

Captura e instalación de una máquina usando Linux y FOG

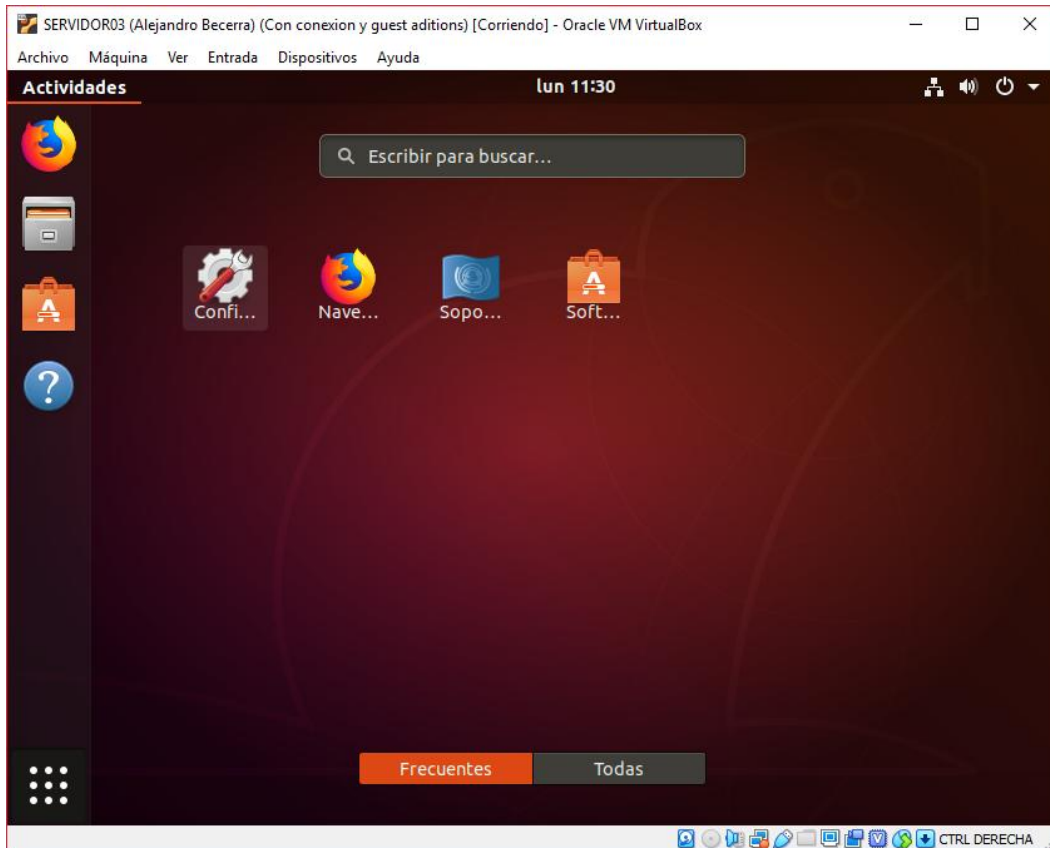
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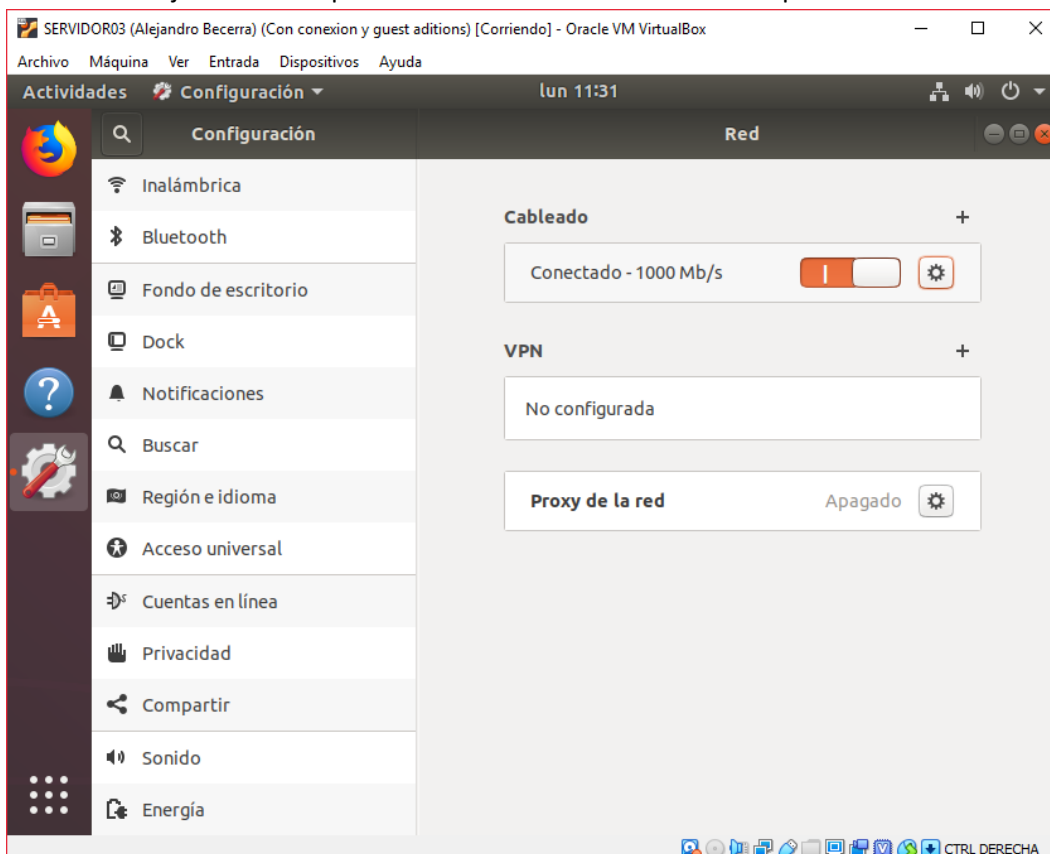
Configuración de la red

Ya que en Ubuntu no existe distinción entre la versión de cliente y la de servidor como ocurre con Windows, habrá que añadirle una herramienta de terceros llamada FOG Project para que obtenga ciertos privilegios como los de capturar y lanzar máquinas a equipos vacíos.

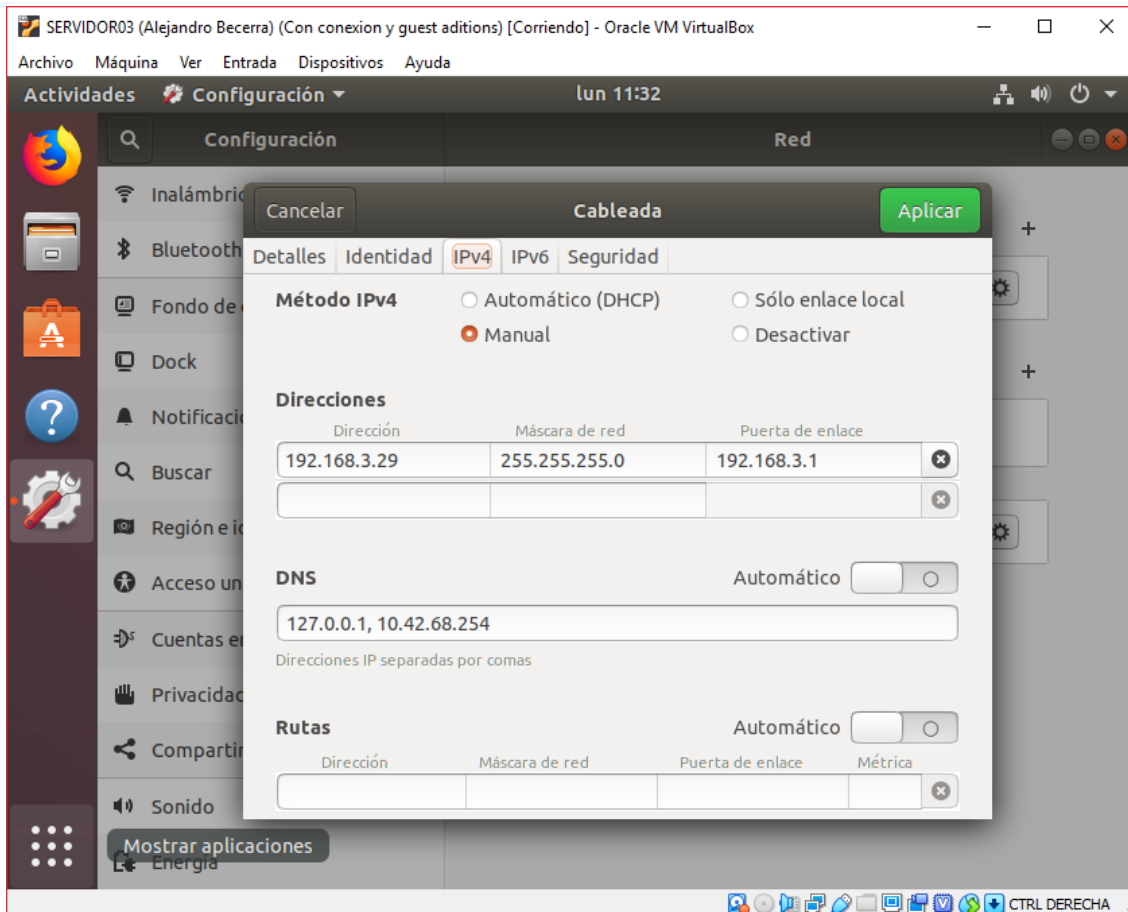
Primero comenzaremos instalando un ordenador con Ubuntu y configurándolo en la red con una IP estática. Para ello iremos a “Configuración> Red”.



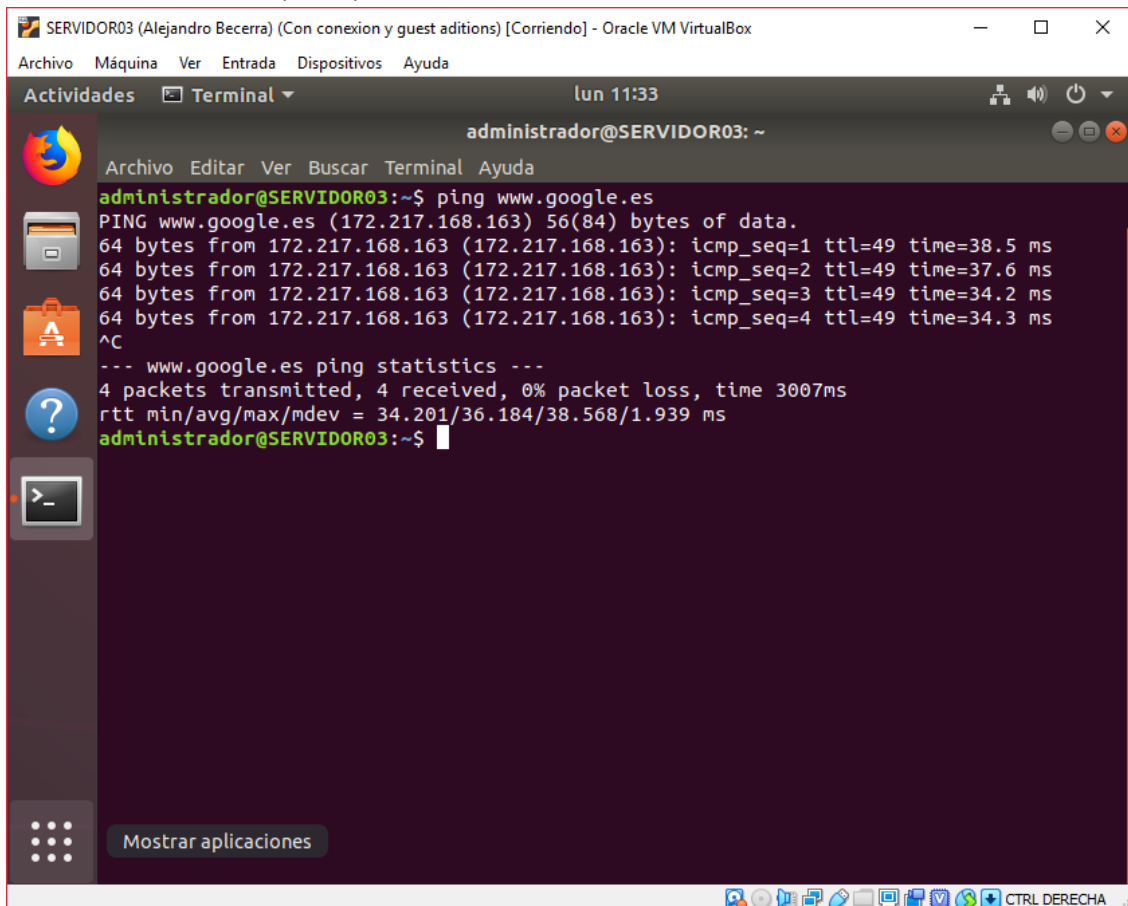
Ahora en los ajustes de red pulsaremos en la tuerca e iremos a la pestaña de IPv4.



Ponemos el método de IPv4 en manual y ponemos la dirección IP, la máscara de subred y la puerta de enlace, además asignaremos los DNS y deshabilitaremos el botón de automático de los mismos.

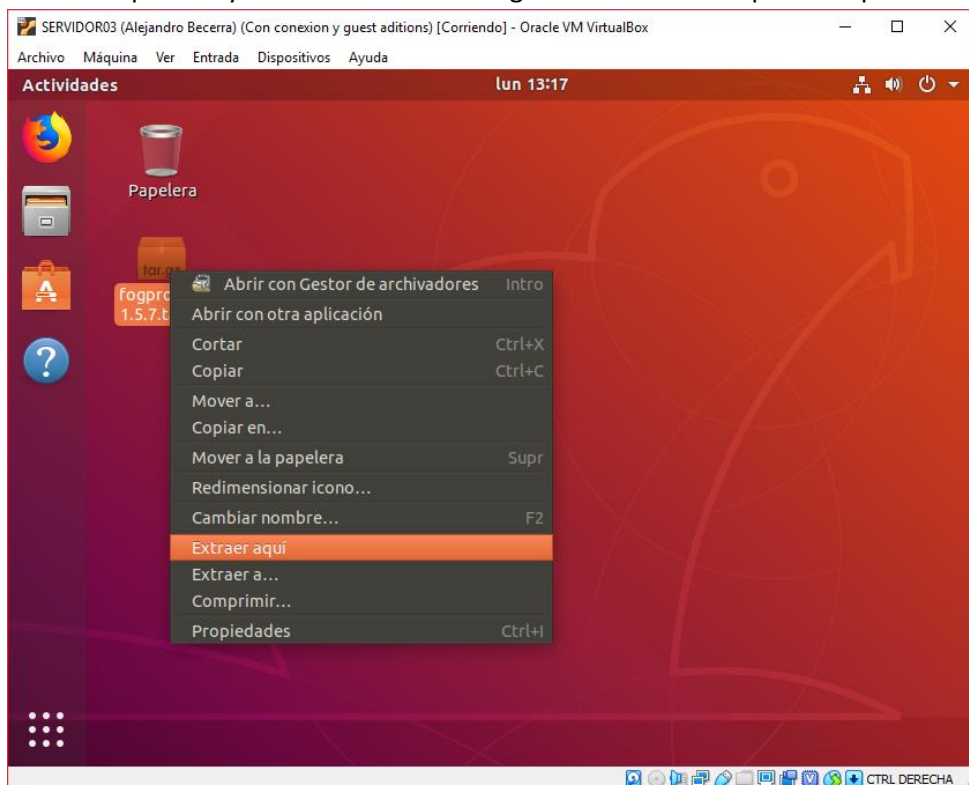


A continuación comprobaremos la conexión a Internet haciendo ping a Google ("ping www.google.es") desde la consola de comandos, que la podemos abrir con "Ctrl+ Alt+ T".

