

CONFIGURACIÓN AVANZADA DE SERVIDORES WEB Y HTTPS

PARTE 1: APACHE

1.

```
Ubuntu [Corriendo] - Oracle VirtualBox
Archivo  Máquina  Ver  Entrada  Dispositivos  Ayuda

Oct 1 08:06

vboxuser@Ubuntu: ~

vboxuser@Ubuntu:~$ sudo apt update && sudo apt upgrade -y
Hit:1 http://security.ubuntu.com/ubuntu noble-security InRelease
Hit:2 http://es.archive.ubuntu.com/ubuntu noble InRelease
Hit:3 http://es.archive.ubuntu.com/ubuntu noble-updates InRelease
Hit:4 http://es.archive.ubuntu.com/ubuntu noble-backports InRelease
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
64 packages can be upgraded. Run 'apt list --upgradable' to see them.
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
Calculating upgrade... Done
The following package was automatically installed and is no longer required:
  libllvm19
Use 'sudo apt autoremove' to remove it.
The following NEW packages will be installed:
  libllvm20
The following upgrades have been deferred due to phasing:
  cloud-init gir1.2-nm-1.0 libnm0 network-manager network-manager-config-connectivity-ubuntu
The following packages will be upgraded:
  bind9-dnsutils bind9-host bind9-libs bluez bluez-cups bluez-obexd coreutils dconf-cli dconf-gsettings-backend
  dconf-service fwupd gir1.2-gtk-4.0 gnome-shell-extension-desktop-icons-ng libbluetooth3 libdconf1 libegl-mesa0
  libfwupd2 libgbm1 libgl1-mesa-dri libglx-mesa0 libgtk-4-1 libgtk-4-bin libgtk-4-common libgtk-4-media-gstreamer
  libipa-hbac0 libldb2 libmalcontent-0-0 libnss-sss libpam-sss libsbcl0 libsss-certmap0 libsss-idmap0
  libsss-nss-idmap0 libwbclient0 libxatracker2 mesa-libgallium mesa-vulkan-drivers openssh-client openvpn
  powermgmt-base python3-software-properties python3-sss samba-libs software-properties-common software-properties-gtk
  sssd sssd-ad sssd-ad-common sssd-common sssd-ipa sssd-krb5 sssd-krb5-common sssd-ldap sssd-proxy systemd-hwe-hwdb
  tecla ubuntu-drivers-common xserver-xorg-video-nouveau xserver-xorg-video-vesa
59 upgraded, 1 newly installed, 0 to remove and 5 not upgraded.
Need to get 87.2 MB of archives.
After this operation, 144 MB of additional disk space will be used.
Get:1 http://es.archive.ubuntu.com/ubuntu noble-updates/main amd64 coreutils amd64 9.4-3ubuntu6.1 [1,413 kB]
```

2.

```
Ubuntu [Corriendo] - Oracle VirtualBox
Archivo  Máquina  Ver  Entrada  Dispositivos  Ayuda

Oct 1 08:08

vboxuser@Ubuntu: ~

vboxuser@Ubuntu:~$ sudo apt install apache2 -y
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following package was automatically installed and is no longer required:
  libllvm19
Use 'sudo apt autoremove' to remove it.
The following additional packages will be installed:
  apache2-bin apache2-data apache2-utils libapr1t64 libaprutil1-dbd-sqlite3 libaprutil1-ldap libaprutil1t64
Suggested packages:
  apache2-doc apache2-suexec-pristine | apache2-suexec-custom
The following NEW packages will be installed:
  apache2 apache2-bin apache2-data apache2-utils libapr1t64 libaprutil1-dbd-sqlite3 libaprutil1-ldap libaprutil1t64
0 upgraded, 8 newly installed, 0 to remove and 5 not upgraded.
Need to get 1,902 kB of archives.
After this operation, 7,451 kB of additional disk space will be used.
Get:1 http://es.archive.ubuntu.com/ubuntu noble-updates/main amd64 libapr1t64 amd64 1.7.2-3.1ubuntu0.1 [108 kB]
Get:2 http://es.archive.ubuntu.com/ubuntu noble/main amd64 libaprutil1t64 amd64 1.6.3-1.1ubuntu7 [91.9 kB]
Get:3 http://es.archive.ubuntu.com/ubuntu noble/main amd64 libaprutil1-dbd-sqlite3 amd64 1.6.3-1.1ubuntu7 [11.2 kB]
Get:4 http://es.archive.ubuntu.com/ubuntu noble/main amd64 libaprutil1-ldap amd64 1.6.3-1.1ubuntu7 [9,116 B]
Get:5 http://es.archive.ubuntu.com/ubuntu noble-updates/main amd64 apache2-bin amd64 2.4.58-1ubuntu8.8 [1,331 kB]
Get:6 http://es.archive.ubuntu.com/ubuntu noble-updates/main amd64 apache2-data all 2.4.58-1ubuntu8.8 [163 kB]
Get:7 http://es.archive.ubuntu.com/ubuntu noble-updates/main amd64 apache2-utils amd64 2.4.58-1ubuntu8.8 [97.7 kB]
Get:8 http://es.archive.ubuntu.com/ubuntu noble-updates/main amd64 apache2 amd64 2.4.58-1ubuntu8.8 [90.2 kB]
Fetched 1,902 kB in 2s (1,070 kB/s)
Selecting previously unselected package libapr1t64:amd64.
(Reading database ... 150183 files and directories currently installed.)
Preparing to unpack .../0-libapr1t64_1.7.2-3.1ubuntu0.1_amd64.deb ...
Unpacking libapr1t64:amd64 (1.7.2-3.1ubuntu0.1) ...
Selecting previously unselected package libaprutil1t64:amd64.
Preparing to unpack .../1-libaprutil1t64_1.6.3-1.1ubuntu7_amd64.deb ...
Unpacking libaprutil1t64:amd64 (1.6.3-1.1ubuntu7) ...
Selecting previously unselected package libaprutil1-dbd-sqlite3:amd64.
```

