

# SERVIZO NIS EN LINUX

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## 0. Consideracións previas

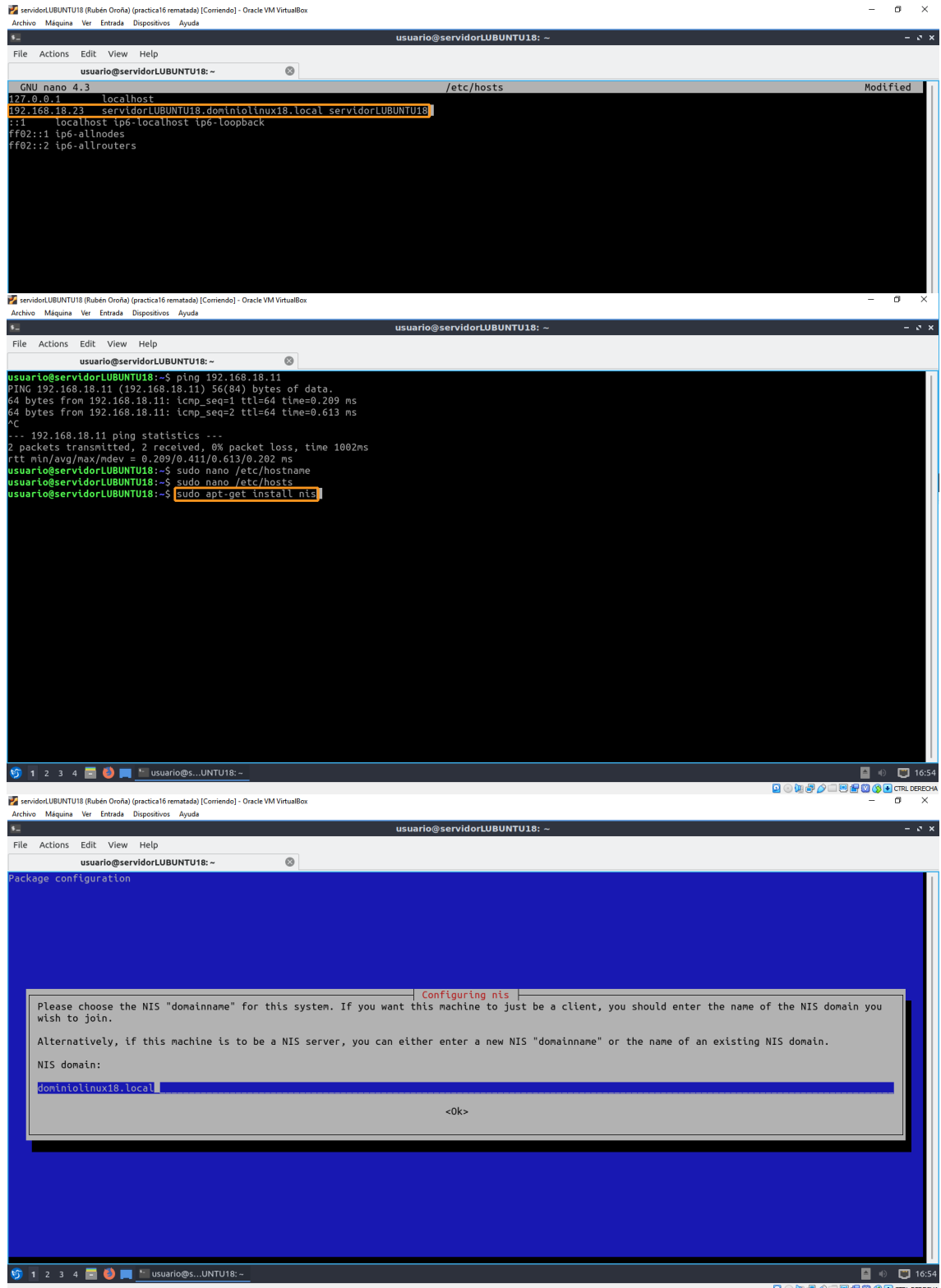
Para levar a cabo a instalación e configuración do servizo NIS, empregaremos un servidor Lubuntu 19.10, unha distribución lixeira de Linux. Ademais, tamén precisaremos doutro Lubuntu, que será o equipo cliente co que facer as comprobacións. O obxectivo da práctica trátase de experimentar co funcionamento do NIS, que permite o intercambio de datos, tales como grupos e usuarios, co fin de permitir o acceso destes dende un cliente pertencente ó mesmo dominio. Así pois, crearemos un par de usuarios, para probar o seu login tanto dende o modo texto como a través da interface gráfica.

Tanto o servidor Lubuntu como o cliente son os mesmos que empregamos na práctica anterior, e foron creados como máquinas virtuais empregando o software Oracle VM VirtualBox (versión 6.0.16). A modo de resumo, amosamos unha táboa que recolle a nomenclatura e configuración IP dos equipos.

	<u>servidor Linux</u>	<u>cliente Linux</u>
Sistema operativo:	Lubuntu 19.10	Lubuntu 19.10
Nome do equipo:	servidorLUBUNTU18	clienteLUBUNTU18
Nome do dominio:	dominiolinux18.local	
Dirección IP:	192.168.18.23	192.168.18.11
Máscara de subrede:	255.255.255.0	255.255.255.0
Porta de enlace:	192.168.18.1	192.168.18.1
DNS preferido:	1.1.1.1	1.1.1.1
DNS alternativo:	1.0.0.1	1.0.0.1

## A. Instalación do servizo NIS no servidor

Antes de comezar, comprobamos que a configuración de rede é correcta. Tras isto, imos **editar o arquivo /etc/hosts**, co fin de mapear a dirección IP do servidor co dominio que imos a empregar, neste caso [*dominiolinux18.local*]. Agora xa podemos **instalar o paquete NIS**, co comando [*# sudo apt-get install nis*]. Unha ventá emerxente pedirá que confirmemos o nome do dominio, que será o mesmo que configuramos con anterioridade.



```
servidorLUBUNTU18 (Rubén Oroña) [practica16 rematada] [Corriendo] - Oracle VM VirtualBox
Archivo  Máquina  Ver  Entrada  Dispositivos  Ayuda

usuario@servidorLUBUNTU18: ~
GNU nano 4.3 /etc/hosts Modified
127.0.0.1 localhost
192.168.18.23 servidorLUBUNTU18.dominiolinux18.local servidorLUBUNTU18
::1 localhost ip6-localhost ip6-loopback
ff02::1 ip6-allnodes
ff02::2 ip6-allrouters

usuario@servidorLUBUNTU18:~$ ping 192.168.18.11
PING 192.168.18.11 (192.168.18.11) 56(84) bytes of data.
64 bytes from 192.168.18.11: icmp_seq=1 ttl=64 time=0.209 ms
64 bytes from 192.168.18.11: icmp_seq=2 ttl=64 time=0.613 ms
^C
-- 192.168.18.11 ping statistics --
2 packets transmitted, 2 received, 0% packet loss, time 1002ms
rtt min/avg/max/mdev = 0.209/0.411/0.613/0.202 ms
usuario@servidorLUBUNTU18:~$ sudo nano /etc/hostname
usuario@servidorLUBUNTU18:~$ sudo nano /etc/hosts
usuario@servidorLUBUNTU18:~$ sudo apt-get install nis

Package configuration

Configuring nis
Please choose the NIS "domainname" for this system. If you want this machine to just be a client, you should enter the name of the NIS domain you wish to join.
Alternatively, if this machine is to be a NIS server, you can either enter a new NIS "domainname" or the name of an existing NIS domain.
NIS domain:
dominiolinux18.local
<Ok>
```