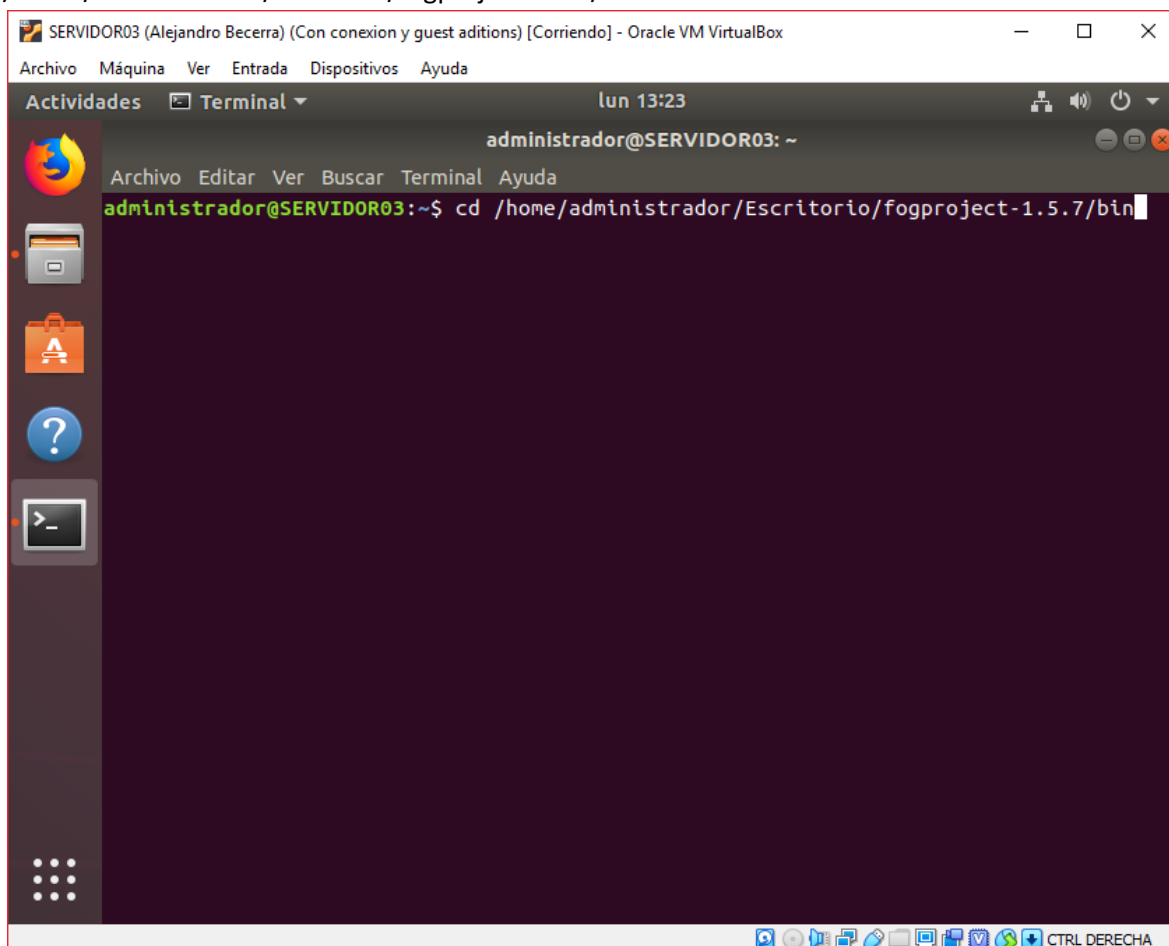


Instalación y configuración del FOG Project

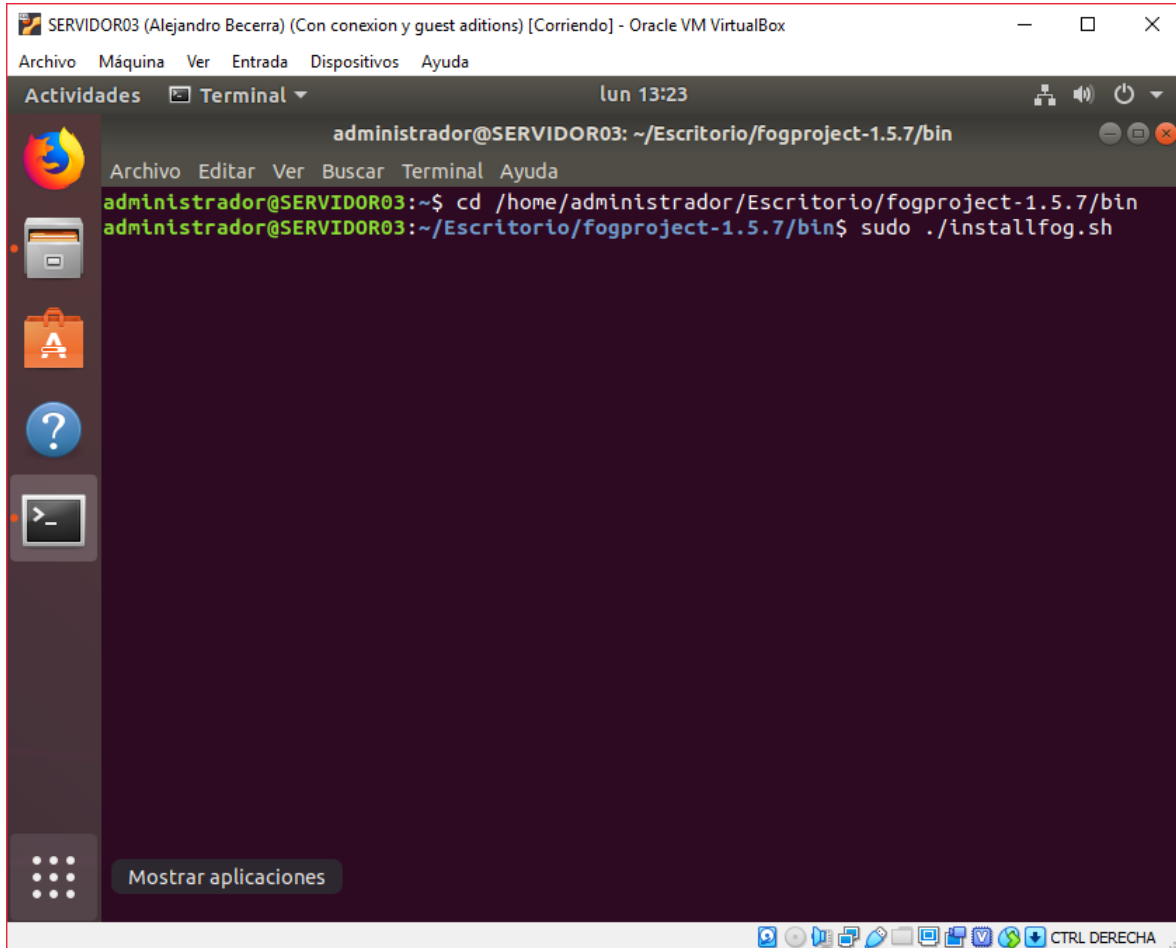
Ahora buscamos en el navegador la página de FOG Project (<https://www.fogproject.org/>) y descargaremos la última versión disponible y estable. Se nos descargará un archivo comprimido que deberemos de descomprimir.



Una vez descomprimida la carpeta entraremos en ella para comprobar que existe una carpeta llamada "bin". Con la comprobación ya hecha abriremos la consola de comandos y entraremos en esta carpeta con el comando "cd /home/administrador/Escritorio/fogproject-1.5.7/bin".



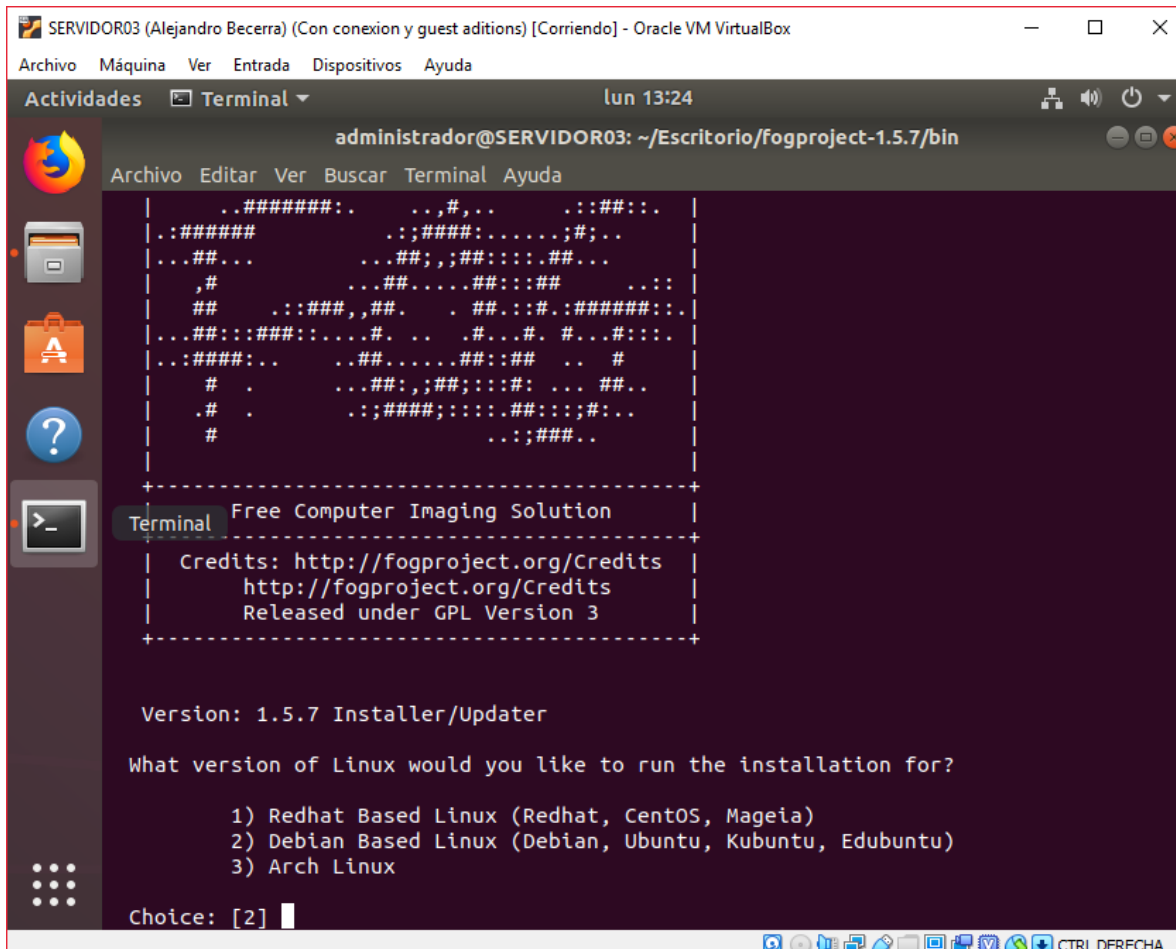
Dentro de la carpeta ejecutaremos el siguiente comando (“sudo ./installfog.sh”) para comenzar la instalación.



The screenshot shows a terminal window titled "SERVIDOR03 (Alejandro Becerra) (Con conexion y guest additions) [Corriendo] - Oracle VM VirtualBox". The terminal is running the command `cd /home/administrador/Escritorio/fogproject-1.5.7/bin` and then `sudo ./installfog.sh`. The prompt is `administrador@SERVIDOR03: ~/Escritorio/fogproject-1.5.7/bin`. The terminal output shows the command being executed.

```
administrador@SERVIDOR03: ~/Escritorio/fogproject-1.5.7/bin
administrador@SERVIDOR03:~$ cd /home/administrador/Escritorio/fogproject-1.5.7/bin
administrador@SERVIDOR03:~/Escritorio/fogproject-1.5.7/bin$ sudo ./installfog.sh
```

Ahora como la instalación será en una máquina con Ubuntu insertaremos el “2” y pulsaremos en Enter.



The screenshot shows the same terminal window as before, but now displaying the output of the `installfog.sh` script. The output includes a license agreement, version information, and a prompt to select a Linux distribution. The user has entered "2" to select Debian Based Linux.

```
..#####:.. ..#,.. ..:##:.. |
|.##### ..:###:.....;#;.. |
|...##... ..##;##:....##... |
|,# ..##.....##:## ..: |
|## ..:###,##. .##.:#.#####:.. |
|...##:###:.....#. ..#...#. #...#... |
|:#####:.. ..##.....##:## ..# |
|# . ..##:;##:;:##: .. ##.. |
|.# . ..:#####:;:##:;#;#... |
|# ..:###.. |
+-----+
Terminal Free Computer Imaging Solution
+-----+
Credits: http://fogproject.org/Credits
http://fogproject.org/Credits
Released under GPL Version 3
+-----+

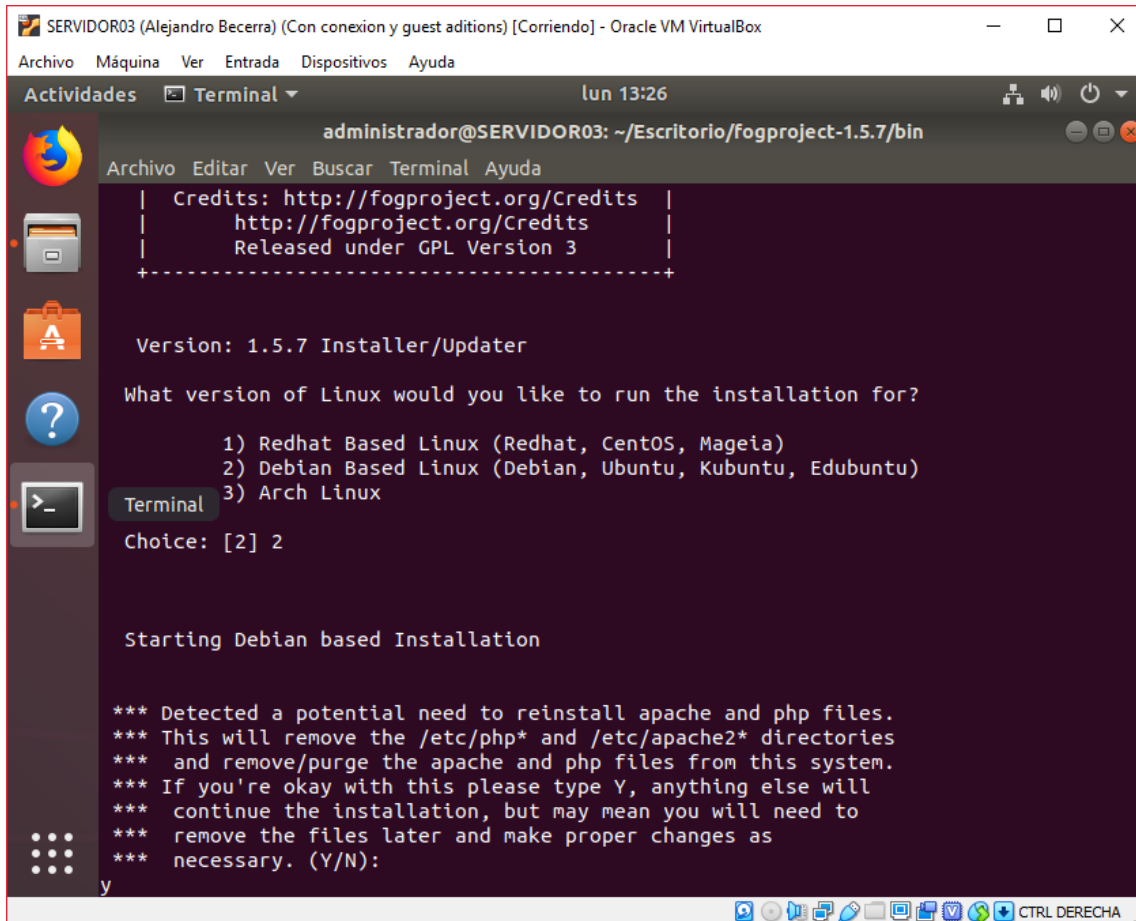
Version: 1.5.7 Installer/Updater

What version of Linux would you like to run the installation for?

1) Redhat Based Linux (Redhat, CentOS, Mageia)
2) Debian Based Linux (Debian, Ubuntu, Kubuntu, Edubuntu)
3) Arch Linux

Choice: [2]
```

