



## OPEN-XCHANGE

Installation procedure  
on Linux Mandrake 10.1 platform



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Rel.: 1.1

## Thanks

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and everybody that, contributing on OX Forum and Open-Xchange Wiki site, helped me to write this How-To.

## System requirements

This is a guide about the installation of Open-xchange on Linux Mandrake 10.1

In this HowTo I don't describe the installation procedure of Mandrake, but I will show the packages required from OX, and their configuration.

Packages are:

Name	Description
Webmin	Web remote administration tool
PostgreSQL	Relational database
Apache2	Web server
OpenLDAP	LDAP server
Postfix	SMTP server
Cyrus	IMAP4/POP3 server
Tomcat	Servlet container

I suggest to use Mandrake Control Center to install/update packages.

It is possible to update the Mandrake packages from one of FTP sites listed clicking on Mandrake Updates.

## WEBMIN installation

Webmin provides a web interface to manage remotely a Linux system. This tool permits to administer user profiles, system hardware, system logs and services executed by the system. Its presence is not a requirement, but it is very useful to administer the process configurations.

After installation of Webmin by rpm provided with the distribution Cds, start the Webmin service with Mandrake Control Center or from command line with:

```
service webmin start
```

Verify the correct functioning of service with a browser, loading the address

<https://localhost:10000> or <https://IP-address:10000>

## Installation/configuration of PostgreSQL

After the installation of PostgreSQL by rpm provided with the distribution Cds, it is needed to modify some configuration files.

Open file:

```
/var/lib/pgsql/data/postgresql.conf
```

and check that the following line is present:

```
tcpip_socket = true
```

Open file:

```
/var/lib/pgsql/data/pg_hba.conf
```

and add, if not present, the following lines:

```
local        all         all          trust  
host        all         127.0.0.1    255.255.255.255  trust
```

remarking, if exist, the following line:

```
#local all all ident sameuser
```



**IMPORTANT:** if the **perl-DBD-Pg** package is not present, some errors may occur during the startup of service. Check that this package is installed correctly.

## Create user and database for Open-Xchange

Open-Xchange needs a user/group and database (PostgreSQL) defined on the system. So, it is necessary to open a shell and write the following:

Command	Description
<code>useradd ox</code>	defines user/group on Linux system
<code>su postgres</code>	switch to the service user of PostgreSQL
<code>createuser -A -D -P openexchange</code>	defines the user "openexchange" into the database
<code>createdb openexchange</code>	defines a database called "openexchange"
<code>exit</code>	return at "root" user

At this point is possible to use Webmin to verify that PostgreSQL is functioning correctly.

After logon on Webmin interface, clicking on **Servers – PostgreSQL Database Server**. If it works correctly, You should be find "openexchange" database and "openexchange" user.

Now it is sufficient to verify that the PostgreSQL service can be stopped and restarted correctly.

**Note:** it's important to remember the "openexchange" user password: You'll need it.

## Installation of Apache2 (Web server)

You can install Apache2 with rpm included into the distribution Cds.

You can configure Apache2 with Webmin, clicking on **Servers – Apache Webserver – Module configuration**.

You must verify if the path of the executable file is defined correctly, as follows:

Path of web server daemon:                    /usr/sbin/httpd

Click on "Modify configuration file" icon and verify if the path of configuration file of apache is correct:

Path of configuration file:                    /etc/httpd/2.0/conf/httpd2.conf

In this case too, it is sufficient to check that the Apache service can be stopped and restarted correctly.

**Note:** it is possible that the executable file of Apache and its configuration file aren't defined into the showed directories. In this case, I suggest to check the presence of links referred to these files.

## OpenLDAP installation

After the installation of OpenLDAP from RPM into the distribution CDs, You must verify (with Webmin if You want) that ldap service can be stopped and started correctly.

You can check it also from command line, with:

```
service ldap restart
```

Modify the file

```
/etc/openldap/ldap.conf
```

defining the following parameters:

```
Base    dc=oxtest,dc=com          PAY ATTENTION: do not digit spaces after comma ','
Host    localhost
ldap_version 3
scope  sub
```

Configure the file `/etc/openldap/slapd.conf` defining the following parameters:

```
include /usr/share/openldap/schema/core.schema
include /usr/share/openldap/schema/cosine.schema
include /usr/share/openldap/schema/corba.schema
include /usr/share/openldap/schema/inetorgperson.schema
include /usr/share/openldap/schema/java.schema
include /usr/share/openldap/schema/misc.schema
include /usr/share/openldap/schema/nis.schema
include /usr/share/openldap/schema/openldap.schema
# include /etc/openldap/schema/openexchange.schema
```

```
database    bdb
suffix      dc=oxtest,dc=com
rootdn      cn=oxadmin,dc=oxtest,dc=com
rootpw      oxadmin
```

```
index objectClass                                pres,eq
index gidNumber,memberUid                       eq
# index uid,mailEnabled,cn,sn,givenname,lnetMailAccess,alias,loginDestination  eq,sub
# include /etc/openldap/acl_ox.auth
```

*Pay attention: This is not the full content of file!*

It's important to create a file (es.: `acl_ox.auth`) that defines the ACLs to access at OpenLDAP. You can do it with your preferred text editor ("vi" in this example), writing:

```
vi /etc/openldap/acl_ox.auth
```

```
access to dn.base="" by * read
access to dn.base="cn=Subschema" by * read
# protect the userPassword attribute
access to attr=userPassword
    by self =w
    by anonymous auth
# global address book
access to dn.subtree="o=AddressBook,ou=OxObjects,dc=oxtest,dc=com"
    by group.exact="cn=AddressAdmins,o=AddressBook,ou=OxObjects,dc=oxtest,dc=com" write
    by users read
# personal address book
access to dn.regex="^ou=addr,(uid=([^\,]+),ou=Users,ou=OxObjects,dc=oxtest,dc=com)$" attrs=children
    by dn.exact,expand="$1" write
access to dn.regex="^uid=([^\,]+),ou=addr,(uid=([^\,]+),ou=Users,ou=OxObjects,dc=oxtest,dc=com)$" attrs=entry
    by dn.exact,expand="$2" write
# default rule allowing users full access to their own entries
access to *
    by self write
    by users read
```