Unha vez rematou a instalación, debemos **especificar que estamos nun servidor NIS**, editando o arquivo [/etc/default/nis]. Tras isto, imos **reiniciar o servizo NIS**, introducindo o seguinte comando: [# *systemctl restart nis*]. Posteriormente, temos que **inicializar a base de datos do NIS**, polo que executamos [# *sudo /usr/lib/yp/ypinit -m*].

```
servidorLUBUNTU18 (Rubén Oroña) (práctica16 rematada) [Comando] - Oracle VM VirtualBox
usuario@servidorLUBUNTU18: ~
usuario@servidorLUBUNTU18:~$ ping 192.168.18.11
PING 192.168.18.11 (192.168.18.11) 56(84) bytes of data:
64 bytes from 192.168.18.11: icmp_seq=1 ttl=64 time=0.209 ms
64 bytes from 192.168.18.11: icmp_seq=2 ttl=64 time=0.613 ms
^C
--- 192.168.18.11 ping statistics ---
2 packets transmitted, 2 received, 0% packet loss, time 1002ms
rtt min/avg/max/mdev = 0.209/0.411/0.613/0.202 ms
usuario@servidorLUBUNTU18:~$ sudo nano /etc/hostname
usuario@servidorLUBUNTU18:~$ sudo nano /etc/hosts
usuario@servidorLUBUNTU18:~$ sudo apt-get install nis
Reading package lists... Done
Building dependency tree
Reading state information... Done
Suggested packages:
  nscd
The following NEW packages will be installed:
  nis
0 upgraded, 1 newly installed, 0 to remove and 0 not upgraded.
Need to get 155 kB of archives.
After this operation, 687 kB of additional disk space will be used.
Get:1 http://archive.ubuntu.com/ubuntu eoan/universe amd64 nis amd64 3.17.1-3build1 [155 kB]
Fetched 155 kB in 0s (367 kB/s)
Preconfiguring packages ...
Selecting previously unselected package nis.
(Reading database ... 289600 files and directories currently installed.)
Preparing to unpack .../nis-3.17.1-3build1_amd64.deb ...
Unpacking nis (3.17.1-3build1) ...
Setting up nis (3.17.1-3build1) ...
Processing triggers for man-db (2.8.7-3) ...
Processing triggers for systemd (242-7ubuntu3.7) ...
usuario@servidorLUBUNTU18:~$ sudo nano /etc/default/nis
```

```
servidorLUBUNTU18 (Rubén Oroña) (práctica16 rematada) [Comando] - Oracle VM VirtualBox
usuario@servidorLUBUNTU18: ~
GNU nano 4.3 /etc/default/nis Modified
#
# /etc/default/nis Configuration settings for the NIS daemons.
#
# Are we a NIS server and if so what kind (values: false, slave, master)?
NISERVER=master
# Are we a NIS client?
NISCLIENT=false
# Location of the master NIS password file (for yppasswdd).
# If you change this make sure it matches with /var/yp/Makefile.
YPPWDIR=/etc
# Do we allow the user to use ypchsh and/or ypchfn ? The YPCHANGEOK
# fields are passed with -e to yppasswdd, see it's manpage.
# Possible values: "chsh", "chfn", "chsh,chfn"
YPCHANGEOK=chsh
# NIS master server. If this is configured on a slave server then ypinit
# will be run each time NIS is started.
NISMASTER=
# Additional options to be given to ypserv when it is started.
YPSERARGS=
```

```
servidorLUBUNTU18 (Rubén Oroña) (práctica16 rematada) [Comando] - Oracle VM VirtualBox
usuario@servidorLUBUNTU18: ~
Setting up nis (3.17.1-3build1) ...
Processing triggers for man-db (2.8.7-3) ...
Processing triggers for systemd (242-7ubuntu3.7) ...
usuario@servidorLUBUNTU18:~$ sudo nano /etc/default/nis
usuario@servidorLUBUNTU18:~$ systemctl restart nis
usuario@servidorLUBUNTU18:~$ sudo /usr/lib/yp/ypinit -m

At this point, we have to construct a list of the hosts which will run NIS
servers. servidorLUBUNTU18.dominolinux18.local is in the list of NIS server hosts. Please continue to add
the names for the other hosts, one per line. When you are done with the
list, type a <control D>.
next host to add: servidorLUBUNTU18.dominolinux18.local
next host to add:
The current list of NIS servers looks like this:

servidorLUBUNTU18.dominolinux18.local

Is this correct? [y/n: y] y
We need a few minutes to build the databases...
Building /var/yp/dominolinux18.local/ypservers...
Running /var/yp/Makefile...
make[1]: Entering directory '/var/yp/dominolinux18.local'
Updating passwd.byname...
Updating passwd.byuid...
Updating group.byname...
Updating group.bygid...
Updating hosts.byname...
Updating hosts.byaddr...
Updating rpc.byname...
Updating rpc.bynumber...
Updating services.byname...
Updating services.byservicename...
Updating netid.byname...
```

