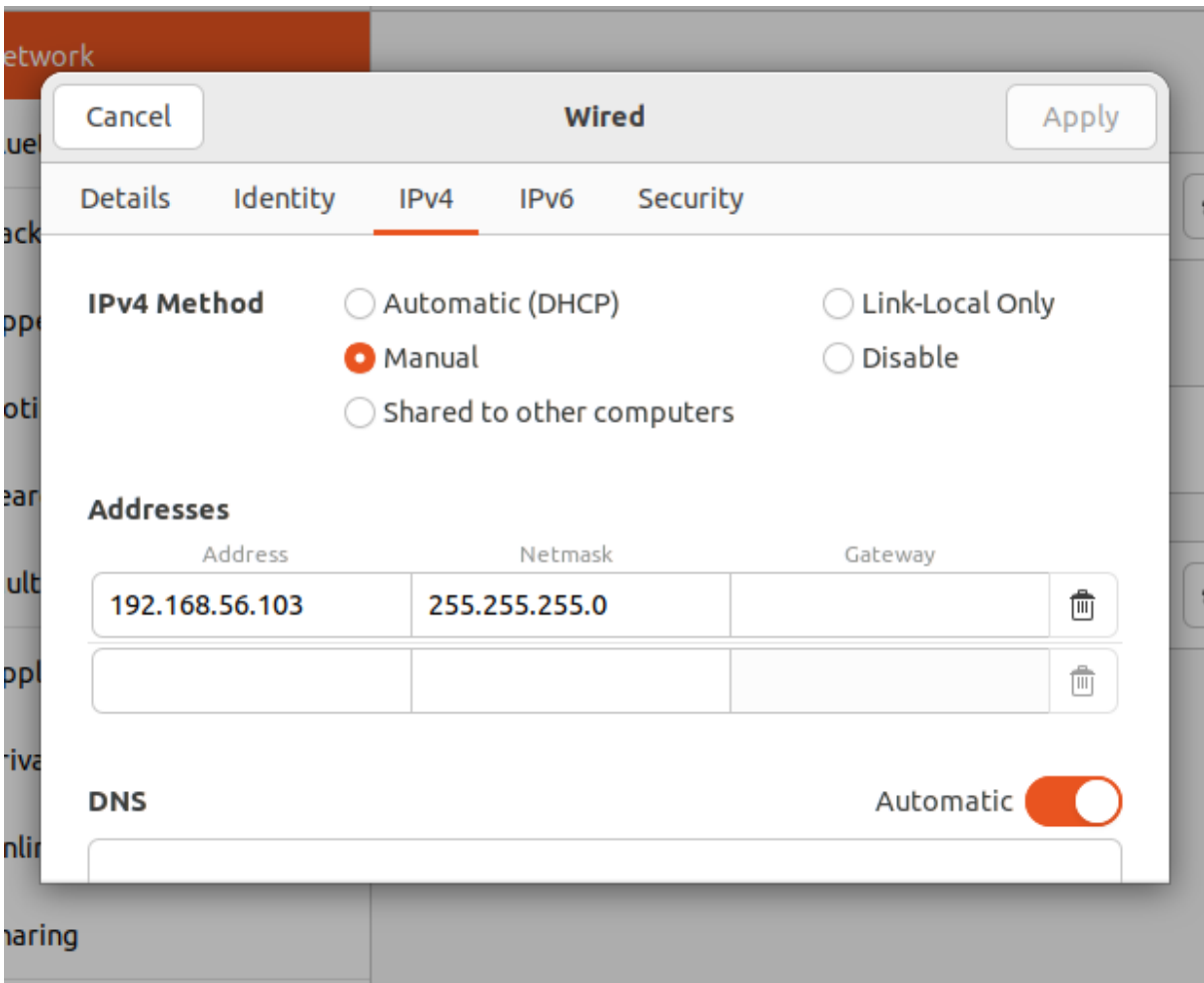
CADA WEB CON UNA IP DIFERENTE

- Creamos un cliente



The screenshot shows the 'Adapter 1' configuration window in a network manager. It has four tabs: 'Adapter 1', 'Adapter 2', 'Adapter 3', and 'Adapter 4'. The 'Adapter 1' tab is selected. Below the tabs, there is a checkbox labeled 'Enable Network Adapter' which is checked. Underneath, there is a dropdown menu labeled 'Attached to:' with 'Internal Network' selected. Below that is a text field labeled 'Name:' with 'intnet' entered. At the bottom, there is a blue arrow icon followed by the text 'Advanced'.