3.

```
GNU nano 7.2 /etc/apache2/ports.conf *
# If you just change the port or add more ports here, you will likely also
# have to change the VirtualHost statement in
# /etc/apache2/sites-enabled/000-default.conf

Listen 8080

<IfModule ssl_module>
    Listen 443
</IfModule>

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

4.

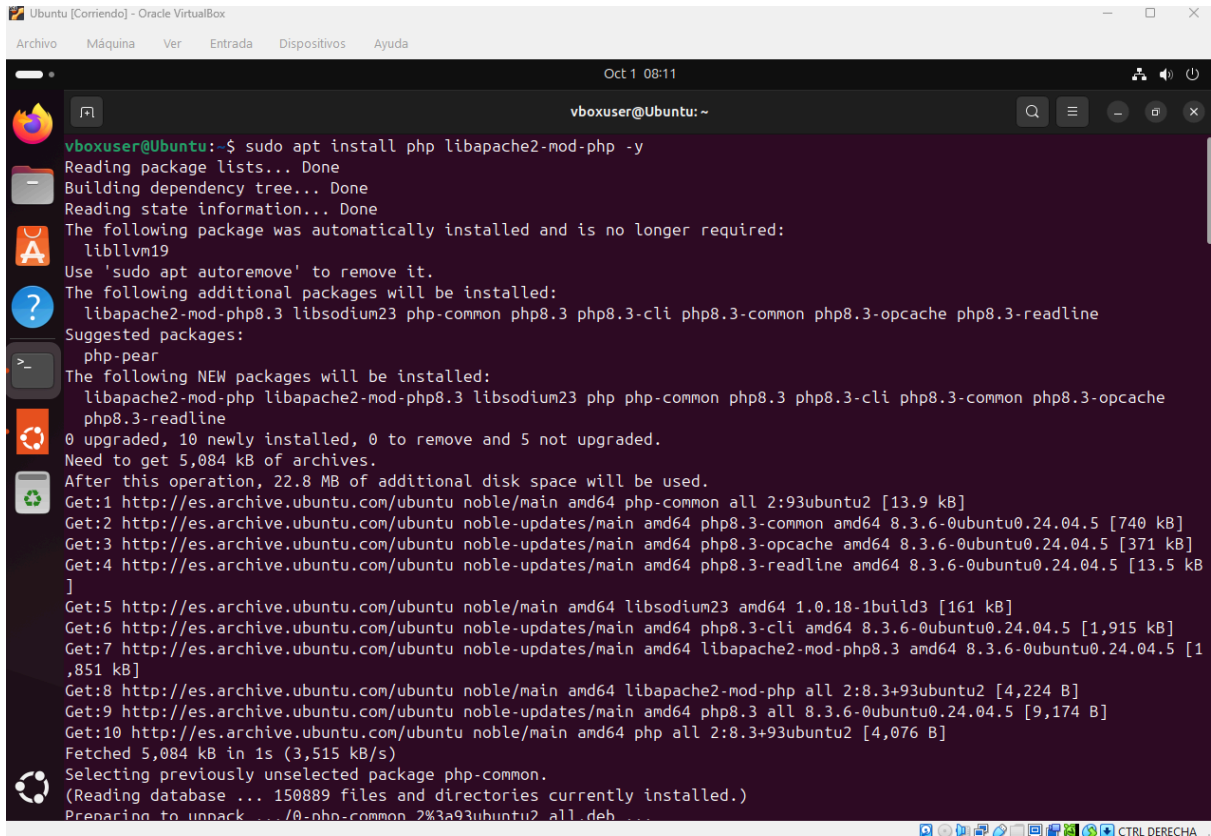
```
GNU nano 7.2 /etc/apache2/sites-available/000-default.conf *
<VirtualHost *:8080>
    # The ServerName directive sets the request scheme, hostname and port that
    # the server uses to identify itself. This is used when creating
    # redirection URLs. In the context of virtual hosts, the ServerName
    # 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

    # 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
    #IncludeOptional mods-enabled/*-load.mconf
```

5.

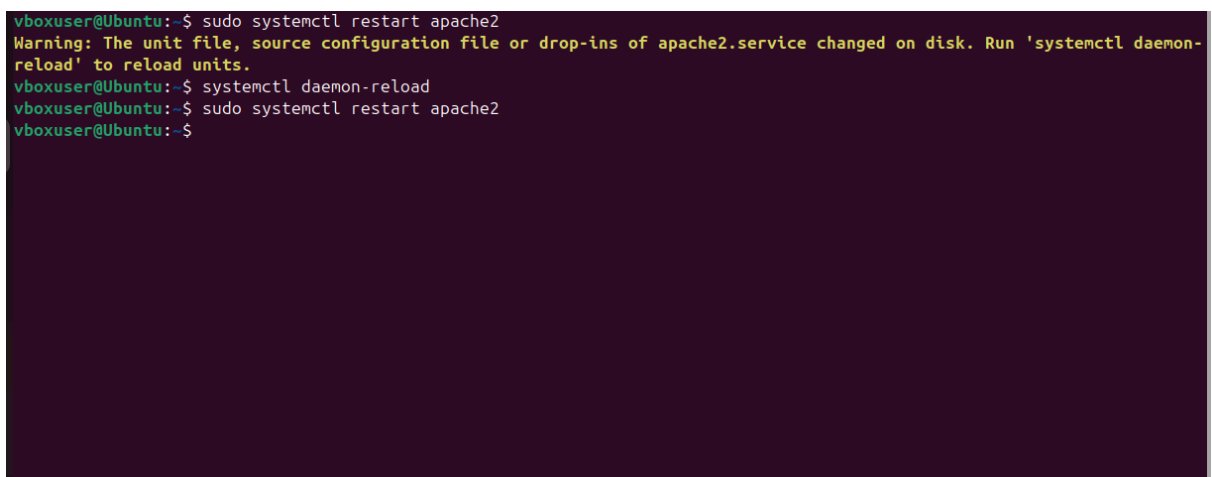


```
Ubuntu [Corriendo] - Oracle VirtualBox
Archivo  Máquina  Ver  Entrada  Dispositivos  Ayuda