## Postfix installation (SMTP server)

After installation of Postfix from RPM into distribution CDs, verify with Webmin that postfix service can be stopped and restarted correctly. You can do it from command line also, writing:

```
service postfix restart
```

After this, You must modify the files `/etc/postfix/master.cf` and `/etc/postfix/main.cf` with the following parameters:

### `/etc/postfix/master.cf`

```
#lmtpl  unix  -   -   y   -   -   -   lmtpl
lmtpl   unix  -   -   n   -   -   -   lmtpl
```

*Pay attention: This is not the full content of file!*

### `/etc/postfix/main.cf`

```
myhostname = mailserver.oxtest.com
mydomain = oxtest.com
myorigin = $mydomain
mydestination = $mydomain
inet_interfaces = all
local_recipient_maps=
mailbox_transport = lmtpl:unix:/var/spool/postfix/public/lmtpl

alias_maps = ldap:/etc/postfix/ldapalias
virtual_mailbox_domains = ldap:/etc/postfix/ldapdomains

lmtpl_cache_connection = NO
```

*Pay attention: This is not the full content of file!*

After saving this configuration, it is necessary to create the files `ldapalias` and `ldapdomains` needed at the users mailbox resolution and the virtual domains.

### `/etc/postfix/ldapalias`

```
server_host = 127.0.0.1:389
bind = no
version = 3
search_base = ou=Users,ou=OxObjects,dc=oxtest,dc=com
scope = sub
query_filter = uid=%s
result_attribute = mail
```

### `/etc/postfix/ldapdomains`

```
server_host = 127.0.0.1:389
bind = no
version = 3
search_base = ou=Users,ou=OxObjects,dc=oxtest,dc=com
scope = sub
query_filter = uid=%s
result_attribute = mailDomain
```



## Cyrus e SASL installation (IMAP/POP3 server)

For the installation of Cyrus, You must download the packages from a mirror site that provides the Mandrake distributions, for example:

<ftp://bo.mirror.garr.it/pub/mirrors/Mandrake/official/10.1/i586/media/main/>

The packages are:

10/05/04 12:00AM	6,603,642	<a href="#">cyrus-imapd-2.2.8-2.1010mdk.i586.rpm</a>
10/05/04 12:00AM	265,003	<a href="#">cyrus-imapd-devel-2.2.8-2.1010mdk.i586.rpm</a>
10/05/04 12:00AM	1,135,878	<a href="#">cyrus-imapd-murder-2.2.8-2.1010mdk.i586.rpm</a>
10/05/04 12:00AM	597,363	<a href="#">cyrus-imapd-nntp-2.2.8-2.1010mdk.i586.rpm</a>
10/05/04 12:00AM	153,709	<a href="#">cyrus-imapd-utils-2.2.8-2.1010mdk.i586.rpm</a>
10/09/04 12:00AM	384,288	<a href="#">cyrus-sasl-2.1.19-5mdk.i586.rpm</a>

During installation it is possible that the system requires to satisfy some dependencies; in this case, download it and install it.

To automates the installation process of Cyrus (but other software also) and dependencies, I suggest to add an "installation source" into Mandrake Control Center, into the RPM manager section, specifying an FTP server from the mirror list that provides the Mandrake packages.

After installation of Cyrus You must verify, with Webmin, that cyrus service can be stopped and started correctly.

You can check this from command line also, writing:

```
service cyrus-imapd restart
```

After this, you need to modify the configuration file `/etc/cyrus.conf` defining the following parameters:

```
imap      cmd="imapd" listen="imap" prefork=0
imaps     cmd="imapd -s" listen="imaps" prefork=0
pop3      cmd="pop3d" listen="pop3" prefork=0
pop3s     cmd="pop3d -s" listen="pop3s" prefork=0
sieve     cmd="timsieved" listen="sieve" prefork=0

lmtpunix  cmd="lmtpd" listen="/var/spool/postfix/public/lmtp" prefork=0
```

*Pay attention: This is not the full content of file!*

Modify the configuration file `/etc/imapd.conf` to use SASL as Cyrus authentication system:

```
admins: cyrus
allowanonymouslogin: no
allowplaintext: yes
unixhierarchysep: yes

servername: localhost
virtualdomains: yes
defaultdomain: oxtest.com
loginrealms: oxtest.com

autocreatequota: 5000
quotawarn: 90

lmtpsocket: /var/spool/postfix/public/lmtp

sasl_pwcheck_method: saslauthd
sasl_mech_list: PLAIN
```

*Pay attention: This is not the full content of file!*

Verify that SASL can support LDAP authentication method, writing:

```
saslauthd -v
```

You should see a message as the following:

```
authentication mechanisms: getpwent kerberos5 pam imap rimap shadow ldap
```



**IMPORTANT:** If LDAP is not supported, try to reinstall cyrus-sasl package or to search on Google, in any case do not continue if You do not solve the problem.

