

CLONACIÓN CON FOG SERVER

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0. Consideracións previas

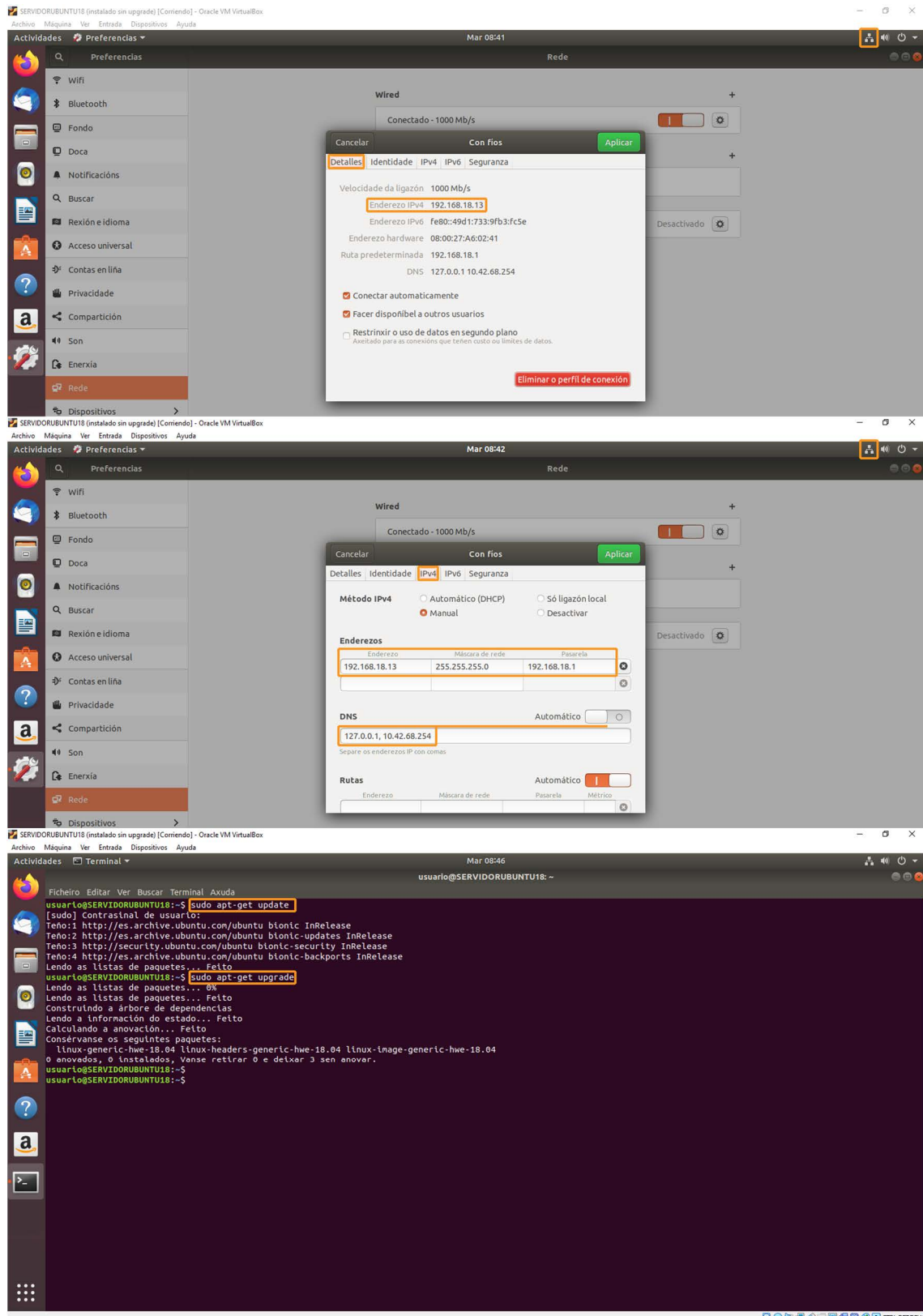
Para levar a cabo a instalación desatendida, empregaremos o sistema operativo Ubuntu 18.04 a modo de servidor, no que instalaremos o software FogProject (versión 1.5.7) que permitirá capturar unha imaxe dun Windows 10 Pro preparado previamente, para poder cargala nunha computadora baleira.

Este proceso, que emprega un programa de terceiros, resulta ser moito máis áxil que o seu homólogo realizado coas ferramentas propias do Windows Server 2019.