Oct 1 08:11
vboxuser@Ubuntu: ~

vboxuser@Ubuntu:~$ sudo apt install php libapache2-mod-php -y
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following package was automatically installed and is no longer required:
  libllvm19
Use 'sudo apt autoremove' to remove it.
The following additional packages will be installed:
  libapache2-mod-php8.3 libsodium23 php-common php8.3 php8.3-cli php8.3-common php8.3-opcache php8.3-readline
Suggested packages:
  php-pear
The following NEW packages will be installed:
  libapache2-mod-php libapache2-mod-php8.3 libsodium23 php php-common php8.3 php8.3-cli php8.3-common php8.3-opcache
  php8.3-readline
0 upgraded, 10 newly installed, 0 to remove and 5 not upgraded.
Need to get 5,084 kB of archives.
After this operation, 22.8 MB of additional disk space will be used.
Get:1 http://es.archive.ubuntu.com/ubuntu noble/main amd64 php-common all 2:93ubuntu2 [13.9 kB]
Get:2 http://es.archive.ubuntu.com/ubuntu noble-updates/main amd64 php8.3-common amd64 8.3.6-0ubuntu0.24.04.5 [740 kB]
Get:3 http://es.archive.ubuntu.com/ubuntu noble-updates/main amd64 php8.3-opcache amd64 8.3.6-0ubuntu0.24.04.5 [371 kB]
Get:4 http://es.archive.ubuntu.com/ubuntu noble-updates/main amd64 php8.3-readline amd64 8.3.6-0ubuntu0.24.04.5 [13.5 kB]
Get:5 http://es.archive.ubuntu.com/ubuntu noble/main amd64 libsodium23 amd64 1.0.18-1build3 [161 kB]
Get:6 http://es.archive.ubuntu.com/ubuntu noble-updates/main amd64 php8.3-cli amd64 8.3.6-0ubuntu0.24.04.5 [1,915 kB]
Get:7 http://es.archive.ubuntu.com/ubuntu noble-updates/main amd64 libapache2-mod-php8.3 amd64 8.3.6-0ubuntu0.24.04.5 [1,851 kB]
Get:8 http://es.archive.ubuntu.com/ubuntu noble/main amd64 libapache2-mod-php all 2:8.3+93ubuntu2 [4,224 B]
Get:9 http://es.archive.ubuntu.com/ubuntu noble-updates/main amd64 php8.3 all 8.3.6-0ubuntu0.24.04.5 [9,174 B]
Get:10 http://es.archive.ubuntu.com/ubuntu noble/main amd64 php all 2:8.3+93ubuntu2 [4,076 B]
Fetched 5,084 kB in 1s (3,515 kB/s)
Selecting previously unselected package php-common.
(Reading database ... 150889 files and directories currently installed.)
Preparing to unpack .../0-php-common_2%3a93ubuntu2_all.deb ...
```

6.



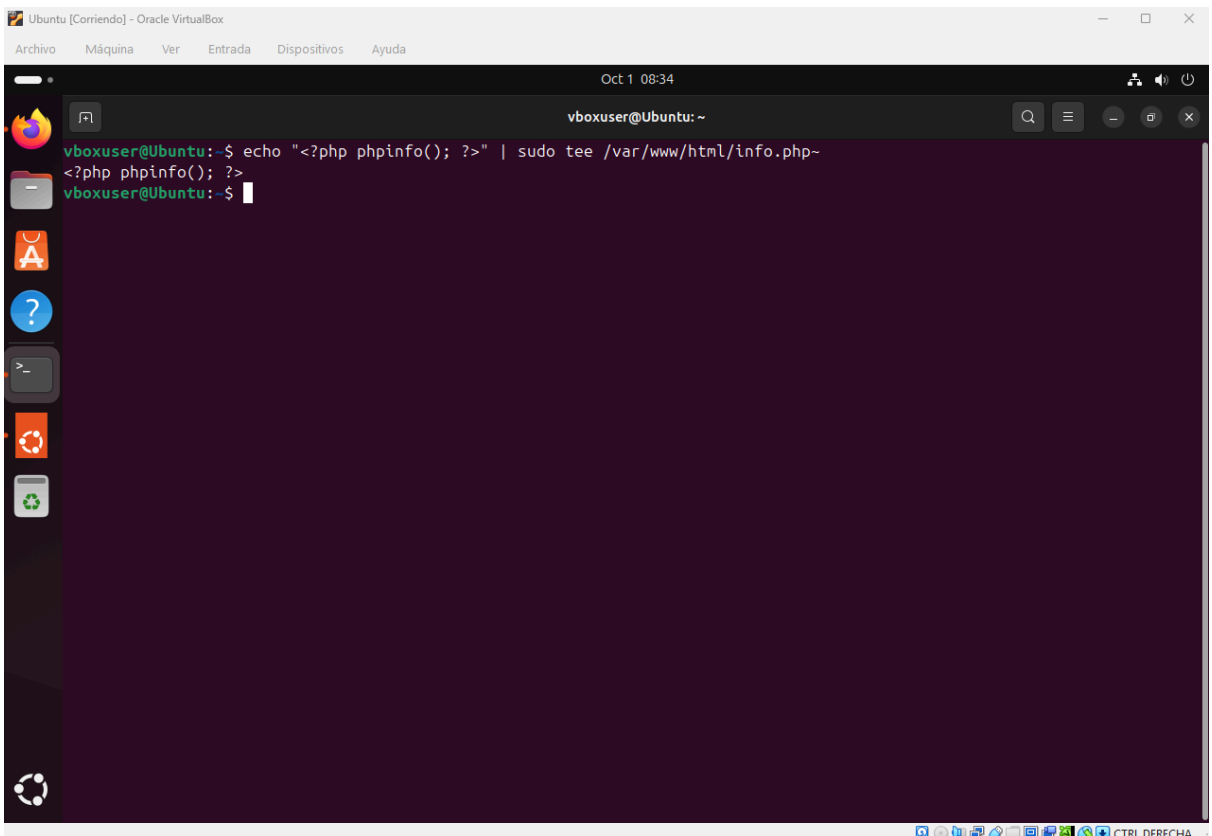
```
vboxuser@Ubuntu:~$ sudo systemctl restart apache2
Warning: The unit file, source configuration file or drop-ins of apache2.service changed on disk. Run 'systemctl daemon-reload' to reload units.
vboxuser@Ubuntu:~$ systemctl daemon-reload
vboxuser@Ubuntu:~$ sudo systemctl restart apache2
vboxuser@Ubuntu:~$
```

7.

