



Applications  
(sudo, gdm, ssh, getty, su)

PAM  
(Pluggable Authentication Modules)

User Details  
/etc/passwd, /etc/shadow, ldap

root@client: ~

root@client: ~

```
root@client:~# apt-get install libpam-ldap
```

```
Reading package lists... Done
```

```
Building dependency tree
```

```
Reading state information... Done
```

```
The following extra packages will be installed:
```

```
  auth-client-config ldap-auth-client
```

```
  ldap-auth-config libnss-ldap
```

```
Suggested packages:
```

```
  libpam-cracklib
```

```
Recommended packages:
```

```
  nscd
```

```
The following NEW packages will be installed:
```

```
  auth-client-config ldap-auth-client
```

```
  ldap-auth-config libnss-ldap libpam-ldap
```

```
0 upgraded, 5 newly installed, 0 to remove and 0 not up  
graded.
```

```
Need to get 144kB of archives.
```

```
After this operation, 774kB of additional disk space wi  
ll be used.
```

```
Do you want to continue [Y/n]?
```



2:14 / 9:46





root@client: ~

root@client: ~

## Package configuration

### 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.

<Ok>

root@client: ~



root@client: ~



## Package configuration

### Configuring ldap-auth-config

LDAP server Uniform Resource Identifier:

ldap://172.16.1.1

<Ok>



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root@client: ~

root@client: ~

## Package configuration

### 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=test,dc=net

<Ok>

root@client: ~

root@client: ~

## Package configuration

## Configuring ldap-auth-config

Please enter which version of the LDAP protocol should be used by ldapns. It is usually a good idea to set this to the highest available version.

LDAP version to use:

☒ 3☐ 2

<Ok>



root@client: ~



root@client: ~



## Package configuration

### Configuring ldap-auth-config

This option will allow you to make password utilities that use pam to behave like you would be changing local passwords.

The password will be stored in a separate file which will be made readable to root only.

If you are using NFS mounted /etc or any other custom setup, you should disable this.

<Ok>



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root@client: ~



root@client: ~



## Package configuration

### Configuring ldap-auth-config

Make local root Database admin:

**<Yes>**

<No>

root@client: ~



root@client: ~



## Package configuration

### Configuring ldap-auth-config

Choose this option if you are required to login to the database to retrieve entries.

Note: Under a normal setup, this is not needed.

Does the LDAP database require login?

<Yes>

<No>



root@client: ~



root@client: ~



## Package configuration

### 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=test,dc=net

<Ok>



2:58 / 9:46



File Edit View History Bookmarks Tools Help <http://172.16.1.1/phpld> Google

### phpLDAPadmin

[Home](#) [Purge caches](#) [Request feature](#) [Report a bug](#) [Donate](#) [Help](#)

#### My LDAP Server

[schema](#) [search](#) [refresh](#) [info](#) [import](#) [export](#) [logout](#)

Logged in as: **cn=admin**

- dc=test, dc=net (3)
  - cn=admin
  - ou=groups (1)
    - cn=adminuser
    - Create new entry here
  - ou=people (2)
    - cn=Jane Admin
    - cn=Joe Admin
    - Create new entry here
    - Create new entry here

#### My LDAP Server

[Login...](#)

### Error

No such entry:  
cn=admin, dc=test, dc=net

# phpLDAPadmin



root@client: ~

root@client: ~

## Package configuration

### 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=test,dc=net

<Ok>

root@client: ~

root@client: ~

## Package configuration

### Configuring ldap-auth-config

Please enter the password to use when ldap-auth-config tries to login to the LDAP directory using the LDAP account for root.

The password will be stored in a separate file /etc/ldap.secret which will be made readable to root only.

Entering an empty password will re-use the old password.

<Ok>



root@client: ~

root@client: ~

# Package configuration

## Configuring ldap-auth-config

LDAP root account password:

\*\*\*

<Ok>

root@client: ~

root@client: ~

```
Unpacking libpam-ldap (from .../libpam-ldap_184-2ubuntu
2_i386.deb) ...
Selecting previously deselected package ldap-auth-clien
t.
Unpacking ldap-auth-client (from .../ldap-auth-client_0
.5_all.deb) ...
Setting up auth-client-config (0.6.1) ...
Selecting previously deselected package ldap-auth-confi
g.
(Reading database ... 22705 files and directories curre
ntly installed.)
Unpacking ldap-auth-config (from .../ldap-auth-config_0
.5_all.deb) ...
Setting up libpam-ldap (184-2ubuntu2) ...
Setting up ldap-auth-client (0.5) ...
Setting up ldap-auth-config (0.5) ...

Setting up libnss-ldap (258-1ubuntu3) ...
```

root@client: ~#



3:27 / 9:46





root@client: ~

root@client: ~

Selecting previously deselected package ldap-auth-client.  
t.

