



## Installation of Apache OpenMeetings 3.2.1 on Ubuntu 16.04 LTS

This tutorial is made based on a fresh installations of

**ubuntu-mate-16.04-desktop-amd64.iso**

It is tested with positive result. We will use the Apache's binary version OpenMeetings 3.2.1 stable, that is to say will suppress his compilation. It is done step by step.

21-3-2017

Starting...

1)

First, we update and upgrade the OS:

```
sudo apt-get update
```

```
sudo apt-get upgrade
```

2)

----- **Installation of Oracle Java 1.8** -----

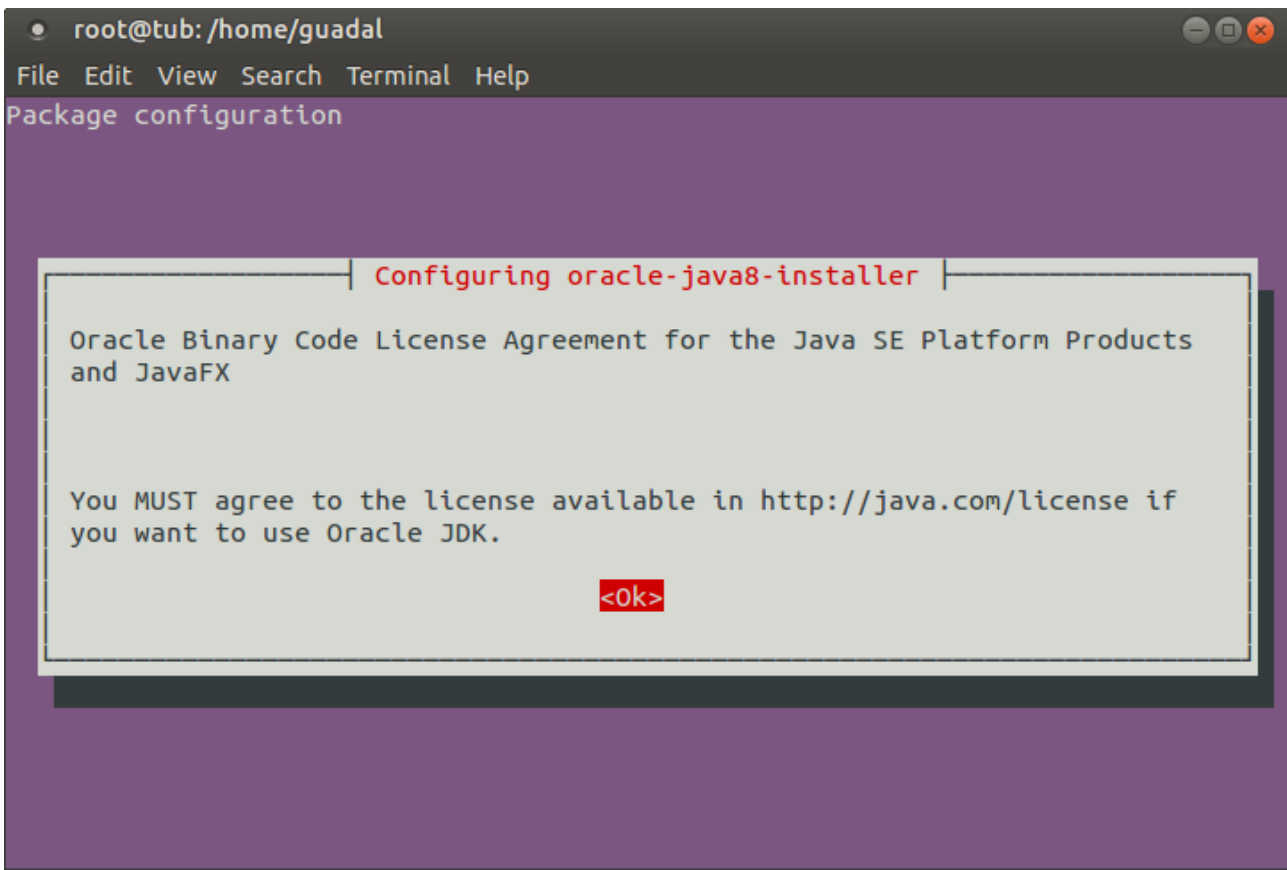
OpenMeetings **3.2.1** need Java **1.8** to work. So, we install Oracle Java 1.8:

```
sudo add-apt-repository ppa:webupd8team/java
```

```
sudo apt-get update
```

```
sudo apt-get install oracle-java8-installer
```

