DOCUMENTATION OF THE SERVER

PAAG3-1 ETHAZI / 6th Group

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UNI CANTEEN SERVER INSTALLATION AND CONFIGURATION

1. INSTALLATION

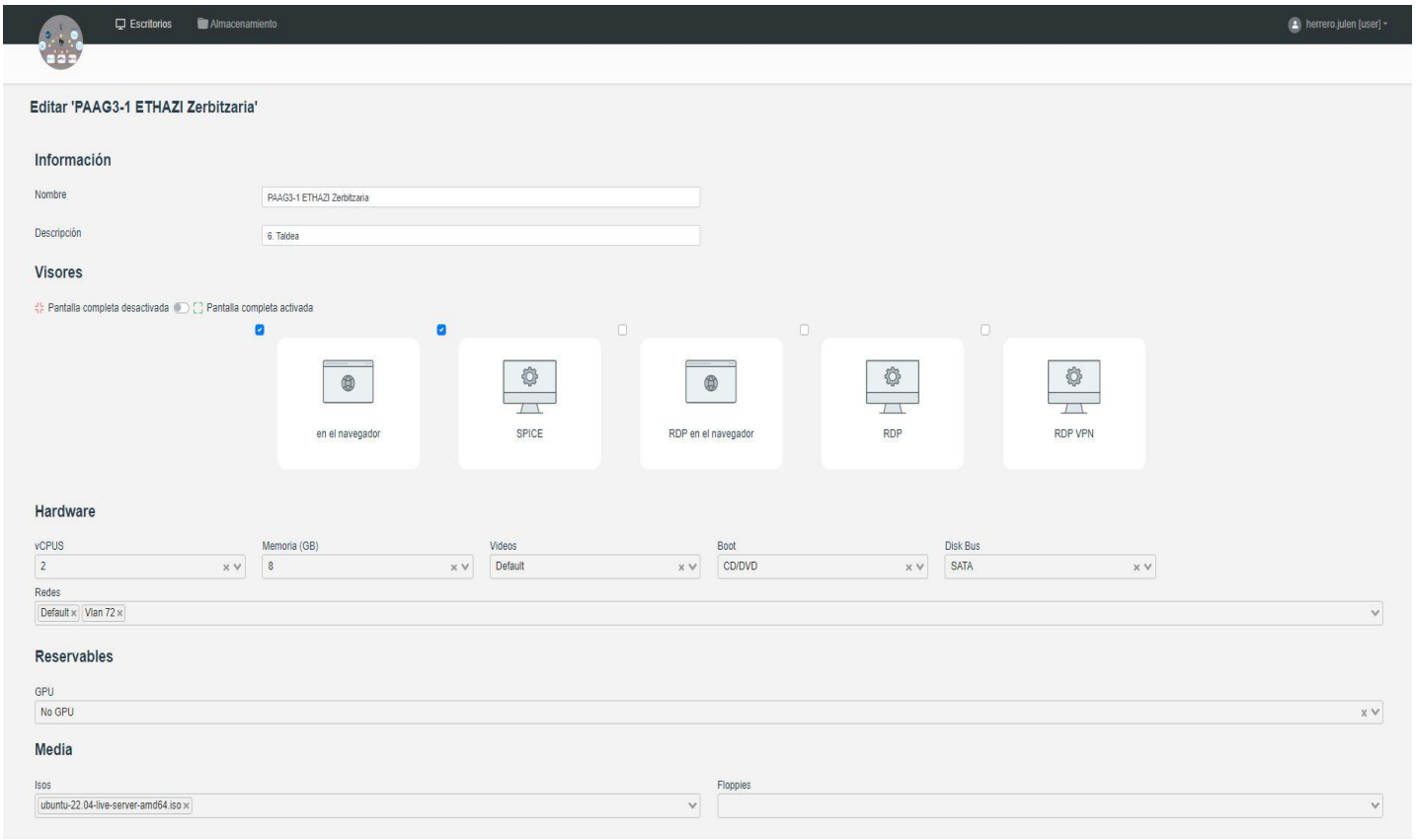
Creating and configuring a server is a must do task on the development of the information system. Having a server allows us to host data and hosting a domain for our website. There are so many options out there but in our case we have decided to use Ubuntu Server 22.04.

This operating system is quite popular due to its simplicity and accessibility, and is also available in several languages. One of the advantages of Ubuntu is that it is easy to understand and its software system gets along well with other systems, such as Windows.

First of all we have installed Ubuntu Server on a virtual machine using the IsardVDI tool. IsardVDI is a free virtualization tool under the AGPL3 license. The tool has been developed thinking about desktop virtualization in an educational center.

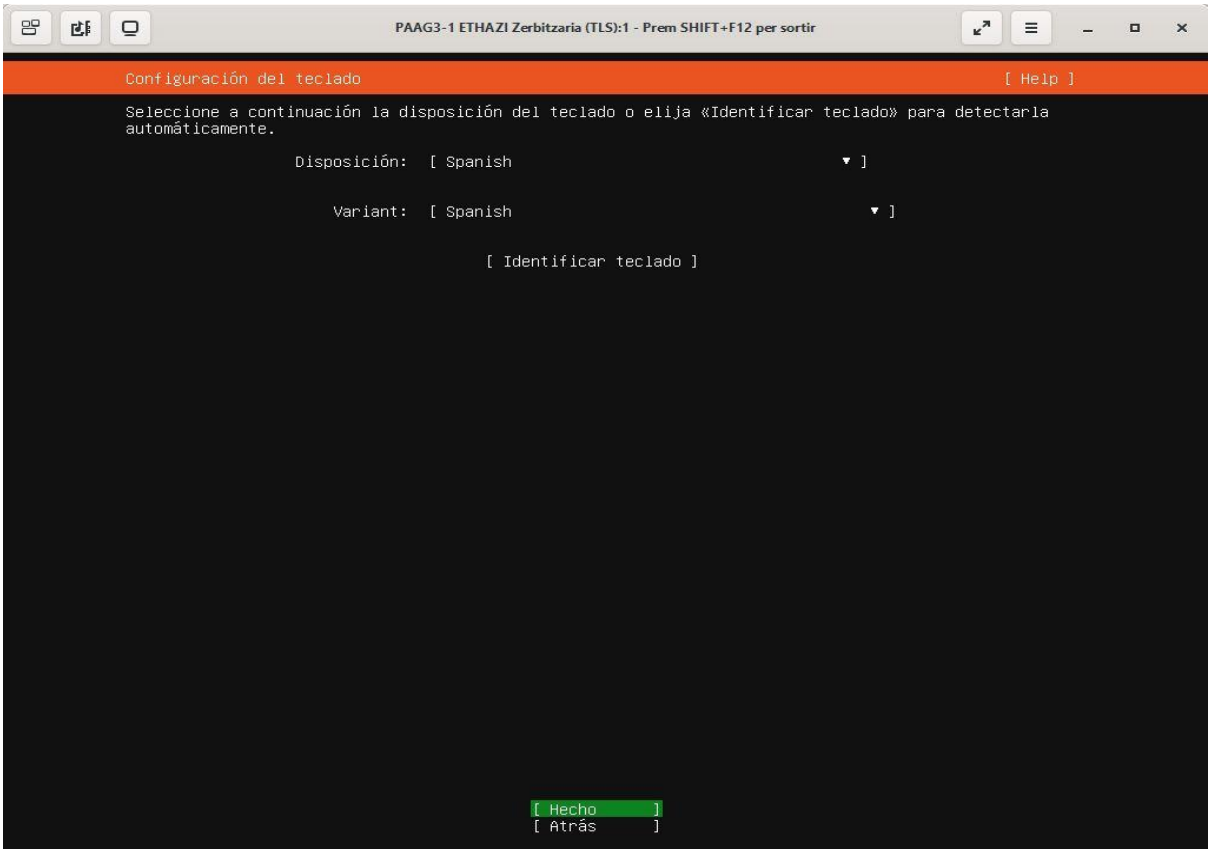
The first step is to use a template and add the Ubuntu Server ISO. We have specified to the virtual machine to start the boot from the cd and once the installation is completed we have changed it to initialize from the hard disk.

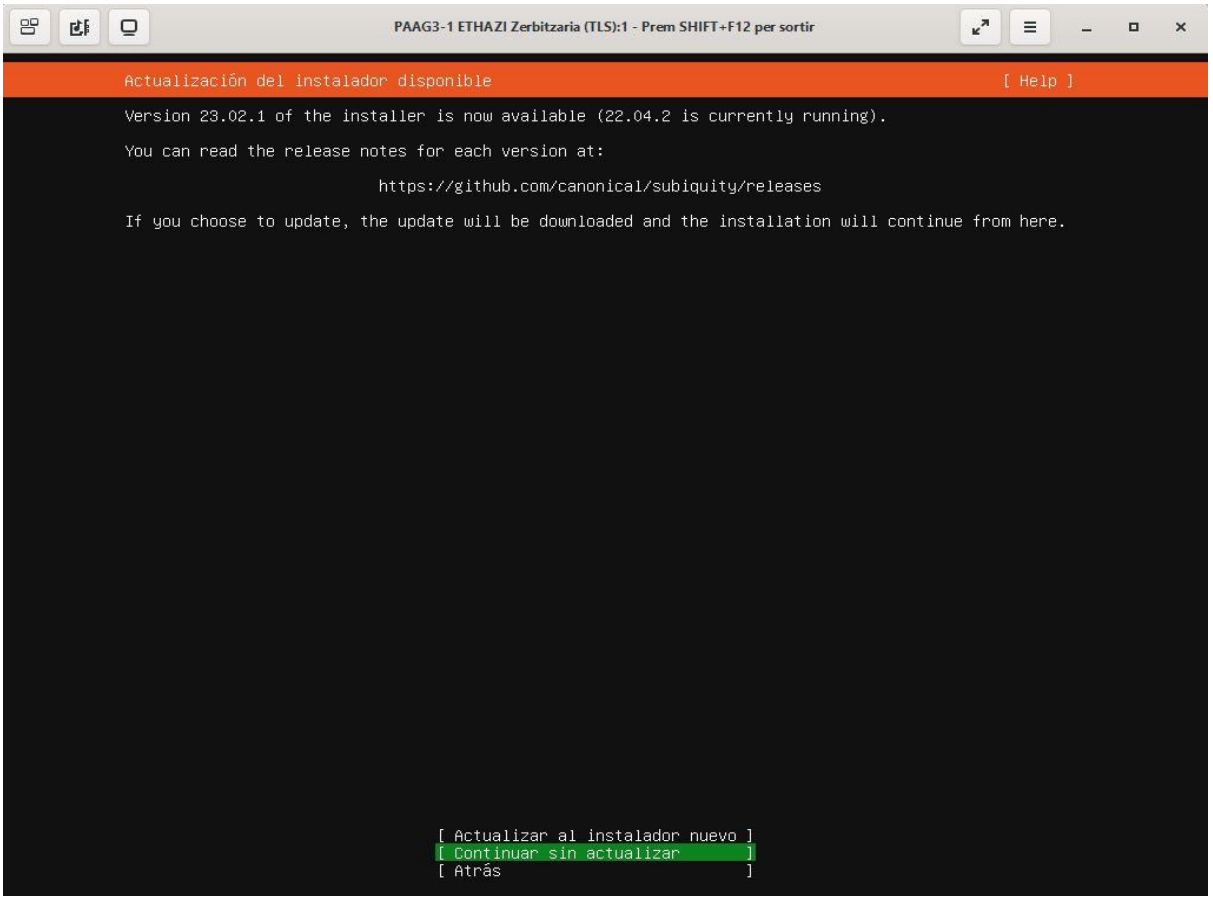
Besides this we have also added the network of our classroom that is the one called vlan72. This is important because we have some IP's available on that network, so the server must be on the network to apply for the right IP address.



