This Guide is intended to help users install and configure Open Meetings 2.X

The guide is aimed at Ubuntu 12.10 users, it has been written step by step with screenshots to aid in the successful build of OM from a fresh install.

SSL and Reverse proxy steps have been added but are optional.

N.B – When copying and pasting commands please check that symbols and character returns are correctly copied across.
Installing Ubuntu (Minimal Headless System)

Step 1: - Base System

Choose “Install Ubuntu Server”
Choose English

Choose “United Kingdom”
Choose yes to automatically detect keyboard.

Enter a hostname.
Enter Username.

[![Set up users and passwords]

A user account will be created for you to use instead of the root account for non-administrative activities.

Please enter the real name of this user. This information will be used for instance as default origin for emails sent by this user as well as any program which displays or uses the user’s real name. Your full name is a reasonable choice.

Full name for the new user:

<Go Back> <Continue>

[![Set up users and passwords]

Please enter the same user password again to verify you have typed it correctly.

Re-enter password to verify:

<Go Back> <Continue>
Choose “no” to encrypt the Home Directory.

Choose yes to accept the detected time-zone.
Select “Guided – Use entire disk”

Accept the Disk selection to partition.
Choose “yes” to accept the changes to disk.

If you use a proxy server please enter that here, in most cases this is not needed and you can simply press enter to continue.
Select how you want to manage updates.

- No automatic updates
- Install security updates automatically
- Manage system with Landscape

Select OpenSSH and leave the rest blank, then click on Continue.
Choose yes to install and configure the Grub Boot loader.

Press continue to reboot your system.
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Step 2: - Setup SSH Environment

You should now be at the following screen, the next steps are easier done from a remote desktop using an SSH client such as putty. – But first we need to know our IP address, in most cases this was issued by your DHCP server (unless you specified manual network setup during install)
To find your IP address, first logon to your physical machine using root, then issue the following command:

```
ifconfig
```

This will show the following screen:

![Screen showing ifconfig output]

You can see the IP Address in this case is 10.17.23.11 (Interface eth0)
You can now log off of the server.

![Screen showing PUTTY configuration]

From your desktop machine open your SSH client, in this case we will be using the putty client to connect to our new Server.

Enter the details and choose open.
The first log on you will receive this message; you can choose yes here and accept the key.

And finally this screen:

When using Ubuntu the root account has no password and by default is disabled, so first log on with the user that was created during the installation process (In this case omadmin), this account by default is part of the Admin group and therefore is also part of the sudoers group already, from here we can re-enable the root account.

To do this follow these steps

   sudo passwd

Enter the omadmin password first

   [sudo] password for omadmin: xxxxxx

Then enter the new root password twice

   Enter new UNIX password:
   Retype new UNIX password:
   passwd: password updated successfully
We can now enter the following to change user to root

```
su -
```

Enter the password you set above and we are now ready to proceed.

### Step 3: Install Dependent software

First update the repos:

```
apt-get update
```

Now let’s create our work area

```
mkdir -p /usr/adm
```

We need to first install Libre Office:

```
apt-get install libreoffice -y
```

Libre Office installs OpenJDK so we need to install Oracle Java 6 JDK and update the alternatives – grab the relevant binary from oracle.

```
cd /usr/adm
http://download.oracle.com/otn-pub/java/jdk/6u32-b05/jdk-6u32-linux-x64.bin
```

Now issue the following to install it and correct the default java.

```
cd /usr/adm
chmod +x jdk-6u32-linux-x64.bin
./jdk-6u32-linux-x64.bin
mkdir -p /usr/lib/jvm
mv jdk1.6.0_32 /usr/lib/jvm/
```

```
update-alternatives --install /usr/bin/javac javac /usr/lib/jvm/jdk1.6.0_32/bin/javac 1
update-alternatives --install /usr/bin/java java /usr/lib/jvm/jdk1.6.0_32/bin/java 1
update-alternatives --install /usr/bin/javaws javaws /usr/lib/jvm/jdk1.6.0_32/bin/javaws 1
```

```
update-alternatives --config javac
update-alternatives --config java
update-alternatives --config javaws
```
Check java by issuing the following

```bash
java -version
```

java version "1.6.0_32"

Java(TM) SE Runtime Environment (build 1.6.0_32-b05)
Java HotSpot(TM) 64-Bit Server VM (build 20.7-b02, mixed mode)

```bash
ls -la /etc/alternatives/java*
```

and confirm the symbolic links point to the correct location.