Will open a window. Press **Enter** accepting:



```
root@tub: /home/guadal
File Edit View Search Terminal Help
Package configuration

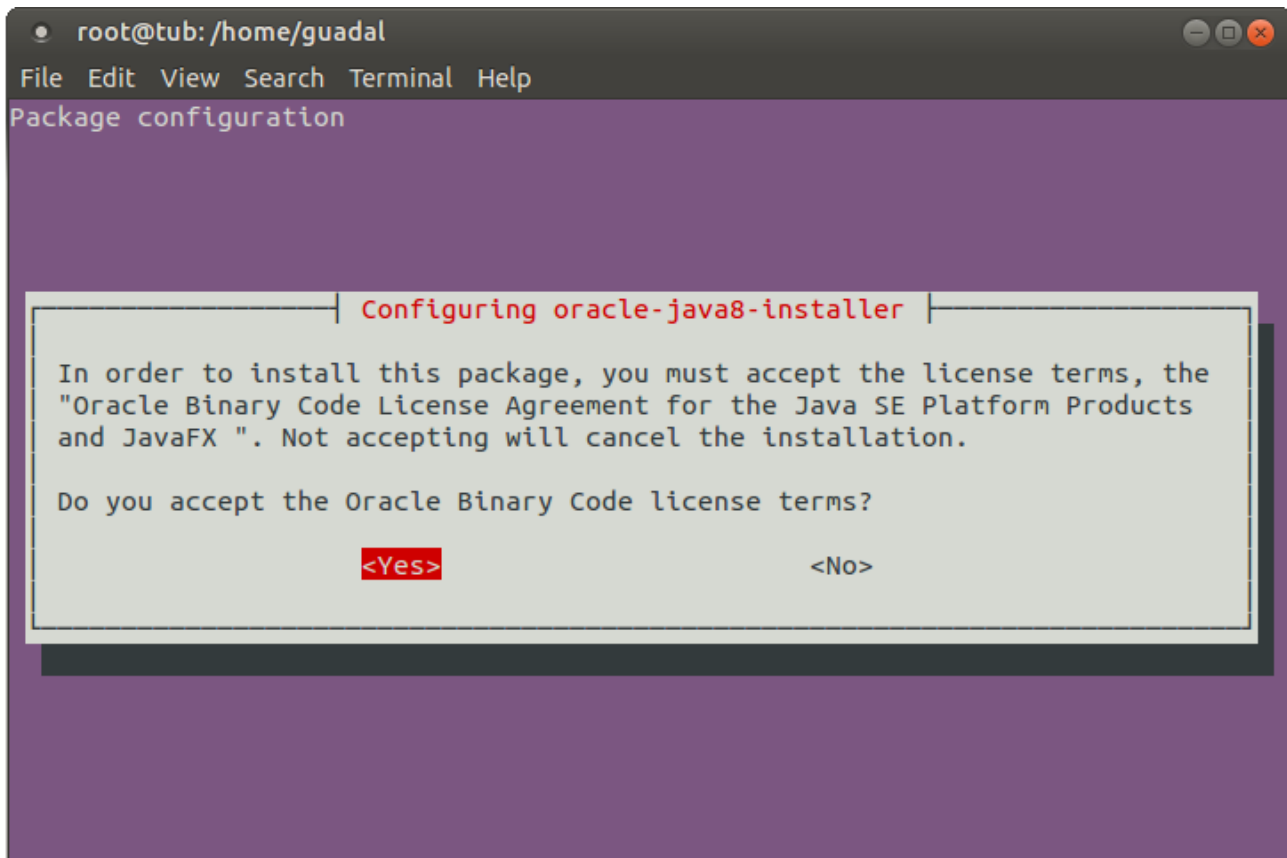
Configuring oracle-java8-installer

Oracle Binary Code License Agreement for the Java SE Platform Products
and JavaFX

You MUST agree to the license available in http://java.com/license if
you want to use Oracle JDK.

<Ok>
```

Will ask newly. Select **Yes** → **Enter**



```
root@tub: /home/guadal
File Edit View Search Terminal Help
Package configuration

Configuring oracle-java8-installer

In order to install this package, you must accept the license terms, the
"Oracle Binary Code License Agreement for the Java SE Platform Products
and JavaFX ". Not accepting will cancel the installation.

Do you accept the Oracle Binary Code license terms?

<Yes> <No>
```

Now, please, select Oracle Java, if you have more than one java versions installed. OpenJava give an error in some function of OpenMeetings. I've tested it:

```
sudo update-alternatives --config java
```

To see the active java version:

```
java -version
```

3)

#### ----- Installation of LibreOffice -----

LibreOffice is need it to convert to pdf the uploaded office files.

The ubuntu desktop iso have already LibreOffice installed, but we do also for server iso:

```
sudo add-apt-repository ppa:libreoffice/ppa
```

```
sudo apt-get update
```

```
sudo apt-get install libreoffice
```

Now some kind of information only:

LibreOffice installation folder is /usr/lib/libreoffice.

4)

#### ----- Installation ImageMagic, Sox and Swftools -----

**ImageMagic**, will work the image files, png, jpg, gif, etc. Will install it and some more libraries and paquets:

(Only one line with space between both)

```
sudo apt-get install -y imagemagick gdebi libjpeg62 synaptic zlib1g-dev unzip make build-essential  
wget nmap
```

**Sox**, work the sound. We'll compile, because this version is newer than the repo:

```
cd /opt
```

```
wget http://sourceforge.net/projects/sox/files/sox/14.4.2/sox-14.4.2.tar.gz
```

```
tar xzvf sox-14.4.2.tar.gz
```

```
cd /opt/sox-14.4.2
```

```
./configure
```

```
make && make install
```

**Swftools.** LibreOffice convert to pdf the uploaded office files, and Swftools convert these pdf to swf, flash files, that later will show it in the whiteboard. Also convert jpg2swf, png2swf, gif2swf.

Don't use a newer swftools version. Surely, will have not pdf2swf.

```
sudo apt-get install libstreamer-plugins-base0.10-0 libstreamer0.10-0 libgif7 libzip-0-13
```

**For 64 bit:**

```
cd /opt
```

(Only one line without space between both)

```
wget http://mirrors.kernel.org/ubuntu/pool/universe/libo/liboil/liboil0.3_0.3.17-2ubuntu4_amd64.deb
```

```
dpkg -i liboil0.3_0.3.17-2ubuntu4_amd64.deb
```

(Only one line without space between both)

```
wget https://launchpad.net/ella-rennaissance/ella-rennaissance-beta/beta1/+download/swftools_0.9.1-1_amd64.deb
```

```
dpkg -i swftools_0.9.1-1_amd64.deb
```

```
echo "swftools hold" | sudo dpkg --set-selections (To block version)
```

**For 32 bit:**

```
cd /opt
```

```
wget http://mirrors.kernel.org/ubuntu/pool/universe/libo/liboil/liboil0.3_0.3.17-2ubuntu4_i386.deb
```

```
dpkg -i liboil0.3_0.3.17-2ubuntu4_i386.deb
```

(Only one line without space between both)

```
wget https://launchpad.net/ella-rennaissance/ella-rennaissance-beta/beta1/+download/swftools_0.9.1-1_i386.deb
```

```
dpkg -i swftools_0.9.1-1_i386.deb
```

```
echo "swftools hold" | sudo dpkg --set-selections (To block version)
```

5)

## ----- Installation of Adobe flash player -----

OpenMeetings even need Adobe Flash Player for rooms. We install it

```
sudo apt-get install flashplugin-installer
```

6)

## ----- Compilation of FFmpeg -----

FFmpeg will work with video.