After specifying these parameters we have started the virtual machine to initialize the installation of the Ubuntu Server. As we said before when we start the virtual machine the boot will be made from the CD. This aspect will be temporary because once the installation is completed will be changed on the options of the virtual machine. The ISO that is added also can be removed once the installation is completed.

The first aspects of the installation are the language of the distribution of the keyword and the configuration of the version. In this case we have entered the Spanish version of the keyword and we have left the current version of Ubuntu Server; 22.04.

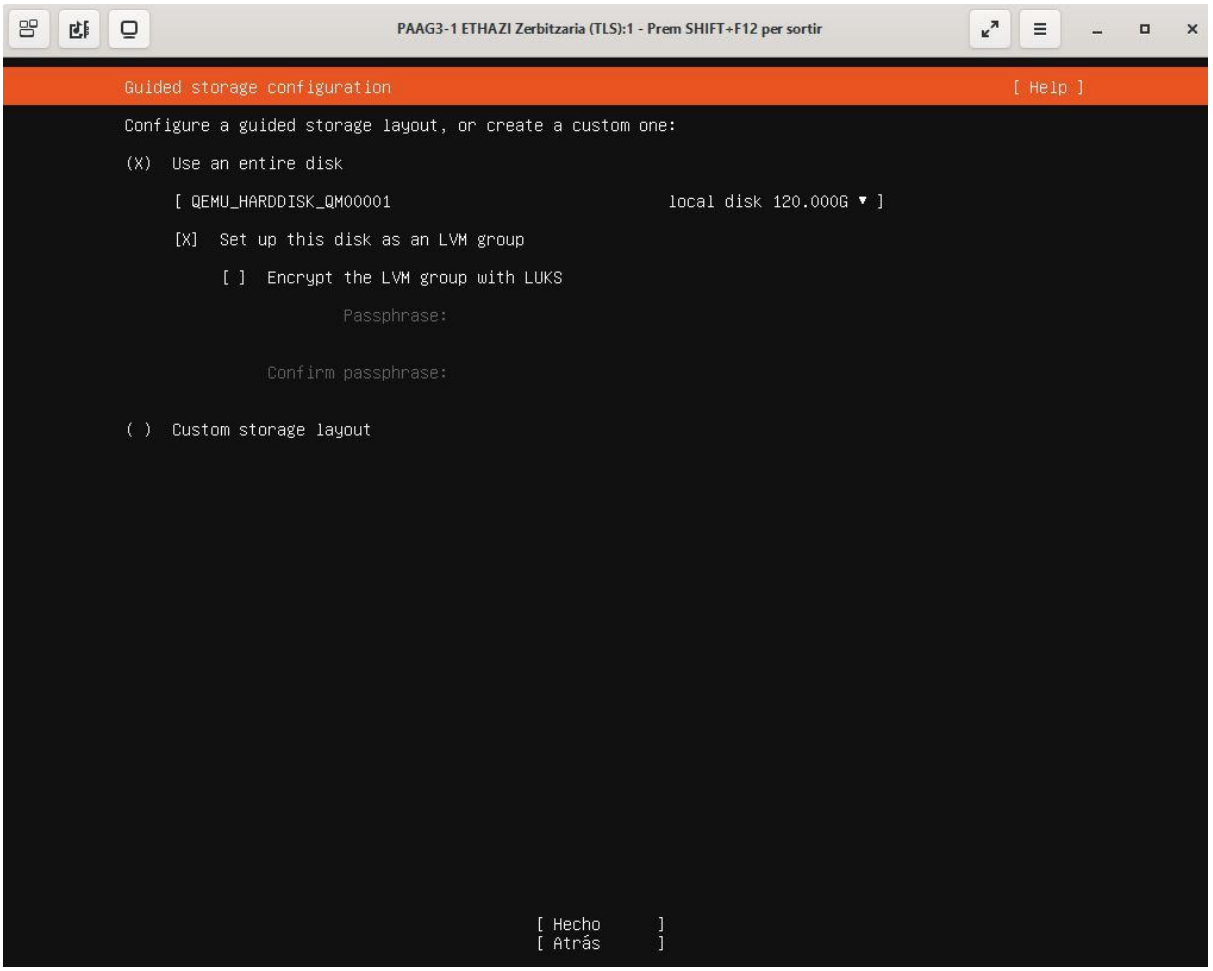

PAAG3-1 ETHAZI Zerbitzaria (TLS):1 - Prem SHIFT+F12 per sortir
Configuración del teclado
[Help]
Seleccione a continuación la disposición del teclado o elija «Identificar teclado» para detectarla automáticamente.
Disposición: [Spanish ▾]
Variant: [Spanish ▾]
[Identificar teclado]
[Hecho]
[Atrás]

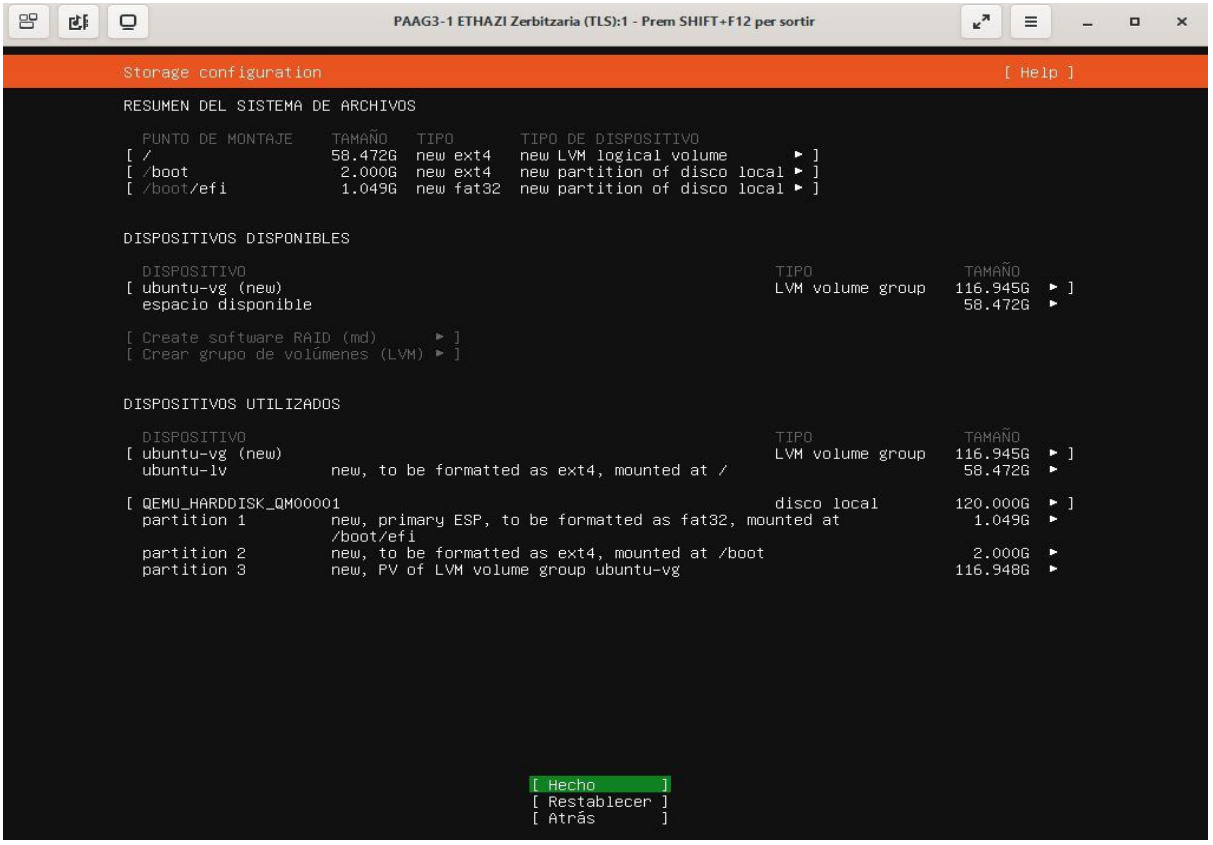

PAAG3-1 ETHAZI Zerbitzaria (TLS):1 - Prem SHIFT+F12 per sortir
Actualización del instalador disponible
[Help]
Version 23.02.1 of the installer is now available (22.04.2 is currently running).
You can read the release notes for each version at:
https://github.com/canonical/subiquity/releases
If you choose to update, the update will be downloaded and the installation will continue from here.
[Actualizar al instalador nuevo]
[Continuar sin actualizar]
[Atrás]

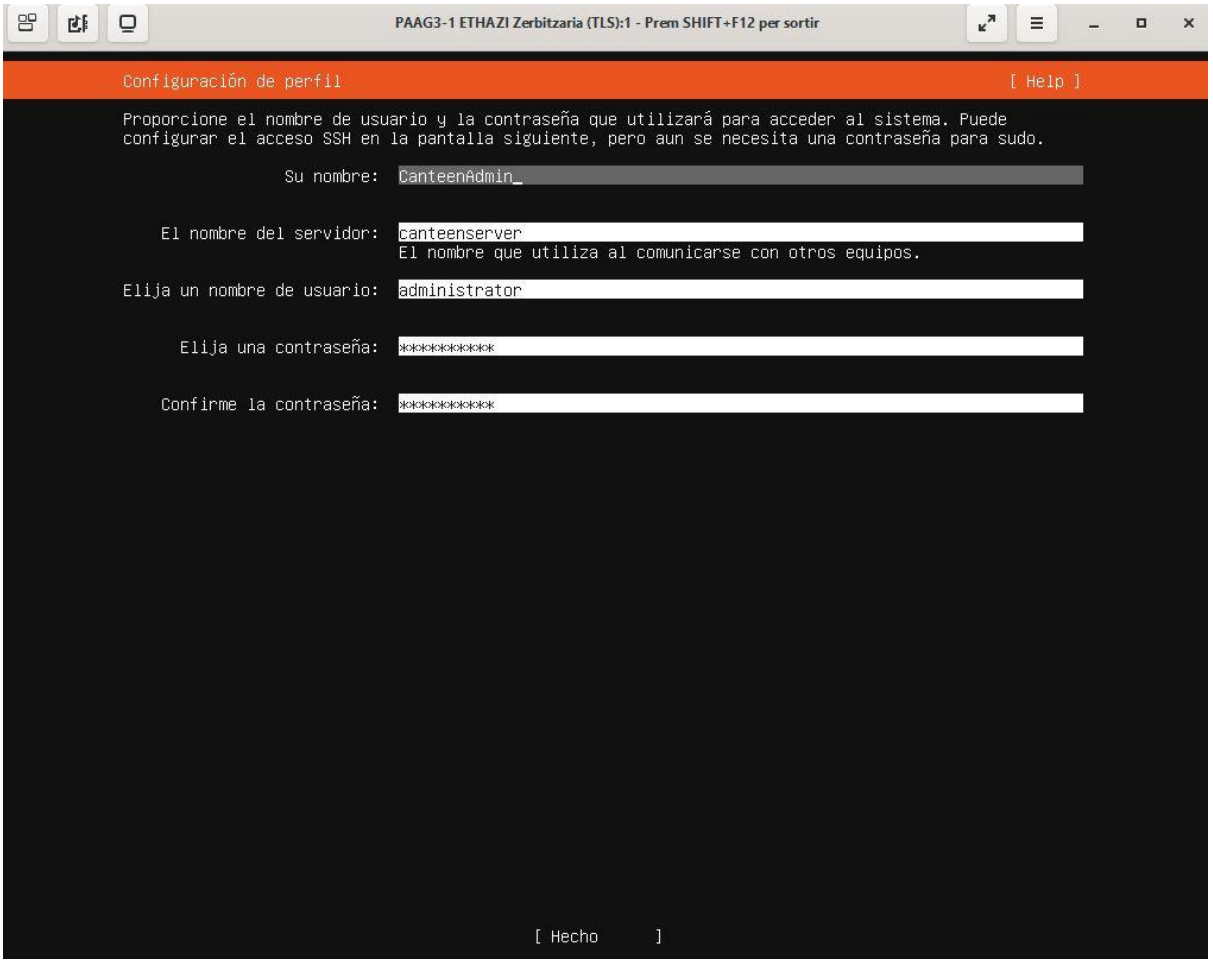
The next steps of the installation are the configuration of the structure of the disk and the specification of the accounts data. When specifying the structure of the disk you can create new partitions and configure taking into account the needs of the situation. In our case we have left the default configuration.

