

SERVIZO OPENLDAP EN LINUX

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0. Consideracións previas

Para levar a cabo a instalación e configuración do servizo OpenLDAP, 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 dun servidor LDAP, que permite a autenticación de usuarios en equipos clientes pertencentes 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 OpenLDAP no servidor

Antes de comezar, comprobamos que a configuración da 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 **OpenLDAP**, co comando `[# sudo apt-get install slapd ldap-utils -y]`. Tras isto, xurdirá unha ventá emerxente preguntándonos polo contrasinal de administración para LDAP.

The image consists of three vertically stacked screenshots of a Linux terminal window titled "usuario@servidorLUBUNTU18: ~".

- Screenshot 1:** Shows the user running a ping command to test connectivity to another host at 192.168.18.11. It also shows the user navigating to the /etc/hosts file using the nano editor.
- Screenshot 2:** Shows the /etc/hosts file open in nano. It contains the following entries:

```
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
```
- Screenshot 3:** Shows the user running the apt-get command to install the OpenLDAP packages. The terminal shows the password prompt for the user "usuario".

Podemos comprobar a instalación e asegurarnos de que os datos son correctos mediante o comando [`# sudo slapcat`]. Tras isto, debemos [crear a estrutura do directorio](#), xerando dúas unidades organizativas, unha para os usuarios e outra para os grupos. Facémolo empregando un arquivo con extensión .ldif, cuxo contido debe seguir un formato específico, como se amosa na captura. Para [engadir a información á base de datos](#), executamos o comando [`# sudo ldapadd -x -D cn=admin,dc=dominiolinux18,dc=local -W -f base.ldif`].

```

servidorLUBUNTU18 (Rubén Oroña) (p18 novo intento) [Corriendo] - Oracle VM VirtualBox
Archivo Máquina Ver Entrada Dispositivos Ayuda
usuario@servidorLUBUNTU18: ~
File Actions Edit View Help
usuario@servidorLUBUNTU18: ~
Processing triggers for systemd (242-7ubuntu3.8) ...
Processing triggers for man-db (2.8.7-3) ...
Processing triggers for libc-bin (2.30-0ubuntu2.1) ...
usuario@servidorLUBUNTU18: ~$ sudo slapcat
dn: dc=dominiolinux18,dc=local
objectClass: top
objectClass: dcObject
objectClass: organization
o: dominiolinux18.local
dc: dominiolinux18
structuralObjectClass: organization
entryUUID: cb7d7ea4-28bd-103a-880e-35968c541359
creatorsName: cn=admin,dc=dominiolinux18,dc=local
createTimestamp: 20200512170015Z
entryCSN: 20200512170015.214506Z#000000#000#000000
modifiersName: cn=admin,dc=dominiolinux18,dc=local
modifyTimestamp: 20200512170015Z

dn: cn=admin,dc=dominiolinux18,dc=local
objectClass: simpleSecurityObject
objectClass: organizationalRole
cn: admin
description: LDAP administrator
userPassword:: e1NTSEF9RVRTbIXZ1krV2hwYmVTdnVHQnRHd2ZxQ2VEQmREZUw=
structuralObjectClass: organizationalRole
entryUUID: cb7e624c-28bd-103a-880f-35968c541359
creatorsName: cn=admin,dc=dominiolinux18,dc=local
createTimestamp: 20200512170015Z
entryCSN: 20200512170015.220539Z#000000#000#000000
modifiersName: cn=admin,dc=dominiolinux18,dc=local
modifyTimestamp: 20200512170015Z

usuario@servidorLUBUNTU18: ~$ sudo nano base.ldif
V 1 2 3 4   usuario@...:~$ ~
servidorLUBUNTU18 (Rubén Oroña) (p18 novo intento) [Corriendo] - Oracle VM VirtualBox
Archivo Máquina Ver Entrada Dispositivos Ayuda
usuario@servidorLUBUNTU18: ~
File Actions Edit View Help
usuario@servidorLUBUNTU18: ~
GNU nano 4.3
dn: ou=usuarios,dc=dominiolinux18,dc=local
objectClass: organizationalUnit
ou: usuarios

dn: ou=grupos,dc=dominiolinux18,dc=local
objectClass: organizationalUnit
ou: grupos

servidorLUBUNTU18 (Rubén Oroña) (p18 novo intento) [Corriendo] - Oracle VM VirtualBox
Archivo Máquina Ver Entrada Dispositivos Ayuda
usuario@servidorLUBUNTU18: ~
File Actions Edit View Help
usuario@servidorLUBUNTU18: ~
objectClass: organization
o: dominiolinux18.local
dc: dominiolinux18
structuralObjectClass: organization
entryUUID: cb7d7ea4-28bd-103a-880e-35968c541359
creatorsName: cn=admin,dc=dominiolinux18,dc=local
createTimestamp: 20200512170015Z
entryCSN: 20200512170015.214506Z#000000#000#000000
modifiersName: cn=admin,dc=dominiolinux18,dc=local
modifyTimestamp: 20200512170015Z

dn: cn=admin,dc=dominiolinux18,dc=local
objectClass: simpleSecurityObject
objectClass: organizationalRole
cn: admin
description: LDAP administrator
userPassword:: e1NTSEF9RVRTbIXZ1krV2hwYmVTdnVHQnRHd2ZxQ2VEQmREZUw=
structuralObjectClass: organizationalRole
entryUUID: cb7e624c-28bd-103a-880f-35968c541359
creatorsName: cn=admin,dc=dominiolinux18,dc=local
createTimestamp: 20200512170015Z
entryCSN: 20200512170015.220539Z#000000#000#000000
modifiersName: cn=admin,dc=dominiolinux18,dc=local
modifyTimestamp: 20200512170015Z

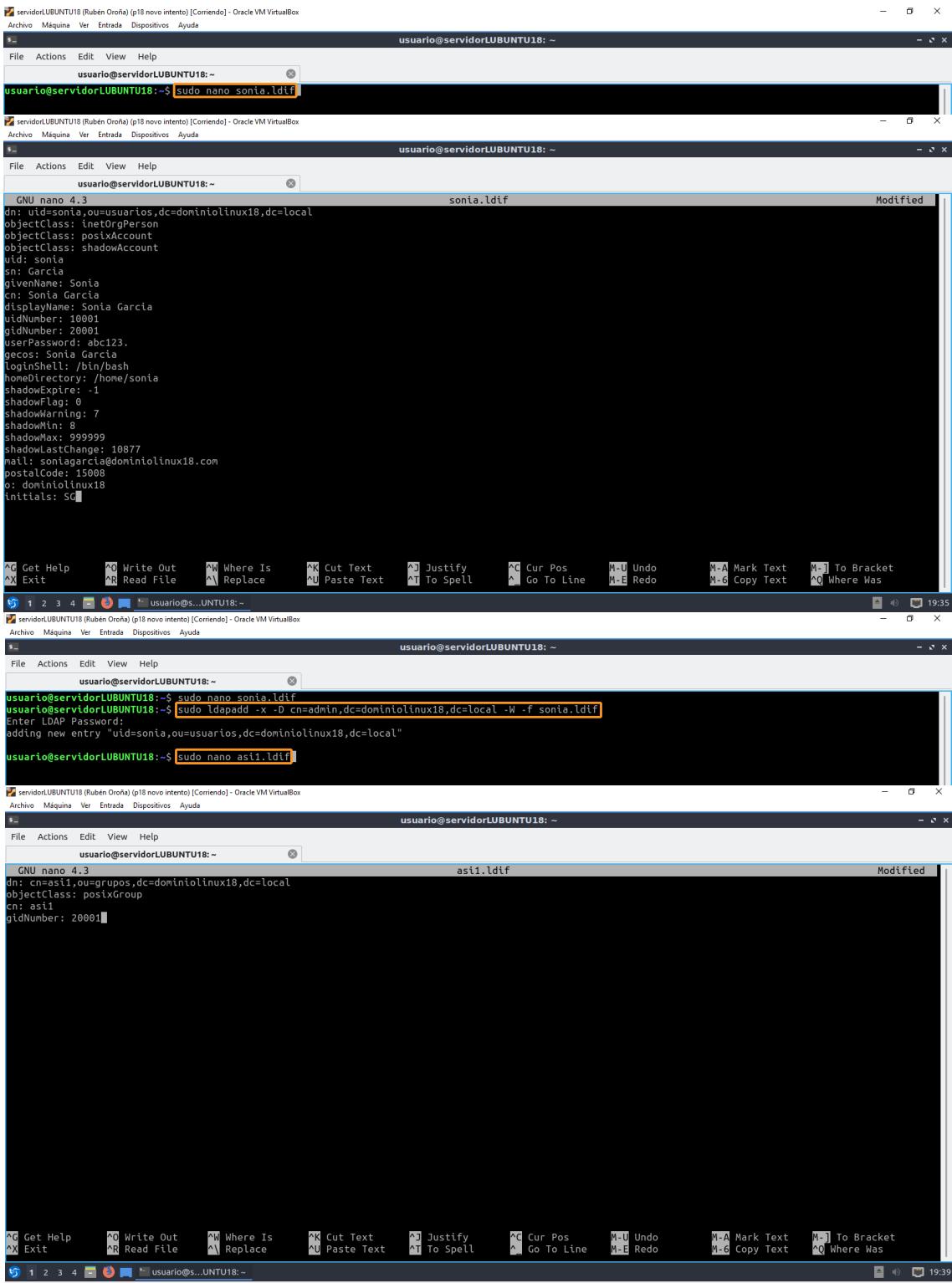
usuario@servidorLUBUNTU18: ~$ sudo ldapadd -x -D cn=admin,dc=dominiolinux18,dc=local -W -f base.ldif
Enter LDAP Password:
adding new entry "ou=usuarios,dc=dominiolinux18,dc=local"
adding new entry "ou=grupos,dc=dominiolinux18,dc=local"

usuario@servidorLUBUNTU18: ~$ 

```

B. Creación dun usuario con arquivos .ldif

Continuamos empregando a mesma extensión de ficheiros para [crear o usuario sonia](#). A estrutura do arquivo é ríxida, polo que usamos unha plantilla. O importante é establecer unha ID para o usuario que sexa única (10001), a ID do grupo que crearemos despois (20001), ademais das rutas do directorio persoal e Shell empregada. Para engadir o usuario ó LDAP, usamos o mesmo comando que antes coas unidades organizativas. Tamén imos [crear o grupo asi1](#), coa ID do grupo coincidente coa establecida no usuario, nun proceso moi similar.