Unpacking ldap-auth-client (from ../ldap-auth-client\_0.5\_all.deb) ...

Setting up auth-client-config (0.6.1) ...

Selecting previously deselected package ldap-auth-config.  
g.

(Reading database ... 22705 files and directories currently installed.)

Unpacking ldap-auth-config (from ../ldap-auth-config\_0.5\_all.deb) ...

Setting up libpam-ldap (184-2ubuntu2) ...

Setting up ldap-auth-client (0.5) ...

Setting up ldap-auth-config (0.5) ...

Setting up libnss-ldap (258-1ubuntu3) ...

root@client:~# apt-get install nscd

Reading package lists... Done

Building dependency tree... 0%

root@client: ~

root@client: ~

Reading state information... Done

The following NEW packages will be installed:

nscd

0 upgraded, 1 newly installed, 0 to remove and 0 not upgraded.

Need to get 176kB of archives.

After this operation, 360kB of additional disk space will be used.

Get:1 http://172.16.1.200 hardy-updates/universe nscd 2.7-10ubuntu4 [176kB]

Fetched 176kB in 0s (5755kB/s)

Selecting previously deselected package nscd.

(Reading database ... 22711 files and directories currently installed.)

Unpacking nscd (from .../nscd\_2.7-10ubuntu4\_i386.deb) .

..

Setting up nscd (2.7-10ubuntu4) ...

\* Starting Name Service Cache Daemon nscd [ OK ]

root@client:~# emacs /etc/nsswitch.conf



3:47 / 9:46





root@client: ~

root@client: ~

File Edit Options Buffers Tools Help

# /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: compat

group: compat

shadow: compat

hosts: files dns

networks: files

protocols: db files

-uu-:---F1 nsswitch.conf Top L9 (Conf[Colon])---



root@client: ~

root@client: ~

File Edit Options Buffers Tools Help

# /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: ldap compat

group: ldap compat

shadow: ldap compat

hosts: files dns

networks: files

protocols: db files

-uu-:---F1 nsswitch.conf Top L9 (Conf[Colon])---

wrote /etc/nsswitch.conf



4:04 / 9:46



root@client: /etc/pam.d

root@client: ~

```
nscd
0 upgraded, 1 newly installed, 0 to remove and 0 not up
graded.
Need to get 176kB of archives.
After this operation, 360kB of additional disk space wi
ll be used.
Get:1 http://172.16.1.200 hardy-updates/universe nscd 2
.7-10ubuntu4 [176kB]
Fetched 176kB in 0s (5755kB/s)
Selecting previously deselected package nscd.
(Reading database ... 22711 files and directories curre
ntly installed.)
Unpacking nscd (from .../nscd_2.7-10ubuntu4_i386.deb) .
..
Setting up nscd (2.7-10ubuntu4) ...
* Starting Name Service Cache Daemon nscd      [ OK ]

root@client:~# emacs /etc/nsswitch.conf
root@client:~# cd /etc/pam.d/
root@client:/etc/pam.d#
```



root@client: /etc/pam.d

root@client: ~

After this operation, 360kB of additional disk space will be used.

Get:1 http://172.16.1.200 hardy-updates/universe nscd 2.7-10ubuntu4 [176kB]

Fetched 176kB in 0s (5755kB/s)

Selecting previously deselected package nscd.

(Reading database ... 22711 files and directories currently installed.)

Unpacking nscd (from .../nscd\_2.7-10ubuntu4\_i386.deb) .

..

Setting up nscd (2.7-10ubuntu4) ...

\* Starting Name Service Cache Daemon nscd [ OK ]

root@client:~# emacs /etc/nsswitch.conf

root@client:~# cd /etc/pam.d/

root@client:/etc/pam.d# ls

atd	common-account	common-session	other	sshd
chfn	common-auth	cron	passwd	su
chsh	common-password	login	ppp	sudo

root@client:/etc/pam.d# emacs

root@client: /etc/pam.d

root@client: ~

After this operation, 360kB of additional disk space will be used.

Get:1 http://172.16.1.200 hardy-updates/universe nscd 2.7-10ubuntu4 [176kB]

Fetched 176kB in 0s (5755kB/s)

Selecting previously deselected package nscd.