```
vboxuser@Ubuntu:~$ sudo systemctl status apache2
● apache2.service - The Apache HTTP Server
   Loaded: loaded (/usr/lib/systemd/system/apache2.service; enabled; preset: enabled)
   Active: active (running) since Wed 2025-10-08 07:17:52 UTC; 2min 6s ago
     Docs: https://httpd.apache.org/docs/2.4/
   Process: 6632 ExecStart=/usr/sbin/apachectl start (code=exited, status=0/SUCCESS)
   Main PID: 6638 (apache2)
    Tasks: 6 (limit: 4603)
   Memory: 10.6M (peak: 11.2M)
      CPU: 41ms
   CGroup: /system.slice/apache2.service
           └─6638 /usr/sbin/apache2 -k start
             └─6640 /usr/sbin/apache2 -k start
               └─6641 /usr/sbin/apache2 -k start
                 └─6642 /usr/sbin/apache2 -k start
                   └─6643 /usr/sbin/apache2 -k start
                     └─6644 /usr/sbin/apache2 -k start

Oct 08 07:17:52 Ubuntu systemd[1]: Starting apache2.service - The Apache HTTP Server...
Oct 08 07:17:52 Ubuntu apachectl[6637]: AH00558: apache2: Could not reliably determine the server's fully qualified domain name, please see the http://httpd.apache.org/docs/2.4/ah00558.html file on how to configure it properly
Oct 08 07:17:52 Ubuntu systemd[1]: Started apache2.service - The Apache HTTP Server.
lines 1-20/20 (END)
```

8.

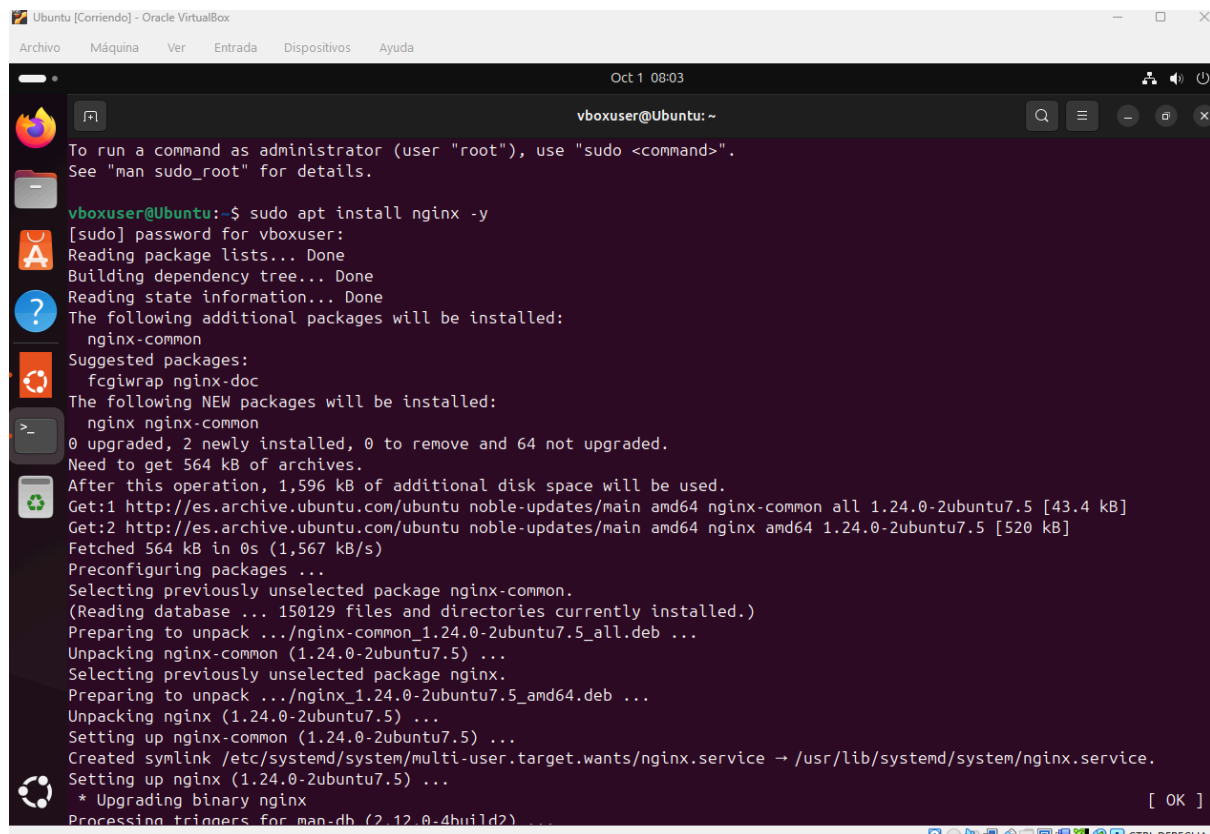


9.

```
vboxuser@Ubuntu:~$ curl http://localhost:8080/info.php
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN" "DTD/xhtml1-transitional.dtd">
<html xmlns="http://www.w3.org/1999/xhtml"><head>
<style type="text/css">
body {background-color: #fff; color: #222; font-family: sans-serif;}
pre {margin: 0; font-family: monospace;}
a:link {color: #009; text-decoration: none; background-color: #fff;}
a:hover {text-decoration: underline;}
table {border-collapse: collapse; border: 0; width: 934px; box-shadow: 1px 2px 3px rgba(0, 0, 0, 0.2);}
.center {text-align: center;}
.center table {margin: 1em auto; text-align: left;}
.center th {text-align: center !important;}
td, th {border: 1px solid #666; font-size: 75%; vertical-align: baseline; padding: 4px 5px;}
th {position: sticky; top: 0; background: inherit;}
h1 {font-size: 150%;}
h2 {font-size: 125%;}
h2 a:link, h2 a:visited {color: inherit; background: inherit;}
.p {text-align: left;}
.e {background-color: #ccf; width: 300px; font-weight: bold;}
.h {background-color: #99c; font-weight: bold;}
.v {background-color: #ddd; max-width: 300px; overflow-x: auto; word-wrap: break-word;}
.v i {color: #999;}
```

PARTE 2: NGINX

1.