O servizo NIS non exporta por defecto os usuarios e grupos que manexan os recursos básicos do sistema Lubuntu, polo que debemos **editar a ID mínima exportable por NIS**. Para elo, modificamos o ficheiro [/var/yp/Makefile]. Doutra maneira, os clientes non terían acceso ó audio, CD-ROM, memorias extraíbles... Ademais, imos **borrar as regras do firewall**, co fin de que non nos bloquee a exportación [# sudo iptables -F]. Por último, imos **comprobar o status do servizo rpcbind**, que xa instalamos na práctica anterior.

```
servidorLUBUNTU18 (Rubén Oroña) [práctica16 rematada] [Corriendo] - Oracle VM VirtualBox
usuario@servidorLUBUNTU18: ~
next host to add:
The current list of NIS servers looks like this:
servidorLUBUNTU18.dominiolinux18.local
Is this correct? [y/n: y] y
We need a few minutes to build the databases...
Building /var/yp/dominiolinux18.local/ypservers...
Running /var/yp/Makefile...
make[1]: Entering directory '/var/yp/dominiolinux18.local'
Updating passwd.byname...
Updating passwd.byuid...
Updating group.byname...
Updating group.bygid...
Updating hosts.byname...
Updating hosts.byaddr...
Updating rpc.byname...
Updating rpc.bynumber...
Updating services.byname...
Updating services.byservicename...
Updating netid.byname...
Updating protocols.bynumber...
Updating protocols.byname...
Updating netgroup...
Updating netgroup.byhost...
Updating netgroup.byuser...
Updating shadow.byname...
make[1]: Leaving directory '/var/yp/dominiolinux18.local'
servidorLUBUNTU18.dominiolinux18.local has been set up as a NIS master server.
Now you can run ypinit -s servidorLUBUNTU18.dominiolinux18.local on all slave server.
usuario@servidorLUBUNTU18:~$ sudo nano /var/yp/Makefile

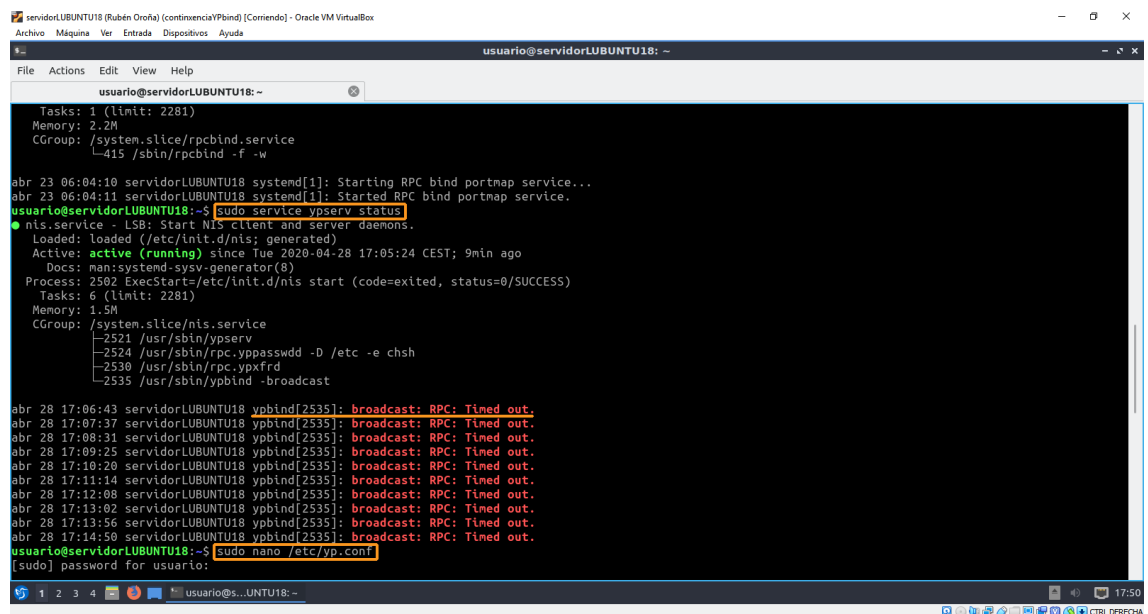
GNU nano 4.3 /var/yp/Makefile
# Set the following variable to "-b" to have NIS servers use the domain
# name resolver for hosts not in the current domain. This is only needed,
# if you have SunOS slave YP server, which gets here maps from this
# server. The NYS YP server will ignore the YP_INTERDOMAIN key.
BB=-b
B=
# If we have only one server, we don't have to push the maps to the
# slave servers (NOPUSH=true). If you have slave servers, change this
# to "NOPUSH=false" and put all hostnames of your slave servers in the file
# /var/yp/ypservers.
NOPUSH=true
# Specify any additional arguments to be supplied when invoking yppush.
# For example, the --port option may be used to allow operation with port
# based firewalls.
YPPUSHARGS=
# We do not put password entries with lower UIDs (the root and system
# entries) in the NIS password database, for security. MINUID is the
# lowest uid that will be included in the password maps. If you
# create shadow maps, the UserID for a shadow entry is taken from
# the passwd file. If no entry is found, this shadow entry is
# ignored.
# MINUID is the lowest gid that will be included in the group maps.
MINUID=4
MINGID=4
# Similarly, we also define a MAXUID and MAXGID specifying the maximum

AC Get Help  WR Write Out  AM Where Is  AK Cut Text  AJ Justify  AC Cur Pos  MU Undo  MA Mark Text  M- To Bracket
AX Exit      RR Read File  AL Replace  AU Paste Text  AT To Spell  AG Go To Line  ME Redo  MC Copy Text  MQ Where Was

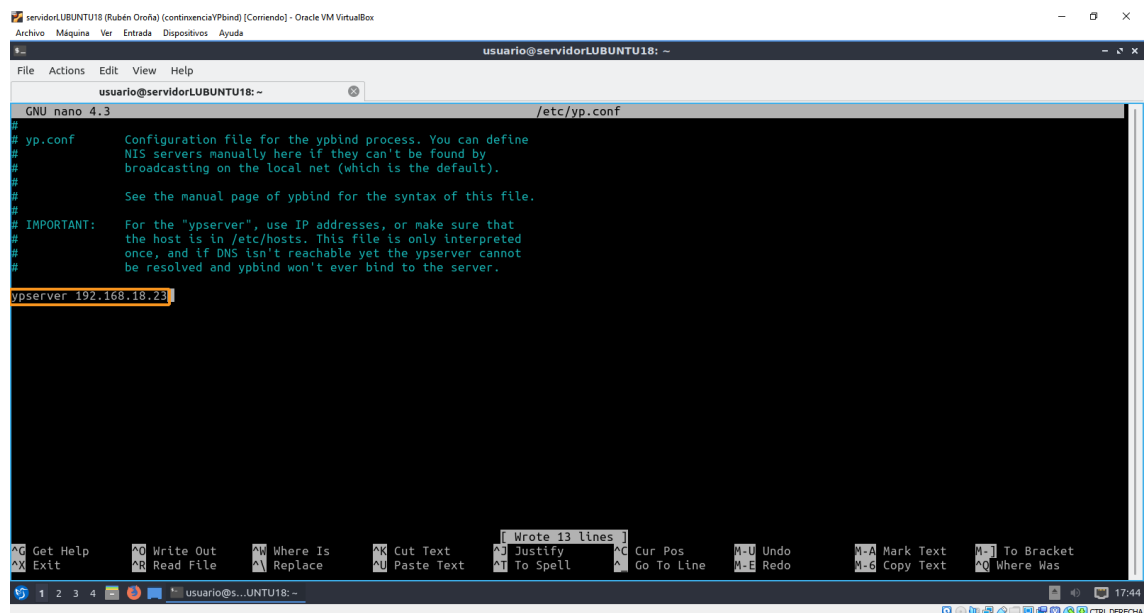
Updating netgroup.byhost...
Updating netgroup.byuser...
Updating shadow.byname...
make[1]: Leaving directory '/var/yp/dominiolinux18.local'
servidorLUBUNTU18.dominiolinux18.local has been set up as a NIS master server.
Now you can run ypinit -s servidorLUBUNTU18.dominiolinux18.local on all slave server.
usuario@servidorLUBUNTU18:~$ sudo nano /var/yp/Makefile
usuario@servidorLUBUNTU18:~$ sudo iptables -F
usuario@servidorLUBUNTU18:~$ sudo service rpcbind status
● rpcbind.service - RPC bind portmap service
   Loaded: loaded (/lib/systemd/system/rpcbind.service; enabled; vendor preset: enabled)
   Active: active (running) since Thu 2020-04-23 06:04:11 CEST; 5 days ago
     Docs: man:rpcbind(8)
    Main PID: 415 (rpcbind)
      Tasks: 1 (limit: 2281)
     Memory: 2.2M
    CGroup: /system.slice/rpcbind.service
            └─415 /sbin/rpcbind -f -w

abr 23 06:04:10 servidorLUBUNTU18 systemd[1]: Starting RPC bind portmap service...
abr 23 06:04:11 servidorLUBUNTU18 systemd[1]: Started RPC bind portmap service.
usuario@servidorLUBUNTU18:~$
```

A instalación produciuse aparentemente sen ningún problema, pero en realidade atopámonos coa **primeira incidencia**, pois resulta que se comprobamos o estado do servizo ypserv, temos un erro. Por un lado, tanto os comandos de status como de reinicio de NIS tardan demasiado en completarse, entre cinco e dez minutos. Por outra banda, resulta que o servizo ypbind non funciona, impedindo a conexión con calquera cliente. Para arranxar a continxencia, podemos **editar o ficheiro de configuración do servizo NIS**, no que por defecto aparece todo o contido como comentado. Así pois, na última liña establecemos a nosa IP como ypserver. Tras isto, volvemos a reiniciar o servizo NIS e actualizar os mapas. Agora o status semella correcto, e a comprobación execútase de maneira inmediata, ó contrario que ocorría anteriormente.



