



Open-Xchange™ Server Automated User Creation

v1.00

© Copyright 2005-2006, OPEN-XCHANGE Inc.

This document is the intellectual property of Open-Xchange Inc., Tarrytown, NY, USA

The document may be copied in whole or in part, provided that each copy contains this copyright notice.

The information contained in this book was compiled with the utmost care. Nevertheless, erroneous statements cannot be excluded altogether. Open-Xchange Inc., the authors and the translators are not liable for possible errors and their consequences.

The names of software and hardware used in this book may be registered trademarks; they are used without guarantee of free usability. Open-Xchange Inc. generally follows the spelling conventions of the manufacturers. The reproduction of brand names, trade names, logos etc. in this book (even without special marking) does not justify the assumption that such names can be considered free (for the purposes of trademark and brand name regulations).

Please direct any recommendations or comments to
documentation@open-xchange.com

Author: Stephan Martin

Editors: Robert Colombara, Ryan Rozycki, Hubert Schweinesbein

Layout: Robert Colombara

Contents

1. Introduction	4
2. Architecture Overview, Concepts	5
2.1. Open-Xchange Architecture	5
2.2. User relevant Information	5
2.3. Open-Xchange Administration Framework	6
3. Automated User Creation using Command Line Tools	8
3.1. adduser	10
3.2. deluser	13
3.3. addgroup	14
3.4. delgroup	15
3.5. addmembers2group	16
3.6. delmembersfromgroup	17
3.7. changepasswd	18
3.8. setquota	19
4. Resources	20
5. User Administration via Company LDAP	21
5.1. Adding a User to the LDAP Server	22
5.1.1. Mandatory/Recommended LDAP Attributes	22
5.1.2. Additional/Optional LDAP Attributes	25
5.1.3. Adapting Open-Xchange LDAP mappings	27
5.2. Finalizing the User Account for Open-Xchange	28
5.2.1. Adding User Accounts to the Groupware Database	28
5.2.2. Creating E-Mail Boxes	29

1. Introduction

Open-Xchange Server 5 is an Open Source-based, full featured Messaging and Collaboration solution that runs on Linux.

The architecture of Open-Xchange Server 5 is completely based on open standards, open protocols and makes use of well known open source services, which are included in the common Linux enterprise distributions, as back-ends.

The Open-Xchange Server 5 comes with an administration front-end, which allows an easy creation of users through a web front-end. Using the Open-Xchange administrative front-end, all necessary actions for user creation are transparently done for the user in one step.

However, there might be situations, when it is not convenient to create each user manually through the Open-Xchange web front-end. Examples for such situations are:

- **Bulk load**

The server is freshly installed and many users are to be imported at the same time. So the goal is to have the possibility to do a bulk load of many users. The information to create the users is available in a format which can be parsed automatically, like e.g. a comma separated list.

- **Use existing Front-end**

There is already an existing front-end in use in the company, which is used to create the users e.g. through the human resources department. The Open-Xchange Server should be integrated into this concept, so that the users are created automatically without manual interaction from technical staff members.

- **Company Directory**

There is already a LDAP compliant directory service in place within the company. All users of the company are administered through this directory. The Open-Xchange Server should be integrated into this directory service, so it is necessary to create the non-LDAP related user information in the Open-Xchange Server (like groupware permissions) manually.

For this scenario it is very useful to read the Whitepaper "Open-Xchange Directory Integration" prior to this document to get used to the underlying concepts.

This paper will give the background knowledge which is necessary to implement one of the scenarios mentioned above.

2. Architecture Overview, Concepts

This chapter gives a brief introduction into the architecture of the Open-Xchange Server and all the services/repositories, which are in use to store any kind of user data or permission information.

2.1. Open-Xchange Architecture

This chapter gives a brief overview of the architecture of the Open-Xchange Server and its back end services.

In general the Open-Xchange Server 5 consists of the Open-Xchange Application Server, which contains the application logic and which does the main processing work, a collection of daemons which handle specific tasks.

All data is handled by back-end services, which are specially designed to store exactly these types of data.