The last stage of this step is to install the required dependencies for the OM install.

```
apt-get update
apt-get install autoconf automake build-essential checkinstall git libass-dev libfaac-dev -y
apt-get install libgpgme-dev libmp3lame-dev libopencore-amrnb-dev libopencore-amrwb-dev -y
apt-get install librtmp-dev libspeex-dev -y
apt-get install libtheora-dev lihttpd libvorbis-dev pkg-config texi2html zlib1g-dev -y
apt-get install imagemagick xdg-utils libtool -y
apt-get install libgif-dev xpdf libfreetype6 libfreetype6-dev libjpeg62 libjpeg8 -y
apt-get install libjpeg8-dev libjpeg-dev libdirectfb-dev -y
apt-get install libart-2.0-2 liblzma5 lsof libxml2-dev libxml2-dev-dev libxml2-dev-dev-dev -y
apt-get install libxfixes-dev libxvidcore-dev zlib1g-dev libogg-dev sox libvorbis-dev -y
apt-get install libgsm1 libgsm1-dev libfaac-dev flvtools lame make g++ -y
```

**Step 4: Compile and Install SWFTools 2013-02-19-1826**

```
ed /usr/adm
tar -zxvf swftools-2013-02-19-1826.tar.gz
cd swftools-2013-02-19-1826/
./configure
make
checkinstall
```

Once that has completed you can now test it by issuing the following:

```bash
pdf2swf --version
```

Which should give you the following output:

```bash
pdf2swf - part of swftools 2013-02-19-1826
```
Step 5: Install yasm

```
cd /usr/adm
wget http://www.tortall.net/projects/yasm/releases/yasm-1.2.0.tar.gz
tar xzvf yasm-1.2.0.tar.gz
cd yasm-1.2.0
./configure
make
checkinstall --pkgname=yasm --pkgversion="1.2.0" --backup=no --deldoc=yes \--fstrans=no --default
```

Step 6: Install x264

```
cd /usr/adm
git clone --depth 1 git://git.videolan.org/x264.git
cd x264
./configure --enable-static
make
checkinstall --pkgname=x264 --pkgversion="3:$(./version.sh | awk -F'|' '/POINT/{print $4"+git"$5})" --backup=no --deldoc=yes --fstrans=no --default
```

Step 7: Install AAC audio encoder

```
cd /usr/adm
git clone --depth 1 git://github.com/mstorsjo/fdk-aac.git
cd fdk-aac
autoreconf -fiv
./configure --disable-shared
make
checkinstall --pkgname=fdk-aac --pkgversion="$(date +%Y%m%d%H%M)-git"\--backup=no --deldoc=yes --fstrans=no --default
```

Step 8: Install VP8 video encoder and decoder

```
cd /usr/adm
git clone --depth 1 http://git.chromium.org/webm/libvpx.git
cd libvpx
./configure --disable-examples --disable-unit-tests
make
checkinstall --pkgname=libvpx --pkgversion="1:$(date +%Y%m%d%H%M)-git"\--backup=no --deldoc=yes --fstrans=no --default
```
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Step 9: Compile and Install ffmpeg 0.11.1

Let’s go back to our temporary working area

cd /usr/adm

Download, compile and install ffmpeg by issuing these commands:

wget http://ffmpeg.org/releases/ffmpeg-1.1.3.tar.gz

tar -zxvf ffmpeg-1.1.3.tar.gz

cd ffmpeg-1.1.3

./configure --enable-gpl --enable-libass --enable-libfaac --enable-libfdk-aac
--enable-libmp3lame --enable-libopencore-amrnb --enable-libopencore-amrwb
--enable-libspeex --enable-libtheora --enable-libvorbis
--enable-libvpx --enable-x11grab --enable-libx264 --enable-nonfree --enable-version3
--enable-libxvid --enable-libgsm

make

checkinstall --pkgname=ffmpeg --pkgversion="7:$(date +%Y%m%d%H%M)-git"
--backup=no --deldoc=yes --fstrans=no --default

Once that has completed you can now test it by issuing the following:

ffmpeg -version

Which should give you the following output:

ffmpeg version 0.11.1

Step 10: Install qt-faststart

cd /usr/adm/ffmpeg-1.1.3/

make tools/qt-faststart

checkinstall --pkgname=qt-faststart --pkgversion="$(date +%Y%m%d%H%M)-git"
--backup=no --deldoc=yes --fstrans=no --default install -Dm755 tools/qt-faststart

/usr/local/bin/qt-faststart
Step 11: - Create mysql DB for OM

Now we need to install MYSQL, issue this command (In this case username and password are openmeetings : ompassword)

`apt-get install mysql-server -y`

Enter the password as before “ompassword” and choose ok.
Now let’s create the needed DB’s for OM 2.x, issue the following commands:

`mysql -u root -p`

Enter password “ompassword”

Now issue these: (Assuming username openmeetings and password = password)

```
CREATE DATABASE openmeetings DEFAULT CHARACTER SET 'utf8';
GRANT ALL PRIVILEGES ON openmeetings.* TO 'openmeetings'@'localhost'
IDENTIFIED BY 'password' WITH GRANT OPTION;
quit
```

Successful DB creation shown above.
Step 7: Install JOD Converter

Let’s go back to our temporary working area

cd /usr/adm

Download, extract JOD by issuing these commands: (We will move the JOD location after the installation of OM 2.x)

wget http://jodconverter.googlecode.com/files/jodconverter-core-3.0-beta-4-dist.zip
unzip jodconverter-core-3.0-beta-4-dist.zip

Step 8: Install ANT 1.8.4 for compiling latest OM 2.x

Let’s go back to our temporary working area

cd /usr/adm

Download, extract ANT by issuing these commands:

wget http://mirror.catn.com/pub/apache/ant/binaries/apache-ant-1.8.4-bin.tar.gz
tar -zxvf apache-ant-1.8.4-bin.tar.gz

Once that has completed you can test it by issuing the following commands:

cd /usr/adm/apache-ant-1.8.4/bin
./ant -version

This should output the following:

Apache Ant(TM) version 1.8.4 compiled on May 22 2012
Step 9: Download and compile latest OM 2.1

Again back to our working area:

cd /usr/adm

Then check out the latest source code using the following:

svn checkout https://svn.apache.org/repos/asf/openmeetings/trunk/singlewebapp/

Once that has completed we can then build the source by issuing the following:

cd /usr/adm/singlewebapp
/usr/adm/apache-ant-1.8.4/bin/ant clean.all
/usr/adm/apache-ant-1.8.4/bin/ant -Ddb=mysql

This will take a little while depending on your system, once it has finished you should be left the following message:

BUILD SUCCESSFUL

Step 9a: Install pre-built OM 2.x (Alternative to Step 9)

Download the latest build from the following links:

2.0

https://builds.apache.org/view/M-R/view/OpenMeetings/job/OpenMeetings%202.0/lastSuccessfulBuild/artifact/2.0/dist/

Or

2.1

https://builds.apache.org/job/openmeetings/lastSuccessfulBuild/artifact/singlewebapp/dist/

The file will be something like the following “apache-openmeetings-incubating-2.xxxxx.tar.gz: (Where xxx is the date and build version)

We can do this using wget, so first we need to go back to our build area like so:

cd /usr/adm
mkdir -p singlewebapp/dist/red5
cd singlewebapp/dist/red5

Then grab the file and extract it:

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tar -zxvf apache-openmeetings-incubating-2.xxxxx.tar.gz

Now download the mysql connector from here:

http://www.mysql.com/downloads/connector/j/

cd /usr/adm/singlewebapp/dist/red5/webapps/openmeetings/WEB-INF/lib


unzip mysql-connector-java-5.1.20.zip

cd mysql-connector-java-5.1.20

mv mysql-connector-java-5.1.20-bin.jar
/usr/adm/singlewebapp/dist/red5/webapps/openmeetings/WEB-INF/lib

Step 10: Install compiled Pre-Built OM 2.x

Now we need to move the compiled source into the correct location, in this system we are using
/usr/lib/red5, so issue the following commands to move the root folder over:

cd /usr/adm/singlewebapp/dist
mv red5 /usr/lib/

Let’s move the JOD into place now


And set some permissions and ownerships

chown -R nobody /usr/lib/red5
chmod +x /usr/lib/red5/red5.sh
chmod +x /usr/lib/red5/red5-debug.sh

Set the start-up script for OM 2.x by issuing the following:

vi /etc/init.d/red5
and adding the following:

```sh
#!/bin/sh
### BEGIN INIT INFO
# Provides: red5
# Required-Start: $remote_fs $syslog
# Required-Stop:  $remote_fs $syslog
# Default-Start: 2 3 4 5
# Default-Stop:  0 1 6
# Short-Description: Starts red5 server for Openmeetings.
### END INIT INFO
# description: Red5 flash streaming server for OpenMeetings
# processname: red5
# Created By: Sohail Riaz (sohaileo@gmail.com)
# Modified by Alvaro Bustos
PROG=red5
RED5_HOME=/usr/lib/red5
DAEMON=$RED5_HOME/$PROG.sh
PIDFILE=/var/run/$PROG.pid
[ -r /etc/sysconfig/red5 ] && . /etc/sysconfig/red5
RETV AL=0

case "$1" in
  start)
    cd $RED5_HOME
    start-stop-daemon --start -c nobody --pidfile $PIDFILE \
    --chdir $RED5_HOME --background --make-pidfile \
    --exec $DAEMON >/dev/null 2>/dev/null &
     RETVAL=$?
    if [ $RETV AL -eq 0 ]; then
       echo $! > $PIDFILE
    fi
    echo
  ;;
  stop)
    start-stop-daemon --stop --quiet --pidfile $PIDFILE \
    --name java
    rm -f $PIDFILE
    echo
    [ $RETV AL -eq 0 ] && rm -f /var/lock/subsys/$PROG
  ;;
  restart|force-reload)
    $0 stop
    $0 start
  ;;
  status)
    # Debian and Ubuntu 10 status check
    ps aux | grep -f $PIDFILE >/dev/null 2>/dev/null && RETVAL=0 || RETVAL=3
    # Ubuntu 12 status check using improved "start-stop-daemon" status query
    # (use the above command, or comment out above command and uncomment the two below commands.
    # start-stop-daemon --status --pidfile $PIDFILE
    # RETVAL=$?
    [ $RETV AL -eq 0 ] && echo "$PROG is running"
    [ $RETV AL -eq 1 ] && echo "$PROG is not running and the pid file exists"
    [ $RETV AL -eq 3 ] && echo "$PROG is not running"
    [ $RETV AL -eq 4 ] && echo "$PROG - unable to determine status"
  ;;
  checkports)
    netstat -anp | grep soffice
    netstat -anp | grep java
  ;;
  *)
    echo "$"Usage: $0 {start|stop|restart|force-reload|status|checkports}"
    RETVAL=1
esac
exit $RETV AL
```
Save the file and then set the permissions like below:

```bash
chmod +x /etc/init.d/red5
update-rc.d red5 defaults
```

Now we need to move the persistence files so we can connect to mysql, so issue the following:

Make backup copy

```bash
```

Rename mysql template to persistence.xml

```bash
```

Edit the persistence file and add out mysql details, in this case we used "openmeetings" and "password" – so issue the following:

```bash
vi /usr/lib/red5/webapps/openmeetings/WEB-INF/classes/META-INF/persistence.xml
```

Then change the following

```xml
  , Username=openmeetings
  , Password=password"/>
```

At this stage we are ready to start up OM 2.x for the first time.

```bash
/etc/init.d/red5 start
```

Now open the browser and go to the following link. **N.B remember to change the IP address to your OM2.x server, the one below 10.17.23.11 is just for this example.**

```url
http://10.17.23.11:5080/openmeetings/install
```
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If all went well you should now see this page:

Choose the “Continue with STEP 1” link
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The only section we need to fill out at this stage is the following:

Username: omadmin
Userpass: ompassword
Email: something@something.com
TimeZone: United Kingdom
Domain Name: somedomain

Now click on INSTALL at the bottom of the page, this will then create all the needed tables etc.. - it can take a little while but be patient.

Once that has completed you can now enter the application by clicking on the “Enter the Application” link

You should see the following logon screen:

Enter these details to sign in.

Username: omadmin
Userpass: ompassword
Step 11: Add relevant paths to the configuration

Once logged in go to **Administration > Configuration**

You will see on the left hand pane a list of keys and values, the ones we are interested in are:

- **SWFTools Path**: `/usr/local/bin/`
- **ImageMagick Path**: `/usr/bin/`
- **FFMPEG Path**: `/usr/local/bin`
- **SoX Path**: `/usr/bin/`
- **JOD Path**: `/usr/lib/red5/webapps/openmeetings/jodconverter-core-3.0-beta-4/lib`

Click on the left hand pane option and then enter the value as above, click on the save button to apply the changes; once you have done each key you should see the following:
JOD will find open office in this case so we do not need to set the path.
Step 12: Securing OpenMeetings using encryption (Optional)

12.1 - Generating CSR:

We can do this in a few ways, the first way I will show here is simply by generating a CSR and inserting these into OpenMeetings.

