Smbldap-tools User Manual
(*Release* : 0.8.5)

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Revision : 1.5, generated June 18, 2004

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[1] `http://IDEALX.com/`

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1 Introduction

Smbldap-tools is a set of scripts designed to help integrate Samba and a LDAP directory. They target both users and administrators of Linux systems.

Users can change their password in a way similar to the standard "passwd" command.

Administrators can perform user and group management command line actions and synchronise Samba account management consistently.

This document presents:

- a detailled view of the smbldap-tools scripts
- a step by step explanation of how to set up a Samba3 domain controller

1.1 Software requirements

The smbldap-tools have been developped and tested with the following configuration :

- *Linux* RedHat 9 (be should work on any *Linux* distribution)
- Samba release 3.0.2pre1,
- OpenLDAP release 2.1.22
- Microsoft Windows NT 4.0, Windows 2000 and Windows XP Workstations and Servers,

This guide applies to smbldap-tools *Release* : 0.8.5.

1.2 Updates of this document

The most up to date release of this document may be found on the smbldap-tools project page available at `http://samba.IDEALX.org/`.

If you find any bugs in this document, or if you want this document to integrate some additional infos, please drop us a mail with your bug report and/or change request at samba@IDEALX.org.

1.3 Availability of this document

2 Installation

2.1 Requirements

The main requirement for using smbldap-tools are the two perl module: Net::LDAP and Crypt::SmbHash. In most cases, you'll also need the IO-Socket-SSL Perl module to use TLS functionnality.

If you want samba to call the scripts so that you can use the User Manager (or any other) under MS-Windows (to add, delete modify users and groups), Samba must be installed on the same computer. Finally, OpenLDAP can be installed on any computer. Please check that it can be contacted by a standard LDAP client software.

Samba and OpenLDAP installations will not be discussed here. You can consult the howto also available on the project page (`http://samba.IDEALX.org`). Altought is has been written for Samba2, most of its content still apply to Samba3. The main difference stands in LDAP schema's definitions.

2.2 Installation

An archive of the smbldap-tools scripts can be downloaded on our project page `http://samba.IDEALX.org/`. Archive and RedHat packages are available.
If you are upgrading, look at the `INSTALL` file or read the link 6.13.

2.2.1 Installing from rpm

To install the scripts on a RedHat system, download the RPM package and run the following command:

```
rpm -Uvh smbldap-tools-0.8.5-1.i386.rpm
```

2.2.2 Installing from a tarball

On non RedHat system, download a source archive of the scripts. The current archive is `smbldap-tools-0.8.5.tar.gz`. Uncompress it and copy all of the Perl scripts in `/usr/local/sbin` directory, and the two configuration files in `/etc/smbldap-tools/` directory:

```
mkdir /etc/smbldap-tools/
cp *.conf /etc/smbldap-tools/
cp smbldap-* /usr/local/sbin/
```

The configuration is now based on two differents files:

- `smbldap.conf`: define global parameter

- `smbldap_bind.conf`: define an administrative account to bind to the directory

The second file **must** be readable only for 'root', as it contains credentials allowing modifications on all the directory. Make sure the files are protected by running the following commands:

```
chmod 644 /etc/smbldap-tools/smbldap.conf
chmod 600 /etc/smbldap-tools/smbldap_bind.conf
```

3 Configuring the smbldap-tools

As mentioned in the previous section, you'll have to update two configuration files. The first (`smbldap.conf`) allows you to set global parameter that are readable by everybody, and the second (`smbldap_bind.conf`) defines two administrative accounts to bind to a slave and a master ldap server: this file must thus be readable only by root.

A script is named `configure.pl` can help you to set their contents up. It is located in the tarball downloaded or in the documentation directory if you got the RPM archive (see `/usr/share/doc/smbldap-tools/`). Just invoke it:

```
/usr/share/doc/smbldap-tools/configure.pl
```

It will ask for the default values defined in your `smb.conf` file, and will update the two configuration files used by the scripts. Note that you can stop the script at any moment with the `Crtl-c` keys.

Before using this script :

- the two configuration files **must** be present in the `/etc/smbldap-tools/` directory
- check that samba is configured and running, as the script will try to get your workgroup's domain secure id (SID).

In those files are parameters are defined like this:

```
key="value"
```

Full example configuration files can be found at 8.1.

3.1 The smbldap.conf file

This file is used to define parameters that can be readable by everybody. A full example file is available in section 8.1.1.

Let's have a look at all available parameters.

- `UID_START` and `GID_START` : those parameters are deprecated. Available uid and gid are now defined in the default new entry `cn=NextFreeUnixId,dc=idealx,dc=org`.
- `SID` : Secure Identifier Domain
  - Example: `SID="S-1-5-21-3703471949-3718591838-2324585696"`
  - Remark: you can get the SID for your domain using the `net getlocalsid` command. Samba must be up and running for this to work (it can take **several** minutes for a Samba server to correctly negotiate its status with other network servers).
- `slaveLDAP` : slave LDAP server
  - Example: `slaveLDAP="127.0.0.1"`
  - Remark: must be a resolvable DNS name or it's IP address
- `slavePort` : port to contact the slave server
  - Example: `slavePort="389"`
- `masterLDAP` : master LDAP server
  - Example: `masterLDAP="127.0.0.1"`
- `masterPort` : port to contact the master server
  - Example: `masterPort="389"`
- `ldapTLS` : should we use TLS connection to contact the ldap servers ?
  - Example: `ldapTLS="1"`
  - Remark: the LDAP severs must be configured to accept TLS connections. See section the Samba-LDAP Howto for more details (`http://samba.idealx.org/smbldap-howto.fr.html`). If you are using TLS support, select port 389 to connect to the master and slave directories.
- `verify` : How to verify the server's certificate (none, optional or require). See "man Net::LDAP" in start_tls section for more details
  - Example: `verify="require"`
- `cafile` : the PEM-format file containing certificates for the CA that slapd will trust
  - Example: `cafile="/etc/smbldap-tools/ca.pem"`
- `clientcert` : the file that contains the client certificate
  - Example: `clientcert="/etc/smbldap-tools/smbldap-tools.iallanis.com.pem"`
- `clientkey` : the file that contains the private key that matches the certificate stored in the clientcert file
  - Example: `clientkey="/etc/smbldap-tools/smbldap-tools.iallanis.com.key"`