Essentially, there are three relevant types of data storage for the topic user administration:

- Directory Service (LDAP)
- Database (SQL)
- E-Mail (IMAP/SMTP)

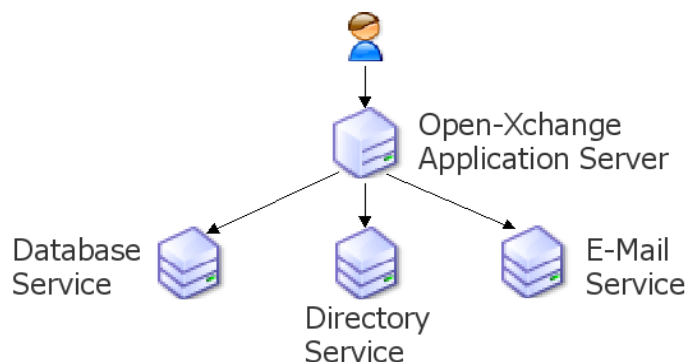


Figure 1: Subsystems inside of the Open-Xchange Server

2.2. User relevant Information

The following user relevant information is stored in the services:

- **LDAP Directory**

The LDAP Directory contains all information about the user itself, which is necessary for authentication (user name, password ...) as well as the

information which is required for the underlying Linux services to work (mail routing information, group relations ...).

Additionally, the address information for each user is stored in the LDAP directory, so it is used as source for internal addresses.

- **Database**

The database contains all groupware related information. This includes all information about the groupware module permissions, folder access permissions and groupware and web mail settings.

- **E-Mail Service**

Usually it is necessary to create a mailbox for each user in the e-mail service and to create the standard folders for each user (INBOX, Trash, Sent ...). This is necessary if the standard mail services (postfix, cyrus) are in use.

2.3. Open-Xchange Administration Framework

In the standard setup, the Open-Xchange Server's administrative front-end is used to administer all users through the Open-Xchange Server.

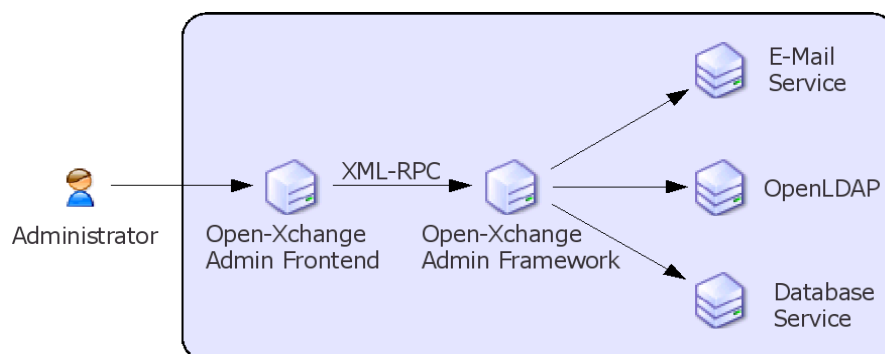


Figure 2: OX Administration using the Admin Front-end

In the maintained version of the Open-Xchange Server, the administrative front-end communicates with the server through the XML-RPC interface, which allows access to all administrative tasks. On the Open-Xchange Server there is a daemon running which will listen for the XML-RPC calls which then coordinates necessary actions with the relevant back-end services to respond to them. So it is possible to trigger all actions needed for server administration.

In short this means that while the data is stored by the backend services, calls to those services are handled by the Open-Xchange server itself rather than directly through the administrative front-end to ensure data consistency and transparency for the user/administrator.

The main advantage of this concept is that the Open-Xchange Server acts as an abstracted layer between the administrative front-end and the back-end services. If one backend service is changed, the database component for example, only the relevant interface in the Open-Xchange Server needs to be adapted and the other components can stay the same.

3. Automated User Creation using Command Line Tools

This chapter describes how users and groups can be created, changed or deleted without the administrative front-end using only command line tools.

The command line tools work exactly the same way as the administrative web front-ends: they generate XML-RPC calls, which are interpreted and executed by the XML-RPC daemon. Due to this architecture they inherit all advantages, like the backend flexibility, of the architecture described above.

This chapter focuses on the usage of the command line tools as only tool of administration. Everything is done with one call to the command line tools and all necessary steps for the user creation are done in one operation. This is different to the way it is described in the later chapters, where the command line tools are called separately for every single step to gain higher flexibility and modularity.