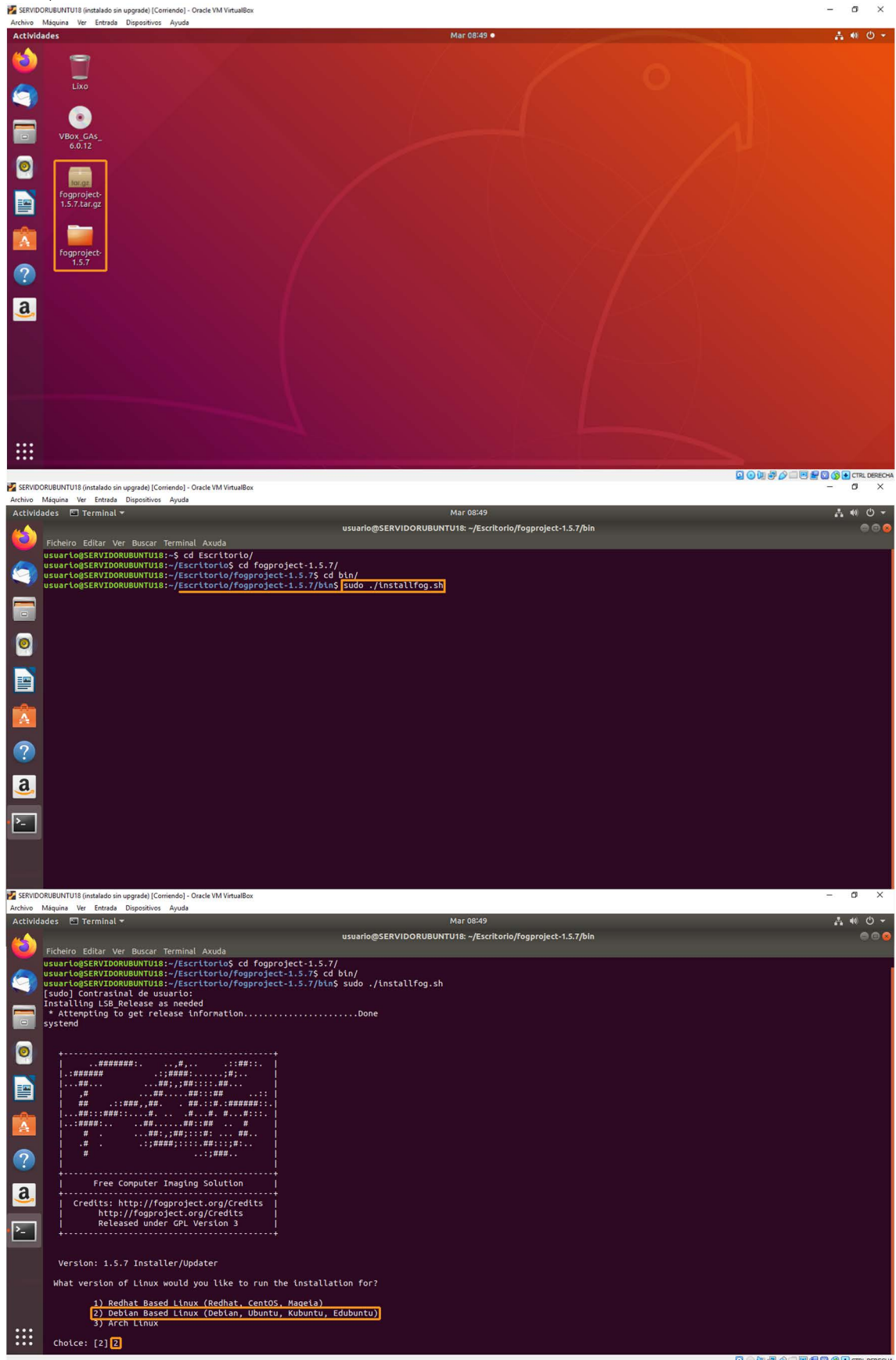
Tanto o servidor Ubuntu como os clientes Windows serán creados como máquinas virtuais empregando o software Oracle VM VirtualBox (versión 6.0.12).

A. Instalación desatendida dun cliente Windows 10

Comezamos por crear unha máquina virtual cun Ubuntu 18.04, de 50 GB de capacidade, na que imos a **configurar unha IP estática**. Posteriormente, temos que **comprobar e instalar todas as actualizacións do sistema operativo**. Para elo, entramos na consola e introducimos os comandos 'sudo apt-get update' e 'sudo apt-get upgrade'.



Agora imos **descargar e instalar o software FogProject**. Tras descomprimir o arquivo, debemos entrar na liña de comandos e cambiar de directorio para poder instalar o executable. A versión compatible é a número dous, a Debian.



O tipo de instalación desexado é o normal. Contestamos de maneira negativa as sucesivas preguntas que nos aparecen salvo a que nos propón empregar o FOG Server como servizo de DHCP. Despois de ler o resumo da instalación, iniciámola.

```

SERVIDORUBUNTU18 (instalado sin upgrade) [Corriendo] - Oracle VM VirtualBox
Archivo Máquina Ver Entrada Dispositivos Ayuda
Actividades Terminal Mar 08:53
usuario@SERVIDORUBUNTU18: ~/Escritorio/fogproject-1.5.7/bin

Ficheiro Editar Ver Buscar Terminal Ayuda
What version of Linux would you like to run the installation for?
1) Redhat Based Linux (Redhat, CentOS, Mageta)
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/apache* 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
What type of installation would you like to do? [N/s (Normal/Storage)] N

* 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
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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 - 192.168.18.13/24

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] N

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 >SERVIDORUBUNTU18<?
The fully qualified hostname is used for the webserver certificate.
If you are not sure, select No. [y/N] N

*****
# FOG now has everything it needs for this setup, but please #
# 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. #
*****
# 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: 192.168.18.13
* Server Subnet Mask: 255.255.255.0
* Server Hostname: SERVIDORUBUNTU18
* 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