- `suffix` : The distinguished name of the search base
  - Example: `suffix="dc=idealx,dc=com"`
- `usersdn` : branch in which users account can be found or must be added
  - Example: `usersdn="ou=Users,${suffix}"`
  - Remark: this branch is **not** relative to the suffix value
- `computersdn` : branch in which computers account can be found or must be added
  - Example: `computersdn"ou=Computers,${suffix}"`
  - Remark: this branch is **not** relative to the suffix value
- `groupsdn` : branch in which groups account can be found or must be added
  - Example: `groupsdn="ou=Groups,${suffix}"`
  - Remarks: this branch is **not** relative to the suffix value
- `idmapdn` : where are stored Idmap entries (used if samba is a domain member server)
  - Example: `idmapdn="ou=Idmap,${suffix}"`
  - Remarks: this branch is **not** relative to the suffix value
- `sambaUnixIdPooldn` : object in which next uidNumber and gidNumber available are stored
  - Example: `sambaUnixIdPooldn="cn=NextFreeUnixId,${suffix}"`
  - Remarks: this branch is **not** relative to the suffix value
- `scope` : the search scope.
  - Example: `scope="sub"`
- `hash_encrypt` : hash to be used when generating a user password.
  - Example: `hash_encrypt="SSHA"`
  - Remark: This is used for the unix password stored in *userPassword* attribute.
- `crypt_salt_format="%s"` : if hash_encrypt is set to CRYPT, you may set a salt format. Default is "%s", but many systems will generate MD5 hashed passwords if you use "1%.8s". This parameter is optional.
- `userLoginShell` : default shell given to users.
  - Example: `userLoginShell="/bin/bash"`
  - Remark: This is stored in *loginShell* attribute.
- `userHome` : default directory where users's home directory are located.
  - Example: `userHome="/home/%U"`
  - Remark: This is stored in `homeDirectory` attribute.

- `userGecos` : gecos used for users
  - Example: `userGecos="System User"`
- `defaultUserGid` : default primary group set to users accounts
  - Example: `defaultUserGid="513"`
  - Remark: this is stored in *gidNumber* attribute.
- `defaultComputerGid` : default primary group set to computers accounts
  - Example: `defaultComputerGid="550"`
  - Remark: this is stored in *gidNumber* attribute.
- `skeletonDir` : skeleton directory used for users accounts
  - Example: `skeletonDir="/etc/skel"`
  - Remark: this option is used only if you ask for home directory creation when adding a new user.
- `defaultMaxPasswordAge` : default validation time for a password (in days)
  - Example: `defaultMaxPassword="55"`
- `userSmbHome` : samba share used to store user's home directory
  - Example: `userSmbHome="\\PDC-SMB3\`$home\%U$"
  - Remark: this is stored in *sambaHomePath* attribute.
- `userProfile` : samba share used to store user's profile
  - Example: `userProfile="\\PDC-SMB3\`$profiles\%U$`"`
  - Remark: this is stored in *sambaProfilePath* attribute.
- `userScript` : default user netlogon script name. If not used, will be automatically *username.cmd*
  - Example: `userScript="%U"`
  - Remark: this is stored in *sambaProfilePath* attribute.
- `userHomeDrive` : letter used on windows system to map the home directory
  - Example: `userHomeDrive="K:"`
- `with_smbpasswd` : should we use the *smbpasswd* command to set the user's password (instead of the *mkntpwd* utility) ?
  - Example: `with_smbpasswd="0"`
  - Remark: must be a boolean value (0 or 1).
- `smbpasswd` : path to the `smbpasswd` binary

  - Example: `smbpasswd="/usr/bin/smbpasswd"`

- `mk_ntpasswd` : path to the mkntpwd binary
  - Example: `mk_ntpasswd="/usr/local/sbin/mkntpwd"`
  - Remark: the rpm package of the smbldap-tools will install this utility. If you are using the tarball archive, you have to install it yourself (sources are also in the smbldap-tools archive).

- `mailDomain` : Domain appended to the users "mail" attribute.
  - Example: `mailDomain="idealx.org"`

3.2 The smbldap_bind.conf file

This file is only used by *root* to modify the content of the directory. It contains distinguised names and credentials to connect to both the master and slave directories. A full example file is available in section 8.1.2.

Let's have a look at all available parameters.

- `slaveDN` : distinguished name used to bind to the slave server
  - Example 1: `slaveDN="cn=Manager,dc=idealx,dc=com"`
  - Example 2: `slaveDN=""`
  - Remark: this can be the manager account of the directory or any LDAP account that has sufficient permissions to read the full directory (Slave directory is only used for reading). Anonymous connections uses the second example form.

- `slavePw` : the credentials to bind to the slave server
  - Example 1: `slavePw="secret"`
  - Example 2: `slavePw=""`
  - Remark: the password must be stored here in clear form. This file must then be readable only by root! All anonymous connections use the second form provided in our example.

- `masterDN` : the distinguished name used to bind to the master server
  - Example: `masterDN="cn=Manager,dc=idealx,dc=com"`
  - Remark: this can be the manager account of the directory or any LDAP account that has enough permissions to modify the content of the directory. Anonymous access does not make any sense here.

- `masterPw` : the credentials to bind to the master server
  - Example: `masterPw="secret"`
  - Remark: the password must be in clear text. Be sure to protect this file against unauthorized readers!