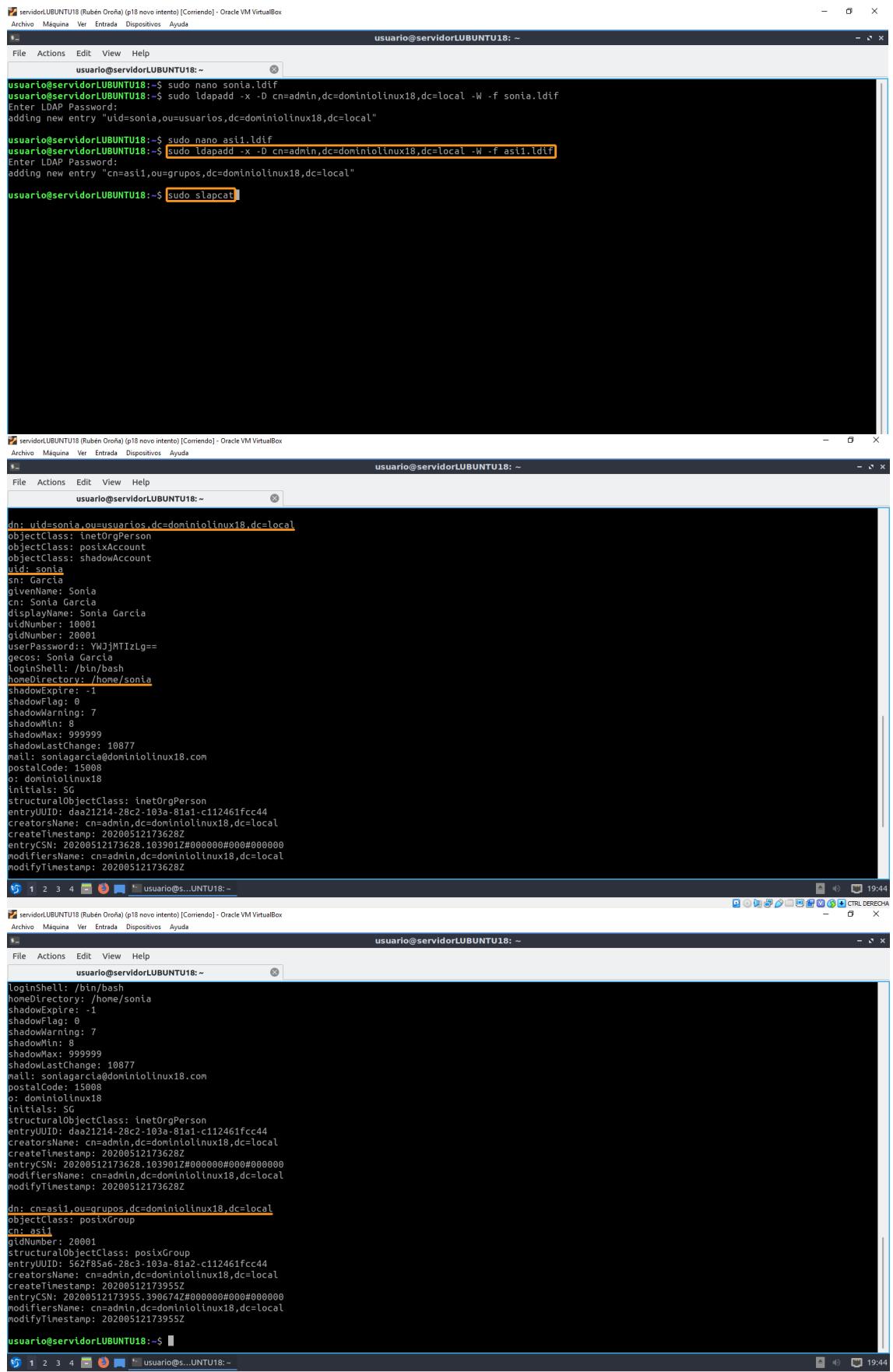


```
servidor|UBUNTU18 (Rubén Oroña) (p18 novo intento) [Corriendo] - Oracle VM VirtualBox
Archivo Máquina Ver Entrada Dispositivos Ayuda
usuario@servidorLUBUNTU18: ~
File Actions Edit View Help
usuario@servidorLUBUNTU18:~$ sudo nano sonia.ldif
servidor|UBUNTU18 (Rubén Oroña) (p18 novo intento) [Corriendo] - Oracle VM VirtualBox
Archivo Máquina Ver Entrada Dispositivos Ayuda
usuario@servidorLUBUNTU18: ~
File Actions Edit View Help
usuario@servidorLUBUNTU18:~$
GNU nano 4.3
dn: uid=sonia,ou=usuarios,dc=dominiolinux18,dc=local
objectClass: inetOrgPerson
objectClass: posixAccount
objectClass: shadowAccount
uid: sonia
sn: Garcia
givenName: Sonia
cn: Sonia Garcia
displayName: Sonia Garcia
uidNumber: 10001
gidNumber: 20001
userPassword: abc123.
gecos: Sonia Garcia
loginShell: /bin/bash
homeDirectory: /home/sonia
shadowExpire: -1
shadowFlag: 0
shadowWarning: 7
shadowMin: 8
shadowMax: 999999
shadowLastChange: 10877
mail: soniagarcia@dominiolinux18.com
postalCode: 15008
o: dominiolinux18
initials: SC

^G Get Help      ^O Write Out      ^W Where Is      ^X Cut Text      ^A Justify      ^C Cur Pos      M-U Undo
^X Exit          ^R Read File       ^\ Replace       ^V Paste Text     ^T To Spell      M-G Redo       M-A Mark Text
M-J To Bracket   M-O Copy Text    M-Q Where Was
1 2 3 4 5 6 7 8 9 0 19:35
servidor|UBUNTU18 (Rubén Oroña) (p18 novo intento) [Corriendo] - Oracle VM VirtualBox
Archivo Máquina Ver Entrada Dispositivos Ayuda
usuario@servidorLUBUNTU18: ~
File Actions Edit View Help
usuario@servidorLUBUNTU18:~$ sudo ldapadd -x -D cn=admin,dc=dominiolinux18,dc=local -W -f sonia.ldif
Enter LDAP Password:
adding new entry "uid=sonia,ou=usuarios,dc=dominiolinux18,dc=local"
usuario@servidorLUBUNTU18:~$ sudo nano asi1.ldif
servidor|UBUNTU18 (Rubén Oroña) (p18 novo intento) [Corriendo] - Oracle VM VirtualBox
Archivo Máquina Ver Entrada Dispositivos Ayuda
usuario@servidorLUBUNTU18: ~
File Actions Edit View Help
usuario@servidorLUBUNTU18:~$
GNU nano 4.3
dn: cn=asi1,ou=grupos,dc=dominiolinux18,dc=local
objectClass: posixGroup
cn: asi1
gidNumber: 20001

^G Get Help      ^O Write Out      ^W Where Is      ^X Cut Text      ^A Justify      ^C Cur Pos      M-U Undo
^X Exit          ^R Read File       ^\ Replace       ^V Paste Text     ^T To Spell      M-G Redo       M-A Mark Text
M-J To Bracket   M-O Copy Text    M-Q Where Was
1 2 3 4 5 6 7 8 9 0 19:39
CTRL DERECHA
```

Tras engadir o grupo así1 á base de datos, volvemos a empregar o comando [<# sudo slapcat] para comprobar que todo o proceso foi correcto.



```

servidorUBUNTU18 (Rubén Oroña) (p18 novo intento) [Corriendo] - Oracle VM VirtualBox
Archivo Máquina Ver Entrada Dispositivos Ayuda
usuario@servidorLUBUNTU18: ~
File Actions Edit View Help
usuario@servidorLUBUNTU18:~$ sudo nano sonia.ldif
usuario@servidorLUBUNTU18:~$ sudo ldapadd -x -D cn=admin,dc=dominiolinux18,dc=local -W -f sonia.ldif
Enter LDAP Password:
adding new entry "uid=sonia,ou=usuarios,dc=dominiolinux18,dc=local"

usuario@servidorLUBUNTU18:~$ sudo nano asi1.ldif
usuario@servidorLUBUNTU18:~$ sudo ldapadd -x -D cn=admin,dc=dominiolinux18,dc=local -W -f asi1.ldif
Enter LDAP Password:
adding new entry "cn=asi1,ou=grupos,dc=dominiolinux18,dc=local"

usuario@servidorLUBUNTU18:~$ sudo slapcat

servidorUBUNTU18 (Rubén Oroña) (p18 novo intento) [Corriendo] - Oracle VM VirtualBox
Archivo Máquina Ver Entrada Dispositivos Ayuda
usuario@servidorLUBUNTU18: ~
File Actions Edit View Help
usuario@servidorLUBUNTU18:~$ 
dn: uid=sonia,ou=usuarios,dc=dominiolinux18,dc=local
objectClass: inetOrgPerson
objectClass: posixAccount
objectClass: shadowAccount
uid: sonia
sn: García
givenName: Sonia
cn: Sonia García
displayName: Sonia García
uidNumber: 1000
gidNumber: 20001
userPassword: YWJjMTIzLg==
gecos: Sonia García
loginShell: /bin/bash
homeDirectory: /home/sonia
shadowExpire: -1
shadowFlag: 0
shadowWarning: 7
shadowMin: 8
shadowMax: 999999
shadowLastChange: 10877
mail: soniagarcia@dominiolinux18.com
postalCode: 15008
o: dominiolinux18
initials: SG
structuralObjectClass: inetOrgPerson
entryUUID: daa21214-28c2-103a-81a1-c112461fcc44
creatorsName: cn=admin,dc=dominiolinux18,dc=local
createTimestamp: 20200512173628Z
entryCSN: 20200512173628.103901Z#000000#000#000000
modifiersName: cn=admin,dc=dominiolinux18,dc=local
modifyTimestamp: 20200512173628Z

servidorUBUNTU18 (Rubén Oroña) (p18 novo intento) [Corriendo] - Oracle VM VirtualBox
Archivo Máquina Ver Entrada Dispositivos Ayuda
usuario@servidorLUBUNTU18: ~
File Actions Edit View Help
usuario@servidorLUBUNTU18:~$ 
loginShell: /bin/bash
homeDirectory: /home/sonia
shadowExpire: -1
shadowFlag: 0
shadowWarning: 7
shadowMin: 8
shadowMax: 999999
shadowLastChange: 10877
mail: soniagarcia@dominiolinux18.com
postalCode: 15008
o: dominiolinux18
initials: SG
structuralObjectClass: inetOrgPerson
entryUUID: daa21214-28c2-103a-81a1-c112461fcc44
creatorsName: cn=admin,dc=dominiolinux18,dc=local
createTimestamp: 20200512173628Z
entryCSN: 20200512173628.103901Z#000000#000#000000
modifiersName: cn=admin,dc=dominiolinux18,dc=local
modifyTimestamp: 20200512173628Z

dn: cn=asi1,ou=grupos,dc=dominiolinux18,dc=local
objectClass: posixGroup
cn: asi1
gidNumber: 20001
structuralObjectClass: posixGroup
entryUUID: 562f85a6-28c2-103a-81a2-c112461fcc44
creatorsName: cn=admin,dc=dominiolinux18,dc=local
createTimestamp: 20200512173955Z
entryCSN: 20200512173955.3906747#000000#000#000000
modifiersName: cn=admin,dc=dominiolinux18,dc=local
modifyTimestamp: 20200512173955Z

usuario@servidorLUBUNTU18:~$ 

```

C. Instalación do servizo OpenLDAP no cliente

Tomamos control do equipo cliente, no que debemos **instalar os paquetes necesarios**: libpam-ldap, libnss-ldap, nss-updatedb, libnss-db, nscd e ldap-utils. Podemos concatenar toda a instalación nun único comando. Tras isto, pasaremos por sucesivas pantallas dun **asistente de configuración**. Así pois, debemos comezar por manter a estrutura [/ldapi://] e engadir a dirección IP do servidor. Despois, establecemos os nomes que definen o dominio.