```


Tras uns dez minutos de instalación, debemos actualizar a base de datos antes de continuar. Para elo, accedemos á páxina web recomendada. .

```

SERVIDORUBUNTU18 (instalado sin upgrade) [Corriendo] - Oracle VM VirtualBox
Archivo Máquina Ver Entrada Dispositivos Ayuda
Actividades Terminal
usuario@SERVIDORUBUNTU18: ~/Escritorio/fogproject-1.5.7/bin

* Image Storage Location: /Images
* Using FOG DHCP: Yes
* DHCP router Address:

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

* Installation Started

* Testing Internet connection.....Done
* Adding repository if needed.....OK
* Preparing Package Manager.....OK
* Packages to be installed:

  apache2 bc build-essential cpp curl g++ gawk gcc genisoimage gzip htmldoc isc-dhcp-server isolinux lftp libapache2-mod-php7.2 libc6 libcurl4 liblzma-dev m4 mariadb-client mariadb-server net-tools nfs-kernel-server openssh-server php7.2 php7.2-bcmath php7.2-cli php7.2-curl php7.2-fpm php7.2-gd php7.2-json php7.2-ldap php7.2-mbstring php7.2-mysql php7.2-mysqlnd php-gettext sysv-rc-conf tar tftpd-hpa tftpd-hpa unzip vsftpd wget xinetd zlib1g

* Installing package: apache2.....OK