For the data of the account the installation manager will ask to enter some parameter like the name, name of the server etc. This is the account data we have entered.

Your name => CanteenAdmin
Name of the server => canteenserver
Username => administrator
Password => UniCanteen




PAAG3-1 ETHAZI Zerbitzaria (TLS):1 - Prem SHIFT+F12 per sortir
Storage configuration
[Help]
RESUMEN DEL SISTEMA DE ARCHIVOS
PUNTO DE MONTAJE TAMAÑO TIPO TIPO DE DISPOSITIVO
[/ 58.472G new ext4 new LVM logical volume ▸]
[/boot 2.000G new ext4 new partition of disco local ▸]
[/boot/efi 1.049G new fat32 new partition of disco local ▸]
DISPOSITIVOS DISPONIBLES
DISPOSITIVO TIPO TAMAÑO
[ubuntu-vg (new) LVM volume group 116.945G ▸]
espacio disponible 58.472G ▸
[Create software RAID (md) ▸]
[Crear grupo de volúmenes (LVM) ▸]
DISPOSITIVOS UTILIZADOS
DISPOSITIVO TIPO TAMAÑO
[ubuntu-vg (new) LVM volume group 116.945G ▸]
ubuntu-lv new, to be formatted as ext4, mounted at / 58.472G ▸
[QEMU_HARDDISK_QM00001 disco local 120.000G ▸]
partition 1 new, primary ESP, to be formatted as fat32, mounted at /boot/efi 1.049G ▸
partition 2 new, to be formatted as ext4, mounted at /boot 2.000G ▸
partition 3 new, PV of LVM volume group ubuntu-vg 116.948G ▸
[Hecho]
[Restablecer]
[Atrás]


PAAG3-1 ETHAZI Zerbitzaria (TLS):1 - Prem SHIFT+F12 per sortir
Configuración de perfil
[Help]
Proporcione el nombre de usuario y la contraseña que utilizará para acceder al sistema. Puede configurar el acceso SSH en la pantalla siguiente, pero aun se necesita una contraseña para sudo.
Su nombre: CanteenAdmin_
El nombre del servidor: canteenserver
El nombre que utiliza al comunicarse con otros equipos.
Elija un nombre de usuario: administrator
Elija una contraseña: **********
Confirme la contraseña: **********
[Hecho]

The last steps are the installation of the extensions and the configuration of the network structure. In our case we have only installed ssh to connect remotely from our computers, however the installation manager gives the option to install so many other options. Finally the last step will be the configuration of the network. In this step there are so many parameters to set like subnet, address, gateway etc. This are the parameters we have set:

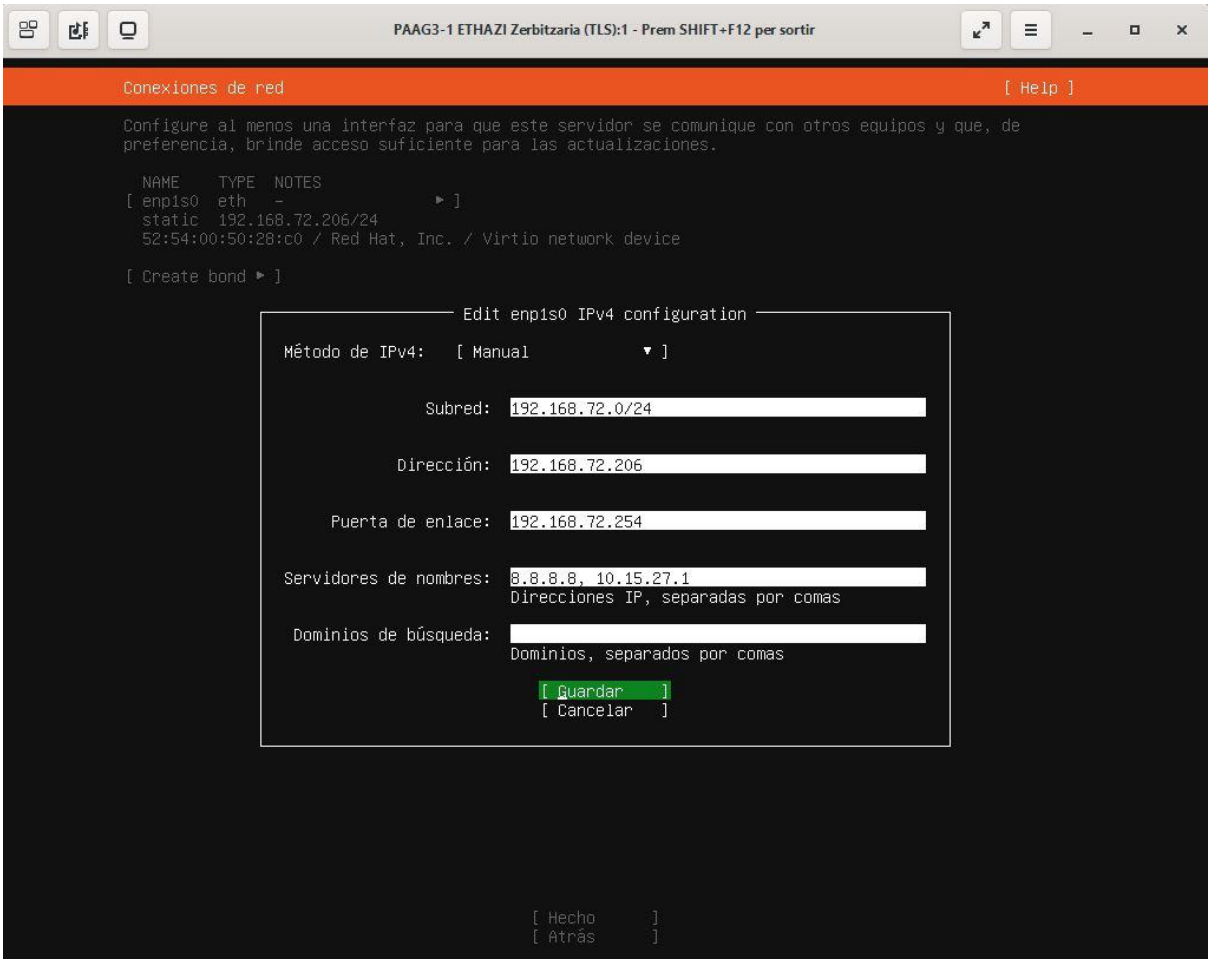
Subnet => 192.168.72.0/24

Address => 192.168.72.206

Gateway => 192.168.72.254

Names server => 8.8.8.8, 10.15.27.1

Names domain =>



2. WEBMIN

Once the installation is made we started configuring the server according to the needs of the project. Using ssh we are going to be able to connect remotely from our computers and we are going to be able to execute commands in an easier way. That's an essential part to install certain software in the server, the clearest example will be Webmin.

Webmin is a modern web control panel that allows you to manage your Linux server through a browser-based interface. With Webmin, you can manage user accounts, configure DNS settings, and change settings for common packages on the fly.

There are different ways to install Webmin, the way we have used is installing it by commands. First using ssh from our terminal we have connected to our server and then we have enter this commands one by one:

sudo sh -c 'echo "deb http://ftp.au.debian.org/debian/ buster main non-free" > /etc/apt/sources.list.d/nonfree.list'

sudo apt update

sudo apt install wget

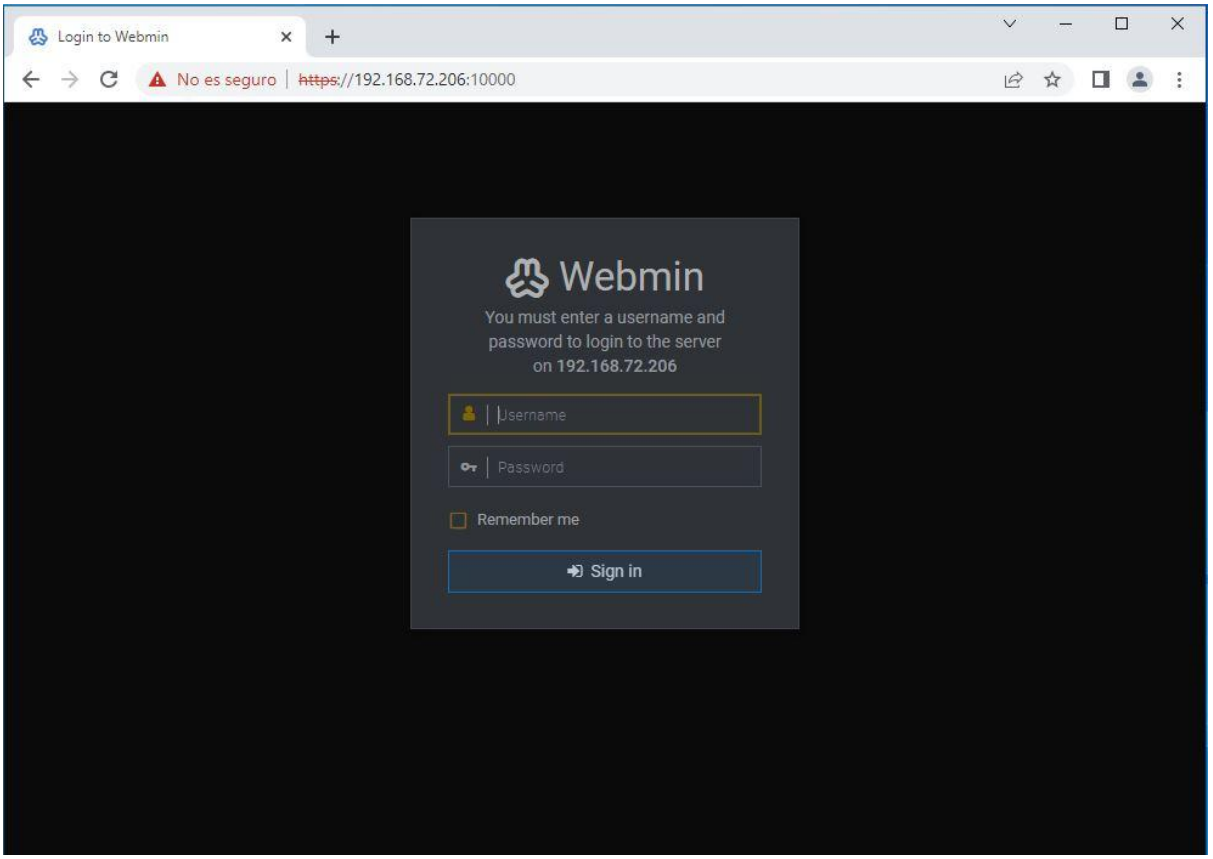
wget -qO - http://www.webmin.com/jcameron-key.asc | sudo apt-key add -