Ahora pondremos “Y” para reinstalar los archivos de apache y de php para que no den problemas posteriormente.



```
administrador@SERVIDOR03: ~/Escritorio/fogproject-1.5.7/bin
| Credits: http://fogproject.org/Credits |
| http://fogproject.org/Credits |
| Released under GPL Version 3 |
+-----+
Version: 1.5.7 Installer/Updater

What version of Linux would you like to run the installation for?

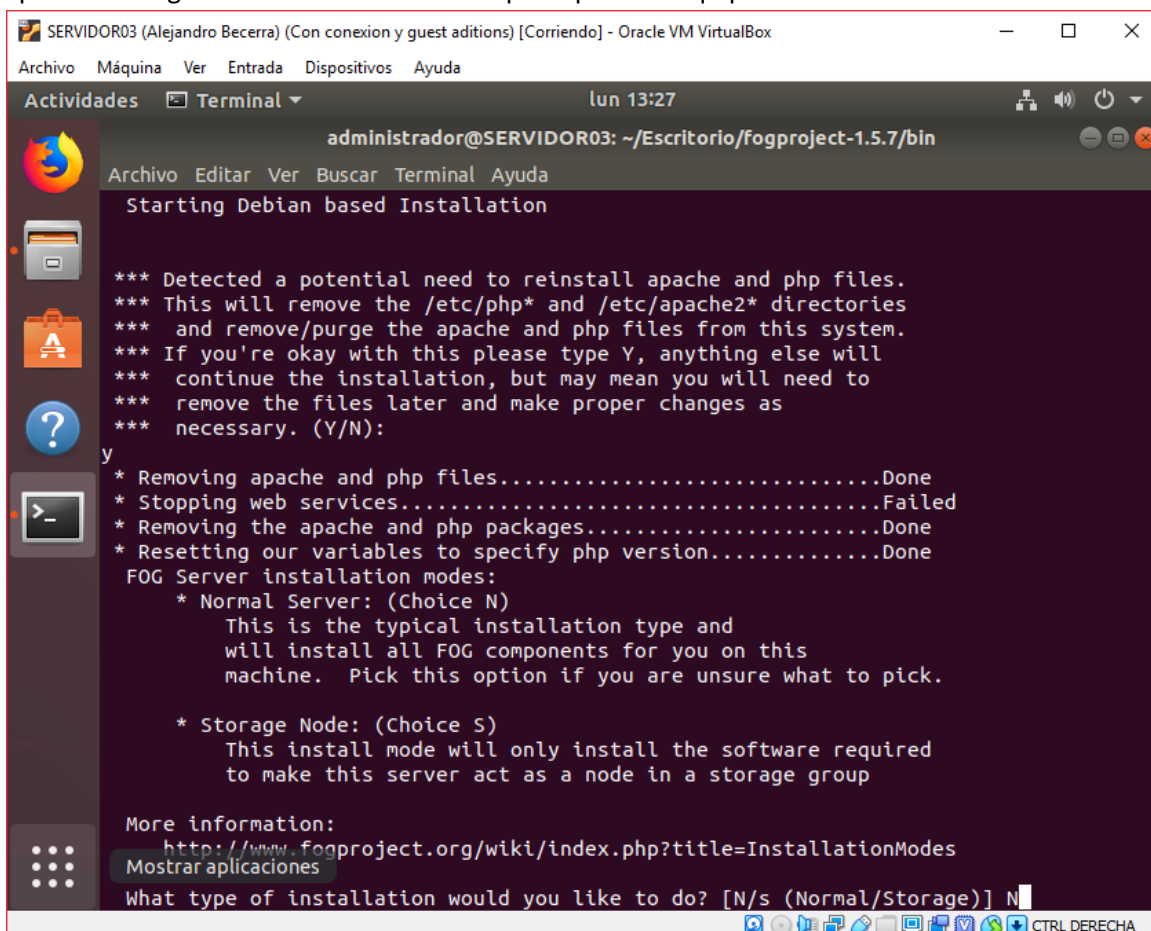
1) Redhat Based Linux (Redhat, CentOS, Mageia)
2) Debian Based Linux (Debian, Ubuntu, Kubuntu, Edubuntu)
3) Arch Linux

Choice: [2] 2

Starting Debian based Installation

*** Detected a potential need to reinstall apache and php files.
*** This will remove the /etc/php* and /etc/apache2* directories
*** and remove/purge the apache and php files from this system.
*** If you're okay with this please type Y, anything else will
*** continue the installation, but may mean you will need to
*** remove the files later and make proper changes as
*** necessary. (Y/N):
y
```

En el tipo de instalación escogeremos la normal pulsando la “N”, que instalará todos los componentes del FOG. El tipo de “Storage” solo instala lo necesario para que este equipo sea un servidor.



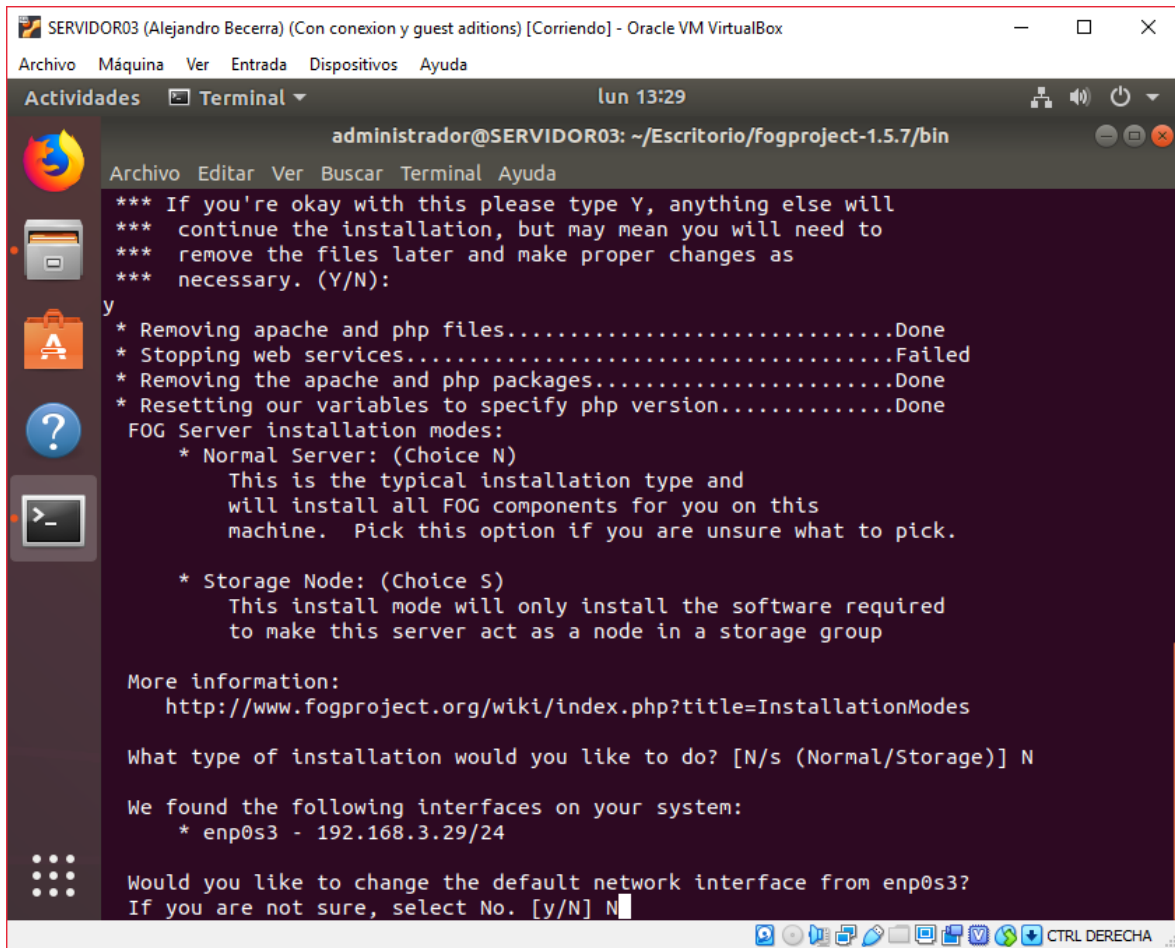
```
administrador@SERVIDOR03: ~/Escritorio/fogproject-1.5.7/bin
Starting Debian based Installation

*** Detected a potential need to reinstall apache and php files.
*** This will remove the /etc/php* and /etc/apache2* directories
*** and remove/purge the apache and php files from this system.
*** If you're okay with this please type Y, anything else will
*** continue the installation, but may mean you will need to
*** remove the files later and make proper changes as
*** necessary. (Y/N):
y
* Removing apache and php files.....Done
* Stopping web services.....Failed
* Removing the apache and php packages.....Done
* Resetting our variables to specify php version.....Done
FOG Server installation modes:
* Normal Server: (Choice N)
  This is the typical installation type and
  will install all FOG components for you on this
  machine. Pick this option if you are unsure what to pick.

* Storage Node: (Choice S)
  This install mode will only install the software required
  to make this server act as a node in a storage group

More information:
http://www.fogproject.org/wiki/index.php?title=InstallationModes
Mostrar aplicaciones
What type of installation would you like to do? [N/s (Normal/Storage)] N
```


En esta opción dejaremos el campo por defecto, que es en No, esta característica sirve para la red de lugar de la que viene por defecto.



```
servidor03@SERVIDOR03: ~/Escritorio/fogproject-1.5.7/bin
*** If you're okay with this please type Y, anything else will
*** continue the installation, but may mean you will need to
*** remove the files later and make proper changes as
*** necessary. (Y/N):
y
* Removing apache and php files.....Done
* Stopping web services.....Failed
* Removing the apache and php packages.....Done
* Resetting our variables to specify php version.....Done
FOG Server installation modes:
* Normal Server: (Choice N)
  This is the typical installation type and
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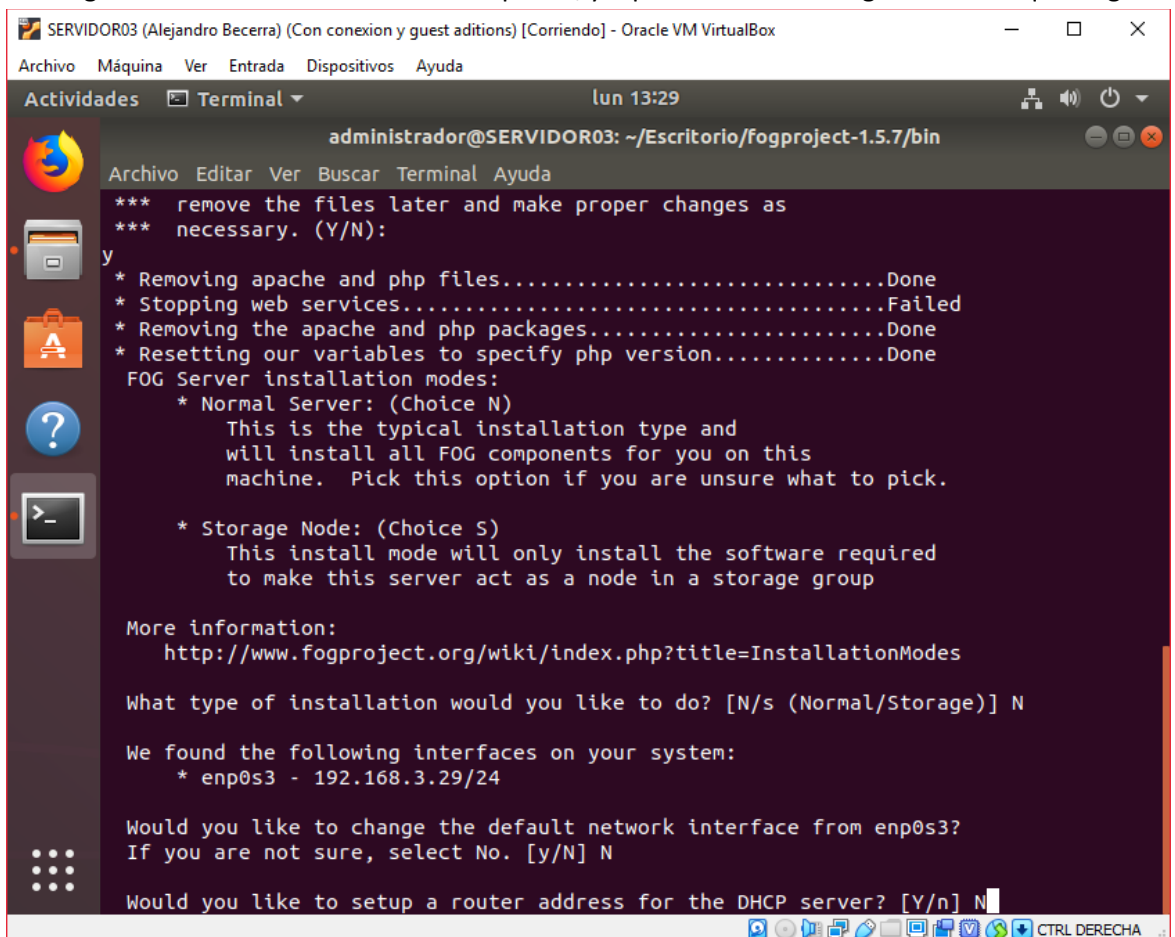
More information:
http://www.fogproject.org/wiki/index.php?title=InstallationModes

What type of installation would you like to do? [N/s (Normal/Storage)] N

We found the following interfaces on your system:
* enp0s3 - 192.168.3.29/24

Would you like to change the default network interface from enp0s3?
If you are not sure, select No. [y/N] N
```

En la siguiente también seleccionaremos que no, ya que no tenemos ningún router al que asignar un servidor DHCP.



```
servidor03@SERVIDOR03: ~/Escritorio/fogproject-1.5.7/bin
*** remove the files later and make proper changes as
*** necessary. (Y/N):
y
* Removing apache and php files.....Done
* Stopping web services.....Failed
* Removing the apache and php packages.....Done
* Resetting our variables to specify php version.....Done
FOG Server installation modes:
* Normal Server: (Choice N)
  This is the typical installation type and
  will install all FOG components for you on this
  machine. Pick this option if you are unsure what to pick.

* Storage Node: (Choice S)
  This install mode will only install the software required
  to make this server act as a node in a storage group

More information:
http://www.fogproject.org/wiki/index.php?title=InstallationModes

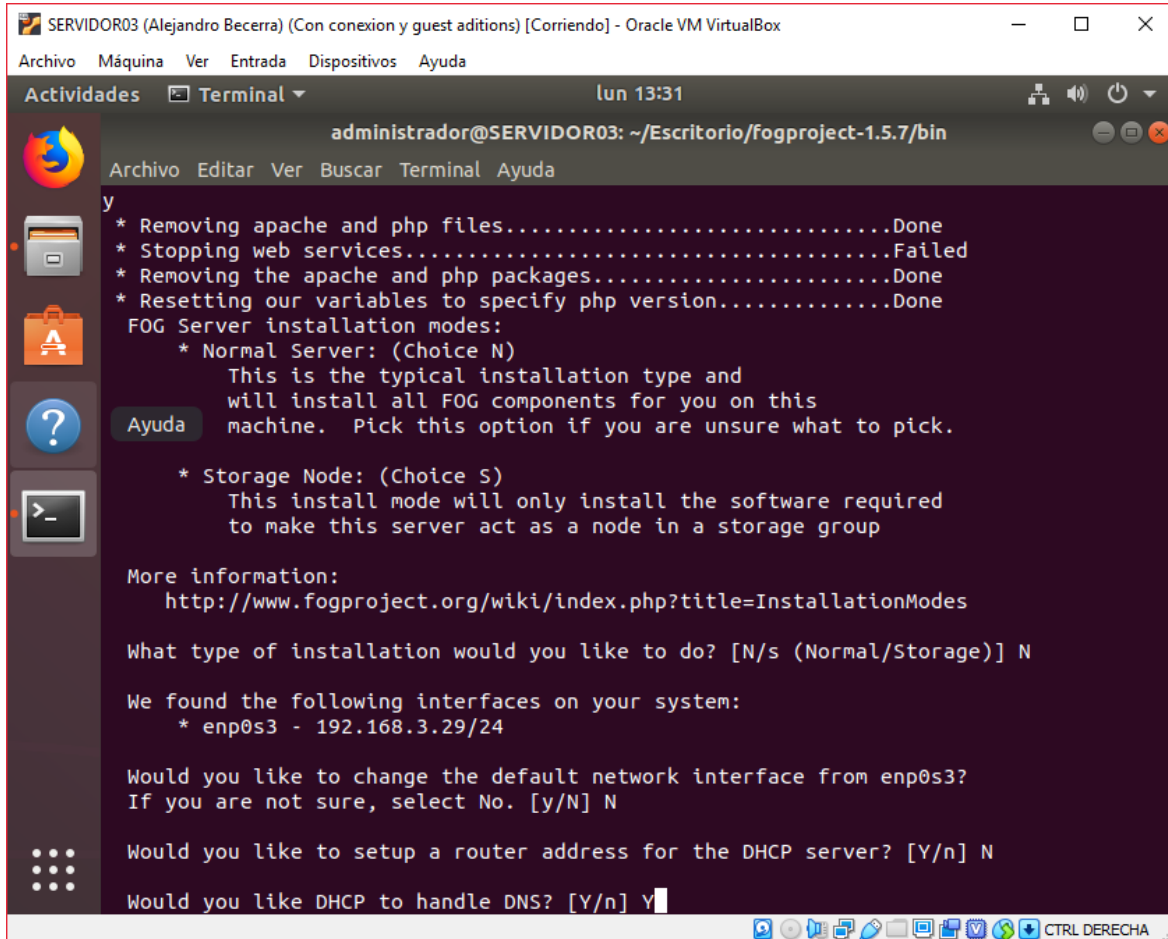
What type of installation would you like to do? [N/s (Normal/Storage)] N

We found the following interfaces on your system:
* enp0s3 - 192.168.3.29/24

Would you like to change the default network interface from enp0s3?
If you are not sure, select No. [y/N] N

Would you like to setup a router address for the DHCP server? [Y/n] N
```