* Skipping package: bc.....(Already Installed)
* Installing package: build-essential.....OK
* Skipping package: cpp.....(Already Installed)
* Installing package: curl.....OK
* Skipping package: g++.....(Already Installed)
* Installing package: gawk.....OK
* Skipping package: gcc.....(Already Installed)
* Installing package: genisoimage.....OK
* Skipping package: gzip.....(Already Installed)
* Installing package: htmldoc.....OK
* Installing package: isc-dhcp-server.....OK
* Installing package: isolinux.....OK
* Installing package: lftp.....OK
* Installing package: libapache2-mod-php7.2.....OK
* Skipping package: libc6.....(Already Installed)
* Skipping package: libcurl4.....(Already Installed)

SERVIDORUBUNTU18 (instalado sin upgrade) [Corriendo] - Oracle VM VirtualBox
Archivo Máquina Ver Entrada Dispositivos Ayuda
Actividades Terminal
usuario@SERVIDORUBUNTU18: ~/Escritorio/fogproject-1.5.7/bin

* Checking package: m4.....OK
* Checking package: mariadb-client.....OK
* Checking package: mariadb-server.....OK
* Checking package: net-tools.....OK
* Checking package: nfs-kernel-server.....OK
* Checking package: openssh-server.....OK
* Checking package: php7.2.....OK
* Checking package: php7.2-bcmath.....OK
* Checking package: php7.2-cli.....OK
* Checking package: php7.2-curl.....OK
* 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: tftpd-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 FOGSnapshotReplicator.service Service.....OK
* Stopping FOGScheduler.service Service.....OK
* Stopping FOGPingHosts.service Service.....OK
* Stopping FOGSnapshotHash.service Service.....OK
* Stopping FOGImageSize.service Service.....OK
* Is the MySQL password blank? (Y/n) y
* 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
* Resetting SSL Permissions.....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

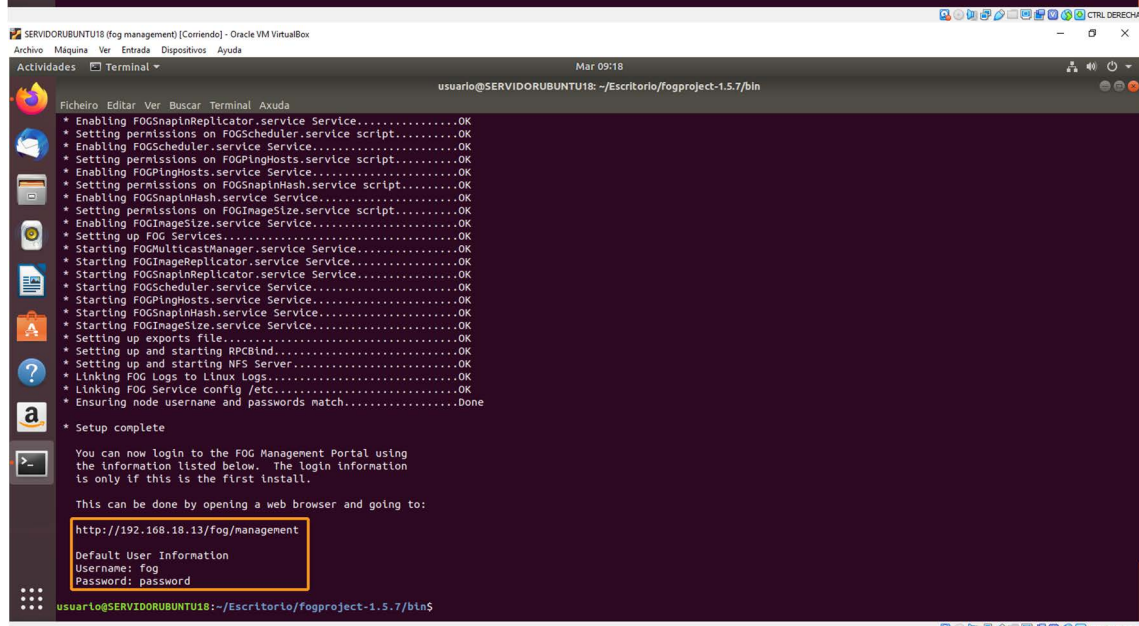
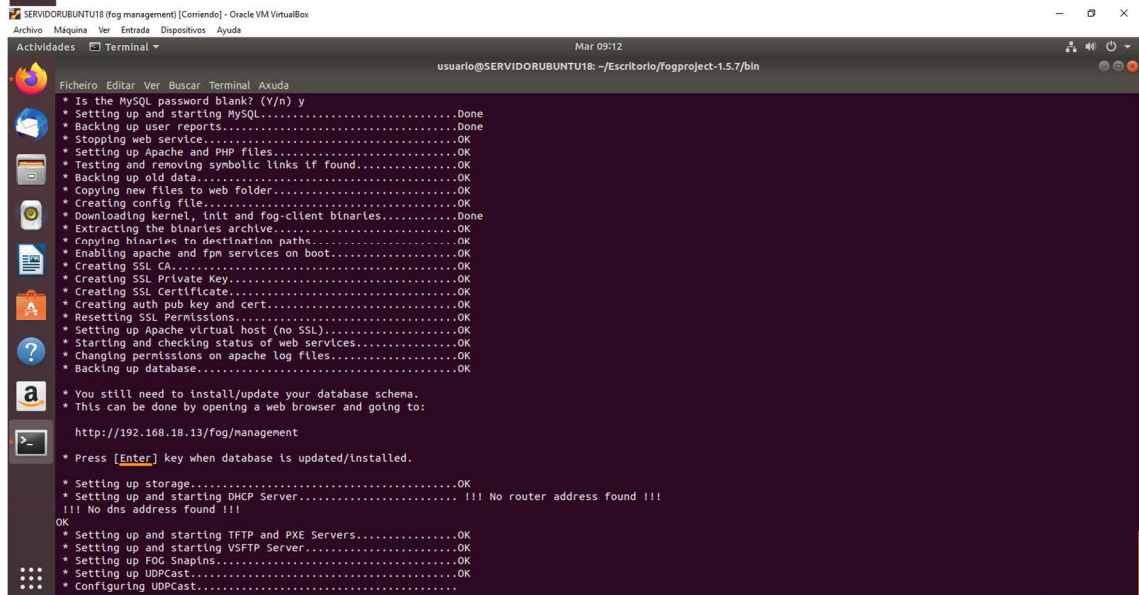
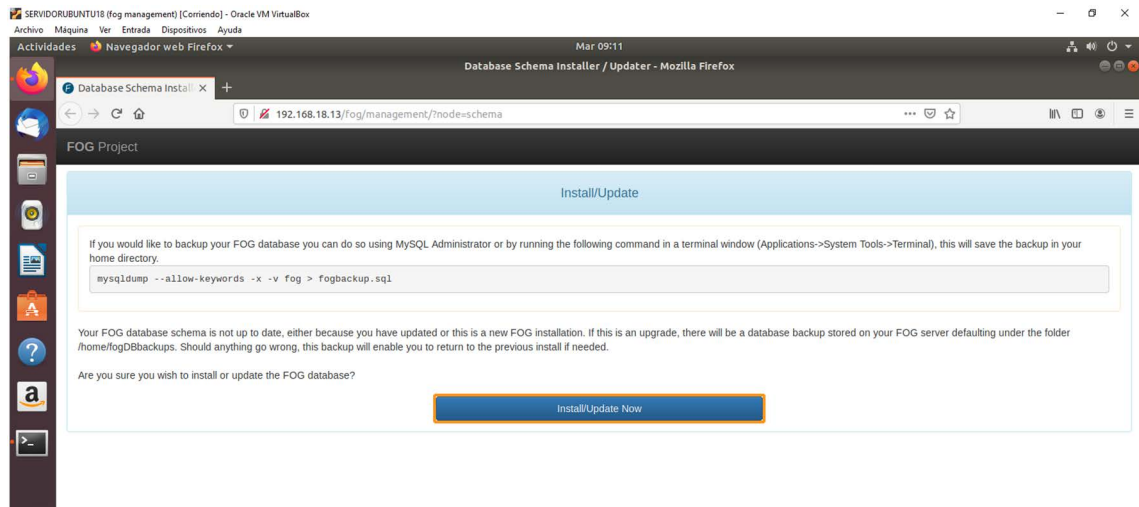
* You still need to install/update your database schema.
* This can be done by opening a web browser and going to:

  http://192.168.18.13/fog/management

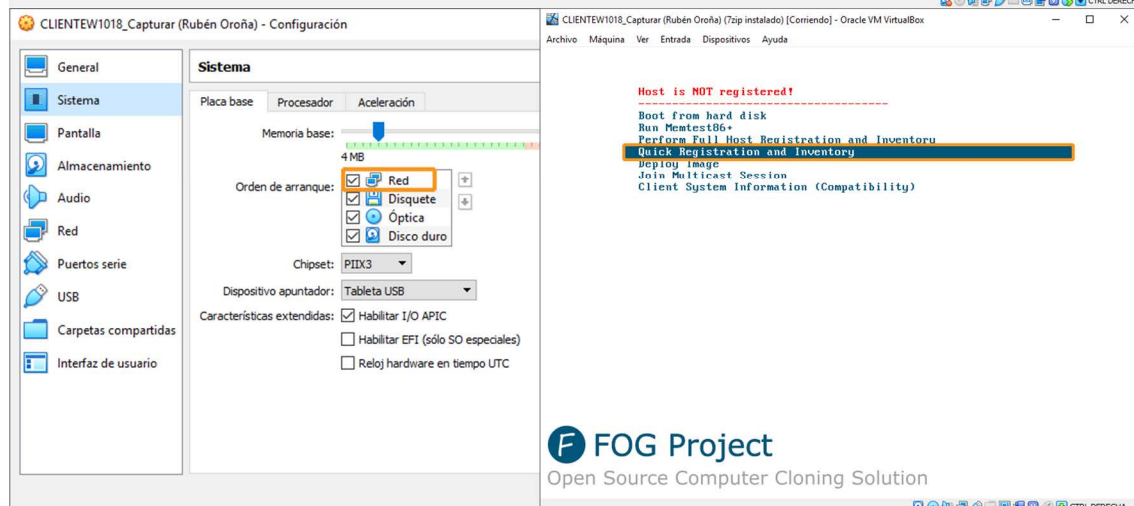
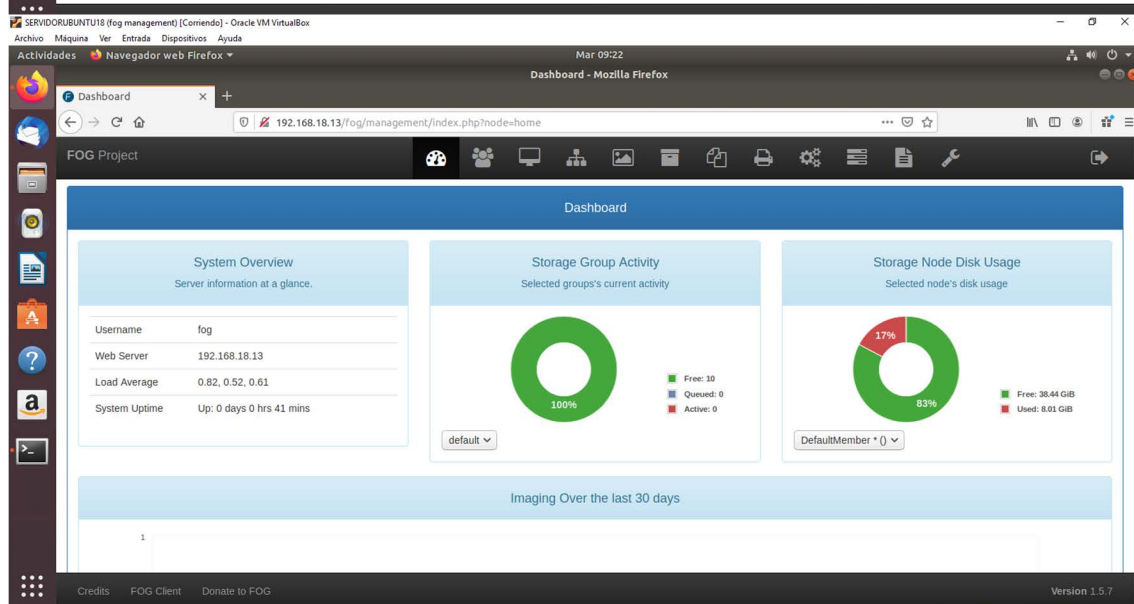
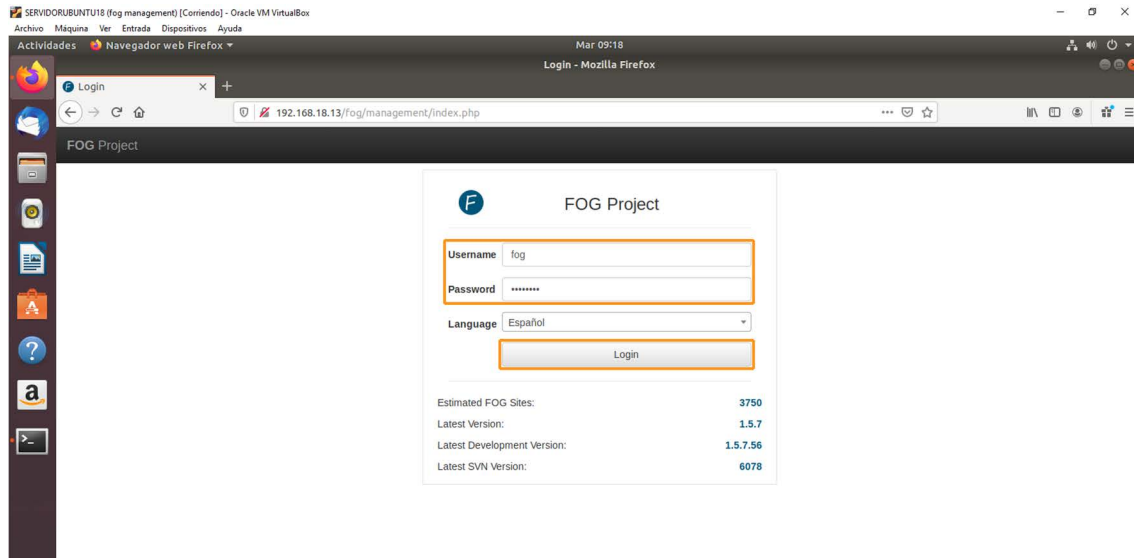
* Press [Enter] key when database is updated/installed.