```
Ubuntu [Corriendo] - Oracle VM VirtualBox
Archivo  Máquina  Ver  Entrada  Dispositivos  Ayuda

vboxuser@Ubuntu:~$ sudo apt install nginx -y
[sudo] password for vboxuser:
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following additional packages will be installed:
  nginx-common
Suggested packages:
  fcgiwrap nginx-doc
The following NEW packages will be installed:
  nginx nginx-common
0 upgraded, 2 newly installed, 0 to remove and 64 not upgraded.
Need to get 564 kB of archives.
After this operation, 1,596 kB of additional disk space will be used.
Get:1 http://es.archive.ubuntu.com/ubuntu noble-updates/main amd64 nginx-common all 1.24.0-2ubuntu7.5 [43.4 kB]
Get:2 http://es.archive.ubuntu.com/ubuntu noble-updates/main amd64 nginx amd64 1.24.0-2ubuntu7.5 [520 kB]
Fetched 564 kB in 0s (1,567 kB/s)
Preconfiguring packages ...
Selecting previously unselected package nginx-common.
(Reading database ... 150129 files and directories currently installed.)
Preparing to unpack .../nginx-common_1.24.0-2ubuntu7.5_all.deb ...
Unpacking nginx-common (1.24.0-2ubuntu7.5) ...
Selecting previously unselected package nginx.
Preparing to unpack .../nginx_1.24.0-2ubuntu7.5_amd64.deb ...
Unpacking nginx (1.24.0-2ubuntu7.5) ...
Setting up nginx-common (1.24.0-2ubuntu7.5) ...
Created symlink /etc/systemd/system/multi-user.target.wants/nginx.service → /usr/lib/systemd/system/nginx.service.
Setting up nginx (1.24.0-2ubuntu7.5) ...
* Upgrading binary nginx
Processing triggers for man-db (2.12.0-4build2) ...
```

2.

```
GNU nano 7.2 /etc/nginx/sites-available/default *
# available underneath a path with that package name, such as /drupal8.
#
# Please see /usr/share/doc/nginx-doc/examples/ for more detailed examples.
##

# Default server configuration
#
server {
    listen 8081 default_server;
    listen [::]:8081 default_server;

    # SSL configuration
    #
    # listen 443 ssl default_server;
    # listen [::]:443 ssl default_server;
    #
    # Note: You should disable gzip for SSL traffic.
    # See: https://bugs.debian.org/773332
    #
    # Read up on ssl_ciphers to ensure a secure configuration.
    # See: https://bugs.debian.org/765782
```

3.

```
vboxuser@Ubuntu:~$ sudo nano /etc/nginx/sites-available/default
vboxuser@Ubuntu:~$ echo "<h1>Servidor Nginx</h1><p>Funcionando en puerto 8081</p>" | sudo tee /usr/share/nginx/html/index.html
<h1>Servidor Nginx</h1><p>Funcionando en puerto 8081</p>
vboxuser@Ubuntu:~$
```

4.

```
vboxuser@Ubuntu:~$ sudo systemctl restart nginx
vboxuser@Ubuntu:~$
```

5.

```
vboxuser@Ubuntu:~$ sudo systemctl status nginx
● nginx.service - A high performance web server and a reverse proxy server
   Loaded: loaded (/usr/lib/systemd/system/nginx.service; disabled; preset: enabled)
   Active: active (running) since Wed 2025-10-08 07:32:40 UTC; 37s ago
     Docs: man:nginx(8)
  Process: 7073 ExecStartPre=/usr/sbin/nginx -t -q -g daemon on; master_process on; (code=exited, status=0/SUCCESS)
  Process: 7074 ExecStart=/usr/sbin/nginx -g daemon on; master_process on; (code=exited, status=0/SUCCESS)
 Main PID: 7076 (nginx)
    Tasks: 5 (limit: 4603)
   Memory: 5.0M (peak: 5.8M)
      CPU: 14ms
   CGroup: /system.slice/nginx.service
           └─7076 "nginx: master process /usr/sbin/nginx -g daemon on; master_process on;"
             └─7077 "nginx: worker process"
               └─7078 "nginx: worker process"
                 └─7079 "nginx: worker process"
                   └─7080 "nginx: worker process"

Oct 08 07:32:40 Ubuntu systemd[1]: Starting nginx.service - A high performance web server and a reverse proxy server...
Oct 08 07:32:40 Ubuntu systemd[1]: Started nginx.service - A high performance web server and a reverse proxy server.
vboxuser@Ubuntu:~$
```

6.

```
vboxuser@Ubuntu:~$ curl http://localhost:8081
<h1>Hola Mundo desde Nginx</h1><p>Servidor funcionando correctamente</p>
vboxuser@Ubuntu:~$
```

PARTE 3: CADY

1.