The terminal window shows the following steps:

```
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=0.284 ms
64 bytes from 192.168.18.23: icmp_seq=2 ttl=64 time=0.729 ms
64 bytes from 192.168.18.23: icmp_seq=3 ttl=64 time=0.569 ms
^C
--- 192.168.18.23 ping statistics ---
3 packets transmitted, 3 received, 0% packet loss, time 2005ms
rtt min/avg/max/mdev = 0.284/0.527/0.729/0.184 ms
usuario@clienteLUBUNTU18:~$ sudo apt-get install libpam-ldap libnss-ldap nss-updatedb libnss-db nscd ldap-utils -y
```

After the installation, the terminal shows the configuration of the LDAP server URI:

```
+ Configuring ldap-auth-config +
Please enter the URI of the LDAP server to use. This is a string in the form of ldap://<hostname or IP>:<port>/. ldaps:// or ldapi:// can also be used. The port number is optional.
Note: It is usually a good idea to use an IP address because it reduces risks of failure in the event name service problems.
LDAP server Uniform Resource Identifier:
ldap:///192.168.18.23
<0k>
```

Finally, the configuration of the distinguished name of the search base:

```
+ Configuring ldap-auth-config +
Please enter the distinguished name of the LDAP search base. Many sites use the components of their domain names for this purpose. For example, the domain "example.net" would use "dc=example,dc=net" as the distinguished name of the search base.
Distinguished name of the search base:
dc=dominiolinux18,dc=local
<0k>
```

Como versión a instalar, escollemos a máis recente, neste caso a 3. Posteriormente, deixamos as dúas seguintes opcións defecto. Para rematar, establecemos a conta que manexa o LDAP (admin), os componentes do nome do dominio e autenticámonos co contrasinal que establecemos anteriormente no servidor. Unha vez remata a instalación, imos **editar os arquivo de configuración ldap**.

```

Configuring ldap-auth-config
Please enter which version of the LDAP protocol should be used by ldaps. It is usually a good idea to set this to the highest available version.

LDAP version to use:
3
2
<Ok>

Configuring ldap-auth-config
This account will be used when root changes a password.

Note: This account has to be a privileged account.

LDAP account for root:
cn=admin,dc=dominiolinux18,dc=local
<Ok>

Unpacking libnss-db (2.2.3pre1-6build5) ...
Selecting previously unselected package nscd.
Preparing to unpack .../2-nscd_2.30-0ubuntu2.1_amd64.deb ...
Unpacking nscd (2.30-0ubuntu2.1) ...
Selecting previously unselected package nss-updatedb.
Preparing to unpack .../3-nss-updatedb_10-3build1_amd64.deb ...
Unpacking nss-updatedb (10-3build1) ...
Selecting previously unselected package ldap-auth-config.
Preparing to unpack .../4-ldap-auth-config_0.5.4_all.deb ...
Unpacking ldap-auth-config (0.5.4) ...
Selecting previously unselected package libpam-ldap:amd64.
Preparing to unpack .../5-libpam-ldap_186-4ubuntu1_amd64.deb ...
Unpacking libpam-ldap:amd64 (186-4ubuntu1) ...
Selecting previously unselected package libnss-ldap:amd64.
Preparing to unpack .../6-libnss-ldap_265-Subuntu1_amd64.deb ...
Unpacking libnss-ldap:amd64 (265-Subuntu1) ...
Selecting previously unselected package ldap-auth-client.
Preparing to unpack .../7-ldap-auth-client_0.5.4_all.deb ...
Unpacking ldap-auth-client (0.5.4) ...
Setting up ldap-utils (2.4.48+dfsg-1ubuntu1.1) ...
Setting up libnss-ldap:amd64 (265-Subuntu1) ...
update-rc.d: warning: start and stop actions are no longer supported; falling back to defaults
Setting up nscd (2.30-0ubuntu2.1) ...
Created symlink /etc/systemd/system/multi-user.target.wants/nscd.service → /lib/systemd/system/nscd.service.
Setting up nss-updatedb (10-3build1) ...
Setting up libnss-db (2.2.3pre1-6build5) ...
Setting up ldap-auth-client (0.5.4) ...
Setting up ldap-auth-config (0.5.4) ...
Setting up libpam-ldap:amd64 (186-4ubuntu1) ...
Processing triggers for libc-bin (2.30-0ubuntu2.1) ...
Processing triggers for systemd (242-7ubuntu3.8) ...
Processing triggers for man-db (2.8.7-3) ...
usuario@clienteLUBUNTU18:~$ sudo nano /etc/ldap.conf

```

Comezamos por editar o arquivo [/etc/ldap.conf], no que faremos tres cambios. O primeiro será cambiar a liña comentada [# bind policy hard] por [bind policy soft]. Despois, imos substituír [pam_password md5] por [pam_password crypt]. Para rematar, atopamos a liña que comeza por [uri ldapi:///] para establecer [uri ldap://192.168.18.23], sen a terceira barra /.

Outro arquivo a modificar é [/etc/ldap/ldap.conf], localizando as cinco liñas sinaladas na captura e deixándoas como amosamos. Tamén editaremos o ficheiro [/etc/nsswitch.conf].

```

clienteLUBUNTU18 (Rubén Oroña) (p18 novo intento) [Corriendo] - Oracle VM VirtualBox
Archivo Máquina Ver Entrada Dispositivos Ayuda
File Actions Edit View Help
usuario@clienteLUBUNTU18: ~
Selecting previously unselected package nscd.
Preparing to unpack .../2-nscd_2.30-0ubuntu2.1_amd64.deb ...
Unpacking nscd (2.30-0ubuntu2.1) ...
Selecting previously unselected package nss-updatedb.
Preparing to unpack .../3-nss-updatedb_10-3build1_amd64.deb ...
Unpacking nss-updatedb (10-3build1)
Selecting previously unselected package ldap-auth-config.
Preparing to unpack .../4-ldap-auth-config_0.5.4_all.deb ...
Unpacking ldap-auth-config (0.5.4)
Selecting previously unselected package libpam-ldap:amd64.
Preparing to unpack .../5-libpam-ldap_186-4ubuntu1_amd64.deb ...
Unpacking libpam-ldap:amd64 (186-4ubuntu1) ...
Selecting previously unselected package libnss-ldap:amd64.
Preparing to unpack .../6-libnss-ldap_265-5ubuntu1_amd64.deb ...
Unpacking libnss-ldap:amd64 (265-5ubuntu1) ...
Selecting previously unselected package ldap-auth-client.
Preparing to unpack .../7-ldap-auth-client_0.5.4_all.deb ...
Unpacking ldap-auth-client (0.5.4) ...
Setting up ldap-utils (2.4.48+dfsg-1ubuntu1.1) ...
Setting up libnss-ldap:amd64 (265-5ubuntu1) ...
update-rc.d: warning: start and stop actions are no longer supported; falling back to defaults
Setting up nscd (2.30-0ubuntu2.1) ...
Created symlink /etc/systemd/system/multi-user.target.wants/nscd.service → /lib/systemd/system/nscd.service.
Setting up nss-updatedb (10-3build1) ...
Setting up libnss-dh (2.2.3pre1-6build5) ...
Setting up ldap-auth-client (0.5.4) ...
Setting up ldap-auth-config (0.5.4) ...
Setting up libpam-ldap:amd64 (186-4ubuntu1) ...
Processing triggers for libc-bin (2.30-0ubuntu2.1) ...
Processing triggers for systemd (242-7ubuntu3.8) ...
Processing triggers for man-db (2.8.7-3) ...
usuario@clienteLUBUNTU18: ~$ sudo nano /etc/ldap.conf
usuario@clienteLUBUNTU18: ~$ sudo nano /etc/ldap/ldap.conf

```

usuario@clienteLUBUNTU18: ~

```

clienteLUBUNTU18 (Rubén Oroña) (p18 novo intento) [Corriendo] - Oracle VM VirtualBox
Archivo Máquina Ver Entrada Dispositivos Ayuda
File Actions Edit View Help
usuario@clienteLUBUNTU18: ~
GNU nano 4.3
/etc/ldap/ldap.conf
# LDAP Defaults
#
# See ldap.conf(5) for details
# This file should be world readable but not world writable.

BASE    dc=dominiolinux18,dc=local
URI    ldap://ldap.dominiolinux18.local
SIZELIMIT      0
TIMELIMIT      0
DEREF    never

# TLS certificates (needed for GnuTLS)
TLS_CACERT    /etc/ssl/certs/ca-certificates.crt

```

usuario@clienteLUBUNTU18: ~

```

clienteLUBUNTU18 (Rubén Oroña) (p18 novo intento) [Corriendo] - Oracle VM VirtualBox
Archivo Máquina Ver Entrada Dispositivos Ayuda
File Actions Edit View Help
usuario@clienteLUBUNTU18: ~
Preparing to unpack .../2-nscd_2.30-0ubuntu2.1_amd64.deb ...
Unpacking nscd (2.30-0ubuntu2.1) ...
Selecting previously unselected package nss-updatedb.
Preparing to unpack .../3-nss-updatedb_10-3build1_amd64.deb ...
Unpacking nss-updatedb (10-3build1)
Selecting previously unselected package ldap-auth-config.
Preparing to unpack .../4-ldap-auth-config_0.5.4_all.deb ...
Unpacking ldap-auth-config (0.5.4)
Selecting previously unselected package libpam-ldap:amd64.
Preparing to unpack .../5-libpam-ldap_186-4ubuntu1_amd64.deb ...
Unpacking libpam-ldap:amd64 (186-4ubuntu1) ...
Selecting previously unselected package libnss-ldap:amd64.
Preparing to unpack .../6-libnss-ldap_265-5ubuntu1_amd64.deb ...
Unpacking libnss-ldap:amd64 (265-5ubuntu1) ...
Selecting previously unselected package ldap-auth-client.
Preparing to unpack .../7-ldap-auth-client_0.5.4_all.deb ...
Unpacking ldap-auth-client (0.5.4) ...
Setting up ldap-utils (2.4.48+dfsg-1ubuntu1.1) ...
Setting up libnss-ldap:amd64 (265-5ubuntu1) ...
update-rc.d: warning: start and stop actions are no longer supported; falling back to defaults
Setting up nscd (2.30-0ubuntu2.1) ...
Created symlink /etc/systemd/system/multi-user.target.wants/nscd.service → /lib/systemd/system/nscd.service.
Setting up nss-updatedb (10-3build1) ...
Setting up libnss-dh (2.2.3pre1-6build5) ...
Setting up ldap-auth-client (0.5.4) ...
Setting up ldap-auth-config (0.5.4) ...
Setting up libpam-ldap:amd64 (186-4ubuntu1) ...
Processing triggers for libc-bin (2.30-0ubuntu2.1) ...
Processing triggers for systemd (242-7ubuntu3.8) ...
Processing triggers for man-db (2.8.7-3) ...
usuario@clienteLUBUNTU18: ~$ sudo nano /etc/ldap.conf
usuario@clienteLUBUNTU18: ~$ sudo nano /etc/ldap/ldap.conf
usuario@clienteLUBUNTU18: ~$ sudo nano /etc/nsswitch.conf