```

Instalamos a actualización da base de datos do FOG Server, e volvemos á liña de comandos. Tras rematar, o sistema ofrécenos un usuario e un contrasinal cos que **facen login nos servizos de FOG Project**.



Despois de facer login e comprobar que a instalación foi correcta, preparamos os pasos necesarios para capturar unha imaxe de referencia. Para elo, escollemos o Windows 10 empregado na práctica anterior (sen Sysprep), e establecemos a configuración para arrancar a computadora por rede. O primeiro paso necesario é **rexistrar o equipo**.



Como podemos observar, vemos que se rexistrou a nosa máquina pola dirección MAC. Agora, imos a **crear unha imaxe nova**, dende a pestana de igual nome. Establecemos o Windows 10 como sistema operativo. En tipo de imaxe, optamos por Multiple Partition Image. Tras crear esta imaxe, configurámola como a principal na máquina recentemente rexistrada.

The first screenshot shows the 'All Hosts' page in the FOG Project web interface. The 'Host' column contains a table with one entry: '080027871b4' with a MAC address of '08:00:27:87:11:b4'. The 'Imaged' column shows 'No Data'. The 'Task' column shows a status icon. The 'Assigned Image' column is empty. The 'Main Menu' on the left includes 'List All Hosts', 'Create New Host', 'Export Hosts', and 'Import Hosts'. The 'All Hosts' table has search filters for 'Host', 'Imaged', and 'Assigned Image'. The 'Group Associations' section is at the bottom.

The second screenshot shows the 'New Image' page. The 'Image Name' is 'Windows_10_72ip'. The 'Image Description' is 'Imaxe que empregamos na anterior, sen Sysprep'. The 'Storage Group' is 'default - (1)'. The 'Operating System' is 'Windows 10 - (9)'. The 'Image Path' is '/images/ Windows_10_72ip'. The 'Image Type' is 'Multiple Partition Image - Single Disk (Not Resizable) - (2)'. The 'Partition' is 'Everything - (1)'. The 'Image Enabled' checkbox is checked. The 'Replicate?' checkbox is checked. The 'Compression' slider is set to 6. The 'Image Manager' is 'Partimage'. The 'Main Menu' on the left includes 'List All Images', 'Create New Image', 'Export Images', 'Import Images', and 'Multicast Image'.

The third screenshot shows the 'Host Hardware Inventory' page. The 'Host Name' is 'CLIENTE1018_FOG'. The 'Primary MAC' is '08:00:27:87:11:b4'. The 'Host description' is 'Created by FOG Reg on December 3, 2019, 8:33 am'. The 'Host Product Key' is empty. The 'Host Image' is 'Windows_10_72ip - (1)'. The 'Host Kernel' is empty. The 'Main Menu' on the left includes 'List All Hosts', 'Create New Host', 'Export Hosts', and 'Import Hosts'. The 'Host general' section has tabs for 'Info', 'General', 'Basic Tasks', 'Active Directory', 'Printers', 'Snapins', 'Service Settings', 'Power Management', 'Inventory', 'Virus History', 'Login History', 'Image History', and 'Snapin History'. The 'Membership' tab is selected.

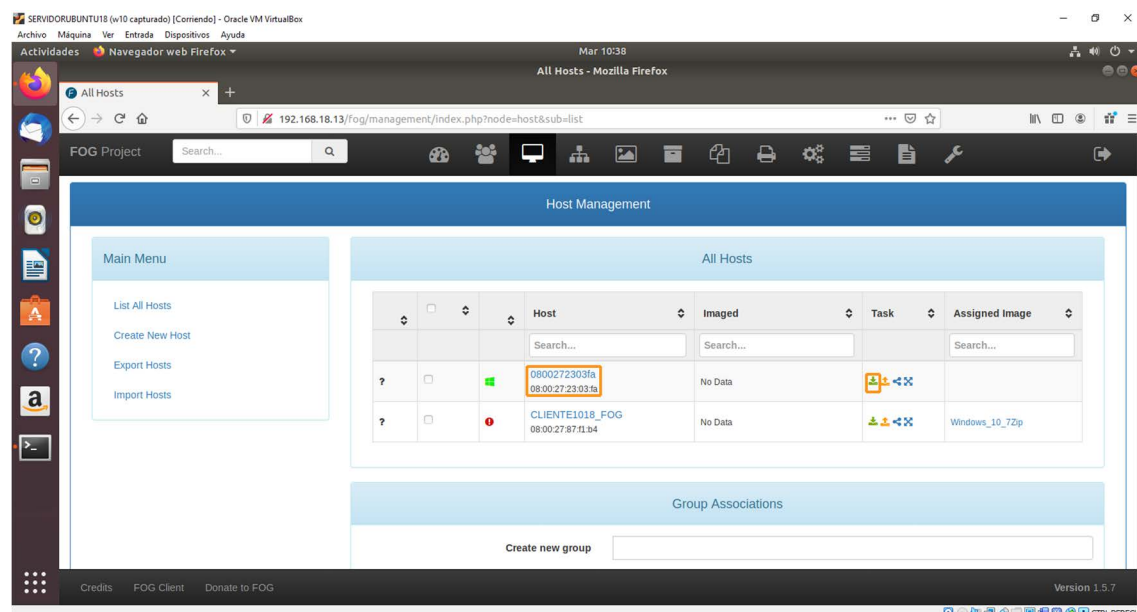
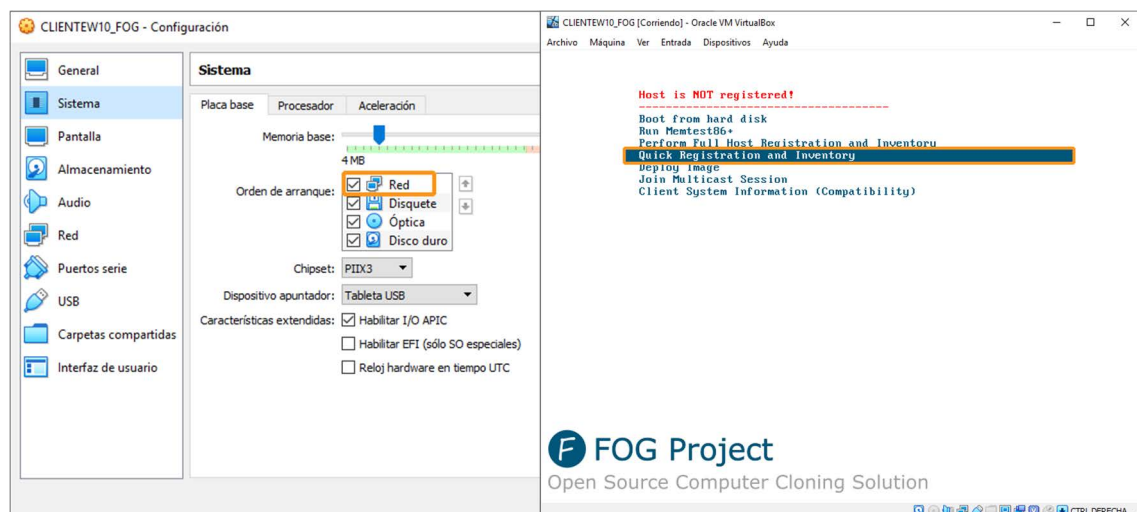
Neste momento temos que programar a tarefa para **facen a captura da imaxe**. Para elo, prememos no botón laranxa e aceptamos a configuración da task.