4 Using the scripts

4.1 Initial directory's population

You can initialize the LDAP directory using the `smbldap-populate` script. To do that, the account defined in the `/etc/smbldap-tools/smbldap_bind.conf` to access the master directory **must** must be the manager account defined in the directory configuration. On RedHat system, this file is `/etc/openldap/slapd.conf` and the account is defined with

```
1  rootdn          "cn=Manager,dc=idealx,dc=com"
2  rootpw          secret
```

The `smbldap_bind.conf` file must then be configured so that the parameters to connect to the master LDAP server match the previous ones:

```
1  masterDN="cn=Manager,dc=idealx,dc=com"
2  masterPw="secret"
```

Available options for this script are summarized in the table 1:

option	definition	default value
-u *uidNumber*	first uidNumber to allocate	1000
-g *gidNumber*	first uidNumber to allocate	1000
-a *user*	administrator login name	Administrator
-b *user*	guest login name	nobody
-e *file*	export a init file	
-i *file*	import a init file	

Table 1: Options available for the `smbldap-populate` script

In the more general case, to set up your directory, simply use the following command:

```
[root@etoile root]# smbldap-populate
Using builtin directory structure
adding new entry: dc=idealx,dc=com
adding new entry: ou=Users,dc=idealx,dc=com
adding new entry: ou=Groups,dc=idealx,dc=com
adding new entry: ou=Computers,dc=idealx,dc=com
adding new entry: ou=Idmap,dc=idealx,dc=org
adding new entry: cn=NextFreeUnixId,dc=idealx,dc=org
adding new entry: uid=Administrator,ou=Users,dc=idealx,dc=com
adding new entry: uid=nobody,ou=Users,dc=idealx,dc=com
adding new entry: cn=Domain Admins,ou=Groups,dc=idealx,dc=com
adding new entry: cn=Domain Users,ou=Groups,dc=idealx,dc=com
adding new entry: cn=Domain Guests,ou=Groups,dc=idealx,dc=com
adding new entry: cn=Print Operators,ou=Groups,dc=idealx,dc=com
```

```
adding new entry: cn=Backup Operators,ou=Groups,dc=idealx,dc=com
adding new entry: cn=Replicator,ou=Groups,dc=idealx,dc=com
adding new entry: cn=Domain Computers,ou=Groups,dc=idealx,dc=com
```

After this step, if you don't want to use the `cn=Manager,dc=idealx,dc=com` account anymore, you can create a dedicated account for Samba and the smbldap-tools. See section 8.2 for more details.

The `cn=NextFreeUnixId,dc=idealx,dc=org` entry is only used to defined the next uidNumber and gidNumber available for creating new users and groups. The default values for those numbers are 1000. You can change it with the `-u` and `-g` option. For example, if you want the first available value for uidNumber and gidNumber to be set to 1500, you can use the following command :

```
smbldap-populate -u 1550 -g 1500
```

4.2 User management

4.2.1 Adding a user

To add a user, use the `smbldap-useradd` script. Available options are summarized in the table 2. If applicable, default values are mentionned in the third column. Any string beginning with a $ symbol refers to a parameter defined in the `/etc/smbldap-tools/smbldap.conf` configuration file.

For example, if you want to add a user named *user_admin* and who :

- is a windows user
- must belong to the group of gid=512 ('Domain Admins' group)
- has a home directory
- does not have a login shell
- has a homeDirectory set to /dev/null
- does not have a roaming profile
- and for whom we want to set a first login password

you must invoke:

```
smbldap-useradd -a -G 512 -m -s /bin/false -d /dev/null -F "" -P user_admin
```

option	definition	example	default value
-a	create a Windows account. Otherwise, only a Posix account is created		
-w	create a Windows Workstation account		
-i	create an interdomain trust account. See section 4.4 for more details		
-u	set a uid value	-u 1003	first uid available
-g	set a gid value	-g 1003	first gid available
-G	add the new account to one or several supplementary groups (comma-separated)	-G 512,550	
-d	set the home directory	-d /var/user	$userHomePrefix/user
-s	set the login shell	-s /bin/ksh	$userLoginShell
-c	set the user gecos	-c "admin user"	$userGecos
-m	creates user's home directory and copies /etc/skel into it		
-k	set the skeleton dir (with -m)	-k /etc/skel2	$skeletonDir
-P	ends by invoking smbldap-passwd to set the user's password		
-A	user can change password ? 0 if no, 1 if yes	-A 1	
-B	user must change password at first session ? 0 if no, 1 if yes	-B 1	
-C	set the samba home share	-C \\PDC\homes	$userSmbHome
-D	set a letter associated with the home share	-D H:	$userHomeDrive
-E	set DOS script to execute on login	-E common.bat	$userScript
-F	set the profile directory	-F \\PDC\profiles\user	$userProfile
-H	set the samba account control bits like'[NDHTUMWSLKI]'	-H [X]	
-N	set the canonical name of the user		
-S	set the surname of the user		
-M	local mailAddress (comma seperated)	-M testuser,aliasuser	
-T	forward mail address (comma seperated)	-T testuser@domain.org	

Table 2: Options available to the `smbldap-useradd` script

option	definition
-r	remove home directory
-R	remove home directory interactively

Table 3: Option available to the `smbldap-userdel` script

4.2.2 Removing a user

To remove a user account, use the `smbldap-userdel` script. Available options are

For example, if you want to remove the *user1* account from the LDAP directory, and if you also want to delete his home directory, use the following command :

```
smbldap-userdel -r user1
```

Note: '-r' is dangerous as it may delete precious and unbackuped data, please be careful.

4.2.3 Modifying a user

To modify a user account, use the `smbldap-usermod` script. Availables options are listed in the table 4.

4.3 Group management

4.3.1 Adding a group

To add a new group in the LDAP directory, use the `smbldap-groupadd` script. Available options are listed in the table 5.