**`/etc/sysconf/saslauthd`**

Verify into the file the following parameter:

```
SASL_AUTHMECH=pam
```

**Now install the `pam_ldap` module.**

**`/etc/ldap.conf`** (configuration file of PAM\_LDAP used from SASL to access to ldap)

Verify or add into the file the following parameters:

```
host 127.0.0.1
base dc=oxtest,dc=com
ldap_version 3
rootbinddn cn=oxadmin,dc=oxtest,dc=com
scope sub
```

*Pay attention: This is not the full content of file!*

*/etc/ldap.secret*(configuration file of SASL PAM system needed to access to ldap)

define into the ldap.secret file the password of the ldap administrator:

```
oxadmin
```

I suggest to define the file permissions on this file to grant access to root user only.

To permit a correct functioning of Cyrus with SASL authentication, it is needed to define a password for the cyrus user service and, following, to define same user into SASL database; so, from command line:

```
passwd cyrus          (define the password, es.: cyrusadmin)
saslpaswd2 -c cyrus  (define the same password)
```

To make change operatives, restart the services from command line:

```
service ldap restart
service postfix restart
service cyrus-imapd restart
service saslauthd restart
```

## Installation of add on packages from Mandrake

To proceed with definition of requirements of Open-Xchange it is necessary to install the following packages:

*Jdom-1.0.0.b9.2jpp*  
*ant-1.5.4-2jpp*  
*postgresql-jdbc-7.4.5*  
*apache2-devel-2.0.50*  
*xerces-j2-2.6.2-3jpp*

and the following perl modules:

*perl-Convert-ASN1-0.18*  
*perl-ldap-0.31*  
*perl-IO-Socket-SSL-0.96*  
*perl-Authen-SASL-2.08*  
*perl-Net\_SSLeay-1.25*

Dependencies:

perl-XML-Parser-2.34  
perl-XML-SAX-0.12-4  
perl-XML-NameSpaceSupport\_1.08

*Jdom* and *ant* packages can be downloaded from link:

<ftp://bo.mirror.garr.it/pub/mirrors/Mandrake/official/10.1/i586/media/jpackage>

*Some dependencies of Jdom package:*

Jpackage-utils\_1.5.39-1jpp  
xalan-j2-2.6.0-1jpp  
xerces-j2-2.6.2-3jpp  
xml-commons-1.0-0.b2.6jpp  
xml-commons-apis-1.0.0.b2.6jpp  
xml-commons-resolver-1.1-2jpp

 **NOTE:** it could be possible to satisfy some dependencies not specified into this document :-)

## JAVA modules installation

To install correctly Open-Xchange it is necessary to use some Java modules, downloadables freely from SUN site.

You need to connect to the following links and download this packages:

### Java 2 Platform, Standard Edition (J2SE) (Java 2 platform)

<http://java.sun.com/j2se/1.5.0/download.jsp>

click the **Download JDK 5.0 update 4** link, accept the terms of use and download the linux package *jdk-1\_5\_0\_04-linux-i586-rpm.bin* (more or less 45 Mb)

During the making of this document, the last version of J2SE is 5.0.

After download, You need to modify its properties and install it as follows:

```
chmod 700 jdk-1_5_0_04-linux-i586-rpm.bin    (enter)
./jdk-1_5_0_04-linux-i586-rpm.bin          (enter)
```

### JavaMail 1.3.3 (framework to make messaging and mail applications)

<http://java.sun.com/products/javamail/downloads/>

click the **Download** link, accept the terms of use and download the package in .ZIP format *javamail-1\_3\_3-ea.zip* (more or less 2,5 Mb)

During the making of this document, the last version of Javamail is 1.3.3

After download, You need installing as follows:

```
unzip javamail-1_3_3-ea.zip    (enter)
cd javamail-1.3.3ea           (enter)
cp mail.jar /usr/share/java    (enter)
```

### JAF (JavaBeans Application Framework)

<http://java.sun.com/products/javabeans/glasgow/jaf.html>

click the **Download** link, accept the terms of use and download the package in .ZIP forma *jaf-1\_0\_2-upd2.zip* (circa 352 Kb)

During the making of this document, the last version of JAF is 1.0.2

After download, You can install it as follows:

```
unzip jaf-1_0_2-upd2.zip    (enter)
cd jaf-1_0_2-upd2          (enter)
cp -R * /usr/share/java     (enter)
```

## JTA (Java Transaction API)

<http://java.sun.com/products/jta>

Click the **Download** links for ClassFiles and JavaDocs, accept the terms of use and download packages in .ZIP format:

*jta-1\_0\_1B-classes.zip* (more or less 8 Kb)

*jta-1\_0\_1B-doc.zip* (more or less 102 Kb)

To install the packages is sufficient to copy the content of .ZIP file into */usr/share/java* directory

## Java Servlet Development Kit

<http://java.sun.com/products/servlet/archive.html>

click the **Download** link about the **Java Servlet Development Kit 2.1** package, accept the terms of use and download the file for Solaris SPARC

*jsdk2\_1-solsparc.tar.Z* (more or less 456 Kb)

During the making of this document, the last version of J2SDK is 2.1

You can proceed to the installation package as follows:

```
tar xzf jsdk2_1-solsparc.tar.Z (enter)
```

```
chown -R root:root jsdk2.1 (enter)
```

```
cp -R jsdk2.1 /usr/local (enter)
```

## Tomcat installation (servlet container)

To install Tomcat You need to download the package from site

[http://jakarta.apache.org/site/downloads/downloads\\_tomcat-5.cgi](http://jakarta.apache.org/site/downloads/downloads_tomcat-5.cgi)

Tomcat version used in this guide is 5.5.9, but I suggest to download the last release, if it is available.