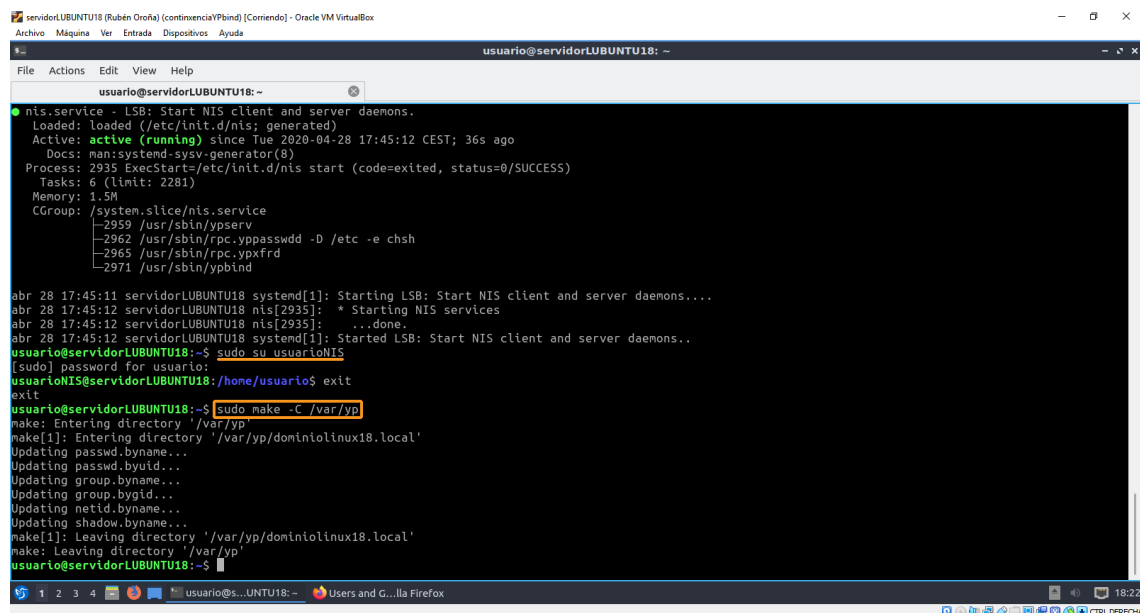
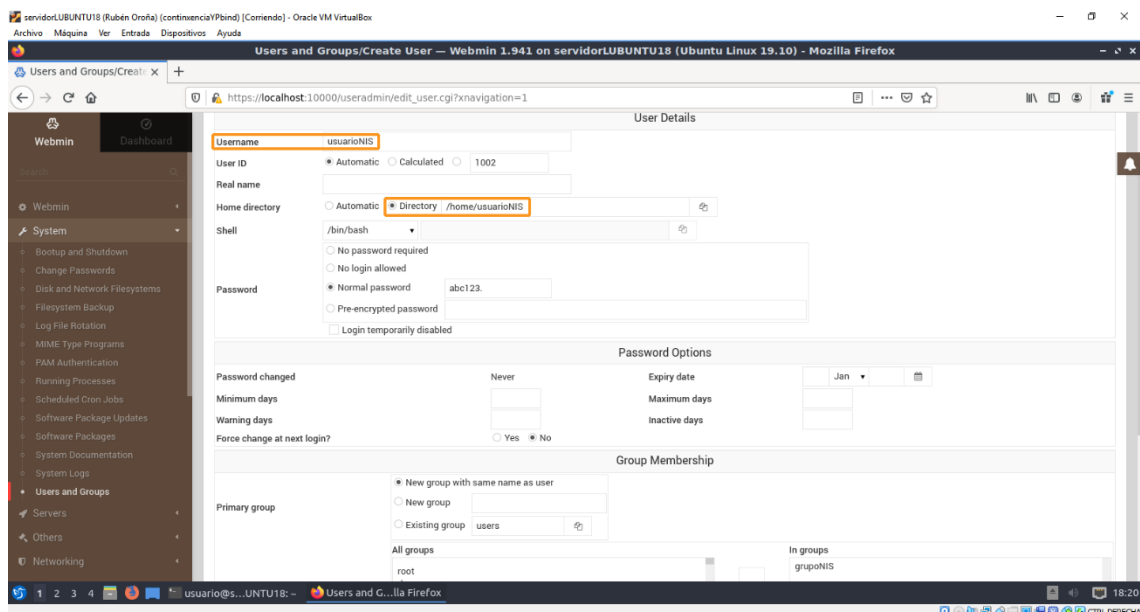
```
servidorLUBUNTU18 (Rubén Oroña) (continenciaYPbind) [Corriendo] - Oracle VM VirtualBox
usuario@servidorLUBUNTU18: ~
Tasks: 1 (limit: 2281)
Memory: 2.2M
CGroup: /system.slice/rpcbind.service
└─415 /sbin/rpcbind -f -w
abr 23 06:04:10 servidorLUBUNTU18 systemd[1]: Starting RPC bind portmap service...
abr 23 06:04:11 servidorLUBUNTU18 systemd[1]: Started RPC bind portmap service.
usuario@servidorLUBUNTU18:~$ sudo service ypserv status
● nls.service - LSB: Start NIS client and server daemons.
   Loaded: loaded (/etc/init.d/nls; generated)
   Active: active (running) since Tue 2020-04-28 17:05:24 CEST; 9min ago
     Docs: man:systemd-sysv-generator(8)
   Process: 2502 ExecStart=/etc/init.d/nls start (code=exited, status=0/SUCCESS)
    Tasks: 6 (limit: 2281)
   Memory: 1.5M
   CGroup: /system.slice/nls.service
           └─2521 /usr/sbin/ypserv
             └─2524 /usr/sbin/rpc.yppasswdd -D /etc -e chsh
               └─2530 /usr/sbin/rpc.ypxfrd
                 └─2535 /usr/sbin/ypbind -broadcast
abr 28 17:06:43 servidorLUBUNTU18 ypbind[2535]: broadcast: RPC: Timed out.
abr 28 17:07:37 servidorLUBUNTU18 ypbind[2535]: broadcast: RPC: Timed out.
abr 28 17:08:31 servidorLUBUNTU18 ypbind[2535]: broadcast: RPC: Timed out.
abr 28 17:09:25 servidorLUBUNTU18 ypbind[2535]: broadcast: RPC: Timed out.
abr 28 17:10:20 servidorLUBUNTU18 ypbind[2535]: broadcast: RPC: Timed out.
abr 28 17:11:14 servidorLUBUNTU18 ypbind[2535]: broadcast: RPC: Timed out.
abr 28 17:12:08 servidorLUBUNTU18 ypbind[2535]: broadcast: RPC: Timed out.
abr 28 17:13:02 servidorLUBUNTU18 ypbind[2535]: broadcast: RPC: Timed out.
abr 28 17:13:56 servidorLUBUNTU18 ypbind[2535]: broadcast: RPC: Timed out.
abr 28 17:14:50 servidorLUBUNTU18 ypbind[2535]: broadcast: RPC: Timed out.
usuario@servidorLUBUNTU18:~$ sudo nano /etc/yp.conf
[sudo] password for usuario:
```



```
servidorLUBUNTU18 (Rubén Oroña) (continenciaYPbind) [Corriendo] - Oracle VM VirtualBox
usuario@servidorLUBUNTU18: ~
GNU nano 4.3 /etc/yp.conf
#
# yp.conf      Configuration file for the ypbind process. You can define
#              NIS servers manually here if they can't be found by
#              broadcasting on the local net (which is the default).
#
#              See the manual page of ypbind for the syntax of this file.
#
# IMPORTANT:   For the "ypserver", use IP addresses, or make sure that
#              the host is in /etc/hosts. This file is only interpreted
#              once, and if DNS isn't reachable yet the ypserver cannot
#              be resolved and ypbind won't ever bind to the server.
#
ypserver 192.168.18.23
```