Ahora en esta opción sí que la aceptaremos para que el DHCP pueda manipular los DNS de los equipos.



```

SERVIDOR03 (Alejandro Becerra) (Con conexion y guest additions) [Corriendo] - Oracle VM VirtualBox
Archivo  Máquina  Ver  Entrada  Dispositivos  Ayuda
Actividades  Terminal  lun 13:31
administrador@SERVIDOR03: ~/Escritorio/fogproject-1.5.7/bin
Archivo  Editar  Ver  Buscar  Terminal  Ayuda
y
* Removing apache and php files.....Done
* Stopping web services.....Failed
* Removing the apache and php packages.....Done
* Resetting our variables to specify php version.....Done
FOG Server installation modes:
* Normal Server: (Choice N)
  This is the typical installation type and
  will install all FOG components for you on this
  machine. Pick this option if you are unsure what to pick.
* Storage Node: (Choice S)
  This install mode will only install the software required
  to make this server act as a node in a storage group

More information:
  http://www.fogproject.org/wiki/index.php?title=InstallationModes

What type of installation would you like to do? [N/s (Normal/Storage)] N

We found the following interfaces on your system:
* enp0s3 - 192.168.3.29/24

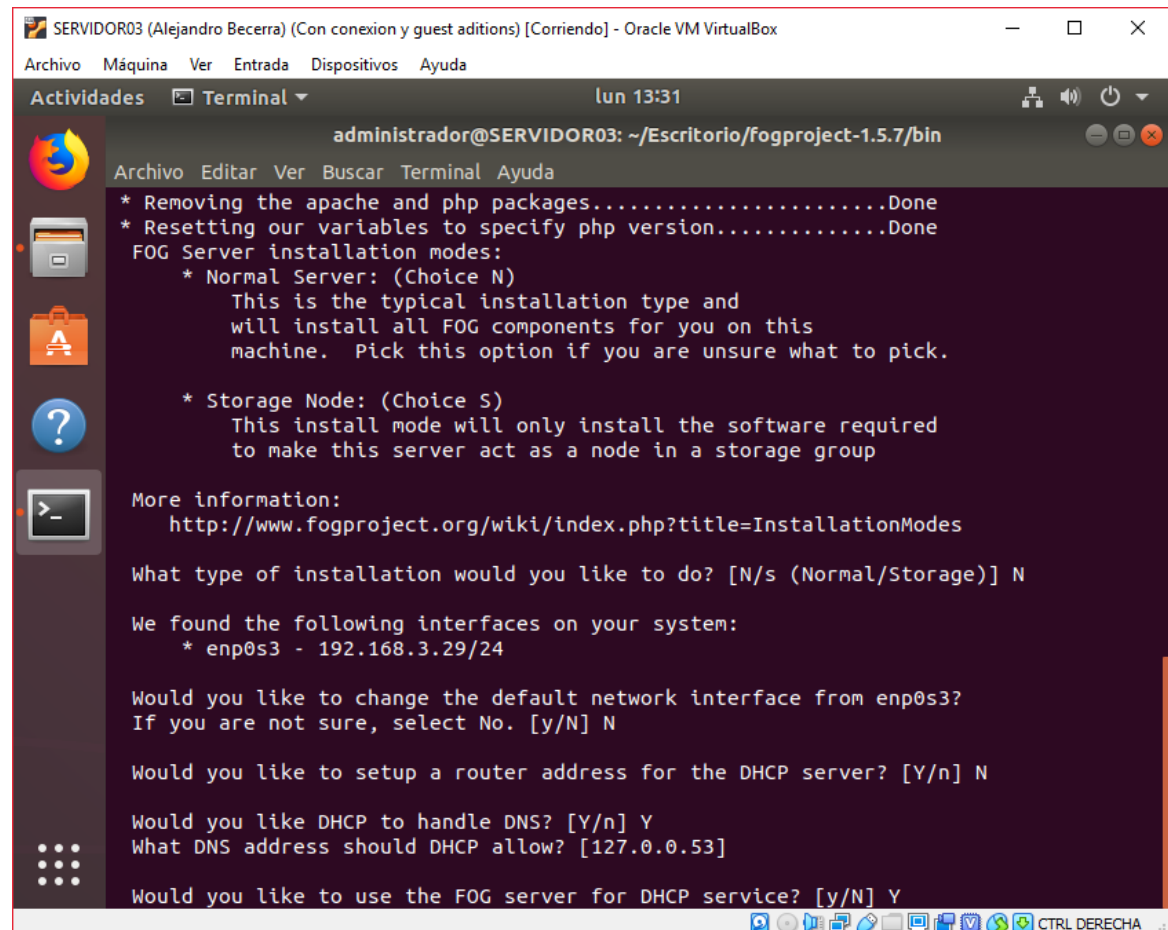
Would you like to change the default network interface from enp0s3?
If you are not sure, select No. [y/N] N

Would you like to setup a router address for the DHCP server? [Y/n] N

Would you like DHCP to handle DNS? [Y/n] Y

```

Dejamos la dirección DNS por defecto y en la siguiente opción seleccionaremos que sí, para que el FOG Server pueda usar el servicio DHCP.



```

SERVIDOR03 (Alejandro Becerra) (Con conexion y guest additions) [Corriendo] - Oracle VM VirtualBox
Archivo  Máquina  Ver  Entrada  Dispositivos  Ayuda
Actividades  Terminal  lun 13:31
administrador@SERVIDOR03: ~/Escritorio/fogproject-1.5.7/bin
Archivo  Editar  Ver  Buscar  Terminal  Ayuda
* Removing the apache and php packages.....Done
* Resetting our variables to specify php version.....Done
FOG Server installation modes:
* Normal Server: (Choice N)
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  machine. Pick this option if you are unsure what to pick.
* Storage Node: (Choice S)
  This install mode will only install the software required
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More information:
  http://www.fogproject.org/wiki/index.php?title=InstallationModes

What type of installation would you like to do? [N/s (Normal/Storage)] N

We found the following interfaces on your system:
* enp0s3 - 192.168.3.29/24

Would you like to change the default network interface from enp0s3?
If you are not sure, select No. [y/N] N

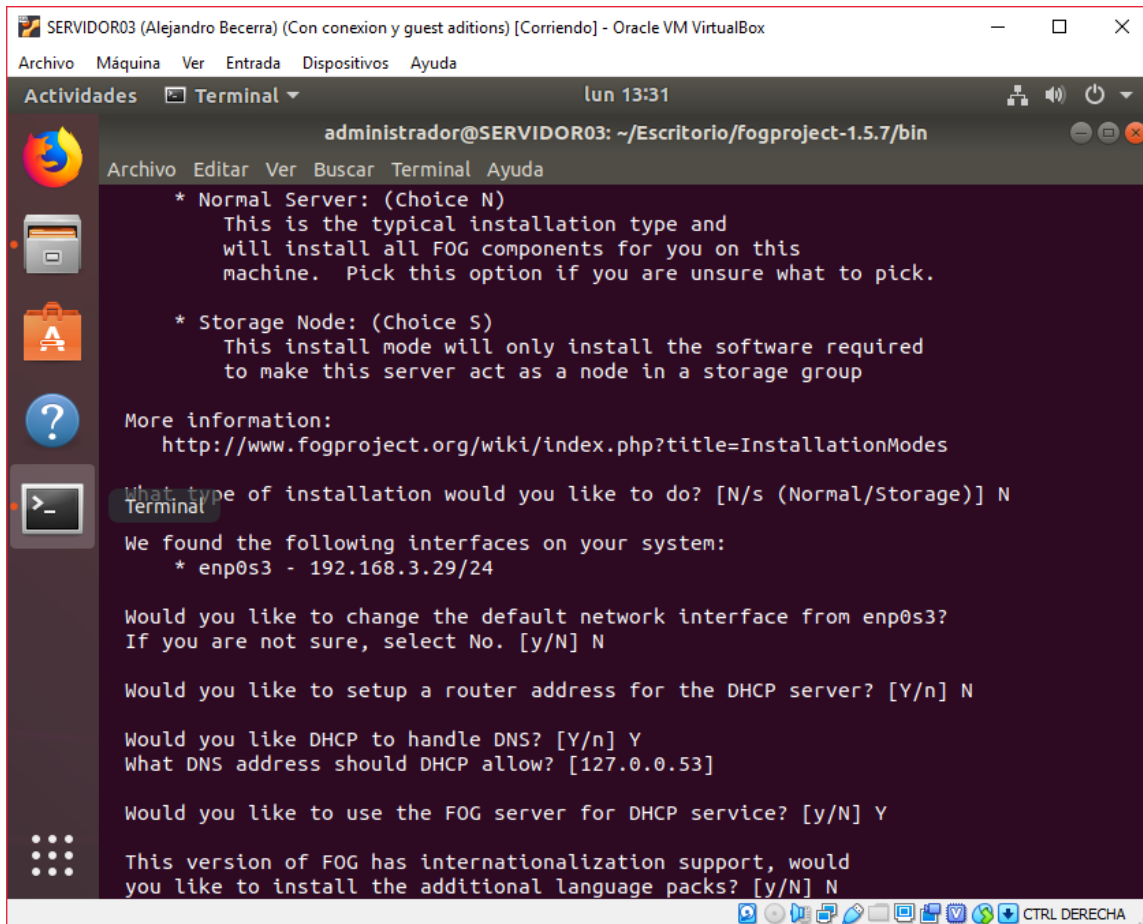
Would you like to setup a router address for the DHCP server? [Y/n] N

Would you like DHCP to handle DNS? [Y/n] Y
What DNS address should DHCP allow? [127.0.0.53]

Would you like to use the FOG server for DHCP service? [y/N] Y

```


Y por último, en este caso seleccionaremos que no para que no instale ningún paquete de idiomas, pero este paso es optativo.



```

SERVIDOR03 (Alejandro Becerra) (Con conexion y guest additions) [Corriendo] - Oracle VM VirtualBox
Archivo  Máquina  Ver  Entrada  Dispositivos  Ayuda
Actividades  Terminal  lun 13:31
administrador@SERVIDOR03: ~/Escritorio/fogproject-1.5.7/bin

* Normal Server: (Choice N)
  This is the typical installation type and
  will install all FOG components for you on this
  machine.  Pick this option if you are unsure what to pick.

* Storage Node: (Choice S)
  This install mode will only install the software required
  to make this server act as a node in a storage group

More information:
http://www.fogproject.org/wiki/index.php?title=InstallationModes

What type of installation would you like to do? [N/s (Normal/Storage)] N
We found the following interfaces on your system:
* enp0s3 - 192.168.3.29/24

Would you like to change the default network interface from enp0s3?
If you are not sure, select No. [y/N] N

Would you like to setup a router address for the DHCP server? [Y/n] N

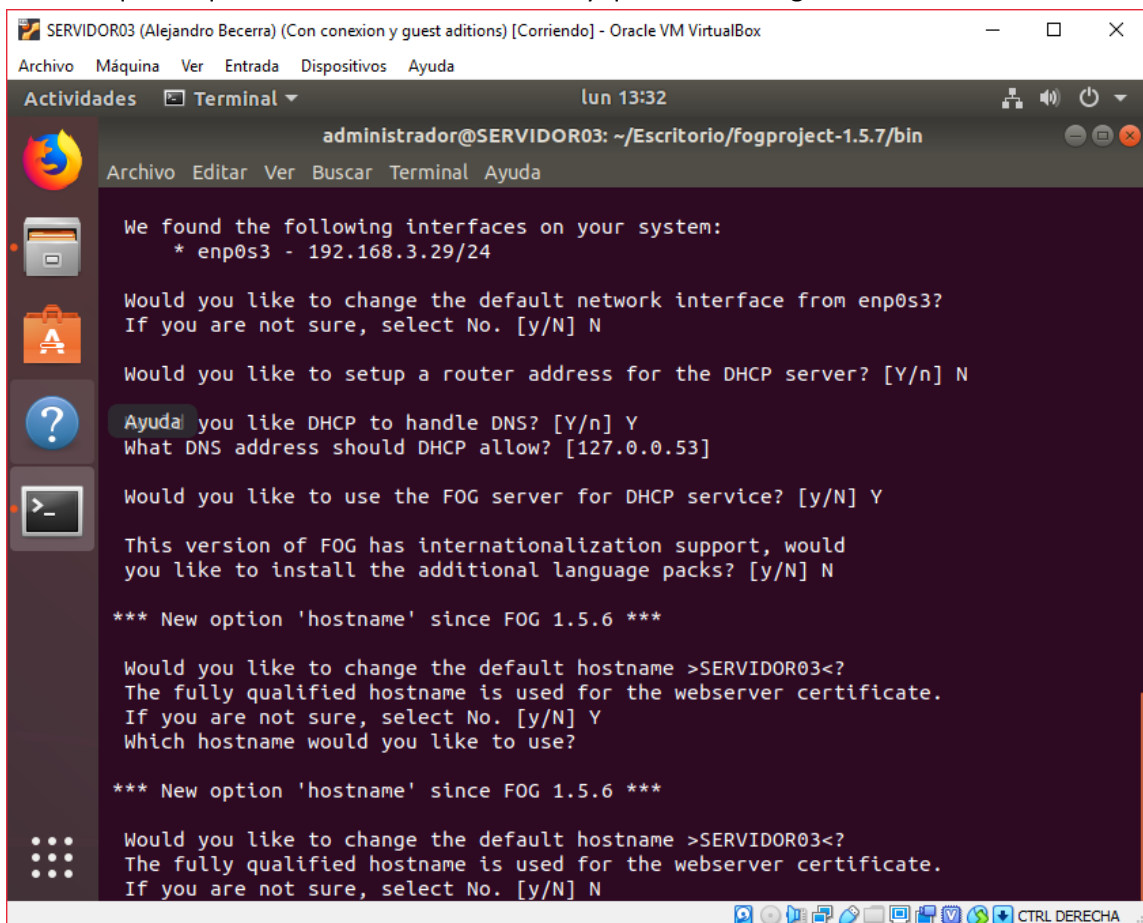
Would you like DHCP to handle DNS? [Y/n] Y
What DNS address should DHCP allow? [127.0.0.53]

Would you like to use the FOG server for DHCP service? [y/N] Y

This version of FOG has internationalization support, would
you like to install the additional language packs? [y/N] N