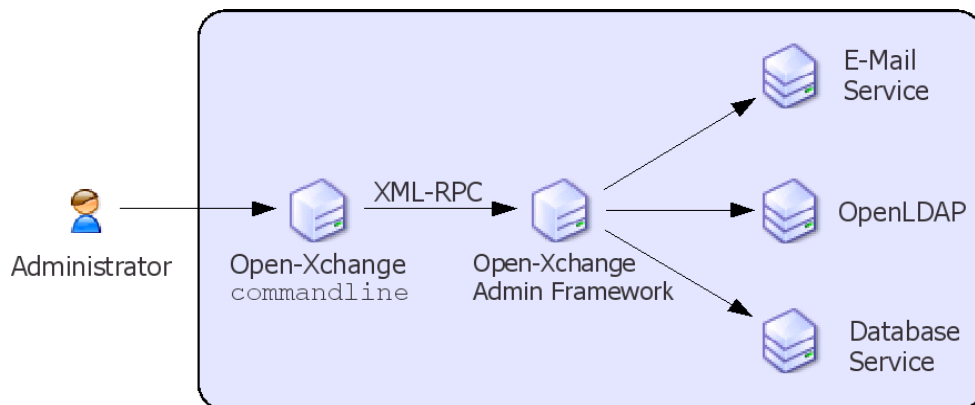


Figure 3: OX Administration using Command Line Tools

All command line tools described can be found in the directory:

```
/opt/openexchange/ox_admin_tools/openexchange-daemons/sbin/
```

All commands show the valid options, when they are called without any argument. There are many parameters, which are not necessarily mandatory from a technical point of view however they should always be added for operational reasons.

Example

```
# ./adduser
Options:
--adminuser=adminuser
--adminpasswd=secret
--username=john
--password=secretpass
--surname=Doe
--givenname=Johnny
--mail=john@yourdomain.org
[...]
--...
```

The commands documented in this chapter are:

- adduser
- deluser
- addgroup
- delgroup
- addmembers2group
- delmembersfromgroup
- changepasswd
- setquota

3.1. **adduser**

`adduser` is the command to add a new user to the system. Some parameters are mandatory and some parameters are optional, but very useful. Additionally it's possible to add every possible LDAP attribute to the users object with this command.

In normal operation this command adds the user information to all three subsystems. However, it can also be used to add the information to every subsystem without touching the other subsystems. This functionality will be described later.

Mandatory Parameters

The mandatory parameters are the following. If only these parameters are used, the user will be created with access to all groupware modules and as member of the primary group `users`. The user will be able to send and receive e-mail.

`--adminuser`

the user name of the systems administrator (normally `mailadmin`)

`--adminpasswd`

the password of the systems administrator (normally from the user `mailadmin`)

`--username`

the name of the new user to create

`--password`

the password of the new user to create

`--surname`

the surname/last name of the new user to create

`--alias`

all valid e-mail addresses, which the user should be able to receive e-mails for. Separate multiple addresses with a comma.

`--mail`

the default e-mail address of the new user to create. This value is used from the groupware and web mail to determine the default sender address.

`--colocrouteaddr`

the location of the physical mailbox of the new user to create. In a standard one location setup this is `<user name>@localhost`. In a multi location setup `localhost` will be replaced by the routing domain of the relevant location

Example

```
./adduser --adminuser=mailadmin --adminpasswd=secret --username=smtest \  
  --password=secret --surname=Martin \  
  --alias=smtest@example1.tux,smtest@example2.tux \  
  --mail=smtest@test.tux --colocrouteaddr=smtest@localhost
```

Optional Parameters

The following parameters are optional but in several cases they should always be given, e.g. to create the folders with names in the correct language.

`--givenname`

the given name/first name of the new user to create

`--timezone`

the time zone, in which the user is normally working.

Hint: **A list of valid time zones can be found in the file:**
 /opt/openexchange/etc/oxadmin/etc/timezones.ox

`--language`

the wanted language for the web front-ends. Following languages are possible at the moment: DE, EN, FR

Hint: **This parameter is also responsible for the creation of the e-mail folders and the groupware folders for the new user. These folders can not easily be changed after the user creation, so it is important to create them correctly. The different folder sets, which will be used can be configured in the file**
 /opt/openexchange/ox_admin_tools/openexchange-daemons/modules/ImapFolders.xml

`--country`

the country, where the user is normally located.