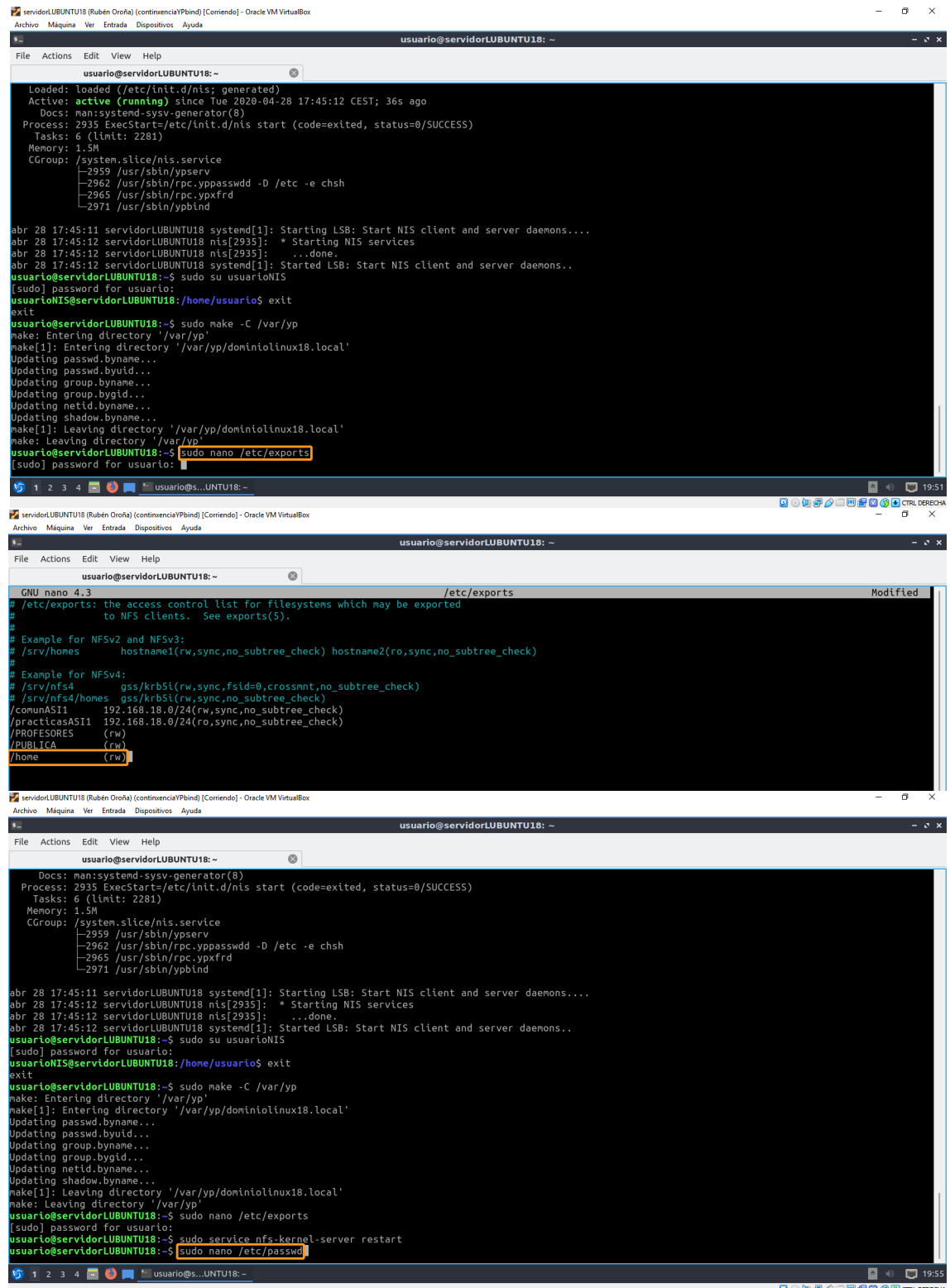
## B. Creación dun usuario de proba

Unha vez temos servidor perfectamente operativo, imos a **crear un grupo e un usuario que non existan no cliente**, cos que realizar as posteriores comprobacións. Por razóns de comodidade, empregaremos a ferramenta Webmin, coas que daremos vida a grupoNIS e usuarioNIS. Aproveitamos para facer login co usuario para comprobar que todo foi creado correctamente. Un dos grandes problemas que ten o servizo NIS e que non actualiza o mapeado de maneira automática. Por esta razón, cada vez que engadamos un usuario ou modifiquemos un ficheiro de configuración, deberemos **forzar a xeración dos mapas**. Isto facémolo executando o seguinte script: `[# sudo make -C /var/yp]`.



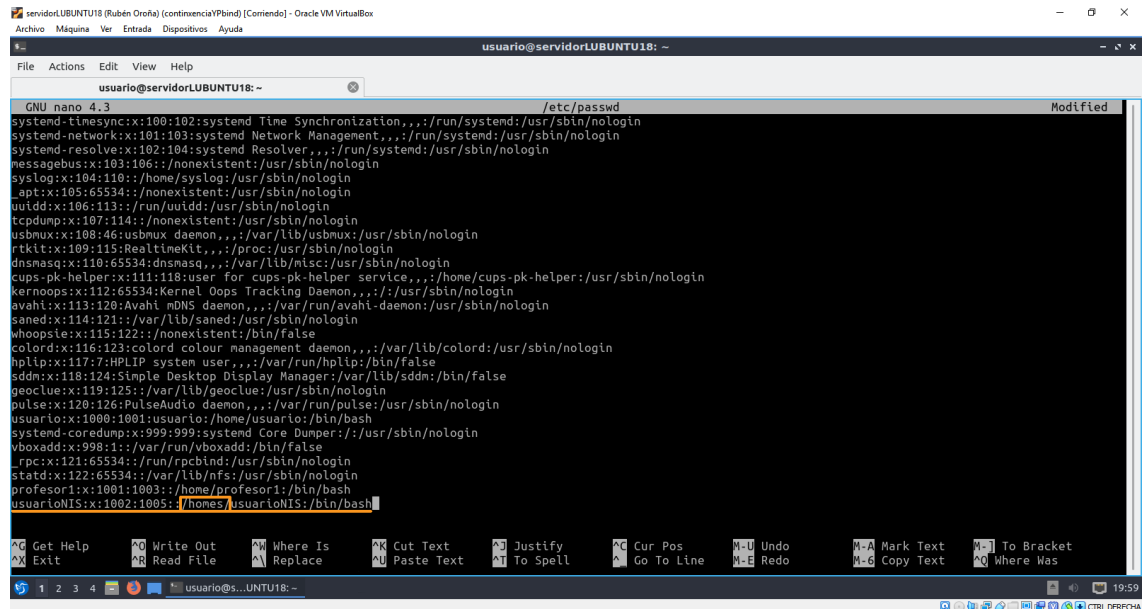


Aínda que en realidade o seguinte paso foi a configuración NIS do cliente, por motivos didácticos resulta máis ordenado explicar iso despois, e continuar de momento coa configuración do usuario de exportaremos. Algo que precisaremos será compartir por rede o cartafol persoal dos usuarios, para que o login dende o cliente sexa correcto. Así pois, empregaremos o servizo NFS que instalamos na práctica anterior. Polo tanto, imos **exportar o cartafol /home**, modificando o ficheiro [/etc/exports]. Compartímolos con calquera IP da subrede. Ademais, deberemos **editar a ruta do cartafol persoal**, no arquivo [/etc/passwd].

