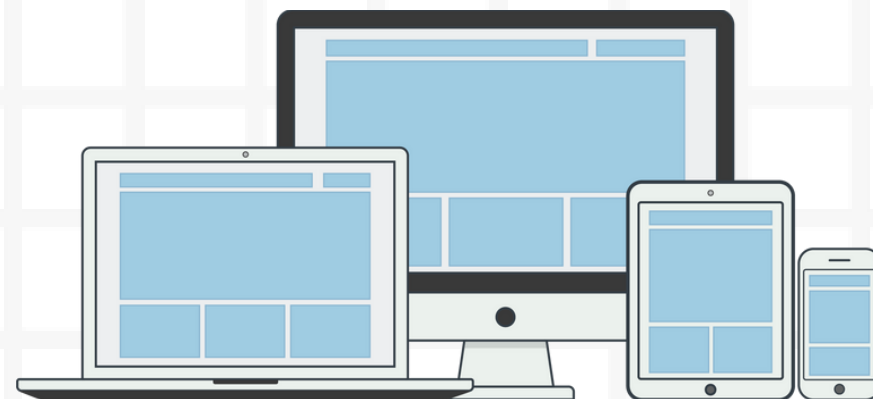
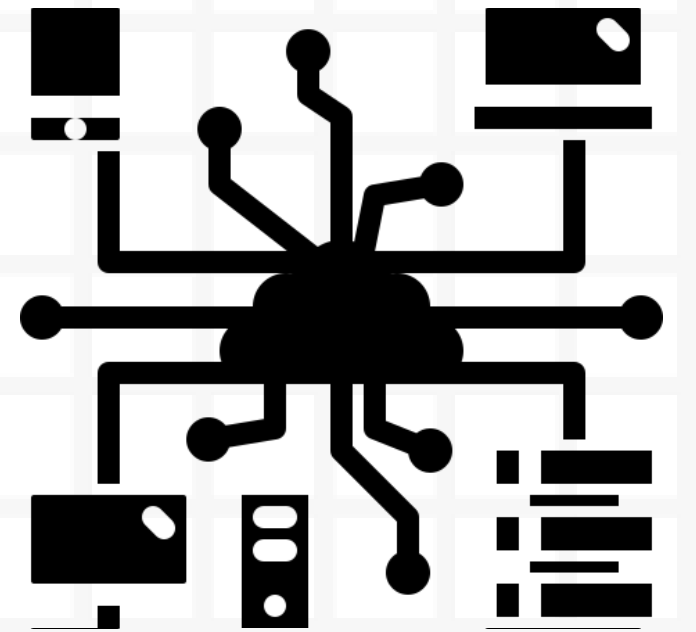
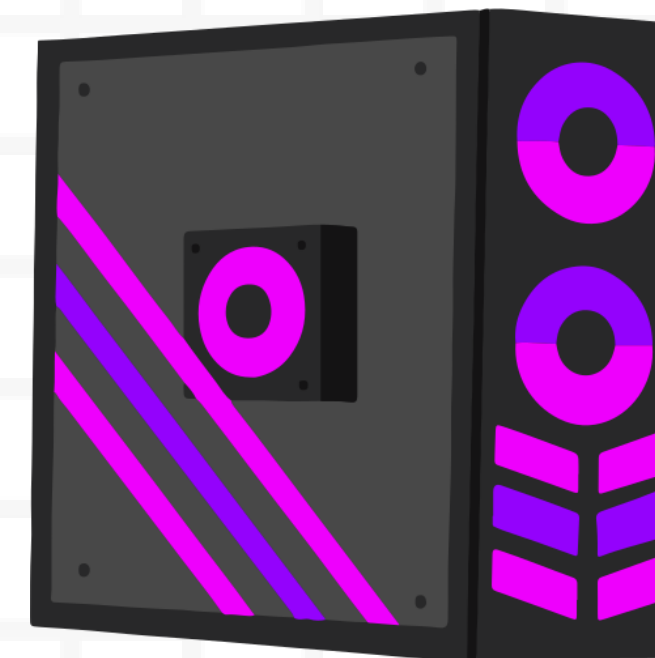


PROYECTO UT3

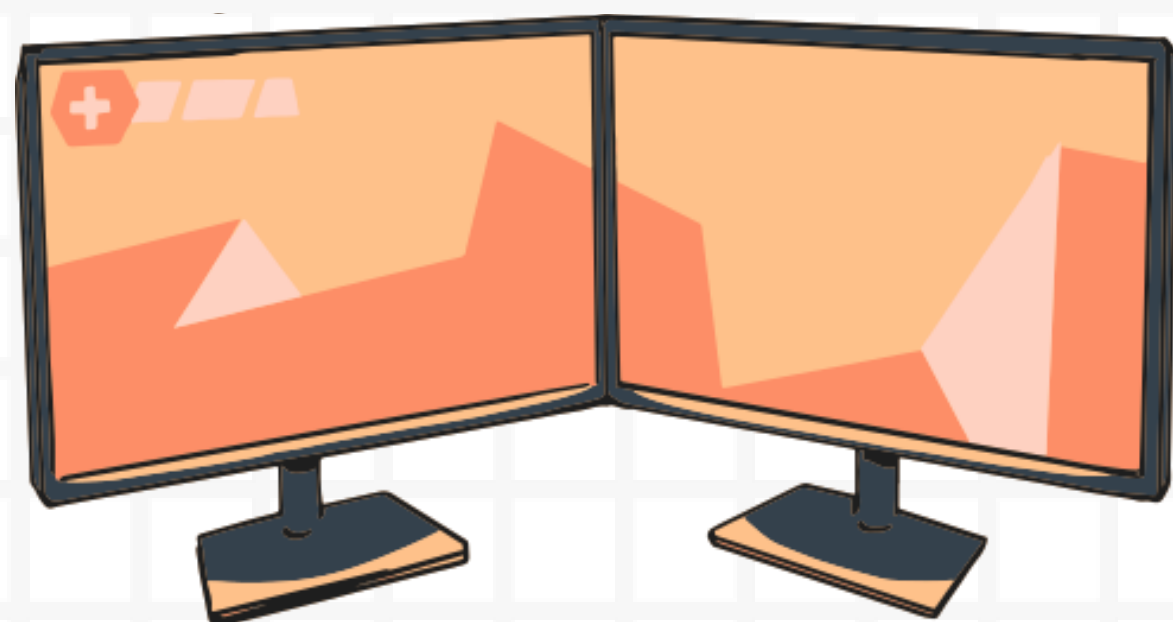
SERVIDOR APACHE

SERGIO BRAVO MORA





OBJETIVOS



OBJETIVO 1

Instalar y configurar Apache: Instalar el servidor web Apache en una máquina virtual o servidor Linux.