```
vboxuser@Ubuntu:~$ sudo apt install -y debian-keyring debian-archive-keyring apt-transport-https curl
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
curl is already the newest version (8.5.0-2ubuntu10.6).
The following package was automatically installed and is no longer required:
  libllvm19
Use 'sudo apt autoremove' to remove it.
The following NEW packages will be installed:
  apt-transport-https debian-archive-keyring debian-keyring
0 upgraded, 3 newly installed, 0 to remove and 5 not upgraded.
Need to get 31.5 MB of archives.
After this operation, 33.4 MB of additional disk space will be used.
Get:1 http://es.archive.ubuntu.com/ubuntu noble-updates/universe amd64 apt-transport-https all 2.8.3 [3,970 B]
Get:2 http://es.archive.ubuntu.com/ubuntu noble/universe amd64 debian-archive-keyring all 2023.4ubuntu1 [168 kB]
Get:3 http://es.archive.ubuntu.com/ubuntu noble/universe amd64 debian-keyring all 2023.12.24 [31.3 MB]
Fetched 31.5 MB in 9s (3,691 kB/s)
Selecting previously unselected package apt-transport-https.
(Reading database ... 151036 files and directories currently installed.)
Preparing to unpack .../apt-transport-https_2.8.3_all.deb ...
Unpacking apt-transport-https (2.8.3) ...
Selecting previously unselected package debian-archive-keyring.
(Reading database ... 151036 files and directories currently installed.)
Preparing to unpack .../debian-archive-keyring_2023.4ubuntu1_all.deb ...
Unpacking debian-archive-keyring (2023.4ubuntu1) ...
Selecting previously unselected package debian-keyring.
(Reading database ... 151036 files and directories currently installed.)
Preparing to unpack .../debian-keyring_2023.12.24_all.deb ...
Unpacking debian-keyring (2023.12.24) ...
Setting up apt-transport-https (2.8.3) ...
Setting up debian-archive-keyring (2023.4ubuntu1) ...
Setting up debian-keyring (2023.12.24) ...
```

2.

```
vboxuser@Ubuntu:~$ curl -sLf 'https://dl.cloudsmith.io/public/caddy/stable/gpg.key' | sudo gpg --dearmor -o /usr/share/
keyrings/caddy-stable-archive-keyring.gpg
curl -sLf 'https://dl.cloudsmith.io/public/caddy/stable/debian.deb.txt' | sudo tee /etc/apt/sources.list.d/caddy-stable
.list
# Source: Caddy
# Site: https://github.com/caddyserver/caddy
# Repository: Caddy / stable
# Description: Fast, multi-platform web server with automatic HTTPS

deb [signed-by=/usr/share/keyrings/caddy-stable-archive-keyring.gpg] https://dl.cloudsmith.io/public/caddy/stable/deb/de
bian any-version main

deb-src [signed-by=/usr/share/keyrings/caddy-stable-archive-keyring.gpg] https://dl.cloudsmith.io/public/caddy/stable/de
b/debian any-version main
vboxuser@Ubuntu:~$
```

3.

```
vboxuser@Ubuntu:~$ sudo apt update && sudo apt install caddy -y
Hit:1 http://security.ubuntu.com/ubuntu noble-security InRelease
Get:2 https://dl.cloudsmith.io/public/caddy/stable/deb/debian any-version InRelease [14.8 kB]
Hit:3 http://es.archive.ubuntu.com/ubuntu noble InRelease
Hit:4 http://es.archive.ubuntu.com/ubuntu noble-updates InRelease
Hit:5 http://es.archive.ubuntu.com/ubuntu noble-backports InRelease
Fetched 14.8 kB in 1s (21.8 kB/s)
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
11 packages can be upgraded. Run 'apt list --upgradable' to see them.
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
caddy is already the newest version (2.10.2).
The following package was automatically installed and is no longer required:
  libllvm19
Use 'sudo apt autoremove' to remove it.
0 upgraded, 0 newly installed, 0 to remove and 11 not upgraded.
vboxuser@Ubuntu:~$
```

4.

```
vboxuser@Ubuntu:~$ sudo mkdir -p /var/www/caddy
vboxuser@Ubuntu:~$
```


5.

```
vboxuser@Ubuntu:~$ echo "# Bienvenido a Caddy" | sudo tee /var/www/caddy/README.md
echo "Este servidor está funcionando correctamente." | sudo tee -a /var/www/caddy/README.md
echo "## Características" | sudo tee -a /var/www/caddy/README.md
echo "- Servidor moderno" | sudo tee -a /var/www/caddy/README.md
echo "- HTTPS automático" | sudo tee -a /var/www/caddy/README.md
echo "- Fácil configuración" | sudo tee -a /var/www/caddy/README.md
# Bienvenido a Caddy
Este servidor está funcionando correctamente.
## Características
- Servidor moderno
- HTTPS automático
- Fácil configuración
vboxuser@Ubuntu:~$
```

6.

```
vboxuser@Ubuntu:~$ curl -o /tmp/test-image.jpg "https://www.python.org/static/apple-touch-icon-144x144-precomposed.png"
sudo mv /tmp/test-image.jpg /var/www/caddy/test.jpg
  % Total    % Received % Xferd  Average Speed   Time    Time     Current
                                 Dload  Upload   Total   Spent    Left     Speed
100  7382  100  7382    0     0  188k      0 --:--:-- --:--:-- --:--:--  189k
vboxuser@Ubuntu:~$
```

7.

```
# Sure your domain's A/AAAA DNS records are properly pointed to
# this machine's public IP, then replace ":80" below with your
# domain name.

:8082 {
    # Set this path to your site's directory.
    root * /var/www/caddy

    # Enable the static file server.
    file_server browse
    @markdown path *.md
    header @markdown Content-Type text/plain

    # Another common task is to set up a reverse proxy:
    # reverse_proxy localhost:8080

    # Or serve a PHP site through php-fpm:
    # php_fastcgi localhost:9000
}

# Refer to the Caddy docs for more information:
```

8.

```
vboxuser@Ubuntu:~$ sudo systemctl restart caddy
vboxuser@Ubuntu:~$
```

9.