After downloaded the package *jakarta-tomcat-5.5.9.tar.gz* (more or less 5.1 Mb), digit the follows:

```
tar xzf jakarta-tomcat-5.5.9.tar.gz      (enter)
cd jakarta-tomcat-5.5.9                 (enter)
mkdir /usr/local/tomcat5                (enter)
cp -R * /usr/local/tomcat5             (enter)
```

Before proceeding, it is advisable to define some variables.

For this reason, You need to edit the *.bashrc* file with "vi" into */root* directory as follows:

```
cd /root
vi .bashrc
```

```
export JAVA_HOME=/usr/java/jdk1.5.0_04
PATH=$PATH:/usr/java/jdk1.5.0_04/bin
```

*Pay attention: This is not the full content of file!*

You need to modify the PATH variable to provide Linux with the capabilities to find the necessary files at OX compiling process.

Now, You can verify that Tomcat is working starting its service:

```
/usr/local/tomcat5/bin/startup.sh
```

and stopping it as follows:

```
/usr/local/tomcat5/bin/shutdown.sh
```

It can be useful to define a script to start/stop tomcat service more efficiently.

In this case, if You want, it is needed to create a file into **/etc/init.d** directory with the name of service to manage, and write as follows:

```
cd /etc/init.d
vi tomcat
```

```
#!/bin/sh

start() {
echo
echo "Avvio di TOMCAT"
echo
/usr/local/tomcat/bin/startup.sh
}

stop() {
echo
echo "Arresto di TOMCAT"
echo
/usr/local/tomcat/bin/shutdown.sh
}

restart() {
    stop
    start
}

case "$1" in
    start)
        start
        ;;
    stop)
        stop
        ;;
    restart)
        stop
        start
        ;;
    *)
        echo "Usage: service tomcat {start|stop|restart}"
        exit 1
esac

exit $?
```

Now it is possible to start/stop *tomcat* by command:

```
service tomcat start/stop/restart
```



## Open-Xchange installation

After downloading the last release of Open-Xchange from site

<http://mirror.open-xchange.org/ox/EN/community/download.htm>

it is needed to browse into the directory created from decompression of OX tar.gz file by the command:

```
tar xzf open-xchange-0.8.x-x.tar.gz
cd open-xchange-0.8.x-x
```

Now You can create a file to optimize the configuration process of OpenExchange.

So, from command line, You must create a file named *oxinst.sh* (for example) with **vi** and define some parameters as follows:

```
vi oxinst.sh
```

Parametro script	Descrizione
./configure \	
--prefix=/usr/local/ox \	Open-Xchange directory installation
--with-mailjar=/usr/share/java/mail.jar \ --with-activationjar=/usr/share/java/activation.jar \ --with-jdomjar=/usr/share/java/jdom.jar \ --with-xercesjar=/usr/share/java/xerces-j2.jar \ --with-jsdkjar=/usr/local/tomcat5/common/lib/servlet-api.jar \ --with-jdbcjar=/usr/share/pgsql/pg74.1jdbc3.jar \	
--with-dbname=openexchange \ --with-dbuser=openexchange \ --with-dbpass=openexchange \ --with-domain=oxtest.com \	DB name of Open-Xchange User of Open-Xchange service User password of "openexchange" user Mail domain
--with-basedn=dc=oxtest,dc=com \ --with-rootdn=cn=oxadmin,dc=oxtest,dc=com \ --with-rootpw=oxadmin \ --with-organization="OX-Test" \ --enable-webdav \ --with-runuid=ox \ --with-rungid=ox	

Save the file and proceed to the building OpenExchange as follows:

```
sh oxinst.sh
make
make install
```

**NOTE:** To avoid warning messages about the database, You need to start *postgresql* service.

After installing OpenExchange successfully, you need to copy the following files into *cgi-bin* directory of Apache:

```
cd /usr/local/ox/share/perl  
cp login.* /var/www/cgi-bin
```

You can check the OpenExchange login page browsing the URL:

<http://servername/cgi-bin/login.pl> or <http://IPaddress/cgi-bin/login.pl>

After this, You must copy the other files about the web interface, so:

```
cd /var/www/html  
mkdir -p cfintranet/webmail
```

```
cd /usr/local/ox/share/groupware/data  
cp -R images css javascript /var/www/html/cfintranet
```

```
cd /usr/local/ox/share/webmail/data  
cp -R images css javascript /var/www/html/cfintranet/webmail
```

## Open-Xchange: servlets installation

At this point it is advisable to configure Tomcat5 to manage the OpenExchange servlets. The process is specified as following:

```
cd /usr/local/tomcat5/webapps
mkdir -p servlet/WEB-INF/classes
cd servlet/WEB-INF/classes
cp /usr/local/ox/share/servlets/*.class .
```