OBJETIVO 2

Crear y gestionar hosts virtuales: Configurar Apache para manejar varios sitios o aplicaciones web en la misma máquina a través de Virtual Hosts.



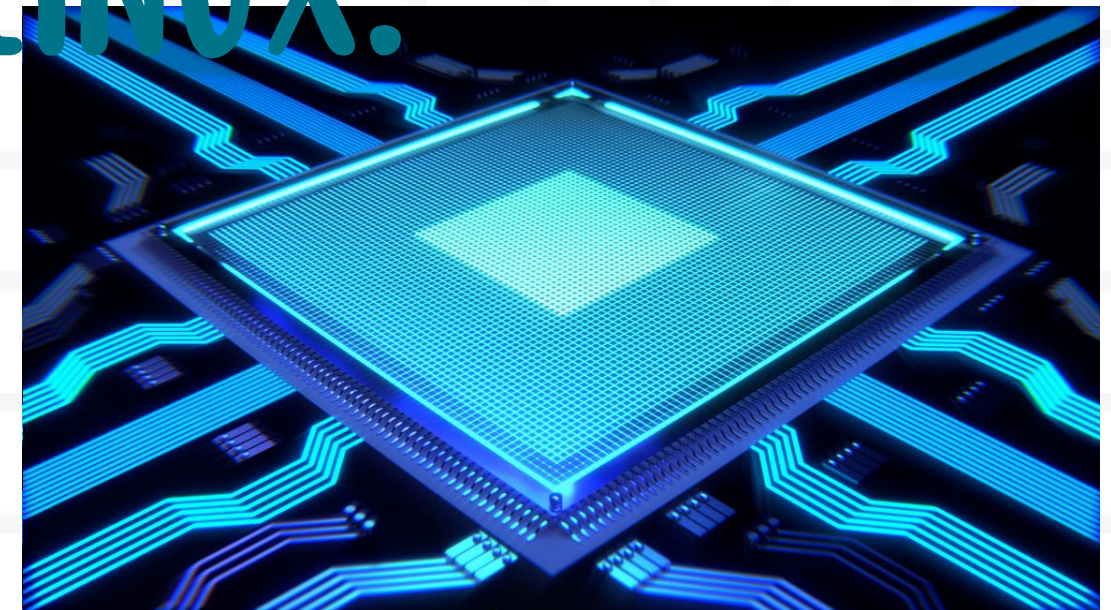
OBJETIVO 3

Explorar módulos de Apache: Configurar módulos adicionales para mejorar la funcionalidad de Apache.

OBJETIVO 4

Implementar una funcionalidad web específica: Crear una aplicación web simple que se sirva desde Apache.

**1. INSTALAR Y CONFIGURAR
APACHE: INSTALAR EL SERVIDOR
WEB APACHE EN UNA MÁQUINA
VIRTUAL O SERVIDOR LINUX.**



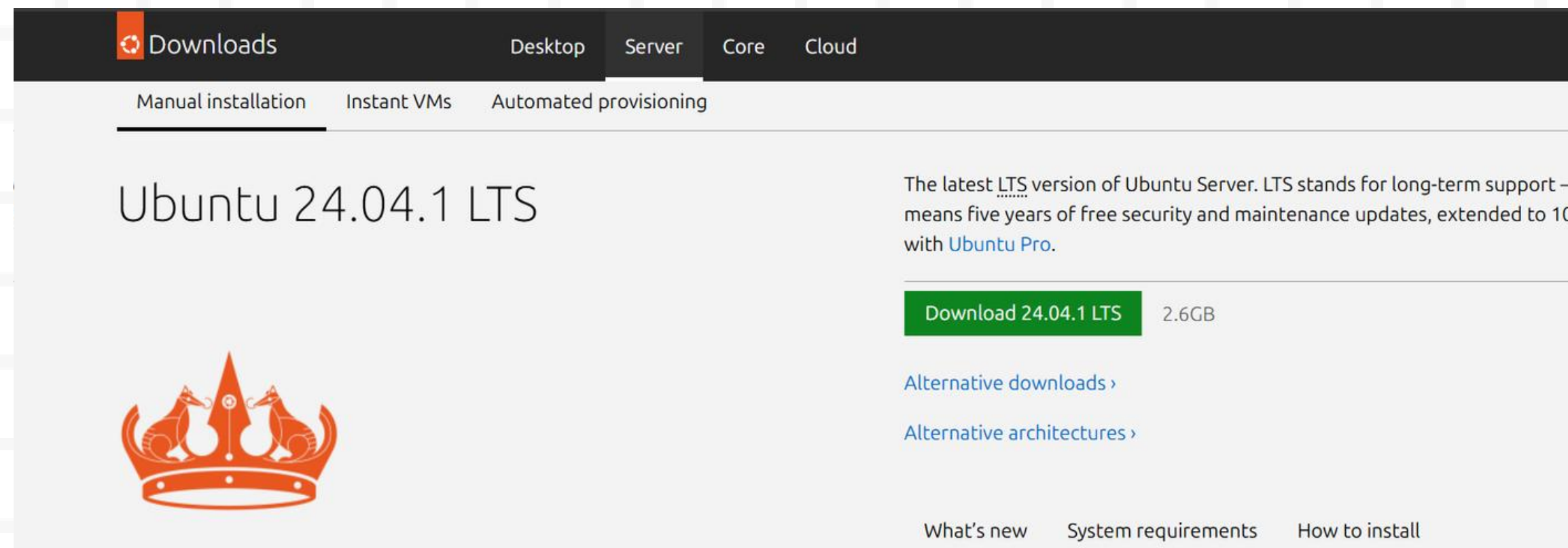
CONCEPTO

Para poder empezar con este punto primero deberíamos instalar Virtual Box en caso de que no lo tengamos, porque nos va hacer falta para nuestro servidor Apache.