```

Decimos que no queremos cambiar el hostname y que estamos seguros.



```

SERVIDOR03 (Alejandro Becerra) (Con conexion y guest additions) [Corriendo] - Oracle VM VirtualBox
Archivo  Máquina  Ver  Entrada  Dispositivos  Ayuda
Actividades  Terminal  lun 13:32
administrador@SERVIDOR03: ~/Escritorio/fogproject-1.5.7/bin

We found the following interfaces on your system:
* enp0s3 - 192.168.3.29/24

Would you like to change the default network interface from enp0s3?
If you are not sure, select No. [y/N] N

Would you like to setup a router address for the DHCP server? [Y/n] N

Ayuda: you like DHCP to handle DNS? [Y/n] Y
What DNS address should DHCP allow? [127.0.0.53]

Would you like to use the FOG server for DHCP service? [y/N] Y

This version of FOG has internationalization support, would
you like to install the additional language packs? [y/N] N

*** New option 'hostname' since FOG 1.5.6 ***

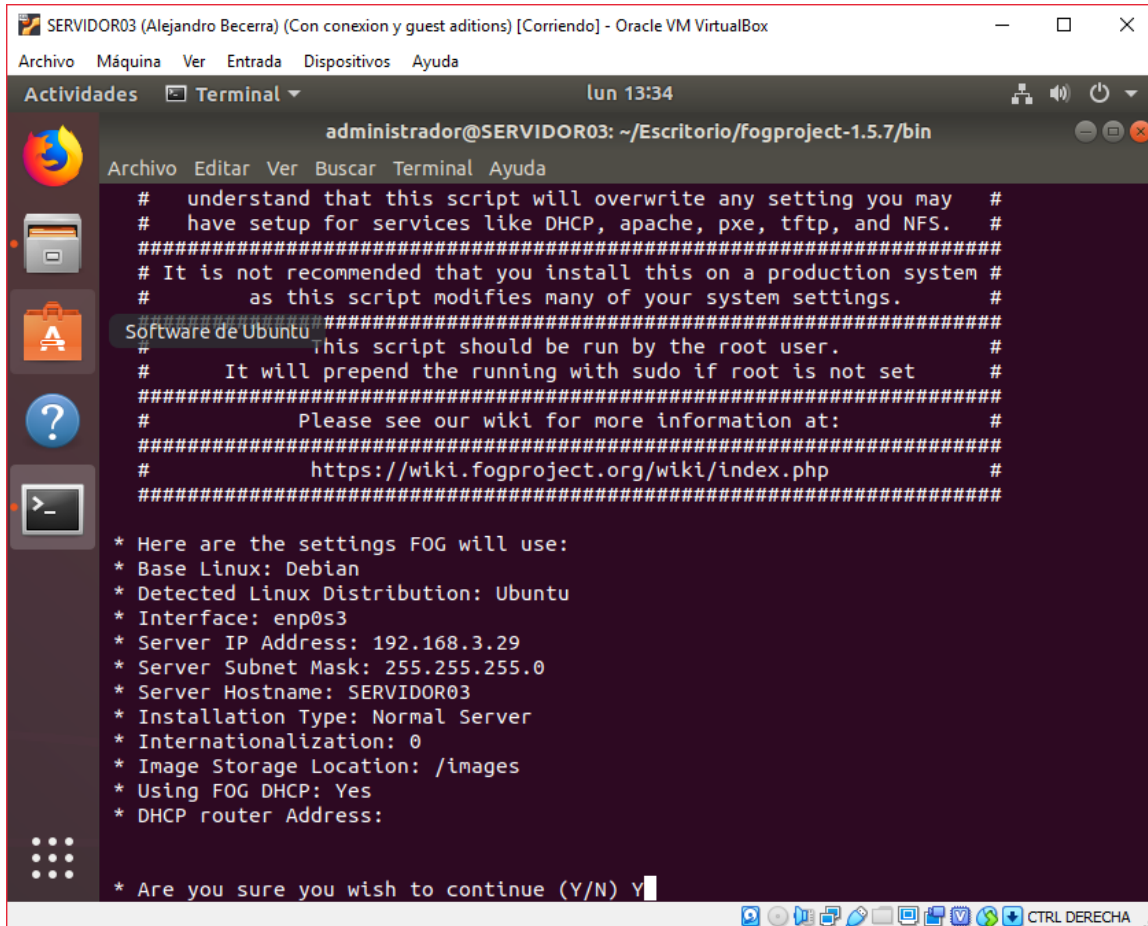
Would you like to change the default hostname >SERVIDOR03<?
The fully qualified hostname is used for the webserver certificate.
If you are not sure, select No. [y/N] Y
Which hostname would you like to use?

*** New option 'hostname' since FOG 1.5.6 ***

Would you like to change the default hostname >SERVIDOR03<?
The fully qualified hostname is used for the webserver certificate.
If you are not sure, select No. [y/N] N

```

Después de todos estos pasos nos aparecerá un resumen de todas las características que elegimos, aquí si todo está correcto insertaremos la “Y” para confirmar que todo está en orden.



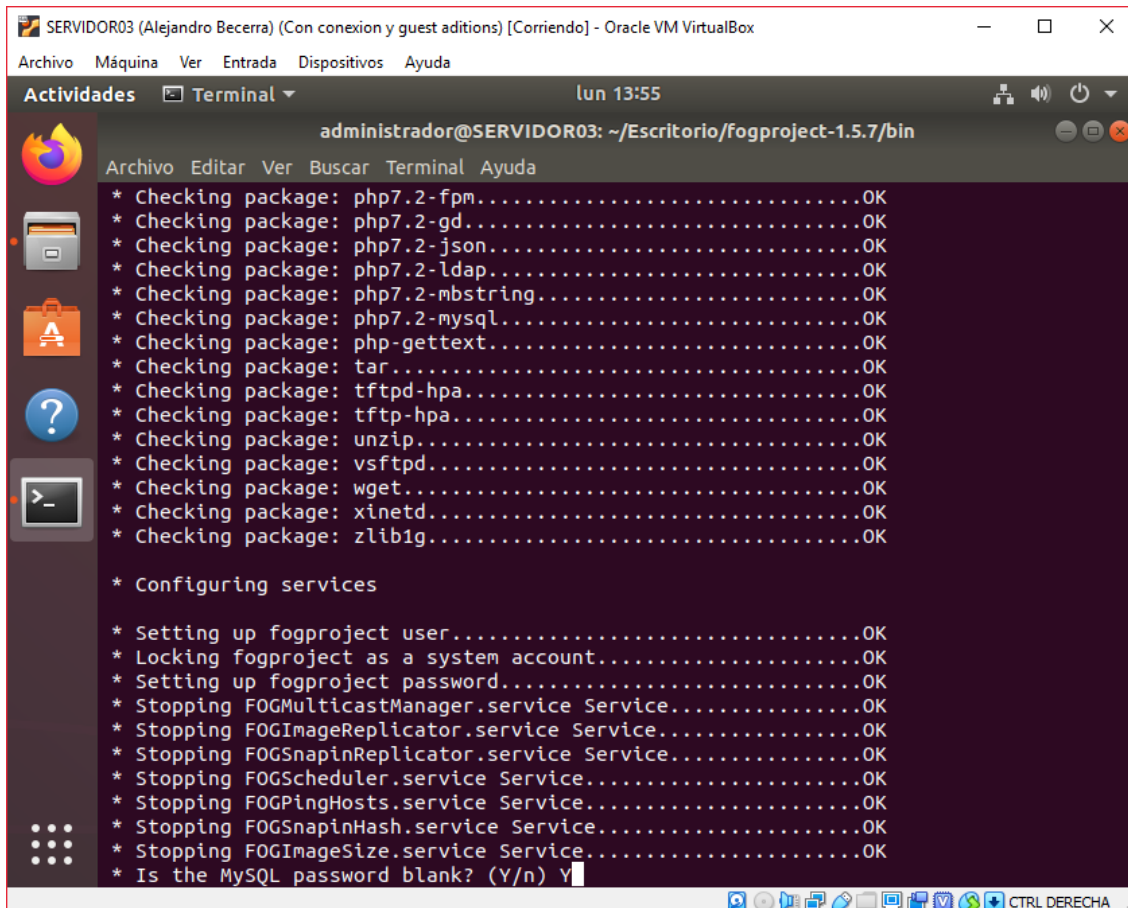
The screenshot shows a terminal window titled "SERVIDOR03 (Alejandro Becerra) (Con conexion y guest additions) [Corriendo] - Oracle VM VirtualBox". The terminal is running the command "administrador@SERVIDOR03: ~/Escritorio/fogproject-1.5.7/bin". The output displays a configuration summary for FOG project installation. It includes a warning about overwriting settings, a list of settings FOG will use, and a confirmation prompt.

```
# understand that this script will overwrite any setting you may #
# have setup for services like DHCP, apache, pxe, tftp, and NFS. #
#####
# It is not recommended that you install this on a production system #
# as this script modifies many of your system settings. #
#####
Software de Ubuntu #####
# This script should be run by the root user. #
# It will prepend the running with sudo if root is not set #
#####
# Please see our wiki for more information at: #
# https://wiki.fogproject.org/wiki/index.php #
#####

* Here are the settings FOG will use:
* Base Linux: Debian
* Detected Linux Distribution: Ubuntu
* Interface: enp0s3
* Server IP Address: 192.168.3.29
* Server Subnet Mask: 255.255.255.0
* Server Hostname: SERVIDOR03
* Installation Type: Normal Server
* Internationalization: 0
* Image Storage Location: /images
* Using FOG DHCP: Yes
* DHCP router Address:

* Are you sure you wish to continue (Y/N) Y
```

A partir del anterior punto comenzará la instalación hasta detenerse en otra pregunta, que nos preguntará si deseamos dejar la contraseña de MySQL en blanco, en este caso seleccionaremos que sí.



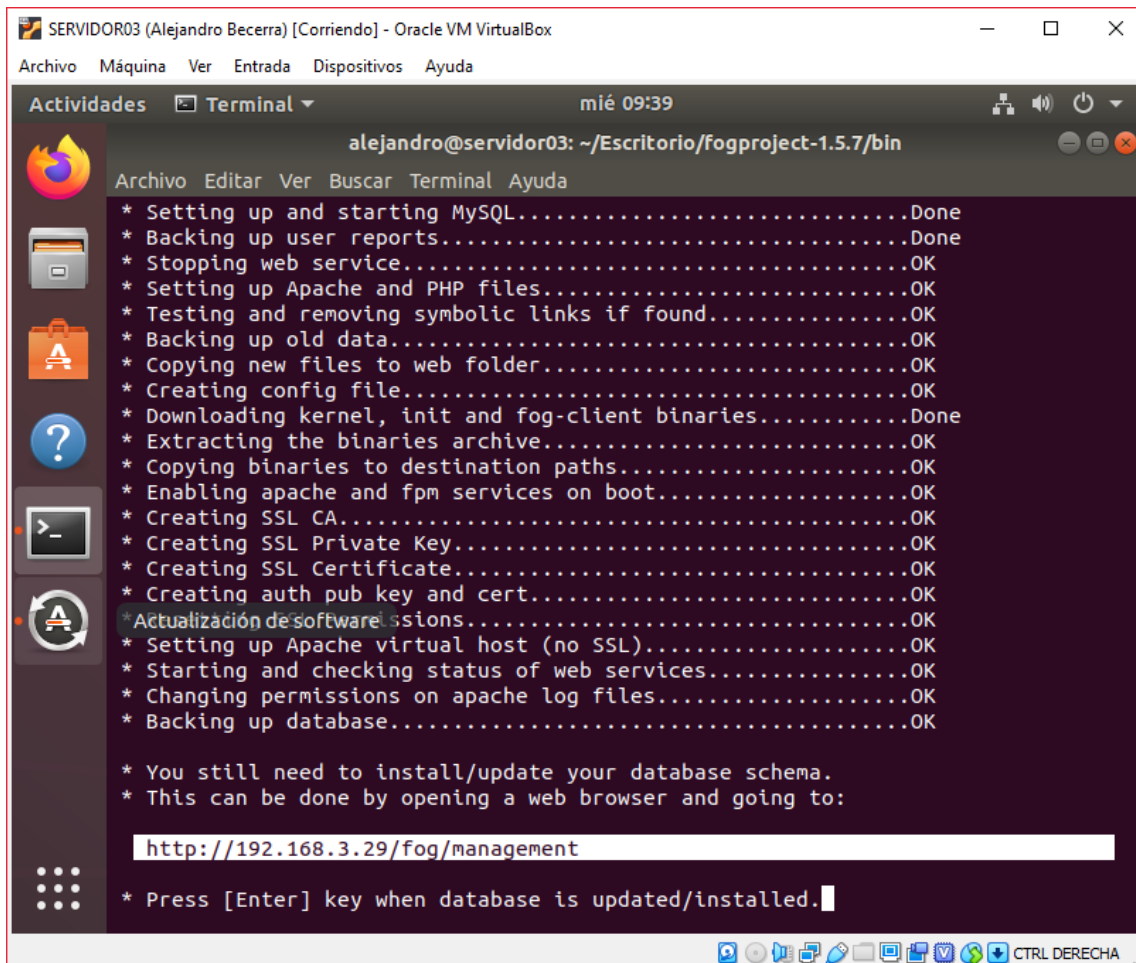
The screenshot shows the same terminal window as before, but now displaying the progress of the FOG project installation. It lists various packages being checked and configured, and ends with a confirmation prompt for the MySQL password.

```
* Checking package: php7.2-fpm.....OK
* Checking package: php7.2-gd.....OK
* Checking package: php7.2-json.....OK
* Checking package: php7.2-ldap.....OK
* Checking package: php7.2-mbstring.....OK
* Checking package: php7.2-mysql.....OK
* Checking package: php-gettext.....OK
* Checking package: tar.....OK
* Checking package: tftpd-hpa.....OK
* Checking package: tftp-hpa.....OK
* Checking package: unzip.....OK
* Checking package: vsftpd.....OK
* Checking package: wget.....OK
* Checking package: xinetd.....OK
* Checking package: zlib1g.....OK

* Configuring services

* Setting up fogproject user.....OK
* Locking fogproject as a system account.....OK
* Setting up fogproject password.....OK
* Stopping FOGMulticastManager.service Service.....OK
* Stopping FOGImageReplicator.service Service.....OK
* Stopping FOGSnapinReplicator.service Service.....OK
* Stopping FOGScheduler.service Service.....OK
* Stopping FOGPingHosts.service Service.....OK
* Stopping FOGSnapinHash.service Service.....OK
* Stopping FOGImageSize.service Service.....OK
* Is the MySQL password blank? (Y/n) Y
```

Después del paso de la contraseña de MySQL, nos aparecerá un link en el que deberemos de entrar para actualizar la base de datos pulsando en el botón de la página, una vez hecho esto podremos darle a “Enter” en la consola de comandos.



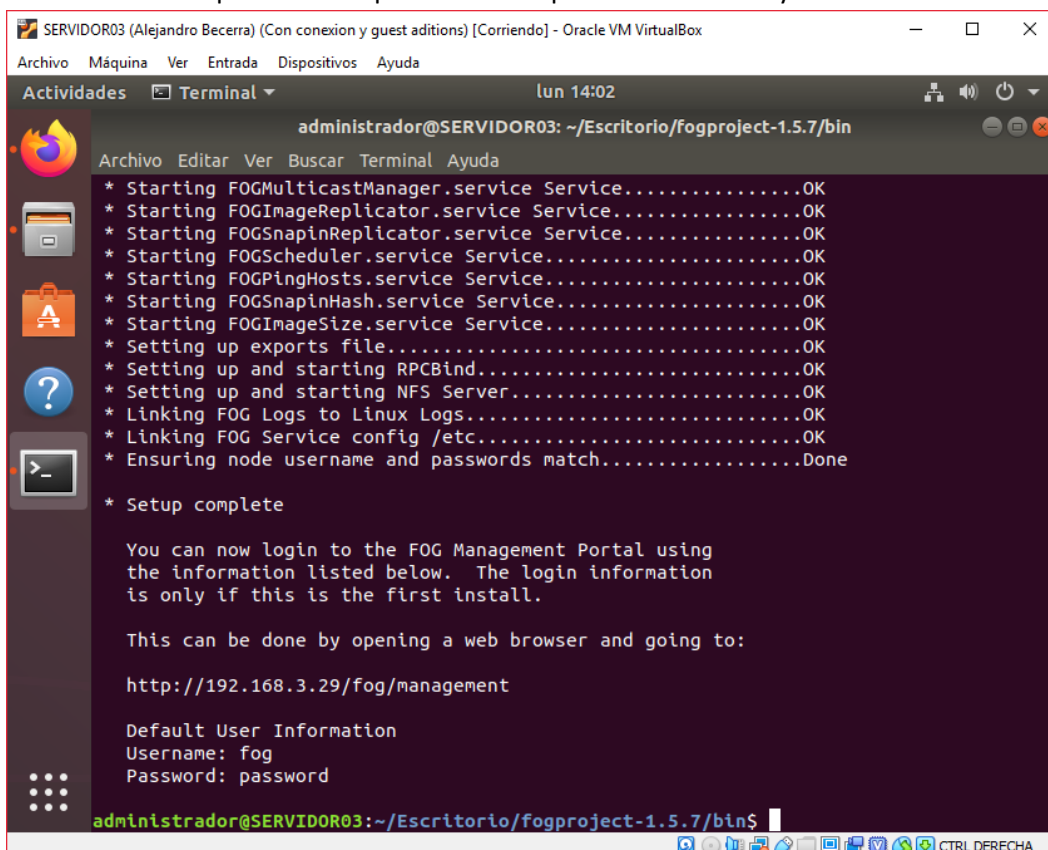
```
alejandro@servidor03: ~/Escritorio/fogproject-1.5.7/bin
* Setting up and starting MySQL.....Done
* Backing up user reports.....Done
* Stopping web service.....OK
* Setting up Apache and PHP files.....OK
* Testing and removing symbolic links if found.....OK
* Backing up old data.....OK
* Copying new files to web folder.....OK
* Creating config file.....OK
* Downloading kernel, init and fog-client binaries.....Done
* Extracting the binaries archive.....OK
* Copying binaries to destination paths.....OK
* Enabling apache and fpm services on boot.....OK
* Creating SSL CA.....OK
* Creating SSL Private Key.....OK
* Creating SSL Certificate.....OK
* Creating auth pub key and cert.....OK
* Actualización de software.....OK
* Setting up Apache virtual host (no SSL).....OK
* Starting and checking status of web services.....OK
* Changing permissions on apache log files.....OK
* Backing up database.....OK

* You still need to install/update your database schema.
* This can be done by opening a web browser and going to:

http://192.168.3.29/fog/management

* Press [Enter] key when database is updated/installed.
```