To manage the servlets correctly, You need to define the **web.xml** file into **/usr/local/tomcat5/webapps/servlet/WEB-INF/** directory as follows:

```
vi web.xml
```

```
<?xml version="1.0" encoding="UTF-8"?>
<!DOCTYPE web-app PUBLIC "-//Sun Microsystems, Inc.//DTD Web Application 2.3//EN"
"http://java.sun.com/dtd/web-app_2_3.dtd">
<web-app>
  <display-name>
    Open-Xchange Servlets and WebDAV
  </display-name>
  <description>
    Open-Xchange 0.8.0
  </description>
  <servlet>
    <servlet-name>intranet</servlet-name>
    <servlet-class>intranet</servlet-class>
  </servlet>
  <servlet>
    <servlet-name>webmail</servlet-name>
    <servlet-class>webmail</servlet-class>
  </servlet>
  <servlet>
    <servlet-name>documents</servlet-name>
    <servlet-class>
      com.openexchange.webdav.documents
    </servlet-class>
    <init-param>
      <param-name>openexchange.propfile</param-name>
      <param-value>
        /usr/local/open-xchange/etc/groupware/system.properties
      </param-value>
    </init-param>
  </servlet>
  ...continue...
```

```
<servlet>
  <servlet-name>calendar</servlet-name>
  <servlet-class>
    com.openexchange.webdav.calendar
  </servlet-class>
  <init-param>
    <param-name>openexchange.propfile</param-name>
    <param-value>
      /usr/local/open-xchange/etc/groupware/system.properties
    </param-value>
  </init-param>
</servlet>

<servlet>
  <servlet-name>tasks</servlet-name>
  <servlet-class>
    com.openexchange.webdav.tasks
  </servlet-class>
  <init-param>
    <param-name>openexchange.propfile</param-name>
    <param-value>
      /usr/local/open-xchange/etc/groupware/system.properties
    </param-value>
  </init-param>
</servlet>

<servlet>
  <servlet-name>contacts</servlet-name>
  <servlet-class>
    com.openexchange.webdav.contacts
  </servlet-class>
  <init-param>
    <param-name>openexchange.propfile</param-name>
    <param-value>
      /usr/local/open-xchange/etc/groupware/system.properties
    </param-value>
  </init-param>
</servlet>
...continue...
```

```
<servlet>
  <servlet-name>folders</servlet-name>
  <servlet-class>
    com.openexchange.webdav.folders
  </servlet-class>
  <init-param>
    <param-name>openexchange.propfile</param-name>
    <param-value>
      /usr/local/open-xchange/etc/groupware/system.properties
    </param-value>
  </init-param>
</servlet>

<servlet>
  <servlet-name>projects</servlet-name>
  <servlet-class>
    com.openexchange.webdav.projects
  </servlet-class>
  <init-param>
    <param-name>openexchange.propfile</param-name>
    <param-value>
      /usr/local/open-xchange/etc/groupware/system.properties
    </param-value>
  </init-param>
</servlet>

<servlet>
  <servlet-name>groupuser</servlet-name>
  <servlet-class>
    com.openexchange.webdav.groupuser
  </servlet-class>
  <init-param>
    <param-name>openexchange.propfile</param-name>
    <param-value>
      /usr/local/open-xchange/etc/groupware/system.properties
    </param-value>
  </init-param>
</servlet>
...continue...
```

```
<servlet>
  <servlet-name>attachments</servlet-name>
  <servlet-class>
    com.openexchange.webdav.attachments
  </servlet-class>
  <init-param>
    <param-name>openexchange.propfile</param-name>
    <param-value>
      /usr/local/open-xchange/etc/groupware/system.properties
    </param-value>
  </init-param>
</servlet>

<servlet>
  <servlet-name>freebusy</servlet-name>
  <servlet-class>
    com.openexchange.webdav.freebusy
  </servlet-class>
  <init-param>
    <param-name>openexchange.propfile</param-name>
    <param-value>
      /usr/local/open-xchange/etc/groupware/system.properties
    </param-value>
  </init-param>
</servlet>

<servlet>
  <servlet-name>ical</servlet-name>
  <servlet-class>
    com.openexchange.webdav.ical
  </servlet-class>
  <init-param>
    <param-name>openexchange.propfile</param-name>
    <param-value>
      /usr/local/open-xchange/etc/groupware/system.properties
    </param-value>
  </init-param>
</servlet>
...continue...
```

```

<servlet>
  <servlet-name>vcard</servlet-name>
  <servlet-class>
    com.openexchange.webdav.vcard
  </servlet-class>
  <init-param>
    <param-name>openexchange.propfile</param-name>
    <param-value>
      /usr/local/open-xchange/etc/groupware/system.properties
    </param-value>
  </init-param>
</servlet>

<servlet>
  <servlet-name>bookmarks</servlet-name>
  <servlet-class>
    com.openexchange.webdav.bookmarks
  </servlet-class>
  <init-param>
    <param-name>openexchange.propfile</param-name>
    <param-value>
      /usr/local/open-xchange/etc/groupware/system.properties
    </param-value>
  </init-param>
</servlet>

<servlet-mapping>
  <servlet-name>intranet</servlet-name>
  <url-pattern>/intranet</url-pattern>
</servlet-mapping>

<servlet-mapping>
  <servlet-name>webmail</servlet-name>
  <url-pattern>/webmail</url-pattern>
</servlet-mapping>

<servlet-mapping>
  <servlet-name>documents</servlet-name>
  <url-pattern>/webdav.documents/*</url-pattern>
</servlet-mapping>

<servlet-mapping>
  <servlet-name>calendar</servlet-name>
  <url-pattern>/webdav.calendar/*</url-pattern>
</servlet-mapping>

<servlet-mapping>
  <servlet-name>tasks</servlet-name>
  <url-pattern>/webdav.tasks/*</url-pattern>
</servlet-mapping>
...continue...

```

```
<servlet-mapping>
  <servlet-name>contacts</servlet-name>
  <url-pattern>/webdav.contacts/*</url-pattern>
</servlet-mapping>

<servlet-mapping>
  <servlet-name>folders</servlet-name>
  <url-pattern>/webdav.folders/*</url-pattern>
</servlet-mapping>

<servlet-mapping>
  <servlet-name>projects</servlet-name>
  <url-pattern>/webdav.projects/*</url-pattern>
</servlet-mapping>

<servlet-mapping>
  <servlet-name>groupuser</servlet-name>
  <url-pattern>/webdav.groupuser/*</url-pattern>
</servlet-mapping>

<servlet-mapping>
  <servlet-name>attachments</servlet-name>
  <url-pattern>/webdav.attachments/*</url-pattern>
</servlet-mapping>

<servlet-mapping>
  <servlet-name>freebusy</servlet-name>
  <url-pattern>/webdav.freebusy/*</url-pattern>
</servlet-mapping>

<servlet-mapping>
  <servlet-name>ical</servlet-name>
  <url-pattern>/webdav.ical/*</url-pattern>
</servlet-mapping>

<servlet-mapping>
  <servlet-name>vcard</servlet-name>
  <url-pattern>/webdav.vcard/*</url-pattern>
</servlet-mapping>

<servlet-mapping>
  <servlet-name>bookmarks</servlet-name>
  <url-pattern>/webdav.bookmarks/*</url-pattern>
</servlet-mapping>

</web-app>
```