<https://www.virtualbox.org/wiki/Downloads>

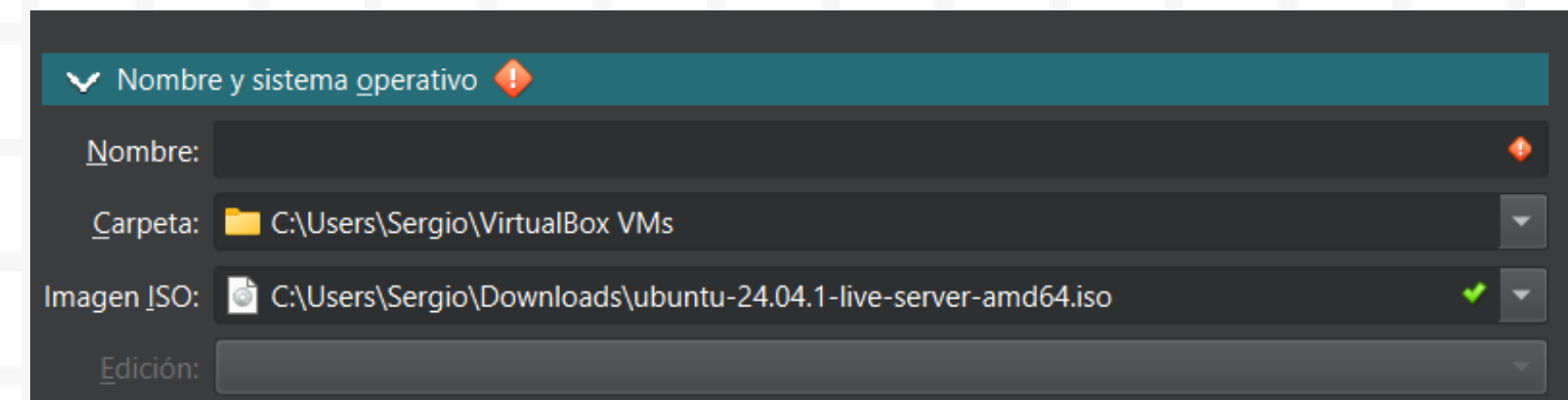
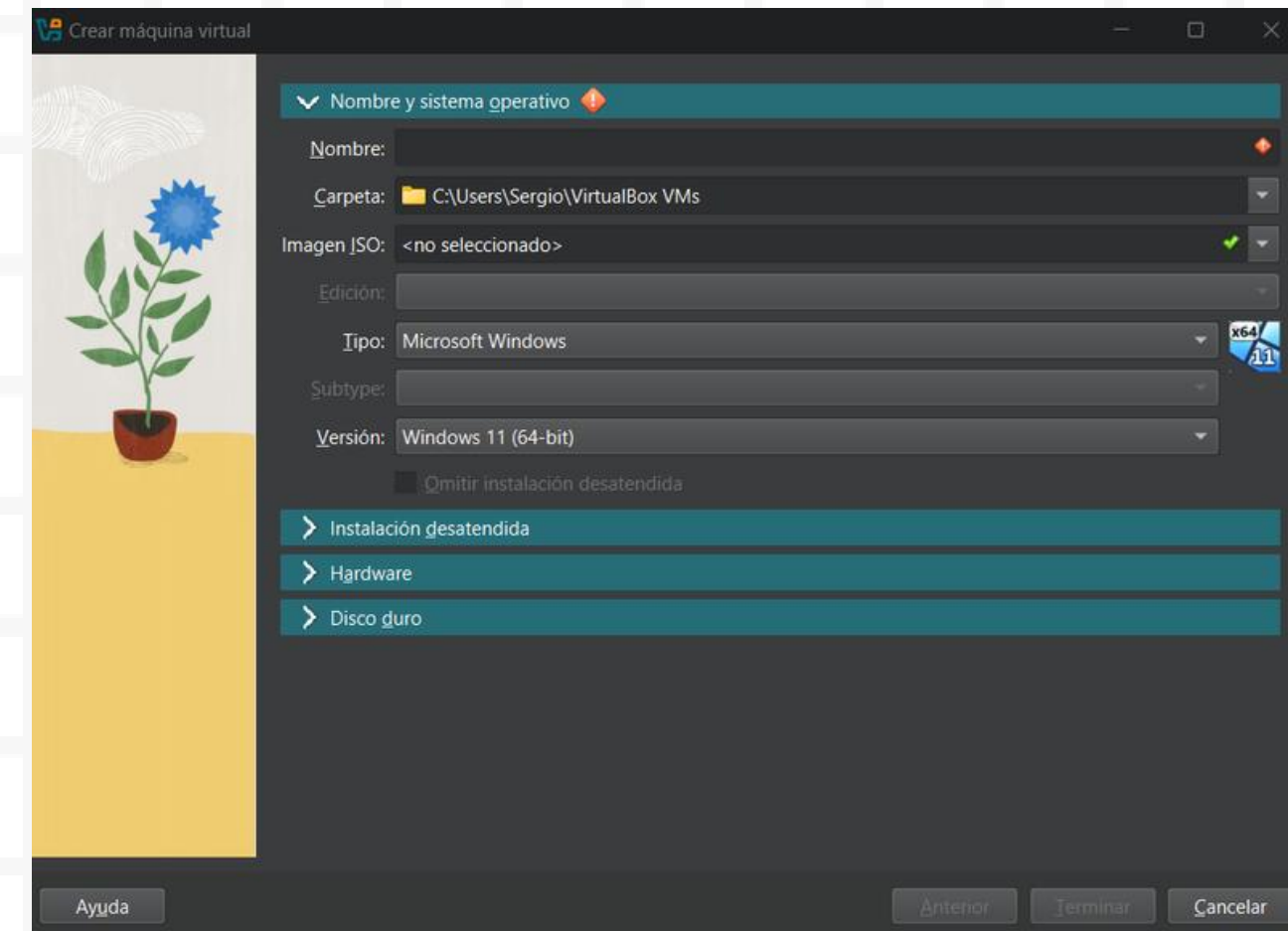


Cuando tengamos el Virtual Box ya instalado, nos tendríamos que descargar una ISO para poder añadir nuestro servidor Ubuntu