```

usuario@clienteLUBUNTU18: ~

Nel atoparemos as liñas `passwd`, `group` e `shadow`, nas que debemos engadir ldap ó final. Tras isto, temos que actualizar a base de datos de usuarios e grupos LDAP, mediante a execución do comando [`# sudo nss_update db ldap`]. Podemos comprobar que o usuario que creamos antes se actualizou correctamente na caché local. Posteriormente, teremos que [actualizar a configuración de políticas de autenticación](#), executando [`# sudo pam-auth update`].

```

clienteLUBUNTU18 (Rubén Oroña) (p18 novo intento) [Corriendo] - Oracle VM VirtualBox
Archivo Máquina Ver Entrada Dispositivos Ayuda
usuario@clienteLUBUNTU18: ~
File Actions Edit View Help
GNU nano 4.3                                     /etc/nsswitch.conf
# /etc/nsswitch.conf
#
# Example configuration of GNU Name Service Switch functionality.
# If you have the 'glIBC-doc-reference' and 'info' packages installed, try:
# 'Info libc "Name Service Switch"' for information about this file.

passwd:      files ldap
group:       files ldap
shadow:      files ldap
gshadow:     files

hosts:       files mdns4_minimal [NOTFOUND=return] dns
networks:    files

protocols:   db files
services:    db files
ethers:     db files
rpc:        db files

netgroup:    nis

Modified
usuario@clienteLUBUNTU18: ~

^C Get Help   W Write Out   A Where Is   C Cut Text   J Justify   Cur Pos   M-U Undo   M-A Mark Text   M-B To Bracket
^X Exit      R Read File   ^R Replace   ^U Paste Text   T To Spell   M-E Redo   M-C Copy Text   M-Q Where Was
1 2 3 4   clienteLUBUNTU18 (Rubén Oroña) (p18 novo intento) [Corriendo] - Oracle VM VirtualBox
Archivo Máquina Ver Entrada Dispositivos Ayuda
usuario@clienteLUBUNTU18: ~
File Actions Edit View Help
usuario@clienteLUBUNTU18: ~
Unpacking nss-updatedb (10-3build1) ...
Selecting previously unselected package ldap-auth-config.
Preparing to unpack .../4-ldap-auth-config_0.5.4_all.deb ...
Unpacking ldap-auth-config (0.5.4) ...
Selecting previously unselected package libpam-ldap:amd64.
Preparing to unpack .../5-libpam-ldap_186-4ubuntu1_amd64.deb ...
Unpacking libpam-ldap:amd64 (186-4ubuntu1) ...
Selecting previously unselected package libnss-ldap:amd64.
Preparing to unpack .../6-libnss-ldap_265-Subuntu1_amd64.deb ...
Unpacking libnss-ldap:amd64 (265-Subuntu1) ...
Selecting previously unselected package ldap-auth-client.
Preparing to unpack .../7-ldap-auth-client_0.5.4_all.deb ...
Unpacking ldap-auth-client (0.5.4) ...
Setting up ldap-utils (2.4.48+dfsg-1ubuntu1.1) ...
Setting up libnss-ldap:amd64 (265-Subuntu1) ...
update-rc.d: warning: start and stop actions are no longer supported; falling back to defaults
Setting up nscd (2.30-0ubuntu2.1) ...
Created symlink /etc/systemd/system/multi-user.target.wants/nscd.service → /lib/systemd/system/nscd.service.
Setting up nss-updatedb (10-3build1) ...
Setting up libnss-ds (2.2.3pre1-6ubuntu5) ...
Setting up ldap-auth-client (0.5.4) ...
Setting up ldap-auth-config (0.5.4) ...
Setting up libpam-ldap:amd64 (186-4ubuntu1) ...
Processing triggers for liblc-bin (2.30-0ubuntu2.1) ...
Processing triggers for System (242-7ubuntu3.8) ...
Processing triggers for man-db (2.8.7-3) ...
usuario@clienteLUBUNTU18: ~$ sudo nano /etc/ldap.conf
usuario@clienteLUBUNTU18: ~$ sudo nano /etc/ldap/ldap.conf
usuario@clienteLUBUNTU18: ~$ sudo nano /etc/nsswitch.conf
usuario@clienteLUBUNTU18: ~$ sudo nss_update db ldap
passwd... done.
group... done.
usuario@clienteLUBUNTU18: ~$ getent passwd
clienteLUBUNTU18 (Rubén Oroña) (p18 novo intento) [Corriendo] - Oracle VM VirtualBox
Archivo Máquina Ver Entrada Dispositivos Ayuda
usuario@clienteLUBUNTU18: ~
File Actions Edit View Help
usuario@clienteLUBUNTU18: ~
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
uuid:x:106:113::/run/uuid:/usr/sbin/nologin
tcpdump:x:107:114::/nonexistent:/usr/sbin/nologin
usbnum:x:108:46:usbnum daemon,,,:/var/lib/usbnum:/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 Ooops 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
whoopsie: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:system 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:1002:1002::/home/PROFESORES/profesor1:/bin/bash
sonia:x:10001:20001:Sonia García:/home/sonia:/bin/bash
usuario@clienteLUBUNTU18: ~$ sudo pam-auth-update
usuario@clienteLUBUNTU18: ~

```

Deixamos as opcións por defecto. Non marcamos a posibilidade de **crear o directorio persoal do usuario no momento do login**, pois aparentemente é unha función que está bugada. Sen embargo, debemos solucionar isto por outro método, ou será imposible iniciar sesión dende un cliente do dominio. Así pois, editamos o arquivo [/etc/pam.d/common-session], e engadimos ó comezo do ficheiro a liña que amosamos na captura.

```

PAM configuration
Pluggable Authentication Modules (PAM) determine how authentication, authorization, and password changing are handled on the system, as well as allowing configuration of additional actions to take when starting user sessions.

Some PAM module packages provide profiles that can be used to automatically adjust the behavior of all PAM-using applications on the system. Please indicate which of these behaviors you wish to enable.

PAM profiles to enable:
 Unix authentication
 LDAP Authentication
 Register user sessions in the systemd control group hierarchy
 Create home directory on login
 GNOME Keyring Daemon - Login keyring management
 Inheritable Capabilities Management

<Ok> <Cancel>

usuario@clienteLUBUNTU18:~$ sudo nano /etc/pam.d/common-session
session required pam_mkhomedir.so skel=/etc/skel/ umask=0022
# /etc/pam.d/common-session - session-related modules common to all services
# This file is included from other service-specific PAM config files,
# and should contain a list of modules that define tasks to be performed
# at the start and end of sessions of *any* kind (both interactive and
# non-interactive).
#
# As of pam 1.0.1-6, this file is managed by pam-auth-update by default.
# To take advantage of this, it is recommended that you configure any
# local modules either before or after the default block, and use
# pam-auth-update to manage selection of other modules. See
# pam-auth-update(8) for details.
#
# here are the per-package modules (the "Primary" block)
session [default=1] pam_permit.so
# here's the fallback if no module succeeds
session requisite pam_deny.so
# prime the stack with a positive return value if there isn't one already;
# this avoids us returning an error just because nothing sets a success code
# since the modules above will each just jump around
session required pam_permit.so
# The pam_umask module will set the umask according to the system default in
# /etc/login.defs and user settings, solving the problem of different
# umask settings with different shells, display managers, remote sessions etc.
# See "man pam_umask".
session optional pam_umask.so
# and here are more per-package modules (the "Additional" block)

^G Get Help      ^W Write Out    ^K Cut Text     ^J Justify      ^C Cur Pos      M-U Undo      M-A Mark Text   M-T To Bracket
^X Exit          ^R Read File    ^H Where Is     ^V Paste Text   ^T To Spell     M-E Redo       M-G Copy Text  ^O Where Was
^Q 1 2 3 4      ^F Find        ^L Replace      ^S Save        ^I Insert      ^D Delete      ^U Undo        ^P Previous Line
^A 20:23

```

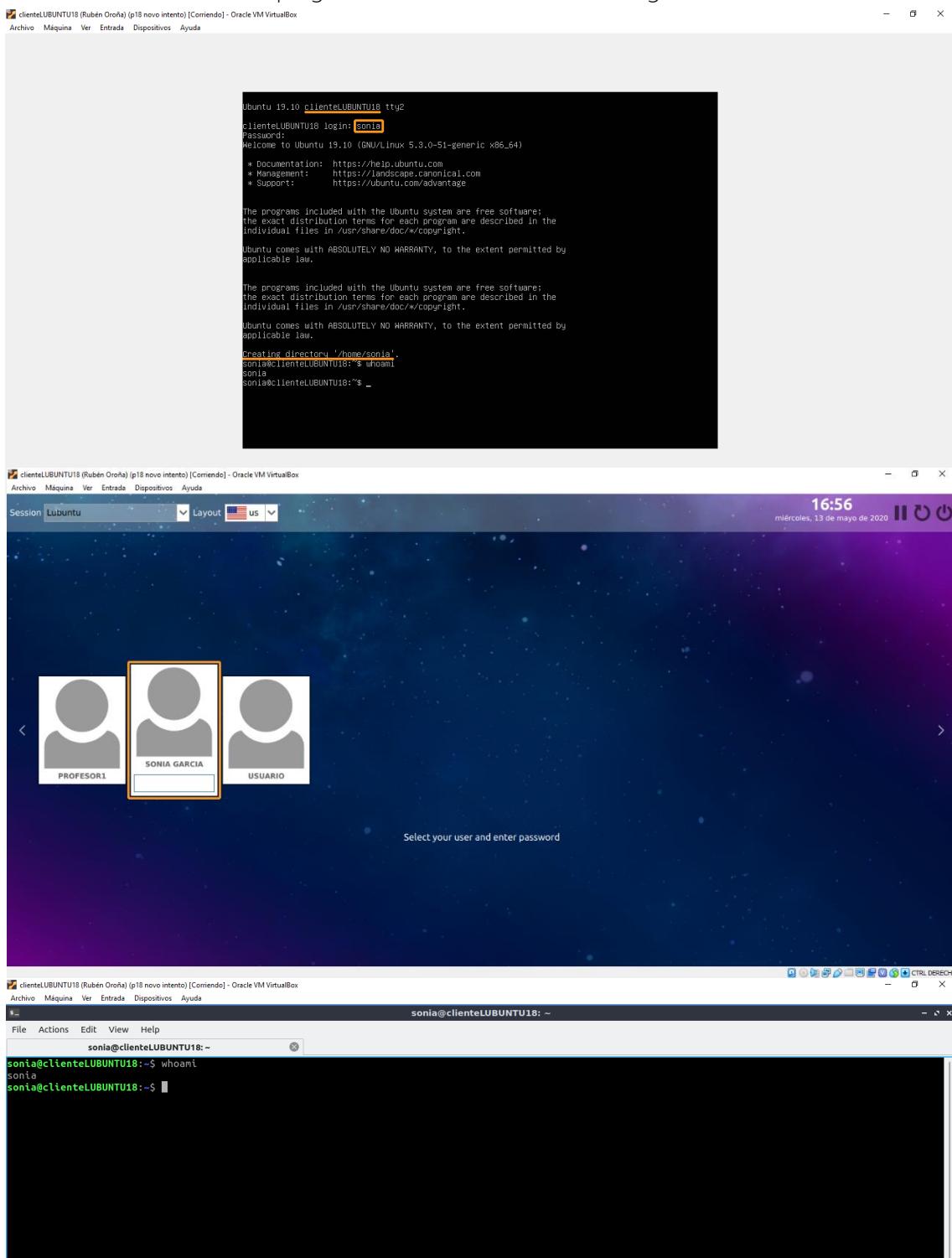
Para finalizar, editamos tamén o arquivo [/etc/pam.d/common-password] para borrar os últimos parámetros da liña sinalada. Tras isto, deberemos **reiniciar o equipo**, xa que a continuación pretendemos empregar o modo texto mediante o seu atallo ctrl+ alt + función (host+f2 en VirtualBox). Sen facer reboot resultaba imposible continuar a práctica. Por outro lado, se intentásemos iniciar a máquina directamente en modo texto, evidentemente o reinicio xa iría implícito.