sudo sh -c 'echo "deb http://download.webmin.com/download/repository sarge contrib" > /etc/apt/sources.list.d/webmin.list'

sudo apt update

sudo apt install webmin

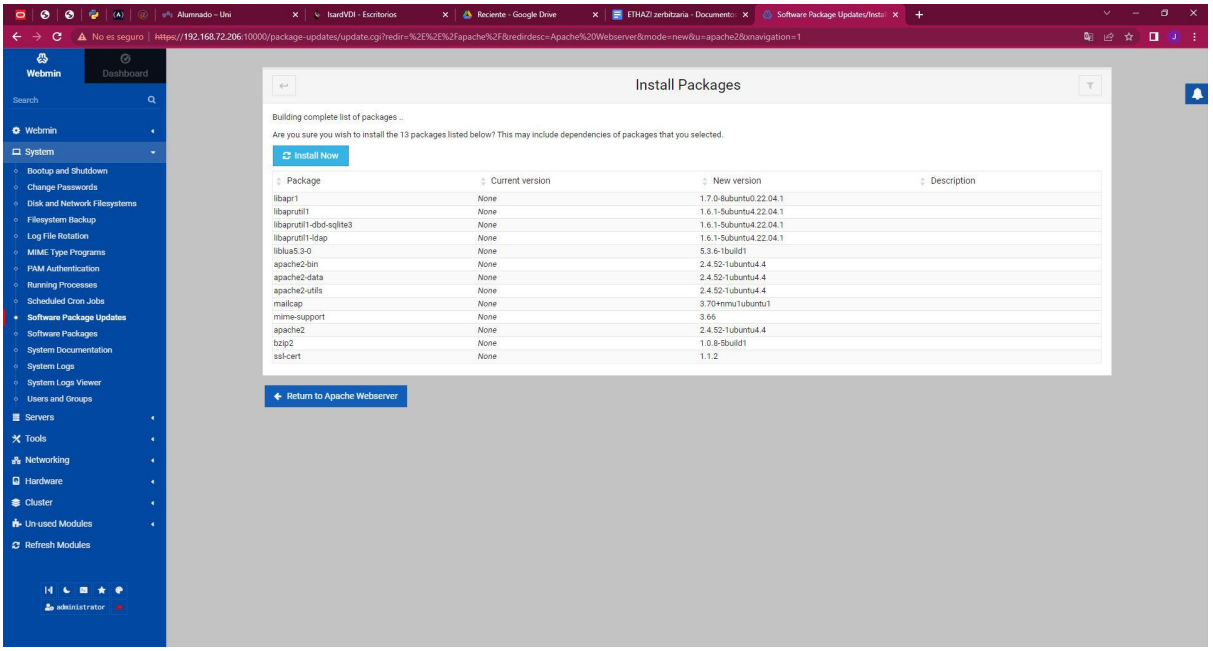
Once we have installed Webmin, we are going to enter the tool and we are going to keep configuring our server. The next step will be to make a web server using Apache and to make a DNS server.



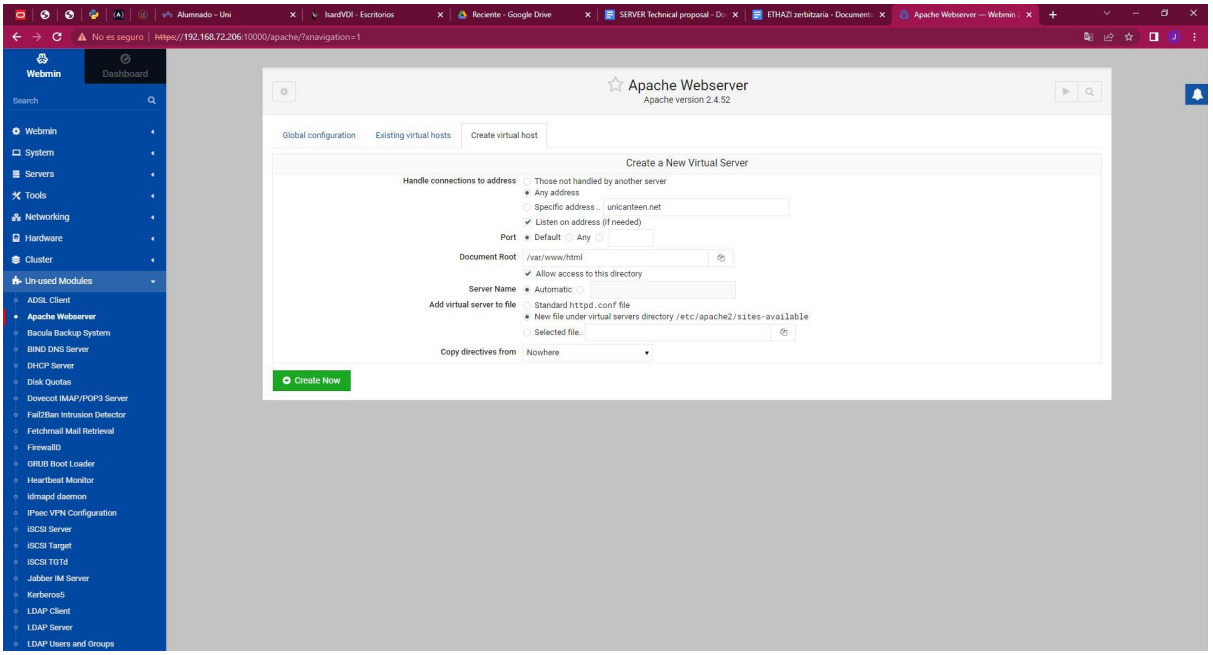
3. WEB AND DNS SERVER

A web server or HTTP server is a computer program that processes a server-side application, making two-way or one-way, synchronous or asynchronous connections to the client, and generating or returning a response in any language or client-side application.

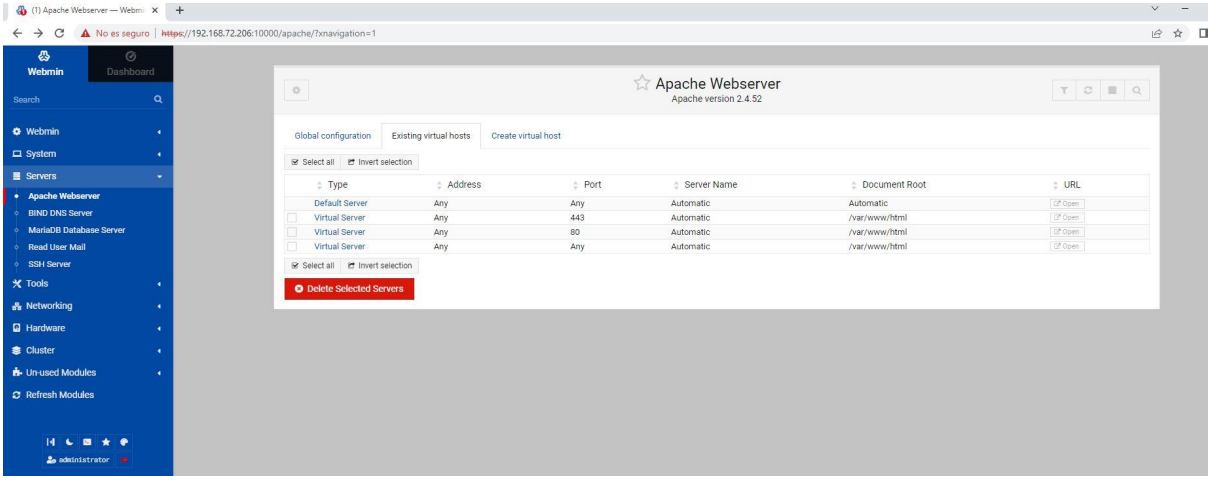
First of all we need to install the Apache web server module in our server, for that we will enter in servers and we will select Apache web server. Then we will install the module.



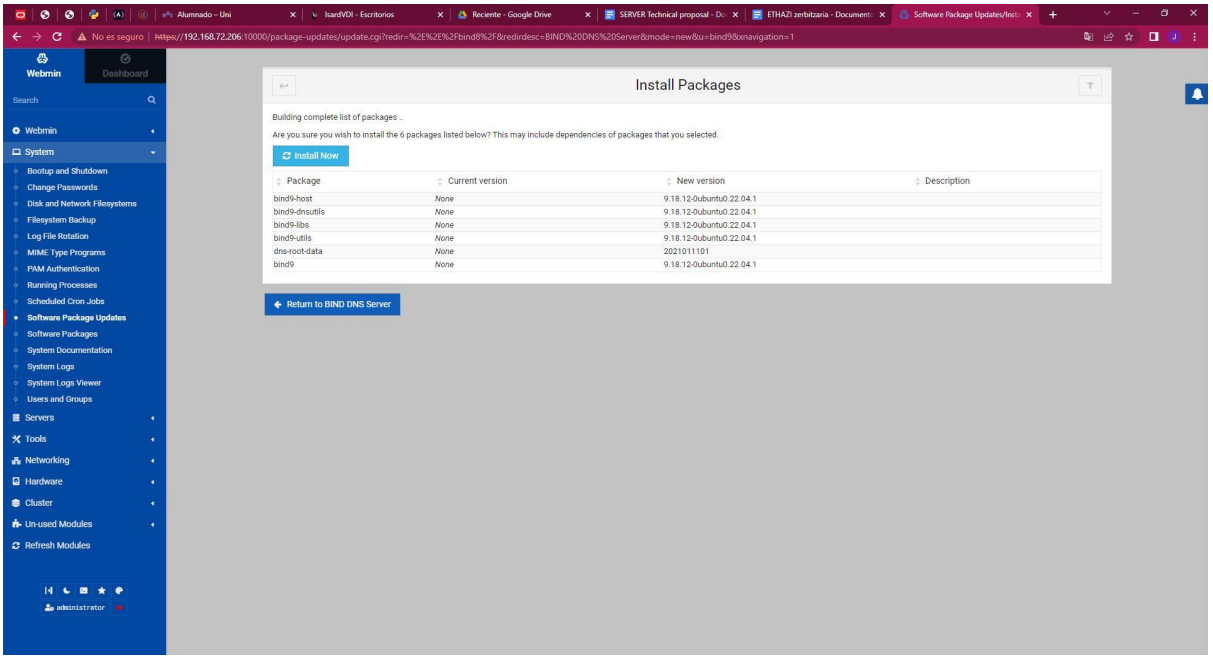
We will need to create a virtual host, in our case we have called **unicanteen.net** that will have the same address that our server has.