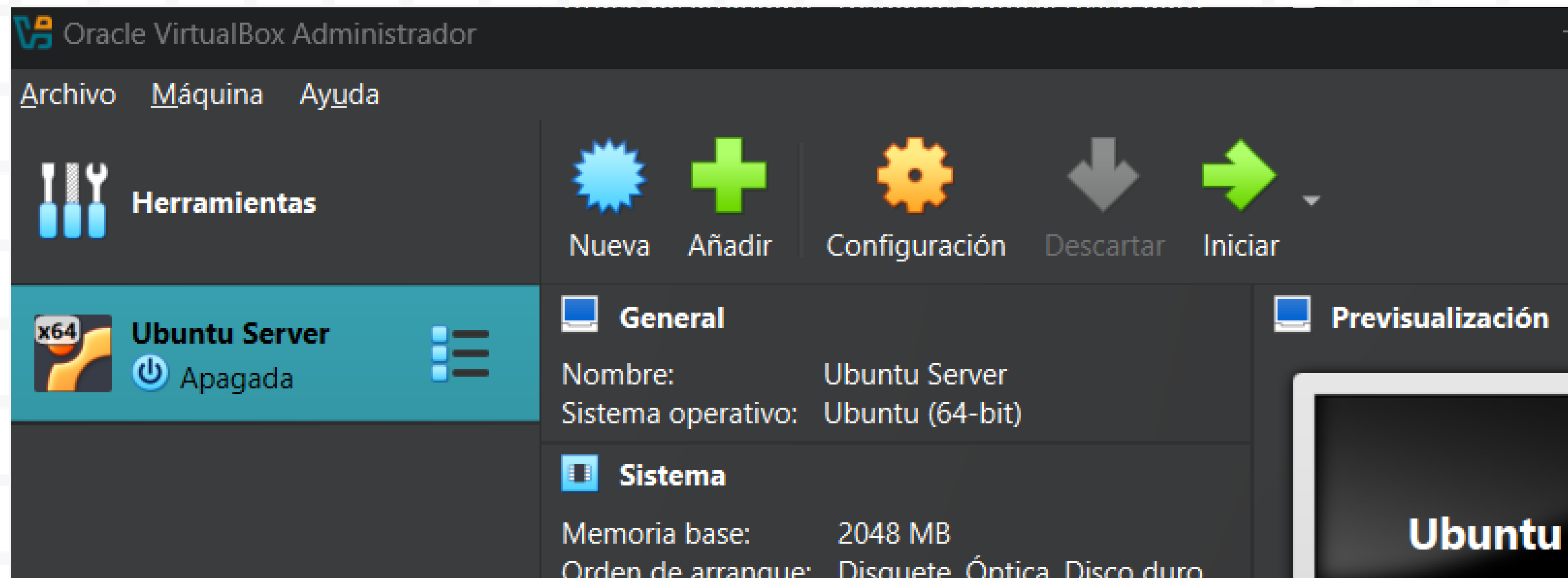


Una vez tengamos la iso descargada, nos iremos al virtual box, y pulsaremos en el botón de nuevo, el cual nos saldrá un menú para elegir que iso queremos instalar, en caso de que tengamos varias.

En imagen iso, desplegaremos ese botón y buscaremos nuestra iso descargada para poder añadirla y le daremos a omitir instalación en caso de que no entendamos mucho de maquinas virtuales.

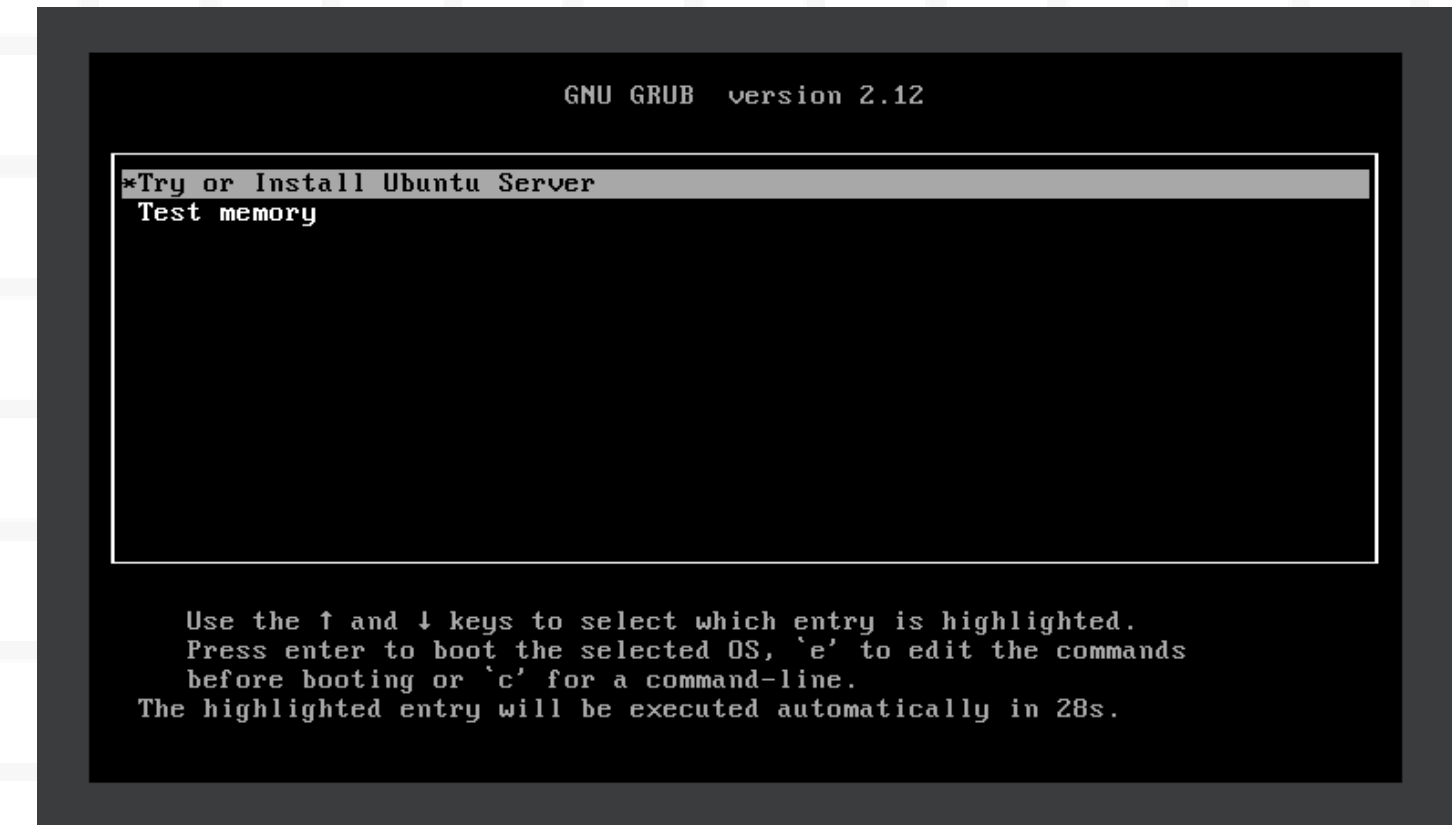


Una vez añadida, le daremos al botón de iniciar o arrancar para comenzar la instalación.