Hecho el anterior paso se nos aparecerá en la pantalla el usuario y la contraseña.



```
administrador@SERVIDOR03: ~/Escritorio/fogproject-1.5.7/bin$
* Starting FOGMulticastManager.service Service.....OK
* Starting FOGImageReplicator.service Service.....OK
* Starting FOGSnapinReplicator.service Service.....OK
* Starting FOGScheduler.service Service.....OK
* Starting FOGPingHosts.service Service.....OK
* Starting FOGSnapinHash.service Service.....OK
* Starting FOGImageSize.service Service.....OK
* Setting up exports file.....OK
* Setting up and starting RPCBind.....OK
* Setting up and starting NFS Server.....OK
* Linking FOG Logs to Linux Logs.....OK
* Linking FOG Service config /etc.....OK
* Ensuring node username and passwords match.....Done

* Setup complete

You can now login to the FOG Management Portal using
the information listed below. The login information
is only if this is the first install.

This can be done by opening a web browser and going to:

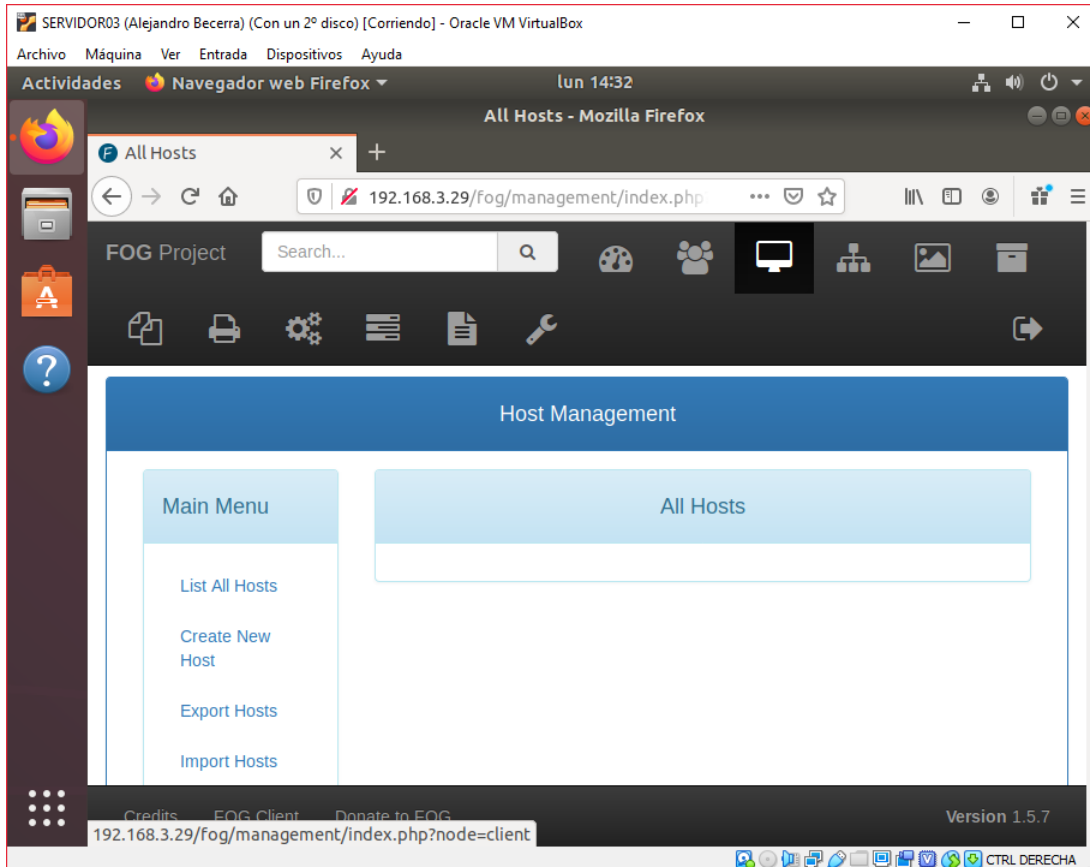
http://192.168.3.29/fog/management

Default User Information
Username: fog
Password: password

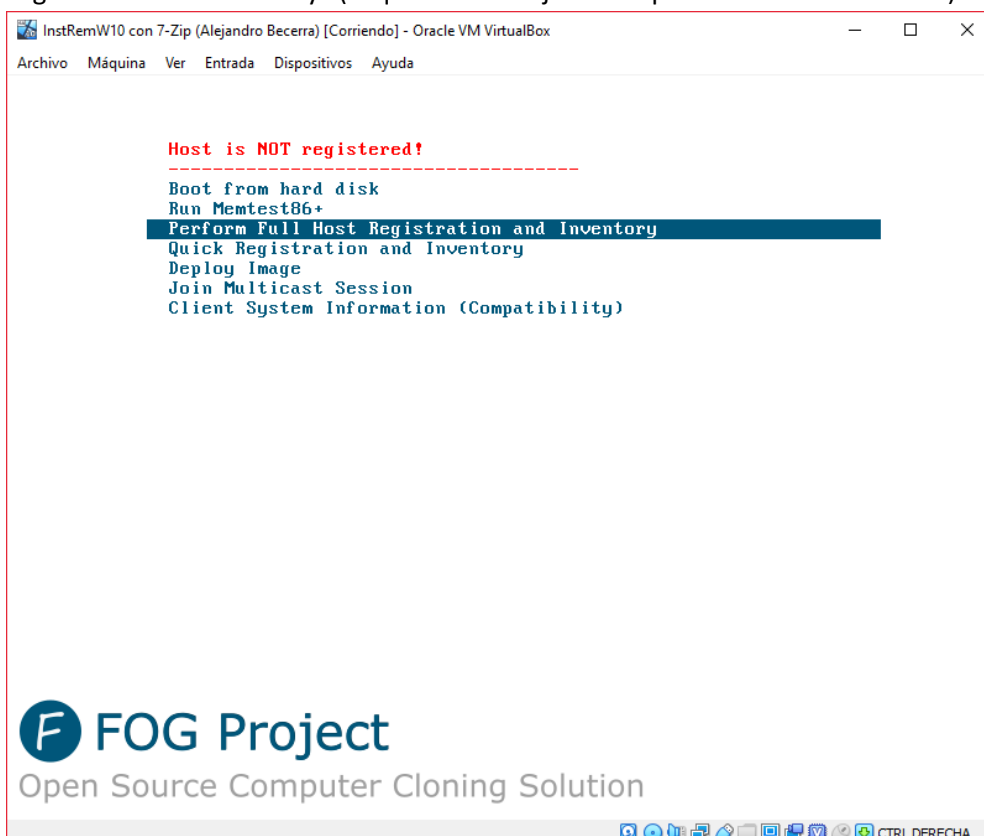
administrador@SERVIDOR03:~/Escritorio/fogproject-1.5.7/bin$
```

Captura del equipo con Windows 10

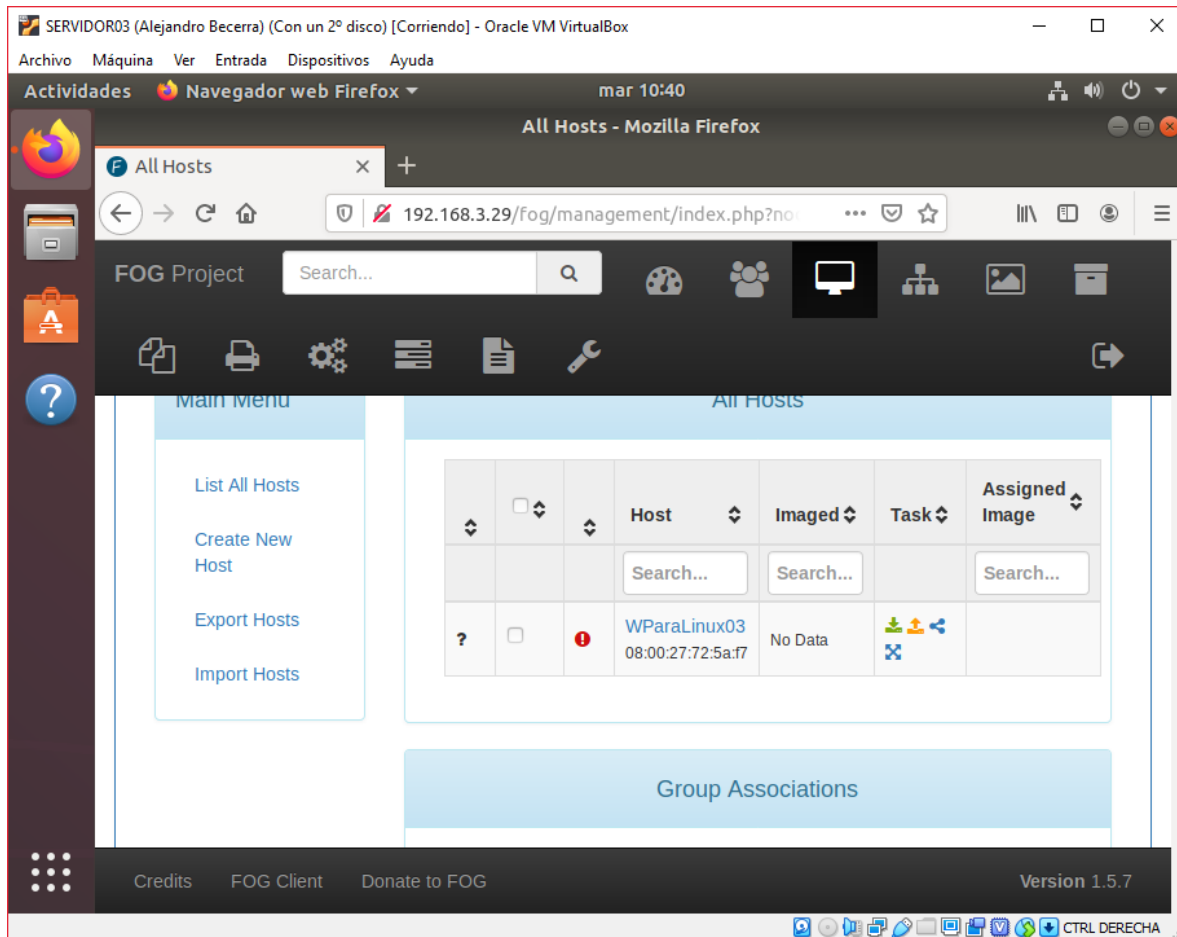
Con la instalación completada, nos loguearemos en y comenzaremos con el registro del equipo del que queremos capturar la imagen.



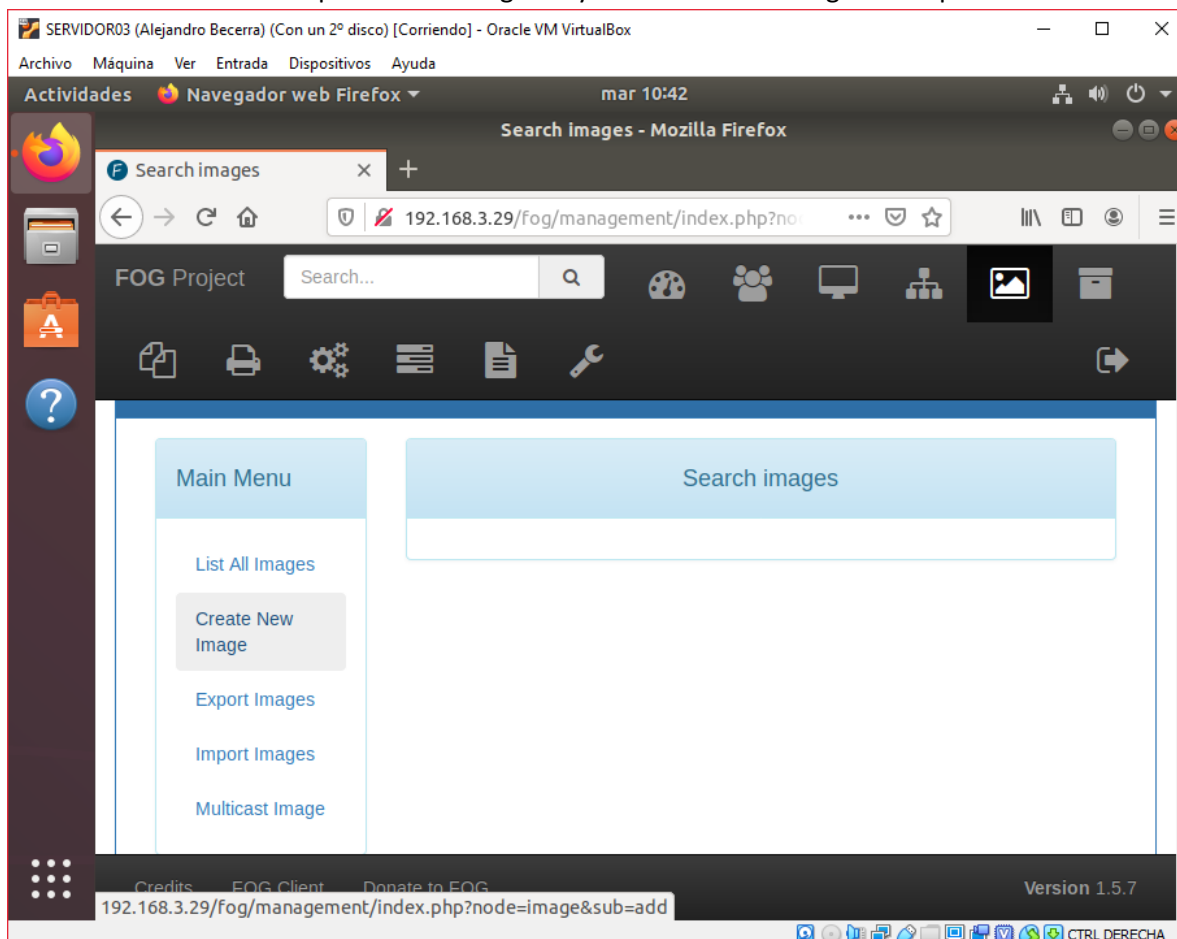
A continuación iremos al ordenador que deseemos capturar y en la BIOS pondremos el sistema de arranque por red de primero en el orden de preferencia. Y estaremos atentos a que salte esta pantalla, ya que si no tocamos nada se quitará y no podremos hacer el registro. Cuando salte esta pantalla del FOG iremos al apartado de “Quick Registration and Inventory” (El que está debajo de la opción marcada en la foto).



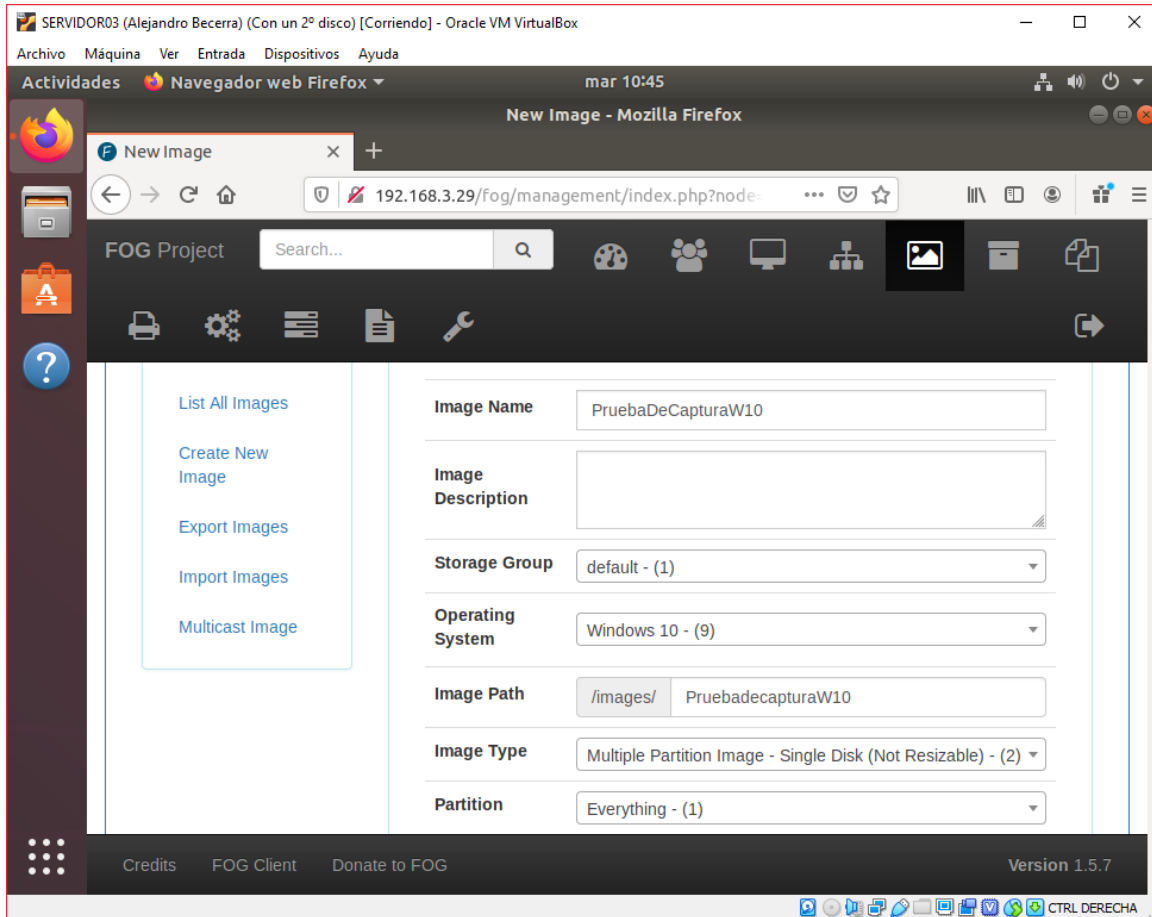
Al usar esta opción se nos registrará automáticamente sin tener que hacer nada. Y después en el servidor de Linux nos tendría que aparecer de esta forma.