The image consists of three vertically stacked screenshots of a terminal window titled "usuario@clienteLUBUNTU18: ~".

- Screenshot 1:** Shows the command "cat /etc/pam.d/common-password" being run. The output lists numerous system services and their authentication methods, including "nologin" for many services like "gnats", "syslog", "ntp", "cron", etc.
- Screenshot 2:** Shows the file being edited with "nano /etc/pam.d/common-password". The "password" line is highlighted with a yellow box, showing the command "password [success=2 default=ignore] pam_unix.so obscure sha512".
- Screenshot 3:** Shows the command "reboot" being entered at the prompt, with a yellow box highlighting the word "reboot".

D. Login co usuario sonia

Tras reiniciar o equipo, prememos o atallo visto anteriormente para **abrir o modo texto**. Introducimos as credenciais, e podemos comprobar como o inicio de sesión é satisfactorio. Ademais, o sistema indica que o directorio persoal foi creado. Se facemos logout, tamén podemos **iniciar sesión en modo gráfico**. Como xa vimos na práctica do dominio NIS, o xestor SSDM que emprega Lubuntu non precisa de ningunha configuración extra para permitir que o primeiro inicio de sesión sexa dende o modo gráfico. Aínda así, no próximo usuario que imos crear, evitaremos empregar o modo texto, con fin de asegurarnos.



E. Instalación da ferramenta LDAP Account Manager

Debido a unha incompatibilidade do LDAP Account Manager co PHP7 que emprega por defecto, debemos **instalar manualmente a versión PHP5**. Así pois, comezamos por engadir o repositorio [ppa:ondrej/php]. Posteriormente, instalamos o PHP5 e os módulos mbstring, mcrypt, MySQL e XML.

The terminal session shows the following steps:

```
usuario@servidorLUBUNTU18:~$ sudo add-apt-repository ppa:ondrej/php
[sudo] password for usuario:
[sudo] password for usuario:
Co-installable PHP versions: PHP 5.6, PHP 7.x and most requested extensions are included. Only Supported Versions of PHP (http://php.net/supported-versions.php) for Supported Ubuntu Releases (https://wiki.ubuntu.com/Releases) are provided. Don't ask for end-of-life PHP versions or Ubuntu release, they won't be provided.

Debian oldstable and stable packages are provided as well: https://deb.sury.org/#debian-dpa

You can get more information about the packages at https://deb.sury.org

BUGS&FEATURES: This PPA now has a issue tracker: https://deb.sury.org/#bug-reporting

CAVEATS:
1. If you are using php-gearman, you need to add ppa:ondrej/php-gearman
2. If you are using apache2, you are advised to add ppa:ondrej/apache2
3. If you are using nginx, you are advised to add ppa:ondrej/nginx-mainline
or ppa:ondrej/nginx

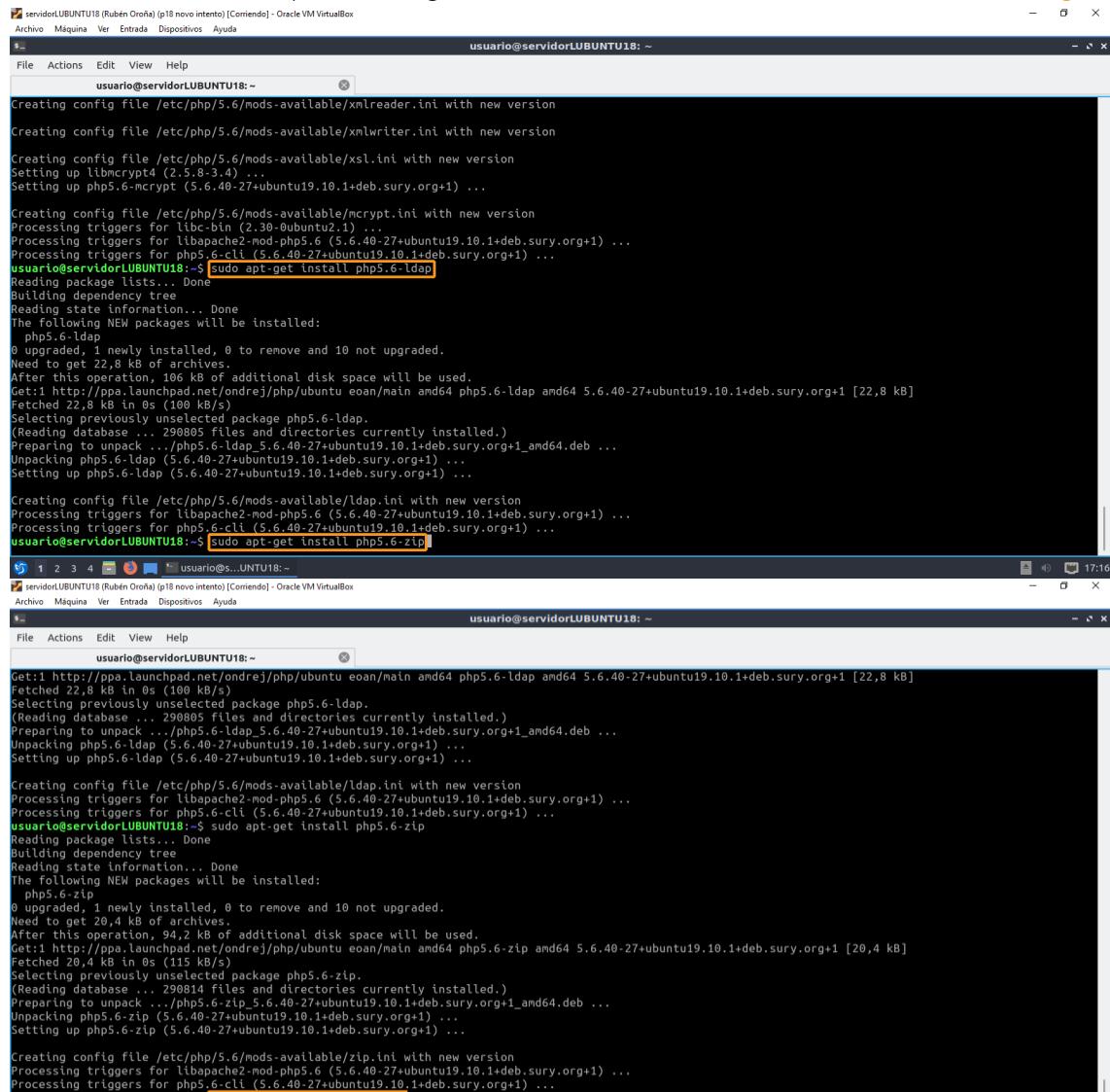
PLEASE READ: If you like my work and want to give me a little motivation, please consider donating regularly: https://donate.sury.org/

WARNING: add-apt-repository is broken with non-UTF-8 locales, see https://bugs.debian.org/710000
```

```
usuario@servidorLUBUNTU18:~$ sudo apt-get update
Get:7 http://ppa.launchpad.net/ondrej/php/ubuntu eoan/main amd64 Packages [47,8 kB]
Get:8 http://ppa.launchpad.net/ondrej/php/ubuntu eoan/main Translation-en [21,8 kB]
Hit:9 https://download.webmin.com/download/repository sarge Release
Fetched 277 kB in 2s (174 kB/s)
Reading package lists... Done
usuario@servidorLUBUNTU18:~$ sudo apt-get install php5.6
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following additional packages will be installed:
  apache2 apache2-bin apache2-data apache2-utils libapache2-mod-php5.6 libapr1 libaprutil1 libaprutil1-dbd-sqlite3 libaprutil1-ldap libpcre3 php-common
  php5.6-cll php5.6-common php5.6-json php5.6-opcache php5.6-readline
Suggested packages:
  apache2-doc apache2-suexec-pristine | apache2-suexec-custom php-pear
The following NEW packages will be installed:
  apache2 apache2-bin apache2-data apache2-utils libapache2-mod-php5.6 libapr1 libaprutil1 libaprutil1-dbd-sqlite3 libaprutil1-ldap php-common php5.6
  php5.6-cll php5.6-common php5.6-json php5.6-opcache php5.6-readline
The following packages will be upgraded:
  libpcre3
1 upgraded, 16 newly installed, 0 to remove and 10 not upgraded.
Need to get 7.642 kB of archives.
After this operation, 23,7 MB of additional disk space will be used.
Do you want to continue? [Y/n] y
```

```
usuario@servidorLUBUNTU18:~$ sudo apt-get install libapache2-mod-php5.6
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following additional packages will be installed:
  libapache2-mod-php5.6
Creating symlinks /etc/systemd/system/multi-user.target.wants/apache2.service → /lib/systemd/system/apache2.service,
Creating symlinks /etc/systemd/system/multi-user.target.wants/apache-htcacheclean.service → /lib/systemd/system/apache-htcacheclean.service.
Setting up php5.6 (5.6.40-27+ubuntu19.10.1+deb.sury.org+1) ...
Processing triggers for ufw (0.36-1ubuntu3) ...
Processing triggers for systemd (242-7ubuntu3.8) ...
Processing triggers for man-db (2.8.7-3) ...
Processing triggers for libc-bin (2.30-0ubuntu2.1) ...
Processing triggers for libapache2-mod-php5.6 (5.6.40-27+ubuntu19.10.1+deb.sury.org+1) ...
Processing triggers for libapache2-mod-php5.6-mbstring (5.6.40-27+ubuntu19.10.1+deb.sury.org+1) ...
usuario@servidorLUBUNTU18:~$ sudo apt-get install php5.6-mbstring php5.6-mcrypt php5.6-mysql php5.6-xml
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following additional packages will be installed:
  libmcrypt4
Suggested packages:
  libmcrypt-dev mcrypt
The following NEW packages will be installed:
  libmcrypt4 php5.6-mbstring php5.6-mcrypt php5.6-mysql php5.6-xml
0 upgraded, 5 newly installed, 0 to remove and 10 not upgraded.
Need to get 808 kB of archives.
After this operation, 2.894 kB of additional disk space will be used.
Do you want to continue? [Y/n] y
```