4.3.2 Removing a group

To remove the group named `group1`, just use the following command :

```
smbldap-userdel group1
```

4.4 Adding a interdomain trust account

To add an interdomain trust account to the primary controller *trust-pdc*, use the `-i` option of `smbldap-useradd` as follows :

```
[root@etoile root]# smbldap-useradd -i trust-pdc
New password : *******
Retype new password : *******
```

The script will terminate asking for a password for this trust account. The account will be created in the directory branch where all computer accounts are stored (`ou=Computers` by default). The only two particularities of this account are that you are setting a password for this account, and the flags of this account are `[I ]`.

option	definition	example
-c	set the user gecos	-c "admin user"
-d	set the home directory	-d /var/user
-u	set a uid value	-u 1003
-g	set a gid value	-g 1003
-G	add the new account to one or several supplementary groups (comma-separated)	-G 512,550
		-G -512,550
		-G +512,550
-s	set the login shell	-s /bin/ksh
-N	set the canonical name of the user	
-S	set the surname of the user	
-P	ends by invoking smbldap-passwd to set the user's password	
-a	add sambaSAMAccount objectclass	
-e	set an expiration date for the password (format: YYYY-MM-DD HH:MM:SS)	
-A	user can change password ? 0 if no, 1 if yes	-A 1
-B	user must change password at first session ? 0 if no, 1 if yes	-B 1
-C	set the samba home share	-C \\PDC\homes
		-C ""
-D	set a letter associated with the home share	-D H:
		-D ""
-E	set DOS script to execute on login	-E common.bat
		-E ""
-F	set the profile directory	-F \\PDC\profiles\user -F ""
-H	set the samba account control bits like'[NDHTUMWSLKI]'	-H [X]
-I	disable a user account	-I 1
-J	enable a user	-J 1
-M	local mailAddress (comma seperated)	-M testuser,aliasuser
-T	forward mail address (comma seperated)	-T testuser@domain.org

Table 4: Options available to the `smbldap-usermod` script

option	definition	example
-a	add automatic group mapping entry	
-g `gid`	set the *gidNumer* for this group to *gid*	`-g 1002`
-o	gidNumber is not unique	
-r `group-rid`	set the rid of the group to *group-rid*	`-r 1002`
-s `group-sid`	set the sid of the group to *group-sid*	`-s S-1-5-21-3703471949-3718591838-2324585696-1002`
-t `group-type`	set the *sambaGroupType* to *group-type*	`-t 2`
-p	print the gidNumber to stdout	

Table 5: Options available for the `smbldap-groupadd` script

5 Samba and the smbldap-tools scripts

5.1 General configuration

Samba can be configured to use the smbldap-tools scripts. This allows administrators to add, delete or modify user and group accounts for Microsoft Windows operating systems using, for example, User Manager utility under MS-Windows. To enable the use of this utility, samba needs to be configured correctly. The `smb.conf` configuration file must contain the following directives :

```
1 ldap delete dn = Yes
2 add user script = /usr/local/sbin/smbldap-useradd -m "%u"
3 add machine script = /usr/local/sbin/smbldap-useradd -w "%u"
4 add group script = /usr/local/sbin/smbldap-groupadd -p "%g"
5 add user to group script = /usr/local/sbin/smbldap-groupmod -m "%u" "%g"
6 delete user from group script = /usr/local/sbin/smbldap-groupmod -x "%u" "%g"
7 set primary group script = /usr/local/sbin/smbldap-usermod -g "%g" "%u"
```

Remark: the two directives `delete user script` et `delete group script` can also be used. However, an error message can appear in User Manager even if the operations actually succeed. If you want to enable this behaviour, you need to add

```
1 delete user script = /usr/local/sbin/smbldap-userdel "%u"
2 delete group script = /usr/local/sbin/smbldap-groupdel "%g"
```

5.2 Migrating an NT4 PDC to Samba3

The account migration procedure becomes really simple when samba is configured to use the smbldap-tools. Samba configuration (smb.conf file) must contain the directive defined above to properly call the script for managing users, groups and computer accounts. The migration process is outlined in the chapter 31 of the samba howto `http://sambafr.idealx.org/samba/docs/man/NT4Migration.html`.

6 Frequently Asked Questions

6.1 How can i use old released uidNumber and gidNumber ?

There are two way to do this :

- modify the `cn=NextFreeUnixId,dc=idealx,dc=org` and change the `uidNumber` and/or `gidNumber` value. This must be done manually. For example, if you want to use all available uidNumber and gidNumber higher then 1500, you need to create a `update-NextFreeUnixId.ldif` file containing :

```
1 dn: cn=NextFreeUnixId,dc=idealx,dc=org
2 changetype: modify
3 uidNumber: 1500
4 gidNumber: 1500
```

  and then update the directory :

  ```
  ldapmodify -x -D "cn=Manager,dc=idealx,dc=org" -w secret -f update-NextFreeUnixId.ldi
  ```

- use the `-u` or `-g` option to the script you need to set the value you want to use

6.2 I always have this error: "Can't locate IO/Socket/SSL.pm"

This happens when you want to use a certificate. In this case, you need to install the IO-Socket-SSL Perl module.

6.3 I can't initialize the directory with `smbldap-populate`

When I want to initialize the directory using the `smbldap-populate` script, I get

```
[root@slave sbin]# smbldap-populate.pl
  Using builtin directory structure
  adding new entry: dc=IDEALX,dc=COM
  Can't call method "code" without a package or object reference at
  /usr/local/sbin/smbldap-populate.pl line 270, <GEN1> line 2.
```

Answer: check the TLS configuration

- if you don't want to use TLS support, set the `/etc/smbldap-tools/smbldap.conf` file with

  ```
  ldapSSL="0"
  ```

- if you want TLS support, set the `/etc/smbldap-tools/smbldap.conf` file with

  ```
  ldapSSL="1"
  ```

  and check that the directory server is configured to accept TLS connections.