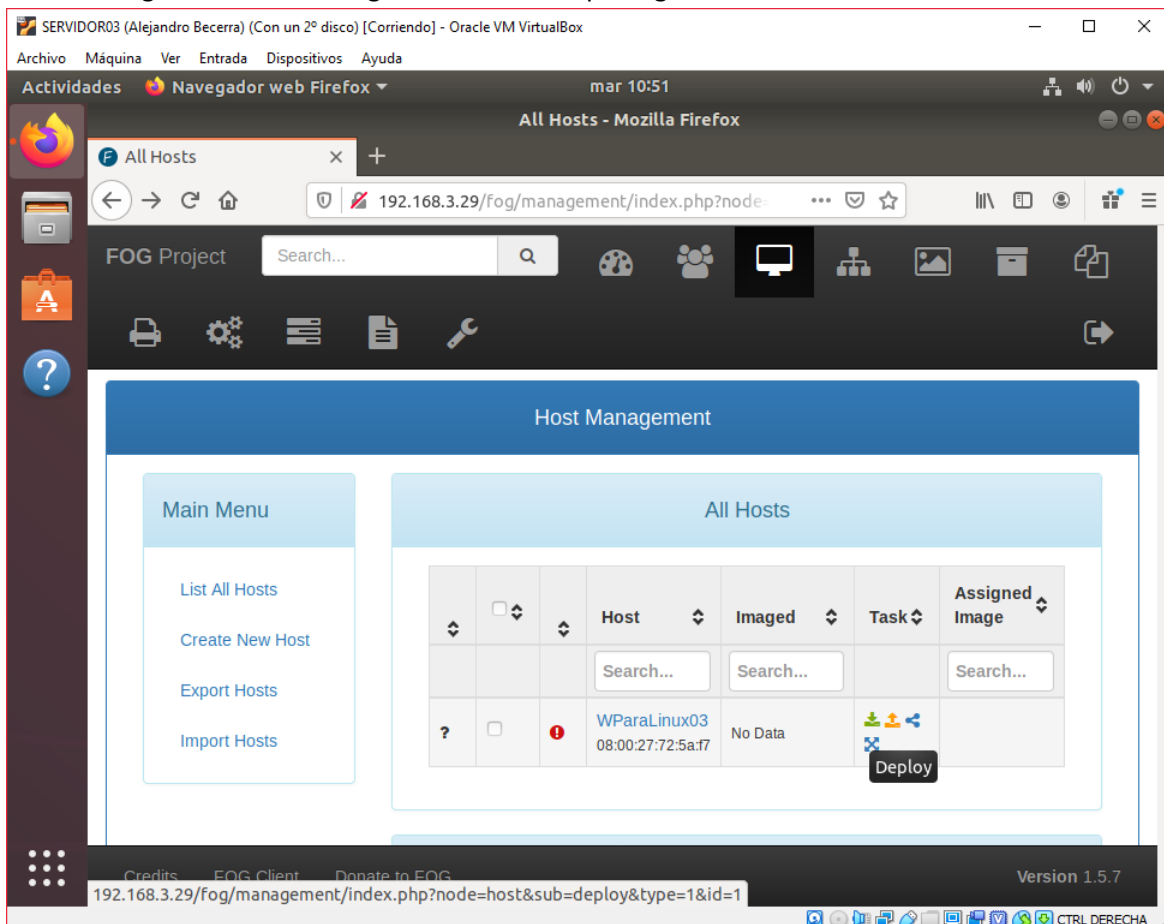
A continuación iremos al apartado de imágenes y crearemos una imagen de captura en “Create New Image”.



Escogeremos el nombre que queramos para la imagen de captura, en sistema operativo escogeremos el que vayamos a clonar que en este caso será de Windows 10 y en el tipo de imagen seleccionaremos “Multiple Partition Image”.



Ahora le asignaremos esta imagen al ordenador que registramos anteriormente dándole al botón amarillo.



Host Hardware Inventory - Mozilla Firefox

192.168.3.29/fog/management/index.php?node=...

FOG Project Search...

List All Hosts

Create New Host

Export Hosts

Import Hosts

Host Name: WParaLinux03

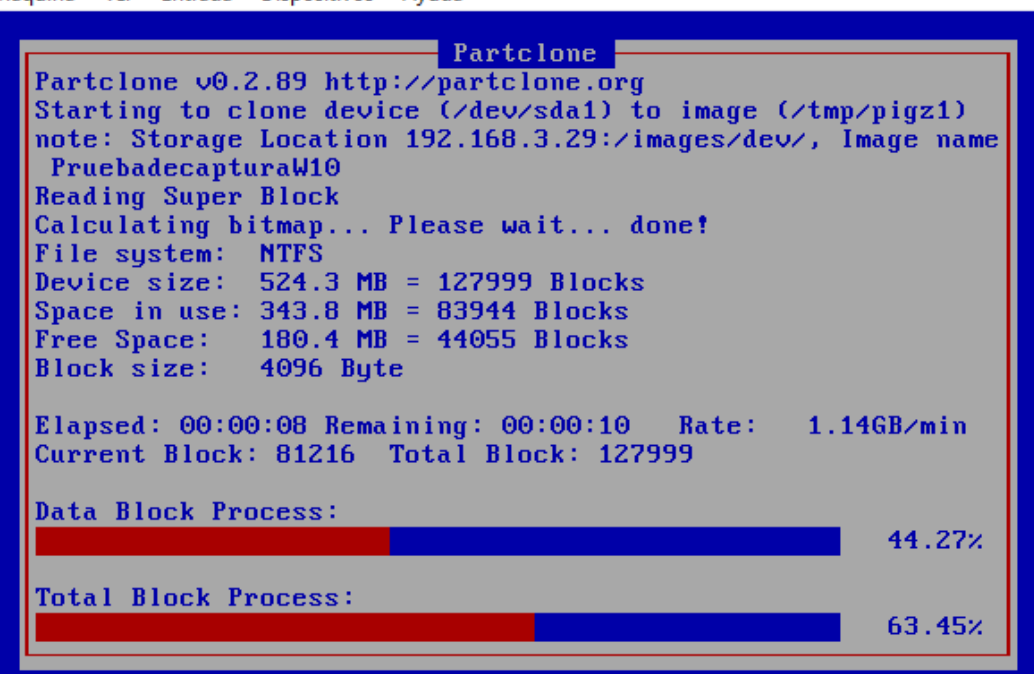
Primary MAC: Load MAC Vendors 08:0 I.M.C. I.M.I.

Host description: Created by FOG Reg on December 2, 2019

Host Product Key: - Please select an option - PruebaDeCapturaW10 - (1)

Host Image: - Please select an option -

Credits FOG Client Donate to FOG Version 1.5.7



InstRemW10 con 7-Zip (Alejandro Becerra) [Corriendo] - Oracle VM VirtualBox

Archivo Máquina Ver Entrada Dispositivos Ayuda

Partclone

Partclone v0.2.89 <http://partclone.org>
Starting to clone device (/dev/sda1) to image (/tmp/pigz1)
note: Storage Location 192.168.3.29:/images/dev/, Image name
PruebadecapturaW10
Reading Super Block
Calculating bitmap... Please wait... done!
File system: NTFS
Device size: 524.3 MB = 127999 Blocks
Space in use: 343.8 MB = 83944 Blocks
Free Space: 180.4 MB = 44055 Blocks
Block size: 4096 Byte

Elapsed: 00:00:08 Remaining: 00:00:10 Rate: 1.14GB/min
Current Block: 81216 Total Block: 127999

Data Block Process:

44.27%

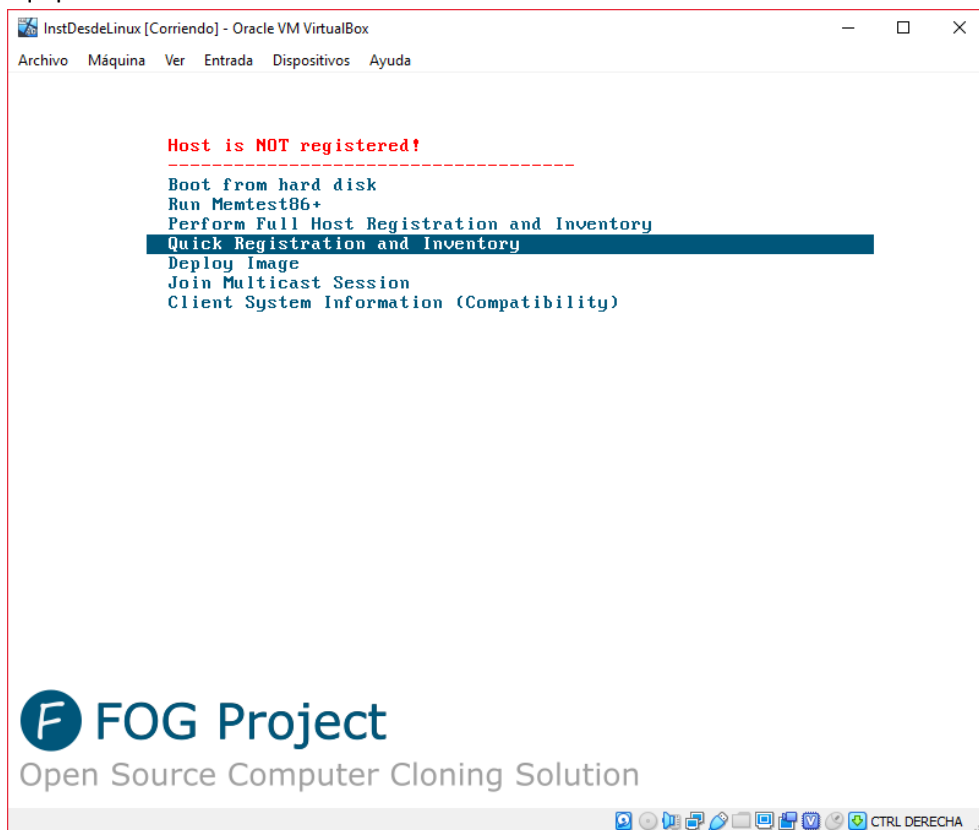
Total Block Process:

63.45%

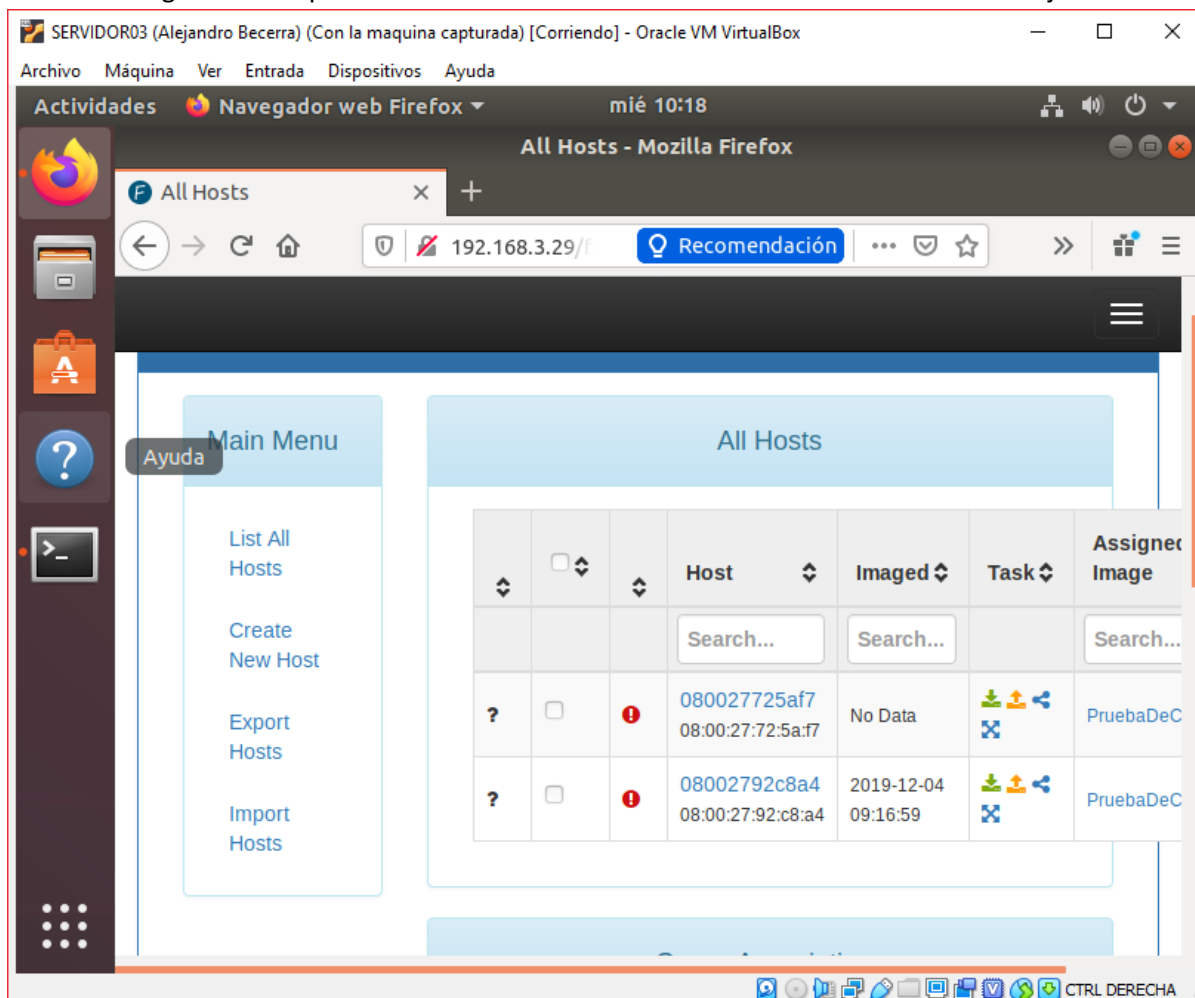
CTRL DERECHA

Instalación de la imagen capturada

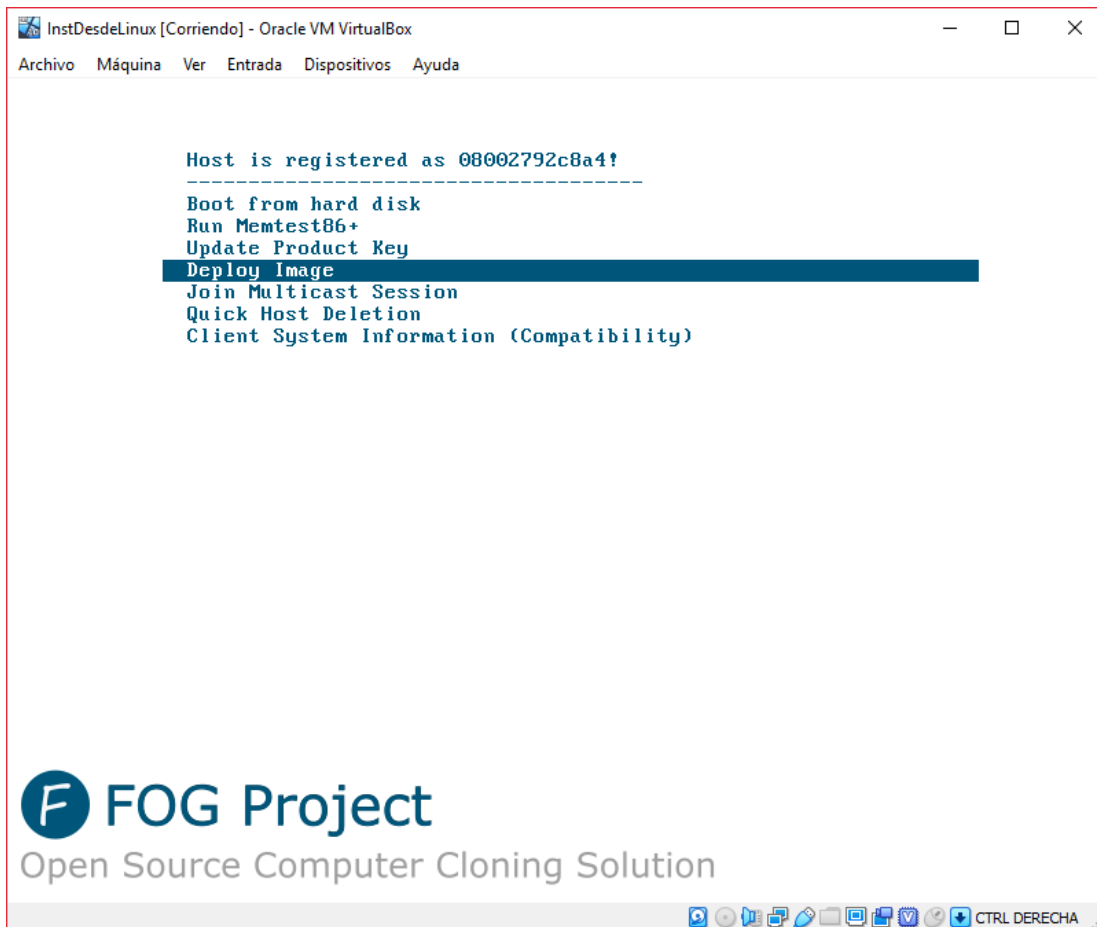
Mientras el servidor captura la imagen, podemos ir registrando de la misma forma que registramos el anterior equipo.