Hint: **The mapping between country names and country codes can be found in the file**
 /opt/openexchange/etc/oxadmin/etc/countrycodes.ox

`--disable`

This parameter is useful to restrict the access to the different groupware modules. The parameters are specified as a comma separated list. Potential parameters are:

bookmarks, calendar, contacts, documents, forum, knowledge,
 pinboard, pinboard_public, projects, tasks, webmail

`--anyattribute`

It is possible to add any additional attribute to the LDAP object during user creation. Obviously the attribute needs to be defined in the LDAP schema.

Hint: **This option adds the power to already administer any other application during user creation.**

`--globaladdressbook`

This parameter defines if the user is allowed to write to the global address book. Valid values are `yes` and `no`.

`--activated`

This parameter is useful to create a user, which is disabled after creation. Then the user must be activated prior to the first usage. Valid values are `yes` and `no`.

`--changepasswd`

This parameter defines if the user has to change his password during the first login. This is very useful, as the administrator knows the password he assigned during user creation. Valid values are `yes` and `no`.

Example

```
./adduser --adminuser=mailadmin --adminpasswd=secret --username=smtest \  
  --password=secret --surname=Martin --mail=smtest@test.tux \  
  --colocrouteaddr=smtest@localhost --givenname=Stephan \  
  --alias=Stephan.Martin@test.tux,S.Martin@test.tux \  
  --timezone=Europe/Berlin --language=DE --country=DE \  
  --disable=bookmarks,forum,knowledge,pinboard,pinboard_public \  
  --birthDay=1984-01-01 --homePhone=012345.67890
```

3.2. deluser

`deluser` is the command to delete a user from the system.

Mandatory Parameters

`--adminuser`

the user name of the system administrator (normally `mailadmin`)

`--adminpasswd`

the password of the system administrator (normally from the user `mailadmin`)

`--username`

the user name of the user to delete.

Example

```
./deluser --adminuser=mailadmin --adminpasswd=secret --username=smtest
```

3.3. addgroup

`addgroup` is the command to add a new group to the system.

Mandatory Parameters

All these parameters are mandatory, as it is only possible to add groups with at least one member.

`--adminuser`

the user name of the system administrator (normally `mailadmin`)

`--adminpasswd`

the password of the system administrator (normally from the user `mailadmin`)

`--groupname`

the name of the new group to be created

`--members`

the user names of the users, who should be members of this group. Multiple user names are separated by commas.

Note: **It is not possible to add a new group without at least one member.**

Example

```
./addgroup --adminuser=mailadmin --adminpasswd=secret --groupname=testgroup  
\  
    --members=sm, smtest
```

3.4. delgroup

`delgroup` is the command to delete a group definition (not the group members) from the system.

Mandatory Parameters

`--adminuser`

The user name of the system administrator (normally `mailadmin`)

`--adminpasswd`

The password of the system administrator (normally from the user `mailadmin`)

`--groupname`

The name of the group to delete

Example

```
./delgroup --adminuser=mailadmin --adminpasswd=secret --groupname=testgroup
```

3.5. addmembers2group

`addmembers2group` is the command to add users to an already existing group.

Mandatory Parameters

`--adminuser`

the user name of the system administrator (normally `mailadmin`)

`--adminpasswd`

the password of the system administrator (normally from the user `mailadmin`)

`--groupname`

the name of the group which should be modified

`--members`

the user names of the users, who should be added to this group. Multiple user names are separated by commas.

Example

```
./addmembers2group --adminuser=mailadmin --adminpasswd=secret \  
--groupname=testgroup --members=pm
```


3.6. delmembersfromgroup

`delmembersfromgroup` is the command to remove users from a group.

Mandatory Parameters

`--adminuser`

the user name of the system administrator (normally `mailadmin`)

`--adminpasswd`

the password of the system administrator (normally from the user `mailadmin`)

`--groupname`

the name of the group which should be modified

`--members`

The user names of the users which should be removed from this group. Multiple user names are separated by commas.

Example

```
./delmembersfromgroup --adminuser=mailadmin --adminpasswd=secret \  
--groupname=testgroup --members=pm
```

3.7. **changepasswd**

`changepasswd` is the command to change the password of existing users.