6.4 I can't join the domain with the `root` account

- check that the root account has the sambaSamAccount objectclass
- check that the directive `add machine script` is present and configured

6.5 I have the `sambaSamAccount` but i can't logged in

Check that the `sambaPwdLastSet` attribute is not null (equal to 0)

6.6 I want to create machine account on the fly, but it does not works or I must do it twice

- The script defined with the `add machine script` must not add the `sambaSAMAccount` objectclass of the machine account. The script must only add the Posix machine account. Samba will add the `sambaSAMAccount` when joining the domain.
- Check that the `add machine script` is present in samba configuration file.

6.7 I can't manage the Oracle Internet Database

If you have an error message like :

```
1 Function Not Implemented at /usr/local/sbin/smbldap_tools.pm line 187.
2 Function Not Implemented at /usr/local/sbin/smbldap_tools.pm line 627.
```

For Oracle Database, all attributes that will be resquested to the directory must be indexed. Add a new index for samba attributes and make sure that the following attributes are also indexed : uidNumber, gidNumber, memberUid, homedirectory, description, userPassword ...

6.8 The directive `passwd program = /usr/local/sbin/smbldap-passwd -u %u` is not called, or i got a error message when changing the password from windows

The directive is called if you also set `unix password sync = Yes`. Notes:

- if you use OpenLDAP, none of those two options are needed. You just need `ldap passwd sync = Yes`.
- the script called here must only update the `userPassword` attribute. This is the reason of the `-u` option. Samba passwords will be updated by samba itself.
- the `passwd chat` directive must match what is prompted when using the `smbldap-passwd` command

6.9 New computers account can't be set in ou=computers

This is a known samba bug. There's a workarround: look at `http://marc.theaimsgroup.com/?l=samba&m=108439612826440&w=2`

6.10 I can join the domain, but i can't log on

look at section 6.9

6.11 I can't create a user with `smbldap-useradd`

When creating a new user account I get the following error message:

```
/usr/local/sbin/smbldap-useradd.pl: unknown group SID not set for unix group 513
```

Answer:

- is nss_ldap correctly configured ?
- is the default group's users mapped to the 'Domain Users' NT group ?

  ```
  net groupmap add rid=513 unixgroup="Domain Users" ntgroup="Domain Users"
  ```

6.12 smbldap-useradd: Can't call method "get_value" on an undefined value at /usr/local/sbin/smbldap-useradd line 154

- does the default group defined in smbldap.conf exist (defaultUserGid="513") ?
- does the NT "Domain Users" group mapped to a unix group of rid 513 (see option *-r* of `smbldap-groupadd` and `smbldap-groupmod` to set a rid) ?

6.13 I've got errors on creating a new user or a new group

- i've got the following error:

  ```
  Could not find base dn, to get next uidNumber at /usr/local/sbin//smbldap_tools.pm li
  ```

  You have updated the smbldap-tools to version 0.8.5 or newer, but you do not have created the object to defined the next uidNumber and gidNumber available. You have to do this manually. Create an file called `add.ldif` and containing

  ```
  dn: cn=NextFreeUnixId,dc=idealx,dc=org
  objectClass: inetOrgPerson
  objectClass: sambaUnixIdPool
  ```

```
uidNumber: 1000
gidNumber: 1000
cn: NextFreeUnixId
sn: NextFreeUnixId
```

and then add the object with the ldapadd utility:

```
$ ldapadd -x -D "cn=Manager,dc=idealx,dc=org" -w secret -f add.ldif
```

Here, 1000 is the first available value for uidNumber and gidNumber (of course, if this value is already used by a user or a group, the first available after 1000 will be used).

- i've got the following error:

```
Use of uninitialized value in string at
/usr/local/sbin//smbldap\_tools.pm line 914.
Error: No DN specified at /usr/local/sbin//smbldap\_tools.pm line 919
```

You have not updated the configuration file to defined the object where are sotred the next uidNumber and gidNumber available. In our example, you have to add a nex entry in */etc/smbldap-tools/smbldap.conf* containing :

```
# Where to store next uidNumber and gidNumber available
sambaUnixIdPooldn="cn=NextFreeUnixId,${suffix}"
```

btw, a new option is now available too: the domain to append to users. You can add to the configuration file the following lines:

```
# Domain appended to the users "mail"-attribute
# when smbldap-useradd -M is used
mailDomain="idealx.com"
```

- i've got the following error:

```
Use of uninitialized value in concatenation (.) or string at /usr/local/sbin/smbldap-
Use of uninitialized value in substitution (s///) at /usr/local/sbin/smbldap-useradd
Use of uninitialized value in string at /usr/local/sbin/smbldap-useradd line 264.
failed to add entry: homedirectory: value #0 invalid per syntax at /usr/local/sbin/sm
userHomeDirectory=User "jto" already member of the group "513".
failed to add entry: No such object at /usr/local/sbin/smbldap-useradd line 382.
```

you have to change the variable name `userHomePrefix` to `userHome` in */etc/smbldap-tools/smbldap.conf*

- i've got the following error:

```
failed to add entry: referral missing at /usr/local/sbin/smbldap-useradd line 279, <D
```

you have to update the configuration file that defined users, groups and computers dn. Those parameters must not be relative to the `suffix` parameter. A typical configuration look like this :

```
usersdn="ou=Users,${suffix}"
computersdn="ou=Computers,${suffix}"
groupsdn="ou=Groups,${suffix}"
```

7 Thanks

People who have worked on this document are

- Jérôme Tournier <jerome.tournier@IDEALX.com>
- David Barth <david.barth@IDEALX.com>
- Nat Makarevitch <nat@IDEALX.com>

The authors would like to thank the following people for providing help with some of the more complicated subjects, for clarifying some of the internal workings of Samba or OpenLDAP, for pointing out errors or mistakes in previous versions of this document, or generally for making suggestions :