After this, You must define the **lib** directory and copy into it the following files:

```
cd /usr/local/tomcat5/webapps/servlet/WEB-INF
mkdir lib
cd lib
cp /usr/local/ox/lib/*.jar .
```

I suggest to configure the **JAVA\_OPTS** environment variable into Tomcat configuration file:

```
vi /usr/local/tomcat5/bin/catalina.sh
JAVA_OPTS="-Dopenexchange.propfile=/usr/local/ox/etc/groupware/system.properties"
```

Now it is possible to proceed to servlet definition about the "User setup" of OpenExchange. First of all modify the tomcat configuration file about the users manager as follows:

```
cd /usr/local/tomcat5/conf
vi tomcat-users.xml

<?xml version='1.0' encoding='utf-8'?>
<tomcat-users>
  <role rolename="tomcat"/>
  <role rolename="role1"/>
  <role rolename="manager"/>
  <user username="tomcat" password="tomcat" roles="manager"/>
  <user username="both" password="tomcat" roles="tomcat,role1"/>
  <user username="role1" password="tomcat" roles="role1"/>
</tomcat-users>
```

Logon into Web GUI at url <http://localhost:8080> and, clicking on the "Tomcat Manager" link, provide the authentication credentials defined previously (username: tomcat / password:tomcat).

In the administration page, into "WAR file to deploy" section, click the Browse button and select the folder where the servlet is located, that is:

```
/usr/local/ox/lib
```

and choose the file

```
umin.war
```

Now click the *Deploy* button.

## WEBDAV

If You want to define the servlet about WebDAV extensions, You can proceed as follows:

```
cd /usr/local/tomcat5/webapps/servlet/WEB-INF/classes
cp /usr/local/ox/lib/webdav.jar .
jar xvf webdav.jar
```

This command will decompress webdav.jar file and will creates two directories: **com** and **META-INF**. Browse into the *com* directory and write as follows:

```
cd com/openexchange
mkdir -p tools/webdav
cd tools/webdav
```

```
cp /%sourceOX%/build/com/openexchange/tools/webdav/* .
cd /usr/local/tomcat5/webapps/servlet/WEB-INF/lib
```

Verify the content of directory, copying the missing files from */usr/local/ox/lib* directory and defining the symbolic links specified:

```
-rw-r--r-- 1      root root  54829  activation.jar
-rw-r--r-- 1      root root 324692  comfiretools.jar
-rw-r--r-- 1      root root 855700  intranet.jar
lrwxrwxrwx 1      root root   24     jdom.jar -> /usr/share/java/jdom.jar
-rw-r--r-- 1      root root 347137  mail.jar
-rw-r--r-- 1      root root  53615  nas.jar
lrwxrwxrwx 1      root root   32     pg74.1jdbc3.jar -> /usr/share/pgsql/pg74.1jdbc3.jar*
-rw-r--r-- 1      root root  10409  sessiond.jar
-rw-r--r-- 1      root root  27295  umin.jar
-rw-r--r-- 1      root root  52325  webdav.jar
-rw-r--r-- 1      root root 233392  webmail.jar
```

## Tomcat / Apache synchronization (mod\_jk)

If You want everything to work correctly, You must install a connector to permit a connection between Apache and Tomcat. For this reason you must contact the URL:

<http://www.apache.de/dist/jakarta/tomcat-connectors/jk2/source>

and download the file


[jakarta-tomcat-connectors-jk2-2.0.4-src.zip](#) (1Mb more or less)

Now, You must build the connector as follows:

```
unzip jakarta-tomcat-connectors-jk2-2.0.4-src.zip
```

Rename at decompress directory in **jakarta-tomcat-connector** and, subsequently, write as follows:

```
mv jakarta-tomcat-connector /usr/src
cd /usr/src/jakarta-tomcat-connector/jk/native2
```

 **PAY ATTENTION:** before proceeding with module building, verify that **apache2-devel-2.0xx** is installed.

```
./buildconf.sh
./configure --with-apxs2=/usr/sbin/apxs2
make
```

If everything went fine, you will created the `mod_jk2.so` file and You can to proceed as follows:

```
cp /usr/src/jakarta-tomcat-connector/jk/build/jk2/apache2/mod_jk.so
/etc/httpd/2.0/modules
```

```
cp /usr/src/jakarta-tomcat-connector/jk/native2/server/apache2/mod_jk2.c
/etc/httpd/2.0/modules
```

Now You must modify the configuration file of Apache2, adding the following parameter:

```
vi /etc/httpd/2.0/conf/httpd2.conf
```

```
LoadModule jk2_module      modules/mod_jk2.so
```

```
cp /usr/src/jakarta-tomcat-connector/jk/conf/worker2.properties /etc/httpd/conf
```

Modify the `workers2.properties` file adding the following lines:

```
vi /etc/httpd/conf/workers2.properties
```

```
[uri:/servlet/*]
worker=ajp13:localhost:8009
info=OpenExchange 0.8.0-03
debug=10

[uri:/umin/*]
worker=ajp13:localhost:8009
debug=10
```