This compilation is based on:

<https://trac.ffmpeg.org/wiki/CompilationGuide/Ubuntu>

Updated files to 21-3-2017. Install some libraries:

(Only one line with space between each one)

```
sudo apt-get -y --force-yes install autoconf automake build-essential libass-dev libfreetype6-dev
libgpac-dev libSDL1.2-dev libtheora-dev libtool libva-dev libvdpau-dev libvorbis-dev libxcb1-dev
libxcb-shm0-dev libxcb-xfixes0-dev pkg-config texi2html zlib1g-dev nasm libx264-dev cmake
mercurial libopus-dev curl git
```

I made a script that will download, compile and install ffmpeg.

The result of any recording we do in OpenMeetings, will be in mp4 format.

Please, download the script:

```
cd /opt
```

(Only one line without space between both)

```
wget https://cwiki.apache.org/confluence/download/attachments/27838216/ffmpeg-ubuntu-
debian.sh
```

...concede permission of execution:

```
chmod +x ffmpeg-ubuntu-debian.sh
```

...and run it (be connected to Internet). The compilation will spend about 30 minutes:

```
./ffmpeg-ubuntu-debian.sh
```

When finish the compilation, a text will announce it:

**FFmpeg Compilation is Finished!**

Then, please, go to **step 7**).

But if you prefer copy and paste (**i don't advise**), here are the commands script:

```
sudo gedit /opt/ffpmeg.sh
```

...copy and paste **from here**:

```
# FFmpeg compilation for Ubuntu and Debian.
# Alvaro Bustos. Thanks to Hunter.
# Updated 21-3-2017

sudo apt-get update
sudo apt-get -y --force-yes install autoconf automake build-essential libass-dev libfreetype6-dev
libsdl1.2-dev libtheora-dev libtool libva-dev libvdpau-dev libvorbis-dev libxcb1-dev libxcb-shm0-
dev libxcb-xfixes0-dev pkg-config texi2html zlib1g-dev mercurial cmake

# Create a directory for sources.
SOURCES=$(mkdir ~/ffmpeg_sources)
cd ~/ffmpeg_sources

# Download the necessary sources.
wget ftp://ftp.gnome.org/mirror/xbmc.org/build-deps/sources/lame-3.99.5.tar.gz
wget http://www.tortall.net/projects/yasm/releases/yasm-1.3.0.tar.gz
curl -#LO ftp://ftp.videolan.org/pub/x264/snapshots/last_stable_x264.tar.bz2
hg clone https://bitbucket.org/multicoreware/x265
wget -O fdk-aac.tar.gz https://github.com/mstorsjo/fdk-aac/tarball/master
wget http://downloads.xiph.org/releases/opus/opus-1.1.3.tar.gz
wget http://storage.googleapis.com/downloads.webmproject.org/releases/webm/libvpx-1.5.0.tar.bz2
git clone --depth 1 git://source.ffmpeg.org/ffmpeg

# Unpack files
for file in `ls ~/ffmpeg_sources/*.tar.*`; do
tar -xvf $file
done

cd yasm-*/
./configure --prefix="$HOME/ffmpeg_build" --bindir="$HOME/bin" && make && sudo make
install && make distclean; cd ..

cd x264-*/
PATH="$HOME/bin:$PATH" ./configure --prefix="$HOME/ffmpeg_build" --bindir="$HOME/bin"
--enable-static && PATH="$HOME/bin:$PATH" make && sudo make install && make distclean;
cd ..

cd x265/build/linux
PATH="$HOME/bin:$PATH" cmake -G "Unix Makefiles"
-DCMAKE_INSTALL_PREFIX="$HOME/ffmpeg_build" -DENABLE_SHARED:bool=off
../../source && make && sudo make install && make distclean; cd ~/ffmpeg_sources

cd mstorsjo-fdk-aac*
autoreconf -fiv && ./configure --prefix="$HOME/ffmpeg_build" --disable-shared && make &&
sudo make install && make distclean; cd ..
```

```

cd lame-*/
./configure --prefix="$HOME/ffmpeg_build" --enable-nasm --disable-shared && make && sudo
make install && make distclean; cd ..

cd opus-*/
./configure --prefix="$HOME/ffmpeg_build" --disable-shared && make && sudo make install &&
make distclean; cd ..

cd libvpx-*/
PATH="$HOME/bin:$PATH" ./configure --prefix="$HOME/ffmpeg_build" --disable-examples
--disable-unit-tests && PATH="$HOME/bin:$PATH" make && sudo make install && make clean;
cd ..

cd ffmpeg
PATH="$HOME/bin:$PATH" PKG_CONFIG_PATH="$HOME/ffmpeg_build/lib/pkgconfig"
./configure --prefix="$HOME/ffmpeg_build" --pkg-config-flags="--static" --extra-cflags="-
I$HOME/ffmpeg_build/include" --extra-ldflags="-L$HOME/ffmpeg_build/lib"
--bindir="$HOME/bin" --enable-gpl --enable-libass --enable-libfdk-aac --enable-libfreetype
--enable-libmp3lame --enable-libopus --enable-libtheora --enable-libvorbis --enable-libvpx
--enable-libx264 --enable-libx265 --enable-nonfree && PATH="$HOME/bin:$PATH" make &&
sudo make install && make distclean && hash -r; cd ..

cd ~/bin
cp ffmpeg ffprobe ffplay ffmpegserver vsyasm x264 yasm yasm /usr/local/bin

cd ~/ffmpeg_build/bin
cp lame x265 /usr/local/bin
echo "FFmpeg Compilation is Finished!"