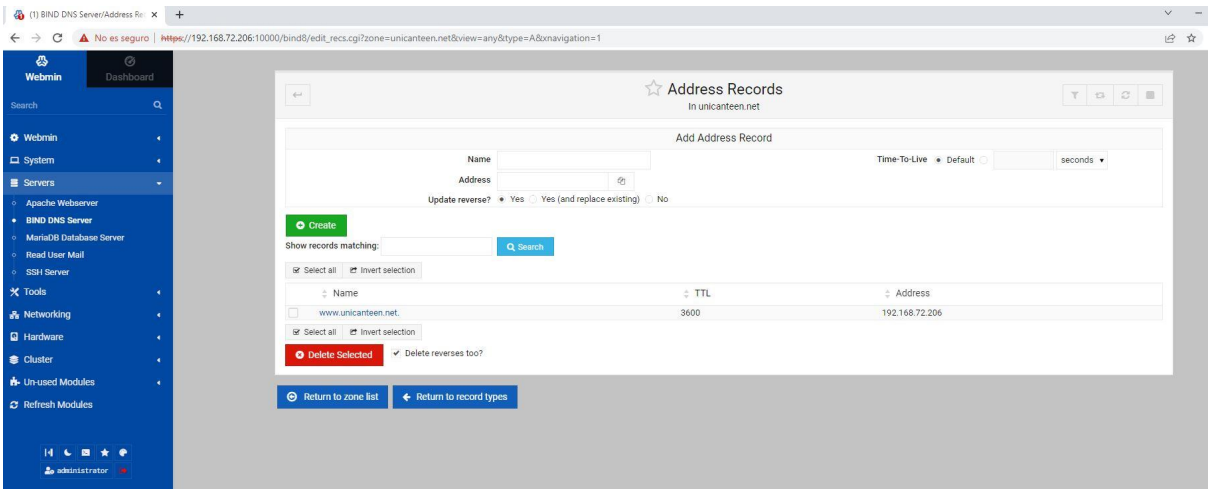
Once we have configured it, we'll get this. Our web site's HTML documents will be hosted in the/var/www/html directory.



After this we will install the DNS server. Will do the same procedure that we have done with the web server. First we will install the DNS server module.



Once we have installed we will configure the address for our virtual host.



4. PHP

Once we have configured our web server and DNS server we need to install PHP for our web site. PHP is a programming language designed to develop web applications and create web pages, favoring the connection between servers and the user interface. These are the two reason for why the language became so popular:

1. It is open source, there are no usage restrictions linked to rights. Users can use PHP to program in any project and market it without any problem.

2. Is constantly being refined, thanks to a proactive and engaged community of developers.

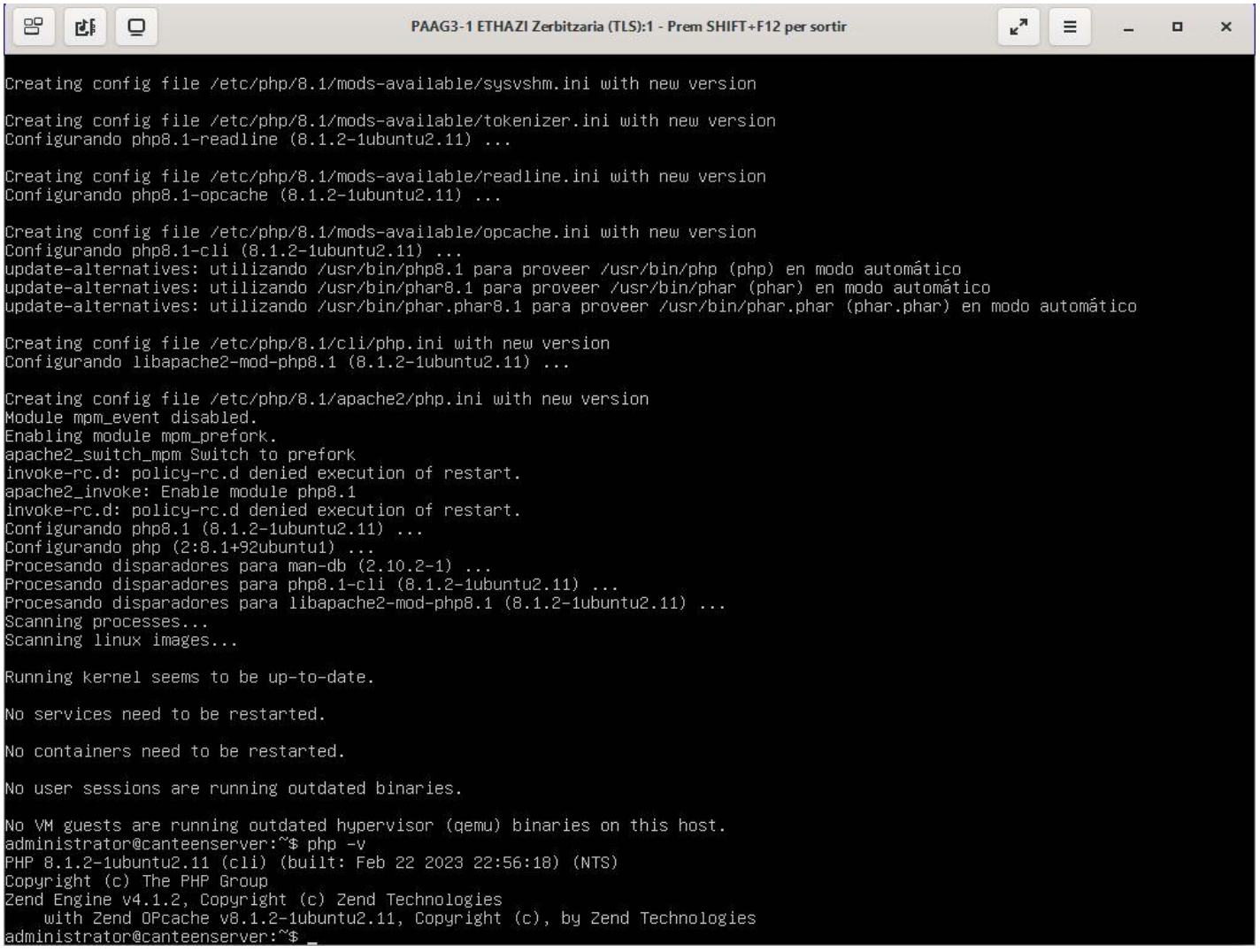
PHP is generally defined as a server-side language. This means that it is applied to the programming that takes place on the web server responsible for running the application or, more often, on a website.

This previous work allows the elements of a page to be loaded before showing them to the user who accesses a website, for example.

The PHP code is executed on the server which, by reading the commands, can activate all the functional elements and the visual interface of the website.

To ensure this service on our server we must enable PHP. To enable that we have entered these commands. Executing these commands we will get installed the latest version of php; 8.1.

sudo apt-get update
sudo apt-get upgrade
sudo apt-get install php



5. MARIADB

Once we have enabled PHP it's time to install a database management system. For our information system we have chosen MariaDB.

MariaDB is a free and open source relational database management system (RDBMS). It was created by the original developers of MySQL.

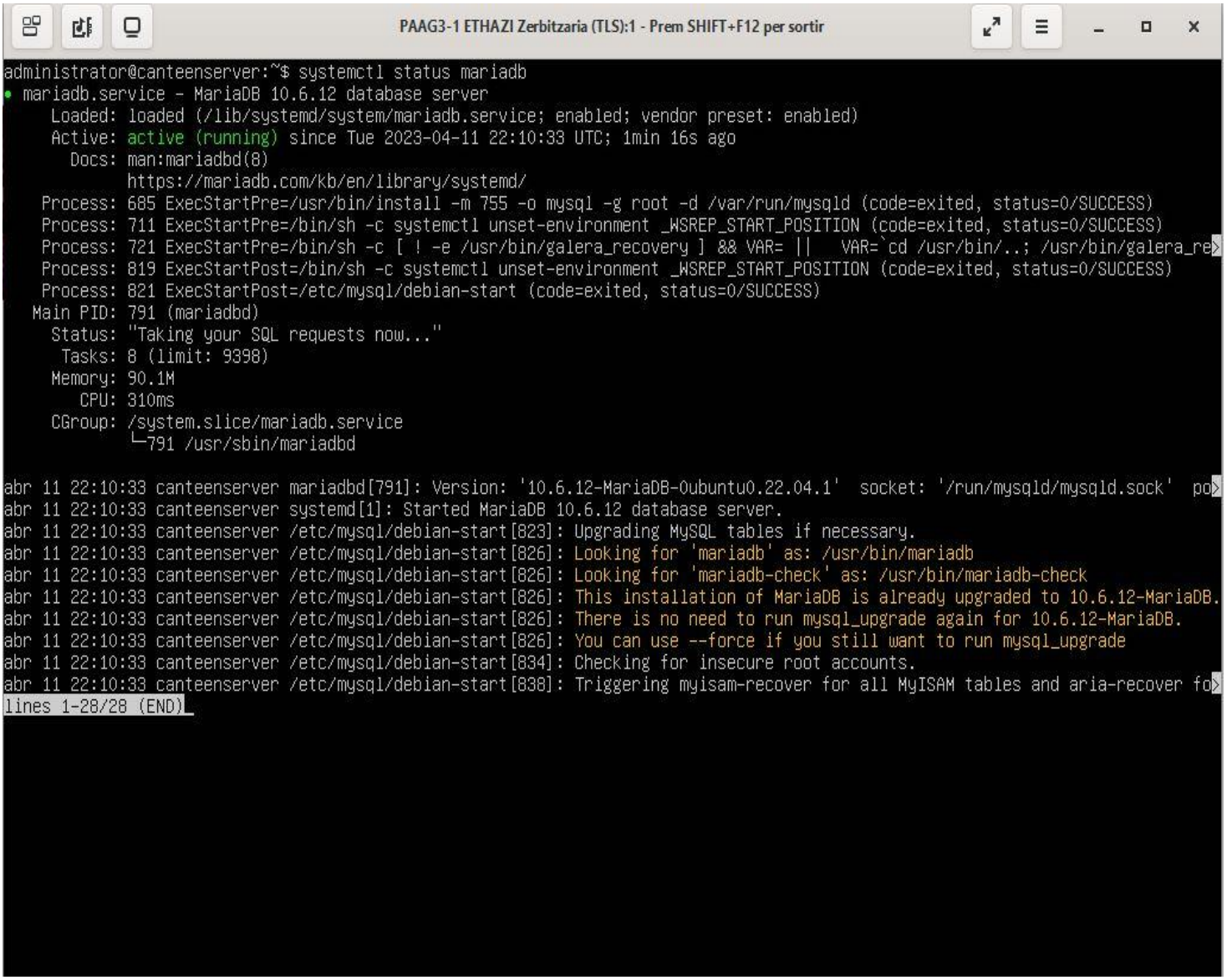
The reason for the choice of MariaDB is that it offers the same features as MySQL and can be used as a direct replacement for the MySQL database server (ie MySQL can be uninstalled and MariaDB installed without any other changes). Designed for speed, reliability, and ease of use, MariaDB can be used for both small and enterprise-level processing tasks.

To install MariaDB on our server we have entered these commands. In our case we have installed the server version, so the commands will be a little bit different.

sudo apt update
sudo apt install -y mariadb-server

Once the installation is completed we use this command to check the status of MariaDB.

systemctl status mariadb



6. SECURITY MEASURES

HTTPS PROTOCOL OR SSL CERTIFICATE

SSL (Secure Sockets Layer) is a standard protocol created for the secure transmission of information between a client and a server. It is usually used to secure communication between a web server and a browser, or between a mail server and a client.