*Pay attention: This is not the full content of file!*

Restart apache service by command line with:

```
service httpd restart
```

## Open-Xchange: configuration post-installation

If You have verified that OpenExchange logon page works fine, loading the url <http://servername/cgi-bin/login.pl>

It is advisable that the configuration files of OX are defined correctly. To do this, open the file:

```
/usr/local/ox/etc/admintools.conf
```

and verify that the following parameters are defined:

```
BINDDN="cn=oxadmin,dc=oxtest,dc=com"  
BINDPW="oxadmin" (password defined into the OX building script)  
DEFAULT_SQL_HOST="localhost"  
DEFAULT_SQL_DB="openexchange"  
DEFAULT_SQL_USER="openexchange"  
DEFAULT_SQL_PASS="openexchange" (password defined during the 'openexchange' user creation)
```

*Pay attention: This is not the full content of file!*

If You want that OX defines automatically the user mailbox on IMAP server when You create a mail user, You must modify the following parameter into the file:

```
vi /usr/local/ox/etc/webmail/webmail.properties
```

```
user.default.folder.autocreate=true
```

## Symbolic links definition to permit OX access to OpenLDAP

```
In -s /etc/openldap/ldap.conf /usr/local/ox/etc/groupware/ldap.conf
```

```
In -s /etc/openldap/ldap.conf /usr/local/ox/etc/webmail/ldap.conf
```



## OpenLDAP: configuration post-installation

In the OpenLDAP initialization file generated by OX, You must define some modifications. The first modification is about the password definition of 'mailadmin' user; second modification is about an error in the priority sequence definition of the 'stanza' entries into the LDIF file.

But let's proceed with order, generating a password for the user 'mailadmin' by the command:

```
slappasswd -h {crypt} -s password
```

**NOTE:** remember the output generated ;-) )

## Modification of init\_ldap.ldif file

```
vi /usr/local/ox/share/init_ldap.ldif
```

```
userPassword: {crypt}output-generated-by-slappasswd-command
```

Subsequently, to avoid errors during import procedure of init\_ldap.ldif file into OpenLDAP, it is needed to remark some lines, that You will copy and move. Find and remark following lines:

```
#dn: ou=Administration,ou=Groups,ou=OxObjects,dc=webcnc,dc=it
#objectClass: top
#objectClass: organizationalUnit
#ou: Administration
```

*Pay attention: This is not the full content of file!*

You must move these lines in another position, as follows:

```
...
dn: cn=users,ou=Groups,ou=OxObjects,dc=oxtest,dc=com
objectClass: top
objectClass: posixGroup
cn: users
gidNumber: 500

dn: ou=Administration,ou=Groups,ou=OxObjects,dc=webcnc,dc=it
objectClass: top
objectClass: organizationalUnit
ou: Administration

dn: cn=OXSMTPAdmins,ou=Administration,ou=Groups,ou=OxObjects,dc=webcnc,dc=it
objectClass: top
objectClass: groupOfNames
member: uid=mailadmin,ou=Users,ou=OxObjects,dc=webcnc,dc=it
cn: OXSMTPAdmins
...
```

*Pay attention: This is not the full content of file!*

## Modification of slapd.conf file

Remove the remark about the following line to do a correct import of LDIF file into OpenLDAP:

```
vi /etc/openldap/slapd.conf  
include /etc/openldap/schema/openexchange.schema
```

```
In -s /usr/local/ox/share/openexchange.schema /etc/openldap/schema (invio)
```

Restart the ldap service by the command:

```
service ldap restart
```

At this point it is needed to import the LDIF file as follows:

```
cd /usr/local/ox/share  
ldapadd -x -D cn=oxadmin,dc=oxtest,dc=com -w password -h localhost -f init_ldap.ldif
```

Modify another time the slapd.conf file and remove the remark about the following lines:

```
vi /etc/openldap/slapd.conf  
index objectClass pres,eq  
index gidNumber,memberUid eq  
index uid,mailEnabled,cn,sn,givenname,inetMailAccesss,alias,loginDestination eq,sub  
include /etc/openldap/acl_ox.auth
```

*Pay attention: This is not the full content of file!*

Restart the ldap service by the command:

```
service ldap restart
```

## Open-Xchange: finalizing installation

It is time to verify if everything works fine, defining the first user on OpenExchange. Commands are into /usr/local/ox/sbin directory and You must define the users with following syntax:

```
cd /usr/local/ox/sbin
```

```
./adduser_ox --username="doe" --passwd="Jhon" --name="Jhon" --sname="Doe"  
--maildomain="oxtest.com" --ox_timezone="Europe/Rome"
```

If it works fine, You will see two "OK" messages about the data inserted into OpenLDAP and PostgreSQL.



**IMPORTANT:** If it does not work, You must resolve the problem: do not continue.

You can add a test group also, using the following command:

```
./addgroup_ox --group=WEB-Office
```

## Starting Open-Xchange

If all services are online, including Tomcat, it is possible to start OpenExchange using the command:

```
/usr/local/ox/etc/init.d/openexchange start
```

Now You can logon on OpenExchange with the user credentials created before (Jhon Doe in the example)

If everything works fine, You will see the OX web interface. :-)



## Open-Xchange: customizing interface

Open-Xchange permits You to customize some graphical and functional elements.

### Icons

I suggest to modify the portal icons, because the default icons are not graphically acceptable :-).