```

**...to here.**

Concede permission of execution:

```
chmod +x /opt/ffmpeg.sh
```

Now be connected to Internet, run the script and wait about 30 minutes while the compilation:

```
cd /opt
```

```
./ffmpeg.sh
```

All the compiled files are installed in: /usr/local/bin

7)

----- Installation and configuration of MariaDB data server -----

**MariaDB** is the data server. Will install it. (Version 10.x):

```
sudo apt-get install mariadb-server
```

Run MariaDB:

```
/etc/init.d/mysql start
```

Now we give a root password to MariaDB. Please, replace `new-password` with your own:

```
mysqladmin -u root password new-password
```

Make a database with his own user for OpenMeetings:

```
mysql -u root -p
```

...will ask for the root password that you have just choosen, type it...

```
MariaDB [(none)]> CREATE DATABASE open321 DEFAULT CHARACTER SET 'utf8';
```

With this command we has created a database called open321.  
Now we create a user with all permission on this database.

(Only one line with space between both)

```
MariaDB [(none)]> GRANT ALL PRIVILEGES ON open321.* TO 'hola'@'localhost'  
IDENTIFIED BY '123456' WITH GRANT OPTION;
```

- \* `open321` .....is the database name.
- \* `hola` .....is the user name for this database.
- \* `123456` .....is the password for this user.

You can change the data...but remember it! Later we'll need it.

Now, we leave MariaDB:

```
MariaDB [(none)]> quit
```

8)

#### ----- Installation of OpenMeetings -----

We'll install OpenMeetings in `/opt/red5321`. All the following information will be based on this directory.

Make the folder:

```
mkdir /opt/red5321
```



```
cd /opt/red5321
```

...and download the red5-OpenMeetings file:

```
wget http://apache.miloslavbrada.cz/openmeetings/3.2.1/bin/apache-openmeetings-3.2.1.zip
```

```
unzip apache-openmeetings-3.2.1.zip
```

...save the unloaded file to /opt:

```
mv apache-openmeetings-3.2.1.zip /opt
```

Do to **nobody** owner of the whole OpenMeetings folder installation, by security:

```
chown -R nobody /opt/red5321
```

Download and install the connector between OpenMeetings and MariaDB:

```
cd /opt
```

(Only one line without space between both)

```
wget http://repo1.maven.org/maven2/mysql/mysql-connector-java/5.1.39/mysql-connector-java-5.1.39.jar
```

...and copy it to where must be:

```
cp /opt/mysql-connector-java-5.1.39.jar /opt/red5321/webapps/openmeetings/WEB-INF/lib
```

Now we form OpenMeetings for our database in MariaDB:

```
gedit /opt/red5321/webapps/openmeetings/WEB-INF/classes/META-INF/mysql_persistence.xml
```

**Modify line 72:**

```
, Url=jdbc:mysql://localhost:3306/openmeetings?
```

...to

```
, Url=jdbc:mysql://localhost:3306/open321?
```

...it is the name of the database that we did initially.

**Modify line 77:**

, Username=root

...to

, Username=hola

...is the user that we did initially for the database.

### Modify line 78:

, Password=" />

...to

, Password=123456" />

...it is the password that we did initially for the user "hola" in the database.

Logically, if initially you choose another name and password for the database, replace it here.

We protect the access to the file:

(Only one line without space between both)

```
chmod 640 /opt/red5321/webapps/openmeetings/WEB-INF/classes/META-INF/mysql_persistence.xml
```

9)

----- Script to launch red5-OpenMeetings -----

Please, download the red5 run script:

```
cd /opt
```

```
wget https://cwiki.apache.org/confluence/download/attachments/27838216/red5-ubdeb2
```

...and copy it to:

```
cp red5-ubdeb2 /etc/init.d/
```

...and concede permission of execution:

```
chmod +x /etc/init.d/red5-ubdeb2
```

10)

----- Run red5-OpenMeetings -----

Start MariaDB, if still it is not:

```
/etc/init.d/mysql start
```

...and now start red5-OpenMeetings. Please, be connected to Internet:

```
/etc/init.d/red5-ubdeb2 start
```

...will appear two text lines in the shell:

```
start-stop-daemon: --start needs --exec or --startas
Try 'start-stop-daemon --help' for more information.
```

...you do nothing. Don't worry, everything work right,

...wait 40 seconds at least, in order that red5 it is runing completely. And after this, can go to:

<http://localhost:5080/openmeetings/install>

...there will appear a page similar to this one:

**OpenMeetings**

1. **Enabling import of PDFs into whiteboard**

- Install **GhostScript** on the server, you can get more information on <http://pages.cs.wisc.edu/~ghost/> regarding installation. The instructions for installation can be found there, however on most linux systems you can get it via your favorite package managers (apt-get it).
- Install **SWFTTools** on the server, you can get more information on <http://www.swftools.org/> regarding installation. Some of the Linux distributions already have it in there package manager see <http://packages.debian.org/unstable/utils/swftools>), the recommended version of **SWFTTools** is 0.9 as prior version have a bug that does lead to wrong object dimensions in the Whiteboard