- Asignamos una IP a nuestro cliente virtual



The screenshot shows the 'Wired' configuration window for a network adapter. The window has a title bar with 'Cancel', 'Wired', and 'Apply' buttons. Below the title bar, there are five tabs: 'Details', 'Identity', 'IPv4', 'IPv6', and 'Security'. The 'IPv4' tab is selected. In the 'IPv4 Method' section, there are four radio buttons: 'Automatic (DHCP)', 'Manual' (which is selected), 'Link-Local Only', and 'Disable'. Below this, there is a section titled 'Addresses' with a table. The table has three columns: 'Address', 'Netmask', and 'Gateway'. The first row contains the values '192.168.56.103', '255.255.255.0', and an empty field. The second row is empty. To the right of each row is a trash icon. Below the table, there is a section titled 'DNS' with a toggle switch labeled 'Automatic' which is turned on.

| Address | Netmask | Gateway |
|----------------|---------------|---------|
| 192.168.56.103 | 255.255.255.0 | |
| | | |

En el servidor configuramos el archivo **00-installer-config.yaml** tal y como se ve en la imagen

```
GNU nano 6.2 /etc/netplan/00-installer-config.yaml
# This is the network config written by 'subiquity'
network:
  ethernets:
    enp0s3:
      dhcp4: true
    enp0s8:
      dhcp4: false
      addresses:
        - 192.168.56.101/24
    enp0s9:
      dhcp4: false
      addresses:
        - 192.168.56.102/24
  version: 2
```

aplicamos en terminal **sudo netplan apply** para aplicar los cambios

modificamos los archivos **web*.conf** dentro de **/etc/apache2/sites-available**

```
106 cd /etc/apache2/sites-available/
107 ls
108 sudo nano web1.conf
109 sudo nano web2.conf
110 sudo nano web3.conf
111 sudo nano web2.conf
112 a2disite
113 a2dissite
114 ls -l /etc/apache2/sites-available/
```


a cada una de las webs le asignamos una IP distinta. Este es el caso de web1.conf con la ip terminada en 101

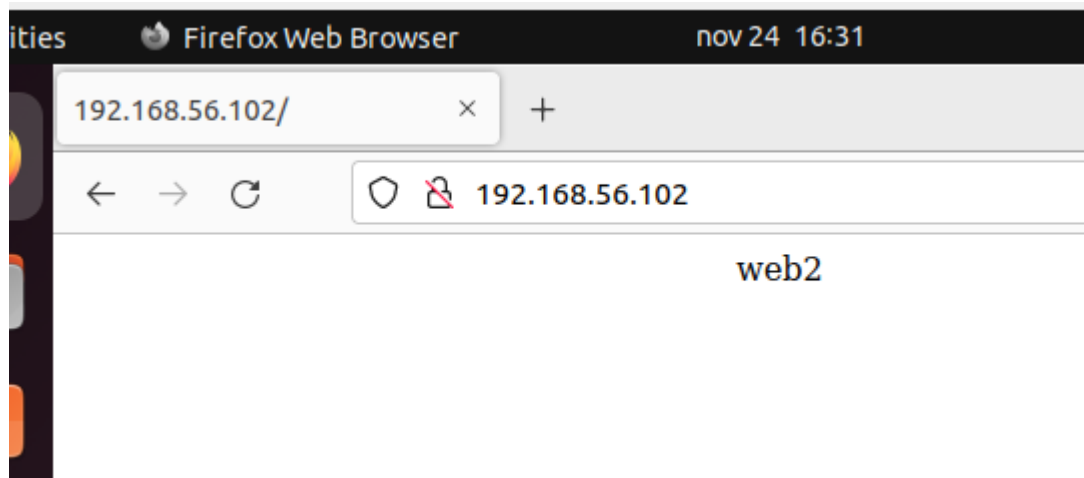
```
GNU nano 6.2 web1.conf
<VirtualHost 192.168.56.101:80>
    # The ServerName directive sets the request scheme, host
    # the server uses to identify itself. This is used when
    # redirection URLs. In the context of virtual hosts, the
    # specifies what hostname must appear in the request's Host
    # match this virtual host. For the default virtual host
    # value is not decisive as it is used as a last resort ho
    # However, you must set it for any further virtual host
    ServerName web1-xaviqp.cat

    ServerAdmin webmaster@localhost
    DocumentRoot /var/www/web1

    # Available loglevels: trace8, ..., trace1, debug, info,
    # error, crit, alert, emerg.
    # It is also possible to configure the loglevel for part
    # modules, e.g.
    #LogLevel info ssl:warn

    ErrorLog ${APACHE_LOG_DIR}/error.log
```