- IDEALX team :
  - Roméo Adekambi <romeo.adekambi@IDEALX.com>
  - Aurelien Degremont <adegremont@IDEALX.com>
  - Renaud Renard <rrenard@IDEALX.com>
- John H Terpstra <jht@samba.org>

8 Annexes

8.1 Full configuration files

8.1.1 The /etc/smbldap-tools/smbldap.conf file

```
1  # $Source: /opt/cvs/samba/smbldap-tools/smbldap.conf,v $
2  # $Id: smbldap.conf,v 1.6 2004/02/07 16:58:52 jtournier Exp $
3  #
4  # smbldap-tools.conf : Q & D configuration file for smbldap-tools
5
6  #  This code was developped by IDEALX (http://IDEALX.org/) and
7  #  contributors (their names can be found in the CONTRIBUTORS file).
8  #
9  #                 Copyright (C) 2001-2002 IDEALX
10 #
```

```
11  #  This program is free software; you can redistribute it and/or
12  #  modify it under the terms of the GNU General Public License
13  #  as published by the Free Software Foundation; either version 2
14  #  of the License, or (at your option) any later version.
15  #
16  #  This program is distributed in the hope that it will be useful,
17  #  but WITHOUT ANY WARRANTY; without even the implied warranty of
18  #  MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE.  See the
19  #  GNU General Public License for more details.
20  #
21  #  You should have received a copy of the GNU General Public License
22  #  along with this program; if not, write to the Free Software
23  #  Foundation, Inc., 59 Temple Place - Suite 330, Boston, MA 02111-1307,
24  #  USA.
25
26  #  Purpose :
27  #       . be the configuration file for all smbldap-tools scripts
28
29  ##############################################################################
30  #
31  # General Configuration
32  #
33  ##############################################################################
34
35  # Put your own SID
36  # to obtain this number do: net getlocalsid
37  SID="S-1-5-21-4231626423-2410014848-2360679739"
38
39  ##############################################################################
40  #
41  # LDAP Configuration
42  #
43  ##############################################################################
44
45  # Notes: to use to dual ldap servers backend for Samba, you must patch
46  # Samba with the dual-head patch from IDEALX. If not using this patch
47  # just use the same server for slaveLDAP and masterLDAP.
48  # Those two servers declarations can also be used when you have
49  # . one master LDAP server where all writing operations must be done
50  # . one slave LDAP server where all reading operations must be done
51  #   (typically a replication directory)
52
53  # Ex: slaveLDAP=127.0.0.1
54  slaveLDAP="127.0.0.1"
55  slavePort="389"
56
57  # Master LDAP : needed for write operations
58  # Ex: masterLDAP=127.0.0.1
59  masterLDAP="127.0.0.1"
60  masterPort="389"
61
62  # Use TLS for LDAP
63  # If set to 1, this option will use start_tls for connection
64  # (you should also used the port 389)
65  ldapTLS="0"
66
67  # How to verify the server's certificate (none, optional or require)
68  # see "man Net::LDAP" in start_tls section for more details
69  verify="require"
70
71  # CA certificate
72  # see "man Net::LDAP" in start_tls section for more details
73  cafile="/etc/smbldap-tools/ca.pem"
74
75  # certificate to use to connect to the ldap server
76  # see "man Net::LDAP" in start_tls section for more details
```

```
77  clientcert="/etc/smbldap-tools/smbldap-tools.pem"
78
79  # key certificate to use to connect to the ldap server
80  # see "man Net::LDAP" in start_tls section for more details
81  clientkey="/etc/smbldap-tools/smbldap-tools.key"
82
83  # LDAP Suffix
84  # Ex: suffix=dc=IDEALX,dc=ORG
85  suffix="dc=idealx,dc=org"
86
87  # Where are stored Users
88  # Ex: usersdn="ou=Users,dc=IDEALX,dc=ORG"
89  usersdn="ou=Users,${suffix}"
90
91  # Where are stored Computers
92  # Ex: computersdn="ou=Computers,dc=IDEALX,dc=ORG"
93  computersdn="ou=Computers,${suffix}"
94
95  # Where are stored Groups
96  # Ex groupsdn="ou=Groups,dc=IDEALX,dc=ORG"
97  groupsdn="ou=Groups,${suffix}"
98
99  # Where are stored Idmap entries (used if samba is a domain member server)
100 # Ex groupsdn="ou=Idmap,dc=IDEALX,dc=ORG"
101 idmapdn="ou=Idmap,${suffix}"
102
103 # Where to store next uidNumber and gidNumber available
104 sambaUnixIdPooldn="cn=NextFreeUnixId,${suffix}"
105
106 # Default scope Used
107 scope="sub"
108
109 # Unix password encryption (CRYPT, MD5, SMD5, SSHA, SHA)
110 hash_encrypt="SSHA"
111
112 # if hash_encrypt is set to CRYPT, you may set a salt format.
113 # default is "%s", but many systems will generate MD5 hashed
114 # passwords if you use "$1$%.8s". This parameter is optional!
115 crypt_salt_format="%s"
116
117 ##############################################################################
118 #
119 # Unix Accounts Configuration
120 #
121 ##############################################################################
122
123 # Login defs
124 # Default Login Shell
125 # Ex: userLoginShell="/bin/bash"
126 userLoginShell="/bin/bash"
127
128 # Home directory
129 # Ex: userHome="/home/%U"
130 userHome="/home/%U"
131
132 # Gecos
133 userGecos="System User"
134
135 # Default User (POSIX and Samba) GID
136 defaultUserGid="513"
137
138 # Default Computer (Samba) GID
139 defaultComputerGid="515"
140
141 # Skel dir
142 skeletonDir="/etc/skel"
```

```
143
144 # Default password validation time (time in days) Comment the next line if
145 # you don't want password to be enable for defaultMaxPasswordAge days (be
146 # careful to the sambaPwdMustChange attribute's value)
147 defaultMaxPasswordAge="45"
148
149 ##############################################################################
150 #
151 # SAMBA Configuration
152 #
153 ##############################################################################
154
155 # The UNC path to home drives location (%U username substitution)
156 # Ex: \\My-PDC-netbios-name\homes\%U
157 # Just set it to a null string if you want to use the smb.conf 'logon home'
158 # directive and/or disable roaming profiles
159 userSmbHome="\\PDC-SMB3\home\%U"
160
161 # The UNC path to profiles locations (%U username substitution)
162 # Ex: \\My-PDC-netbios-name\profiles\%U
163 # Just set it to a null string if you want to use the smb.conf 'logon path'
164 # directive and/or disable roaming profiles
165 userProfile="\\PDC-SMB3\profiles\%U"
166
167 # The default Home Drive Letter mapping
168 # (will be automatically mapped at logon time if home directory exist)
169 # Ex: H: for H:
170 userHomeDrive="H:"
171
172 # The default user netlogon script name (%U username substitution)
173 # if not used, will be automatically username.cmd
174 # make sure script file is edited under dos
175 # Ex: %U.cmd
176 # userScript="startup.cmd" # make sure script file is edited under dos
177 #userScript="%U.cmd"
178
179 # Domain appended to the users "mail"-attribute
180 # when smbldap-useradd -M is used
181 mailDomain="idealx.com"
182
183 ##############################################################################
184 #
185 # SMBLDAP-TOOLS Configuration (default are ok for a RedHat)
186 #
187 ##############################################################################
188
189 # Allows not to use smbpasswd (if with_smbpasswd == 0 in smbldap_conf.pm) but
190 # prefer Crypt::SmbHash library
191 with_smbpasswd="0"
192 smbpasswd="/usr/bin/smbpasswd"
```