**If you have further questions or need support in installation or hosting:**


**Community-Support:**

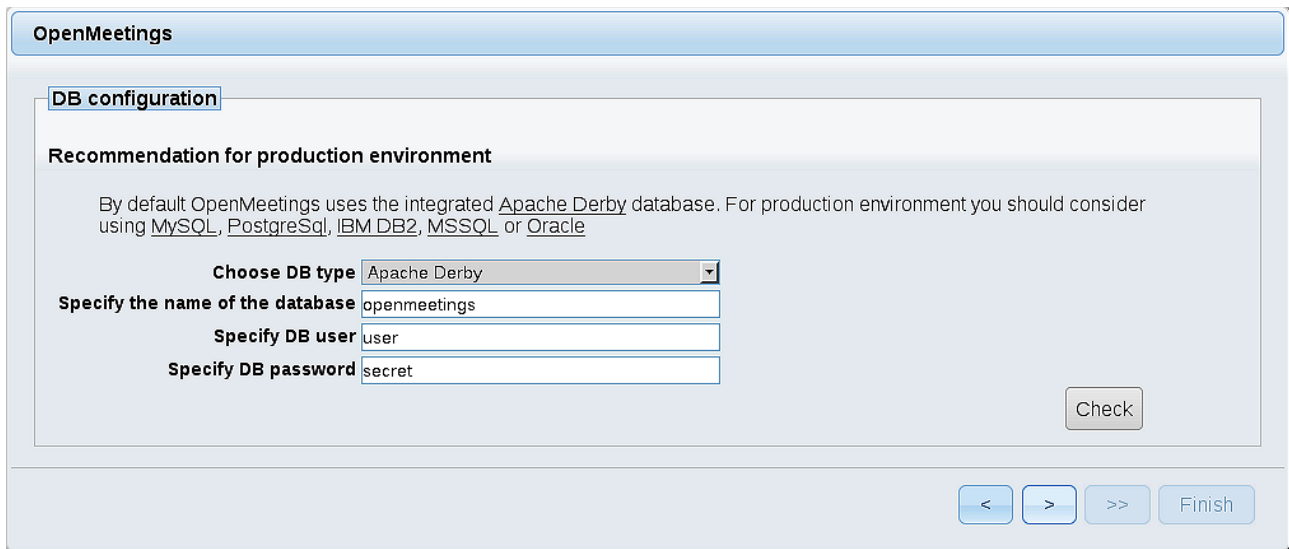
[Mailing lists](#)

**Commercial-Support:**

[Commercial-Support](#)

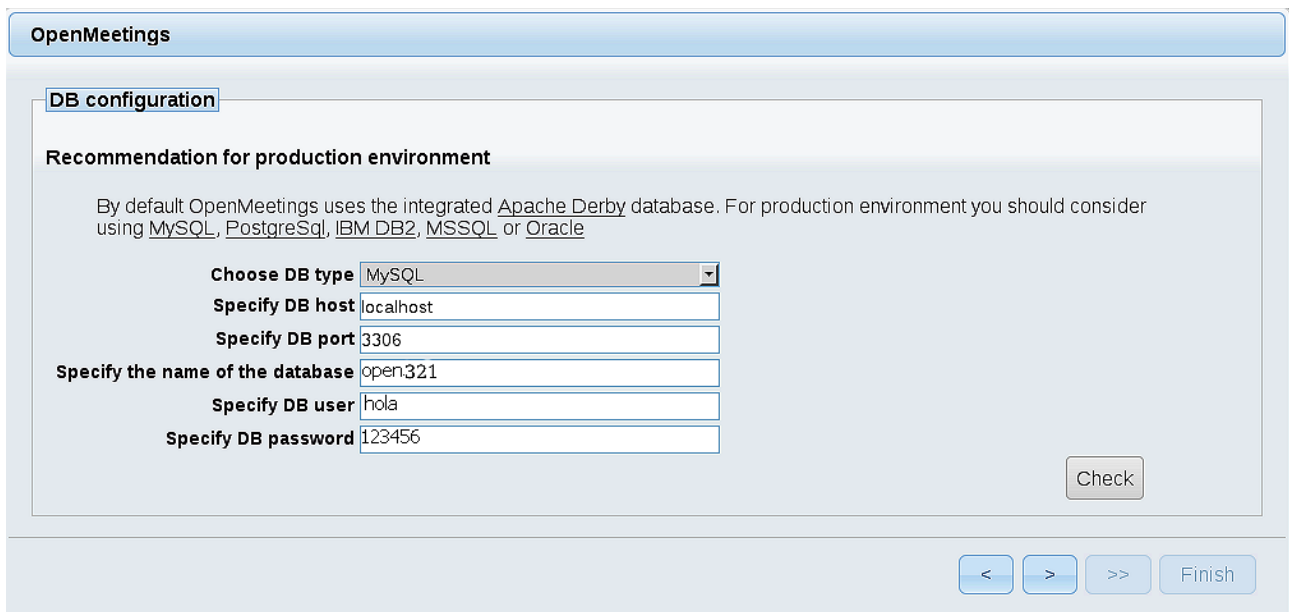
< > >> Finish

...press on  button (bottom), and will show the default database configuration with Derby, but we employ MySQL (MariaDB),




The screenshot shows the 'OpenMeetings' application window with the 'DB configuration' tab selected. Under the heading 'Recommendation for production environment', there is a paragraph of text: 'By default OpenMeetings uses the integrated Apache Derby database. For production environment you should consider using MySQL, PostgreSQL, IBM DB2, MSSQL or Oracle'. Below this, there are four input fields: 'Choose DB type' (a dropdown menu with 'Apache Derby' selected), 'Specify the name of the database' (text box with 'openmeetings'), 'Specify DB user' (text box with 'user'), and 'Specify DB password' (text box with 'secret'). A 'Check' button is located to the right of these fields. At the bottom right of the window, there are four navigation buttons: '<', '>', '>>', and 'Finish'.