- Marcaremos la primera opción (tardara en instalarse).

```
Starting systemd-timedated.service - Time & Date Service...  
Ubuntu 24.04.1 LTS ubuntu-server tty1  
  
connecting...  
waiting for cloud-init... \
```



- En el siguiente paso se debera marcar la opción de instalar todo, por tener las ultimas actualizaciones.

```
Actualización del instalador disponible [ Help ]  
  
Version 24.10.1 of the installer is now available (24.08.1 is currently running).  
You can read the release notes for each version at:  
    https://github.com/canonical/subiquity/releases  
If you choose to update, the update will be downloaded and the installation will continue from here.  
  
[ Actualizar al instalador nuevo ]  
[ Continuar con la instalación ]
```

- En el siguiente paso se marcará la opción de instalar Ubuntu server.

Choose the type of installation

Choose the base for the installation.

☒ Ubuntu Server

The default install contains a curated set of packages that provide a comfortable experience for operating your server.

☐ Ubuntu Server (minimized)

This version has been customized to have a small runtime footprint in environments where humans are not expected to interact with the system.

Additional options

☐ Search for third-party drivers

This software is subject to license terms included with its documentation. Some is proprietary. Third-party drivers should not be installed on systems that will be used for FIPS or the real-time kernel.

- En el siguiente paso le daremos a done directamente.

Network configuration

[Help]

Configure at least one interface this server can use to talk to other machines, and which preferably provides sufficient access for updates.

NAME	TYPE	NOTES
[enp0s3	eth	-
▶]		
DHCPv4	10.0.2.15/24	
08:00:27:cb:bf:84 / Intel Corporation / 82540EM Gigabit Ethernet Controller (PRO/1000 MT Desktop Adapter)		
[Create bond ▶]		

- En el siguiente paso también le daremos a done, ya que no necesitamos poner proxy.

Proxy configuration

[Help]

If this system requires a proxy to connect to the internet, enter its details here.

Proxy address:

If you need to use a HTTP proxy to access the outside world, enter the proxy information here. Otherwise, leave this blank.

The proxy information should be given in the standard form of "http://[[user][:pass]@]host[:port]/".

- En el siguiente paso nos saldrá como se esta instalando los paquetes necesarios (Este paso tarda un rato).

Ubuntu archive mirror configuration

If you use an alternative mirror for Ubuntu, enter its details here.

Mirror address: `http://es.archive.ubuntu.com/ubuntu/`

You may provide an archive mirror to be used instead of the default.

This mirror location passed tests.

```
Obj:1 http://es.archive.ubuntu.com/ubuntu noble InRelease
Des:2 http://es.archive.ubuntu.com/ubuntu noble-updates InRelease [126 kB]
Des:3 http://es.archive.ubuntu.com/ubuntu noble-backports InRelease [126 kB]
Descargados 252 kB en 2s (135 kB/s)
Leyendo lista de paquetes...
```

- En el siguiente paso seleccionaremos el disco.

Guided storage configuration [Help]

Configure a guided storage layout, or create a custom one:

☒ Use an entire disk

[VBOX_HARDDISK_VB92f0f21b-d60e148c local disk 25.000G ▼]

☒ Set up this disk as an LVM group

☐ Encrypt the LVM group with LUKS

Passphrase:

Confirm passphrase:

☐ Also create a recovery key
The key will be stored as ~/recovery-key.txt in the live system and will be copied to /var/log/installer/ in the target system.

☐ Custom storage layout

- En el siguiente paso lo omitiremos y nos llevara a crear el usuario.

```
Storage configuration

FILE SYSTEM SUMMARY

MOUNT POINT    SIZE    TYPE    DEVICE TYPE
[ /             11.496G new ext4 new LVM logical volume ▶ ]
[ /boot         2.000G new ext4 new partition of local disk ▶ ]

AVAILABLE DEVICES

DEVICE                                TYPE                                SIZE
[ ubuntu-vg (new)                     LVM volume group                   22.996G ▶ ]
free space                            11.500G ▶

[ Create software RAID (md) ▶ ]
[ Create volume group (LVM) ▶ ]

USED DEVICES

DEVICE                                TYPE                                SIZE
[ ubuntu-vg (new)                     LVM volume group                   22.996G ▶ ]
ubuntu-lv    new, to be formatted as ext4, mounted at / 11.496G ▶

[ VBOX_HARDDISK_VB92f0f21b-d60e148c    local disk                           25.000G ▶ ]
partition 1  new, BIOS grub spacer                            1.000M ▶
partition 2  new, to be formatted as ext4, mounted at /boot 2.000G ▶
partition 3  new, PV of LVM volume group ubuntu-vg           22.997G ▶

[ Done ]
[ Reset ]
[ Back ]
```

- Creación de usuario en Ubuntu server.

Profile configuration

[Help]

Enter the username and password you will use to log in to the system. You can configure SSH access on a later screen, but a password is still needed for sudo.

Your name: flosky

Your servers name: flosky

The name it uses when it talks to other computers.