Mandatory Parameters

`--adminuser`

The user name of the system administrator (normally `mailadmin`)

`--adminpasswd`

The password of the system administrator (normally from the user `mailadmin`)

`--username`

The name of the user which should be modified

`--password`

The new password for this user

Example

```
./changepasswd --adminuser=mailadmin --adminpasswd=secret --username=pm \  
--password=newpass
```

3.8. setquota

setquota is the command to change the e-mail quota of existing users.

Mandatory Parameters

`--adminuser`

the user name of the system administrator (normally `mailadmin`)

`--adminpasswd`

the password of the system administrator (normally from the user `mailadmin`)

`--username`

the user name of the user, whose quota should be set

`--quotasize`

the upper limit of the mailbox size. The number specifies the size in MBytes.

Example

```
./setquota --adminuser=mailadmin --adminpasswd=secret --username=smtest \  
--quotasize=50
```

4. Resources

The handling of resources and resource groups is completely equivalent to the handling of users and user groups. It is done with commands:

- `addresource`
- `addresourcegroup`
- `delresource`
- `delresourcegroup`
- `addmembers2resgroup`
- `delmembersfromresgroup`

5. User Administration via Company LDAP

This chapter will give an overview, about the necessary actions to be done, when the Open-Xchange users should be administered through any kind of already existing LDAP server, which is not the Open-Xchange LDAP server.

There are always two steps to be considered:

1. The data in the LDAP server
2. Additional information for the groupware or the mailbox

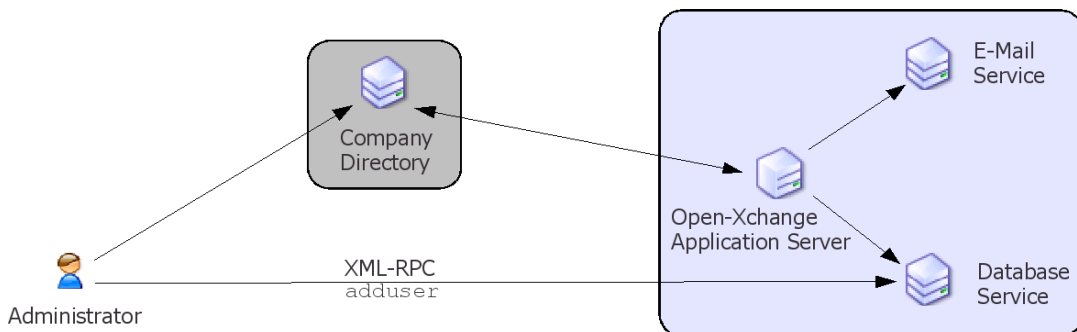


Figure 4: OX Administration using company LDAP and Command Line Tools

The Open-Xchange Server reads all user information directly from the LDAP server, where it is added through any kind of front-end, which normally already exists in the company as the main reason to integrate Open-Xchange into an existing directory is to keep the existing administration tools. To allow this, the necessary information needs to be stored in the LDAP directory in the correct format so the existing front-end has to be enhanced to write the Open-Xchange information to the LDAP server as well.

The second step is to create the necessary information in the groupware database or in the e-mail service. This step can be done with the command line tools which are delivered together with Open-Xchange. Another possibility is to use the existing XML-RPC interface of the Open-Xchange server to trigger the necessary actions. This can be done e.g. with a connector in the existing administration interface or through trigger mechanisms, which may be available in this company directory.

Documentation for the XML-RPC interface can be found on the Open-Xchange server below:

`/opt/openexchange/ox_admin_tools/openexchange-daemons/doc`

5.1. Adding a User to the LDAP Server

This chapter gives a rough overview about the necessary objects in LDAP.

Not everything will be described in full detail. This paper focuses on the user account; resources are similar and will not be discussed in detail.

First of all, every user needs to be of the objectclasses `posixAccount` and `shadowAccount`. Both classes require some object classes like `person` to inherit from.

On top of these classes a new object class is introduced, the `OXUserObject`.

The schema of this object class can be found in the configuration of the Open-Xchange Server e.g. in the file:

```
/etc/openldap/schema/openexchange.schema
```

The names of all attributes can be configured in the Open-Xchange Server configuration. If for example; the information "First Name" is available in the LDAP server as attribute `firstName`, but the schema of the Open-Xchange Server expects the information in the attribute `givenName`, this can be configured without the need to change anything in the LDAP server. Other things, which can also be configured are the search definitions and bases and some more complex parameters. This all can be done in the file:

```
/opt/openexchange/etc/ldap.properties
```

Please be aware, that it is non-trivial to change the system in this level, and that deep knowledge about LDAP servers is required.