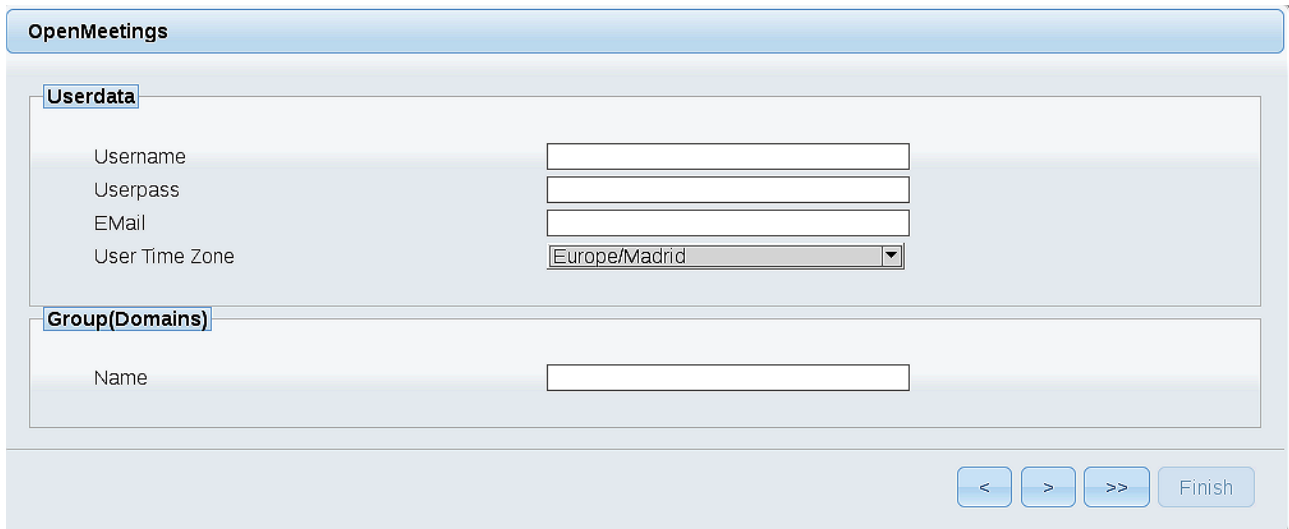
...then, scroll and **Choose DB type** to MySQL:



The screenshot shows the 'OpenMeetings' application window with the 'DB configuration' tab selected. Under the heading 'Recommendation for production environment', there is a paragraph of text: 'By default OpenMeetings uses the integrated Apache Derby database. For production environment you should consider using MySQL, PostgreSQL, IBM DB2, MSSQL or Oracle'. Below this, there are six input fields: 'Choose DB type' (a dropdown menu with 'MySQL' selected), 'Specify DB host' (text box with 'localhost'), 'Specify DB port' (text box with '3306'), 'Specify the name of the database' (text box with 'open321'), 'Specify DB user' (text box with 'hola'), and 'Specify DB password' (text box with '123456'). A 'Check' button is located to the right of these fields. At the bottom right of the window, there are four navigation buttons: '<', '>', '>>', and 'Finish'.

...will show the database configuration we made in step 8, or with your own modifications.

Please, press  button, and will go to:



Here we must introduce the followings data:


**Username** = a-name ...this user will be administrator.

**Userpass** = password ...for the previous user.

**Email** = email-adress ...of the previous user.

**User Time Zone** = country where is this server.

**Name** = example-openmeetings ...group name to choose.

Press the button  and will lead us to a new page (below) where you can select the language for your OpenMeetings server, as well as other options such as the configuration of the mail server being used to send invitations or meetings from OpenMeetings.

A valid example to configure the mail server with Gmail, is as follows:  
(replace **john@gmail.com** with your real Gmail account)

**Mail-Refer (system\_email\_addr)** == [john@gmail.com](mailto:john@gmail.com)

**SMTP-Server (smtp\_server)** == [smtp.gmail.com](mailto:smtp.gmail.com)

**SMTP-Server Port (default SmtP-Server Port is 25)  
(smtp\_port)** == 587

SMTP-Username (email\_username) == john@gmail.com

SMTP-Userpass (email\_userpass) == password of john@gmail.com

Enable TLS in Mail Server Auth == Yes

To select the language of your server OpenMeetings, please scroll on the line:

Default Language = english

...the rest can leave as is, or modify it as you like it:

**OpenMeetings**

**Configuration**

|  |  |
|--|--|
| Allow self-registering (allow_frontend_register)                                       | <input type="text" value="Yes"/>                             |
| Send Email to new registered Users (sendEmailAtRegister)                               | <input type="text" value="No"/>                              |
| New Users need to verify their EMail (sendEmailWithVerificationCode)                   | <input type="text" value="No"/>                              |
| Default Rooms of all types will be created   | <input type="text" value="Yes"/>                             |
| Mail-Referer (system_email_addr)   | <input type="text" value="noreply@openmeetings.apache.org"/> |
| SMTP-Server (smtp_server)  | <input type="text" value="localhost"/>                       |
| SMTP-Server Port(default SmtP-Server Port is 25) (smtp_port)                           | <input type="text" value="25"/>                              |
| SMTP-Username (email_username)   | <input type="text"/>   |
| SMTP-Userpass (email_userpass)   | <input type="text"/>   |
| Enable TLS in Mail Server Auth   | <input type="text" value="No"/>                              |
| Set inviter's email address as ReplyTo in email invitations (inviter.email.as.replyto) | <input type="text" value="Yes"/>                             |
| Default Language   | <input type="text" value="inglés"/>                          |
| Default Font for Export [default_export_font]  | <input type="text" value="TimesNewRoman"/>                   |