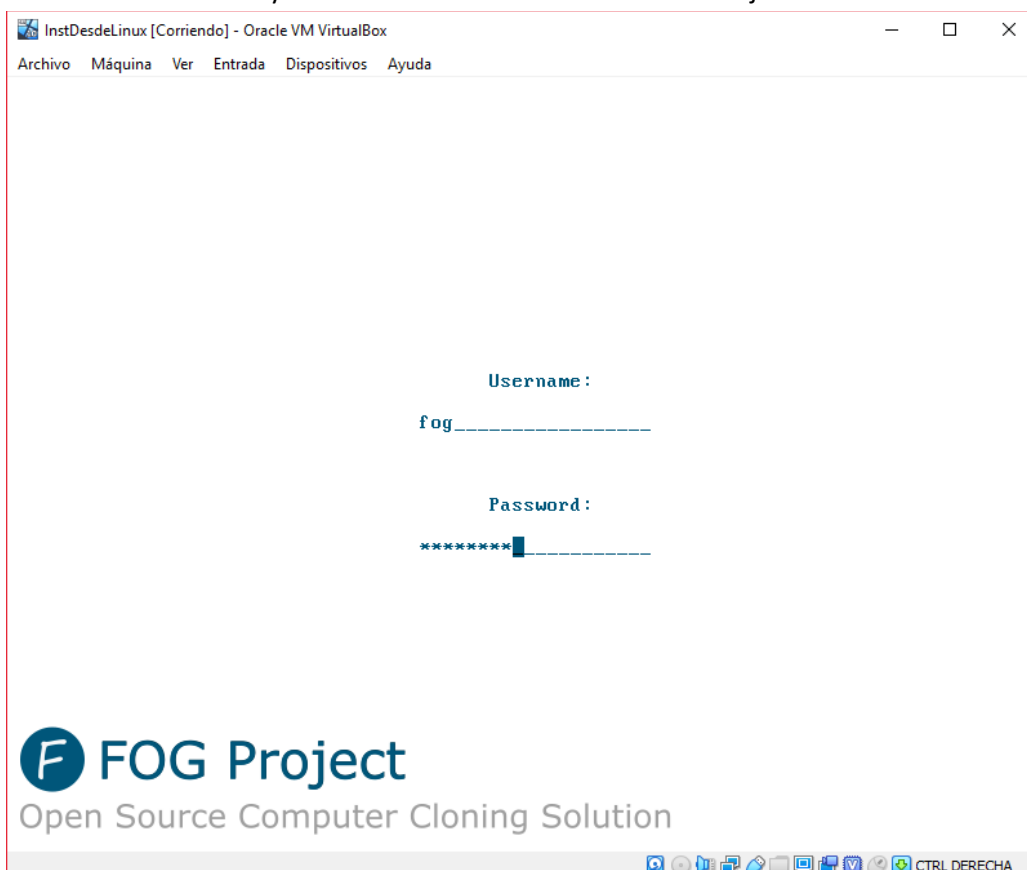
Una vez se registre la máquina vacía se debería ver así la lista de los hosts en el FOG Project.



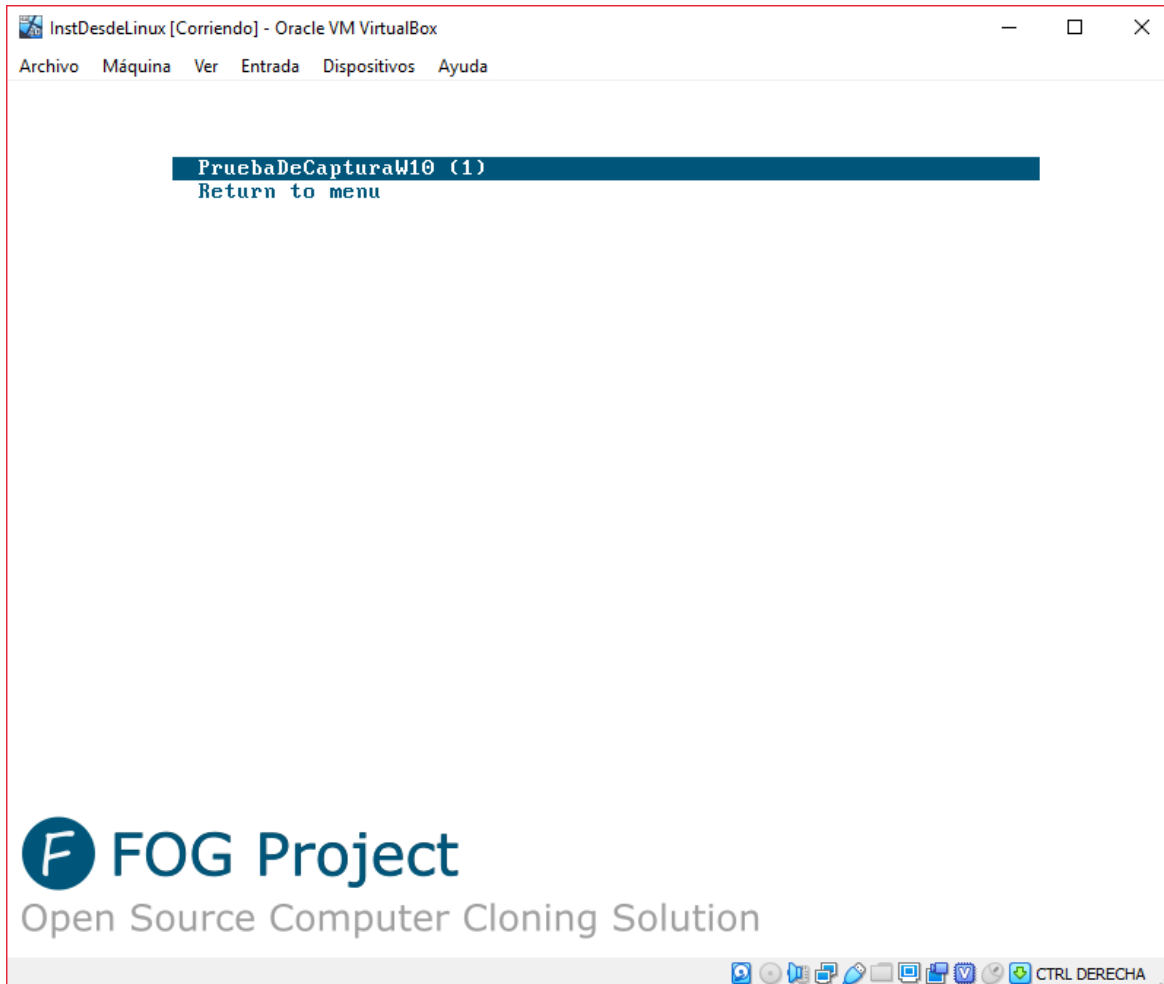
Ahora asignaremos la imagen que creamos antes a la máquina vacía, pero este proceso en vez de hacerlo dándole a la flecha amarilla, tendremos que darle a la flecha verde. A continuación encenderemos el ordenador y cuando salte la pantalla del FOG Project, seleccionaremos la opción de “Deploy Image” para que se descargue la imagen del Windows 10 en el disco duro del nuevo ordenador.



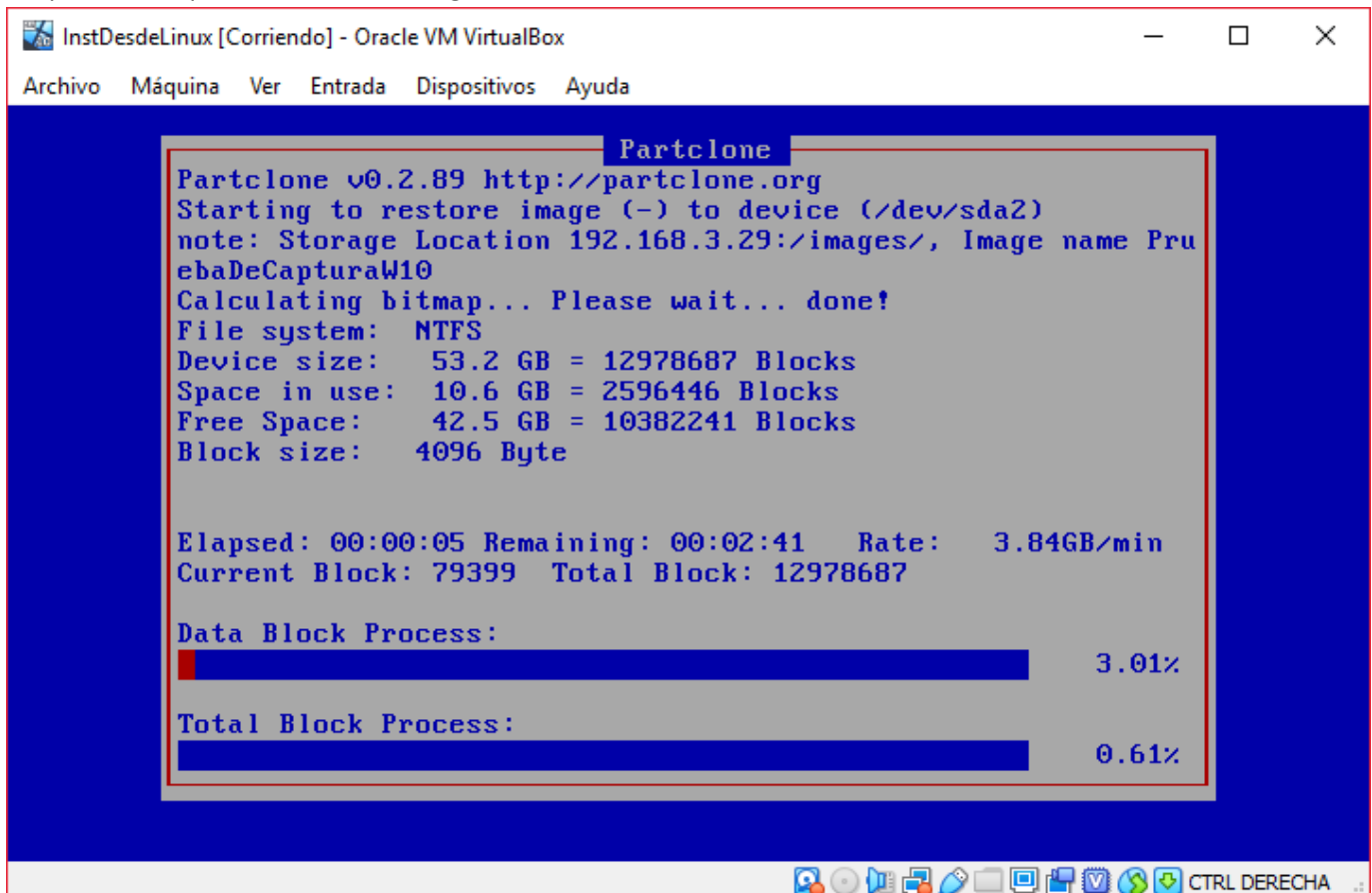
Pondremos el usuario y la contraseña de la cuenta del FOG Project.



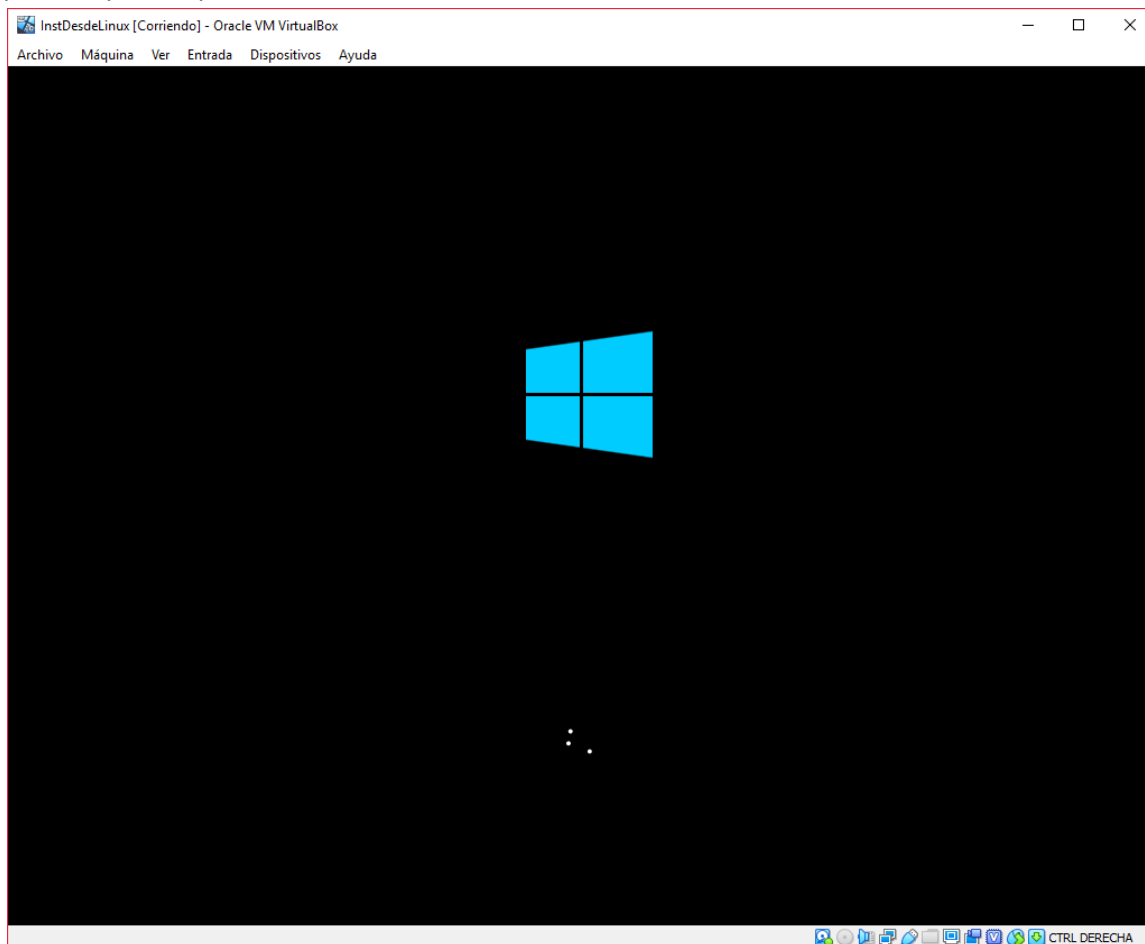
Seleccionamos la imagen capturada.



Y esperamos a que termine de descargarse del servidor.



Una vez hecho esto volveremos a la BIOS del equipo y quitaremos del orden de preferencia de arranque el arranque por red, y como podemos observar se enciende con Windows 10.



Además podemos ver que tiene el 7-Zip instalado, al igual que lo tenía el ordenador capturado.