It is always a good starting point to create a user in a standard Open-Xchange Server installation with all wanted information. Then the created object of this user can be analyzed and used as a starting point.

5.1.1. Mandatory/Recommended LDAP Attributes

This chapter describes some attributes, which are mandatory or at least strongly recommended to be available in the LDAP server to allow a flawless operation of the Open-Xchange Server.

The following is an example object with the minimum attributes for a test user. In this example it is assumed, that the standard e-mail setup from the Open-Xchange Server is in use, and that the e-mail services are connected to this LDAP server as well. If another e-mail service is in use, it is important, that the user name and password are identical.

```
dn: uid=smtest,ou=people,dc=test,dc=tux
objectClass: top
objectClass: inetOrgPerson
```

```
objectClass: person
objectClass: posixAccount
objectClass: shadowAccount
objectClass: OXUserObject
uid: testsm
givenName: Stephan
sn: Martin
cn: Martin, Stephan
mail: Stephan.Martin@test.tux
alias: S.Martin@test.tux
colocRouteAddr: smtest@localhost
mailEnabled: OK
mailDomain: test.tux
imapServer: 127.0.0.1
smtpServer: 127.0.0.1
OXAppointmentDays: 5
OXTaskDays: 5
OXTimeZone: Europe/Berlin
userCountry: DE
homeDirectory: /home/smtest
loginShell: /bin/false
ou: Information Technology
uidNumber: 538
userPassword: {CRYPT}somethingsecret
gidNumber: 1100
o: Test
```

Some attributes are standard attributes of the Linux account and don't need to be discussed in detail:

```
uid: testsm
givenName: Stephan
sn: Martin
cn: Martin, Stephan
homeDirectory: /home/smtest
loginShell: /bin/false
ou: Information Technology
uidNumber: 538
userPassword: {CRYPT}somethingsecret
gidNumber: 1100
o: Test
```

The following attributes are related to the way how Open-Xchange handles e-mails. These attributes are used for the mail routing from the e-mail service, as well as from the web front-end to select sender addresses.

```
colocRouteAddr: smtest@localhost
```

The attribute `colocRouteAddr` defines the physical location of the mailbox for multi location purposes. On single location sites it is filled with the syntax `<user name>@localhost` like described above in multi location setups it is filled with the syntax `<user name>@location.server`.

```
mail: Stephan.Martin@test.tux
```

The attribute `mail` contains one of the e-mail addresses which is valid for the user. This is a single value attribute and is not only used for mail routing, but is also used as default e-mail address within the Open-Xchange server. The default e-mail address is the one, which is selected by default as sender address, when a user composes a new e-mail message. Additionally, it is the address which must be configured in the Outlook IMAP account to allow the Outlook OXtender to work flawlessly.

```
alias: S.Martin@test.tux  
alias: smartin@test.tux
```

The attribute `alias` contains all the additional e-mail addresses, which are assigned for the user. This is a multi value attribute and can contain as many addresses as necessary. This attribute is used for mail routing and to allow the user to select his sender address, when he composes a new e-mail message if there is more than one address assigned to him. The groupware also checks this attribute to verify if the user is activated.

```
mailEnabled: OK
```

The attribute `mailEnabled` is mainly used by the e-mail services. If it is not equal `OK`, the user is not able to log in to the IMAP service and postfix will not deliver any e-mail to this user.

```
mailDomain: test.tux
```

Used for internal purposes of the groupware. contains the main e-mail domain of the user.

```
imapServer: 127.0.0.1  
smtpServer: 127.0.0.1
```

The attributes `imapServer` and `smtpServer` are used from the groupware and the web mail application to determine the server, which is responsible for sending and receiving e-mails for this user. With this concept, every user can have his e-mails stored on a different server, e.g. because he is located in another location, or just for scalability issues, when several e-mail servers are used in parallel.

Other attributes keep some groupware internal settings for the user:

```
OXAppointmentDays: 5  
OXTaskDays: 5
```

The attributes `OXAppointmentDays` and `OXTaskDays` define which information should be displayed on the portal page for this user.


```
OXTimeZone: Europe/Berlin
```

The attribute `OXTimeZone` defines the time zone, in which the user is working at the moment. This attribute can be changed by the user in his setup page when he is traveling across time zones.

```
userCountry: DE
```

the country where the user is mainly working.

```
preferredLanguage: DE
```

the language, in which the web front-end is displayed for this user. This also is a typical value, which can normally be set by the user in his setup.