8.1.2 The /etc/smbldap-tools/smbldap_bind.conf file

```
1  ##############################
2  # Credential Configuration #
3  ##############################
4  # Notes: you can specify two differents configuration if you use a
5  # master ldap for writing access and a slave ldap server for reading access
6  # By default, we will use the same DN (so it will work for standard Samba
7  # release)
8  slaveDN="cn=Manager,dc=idealx,dc=org"
9  slavePw="secret"
10 masterDN="cn=Manager,dc=idealx,dc=org"
11 masterPw="secret"
```

8.1.3 The samba configuration file : /etc/samba/smb.conf

```
# Global parameters
[global]
        workgroup = SMB3
        netbios name = PDC-SMB3
        interfaces = 192.168.5.11
        username map = /etc/samba/smbusers
        #admin users= @"Domain Admins"
        server string = Samba Server %v
        security = user
        encrypt passwords = Yes
        min passwd length = 3
        obey pam restrictions = No
        ldap passwd sync = Yes
        #unix password sync = Yes
        #passwd program = /usr/local/sbin/smbldap-passwd -u %u
        #passwd chat = "Changing password for*\nNew password*" %n\n "*Retype new password*" %n\n"
        ldap passwd sync = Yes
        log level = 0
        syslog = 0
        log file = /var/log/samba/log.%m
        max log size = 100000
        time server = Yes
        socket options = TCP_NODELAY SO_RCVBUF=8192 SO_SNDBUF=8192
        mangling method = hash2
        Dos charset = 850
        Unix charset = ISO8859-1

        logon script = logon.bat
        logon drive = H:
        logon home =
        logon path =

        domain logons = Yes
        os level = 65
        preferred master = Yes
        domain master = Yes
        wins support = Yes
        passdb backend = ldapsam:ldap://127.0.0.1/
        # passdb backend = ldapsam:"ldap://127.0.0.1/ ldap://slave.idealx.com"
        # ldap filter = (&(objectclass=sambaSamAccount)(uid=%u))
        ldap admin dn = uid=samba,ou=Users,dc=idealx,dc=com
        ldap suffix = dc=idealx,dc=com
        ldap group suffix = ou=Groups
        ldap user suffix = ou=Users
        ldap machine suffix = ou=Computers
        ldap idmap suffix = ou=Users
        ldap ssl = start tls
        add user script = /usr/local/sbin/smbldap-useradd -m "%u"
        ldap delete dn = Yes
        #delete user script = /usr/local/sbin/smbldap-userdel "%u"
        add machine script = /usr/local/sbin/smbldap-useradd -w "%u"
        add group script = /usr/local/sbin/smbldap-groupadd -p "%g"
        #delete group script = /usr/local/sbin/smbldap-groupdel "%g"
        add user to group script = /usr/local/sbin/smbldap-groupmod -m "%u" "%g"
        delete user from group script = /usr/local/sbin/smbldap-groupmod -x "%u" "%g"
        set primary group script = /usr/local/sbin/smbldap-usermod -g "%g" "%u"

        # printers configuration
        printer admin = @"Print Operators"
        load printers = Yes
```

```
61          create mask = 0640
62          directory mask = 0750
63          nt acl support = No
64          printing = cups
65          printcap name = cups
66          deadtime = 10
67          guest account = nobody
68          map to guest = Bad User
69          dont descend = /proc,/dev,/etc,/lib,/lost+found,/initrd
70          show add printer wizard = yes
71          ; to maintain capital letters in shortcuts in any of the profile folders:
72          preserve case = yes
73          short preserve case = yes
74          case sensitive = no
75
76  [homes]
77          comment = repertoire de %U, %u
78          read only = No
79          create mask = 0644
80          directory mask = 0775
81          browseable = No
82
83  [netlogon]
84          path = /home/netlogon/
85          browseable = No
86          read only = yes
87
88  [profiles]
89          path = /home/profiles
90          read only = no
91          create mask = 0600
92          directory mask = 0700
93          browseable = No
94          guest ok = Yes
95          profile acls = yes
96          csc policy = disable
97          # next line is a great way to secure the profiles
98          force user = %U
99          # next line allows administrator to access all profiles
100         valid users = %U "Domain Admins"
101
102 [printers]
103         comment = Network Printers
104         printer admin = @"Print Operators"
105         guest ok = yes
106         printable = yes
107         path = /home/spool/
108         browseable = No
109         read only  = Yes
110         printable = Yes
111         print command = /usr/bin/lpr -P%p -r %s
112         lpq command = /usr/bin/lpq -P%p
113         lprm command = /usr/bin/lprm -P%p %j
114
115 [print$]
116         path = /home/printers
117         guest ok = No
118         browseable = Yes
119         read only = Yes
120         valid users = @"Print Operators"
121         write list = @"Print Operators"
122         create mask = 0664
123         directory mask = 0775
124
125 [public]
126         comment = Repertoire public
```

```
127         path = /home/public
128         browseable = Yes
129         guest ok = Yes
130         read only = No
131         directory mask = 0775
132         create mask = 0664
133
```

