**Tarea 1. En la práctica anterior se han configurado servidores virtuales para una máquina con más de un nombre de dominio asociado a su dirección IP. Pero una máquina puede tener más de una dirección IP, y la técnica de los servidores virtuales puede utilizarse para que Apache sirva distintos sitios webs para las peticiones a las diversas IPs.**

a)Para ello, en primer lugar, arrancaremos la MV con dos adaptadores de red sólo-anfitrión. La modificación de la configuración de red debe hacerse con la máquina virtual apagada.
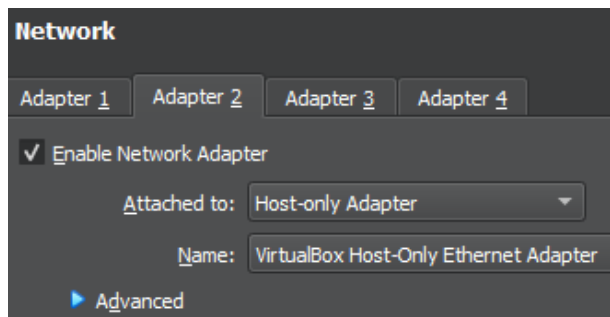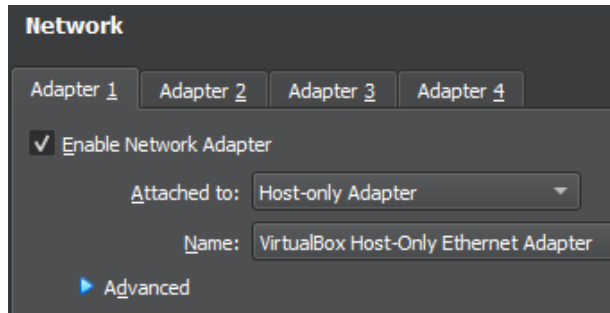
b)Es posible que, cuando re-arranquemos la MV con la nueva configuración de red no se haya asignado dirección IP a uno de las interfaces de red. Para comprobarlo, ejecutar ifconfig -a para ver no sólo las interfaces de red con IP, sino todas ellas. Luego:

```
aarati@aarati:~$ ifconfig -a
enp0s3: flags=4163<UP,BROADCAST,RUNNING,MULTICAST>  mtu 1500
        inet 192.168.56.103  netmask 255.255.255.0  broadcast 192.168.56.255
        inet6 fe80::a00:27ff:feb0:af3b  prefixlen 64  scopeid 0x20<link>
        ether 08:00:27:b0:af:3b  txqueuelen 1000  (Ethernet)
        RX packets 2  bytes 650 (650.0 B)
        RX errors 0  dropped 0  overruns 0  frame 0
        TX packets 10  bytes 1061 (1.0 KB)
        TX errors 0  dropped 0 overruns 0  carrier 0  collisions 0

enp0s8: flags=4098<BROADCAST,MULTICAST>  mtu 1500
        ether 08:00:27:4e:ae:09  txqueuelen 1000  (Ethernet)
        RX packets 0  bytes 0 (0.0 B)
        RX errors 0  dropped 0  overruns 0  frame 0
        TX packets 0  bytes 0 (0.0 B)
        TX errors 0  dropped 0 overruns 0  carrier 0  collisions 0

lo: flags=73<UP,LOOPBACK,RUNNING>  mtu 65536
        inet 127.0.0.1  netmask 255.0.0.0
        inet6 ::1  prefixlen 128  scopeid 0x10<host>
        loop  txqueuelen 1000  (Local Loopback)
        RX packets 0  bytes 0 (0.0 B)
        RX errors 0  dropped 0  overruns 0  frame 0
        TX packets 0  bytes 0 (0.0 B)
        TX errors 0  dropped 0 overruns 0  carrier 0  collisions 0

aarati@aarati:~$ _
```

-Identificar la interfaz correspondiente a nuestros dos adaptadores sólo amfitrión: enp0sx.
-Asignar la IP manualmente a esa interfaz: ifconfig enp0sx 10.0.X.XX netmask
255.255.255.0 up

```
root@aarati:~# ifconfig enp0s8 10.0.0.50 netmask 255.255.255.0 up
root@aarati:~#
```

```
enp0s8: flags=4163<UP,BROADCAST,RUNNING,MULTICAST>  mtu 1500
        inet 10.0.0.50  netmask 255.255.255.0  broadcast 10.0.0.255
        inet6 fe80::a00:27ff:fea5:31a9  prefixlen 64  scopeid 0x20<link>
        ether 08:00:27:a5:31:a9  txqueuelen 1000  (Ethernet)
        RX packets 9  bytes 2588 (2.5 KB)
        RX errors 0  dropped 0  overruns 0  frame 0
        TX packets 15  bytes 1664 (1.6 KB)
        TX errors 0  dropped 0 overruns 0  carrier 0  collisions 0
```