Instalamos tamén os módulos LDAP e ZIP. Tras isto, imos [reiniciar o servizo apache](#). Coa versión PHP adecuada, podemos agora rematar coa [instalación do LDAP Account Manager](#).



```

servidorLUBUNTU18 (Rubén Oroña) (p18 novo intento) [Corriendo] - Oracle VM VirtualBox
Archivo Máquina Ver Entrada Dispositivos Ayuda
usuario@servidorLUBUNTU18: ~
File Actions Edit View Help
usuario@servidorLUBUNTU18:~ 
Creating config file /etc/php/5.6/mods-available/xmlreader.ini with new version
Creating config file /etc/php/5.6/mods-available/xmlwriter.ini with new version
Creating config file /etc/php/5.6/mods-available/xsl.ini with new version
Setting up libmcrypt4 (2.5.8-3.4) ...
Setting up php5.6-mcrypt (5.6.40-27+ubuntu19.10.1+deb.sury.org+1) ...

Creating config file /etc/php/5.6/mods-available/mcrypt.ini with new version
Processing triggers for libc-bin (2.30-0ubuntu2.1) ...
Processing triggers for libapache2-mod-php5.6 (5.6.40-27+ubuntu19.10.1+deb.sury.org+1) ...
Processing triggers for php5.6-cli (5.6.40-27+ubuntu19.10.1+deb.sury.org+1) ...
usuario@servidorLUBUNTU18:~$ sudo apt-get install php5.6-ldap
Building dependency tree
Reading state information... Done
The following NEW packages will be installed:
  php5.6-ldap
0 upgraded, 1 newly installed, 0 to remove and 10 not upgraded.
Need to get 22,8 kB of archives.
After this operation, 106 kB of additional disk space will be used.
Get:1 http://ppa.launchpad.net/ondrej/php/ubuntu eoan/main amd64 php5.6-ldap amd64 5.6.40-27+ubuntu19.10.1+deb.sury.org+1 [22,8 kB]
Fetched 22,8 kB in 0s (100 kB/s)
Selecting previously unselected package php5.6-ldap.
(Reading database ... 290805 files and directories currently installed.)
Preparing to unpack .../php5.6-ldap_5.6.40-27+ubuntu19.10.1+deb.sury.org+1_amd64.deb ...
Unpacking php5.6-ldap (5.6.40-27+ubuntu19.10.1+deb.sury.org+1) ...
Setting up php5.6-ldap (5.6.40-27+ubuntu19.10.1+deb.sury.org+1) ...

Creating config file /etc/php/5.6/mods-available/ldap.ini with new version
Processing triggers for libapache2-mod-php5.6 (5.6.40-27+ubuntu19.10.1+deb.sury.org+1) ...
Processing triggers for php5.6-cli (5.6.40-27+ubuntu19.10.1+deb.sury.org+1) ...
usuario@servidorLUBUNTU18:~$ sudo apt-get install php5.6-zip
Building dependency tree
Reading state information... Done
The following NEW packages will be installed:
  php5.6-zip
0 upgraded, 1 newly installed, 0 to remove and 10 not upgraded.
Need to get 20,4 kB of archives.
After this operation, 94,2 kB of additional disk space will be used.
Get:1 http://ppa.launchpad.net/ondrej/php/ubuntu eoan/main amd64 php5.6-zip amd64 5.6.40-27+ubuntu19.10.1+deb.sury.org+1 [20,4 kB]
Fetched 20,4 kB in 0s (115 kB/s)
Selecting previously unselected package php5.6-zip.
(Reading database ... 290814 files and directories currently installed.)
Preparing to unpack .../php5.6-zip_5.6.40-27+ubuntu19.10.1+deb.sury.org+1_amd64.deb ...
Unpacking php5.6-zip (5.6.40-27+ubuntu19.10.1+deb.sury.org+1) ...
Setting up php5.6-zip (5.6.40-27+ubuntu19.10.1+deb.sury.org+1) ...

Creating config file /etc/php/5.6/mods-available/zip.ini with new version
Processing triggers for libapache2-mod-php5.6 (5.6.40-27+ubuntu19.10.1+deb.sury.org+1) ...
Processing triggers for php5.6-cli (5.6.40-27+ubuntu19.10.1+deb.sury.org+1) ...
usuario@servidorLUBUNTU18:~$ sudo service apache2 restart
usuario@servidorLUBUNTU18:~$ sudo apt-get install ldap-account-manager

```



LDAP Account Manager - Mozilla Firefox

localhost/lam/templates/login.php

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LAM - 6.7

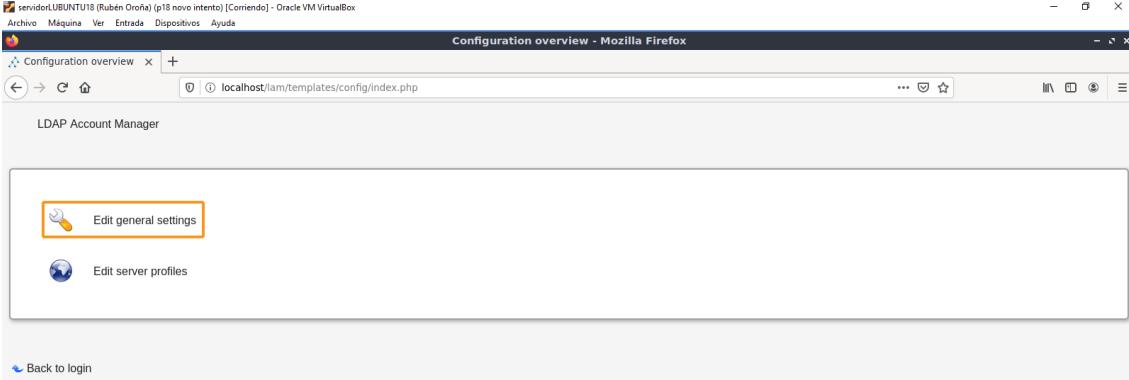
LAM configuration

User name: Manager
 Password:
 Language: English (USA)

LDAP server: ldap://localhost:389
 Server profile: lam



Para empregar a ferramenta web, accedemos á páxina <http://localhost/lam>. Aí prememos na configuración LAM, e comezamos por editar a configuración xeral. Para acceder ó menú debemos introducir o contrasinal do administrador desta interface, que por defecto é *lam*. Este é un claro problema, polo que o primeiro paso será **cambiar o contrasinal mestre**.

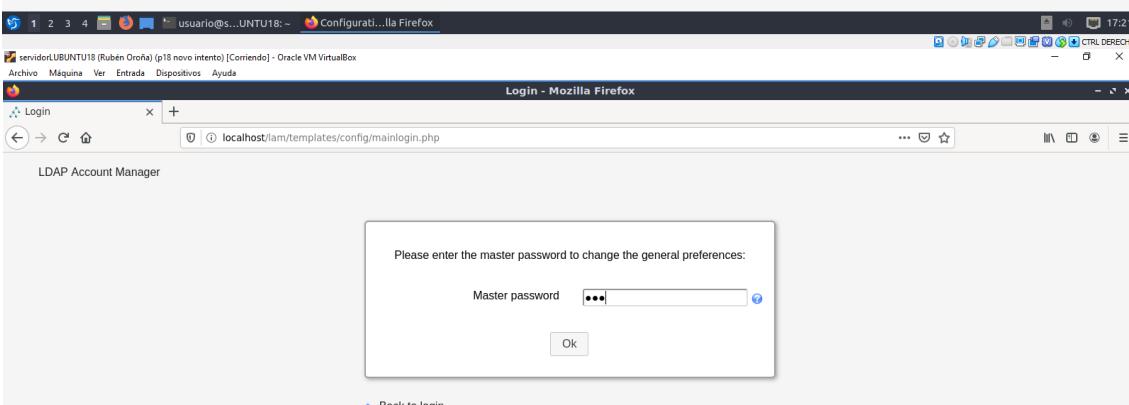


LDAP Account Manager

Edit general settings

Edit server profiles

[Back to login](#)

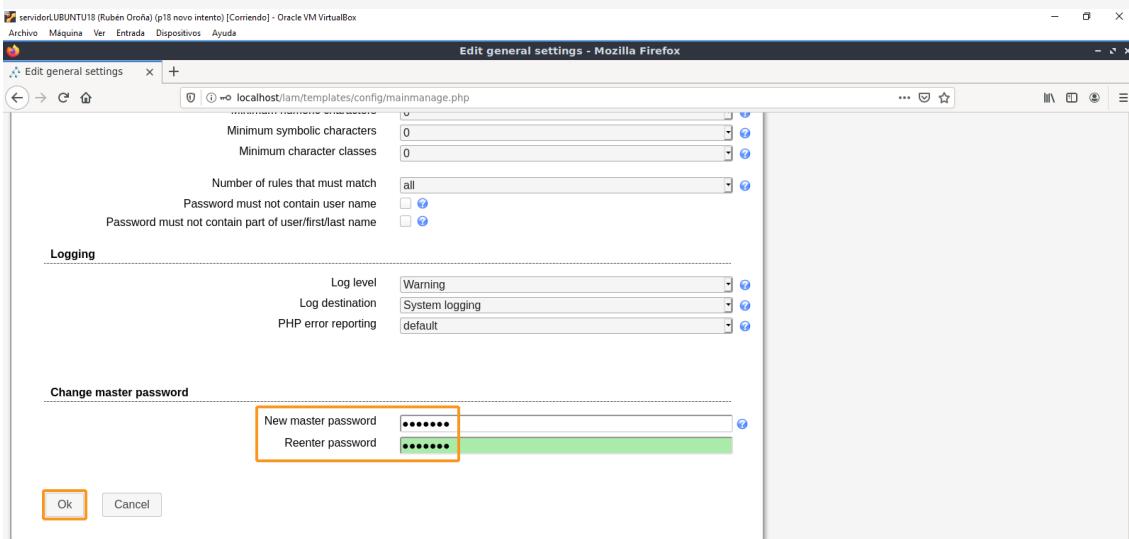


Please enter the master password to change the general preferences:

Master password •••

[Ok](#)

[Back to login](#)



Minimum symbolic characters: 0

Minimum character classes: 0

Number of rules that must match: all

Password must not contain user name:

Password must not contain part of user/first/last name:

Logging

Log level: Warning

Log destination: System logging

PHP error reporting: default

Change master password

New master password: *****

Reenter password: *****

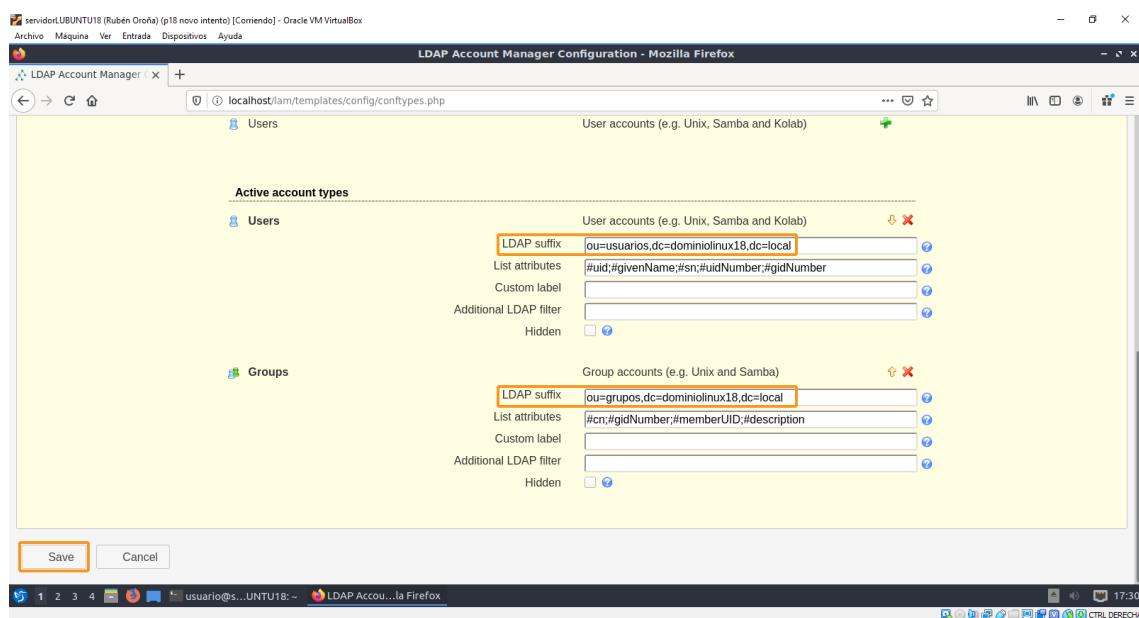
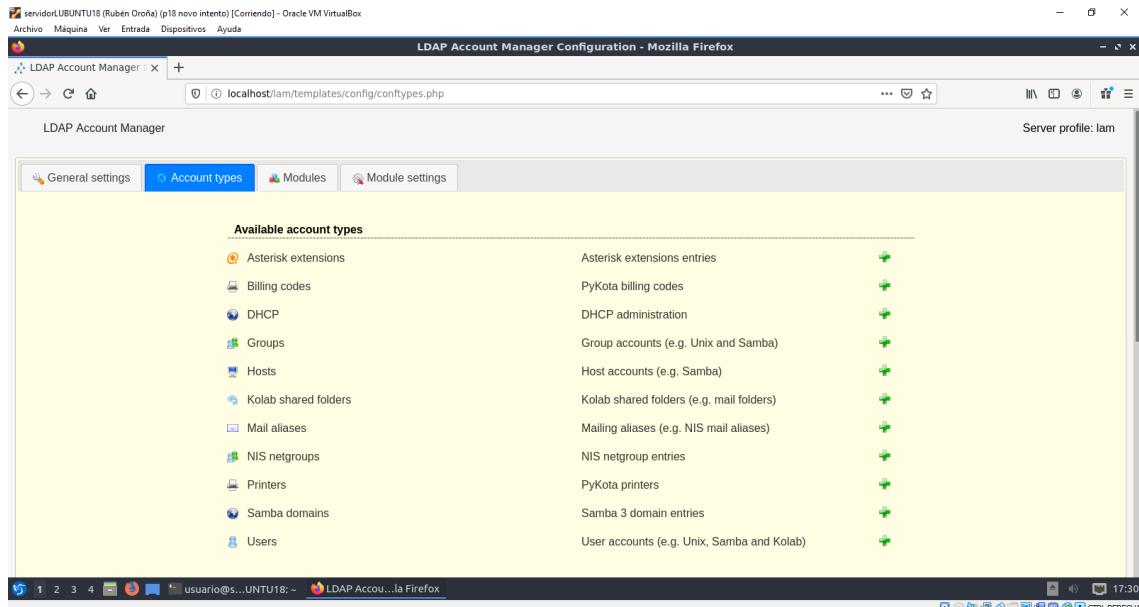
[Ok](#) [Cancel](#)

Agora tomaremos o segundo camiño, editando os perfiles do servidor. Na primeira pestana só faremos dúas modificaciós, establecendo o sufijo da árbore do dominio LDAP tanto na configuración do servidor coma no apartado de seguridade.

The screenshot shows three stacked windows of the LDAP Account Manager Configuration interface:

- Configuration overview - Mozilla Firefox**: Shows two main options: "Edit general settings" and "Edit server profiles". The "Edit server profiles" button is highlighted with a red box.
- LDAP Account Manager Configuration - Mozilla Firefox**: Shows the "Server profile: lam" tab selected. Under "General settings", the "Server address" is set to "ldap://localhost:389", "Activate TLS" is set to "no", and the "Tree suffix" is set to "dc=dominiolinux18,dc=local".
- LDAP Account Manager Configuration - Mozilla Firefox**: Shows the "Tool settings" tab. Under "Hidden tools", checkboxes are shown for PDF editor, LDAP import/export, Tests, Profile editor, Server information, OU editor, File upload, Multi edit, and Schema browser. Under "Security settings", the "Login method" is set to "Fixed list" and the "List of valid users" is set to "cn=admin,dc=dominiolinux18,dc=local". Under "Profile password", fields for "New password" and "Reenter password" are present.

Na segunda pestana, imos **vincular as dúas unidades organizativas** creadas anteriormente, usuarios e grupos. Con esas modificacións, estamos preparados para emplegar o Account Manager e facer un manexo básico do servizo LDAP. Nin o dominio Samba nin o tipo hosts veñen seleccionados por defecto, ó contrario que ocorría en anteriores versións, e non os precisamos para os exemplos desta práctica. Gardamos os cambios.



F. Creación dun usuario e grupo con LDAP Account Manager

Tras gardar os cambios anteriores, iniciamos sesión coa conta admin e o contrasinal previamente configurado. Comezamos por [crear o grupo profesores](#). Aparte do nome, establecemos a ID no grupo. Se o deixamos en branco, automaticamente seleccionase o menor número posible. Sen embargo, queremos manter unha orde e que este vaia a continuación do grupos creado mediante un arquivo .ldif ó comezo da práctica.

The screenshots illustrate the process of creating a user and a group using the LDAP Account Manager:

- Login Screen:** The first screenshot shows the login page at localhost/lam/templates/login.php. The "User name" field is set to "admin" and the "Password" field contains a masked password. The "Language" dropdown is set to "English (USA)". A success message at the top states "Your settings were successfully saved." The URL in the address bar is localhost/lam/templates/login.php?configSaveOk=1&configSaveFile=lam.
- Group List:** The second screenshot shows the main interface at localhost/lam/templates/lists/list.php?type=group. It displays a table of groups. One group is listed: "asi1" (GID 20001). The "Actions" column includes icons for edit, delete, and details. The "Group members" column is empty. The URL in the address bar is localhost/lam/templates/lists/list.php?type=group.
- Create Group Form:** The third screenshot shows the "New group" form at localhost/lam/templates/account/edit.php?type=group&suffix=ou=grupos,dc=dominiolinux18,dc=local. The "Group name" field is set to "profesores" and the "GID number" field is set to "20002". The "Description" field is empty. The "Group members" button is labeled "Edit members". The "Save" button is highlighted with an orange border. The URL in the address bar is localhost/lam/templates/account/edit.php?type=group&suffix=ou=grupos,dc=dominiolinux18,dc=local.

Agora imos **crear o usuario alvaro**. Comezamos pola información persoal, onde só introducimos os datos imprescindibles. Despois, na pestana Unix establecemos o nome do usuario, a ID e as rutas do directorio persoal e a Shell. Podemos establecer tamén un contrasinal. Aparece unha notificación dun erro na configuración, sen embargo non supón ningún impedimento para crear satisfactoriamente o usuario.

The screenshots illustrate the process of creating a new user account ('alvaro') in the LDAP Account Manager. The first screenshot shows the main 'Users' list with one existing user ('sonia'). The second screenshot shows the 'New user' creation form, where personal information like first name ('Alvaro'), last name ('Suarez'), and address fields are filled. The third screenshot shows the 'Set password' dialog where a password is being entered. An error message is displayed in the background, indicating an invalid configuration detected in the server profile module.

Screenshot 1: User List

| Actions | User name | First name | Last name | UID number | GID number |
|---------------|-----------|------------|-----------|------------|------------|
| Sort sequence | sonia | Sonia | Garcia | 10001 | 20001 |

Screenshot 2: New User Creation Form

Screenshot 3: Set Password Dialog

G. Perfiles móbiles dos usuarios

Antes de comprobar o funcionamento do usuario alvaro, debemos ter en conta que, por defecto, os dominios LDAP non sincronizan os datos persoais dos usuarios. Isto significa que tras sucesivos logins en diferentes clientes, cada equipo tería parte dos datos persoais dunha mesma conta. Para evitar esta falta de integridade, podemos aplicar os coñecementos adquiridos en prácticas anteriores e **exportar os directorios persoais por NFS**. Para elo, creamos un cartafol chamado /mobiles, que conterá os directorios persoais de todos os usuarios LDAP. Empregamos o comando chown para asegurámonos de que este cartafol non sexa propiedade de ninguén no servidor, e compartímolo editando o arquivo [/etc(exports)]. Tras isto, debemos reiniciar o servizo NFS.