(Reading database ... 22711 files and directories currently installed.)

Unpacking nscd (from .../nscd\_2.7-10ubuntu4\_i386.deb) .

..

Setting up nscd (2.7-10ubuntu4) ...

\* Starting Name Service Cache Daemon nscd [ OK ]

root@client:~# emacs /etc/nsswitch.conf

root@client:~# cd /etc/pam.d/

root@client:/etc/pam.d# ls

atd	common-account	common-session	other	sshd
chfn	common-auth	cron	passwd	su
chsh	common-password	login	ppp	sudo

root@client:/etc/pam.d# emacs common-auth



root@client: /etc/pam.d

root@client: ~

File Edit Options Buffers Tools Help

# the central authentication scheme for use on the system

# (e.g., /etc/shadow, LDAP, Kerberos, etc.). The default is to use the

# traditional Unix authentication mechanisms.

#

auth requisite pam\_unix.so nullok\_secure

auth optional pam\_smbpass.so migrate missing

ok

-uu- : - - - F1 common-auth Bot L11 (Conf[Space]) - - -

root@client: /etc/pam.d

root@client: ~

File Edit Options Buffers Tools Help

# the central authentication scheme for use on the system

# (e.g., /etc/shadow, LDAP, Kerberos, etc.). The default is to use the

# traditional Unix authentication mechanisms.

#

auth sufficient pam\_unix.so nullok\_secure

#auth optional pam\_smbpass.so migrate missing\

ok

auth required pam\_ldap.so use\_first\_pass

auth required pam\_permit.so

-uu- : - - - F1 common-auth Bot L10 (Conf[Space]) - - -

wrote /etc/pam.d/common-auth



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root@client: /etc/pam.d

root@client: ~

```
ll be used.
Get:1 http://172.16.1.200 hardy-updates/universe nscd 2
.7-10ubuntu4 [176kB]
Fetched 176kB in 0s (5755kB/s)
Selecting previously deselected package nscd.
(Reading database ... 22711 files and directories curre
ntly installed.)
Unpacking nscd (from ../nscd_2.7-10ubuntu4_i386.deb) .
..
Setting up nscd (2.7-10ubuntu4) ...
 * Starting Name Service Cache Daemon nscd      [ OK ]

root@client:~# emacs /etc/nsswitch.conf
root@client:~# cd /etc/pam.d/
root@client:/etc/pam.d# ls
atd      common-account  common-session  other      sshd
chfn     common-auth     cron            passwd     su
chsh     common-password login           ppp        sudo
root@client:/etc/pam.d# emacs common-auth
root@client:/etc/pam.d# emacs common-account
```

root@client: /etc/pam.d

root@client: ~

File Edit Options Buffers Tools Help

```
#  
# /etc/pam.d/common-account - authorization settings c\ommon to all services  
#  
# This file is included from other service-specific PA\M config files,  
# and should contain a list of the authorization modul\es that define  
# the central access policy for use on the system. Th\e default is to  
# only deny service to users whose accounts are expire\d in /etc/shadow.  
#  
account required pam_unix.so  
account
```

```
-uu-:**-F1 common-account All L10 (Conf[Space])--
```



6:09 / 9:46





root@client: /etc/pam.d

root@client: ~

File Edit Options Buffers Tools Help

```
#  
# /etc/pam.d/common-account - authorization settings c\  
ommon to all services  
#  
# This file is included from other service-specific PA\  
M config files,  
# and should contain a list of the authorization modul\  
es that define  
# the central access policy for use on the system. Th\  
e default is to  
# only deny service to users whose accounts are expire\  
d in /etc/shadow.  
#  
account sufficient      pam_unix.so  
account required       pam_ldap.so
```

```
-uu-:---F1  common-account  All L11  (Conf[Space])--
```

```
wrote /etc/pam.d/common-account
```