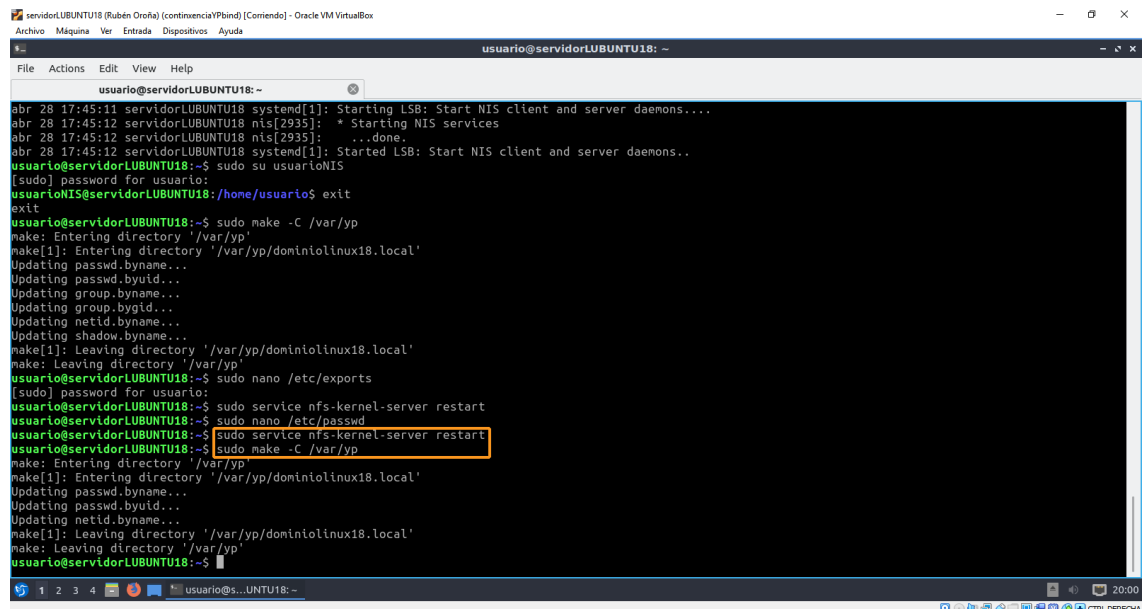


```
servidorLUBUNTU18 (Rubén Oroña) (continenciaVPbind) [Comiendo] - Oracle VM VirtualBox
usuario@servidorLUBUNTU18: ~
File Actions Edit View Help
usuario@servidorLUBUNTU18: ~
Loaded: loaded (/etc/init.d/nis; generated)
Active: active (running) since Tue 2020-04-28 17:45:12 CEST; 36s ago
Docs: man:systemd-sysv-generator(8)
Process: 2935 ExecStart=/etc/init.d/nis start (code=exited, status=0/SUCCESS)
Tasks: 6 (limit: 2281)
Memory: 1.5M
CGroup: /system.slice/nis.service
└─2959 /usr/sbin/ypserv
└─2962 /usr/sbin/rpc.yppasswdd -D /etc -e chsh
└─2965 /usr/sbin/rpc.ypxfrd
└─2971 /usr/sbin/ypbind
abr 28 17:45:11 servidorLUBUNTU18 systemd[1]: Starting LSB: Start NIS client and server daemons....
abr 28 17:45:12 servidorLUBUNTU18 nis[2935]: * Starting NIS services
abr 28 17:45:12 servidorLUBUNTU18 nis[2935]: ...done.
abr 28 17:45:12 servidorLUBUNTU18 systemd[1]: Started LSB: Start NIS client and server daemons..
usuario@servidorLUBUNTU18:~$ sudo su usuarioNIS
[sudo] password for usuario:
usuarioNIS@servidorLUBUNTU18:/home/usuario$ exit
exit
usuario@servidorLUBUNTU18:~$ sudo make -C /var/yp
make: Entering directory '/var/yp'
make[1]: Entering directory '/var/yp/dominioLinux18.local'
Updating passwd.byname...
Updating passwd.byuid...
Updating group.byname...
Updating group.bygid...
Updating netid.byname...
Updating shadow.byname...
make[1]: Leaving directory '/var/yp/dominioLinux18.local'
make: Leaving directory '/var/yp'
usuario@servidorLUBUNTU18:~$ sudo nano /etc/exports
[sudo] password for usuario:
GNU nano 4.3 /etc/exports
# /etc/exports: the access control list for filesystems which may be exported
# to NFS clients. See exports(5).
#
# Example for NFSv2 and NFSv3:
# /srv/homes hostname1(rw,sync,no_subtree_check) hostname2(ro,sync,no_subtree_check)
#
# Example for NFSv4:
# /srv/nfs4 gss/krb5i(rw,sync,fsid=0,crossmnt,no_subtree_check)
# /srv/nfs4/homes gss/krb5i(rw,sync,no_subtree_check)
# /comunaSI1 192.168.18.0/24(rw,sync,no_subtree_check)
# /practicasASI1 192.168.18.0/24(ro,sync,no_subtree_check)
# /PROFESORES (rw)
# /PUBLICA (rw)
# /home (rw)
usuario@servidorLUBUNTU18:~$
servidorLUBUNTU18 (Rubén Oroña) (continenciaVPbind) [Comiendo] - Oracle VM VirtualBox
usuario@servidorLUBUNTU18: ~
File Actions Edit View Help
usuario@servidorLUBUNTU18: ~
Docs: man:systemd-sysv-generator(8)
Process: 2935 ExecStart=/etc/init.d/nis start (code=exited, status=0/SUCCESS)
Tasks: 6 (limit: 2281)
Memory: 1.5M
CGroup: /system.slice/nis.service
└─2959 /usr/sbin/ypserv
└─2962 /usr/sbin/rpc.yppasswdd -D /etc -e chsh
└─2965 /usr/sbin/rpc.ypxfrd
└─2971 /usr/sbin/ypbind
abr 28 17:45:11 servidorLUBUNTU18 systemd[1]: Starting LSB: Start NIS client and server daemons....
abr 28 17:45:12 servidorLUBUNTU18 nis[2935]: * Starting NIS services
abr 28 17:45:12 servidorLUBUNTU18 nis[2935]: ...done.
abr 28 17:45:12 servidorLUBUNTU18 systemd[1]: Started LSB: Start NIS client and server daemons..
usuario@servidorLUBUNTU18:~$ sudo su usuarioNIS
[sudo] password for usuario:
usuarioNIS@servidorLUBUNTU18:/home/usuario$ exit
exit
usuario@servidorLUBUNTU18:~$ sudo make -C /var/yp
make: Entering directory '/var/yp'
make[1]: Entering directory '/var/yp/dominioLinux18.local'
Updating passwd.byname...
Updating passwd.byuid...
Updating group.byname...
Updating group.bygid...
Updating netid.byname...
Updating shadow.byname...
make[1]: Leaving directory '/var/yp/dominioLinux18.local'
make: Leaving directory '/var/yp'
usuario@servidorLUBUNTU18:~$ sudo nano /etc/exports
[sudo] password for usuario:
usuario@servidorLUBUNTU18:~$ sudo service nfs-kernel-server restart
usuario@servidorLUBUNTU18:~$ sudo nano /etc/passwd
```

Establecemos /homes como o cartafol que recollerá os arquivos persoais dos usuarios compartidos, pois así chamaremos á exportación no cliente. Tras facer esta modificación, imos **reiniciar servizo NFS** [# sudo service nfs-kernel-server restart], ademais de **forzar de novo a actualización dos mapas NIS** [# sudo make -C /var/yp].



```
GNU nano 4.3 /etc/passwd
systemd-timesync:x:100:102:systemd Time Synchronization,,,:/run/systemd:/usr/sbin/nologin
systemd-network:x:101:103:systemd Network Management,,,:/run/systemd:/usr/sbin/nologin
systemd-resolve:x:102:104:systemd Resolver,,,:/run/systemd:/usr/sbin/nologin
messagebus:x:103:106:/:nonexistent:/usr/sbin/nologin
syslog:x:104:110:/:home/syslog:/usr/sbin/nologin
_apt:x:105:65534:/:nonexistent:/usr/sbin/nologin
uucp:x:106:113:/:run/uucp:/usr/sbin/nologin
tcpdump:x:107:114:/:nonexistent:/usr/sbin/nologin
usbmux:x:108:46:usbmux daemon,,,:/var/lib/usbmux:/usr/sbin/nologin
rtkit:x:109:115:RealtimeKit,,,:/proc:/usr/sbin/nologin
dnsmasq:x:110:65534:dnsmasq,,,:/var/lib/misc:/usr/sbin/nologin
cups-pk-helper:x:111:118:user for cups-pk-helper service,,,:/home/cups-pk-helper:/usr/sbin/nologin
kernoops:x:112:65534:Kernel Oops Tracking Daemon,,,:/usr/sbin/nologin
avahi:x:113:120:Avahi mDNS daemon,,,:/var/run/avahi-daemon:/usr/sbin/nologin
saned:x:114:121:/:var/lib/saned:/usr/sbin/nologin
whoopie:x:115:122:/:nonexistent:/bin/false
colord:x:116:123:colord colour management daemon,,,:/var/lib/colord:/usr/sbin/nologin
hplip:x:117:7:HPLIP system user,,,:/var/run/hplip:/bin/false
sddm:x:118:124:Simple Desktop Display Manager:/var/lib/sddm:/bin/false
geoclue:x:119:125:/:var/lib/geoclue:/usr/sbin/nologin
pulse:x:120:126:PulseAudio daemon,,,:/var/run/pulse:/usr/sbin/nologin
usuario:x:1000:1001:usuario:/home/usuario:/bin/bash
systemd-coredump:x:999:999:systemd Core Dumper:/:usr/sbin/nologin
vboxadd:x:998:1:/:var/run/vboxadd:/bin/false
_rpc:x:121:65534:/:run/rpcbind:/usr/sbin/nologin
statd:x:122:65534:/:var/lib/nfs:/usr/sbin/nologin
profesor1:x:1001:1003:/:home/profesor1:/bin/bash
usuarioNIS:x:1002:1005:/:homes/usuarioNIS:/bin/bash
```



```
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abr 28 17:45:12 servidorLUBUNTU18 nis[2935]: ..done.
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usuario@servidorLUBUNTU18:~$ sudo su usuarioNIS
[sudo] password for usuario:
usuarioNIS@servidorLUBUNTU18:/home/usuario$ exit
exit
usuario@servidorLUBUNTU18:~$ sudo make -C /var/yp
make: Entering directory '/var/yp'
make[1]: Entering directory '/var/yp/dominioLinux18.local'
Updating passwd.byname...
Updating passwd.byuid...
Updating group.byname...
Updating group.bygid...
Updating netid.byname...
Updating shadow.byname...
make[1]: Leaving directory '/var/yp/dominioLinux18.local'
make: Leaving directory '/var/yp'
usuario@servidorLUBUNTU18:~$ sudo nano /etc/exports
[sudo] password for usuario:
usuario@servidorLUBUNTU18:~$ sudo service nfs-kernel-server restart
usuario@servidorLUBUNTU18:~$ sudo nano /etc/passwd
usuario@servidorLUBUNTU18:~$ sudo service nfs-kernel-server restart
usuario@servidorLUBUNTU18:~$ sudo make -C /var/yp
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Updating passwd.byname...
Updating passwd.byuid...
Updating group.byname...
Updating group.bygid...
Updating netid.byname...
make[1]: Leaving directory '/var/yp/dominioLinux18.local'
make: Leaving directory '/var/yp'
usuario@servidorLUBUNTU18:~$
```