The screenshot shows three terminal windows on a Linux desktop environment. The top window shows the command sequence to create a directory and set permissions:servidorLUBUNTU18 (Rubén Oroña) (ldap manager) [Corriendo] - Oracle VM VirtualBox
Archivo Máquina Ver Entrada Dispositivos Ayuda
usuario@servidorLUBUNTU18:~
usuario@servidorLUBUNTU18:~\$ sudo mkdir /mobiles
usuario@servidorLUBUNTU18:~\$ sudo chown nobody:nogroup /mobiles
usuario@servidorLUBUNTU18:~\$ sudo nano /etc/exports

The middle window shows the contents of the /etc/exports file after editing:servidorLUBUNTU18 (Rubén Oroña) (ldap manager) [Corriendo] - Oracle VM VirtualBox
Archivo Máquina Ver Entrada Dispositivos Ayuda
usuario@servidorLUBUNTU18:~
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)
/comunASII 192.168.18.0/24(rw,sync,no_subtree_check)
/practicasASII 192.168.18.0/24(ro,sync,no_subtree_check)
/PROFESORES (rw)
/PUBLICA (rw)
/mobiles (rw,sync,no_root_squash,no_subtree_check)

The bottom window shows the command to restart the NFS kernel service:servidorLUBUNTU18 (Rubén Oroña) (ldap manager) [Corriendo] - Oracle VM VirtualBox
Archivo Máquina Ver Entrada Dispositivos Ayuda
usuario@servidorLUBUNTU18:~
usuario@servidorLUBUNTU18:~\$ sudo mkdir /mobiles
usuario@servidorLUBUNTU18:~\$ sudo chown nobody:nogroup /mobiles
usuario@servidorLUBUNTU18:~\$ sudo nano /etc/exports
usuario@servidorLUBUNTU18:~\$ sudo /etc/init.d/dfs-kernel-server restart
[ok] Restarting nfs-kernel-server (via systemctl): nfs-kernel-server.service.
usuario@servidorLUBUNTU18:~\$

Despois, tomamos control do equipo cliente, no que debemos crear o directorio onde montaremos a exportación. Vale a pena aclarar que os nomes de ambos cartafoles non deben necesariamente coincidir. Adicionalmente, debemos editar o arquivo [/etc/fstab] para **montar a exportación de maneira local durante o arranque do sistema**. Por último, reiniciamos o equipo.

```

clienteLUBUNTU18 (Rubén Oroña) (p18 novo intento) [Corriendo] - Oracle VM VirtualBox
Archivo Máquina Ver Entrada Dispositivos Ayuda
usuario@clienteLUBUNTU18:~$ sudo mkdir /mobiles
[sudo] password for usuario:
usuario@clienteLUBUNTU18:~$ sudo chmod 777 /mobiles
usuario@clienteLUBUNTU18:~$ sudo nano /etc/fstab

clienteLUBUNTU18 (Rubén Oroña) (p18 novo intento) [Corriendo] - Oracle VM VirtualBox
Archivo Máquina Ver Entrada Dispositivos Ayuda
usuario@clienteLUBUNTU18:~$ 
File Actions Edit View Help
usuario@clienteLUBUNTU18:~$ /etc/fstab: static file system information.
#
# Use 'blkid' to print the universally unique identifier for a device; this may
# be used with UUID= as a more robust way to name devices that works even if
# disks are added and removed. See fstab(5).
#
#<file system>      <mount point>   <type>  <options> <dump> <pass>
UUID=b639a1a-cd80-4b0b-89b9-f19c55c6ecfc /          ext4    defaults    0 1
192.168.18.23:/mobiles /mobiles nfs auto,noatime,nolock, bg,nfsvers=3,intr,tcp,actimeo=1800 0 0

GNU nano 4.3                               /etc/fstab                                         Modified
^G Get Help      ^O Write Out      ^W Where Is      ^K Cut Text      ^J Justify      ^C Cur Pos      M-U Undo      M-A Mark Text      M-J To Bracket
^X Exit          ^R Read File      ^H Replace      ^U Paste Text     ^T To Spell      ^G Go To Line    M-E Redo      M-B Copy Text      M-Q Where Was
^V              ^P              ^I              ^L              ^S              ^D              ^F              ^N              ^O              ^A
1 2 3 4      18:19
clienteLUBUNTU18 (Rubén Oroña) (p18 novo intento) [Corriendo] - Oracle VM VirtualBox
Archivo Máquina Ver Entrada Dispositivos Ayudas
usuario@clienteLUBUNTU18:~$ 
File Actions Edit View Help
usuario@clienteLUBUNTU18:~$ sudo mkdir /mobiles
[sudo] password for usuario:
usuario@clienteLUBUNTU18:~$ sudo chmod 777 /mobiles
usuario@clienteLUBUNTU18:~$ sudo nano /etc/fstab
usuario@clienteLUBUNTU18:~$ reboot

```

Por suposto, agora debemos **modificar a ruta dos directorios persoais**, para que o cartafol de cada usuario se xere en /mobiles. Así pois, volvemos ó servidor e imos **crear un arquivo .ldif para o usuario sonia**. Este ficheiro, combinado co comando ldapmodify, serve para facer cambios en calquera dato engadido ó LDAP.

```
servidorLUBUNTU18 (Rubén Oroña) (ldap manager) [Corriendo] - Oracle VM VirtualBox
Archivo Máquina Ver Entrada Dispositivos Ayuda
usuario@servidorLUBUNTU18: ~
File Actions Edit View Help
usuario@servidorLUBUNTU18: ~$ sudo mkdir /mobiles
usuario@servidorLUBUNTU18: ~$ sudo chown nobody:nogroup /mobiles
usuario@servidorLUBUNTU18: ~$ sudo nano /etc(exports
usuario@servidorLUBUNTU18: ~$ sudo /etc/init.d/nfs-kernel-server restart
[ ok ] Restarting nfs-kernel-server (via systemctl): nfs-kernel-server.service.
usuario@servidorLUBUNTU18: ~$ sudo nano cambios.ldif

servidorLUBUNTU18 (Rubén Oroña) (ldap manager) [Corriendo] - Oracle VM VirtualBox
Archivo Máquina Ver Entrada Dispositivos Ayuda
usuario@servidorLUBUNTU18: ~
File Actions Edit View Help
usuario@servidorLUBUNTU18: ~$ GNU nano 4.3
dn: uid=sonia,ou=usuarios,dc=dominiolinux18,dc=local
changetype: modify
replace: homeDirectory
homeDirectory: /mobiles/sonia
cambios.ldif
Modified

Get Help Write Out Where Is Cut Text Justify Cur Pos Undo Mark Text To Bracket
Exit Read File Replace Paste Text To Spell Go To Line Redo Copy Text Where Was
1 2 3 4 18:30
servidorLUBUNTU18 (Rubén Oroña) (ldap manager) [Corriendo] - Oracle VM VirtualBox
Archivo Máquina Ver Entrada Dispositivos Ayuda
usuario@servidorLUBUNTU18: ~
File Actions Edit View Help
usuario@servidorLUBUNTU18: ~$ sudo mkdir /mobiles
usuario@servidorLUBUNTU18: ~$ sudo chown nobody:nogroup /mobiles
usuario@servidorLUBUNTU18: ~$ sudo nano /etc(exports
usuario@servidorLUBUNTU18: ~$ sudo /etc/init.d/nfs-kernel-server restart
[ ok ] Restarting nfs-kernel-server (via systemctl): nfs-kernel-server.service.
usuario@servidorLUBUNTU18: ~$ sudo nano cambios.ldif
[sudo] password for usuario:
usuario@servidorLUBUNTU18: ~$ sudo ldapmodify -x -D cn=admin,dc=dominiolinux18,dc=local -W -f cambios.ldif
Enter LDAP Password:
modifying entry "uid=sonia,ou=usuarios,dc=dominiolinux18,dc=local"

usuario@servidorLUBUNTU18: ~$ ldapsearch -LLL -b "dc=dominiolinux18,dc=local" uid=* sn givenName homeDirectory
dn: uid=sonia,ou=usuarios,dc=dominiolinux18,dc=local
sn: García
givenName: Sonia
homeDirectory: /mobiles/sonia

dn: cn=Alvaro Suarez,ou=usuarios,dc=dominiolinux18,dc=local
homeDirectory: /home/alvaro
sn: Suarez
givenName: Alvaro
usuario@servidorLUBUNTU18: ~$
```

Tamén podemos emplegar o **LDAP Account Manager** para modificar a ruta do usuario alvaro, Resulta tan sinxelo como premer no botón de modificar, e reescribir a ruta do cartafol.

The screenshot shows the 'Users' tab of the LDAP Account Manager. There are two users listed:

| Actions | User name | First name | Last name | UID number | GID number |
|---------------------------------|-----------|------------|-----------|------------|------------|
| <input type="checkbox"/> Filter | alvaro | Alvaro | Suarez | 10002 | 20002 |
| <input type="checkbox"/> | sonia | Sonia | Garcia | 10001 | 20001 |



The screenshot shows the 'Edit' screen for the user 'Alvaro Suarez'. The 'Personal' tab is selected. The 'Home directory' field contains the value '/mobiles/alvaro', which is highlighted with a red box.

| | |
|-------------------|---|
| User name * | alvaro |
| Common name | Alvaro Suarez |
| UID number | 10002 |
| Gecos | |
| Primary group | profesores |
| Additional groups | <input type="button" value="Edit groups"/> |
| Home directory * | /mobiles/alvaro |
| Login shell | /bin/bash |
| Password | <input type="button" value="Lock password"/> <input type="button" value="Remove password"/> |

H. Login gráfico co usuario alvaro

Xa temos o dominio LDAP creado e configurado, os usuarios xerados, e o equipo cliente conta cunha correcta sincronización do cartafol contedor dos perfiles persoais. Só falta probar si é posible **iniciar sesión por primeira vez dende a interface gráfica**. O xestor SSDM amosou bos resultados ante isto no dominio NIS. Sen embargo, neste caso o directorio persoal debe crearse nese mesmo intre. Así pois, no cliente debemos **actualizar a base de datos de grupos e usuarios LDAP**. Reiniciamos por si acaso, e mediante o comando [<# getent passwd] vemos que os parámetros dos usuarios son correctos. Así pois, pechamos sesión.

The image consists of three vertically stacked screenshots of a Linux desktop environment, likely Lubuntu 18.04, running in Oracle VM VirtualBox. The desktop environment uses the LXQt window manager.

- Screenshot 1:** Shows a terminal window titled "usuario@clienteLUBUNTU18: ~". The user runs the command "sudo nss_update" which updates the local password database. The user then types "reboot" to restart the system.
- Screenshot 2:** Shows a terminal window titled "usuario@clienteLUBUNTU18: ~". The user runs the command "getent passwd" to list all users in the system's password database. The output shows numerous entries, including "alvaro:x:1002:1002::/home/alvaro:/bin/bash".
- Screenshot 3:** Shows the LXQt system tray menu. The "Logout" option is highlighted with a yellow box.

Podemos comprobar como a interface gráfica ofrece a posibilidade de facer login co usuario alvaro, sen necesidade de facelo antes mediante o modo texto. Tras introducir o contrasinal, o inicio de sesión tarda uns segundos más do habitual, seguramente polo feito de crear o cartafol persoal do usuario alvaro no cartafol /mobil.