Pick a username: flosky

Choose a password: ****

Confirm your password: ****

- Estas son las herramientas que se nos descargaran.

```
Featured server snaps [ Help ]
These are popular snaps in server environments. Select or deselect with SPACE, press ENTER to see more details of the package, publisher and versions available.

[*] microk8s          canonical/      Kubernetes for workstations and appliances
[*] nextcloud         nextcloud/     Nextcloud Server - A safe home for all your data
[*] ukan              xet?          Open-Source kanban
[*] kata-containers   katacontainers/ Build lightweight VMs that seamlessly plug into the containers ecosystem
[*] docker            canonical/     Docker container runtime
[*] canonical-livepatch canonical/      Canonical Livepatch Client
[*] rocketchat-server rocketchat/    Rocket.Chat server
[*] mosquitto         mosquitto/    Eclipse Mosquitto MQTT broker
[*] etcd              canonical/     Resilient key-value store by CoreOS
[*] powershell        microsoft-powershell/ PowerShell for every system!
[*] seabnbd           seahire       seabnbd
[*] uurehole          snapcrafters/ get things from one computer to another, safely
[*] aws-cli           aws/          Universal Command Line Interface for Amazon Web Services
[*] google-cloud-sdk  google-cloud-sdk/ Google Cloud SDK
[*] scli              softlayer     Python based SoftLayer API Tool.
[*] doctl             digitalocean/ The official DigitalOcean command line interface
[*] conjure-up         canonical/     Package runtime for conjure-up spells
[*] postgresql@      cmd/          PostgreSQL is a powerful, open source object-relational database system.
[*] heroku            heroku/       CLI client for Heroku
[*] keepalived         keepalived-project/ High availability VRRP/BFD and load-balancing for Linux
[*] prometheus        canonical/     The Prometheus monitoring system and time series database

[ Done ]
[ Back ]
```


- Una vez seleccionado todas las herramientas, tardara un rato en instalarse todo correctamente.
- Así se vería ya finalizado.

```
Full installer output
finish: cmd-in-target: SUCCESS: curtin command in-target
start: cmd-in-target: curtin command in-target
Running command ['mount', '--bind', '/dev', '/target/dev'] with allowed return codes [0] (capture=False)
Running command ['mount', '--bind', '/proc', '/target/proc'] with allowed return codes [0] (capture=False)
Running command ['mount', '--bind', '/run', '/target/run'] with allowed return codes [0] (capture=False)
Running command ['mount', '--bind', '/sys', '/target/sys'] with allowed return codes [0] (capture=False)
Running command ['mount', '--bind', '/target/usr/bin/true', '/target/usr/bin/ischroot'] with allowed return codes [0] (capture=False)
Running command ['unshare', '--help'] with allowed return codes [0] (capture=True)
Checking if target_proc (/target/proc) is a mount
It is, so unshare will use --mount-proc=/target/proc
Running command ['unshare', '--fork', '--pid', '--mount-proc=/target/proc', '--', 'chroot', '/target', 'apt-get', 'update'] with allowed return codes [0] (capture=False)
Hit:1 http://es.archive.ubuntu.com/ubuntu noble InRelease
Hit:2 http://security.ubuntu.com/ubuntu noble-security InRelease
Hit:3 http://es.archive.ubuntu.com/ubuntu noble-updates InRelease
Hit:4 http://es.archive.ubuntu.com/ubuntu noble-backports InRelease
Get:5 http://es.archive.ubuntu.com/ubuntu noble/main Translation-en [513 kB]
Get:6 http://security.ubuntu.com/ubuntu noble-security/main Translation-en [93.2 kB]
Get:7 http://security.ubuntu.com/ubuntu noble-security/restricted Translation-en [74.8 kB]
Get:8 http://es.archive.ubuntu.com/ubuntu noble-restricted Translation-en [18.7 kB]
Get:9 http://es.archive.ubuntu.com/ubuntu noble/universe Translation-en [5982 kB]
Get:10 http://security.ubuntu.com/ubuntu noble-security/universe Translation-en [148 kB]
Get:11 http://security.ubuntu.com/ubuntu noble-security/multiverse Translation-en [2808 B]
Get:12 http://es.archive.ubuntu.com/ubuntu noble/multiverse Translation-en [118 kB]
Get:13 http://es.archive.ubuntu.com/ubuntu noble-updates/main Translation-en [146 kB]
Get:14 http://es.archive.ubuntu.com/ubuntu noble-updates/restricted Translation-en [74.8 kB]
Get:15 http://es.archive.ubuntu.com/ubuntu noble-updates/universe Translation-en [210 kB]
Get:16 http://es.archive.ubuntu.com/ubuntu noble-updates/multiverse Translation-en [3820 B]
Get:17 http://es.archive.ubuntu.com/ubuntu noble-backports/universe Translation-en [10.8 kB]
Fetched 7396 kB in 2s (4773 kB/s)
Reading package lists...
Running command ['udevadm', 'settle'] with allowed return codes [0] (capture=False)
TIMED subp(['udevadm', 'settle']): 0.018
Running command ['mount', '--make-private', '/target/usr/bin/ischroot'] with allowed return codes [0] (capture=False)
Running command ['umount', '/target/usr/bin/ischroot'] with allowed return codes [0] (capture=False)
Running command ['mount', '--make-private', '/target/sys'] with allowed return codes [0] (capture=False)
Running command ['umount', '/target/sys'] with allowed return codes [0] (capture=False)
Running command ['mount', '--make-private', '/target/run'] with allowed return codes [0] (capture=False)
Running command ['umount', '/target/run'] with allowed return codes [0] (capture=False)
Running command ['mount', '--make-private', '/target/proc'] with allowed return codes [0] (capture=False)
Running command ['umount', '/target/proc'] with allowed return codes [0] (capture=False)
Running command ['mount', '--make-private', '/target/dev'] with allowed return codes [0] (capture=False)
Running command ['umount', '/target/dev'] with allowed return codes [0] (capture=False)
finish: cmd-in-target: SUCCESS: curtin command in-target
```

- Este paso puede ser un poco confuso ya que sale el mensaje de FAILED, igualmente se debera presionar la Tecla de enter y funcionaria correctamente.

```
[FAILED] Failed unmounting cdrom.mount - /cdrom.  
Please remove the installation medium, then press ENTER:  
[FAILED] Failed unmounting cdrom.mount - /cdrom.
```