Now press the button  and a new page will appear:

**OpenMeetings**

**Converters**

SWFTools Zoom ⓘ

SWFTools JPEG Quality ⓘ

SWFTools Path ⓘ

ImageMagick Path ⓘ

FFMPEG Path ⓘ

SoX Path ⓘ

OpenOffice/LibreOffice Path for jodconverter ⓘ

see also [Installation](#)

< > >> Finish

Here we'll introduce the respective paths for the image, video, audio and conversion of uploaded files:

**SWFTools Path** == [/usr/bin](#)

**ImageMagick Path** == [/usr/bin](#)

**FFMPEG Path** == [/usr/local/bin](#)

**SOX Path** == [/usr/local/bin](#)

**OpenOffice/LibreOffice Path for jodconverter** == [/usr/lib/libreoffice](#) **(32 bits - 64bits)**

As you go introducing paths, you can check if they are correct by pressing the button labeled **Check**. If it does not display any error message, that is OK.

Once completed the paths, please click the button  and move on to another page that would be to activate the SIP. We will leave it as is, unless you want to activate it knowing what it does:

**OpenMeetings**

**Crypt Type**

Crypt Class

*You can use this default crypt type which is equal to PHP-MD5 function or BSD-Style encryption by using: **org.apache.openmeetings.util.crypt.MD5CryptImplementation** for more information or to write your own Crypt-Style see: [Custom Crypt Mechanism](#) You can edit this value later BUT previous created Users and Sessions might be not usable anymore*

**red5SIP Configuration**

Enable SIP

*Enable red5SIP integration*

SIP rooms prefix

*Prefix for phone number of conference rooms*

SIP extensions context

*Context of Asterisk extensions*

Now push the button  Will show this window:

**OpenMeetings**

Please click "Finish" button to start installation!

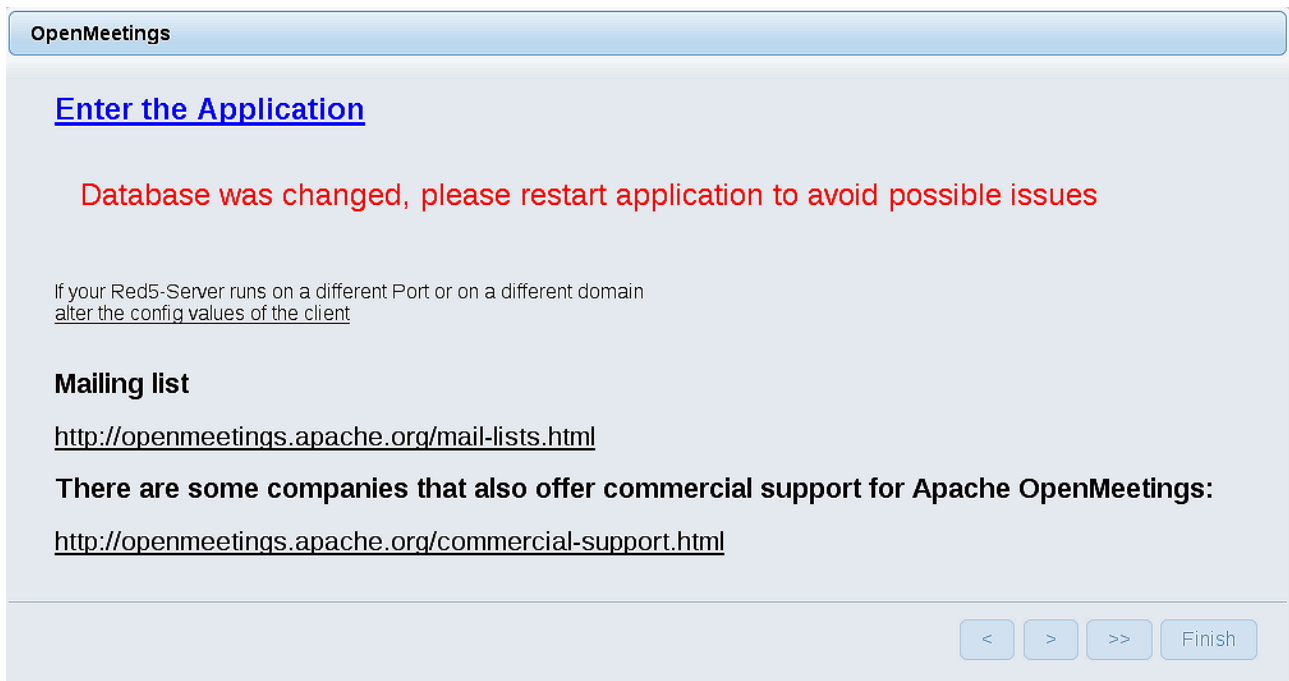
Press **Finish** button ...wait a seconds until the tables are fill in the database.

When has concluded, this another page will appear. **Don't** clic on [Enter the Application](#).