5.1.2. Additional/Optional LDAP Attributes

This section shows an example user object with many possible LDAP attributes filled in. The usage of the different attributes will not be described in detail:

```
# testsm, people, test.tux
dn: uid=testsm,ou=people,dc=test,dc=tux
objectClass: top
objectClass: inetOrgPerson
objectClass: person
objectClass: posixAccount
objectClass: OXUserObject
objectClass: shadowAccount
homeDirectory: /home/false
mailEnabled: OK
uid: testsm
OXAppointmentDays: 5
smtpServer: 127.0.0.1
colocRouteAddr: testsm@localhost
OXTaskDays: 5
loginShell: /bin/bash
mailDomain: test.tux
alias: Stephan.Martin@test.tux
alias: stephan.martin@test.tux
alias: test@test.tux
uidNumber: 538
imapServer: 127.0.0.1
gidNumber: 1100
labeledURI: http://www.open-xchange.com/
preferredLanguage: DE
OXUserOtherCountry: Altcountry
OXUserOtherStreet: Altstreet
pager: 122345.67890
OXUserPosition: Administrator
url: http://www.open-xchange.com
mail: test@test.tux
businessCategory: category
```

```
OXUserPostalCode: Privatepostalcode
OXUserNickName: Nickname
st: BY
OXUserTeleMobile2: 122345.67890
postalCode: 12345
OXUserTeleRadio: 122345.67890
OXUserComment: Comment
description: This is a very good testuser
sn: Martin
telexNumber: 122345.67890
OXUserOtherState: Altstate
OXUserInstantMessenger: IM1
initials: SM
homePhone: 122345.67890
OXUserTeleCar: 122345.67890
roomNumber: 123
otherfacsimiletelephonenumber: 122345.67890
OXUserInstantmessenger2: IM2
IPPhone: VoIP
OXTimeZone: Europe/Berlin
street: Maxfeldstr. 9
cn: Martin, Stephan
ou: Information Technology
givenName: Stephan
OXUserTeleFax2: 122345.67890
userCountry: DE
title: Dr.
OXUserTeleCallback: 122345.67890
mobile: 122345.67890
OXUserTeleHome2: 122345.67890
OXUserTeleCompany: 122345.67890
homePostalAddress: Privatestreet
OXUserTeleBusiness2: 122345.67890
facsimileTelephoneNumber: 122345.67890
OXUserState: Privatestate
o: Test
OXUserTelePrimary: 122345.67890
l:: TsO8cm5iZXJn
telephoneNumber: 122345.67890
OXUserTeleTTY: 122345.67890
info: whatever
birthDay: 1989-12-32
OXUserTeleAssistant: 122345.67890
OXUserOtherPostalCode: Altpostalcode
OXUserOtherCity: Altcity
OXUserCity: Privatecity
OXUserProfession: Administrator
```

5.1.3. Adapting Open-Xchange LDAP mappings

The way, how Open-Xchange deals with the LDAP server is highly configurable.

This can be done in the file:

```
/opt/openexchange/etc/groupware/ldap.properties
```

Attention: Don't touch this file if you don't know exactly what you are doing. Deep LDAP knowledge necessary!!!

In this file the following topics can be configured:

- **Attribute names**

The name of every LDAP attribute used by the groupware can be changed in this file

- **Search definitions**

Every search which is executed by the groupware can be configured. All data in "[]" is substituted in some way. This can relate to system wide variables or user context specific variables. The scope for every search can also be configured.

- **Contact export to LDAP**

Normally, the private contacts of every user are exported to LDAP below the users object and the global contacts are exported to LDAP as well. This behavior can be switched off with the variable:

```
com.openexchange.groupware.ldap.ContactsDisabled=true
```

- **Flexible Tree structure**

the standard LDAP tree, which is initialized by Open-Xchange is based on a flat hierarchy without subtrees. To allow support for complete flexible subtrees, it is not sufficient to change the search scopes to sub, it is also necessary to set the variable:

```
com.openexchange.groupware.ldap.UserFullDynamic=true
```

5.2. Finalizing the User Account for Open-Xchange

When the user account is successfully created in LDAP, there are two steps left to make it a useful Open-Xchange account:

1. Create the user folders and permission relations in the groupware database
2. Create a mailbox in the e-mail system, so that the user can receive and store e-mails

Both steps will be described in this chapter.