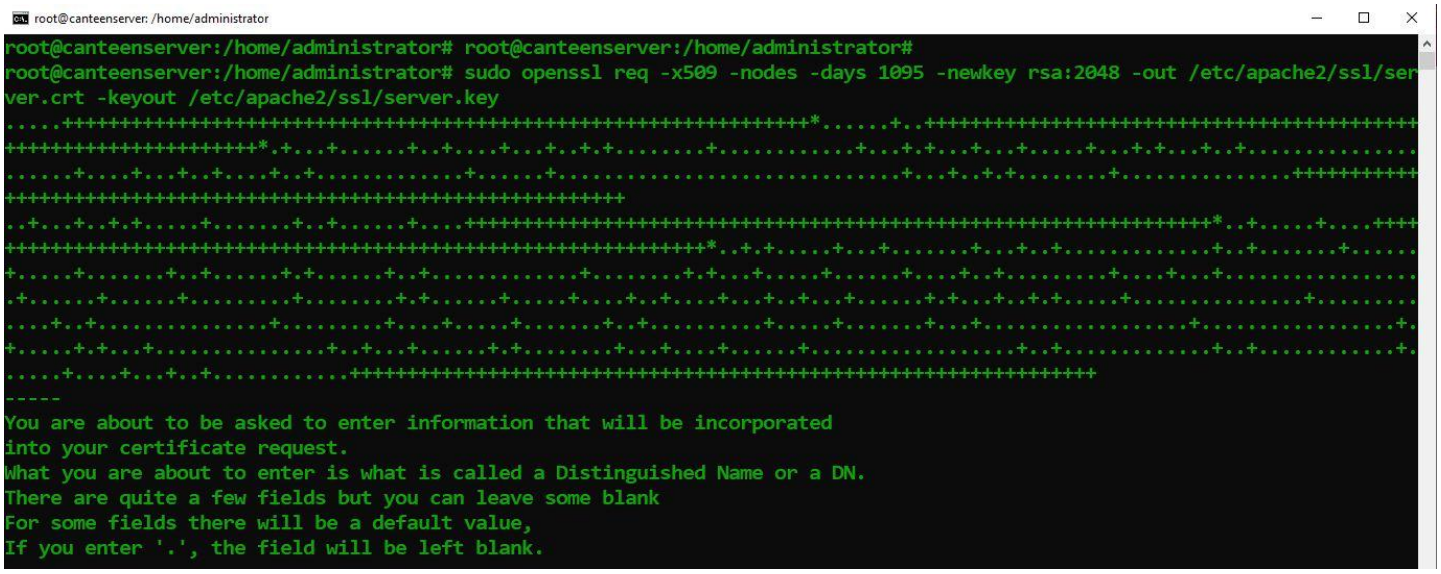
SSL is specifically a security protocol. Protocols describe how algorithms should be used. In this case, SSL protocols define how to encrypt the data when we need to bind and send it. All browsers have the ability to interact with secure web servers using the SSL protocol.

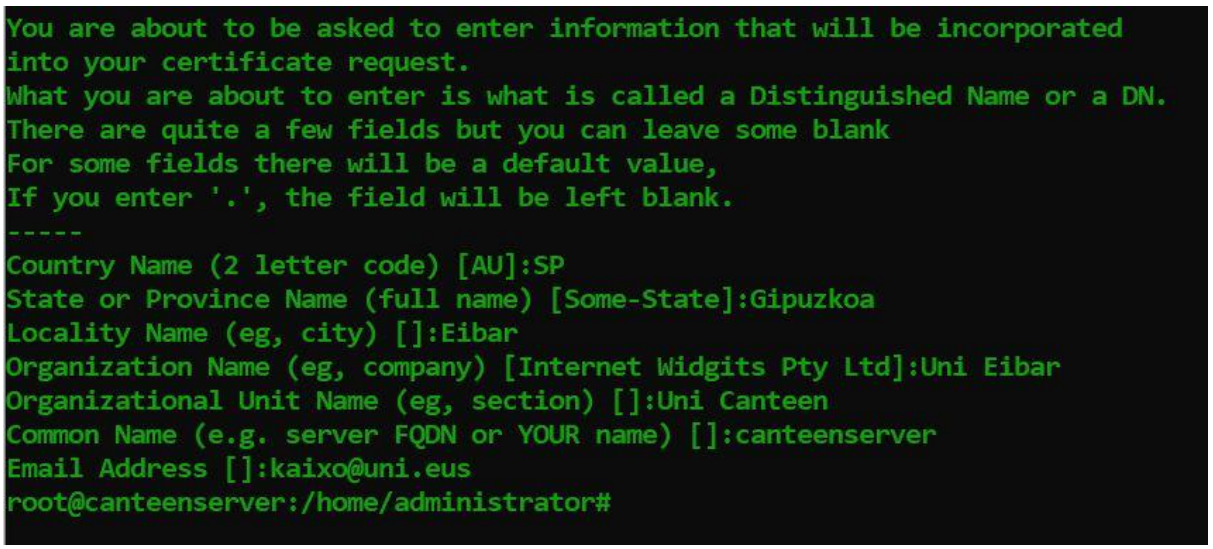
However, both the browser and the server will need an SSL Certificate to establish a secure connection. SSL secures the data of millions of Internet users every day, especially during online transactions and the transmission of confidential information.

To install SSL in our server first we will enter this command:

sudo mkdir/etc/apache2/ssl

The next step will be entering this command line, then in the terminal will appear this text asking us to enter information for our SSL certificate:





After this we restart the apache service using this command:

systemctl restart apache2

After this we install the SSL module using this command:

sudo a2enmod ssl

After this we will set a default configuration for SSL:

sudo ln -s /etc/apache2/sites-available/default-ssl.conf /etc/apache2/sites-enabled/000-default-ssl.conf

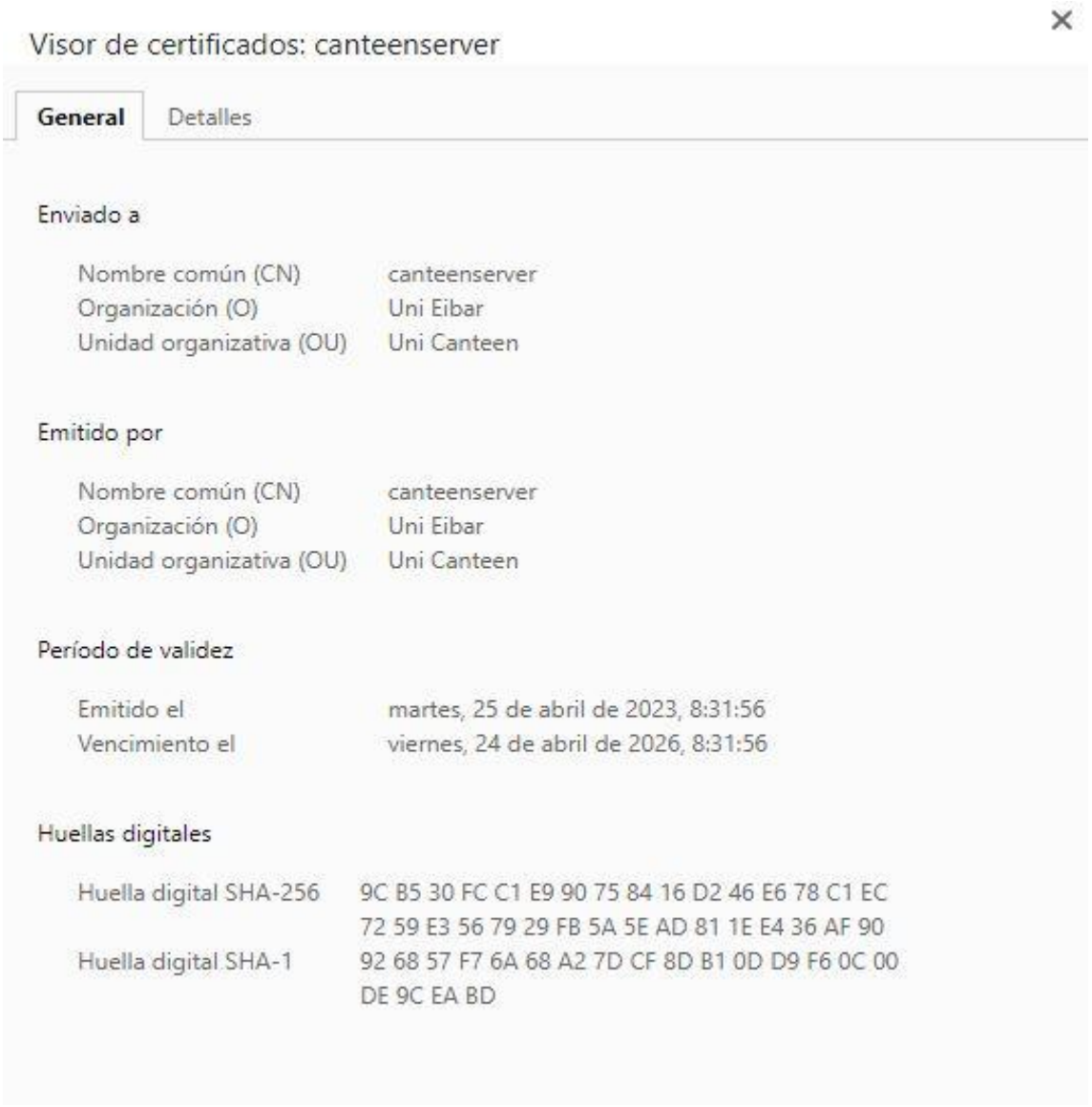
Now we will edit the default configuration of SSL:

sudo nano /etc/apache2/sites-enabled/000-default-ssl.conf

We will add this two lines to the SSL configuration:

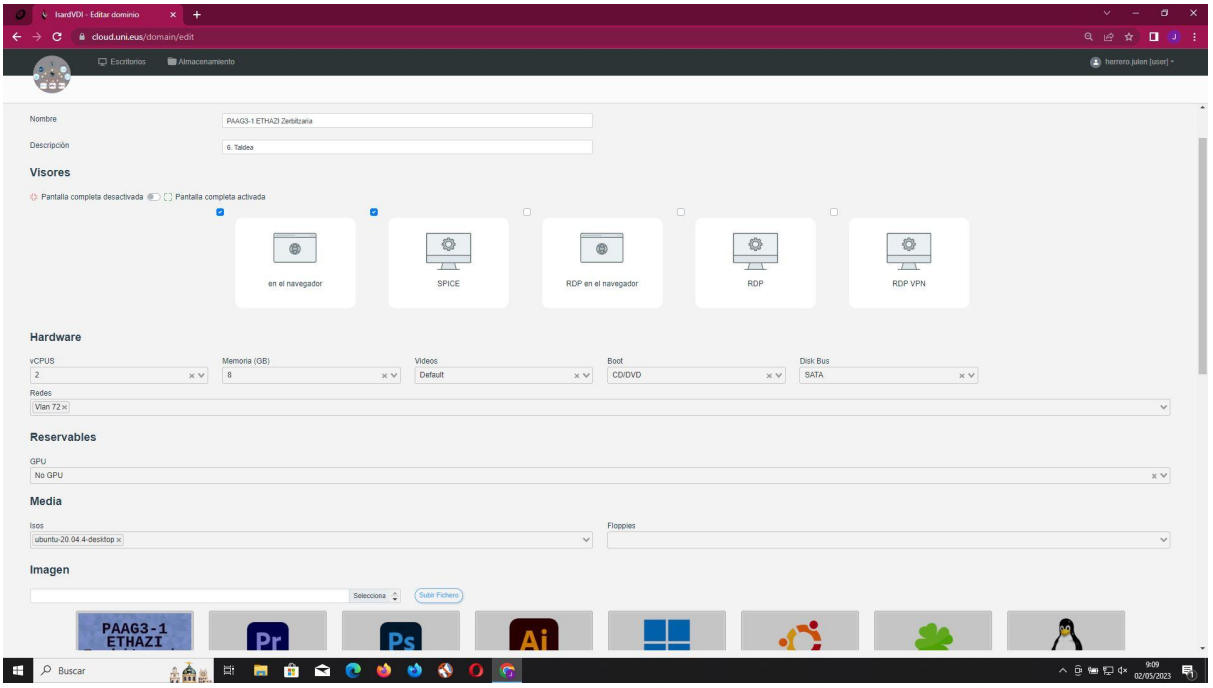
SSLCertificateFile /etc/apache2/ssl/server.crt
SSLCertificateKeyFile /etc/apache2/ssl/server.key