- Una vez acabado, nos pedirá el usuario y la contraseña y ya tendríamos el servidor acabado.

```
* Documentation:  https://help.ubuntu.com
* Management:    https://landscape.canonical.com
* Support:        https://ubuntu.com/pro

System information as of mar 29 oct 2024 09:27:07 UTC

System load:            0.08
Usage of /:              37.8% of 11.21GB
Memory usage:           8%
Swap usage:             0%
Processes:              93
Users logged in:        0
IPv4 address for enp0s3: 10.0.2.15
IPv6 address for enp0s3: fd00::a00:27ff:feeb:bf84

El mantenimiento de seguridad expandido para Applications está desactivado

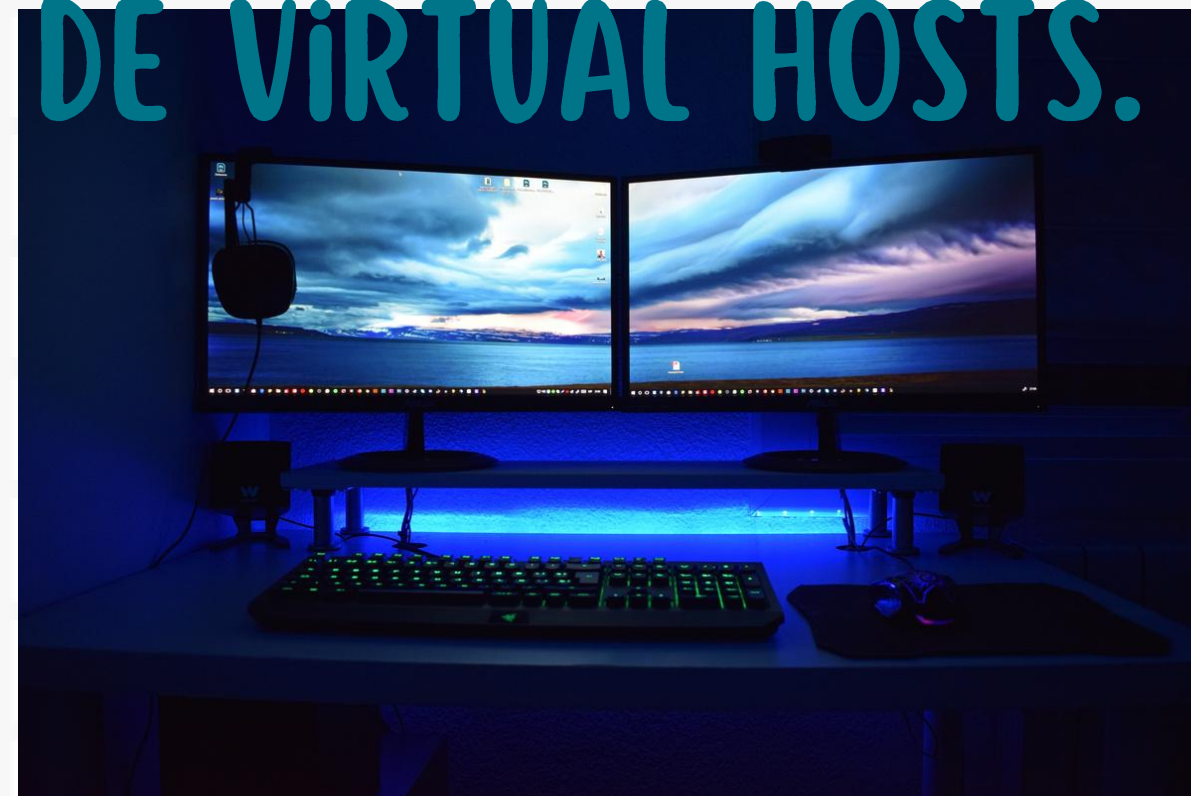
Se pueden aplicar 44 actualizaciones de forma inmediata.
Para ver estas actualizaciones adicionales, ejecute: apt list --upgradable

Active ESM Apps para recibir futuras actualizaciones de seguridad adicionales.
Vea https://ubuntu.com/esm o ejecute «sudo pro status»

The programs included with the Ubuntu system are free software;
the exact distribution terms for each program are described in the
individual files in /usr/share/doc/*/copyright.

Ubuntu comes with ABSOLUTELY NO WARRANTY, to the extent permitted by
applicable law.
```

**2. CREAR Y GESTIONAR HOSTS
VIRTUALES: CONFIGURAR APACHE PARA
MANEJAR VARIOS SITIOS O
APLICACIONES WEB EN LA MISMA
MÁQUINA A TRAVÉS DE VIRTUAL HOSTS.**



Sudo systemctl status apache2

Una vez comprobado que nuestro servidor si esta funcionando, abra que configurar un Host Virtual.

```
flosky@flosky:~$ 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 Tue 2024-11-19 09:02:46 UTC; 16min ago
    Docs: https://httpd.apache.org/docs/2.4/
  Main PID: 2219 (apache2)
    Tasks: 55 (limit: 5781)
  Memory: 5.5M (peak: 6.0M)
    CPU: 107ms
  CGroup: /system.slice/apache2.service
          └─2219 /usr/sbin/apache2 -k start
            └─2220 /usr/sbin/apache2 -k start
              └─2221 /usr/sbin/apache2 -k start

nov 19 09:02:46 flosky systemd[1]: Starting apache2.service - The Apache HTTP Server...
nov 19 09:02:46 flosky apache2[2218]: AH00558: apache2: Could not reliably determine the server's fully qualified domain name, using 127.0.1.
nov 19 09:02:46 flosky systemd[1]: Started apache2.service - The Apache HTTP Server.
lines 1-16/16 (END)
```


CREAR UN DIRECTORIO PARA LA APLICACIÓN WEB:

```
flosky@flosky:~$ sudo mkdir -p /var/www/mi_aplicacion_web  
flosky@flosky:~$ _
```

```
flosky@flosky:~$ sudo mkdir -p mi_aplicacion_web  
flosky@flosky:~$ ls -ln  
total 8  
drwxr-xr-x 2 0 0 4096 nov 19 09:36 mi_aplicacion_web  
drwx----- 3 1000 1000 4096 nov 5 08:57 snap  
flosky@flosky:~$ _
```

CREAR UN ARCHIVO HTML BÁSICO:

Para encontrar este archivo html nos tendremos que ir a la ruta:
`/var/www/mi_aplicación_web/index.html`

```
flosky@flosky:~$ cd /var/www/mi_aplicación_web/
flosky@flosky:/var/www$ cd mi_aplicación_web/
flosky@flosky:/var/www/mi_aplicación_web$ ls -la
total 12
drwxr-xr-x 2 flosky flosky 4096 nov 19 15:19 .
drwxr-xr-x 4 root   root   4096 nov 19 09:25 ..
-rw-r--r-- 1 flosky flosky   50 nov 21 11:05 index.html
flosky@flosky:/var/www/mi_aplicación_web$ cat index.html
<h1>Bienvenido a mi aplicacion web en Apache</h1>
```

Seguidamente, con el comando `cat index.html`

CONFIGURAR UN HOST VIRTUAL:

```
GNU nano 7.2 /etc/apache2/sites-available/mi_aplicacion_web.conf *
VirtualHost *:80>
    ServerAdmin admin@miaplicacion.com
    ServerName miaplicacion.com
    DocumentRoot /var/www/mi_aplicacion_web
    ErrorLog ${APACHE_LOG_DIR}/error.log
    CustomLog ${APACHE_LOG_DIR}/access.log combined_
VirtualHost>
```

Help Write Out Where Is Cut Execute Location M-U Undo M-A Set Mark M-J To Bracket M-Q Previous
Exit Read File Replace Paste Justify Go To Line M-E Redo M-6 Copy ^Q Where Was M-W Next

HABILITAR EL HOST VIRTUAL:

```
flosky@flosky:~$ sudo a2ensite mi_aplicacion_web.conf
Enabling site mi_aplicacion_web.
To activate the new configuration, you need to run:
  systemctl reload apache2
flosky@flosky:~$ systemctl reload apache2
==== AUTHENTICATING FOR org.freedesktop.systemd1.manage-units ====
Authentication is required to reload 'apache2.service'.
Authenticating as: flosky
Password:
==== AUTHENTICATION COMPLETE ====
flosky@flosky:~$ sudo a2ensite mi_aplicacion_web.conf
Site mi_aplicacion_web already enabled
flosky@flosky:~$
```

Reiniciar Apache: `sudo systemctl restart apache2`

```
flosky@flosky:~$ sudo systemctl restart apache2
flosky@flosky:~$
```

ACTIVAR MÓDULOS EN APACHE

Habilitar mod_rewrite:

```
Enabling module rewrite.  
To activate the new configuration, you need to run:  
  systemctl restart apache2  
flosky@flosky:~$ systemctl restart apache2  
==== AUTHENTICATING FOR org.freedesktop.systemd1.manage-units ====  
Authentication is required to restart 'apache2.service'.  
Authenticating as: flosky  
Password:  
==== AUTHENTICATION COMPLETE ====  
flosky@flosky:~$ sudo a2enmod rewrite  
Module rewrite already enabled  
flosky@flosky:~$
```

Configurar el módulo mod_rewrite:

```
GNU nano 7.2  
<Directory /var/www/mi_aplicacion_web>  
    AllowOverride All  
</Directory>
```


FUNCIONALIDAD PERSONALIZADA: GESTION DE TAREAS EN LINEA

Crea un archivo index.html con el siguiente contenido que servirá para la gestión de tareas simples.

```
GNU nano 7.2 index.html
<html>
  <head>
    <title>Gestion de Tareas </title>
  </head>
  <body>
    <h1>Bienvenido a la aplicacion de Gestion de Tareas </h1>
    <form method="POST" action="/add-task">
      <label for ="task">Nueva Tarea: </label>
      <input type="text" id="task" name="task">
      <button type="submit"> Añadir Tarea </button>
    </form>
    <h2> Lista de Tareas: </h2>
  </body>
</html>
```

```
-rw-r--r-- 1 flosky flosky 220 mar 31 2024 .bash_logout
-rw-r--r-- 1 flosky flosky 3771 mar 31 2024 .bashrc
drwx----- 2 flosky flosky 4096 oct 29 09:27 .cache
-rw----- 1 flosky flosky 28 nov 5 08:39 .lessht
drwxrwxr-x 3 flosky flosky 4096 nov 20 07:42 .local
-rw-rw-r-- 1 flosky flosky 71 nov 21 12:03 mod_rewrite
-rw-r--r-- 1 flosky flosky 807 mar 31 2024 .profile
drwx----- 3 flosky flosky 4096 nov 5 08:57 snap
drwx----- 2 flosky flosky 4096 oct 29 09:20 .ssh
-rw-r--r-- 1 flosky flosky 0 nov 5 08:01 .sudo_as_admin_successful
flosky@flosky:~$ cd /var
flosky@flosky:/var$ ls -la
total 60
drwxr-xr-x 14 root root 4096 nov 5 08:19 .
drwxr-xr-x 23 root root 4096 oct 29 09:13 ..
drwxr-xr-x 2 root root 4096 nov 20 07:57 backups
drwxr-xr-x 17 root root 4096 nov 5 08:19 cache
drwxrwsrwt 2 root root 4096 ago 27 14:21 crash
drwxr-xr-x 45 root root 4096 nov 5 08:19 lib
drwxrwsr-x 2 root staff 4096 abr 22 2024 local
lrwxrwxrwx 1 root root 9 ago 27 14:18 lock -> /run/lock
drwxrwxr-x 11 root syslog 4096 nov 21 10:31 log
drwxrwsr-x 2 root mail 4096 ago 27 14:18 mail
drwxr-xr-x 2 root root 4096 ago 27 14:18 opt
lrwxrwxrwx 1 root root 4 ago 27 14:18 run -> /run
drwxr-xr-x 5 root root 4096 nov 5 08:51 snap
drwxr-xr-x 4 root root 4096 ago 27 14:26 spool
drwxrwxrwt 10 root root 4096 nov 21 12:03 tmp
-rw-r--r-- 1 root root 208 ago 27 14:18 .updated
drwxr-xr-x 4 root root 4096 nov 19 09:25 www
flosky@flosky:/var$ cd www
flosky@flosky:/var/www$ ls -la
total 16
drwxr-xr-x 4 root root 4096 nov 19 09:25 .
drwxr-xr-x 14 root root 4096 nov 5 08:19 ..
drwxr-xr-x 2 root root 4096 nov 5 08:19 html
drwxr-xr-x 2 flosky flosky 4096 nov 19 15:19 mi_aplicacion_web
flosky@flosky:/var/www$ cd html
flosky@flosky:/var/www/html$ ls -la
total 20
```