## C. Instalación do servizo NIS no cliente

Retomamos o que deixáramos antes pendente, comezando por **instalar o paquete NIS** co mesmo comando que na outra máquina [`# sudo apt-get install nis`]. Na ventá emerxente que nos pide o dominio que empregará o NIS, introducimos o que establecemos anteriormente no servidor. Por defecto, o sistema asume que se trata dun cliente, polo que non precisamos editar nada ó respecto. Simplemente debemos **modificar o sistema de autenticación NIS**, para que busque os usuarios e grupos. Así pois, editamos o ficheiro [`/etc/nsswitch.conf`].

```
usuario@clienteLUBUNTU18:~$ ping 192.168.18.23
PING 192.168.18.23 (192.168.18.23) 56(84) bytes of data:
64 bytes from 192.168.18.23: icmp_seq=1 ttl=64 time=0.242 ms
64 bytes from 192.168.18.23: icmp_seq=2 ttl=64 time=0.577 ms
^C
--- 192.168.18.23 ping statistics ---
2 packets transmitted, 2 received, 0% packet loss, time 1019ms
rtt min/avg/max/mdev = 0.242/0.409/0.577/0.167 ms
usuario@clienteLUBUNTU18:~$ sudo apt-get install nis
```

```
Package configuration

Configuring nis
Please choose the NIS "domainname" for this system. If you want this machine to just be a client, you should enter the name of the NIS domain you wish to join.

Alternatively, if this machine is to be a NIS server, you can either enter a new NIS "domainname" or the name of an existing NIS domain.

NIS domain:
dominiolinux18.local

<Ok>
```

```
usuario@clienteLUBUNTU18:~$ sudo apt-get install nis
[sudo] password for usuario:
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following packages were automatically installed and are no longer required:
  linux-headers-5.3.0-18 linux-headers-5.3.0-18-generic linux-image-5.3.0-18-generic linux-modules-5.3.0-18-generic linux-modules-extra-5.3.0-18-generic
Use 'sudo apt autoremove' to remove them.
Suggested packages:
  nscd
The following NEW packages will be installed:
  nis
0 upgraded, 1 newly installed, 0 to remove and 0 not upgraded.
Need to get 155 kB of archives.
After this operation, 687 kB of additional disk space will be used.
Get:1 http://archive.ubuntu.com/ubuntu eoan/universe amd64 nis amd64 3.17.1-3build1 [155 kB]
Fetched 155 kB in 0s (415 kB/s)
Preconfiguring packages ...
Selecting previously unselected package nis.
(Reading database ... 325966 files and directories currently installed.)
Preparing to unpack .../nis-3.17.1-3build1_amd64.deb ...
Unpacking nis (3.17.1-3build1) ...
Setting up nis (3.17.1-3build1) ...
Processing triggers for man-db (2.8.7-3) ...
Processing triggers for systemd (242.7ubuntu3.7) ...
usuario@clienteLUBUNTU18:~$ sudo nano /etc/nsswitch.conf
```

Unha vez que nos aseguramos da orde adecuada de validación de NIS, visualizamos os usuarios que temos dispoñibles co comando [# *sudo ypcat passwd.byname*]. Atopámonos coa **segunda incidencia** da práctica, pois aparentemente o cliente non se pode enlazar (bind) co servidor do dominio. A solución é a mesma que no outro caso: **editar o ficheiro de configuración do servizo NIS**, establecendo como ypserver a dirección IP do servidor.

The image consists of three vertically stacked screenshots of a terminal window running on a client machine named 'clienteLUBUNTU18'. The terminal shows the following sequence of actions:

- First Screenshot:** The user is editing the `/etc/nsswitch.conf` file using the `nano` editor. The file contains configuration for Name Service Switch (NSS). The `passwd:` line is set to `compat nis`, and the `group:` line is also set to `compat nis`. The `hosts:` line is set to `files mdns4_minimal [NOTFOUND=return] dns`.
- Second Screenshot:** The user runs the command `sudo apt-get install nis`. The terminal output shows that the `nis` package is being installed. The user then runs `sudo nano /etc/nsswitch.conf` and `sudo ypcat passwd.byname`. The `ypcat` command fails with the error: `No such map passwd.byname. Reason: Can't bind to server which serves this domain`.
- Third Screenshot:** The user is editing the `/etc/yp.conf` file using the `nano` editor. The file contains configuration for the YP (Yellow Pages) service. The `ypserver` line is set to `192.168.18.23`.

Tras esta modificación, comprobamos o status dos mapas NIS, ademais de reiniciar o servizo [# *sudo service ypserv restart*]. Se volvemos a introducir o comando para **visualizar os usuarios NIS dispoñibles**, podemos comprobar que agora o cliente si se enlaza debidamente co servidor. O usuario de proba que creamos aparece aínda co cartafol /home, pois como xa dixemos antes, a explicación non segue estritamente a orde dos pasos seguidos, pero enténdese mellor dende un punto de vista didáctico, evitando cambios constantes entre servidor e cliente. Unha vez aclarado, imos **crear o punto de montaxe do cartafol exportado** (tras isto si modificamos o ficheiro /etc/passwd do servidor). Agora que xa temos acceso ós ficheiros persoais do dominio, podemos **facér login con usuarioNIS**.