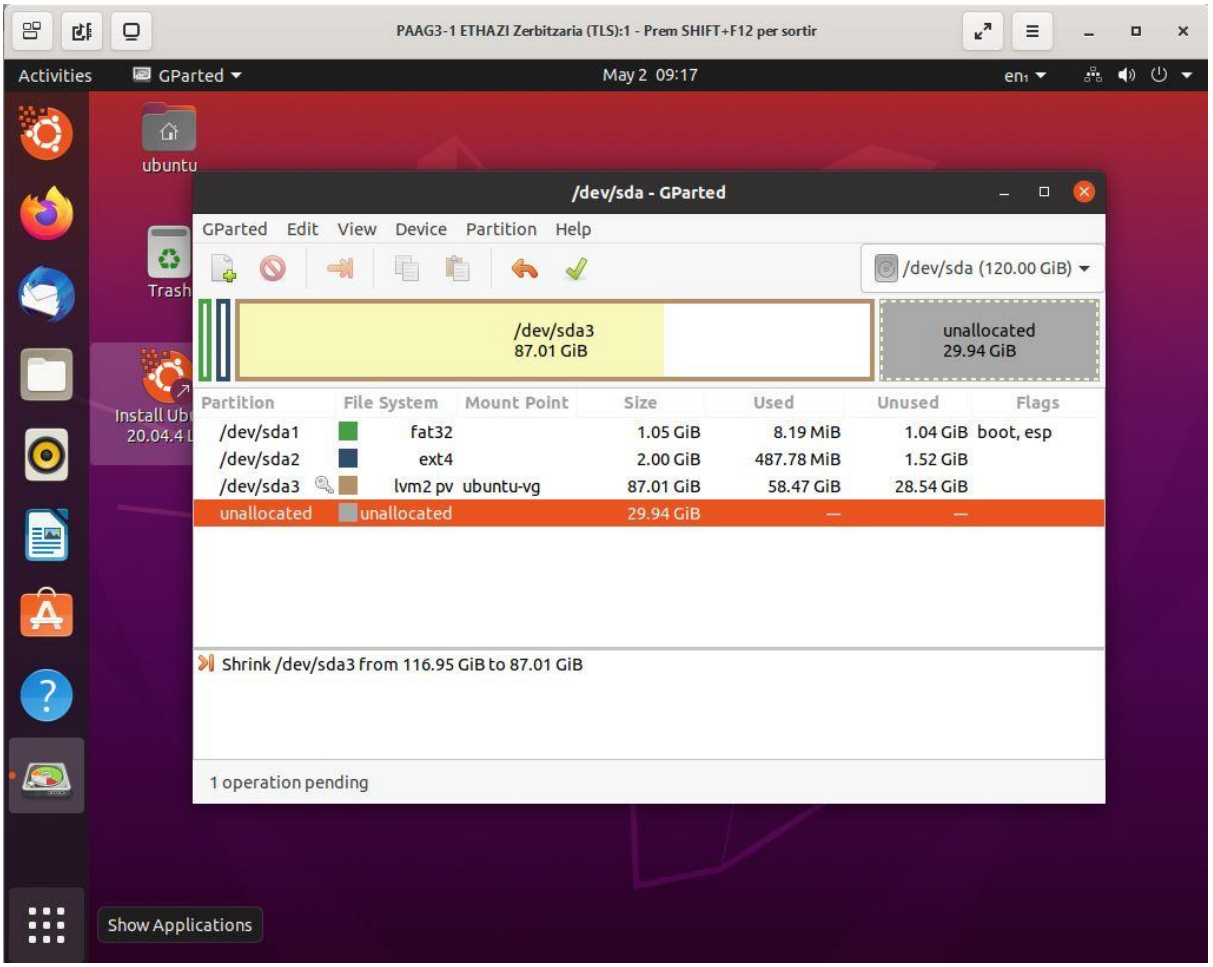
Once everything is set we will restart Apache2 service and we will access our website to have a look at the certificate.

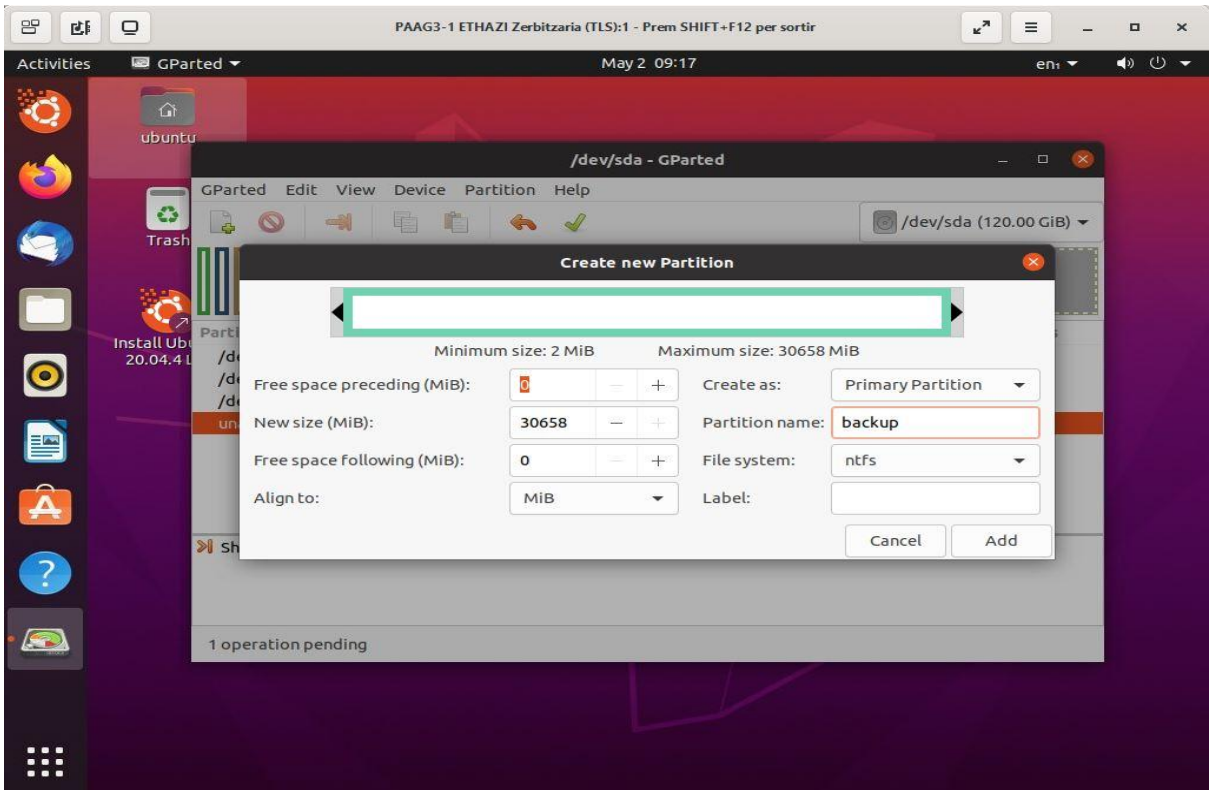


BACKUP

For creating a backup we need to create a partition of our disk. To do that we have modified our virtual machine and we have entered using an image to have access to the disk partitions. After doing that we have selected our main disk and we have free up space to create a new partition with that. We have freed up 30gb and we have mounted the partition; this partition is called backup.

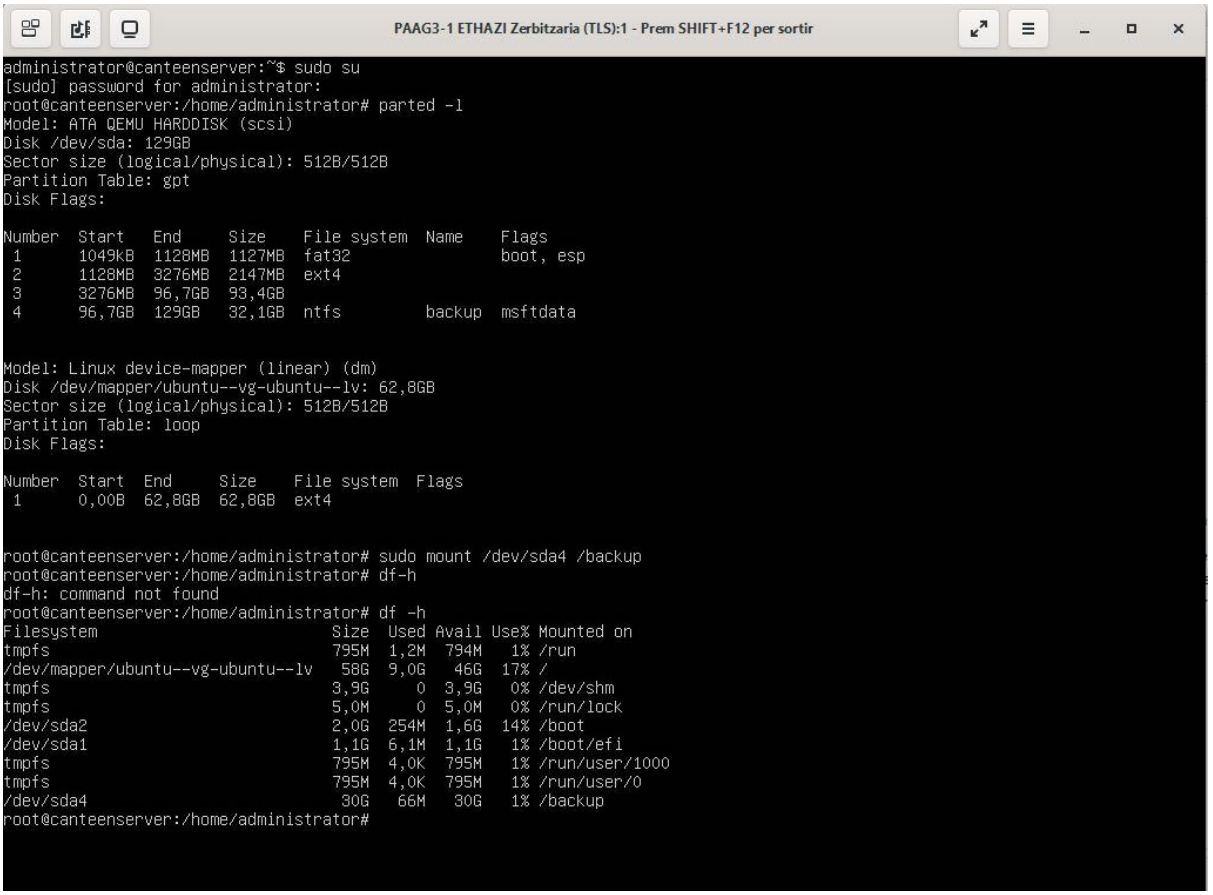



PAAG3-1 ETHAZI Zerbitzaria (TLS):1 - Prem SHIFT+F12 per sortir
Activities
GParted
May 2 09:17
ubuntu
Trash
Install Ubu 20.04.4 L
/dev/sda - GParted
GParted Edit View Device Partition Help
/dev/sda (120.00 GiB)
/dev/sda3 87.01 GiB
unallocated 29.94 GiB
Partition File System Mount Point Size Used Unused Flags
/dev/sda1 fat32 1.05 GiB 8.19 MiB 1.04 GiB boot, esp
/dev/sda2 ext4 2.00 GiB 487.78 MiB 1.52 GiB
/dev/sda3 lvm2 pv ubuntu-vg 87.01 GiB 58.47 GiB 28.54 GiB
unallocated unallocated 29.94 GiB — —
Shrink /dev/sda3 from 116.95 GiB to 87.01 GiB
1 operation pending
Show Applications