5.2.1. Adding User Accounts to the Groupware Database

The groupware structure and relations for every user are created through parts of the Open-Xchange administrative framework. The process, which is really doing the work and writes to the database, is the XML-RPC root daemon. This process gets its command through the XML-RPC interface. The easiest way to create this XML-RPC call is to use the command line tools which are described above.

The following calls to `adduser` create all necessary structures in the database.

```
./adduser --adminuser=mailadmin --adminpasswd=secret --username=testsm \  
--source_only=groupware --language=DE
```

The call to `adduser` with the parameter `--source_only=groupware` is responsible for the creation of the standard groupware folders for the user.

Hint: It is recommended to give at least the language as optional parameter, because the given language is responsible for the creation of the user's groupware folders. E.g. if his private calendar folder is named "Calendar" or "Kalender". The calendar naming can only be changed manually in the database after user creation, so it is important, that this is done correctly during user creation.

```
./adduser --adminuser=mailadmin --adminpasswd=secret --username=testsm \  
--source_only=sql --language=DE
```

The call to `adduser` with the parameter `--source_only=sql` is responsible for the creation of the user relations in the database including the permissions for the groupware modules.

Hint: This call needs to be adapted if the user does not get access to all available groupware modules. See parameter `--disable` in the command line section above.

5.2.2. Creating E-Mail Boxes

When the user is created in LDAP and the groupware objects are initialized for the user, the last step to be done is to create a mailbox including the standard folders for the new user to receive and to store his e-mails. There are two possibilities to create the mailbox and the folders.

Create Mail Box using Open-Xchange Server Tools

The most powerful way to create the mailboxes is through the command line tools. It makes it possible to configure the folders that should be created for this user in the Open-Xchange Server configuration. The folder definitions can be found in the file mentioned above:

```
/opt/openexchange/ox_admin_tools/openexchange-daemons/modules/ImapFolders.xml
```

In this file it is possible to define folder sets for all valid languages. In the web front-end it is possible to select between all available folder styles. With the command line tools the language can be selected and within the language, the relevant default style is used. It is also possible to define a default language in the file. In this case the parameter can be omitted.

```
./adduser --adminuser=mailadmin --adminpasswd=secret --username=smtst \
--password=secret --source_only=imap --language=DE
```

This call creates the mailbox for the user and creates all folders which are defined as default for the language DE.

Hint: It is recommended to give at least the language as optional parameter, because the given language is responsible for the creation of the users IMAP folders.

Hint: It is necessary to give the user password for this call, as the daemon will connect to smtpServer as the specified user to create the folders.

Hint: It is possible to create the folders with any non standard folder style through adding the following parameter, e.g.:
 --ox_user_create_imap_template=DE_Thunderbird

Let Cyrus Create the Mail Box on Demand

Another way to create the IMAP mailboxes and the folders without any interaction is to use the mechanisms implemented in cyrus IMAP server. This way is only useful, if every user in the company should use exactly the same set of folder, this means, that no different languages are in use. When this prerequisite is given, cyrus can be configured in a way, that the folders are created when the first e-mail for the user is received, or when the user logs in the first time.

The relevant parameters are to be set in the file:

```
/etc/imapd.conf
```

Hint: **To make use of this functionality it is important to have the newest cyrus patches installed.**

```
autocreatequota: 10000
```

When `autocreatequota` is non-zero, the mailbox will automatically be created when the user logs in the first time. The quota for this mailbox is set to the given value.

```
createonpost: yes
```

When `createonpost` is set to "yes", the mailbox is created also when the first email for the user is received and the mailbox does not exist yet.

```
autocreateinboxfolders: Sent|Drafts|Trash
```

When the mailbox is created automatically due to one of the mechanisms described above, all folders given at `autocreateinboxfolders` are created below INBOX.

```
autosubscribeinboxfolders: Sent|Drafts|Trash
```

All folders listed in `autosubscribeinboxfolders` are subscribed automatically for the user so that they show up in his IMAP listing.