The first screenshot shows the 'All Hosts' page in the FOG Project web interface. The browser address bar shows `192.168.18.13/fog/management/index.php?node=host&sub=list`. The page displays a table of hosts with columns for Host, Imaged, Task, and Assigned Image. A host named 'CLIENTE1018_FOG' is listed with the assigned image 'Windows_10_72ip'. The 'Task' column for this host contains an orange button with a plus icon.

The second screenshot shows the 'Confirm tasking' page for the host 'CLIENTE1018_FOG'. The browser address bar shows `192.168.18.13/fog/management/index.php?node=host&sub=deploy&type=2&id=1`. The page displays 'Advanced Settings' for the task, including options for 'Schedule with shutdown', 'Wake on lan?', 'Schedule as debug task', 'Schedule instant', 'Schedule delayed', and 'Schedule cron-style'. The 'Schedule instant' option is selected. At the bottom, there are two buttons: 'Create Capture Tasking' and 'Task' (highlighted with an orange border).

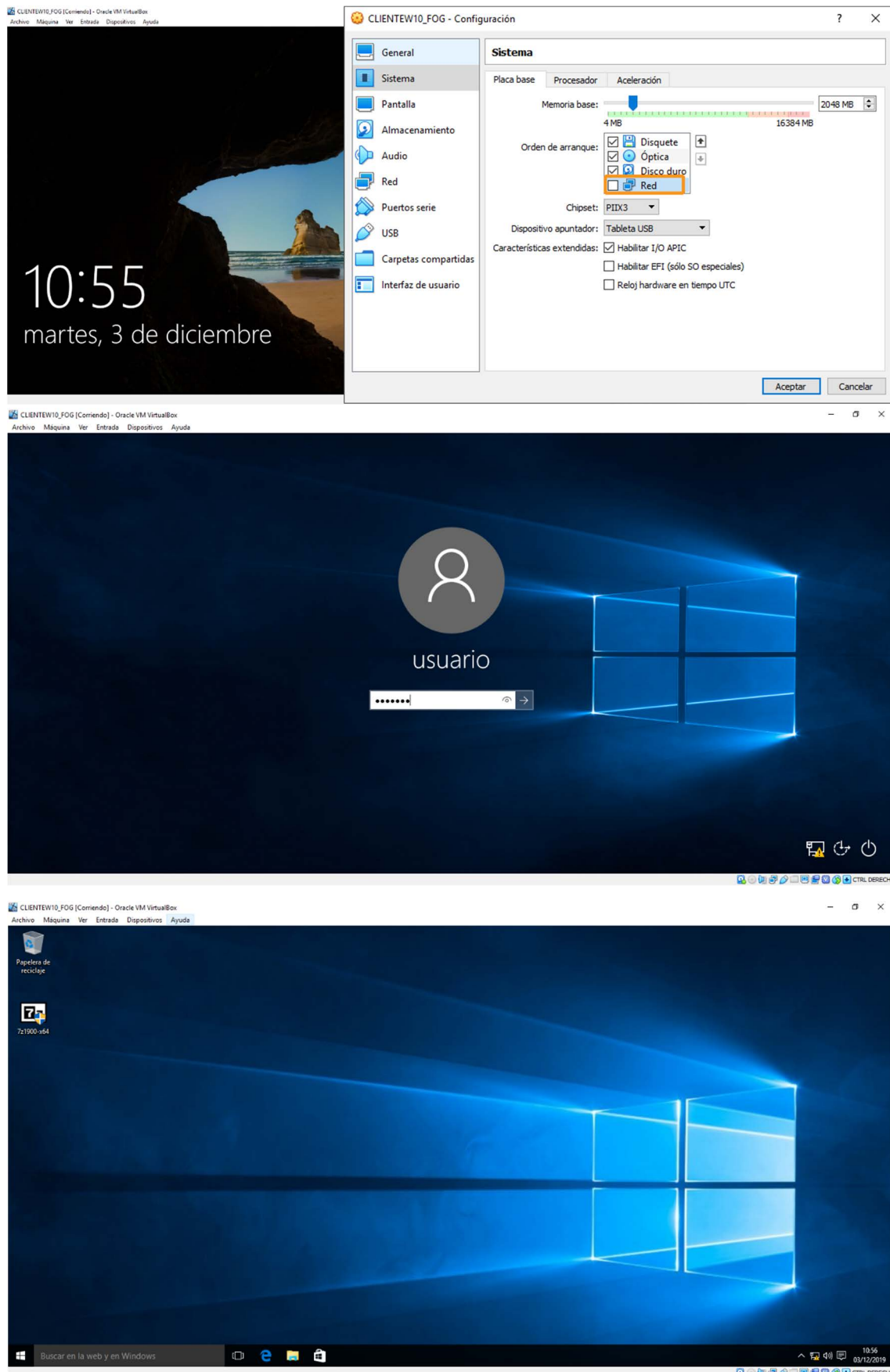
The third screenshot shows the 'Host Management Edit: CLIENTE1018_FOG' page. The browser address bar shows `192.168.18.13/fog/management/index.php?node=host&sub=deploy&id=1&type=2`. The page displays a green banner with the text 'Tasked Successfully' and 'Task Capture Successfully created!'. Below this, another green banner shows 'Created Tasks For' followed by 'CLIENTE1018_FOG - Windows_10_72ip'.