6:25 / 9:46



root@client: /etc/pam.d

root@client: ~

```
.7-10ubuntu4 [176kB]
Fetched 176kB in 0s (5755kB/s)
Selecting previously deselected package nscd.
(Reading database ... 22711 files and directories currently installed.)
Unpacking nscd (from .../nscd_2.7-10ubuntu4_i386.deb) .
..
Setting up nscd (2.7-10ubuntu4) ...
 * Starting Name Service Cache Daemon nscd      [ OK ]

root@client:~# emacs /etc/nsswitch.conf
root@client:~# cd /etc/pam.d/
root@client:/etc/pam.d# ls
atd      common-account  common-session  other      sshd
chfn     common-auth      cron             passwd     su
chsh     common-password  login           ppp        sudo
root@client:/etc/pam.d# emacs common-auth
root@client:/etc/pam.d# emacs common-account
root@client:/etc/pam.d# emacs common-session
```



root@client: /etc/pam.d

root@client: ~

File Edit Options Buffers Tools Help

```
#  
# /etc/pam.d/common-session - session-related modules \  
common to all services  
#  
# This file is included from other service-specific PA\  
M config files,  
# and should contain a list of modules that define tas\  
ks to be performed  
# at the start and end of sessions of *any* kind (both\  
interactive and  
# non-interactive). The default is pam_unix.  
#  
session required          pam_unix.so  
se
```

```
-uu-:**-F1  common-session  All L10  (Conf[Space])--
```



6:38 / 9:46



root@client: /etc/pam.d

root@client: ~

File Edit Options Buffers Tools Help

```
#  
# /etc/pam.d/common-session - session-related modules \  
common to all services  
#  
# This file is included from other service-specific PA\  
M config files,  
# and should contain a list of modules that define tas\  
ks to be performed  
# at the start and end of sessions of *any* kind (both\  
interactive and  
# non-interactive). The default is pam_unix.  
#  
session required          pam_unix.so  
session required          pam_mkhomedir.so skel=/etc/ske\l/  
umask=0022
```

```
-uu-:---F1 common-session All L10 (Conf[Space])--
```

```
wrote /etc/pam.d/common-session
```



6:59 / 9:46





root@client: /etc/pam.d

root@client: ~

```
Fetches 176kB in 0s (5755kB/s)
Selecting previously deselected package nscd.
(Reading database ... 22711 files and directories currently installed.)
Unpacking nscd (from .../nscd_2.7-10ubuntu4_i386.deb) .
..
Setting up nscd (2.7-10ubuntu4) ...
* Starting Name Service Cache Daemon nscd      [ OK ]
```

```
root@client:~# emacs /etc/nsswitch.conf
```

```
root@client:~# cd /etc/pam.d/
```

```
root@client:/etc/pam.d# ls
```

atd	common-account	common-session	other	sshd
chfn	common-auth	cron	passwd	su
chsh	common-password	login	ppp	sudo

```
root@client:/etc/pam.d# emacs common-auth
```

```
root@client:/etc/pam.d# emacs common-account
```

```
root@client:/etc/pam.d# emacs common-session
```

```
root@client:/etc/pam.d# emacs common-password
```

root@client: /etc/pam.d

root@client: ~

File Edit Options Buffers Tools Help

```
#  
# You can also use the "min" option to enforce the length of the new  
# password.  
#  
# See the pam_unix manpage for other options.
```

```
password    requisite    pam_unix.so nullok obscure md5  
pas
```

```
# Alternate strength checking for password. Note that this  
# requires the libpam-cracklib package to be installed.  
# You will need to comment out the password line above  
# and  
# uncomment the next two in order to use this.
```

```
-uu-:**-F1 common-password 40% L25 (Conf[Space])-
```



root@client: /etc/pam.d

root@client: ~

File Edit Options Buffers Tools Help

```
#
# You can also use the "min" option to enforce the length of the new
# password.
#
# See the pam_unix manpage for other options.

password    sufficient pam_unix.so nullok obscure md5
password    required   pam_ldap.so

# Alternate strength checking for password. Note that this
# requires the libpam-cracklib package to be installed.
# You will need to comment out the password line above
# and
# uncomment the next two in order to use this.
-uu- : - - - F1  common-password 39% L24 (Conf[Space]) -
```

wrote /etc/pam.d/common-password



7:27 / 9:46



root@client: /etc/pam.d

root@client: ~

```
Fetches 176kB in 0s (5755kB/s)
Selecting previously deselected package nscd.
(Reading database ... 22711 files and directories currently installed.)
Unpacking nscd (from .../nscd_2.7-10ubuntu4_i386.deb) .
..
Setting up nscd (2.7-10ubuntu4) ...
* Starting Name Service Cache Daemon nscd      [ OK ]
```

```
root@client:~# emacs /etc/nsswitch.conf
```

```
root@client:~# cd /etc/pam.d/
```

```
root@client:/etc/pam.d# ls
```

atd	common-account	common-session	other	sshd
chfn	common-auth	cron	passwd	su
chsh	common-password	login	ppp	sudo

```
root@client:/etc/pam.d# emacs common-auth
```

```
root@client:/etc/pam.d# emacs common-account
```

```
root@client:/etc/pam.d# emacs common-session
```

```
root@client:/etc/pam.d# emacs common-password
```

```
root@client:/etc/pam.d# /etc/init.d/nscd restart
```