Tarea2. Una vez que tenemos la MV con dos direcciones IP asignadas:

a)Crea, dentro de /var/www/html, dos nuevos directorios llamados ip1 y otro llamado ip2,
cada uno de ellos con su respectivo index.html que dé la bienvenida a las direcciones IP
correspondientes.

```
root@aarati:~# mkdir /var/www/html/ip1
root@aarati:~# mkdir /var/www/html/ip2
root@aarati:~#
```

```
root@aarati:~# touch /var/www/html/ip1/index.html
```

```
root@aarati:~# touch /var/www/html/ip2/index.html
```

```
root@aarati:~# nano /var/www/html/ip1/index.html
```

```
<!DOCTYPE html>
<html>
<head>
        <title>Benvenido a IP1</head>
</head>
<body>
        <h1>Benvenido a IP1</h1>
</body>
</html>
```

```
root@aarati:~# nano /var/www/html/ip2/index.html
```

```
GNU nano 7.2
<!DOCTYPE html>
<html>
<head>
        <title>Benvenido a IP2</title>
</head>
<body>
        <h1>Benvenido a IP2</h1>
</body>
</html>
```

b)Crea dos nuevos sitios virtuales: uno llamado 003-ip1 y otro llamado 004-ip2. Investiga
cómo modificar la directiva para crear dos nuevos servidores virtuales asociados a las dos
IPs de la MV.

```
root@aarati:~# cp /etc/apache2/sites-available/000-default.conf /etc/apache2/sites-available/003-ip1.conf

root@aarati:~# nano /etc/apache2/sites-available/003-ip1.conf_

<VirtualHost *:80>
        # The ServerName directive sets the request scheme, hostname and port that
        # 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) this
        # value is not decisive as it is used as a last resort host regardless.
        # However, you must set it for any further virtual host explicitly.
        #ServerName www.example.com

        ServerAdmin webmaster@localhost
        DocumentRoot /var/www/html/ip1

        # 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
</VirtualHost>
```

```
root@aarati:~# cp /etc/apache2/sites-available/000-default.conf /etc/apache2/sites-available/004-ip2.conf
root@aarati:~# nano /etc/apache2/sites-available/004-ip2.conf_

<VirtualHost *:80>
        # The ServerName directive sets the request scheme, hostname and port that
        # 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) this
        # value is not decisive as it is used as a last resort host regardless.
        # However, you must set it for any further virtual host explicitly.
        #ServerName www.example.com

        ServerAdmin webmaster@localhost
        DocumentRoot /var/www/html/ip2_

        # 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
</VirtualHost>
```

c)Habilítalos, reinicia Apache y comprueba qué página sirve cada una de las IPs.

```
root@aarati:~# a2ensite 003-ip1.conf
Enabling site 003-ip1.
To activate the new configuration, you need to run:
  systemctl reload apache2
root@aarati:~# a2ensite 004-ip2.conf
Enabling site 004-ip2.
To activate the new configuration, you need to run:
  systemctl reload apache2
root@aarati:~# systemctl reload apache2
root@aarati:~# _
```

```
root@aarati:~# ping 192.168.56.103
PING 192.168.56.103 (192.168.56.103) 56(84) bytes of data.
From 192.168.56.104 icmp_seq=1 Destination Host Unreachable
From 192.168.56.104 icmp_seq=2 Destination Host Unreachable
From 192.168.56.104 icmp_seq=3 Destination Host Unreachable
From 192.168.56.104 icmp_seq=4 Destination Host Unreachable
From 192.168.56.104 icmp_seq=5 Destination Host Unreachable
From 192.168.56.104 icmp_seq=6 Destination Host Unreachable
^C
--- 192.168.56.103 ping statistics ---
9 packets transmitted, 0 received, +6 errors, 100% packet loss, time 8277ms
pipe 4
root@aarati:~#
```

```
root@aarati:~# ping 10.0.0.50
PING 10.0.0.50 (10.0.0.50) 56(84) bytes of data.
64 bytes from 10.0.0.50: icmp_seq=1 ttl=64 time=0.029 ms
64 bytes from 10.0.0.50: icmp_seq=2 ttl=64 time=0.050 ms
64 bytes from 10.0.0.50: icmp_seq=3 ttl=64 time=0.027 ms
64 bytes from 10.0.0.50: icmp_seq=4 ttl=64 time=0.027 ms
64 bytes from 10.0.0.50: icmp_seq=5 ttl=64 time=0.029 ms
64 bytes from 10.0.0.50: icmp_seq=6 ttl=64 time=0.027 ms
64 bytes from 10.0.0.50: icmp_seq=7 ttl=64 time=0.034 ms
64 bytes from 10.0.0.50: icmp_seq=8 ttl=64 time=0.047 ms
64 bytes from 10.0.0.50: icmp_seq=9 ttl=64 time=0.704 ms
64 bytes from 10.0.0.50: icmp_seq=10 ttl=64 time=0.080 ms
64 bytes from 10.0.0.50: icmp_seq=11 ttl=64 time=0.026 ms
64 bytes from 10.0.0.50: icmp_seq=12 ttl=64 time=0.027 ms
64 bytes from 10.0.0.50: icmp_seq=13 ttl=64 time=0.040 ms
64 bytes from 10.0.0.50: icmp_seq=14 ttl=64 time=0.026 ms
^C
--- 10.0.0.50 ping statistics ---
14 packets transmitted, 14 received, 0% packet loss, time 14183ms
rtt min/avg/max/mdev = 0.026/0.083/0.704/0.172 ms
root@aarati:~#
```

d)Finalmente, deshabilita esos servidores virtuales

```
root@aarati:~# a2dissite 003-ip1.conf
Site 003-ip1 disabled.
To activate the new configuration, you need to run:
  systemctl reload apache2
root@aarati:~# a2dissite 004-ip2.conf
Site 004-ip2 disabled.
To activate the new configuration, you need to run:
  systemctl reload apache2
root@aarati:~# systemctl restart apache2
root@aarati:~#
```