First is need it to restart the server. Please, be connected to Internet:

[/etc/init.d/red5-ubdeb2 restart](#)

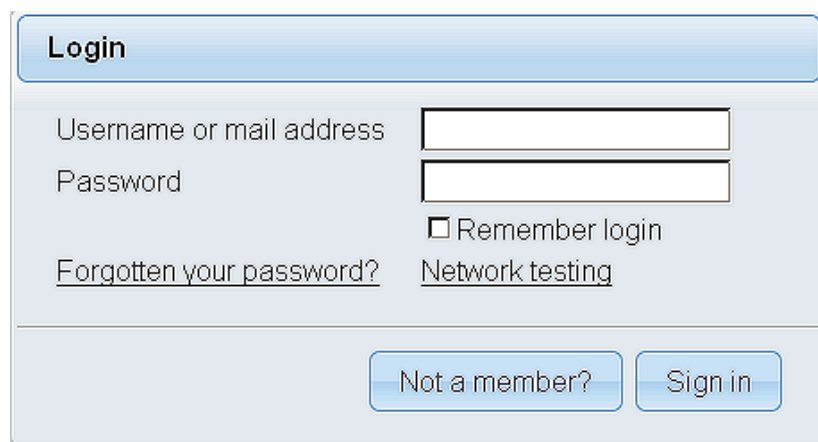




Now yes, you can clic on [Enter the Application](#), or go with your browser to:

<http://localhost:5080/openmeetings>

...and will take us to the entry of OpenMeetings:



Introduce the user's name and the password that you have chosen during the installation, push **Sign in** button, and...

**...Congratulations!**

The next time that you like accede to OpenMeetings would be:

<http://localhost:5080/openmeetings>

Remember to open in the server the two following ports:

**1935 5080**

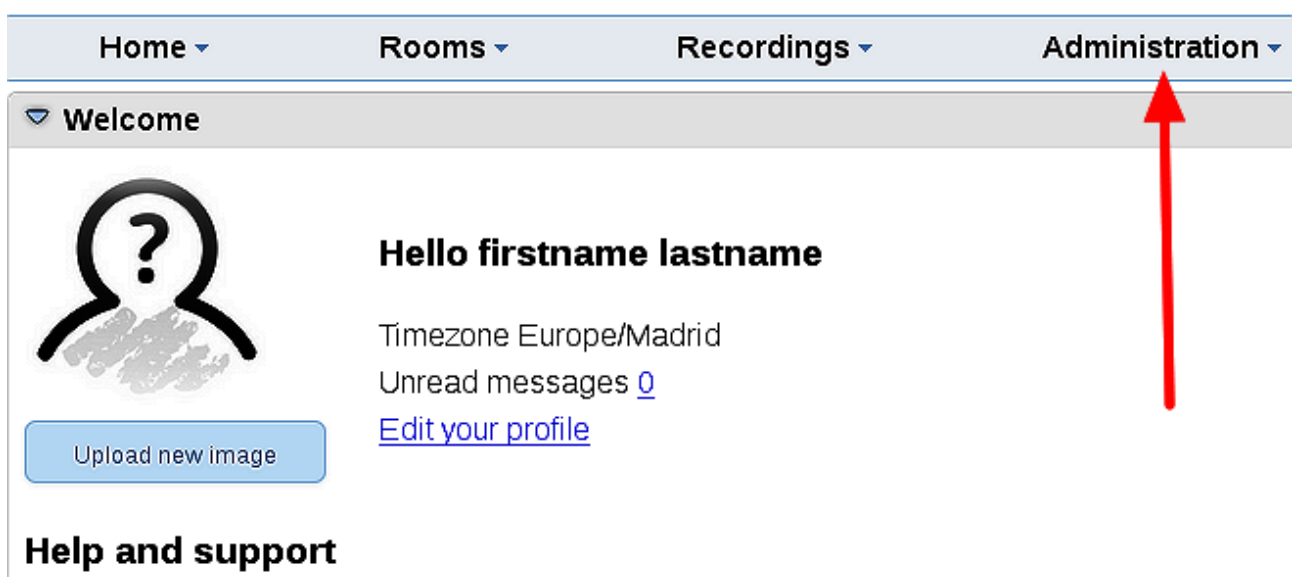
...in order that it could accede to OpenMeetings from other machines in LAN or Internet.

11)

**----- OpenMeetings's Configuration -----**

Once you acced to OpenMeetings, if you would like to do any modification in the configuration, please go to:

**Administration → Configuration**



...and following the order of the red arrows:

The screenshot shows a configuration management interface. On the left is a table with columns ID, Key, and Value. Row 18 is highlighted, showing 'swftools\_path'. On the right is a 'Configuration' panel for 'swftools\_path' with fields for Key, Value, Last update, Updated by, and Comment. Red arrows labeled 1, 2, and 3 point from the table to the configuration panel.

| ID | Key                          | Value                           |
|----|------------------------------|---------------------------------|
| 4  | allow.oauth.register         | 1                               |
| 5  | default_group_id             | 1                               |
| 6  | smtp_server                  | localhost                       |
| 7  | smtp_port                    | 25                              |
| 8  | system_email_addr            | noreply@openmeetings.apache.org |
| 9  | email_username               |                                 |
| 10 | email_userpass               |                                 |
| 11 | mail.smtp.starttls.enable    | 0                               |
| 12 | mail.smtp.connection.timeout | 30000                           |
| 13 | mail.smtp.timeout            | 30000                           |
| 14 | application.name             | OpenMeetings                    |
| 15 | default_lang_id              | 1                               |
| 16 | swftools_zoom                | 100                             |
| 17 | swftools_jpegquality         | 85                              |
| 18 | swftools_path                |                                 |
| 19 | imagemagick_path             |                                 |
| 20 | sox_path                     |                                 |
| 21 | ffmpeg_path                  |                                 |
| 22 | office.path                  |                                 |

**Configuration**

Key: swftools\_path

Value:

Last update:

Updated by:

Comment: Path To SWF-Tools

Now we are going to remove files and folders that already do not serve us, if you do not prefer to save them:

```
rm -f /opt/mysql-connector-java-5.1.39.jar
```

```
rm -f /opt/sox-14.4.2.tar.gz
```

```
rm -f -R /opt/sox-14.4.2
```

And this is all.

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If you have some doubt or question, please raise it in the Apache OpenMeetings forums:

<http://openmeetings.apache.org/mail-lists.html>

Thank you.

Alvaro Bustos