```
vboxuser@Ubuntu:~$ sudo systemctl status caddy
● caddy.service - Caddy
   Loaded: loaded (/usr/lib/systemd/system/caddy.service; enabled; preset: enabled)
   Active: active (running) since Wed 2025-10-08 07:52:14 UTC; 59s ago
     Docs: https://caddyserver.com/docs/
   Main PID: 10006 (caddy)
    Tasks: 9 (limit: 4603)
   Memory: 14.4M (peak: 15.8M)
      CPU: 112ms
   CGroup: /system.slice/caddy.service
           └─10006 /usr/bin/caddy run --environ --config /etc/caddy/Caddyfile

Oct 08 07:52:14 Ubuntu caddy[10006]: {"level":"info","ts":1759909934.199819,"logger":"admin","msg":"admin endpoint star>
Oct 08 07:52:14 Ubuntu caddy[10006]: {"level":"info","ts":1759909934.2003853,"logger":"tls.cache.maintenance","msg":"st>
Oct 08 07:52:14 Ubuntu caddy[10006]: {"level":"warn","ts":1759909934.201475,"logger":"http","msg":"HTTP/2 skipped becau>
Oct 08 07:52:14 Ubuntu caddy[10006]: {"level":"warn","ts":1759909934.2015083,"logger":"http","msg":"HTTP/3 skipped beca>
Oct 08 07:52:14 Ubuntu caddy[10006]: {"level":"info","ts":1759909934.2015116,"logger":"http.log","msg":"server running">
Oct 08 07:52:14 Ubuntu caddy[10006]: {"level":"info","ts":1759909934.20167,"msg":"autosaved config (load with --resume >
Oct 08 07:52:14 Ubuntu caddy[10006]: {"level":"info","ts":1759909934.2017484,"msg":"serving initial configuration"}
Oct 08 07:52:14 Ubuntu systemd[1]: Started caddy.service - Caddy.
Oct 08 07:52:14 Ubuntu caddy[10006]: {"level":"info","ts":1759909934.206624,"logger":"tls","msg":"storage cleaning happ>
Oct 08 07:52:14 Ubuntu caddy[10006]: {"level":"info","ts":1759909934.2066772,"logger":"tls","msg":"finished cleaning st>
lines 1-21/21 (END)
```

10.

```
vboxuser@Ubuntu:~$ curl http://localhost:8082/

<!DOCTYPE html>
<html>
  <head>
    <title></title>
    <link rel="canonical" href="/" />
    <meta charset="utf-8">
    <meta name="color-scheme" content="light dark">
    <meta name="viewport" content="width=device-width, initial-scale=1.0">
    <style nonce="6235e3fb-7a5a-40bf-aef0-8ab030849430">
      * { padding: 0; margin: 0; box-sizing: border-box; }
  </head>
  <body>
    <div>
      <img alt="Caddy logo" />
    </div>
  </body>
</html>
```


3.

```
vboxuser@Ubuntu:~$ sudo a2enmod ssl
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
vboxuser@Ubuntu:~$
```

4.

```
GNU nano 7.2 /etc/apache2/sites-available/default-ssl.conf
VirtualHost *: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
```

5.

```
GNU nano 7.2 /etc/apache2/ports.conf
# If you just change the port or add more ports here, you will likely also
# have to change the VirtualHost statement in
# /etc/apache2/sites-enabled/000-default.conf

Listen 8080
Listen 8443

<IfModule ssl_module>
    Listen 443
</IfModule>

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

6.

```
GNU nano 7.2 /etc/apache2/sites-available/default-ssl.conf
<VirtualHost *:8443>
    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
```

7.

```
vboxuser@Ubuntu:~$ sudo a2ensite default-ssl.conf
Enabling site default-ssl.
To activate the new configuration, you need to run:
    systemctl reload apache2
vboxuser@Ubuntu:~$
```

8.

```
vboxuser@Ubuntu:~$ sudo systemctl restart apache2
vboxuser@Ubuntu:~$
```

9.

```
vboxuser@Ubuntu:~$ curl -i -k https://localhost:8443
HTTP/1.1 200 OK
Date: Wed, 08 Oct 2025 08:23:19 GMT
Server: Apache/2.4.58 (Ubuntu)
Last-Modified: Wed, 01 Oct 2025 09:19:55 GMT
ETag: "49-640155f316071"
Accept-Ranges: bytes
Content-Length: 73
Vary: Accept-Encoding
Content-Type: text/html

<h1>Hola Mundo desde Nginx</h1><p>Servidor funcionando correctamente</p>
vboxuser@Ubuntu:~$
```

PARTE 5: Verificación de los Tres Servidores Web

1.

```
vboxuser@Ubuntu:~$ sudo systemctl status apache2 nginx caddy
● apache2.service - The Apache HTTP Server
   Loaded: loaded (/usr/lib/systemd/system/apache2.service; enabled; preset: enabled)
   Active: active (running) since Wed 2025-10-08 08:23:14 UTC; 2min 36s ago
     Docs: https://httpd.apache.org/docs/2.4/
   Process: 11718 ExecStart=/usr/sbin/apachectl start (code=exited, status=0/SUCCESS)
  Main PID: 11722 (apache2)
    Tasks: 6 (limit: 4603)
   Memory: 12.4M (peak: 12.6M)
      CPU: 63ms
   CGroup: /system.slice/apache2.service
           └─11722 /usr/sbin/apache2 -k start
             11724 /usr/sbin/apache2 -k start
             11725 /usr/sbin/apache2 -k start
             11726 /usr/sbin/apache2 -k start
             11727 /usr/sbin/apache2 -k start
             11728 /usr/sbin/apache2 -k start

Oct 08 08:23:14 Ubuntu systemd[1]: Starting apache2.service - The Apache HTTP Server...
Oct 08 08:23:14 Ubuntu apachectl[11721]: AH00558: apache2: Could not reliably determine the server's fully qualified do>
Oct 08 08:23:14 Ubuntu systemd[1]: Started apache2.service - The Apache HTTP Server.

● nginx.service - A high performance web server and a reverse proxy server
   Loaded: loaded (/usr/lib/systemd/system/nginx.service; disabled; preset: enabled)
   Active: active (running) since Wed 2025-10-08 07:32:40 UTC; 53min ago
     Docs: man:nginx(8)
  Main PID: 7076 (nginx)
    Tasks: 5 (limit: 4603)
   Memory: 4.6M (peak: 5.8M)
      CPU: 15ms
   CGroup: /system.slice/nginx.service
```