You can download a new icon set from URLs

<http://mirror.open-xchange.org/ox/EN/community/download.htm>

<http://www.mikefetherston.ca/OX/>

If You want to modify the icons about the portal menu, decompress the content of the downloaded file into the directory:

*/var/www/html/cfintranet/images/top/EN* or */IT* (if Open-Xchange is localized in italian)

It must be considered that it is possible to modify also the graphical elements behind the icons, so You can modify the content of the directories

*/var/www/html/cfintranet/images/top*

substituting the files

*sl\_top\_logo.png* (140x76 px)

*sl\_top\_name.png* (600x76 px)

If You want to modify the webmail icons, it is needed to browse into the directory

*/var/www/html/cfintranet/webmail/images*

and to substitute the files into with your preferred icons. For example:

File name	Description
email_new_s.png	Icon of link 'New message'
email_retrieve_s.png	Icon of link 'Retrieve'
email_options_s.png	Icon of link 'Options'
email_search_s.png	Icon of link 'Search'
email_logout_s.png	Icon of link 'Close'

## Sidebar menu

After logon, OpenExchange shows a sidebar menu about the Groupware functions. This menu can be customized adding new tools such as, for example, a textbox to search on Google.

If You want to add new elements, modify the file

```
external.conf
```

into the directory

```
/usr/local/ox/etc/groupware
```

writing as follows:

```
<externalElement>
<element title="Cerca su Google" language="IT"/>
<content src="/usr/local/ox/etc/groupware/google.txt"/>
</externalElement>
```

*Pay attention: This is not the full content of file!*

Subsequently, in the same directory, it is needed to create the **google.txt** file:

```
<form action="http://www.google.com/search" name="f" target="inMain">

  <input type=hidden name=hl value=it>
  <input type=hidden name=ie value="UTF-8">


  <table style="padding:5">
    <tr>
      <td>
        <input maxLength=256 size=20 name=q value="open-xchange" style="border:
        1px #A8B1C4 solid;">
      </td>
    </tr>
    <tr>
      <td>
        <input type=submit value="Google-Search" name=btnG style="color:#415582;
        font-weight: bold; border:1px #A8B1C4 solid; background-color:#d3d8e1">
      </td>
    </tr>
  </table>
</form>
```

## Language localization

It is possible to localize OpenExchange with your preferred language. For this You can download from site

<http://mirror.open-xchange.org/ox/EN/community/download.htm>

the packages about groupware/webmail of your language and for your OX release.

 **PAY ATTENTION:** the release of language packages function scorrectly only with the same release of OX.

### Groupware localization

```
tar xzf OX-IT-Groupware.0.8.0-x.tar.gz
cd opt/locales
cp IT.dlc /usr/local/ox/etc/groupware/locales    (file messages of groupware OX)

cd ../html
cp -R IT /usr/local/ox/share/groupware/data/templates    (pagine HTML localizzate)
```

### Webmail localization


```
tar xzf OX-IT-Webmail.0.8.0-3.tar.gz
cd opt/locales
cp IT.dlc /usr/local/ox/etc/webmail/locales    (file messages of Webmail OX)

cd ../html
cp -R IT /usr/local/ox/share/webmail/data/templates    (HTML pages localized)
cd /var/www/html/cfintranet/images/top
cp -R EN IT
```

### Localization management area (UMIN)

It doesn't not exist a package to localize the UMIN interface. You must customize it manually as follows:

```
cd /usr/local/tomcat5/webapps/umin/WEB-INF/classes
cp oxusermin_en.properties oxusermin_it.properties
```

 **PAY ATTENTION:** You must modify the **oxusermin\_it.properties** file manually.

```
vi oxuserminconfig.properties
```

Modify these lines as following:

```
AVAILABLE_LANGUAGES=IT,EN,DE
DEFAULT_LANGUAGE=IT
```

*Pay attention: This is not the full content of file!*

At last, you'll need to configure the logon page of OpenExchange so that your preferred language is default. For this, proceed as follows:

```
cd /var/www/cgi-bin
vi logon.pm
```

Modify the following lines:

```
my $languages = ['DE','EN','IT'];
my $default_lang = 'IT';
```

*Pay attention: This is not the full content of file!*

### 'Link' customization

In the logon page of OpenExchange, as in the default pages of Groupware and Webmail, are visible some links to openexchange.org site.

If You want, You can modify the default links modifying the following files:

File name	Description
/var/www/cgi-bin/login.pm	If You want to modify the link down on the right
/usr/local/ox/share/groupware/data/teplates/IT/portal/portal.htm	If You want to modify the link down on the right on the OpenExchange portal page
/usr/local/ox/share/webmail/data/teplates/IT/main.htm	If You want to modify the link down on the right on the Webmail default page.

### Webmail spellcheck

OpenExchange has been realized with a very useful web spellcheck support.

If You want to configure the spellcheck You must install the following packages:

Packages	Description
aspell-0.50.5-3mdk	
aspell-en-6.0-1mdk	English spellcheck support
aspell-it-0.53.0-1mdk	Italian spellcheck support
libaspell15-0.50.5-3mdk	

Subsequently, modify the **spellcheck.cfg** file into this directory

***/usr/local/ox/etc/webmail***

as follows:

```
cd /usr/local/ox/etc/webmail
vi spellcheck.cfg
```

and add the following lines (bold) in the relative sections:

```
...
<element language="IT" default="italiano"/>

...
<dictionary id="english">
  <element title="Englisch" language="DE"/>
  <element title="English" language="EN"/>
  <element title="Inglese" language="IT"/>
  <element debug="false"/>
  <execute cmd="aspell --lang=EN -a -H"/>

<dictionary id="italiano">
  <element title="Italian" language="DE"/>
  <element title="Italian" language="EN"/>
  <element title="Italiano" language="IT"/>
  <element debug="false"/>
  <execute cmd="aspell --lang=IT -a -H"/>
```

*Pay attention: This is not the full content of file!*

Restart the OpenExchange service to make modification working.