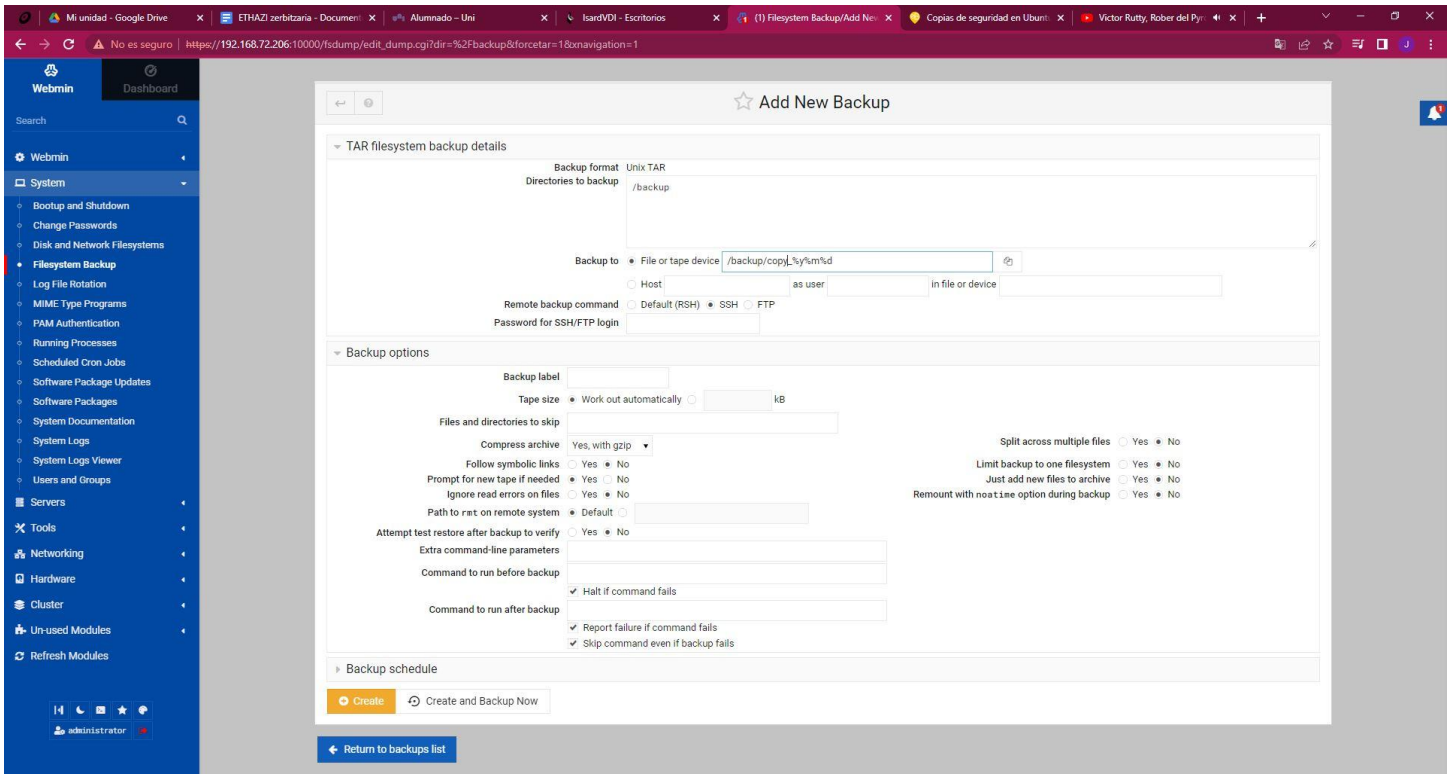

PAAG3-1 ETHAZI Zerbitzaria (TLS):1 - Prem SHIFT+F12 per sortir
Activities
GParted
May 2 09:17
ubuntu
Trash
Install Ubu 20.04.4 L
/dev/sda - GParted
GParted Edit View Device Partition Help
/dev/sda (120.00 GiB)
Create new Partition
Minimum size: 2 MiB
Maximum size: 30658 MiB
Free space preceding (MiB): 0
New size (MiB): 30658
Free space following (MiB): 0
Align to: MiB
Create as: Primary Partition
Partition name: backup
File system: ntfs
Label:
Cancel
Add
1 operation pending

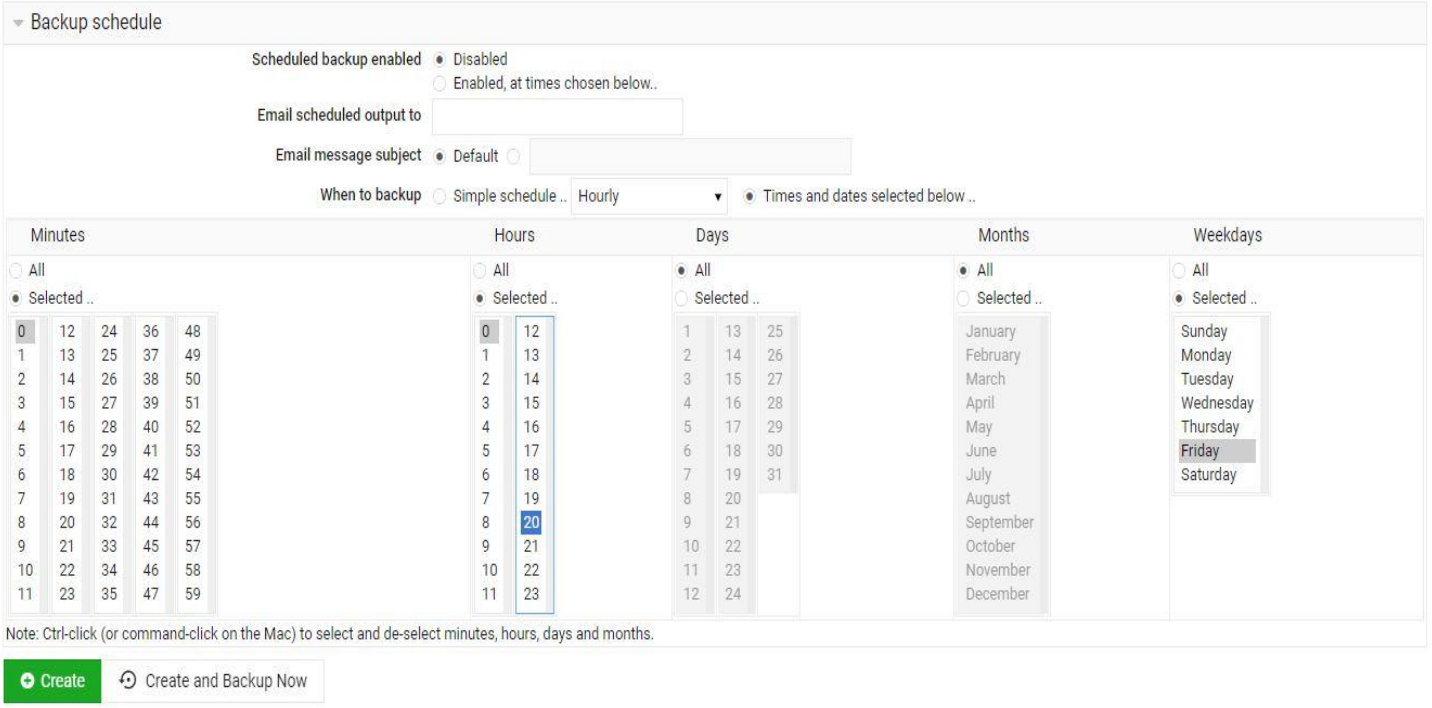
After mounting the backup partition we are going to program and configure our backup. The backup has been done using webmin. Inside webmin we are going to enter **filesystem backup** and we are going to configure our backup.

First we are going to enter the directory where the backup is going to be stored. In our case will be in the backup directory that refers to the mounted backup partition.



Then we are going to assign the backup to the directory that has the same name and we are going to create a file that is called “copy” to store the backup. This will be in TAR format and we have also selected to compress in gzip format. Finally we schedule the backup and then we click to create.


Webmin
Dashboard
Search
Webmin
System
Bootup and Shutdown
Change Passwords
Disk and Network Filesystems
Filesystem Backup
Log File Rotation
MIME Type Programs
PAM Authentication
Running Processes
Scheduled Cron Jobs
Software Package Updates
Software Packages
System Documentation
System Logs
System Logs Viewer
Users and Groups
Servers
Tools
Networking
Hardware
Cluster
Un-used Modules
Refresh Modules
administrator
Add New Backup
TAR filesystem backup details
Backup format Unix TAR
Directories to backup /backup
Backup to File or tape device /backup/copy_%y%m%d
Host as user in file or device
Remote backup command Default (RSH) SSH FTP
Password for SSH/FTP login
Backup options
Backup label
Tape size Work out automatically kB
Files and directories to skip
Compress archive Yes, with gzip
Follow symbolic links Yes No
Prompt for new tape if needed Yes No
Ignore read errors on files Yes No
Path to rmt on remote system Default
Attempt test restore after backup to verify Yes No
Extra command-line parameters
Command to run before backup
Halt if command fails
Command to run after backup
Report failure if command fails
Skip command even if backup fails
Split across multiple files Yes No
Limit backup to one filesystem Yes No
Just add new files to archive Yes No
Remount with noatime option during backup Yes No
Backup schedule
Create
Create and Backup Now
Return to backups list


Backup schedule
Scheduled backup enabled Disabled
Enabled, at times chosen below..
Email scheduled output to
Email message subject Default
When to backup Simple schedule .. Hourly Times and dates selected below ..
Minutes
All
Selected ..
0 12 24 36 48
1 13 25 37 49
2 14 26 38 50
3 15 27 39 51
4 16 28 40 52
5 17 29 41 53
6 18 30 42 54
7 19 31 43 55
8 20 32 44 56
9 21 33 45 57
10 22 34 46 58
11 23 35 47 59
Hours
All
Selected ..
0 12
1 13
2 14
3 15
4 16
5 17
6 18
7 19
8 20
9 21
10 22
11 23
Days
All
Selected ..
1 13 25
2 14 26
3 15 27
4 16 28
5 17 29
6 18 30
7 19 31
8 20
9 21
10 22
11 23
12 24
Months
All
Selected ..
January
February
March
April
May
June
July
August
September
October
November
December
Weekdays
All
Selected ..
Sunday
Monday
Tuesday
Wednesday
Thursday
Friday
Saturday
Note: Ctrl-click (or command-click on the Mac) to select and de-select minutes, hours, days and months.
Create
Create and Backup Now