hacemos adissite y posteriormente a2ensite y ya debería funcionar



HABILITAR SSL

copiar archivo default-ssl

```
avi@ubuntu:~$ cd /etc/apache2/sites-available/
avi@ubuntu:/etc/apache2/sites-available$ ls
default-ssl.conf web1.conf web2.conf web3.conf
avi@ubuntu:/etc/apache2/sites-available$ sudo cp default-ssl.conf web3-ssl.conf
avi@ubuntu:/etc/apache2/sites-available$
```

Hacer certificado con openssl (desde maquina virtual)

[illegible]

modificamos el archivo default-ssl.conf e indicamos los certificados tal y como se ve en la imagen

```
xavi@ubuntu: /etc/apache2/sites-available 103x56
6.2 web3-ssl.conf *
od_ssl.c>
rtualHost _default_:443>
    ServerAdmin webmaster@localhost

    DocumentRoot /var/www/html

    # Available loglevels: trace8, ..., trace1, debug, info, notice, warn,
    # error, crit, alert, emerg.
    # It is also possible to configure the loglevel for particular
    # modules, e.g.
    #LogLevel info ssl:warn

    ErrorLog ${APACHE_LOG_DIR}/error.log
    CustomLog ${APACHE_LOG_DIR}/access.log combined

    # For most configuration files from conf-available/, which are
    # enabled or disabled at a global level, it is possible to
    # include a line for only one particular virtual host. For example the
    # following line enables the CGI configuration for this host only
    # after it has been globally disabled with "a2disconf".
    #Include conf-available/serve-cgi-bin.conf

    # SSL Engine Switch:
    # Enable/Disable SSL for this virtual host.
    SSLEngine on

    # A self-signed (snakeoil) certificate can be created by installing
    # the ssl-cert package. See
    # /usr/share/doc/apache2/README.Debian.gz for more info.
    # If both key and certificate are stored in the same file, only the
    # SSLCertificateFile directive is needed.
    SSLCertificateFile /etc/ssl/certs/apache-selfsigned.crt
    SSLCertificateKeyFile /etc/ssl/private/apache-selfsigned.key

    # Server Certificate Chain:
    # Point SSLCertificateChainFile at a file containing the
    # concatenation of PEM encoded CA certificates which form the
```

rehabilitamos el script a2ensite y reiniciamos

```
try to help for more information.
xavi@ubuntu:~$ sudo nano /etc/apache2/sites-available/web3-ssl.conf
xavi@ubuntu:~$ sudo a2ensite *
Enabling site default-ssl.
Site web1 already enabled
Site web2 already enabled
Enabling site web3-ssl.
Site web3 already enabled
To activate the new configuration, you need to run:
    systemctl reload apache2
xavi@ubuntu:~$ systemctl reload apache2.service
==== AUTHENTICATING FOR org.freedesktop.systemd1.manage-units ====
Authentication is required to reload 'apache2.service'.
Authenticating as: xavier (xavi)
Password:
==== AUTHENTICATION COMPLETE ====
Job for apache2.service failed.
See "systemctl status apache2.service" and "journalctl -xeu apache2.service" for
details.
xavi@ubuntu:~$
```

Habilitamos el modulo ssl con el comando `sudo a2enmod ssl`

Posteriormente reiniciamos apache2 con **`systemctl restart apache2`**

```
xavi@ubuntu:~$ sudo a2enmod ssl
[sudo] password for xavi:
Considering dependency setenvif for ssl:
Module setenvif already enabled
Considering dependency mime for ssl:
Module mime already enabled
Considering dependency socache_shmcb for ssl:
Enabling module socache_shmcb.
Enabling module ssl.
See /usr/share/doc/apache2/README.Debian.gz on how to configure SSL and create self-signed certificates.
To activate the new configuration, you need to run:
    systemctl restart apache2
xavi@ubuntu:~$ systemctl restart apache2
==== AUTHENTICATING FOR org.freedesktop.systemd1.manage-units ====
Authentication is required to restart 'apache2.service'.
Authenticating as: xavier (xavi)
Password:
==== AUTHENTICATION COMPLETE ====
xavi@ubuntu:~$
```