root@client: /etc/pam.d

root@client: ~

```
(Reading database ... 22711 files and directories currently installed.)
```

```
Unpacking nscd (from .../nscd_2.7-10ubuntu4_i386.deb) .
```

```
..
```

```
Setting up nscd (2.7-10ubuntu4) ...
```

```
* Starting Name Service Cache Daemon nscd      [ OK ]
```

```
root@client:~# emacs /etc/nsswitch.conf
```

```
root@client:~# cd /etc/pam.d/
```

```
root@client:/etc/pam.d# ls
```

```
atd      common-account  common-session  other      sshd
```

```
chfn     common-auth      cron            passwd     su
```

```
chsh     common-password  login          ppp        sudo
```

```
root@client:/etc/pam.d# emacs common-auth
```

```
root@client:/etc/pam.d# emacs common-account
```

```
root@client:/etc/pam.d# emacs common-session
```

```
root@client:/etc/pam.d# emacs common-password
```

```
root@client:/etc/pam.d# /etc/init.d/nscd restart
```

```
* Restarting Name Service Cache Daemon nscd      [ OK ]
```

```
root@client:/etc/pam.d#
```

root@client: /etc/pam.d



root@client: ~



Connection to vmnet2 closed.

bdenning@bowen-laptop:~\$ ssh root@vmnet2

root@vmnet2's password:

Last login: Wed Apr 8 18:15:39 2009 from 172.16.1.200

Linux client 2.6.24-23-server #1 SMP Mon Jan 26 00:55:21 UTC 2009 i686

The programs included with the Ubuntu system are free software;

the exact distribution terms for each program are described in the

individual files in /usr/share/doc/\*/copyright.

Ubuntu comes with ABSOLUTELY NO WARRANTY, to the extent permitted by applicable law.

To access official Ubuntu documentation, please visit:  
<http://help.ubuntu.com/>

root@client:~#



8:06 / 9:46





root@client: /etc/pam.d

bdenning@bowen-laptop: ~

```
(Reading database ... 22711 files and directories currently installed.)
```

```
Unpacking nscd (from .../nscd_2.7-10ubuntu4_i386.deb) .
```

```
..
```

```
Setting up nscd (2.7-10ubuntu4) ...
```

```
* Starting Name Service Cache Daemon nscd      [ OK ]
```

```
root@client:~# emacs /etc/nsswitch.conf
```

```
root@client:~# cd /etc/pam.d/
```

```
root@client:/etc/pam.d# ls
```

```
atd      common-account  common-session  other      sshd
```

```
chfn     common-auth      cron            passwd     su
```

```
chsh     common-password  login           ppp        sudo
```

```
root@client:/etc/pam.d# emacs common-auth
```

```
root@client:/etc/pam.d# emacs common-account
```

```
root@client:/etc/pam.d# emacs common-session
```

```
root@client:/etc/pam.d# emacs common-password
```

```
root@client:/etc/pam.d# /etc/init.d/nscd restart
```

```
* Restarting Name Service Cache Daemon nscd      [ OK ]
```

```
root@client:/etc/pam.d# tail -f /var/log/auth.log
```

root@client: /etc/pam.d



bdenning@bowen-laptop: ~



individual files in /usr/share/doc/\*/copyright.

Ubuntu comes with ABSOLUTELY NO WARRANTY, to the extent permitted by applicable law.

To access official Ubuntu documentation, please visit:  
<http://help.ubuntu.com/>

Last login: Mon Apr 6 07:01:27 2009

\$ passwd

Enter login(LDAP) password:

LDAP Password incorrect: try again

Enter login(LDAP) password:

New password:

Password too short

New password:

Re-enter new password:

LDAP password information changed for joe

passwd: password updated successfully



9:26 / 9:46





root@client: /etc/pam.d



bdenning@bowen-laptop: ~



\$ Connection to vmnet2 closed.

bdenning@bowen-laptop:~\$ ssh jane@vmnet2

jane@vmnet2's password:

Creating directory '/home/users/jane'.

Linux client 2.6.24-23-server #1 SMP Mon Jan 26 00:55:21 UTC 2009 i686

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the exact distribution terms for each program are described in the

individual files in /usr/share/doc/\*/copyright.

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<http://help.ubuntu.com/>



9:39 / 9:46