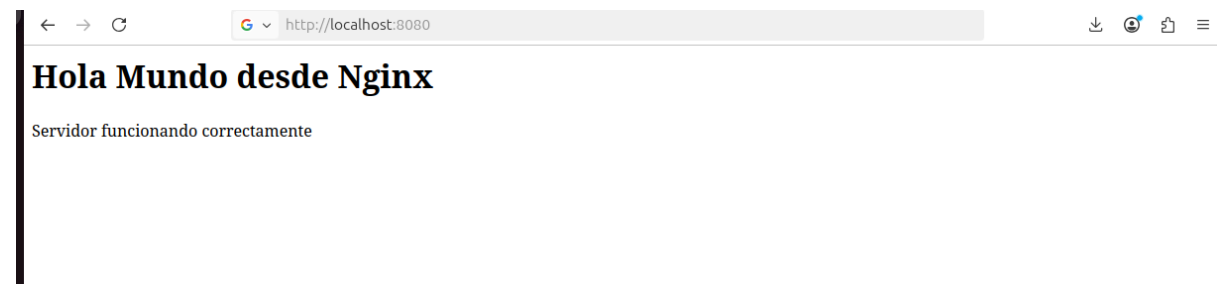
2.

```
vboxuser@Ubuntu:~$ sudo netstat -tulpn | grep -E '8080|8081|8082|8443'
tcp        0      0 0.0.0.0:8081          0.0.0.0:*            LISTEN     7076/nginx: master
tcp6       0      0 :::8081              :::*                  LISTEN     7076/nginx: master
tcp6       0      0 :::8080              :::*                  LISTEN     11722/apache2
tcp6       0      0 :::8082              :::*                  LISTEN     10006/caddy
tcp6       0      0 :::8443              :::*                  LISTEN     11722/apache2
vboxuser@Ubuntu:~$
```

3.

```
vboxuser@Ubuntu:~$ curl http://localhost:8080
<h1>Hola Mundo desde Nginx</h1><p>Servidor funcionando correctamente</p>
vboxuser@Ubuntu:~$
```

NGINX



```
vboxuser@Ubuntu:~$ curl http://localhost:8082

<!DOCTYPE html>
<html>
  <head>
    <title></title>
    <link rel="canonical" href="/" />
    <meta charset="utf-8">
    <meta name="color-scheme" content="light dark">
    <meta name="viewport" content="width=device-width, initial-scale=1.0">
<style nonce="a73a4180-bb7b-4b2e-92a7-46f75ee631ef">
* { padding: 0; margin: 0; box-sizing: border-box; }

body {
  font-family: Inter, system-ui, sans-serif;
  font-size: 16px;
  text-rendering: optimizespeed;
  background-color: #f3f6f7;
  min-height: 100vh;
}
```



```
vboxuser@Ubuntu:~$ curl http://localhost:8443
<!DOCTYPE HTML PUBLIC "-//IETF//DTD HTML 2.0//EN">
<html><head>
<title>400 Bad Request</title>
</head><body>
<h1>Bad Request</h1>
<p>Your browser sent a request that this server could not understand.<br />
Reason: You're speaking plain HTTP to an SSL-enabled server port.<br />
Instead use the HTTPS scheme to access this URL, please.<br />
</p>
<hr>
<address>Apache/2.4.58 (Ubuntu) Server at fd17:625c:f037:2:a00:27ff:fe53:b162 Port 8443</address>
</body></html>
vboxuser@Ubuntu:~$
```

Bad Request

Your browser sent a request that this server could not understand.
Reason: You're speaking plain HTTP to an SSL-enabled server port.
Instead use the HTTPS scheme to access this URL, please.

Apache/2.4.58 (Ubuntu) Server at fd17:625c:f037:2:a00:27ff:fe53:b162 Port 8443

```
vboxuser@Ubuntu:~$ sudo lsof -i :8080
COMMAND  PID    USER  FD  TYPE DEVICE SIZE/OFF NODE NAME
apache2  11722  root   4u   IPv6  72196      0t0  TCP *:http-alt (LISTEN)
apache2  11724  www-data 4u   IPv6  72196      0t0  TCP *:http-alt (LISTEN)
apache2  11725  www-data 4u   IPv6  72196      0t0  TCP *:http-alt (LISTEN)
apache2  11726  www-data 4u   IPv6  72196      0t0  TCP *:http-alt (LISTEN)
apache2  11727  www-data 4u   IPv6  72196      0t0  TCP *:http-alt (LISTEN)
apache2  11728  www-data 4u   IPv6  72196      0t0  TCP *:http-alt (LISTEN)
apache2  12357  www-data 4u   IPv6  72196      0t0  TCP *:http-alt (LISTEN)
vboxuser@Ubuntu:~$ sudo lsof -i :8081
COMMAND  PID    USER  FD  TYPE DEVICE SIZE/OFF NODE NAME
nginx    7076  root   5u   IPv4  39311      0t0  TCP *:tproxy (LISTEN)
nginx    7076  root   6u   IPv6  39312      0t0  TCP *:tproxy (LISTEN)
nginx    7077  www-data 5u   IPv4  39311      0t0  TCP *:tproxy (LISTEN)
nginx    7077  www-data 6u   IPv6  39312      0t0  TCP *:tproxy (LISTEN)
nginx    7078  www-data 5u   IPv4  39311      0t0  TCP *:tproxy (LISTEN)
nginx    7078  www-data 6u   IPv6  39312      0t0  TCP *:tproxy (LISTEN)
nginx    7079  www-data 5u   IPv4  39311      0t0  TCP *:tproxy (LISTEN)
nginx    7079  www-data 6u   IPv6  39312      0t0  TCP *:tproxy (LISTEN)
nginx    7080  www-data 5u   IPv4  39311      0t0  TCP *:tproxy (LISTEN)
nginx    7080  www-data 6u   IPv6  39312      0t0  TCP *:tproxy (LISTEN)
vboxuser@Ubuntu:~$ sudo lsof -i :8082
COMMAND  PID  USER  FD  TYPE DEVICE SIZE/OFF NODE NAME
caddy    10006 caddy  6u   IPv6  57154      0t0  TCP *:8082 (LISTEN)
vboxuser@Ubuntu:~$
```