8.1.4 The OpenLDAP configuration file : `/etc/openldap/slapd.conf`

```
1   include               /etc/openldap/schema/core.schema
2   include               /etc/openldap/schema/cosine.schema
3   include               /etc/openldap/schema/inetorgperson.schema
4   include               /etc/openldap/schema/nis.schema
5   include               /etc/openldap/schema/samba.schema
6
7   schemacheck        on
8   lastmod               on
9
10  TLSCertificateFile /etc/openldap/ldap.idealx.com.pem
11  TLSCertificateKeyFile /etc/openldap/ldap.idealx.com.key
12  TLSCACertificateFile /etc/openldap/ca.pem
13  TLSCipherSuite :SSLv3
14  #TLSVerifyClient demand
15
16  ########################################################################
17  # ldbm database definitions
18  ########################################################################
19  database        ldbm
20  suffix                dc=idealx,dc=com
21  rootdn                "cn=Manager,dc=idealx,dc=com"
22  rootpw                secret
23  directory        /var/lib/ldap
24  index    sambaSID    eq
25  index    sambaPrimaryGroupSID    eq
26  index    sambaDomainName    eq
27  index        objectClass,uid,uidNumber,gidNumber,memberUid        eq
28  index        cn,mail,surname,givenname                        eq,subinitial
29
30  # users can authenticate and change their password
31  access to attrs=userPassword,sambaNTPassword,sambaLMPassword
32        by dn="cn=Manager,dc=idealx,dc=com" write
33        by self write
34        by anonymous auth
35        by * none
36  # all others attributes are readable to everybody
37  access to *
38        by * read
```

8.2 Changing the administrative account (`ldap admin dn` in `smb.conf` file)

If you don't want to use the `cn=Manager,dc=idealx,dc=com` account anymore, you can create a dedicated account for Samba and the smbldap-tools scripts. To do this, create an account named *samba* as follows (see section 4.2.1 for a more detailed syntax) :

```
smbldap-useradd -s /bin/false -d /dev/null -P samba
```

This command will ask you to set a password for this account. Let's set it to *samba* for this example. You then need to modify configuration files:

- file `/etc/smbldap-tools/smbldap_bind.conf`

```
slaveDN="uid=samba,ou=Users,dc=idealx,dc=com"
slavePw="samba"
masterDN="uid=samba,ou=Users,dc=idealx,dc=com"
masterPw="samba"
```

- file `/etc/samba/smb.conf`

```
ldap admin dn = uid=samba,ou=Users,dc=idealx,dc=com
```

  don't forget to also set the samba account password in `secrets.tdb` file :

  `smbpasswd -w samba`

- file `/etc/openldap/slapd.conf`: give to the *samba* user permissions to modify some attributes: this user needs to be able to modify all the samba attributes and some others (uidNumber, gidNumber ...) :

```
# users can authenticate and change their password
access to attrs=userPassword,sambaNTPassword,sambaLMPassword,sambaPwdLastSet,sambaPwdMustChange
      by dn="uid=samba,ou=Users,dc=idealx,dc=com" write
      by self write
      by anonymous auth
      by * none
# some attributes need to be readable anonymously so that 'id user' can answer correctly
access to attrs=objectClass,entry,gecos,homeDirectory,uid,uidNumber,gidNumber,cn,memberUid
      by dn="uid=samba,ou=Users,dc=idealx,dc=com" write
      by * read
# somme attributes can be writable by users themselves
access to attrs=description,telephoneNumber
      by dn="uid=samba,ou=Users,dc=idealx,dc=com" write
      by self write
      by * read
# some attributes need to be writable for samba
access to attrs=cn,sambaLMPassword,sambaNTPassword,sambaPwdLastSet,sambaLogonTime,sambaLogoffTime,sambaKickoffTime,
      by dn="uid=samba,ou=Users,dc=idealx,dc=com" write
      by self read
      by * none
# samba need to be able to create the samba domain account
access to dn.base="dc=idealx,dc=com"
      by dn="uid=samba,ou=Users,dc=idealx,dc=com" write
      by * none
# samba need to be able to create new users account
access to dn="ou=Users,dc=idealx,dc=com"
      by dn="uid=samba,ou=Users,dc=idealx,dc=com" write
      by * none
# samba need to be able to create new groups account
access to dn="ou=Groups,dc=idealx,dc=com"
      by dn="uid=samba,ou=Users,dc=idealx,dc=com" write
      by * none
# samba need to be able to create new computers account
access to dn="ou=Computers,dc=idealx,dc=com"
      by dn="uid=samba,ou=Users,dc=idealx,dc=com" write
      by * none
# this can be omitted but we leave it: there could be other branch
# in the directory
access to *
      by self read
      by * none
```

8.3 known bugs

- Option *-B* (user must change password) of `smbldap-useradd` does not have effect: when `smbldap-passwd` script is called, *sambaPwdMustChange* attribute is rewrite.