The image shows two terminal windows side-by-side. The left window is titled 'CLIENTEHW1018_Capturar (Rubén Orozco) (7zip instalado)' and shows the initial setup of Partclone, including network configuration and device detection. The right window is titled 'CLIENTEHW1018_Capturar (Rubén Orozco) (7zip instalado) [Corriendo] - Oracle VM VirtualBox' and shows the cloning process progress, including device size, space in use, and block size.



The image shows a computer screen with two Firefox browser windows and a terminal window. The top window is titled "Host Hardware Inventory - Mozilla Firefox" and displays the "Host general" form. The form includes fields for Host Name (CLIENTE1018), Primary MAC (08:00:27:23:03:fa), Host description (Created by FOG Reg on December 3, 2019, 9:35 am), Host Product Key, Host Image (Windows_10_72ip - (1)), Host Kernel, Host Kernel Arguments, Host Init, and Host Primary Disk. The bottom window is titled "Host Management - Mozilla Firefox" and displays the "Confirm tasking" page. It shows the "Advanced Settings" section with options for scheduling (Wake on lan?, Schedule with shutdown, Schedule as debug task, Schedule instant, Schedule delayed, Schedule cron-style) and buttons for "Create Capture Tasking" and "Task". A terminal window at the bottom shows the PXE boot process for "CLIENTEW10_FOG" with various network and system initialization messages.

Tras unos escasos cinco minutos, o deploy da imaxe remata. Para finalizar, quitamos o arranque por rede da máquina para **comprobar a instalación do cliente Windows 10**.



A razón pola cal non temos conexión a Internet é porque rexeitamos a opción de configurar unha porta de enlace durante a instalación. O servizo DHCP do FOG Server outórganos unha dirección IP dentro do seu rango por defecto, pero non temos conexión co router.

```
CLIENTEWIN10_FOG[Comando] - Oracle VM VirtualBox
Archivo Máquina Ver Entrada Dispositivos Ayuda
Símbolo del sistema
Microsoft Windows [Versión 10.0.10240]
(c) 2015 Microsoft Corporation. Todos los derechos reservados.
C:\Users\usuario>ipconfig /all

Configuración IP de Windows

Nombre de host. . . . . : DESKTOP-GNUDBOE
Sufixo DNS principal. . . . . :
Tipo de nodo. . . . . : híbrido
Enrutamiento IP habilitado. . . : no
Proxy WINS habilitado. . . . . : no

Adaptador de Ethernet Ethernet:

Sufixo DNS específico para la conexión. . :
Descripción. . . . . : Intel(R) PRO/1000 MT Desktop Adapter
Dirección física. . . . . : 08-00-27-23-03-FA
DHCP habilitado. . . . . : si
Configuración automática habilitada. . . : si
Vínculo dirección IPv6 local. . . . . : fe80::d9a6:0642:d522:8781%5(Preferido)
Dirección IPv4. . . . . : 192.168.18.10(Preferido)
Máscara de subred. . . . . : 255.255.255.0
Concesión obtenida. . . . . : martes, 3 de diciembre de 2019 11:47:30
La concesión expira. . . . . : martes, 3 de diciembre de 2019 16:56:24
Puerta de enlace predeterminada. . . . . : 192.168.18.1
Servidor DNS. . . . . : 192.168.18.1
IAID DHCPv6. . . . . : 5B855975
DUID de cliente DHCPv6. . . . . : 00-01-00-01-25-77-E9-56-08-00-27-23-03-FA
Servidores DNS. . . . . : fe80:0:0:ffff::1%1
                          fec0:0:0:ffff::3%1
NetBIOS sobre TCP/IP. . . . . : habilitado

Adaptador de túnel isatap.{60BE1ECC-E9A8-4604-B1ED-CF2DDA29E7C5}:

Estado de los medios. . . . . : medios desconectados
Sufixo DNS específico para la conexión. . :
Descripción. . . . . : Microsoft ISATAP Adapter #2
Dirección física. . . . . : 00-00-00-00-00-00-E0
DHCP habilitado. . . . . : no
Configuración automática habilitada. . . : si
C:\Users\usuario>
```

```
SERVIDORUBUNTU18 (instalado sin upgrade) [Comando] - Oracle VM VirtualBox
Archivo Máquina Ver Entrada Dispositivos Ayuda
Actividades Terminal
usuario@SERVIDORUBUNTU18: ~/Escritorio/fogproject-1.5.7/bin

*** 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
What type of installation would you like to do? [N/s (Normal/Storage)] n
We found the following interfaces on your system:
  * enp0s3 - 192.168.18.13/24
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] n
Would you like to use the FOG server for DHCP service? [y/N] y
```