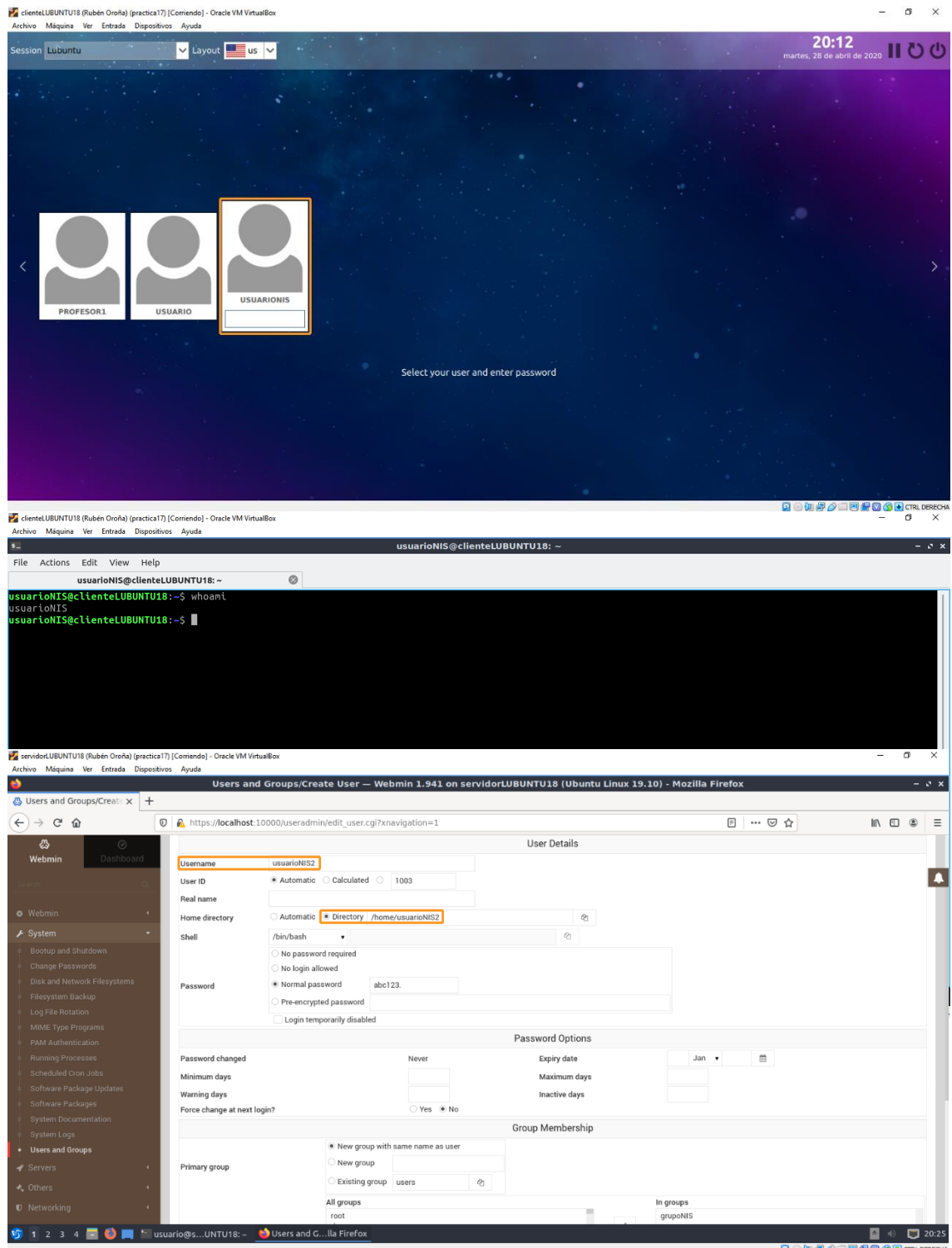
```
clienteLUBUNTU18 (Rubén Oroha) [practica18] [Corriendo] - Oracle VM VirtualBox
usuario@clienteLUBUNTU18: ~
usuario@clienteLUBUNTU18:~$ sudo service portmap status
● rpcbind.service - RPC bind portmap service
   Loaded: loaded (/lib/systemd/system/rpcbind.service; enabled; vendor preset: enabled)
   Active: active (running) since Thu 2020-04-23 22:56:11 CEST; 4 days ago
     Docs: man:rpcbind(8)
    Main PID: 409 (rpcbind)
      Tasks: 1 (limit: 2281)
    Memory: 2.2M
   CGroup: /system.slice/rpcbind.service
           └─409 /sbin/rpcbind -f -w

abr 23 22:56:11 clienteLUBUNTU18 systemd[1]: Starting RPC bind portmap service...
abr 23 22:56:11 clienteLUBUNTU18 systemd[1]: Started RPC bind portmap service.
usuario@clienteLUBUNTU18:~$ sudo service ypserv restart
usuario@clienteLUBUNTU18:~$ sudo ypcat passwd byname
192.168.18.23
usuario@clienteLUBUNTU18:~$ sudo ypcat passwd byname
list:x:38:38:Mail list Manager:/var/lttst:/usr/sbin/nologin
hplip:x:117:7:HPLIP system user,,:/var/run/hplip:/bin/false
games:x:5:60:games:/usr/games:/usr/sbin/nologin
vboxadd:x:998:1::/var/run/vboxadd:/bin/false
news:x:9:9:news:/var/spool/news:/usr/sbin/nologin
lp:x:7:7:lp:/var/spool/lpd:/usr/sbin/nologin
backup:x:34:34:backup:/var/backups:/usr/sbin/nologin
uucp:x:10:10:uucp:/var/spool/uucp:/usr/sbin/nologin
whoopsie:x:115:122:/nonexistent:/bin/false
systemd-resolve:x:102:104:systemd Resolver,,:/run/systemd:/usr/sbin/nologin
rtkit:x:109:115:RealtimeKit,,:/proc:/usr/sbin/nologin
man:x:6:12:man:/var/cache/man:/usr/sbin/nologin
gnats:x:41:41:Gnats Bug-Reporting System (admin):/var/lib/gnats:/usr/sbin/nologin
sync:x:4:65534:sync:/bin:/bin/sync
kernoops:x:112:65534:Kernel Oops Tracking Daemon,,:/usr/sbin/nologin
systemd-network:x:101:103:systemd Network Management,,:/run/systemd:/usr/sbin/nologin
```

```
clienteLUBUNTU18 (Rubén Oroha) [practica18] [Corriendo] - Oracle VM VirtualBox
usuarioNIS@clienteLUBUNTU18: /home/usuario
usuarioNIS@clienteLUBUNTU18: /home/usuario
gnats:x:41:41:Gnats Bug-Reporting System (admin):/var/lib/gnats:/usr/sbin/nologin
sync:x:4:65534:sync:/bin:/bin/sync
kernoops:x:112:65534:Kernel Oops Tracking Daemon,,:/usr/sbin/nologin
systemd-network:x:101:103:systemd Network Management,,:/run/systemd:/usr/sbin/nologin
uuidd:x:106:113::/run/uuidd:/usr/sbin/nologin
dnsmasq:x:110:65534:dnsmasq,,:/var/lib/misc:/usr/sbin/nologin
geoclue:x:119:125::/var/lib/geoclue:/usr/sbin/nologin
rpc:x:121:65534::/run/rpcbind:/usr/sbin/nologin
usuarioNIS:x:1002:1003:/home/usuarioNIS:/bin/bash
irc:x:99:99:irc:/var/run/ircd:/usr/sbin/nologin
messagebus:x:103:106::/nonexistent:/usr/sbin/nologin
usbmux:x:108:46:usbmux daemon,,:/var/lib/usbmux:/usr/sbin/nologin
colord:x:116:123:colord colour management daemon,,:/var/lib/colord:/usr/sbin/nologin
sddm:x:118:124:Simple Desktop Display Manager:/var/lib/sddm:/bin/false
systemd-coredump:x:999:999:systemd Core Dumper:/usr/sbin/nologin
_apt:x:105:65534::/nonexistent:/usr/sbin/nologin
mail:x:8:8:mail:/var/mail:/usr/sbin/nologin
profesor1:x:1001:1003:/home/profesor1:/bin/bash
syslog:x:104:110:/home/syslog:/usr/sbin/nologin
tcpdump:x:107:114::/nonexistent:/usr/sbin/nologin
usuario:x:1000:1001:usuario:/home/usuario:/bin/bash
pulse:x:120:126:PulseAudio daemon,,:/var/run/pulse:/usr/sbin/nologin
systemd-timesync:x:100:102:systemd Time Synchronization,,:/run/systemd:/usr/sbin/nologin
saned:x:114:121::/var/lib/saned:/usr/sbin/nologin
www-data:x:33:33:www-data:/var/www:/usr/sbin/nologin
proxy:x:13:13:proxy:/bin:/usr/sbin/nologin
cups-pk-helper:x:111:118:user for cups-pk-helper service,,/home/cups-pk-helper:/usr/sbin/nologin
statd:x:122:65534:/var/lib/nfs:/usr/sbin/nologin
avahi:x:113:120:Avahi mDNS daemon,,:/var/run/avahi-daemon:/usr/sbin/nologin
usuario@clienteLUBUNTU18:~$ sudo mkdir /homes
usuario@clienteLUBUNTU18:~$ sudo mount 192.168.18.23:/home /homes
usuario@clienteLUBUNTU18:~$ sudo su usuarioNIS
usuarioNIS@clienteLUBUNTU18: /home/usuario$
```

## D. Login desde a interface gráfica

Se facemos logout no sistema, podemos ver que o usuario do dominio NIS está dispoñible, e podemos facer login con el con total normalidade. Pero quedamos coa dúbida de si funcionou porque xa iniciamos sesión con ese conta dende a terminal. Sabemos que nunha distribución Ubuntu precisaríamos modificar un ficheiro para que o xestor de sesións LightDM permitise o login por primeira vez dende a interface gráfica. En cambio, Lubuntu emprega SSDM como xestor, polo que debemos facer unha proba para saír de dúbidas. Así pois, imos **crear outro usuario no servidor**.



Este novo usuario vai seguir os parámetros seguidos co anterior. En Webmin establecemos o seu cartafol persoal en /home, pois non nos interesa que se cree outro directorio na raíz. Pero debemos editar de novo o arquivo [/etc/passwd] para que coincida co cartafol exportado no cliente. Tras estes cambios, debemos **reiniciar o servizo NIS** e **forzar a actualización dos mapas**, para que o novo usuario apareza na visualización do cliente. Non iniciamos sesión con ese usuario dende a terminal, senón que facemos logout directamente. Como podemos observar, o novo usuario está presente na interface e podemos **facen login por primeira vez mediante o modo gráfico**. Con isto demostramos que o xestor SSDM non precisa de ningunha modificación para dar soporte ós usuarios exportados co servizo NIS.

The first screenshot shows a terminal window with the command `cat /etc/passwd` output, listing system users and regular users. The user `usuario` is highlighted in yellow, showing its details: `usuario:x:1000:1001:usuario:/home/usuario:/bin/bash`.

The second screenshot shows the graphical login screen (SSDM) with four user icons: `PROFESOR1`, `USUARIO`, `USUARIO1015`, and `USUARIO1012`. The `USUARIO` icon is highlighted with an orange border, and the text "Select your user and enter password" is at the bottom.

The third screenshot shows a terminal window where the user `usuarioNIS2` has been added to the system. The command `whoami` is run, and the output is `usuarioNIS2`.