Create a new keystore and key, use the same password for both: (Taken from OM Website http://incubator.apache.org/openmeetings/RTMPSAndHTTPS.html)

```
keytool -keysize 2048 -genkey -alias red5 -keyalg RSA -keystore red5/conf/keystore
Enter keystore password:
Re-enter new password:
What is your first and last name?
[Unknown]: <your hostname, e.g demo.openmeetings.de>
What is the name of your organizational unit?
[Unknown]: Dev
What is the name of your organization?
[Unknown]: OpenMeetings
What is the name of your City or Locality?
[Unknown]: Henderson
What is the name of your State or Province?
[Unknown]: Nevada
What is the two-letter country code for this unit?
[Unknown]: US
Is CN=demo.openmeetings.de, OU=Dev, O=OpenMeetings, L=Henderson, ST=Nevada, C=US correct?
[no]: yes
Enter key password for <red5>

Generate a CSR:

```
keytool -certreq -keyalg RSA -alias red5 -file red5.csr -keystore red5/conf/keystore
```

Submit CSR to your CA of choice and receive a signed certificate
Import your chosen CA's root certificate into the keystore (may need to download it from their site - make sure to get the root CA and not the intermediate one)

```
keytool -import -alias root -keystore red5/conf/keystore -trustcacerts -file root.crt
```

(note: you may receive a warning that the certificate already exists in the system wide keystore - import anyway)

Import the intermediate certificate(s) you normally receive with the certificate:

```
keytool -import -alias intermed -keystore red5/conf/keystore -trustcacerts -file intermediate.crt
```

Import the certificate you received:

```
keytool -import -alias red5 -keystore red5/conf/keystore -trustcacerts -file demo.openmeetings.de.crt
```
12.2 – Using Existing certs such as wild card certificates instead of generating a new CSR.

First let’s go back to our work area:

```
cd /usr/adm/
mkdir certs
cd certs/
```

Using WinSCP or equivalent copy your wild card key and cert files: yourdomain.key.pem and yourdomain.cert.pem - (These should be in PEM format)

Now issue the following to convert the files to DER format:

```
openssl pkcs8 -topk8 -nocrypt -in apache.key.pem -inform PEM -out key.der -outform DER
openssl x509 -in apache.cert.pem -inform PEM -out cert.der -outform DER
```

Now we need a couple of files to help us import the DER files into the keystore, so issue the following:

```
wget http://www.agentbob.info/agentbob/80/version/default/part/AttachmentData/data/ImportKey.java
wget http://www.agentbob.info/agentbob/81/version/default/part/AttachmentData/data/ImportKey.class
```

Then use these commands to import:

```
java ImportKey key.der cert.der
```

Finally move the keystore to the correct location:

```
mv /root/keystore.ImportKey /usr/lib/red5/conf/keystore
```

N.B = Alias:importkey  Password:importkey (When using the java import key files, you can change the password afterwards)
Now that we have either a new Cert of the wild card cert inside our Keystore we need to make some changes to OM 2.x to use these certificates and thus encrypt communications using HTTPS and RTMPS.

To use RTMPS do the following:
First make some changes to the red5-core.xml file by issuing the following:

```
cd /usr/lib/red5/conf
vi red5-core.xml
```

now uncomment <!-- RTMPS --> section by removing the <!-- and the --> leaving this:

```xml
<bean id="rtmpsMinaIoHandler" class="org.red5.server.net.rtmps.RTMPSMinaIoHandler">
  <property name="handler" ref="rtmpHandler" />
  <property name="codecFactory" ref="rtmpCodecFactory" />
  <property name="rtmpConnManager" ref="rtmpMinaConnManager" />
  <property name="keyStorePassword" value="${rtmps.keystorepass}" />
  <property name="keystoreFile" value="conf/keystore" />
</bean>
```

Save this file and then do the following:

```
cd /usr/lib/red5/conf
vi red5.properties
```

set rtmps.port=5443
rtmps.keystorepass=password (password = password you set on your new keystore)

Now edit config.xml by doing the following:

```
cd /usr/lib/red5/webapps/openmeetings/
vi config.xml
```
Set these following values:

```xml
<rtmpsslport>5443</rtmpsslport>
<useSSL>yes</useSSL>
<proxyType>best</proxyType>
```

**To use HTTPS do the following:**

First make a backup of the original jee-container file by doing the following:

```
cd /usr/lib/red5/conf
mv jee-container.xml jee-container.xml.orig
```

Then rename the SSL jee template

```
mv jee-container-ssl.xml jee-container.xml
```

Now edit the config.xml

```
cd /usr/lib/red5/webapps/openmeetings/
vi config.xml
```

set

```xml
<protocol>https</protocol>
<red5httpport>443</red5httpport>
```

Lastly edit red5.properties by doing the following:

```
cd /usr/lib/red5/conf
vi red5.properties
```

set

```
https.port=443
http.port=443
```

Now restart OM using the following:

```
/etc/init.d/red5 restart
```

We can now connect using the following link:

https://yourdomain/openmeetings
Step 13: Installing Reverse Proxy using Apache Web Server (Optional)

Another way to secure the OpenMeetings service is to use Apache as a reverse proxy, to do this we need to do the following:

First install Apache2 and enabling relevant modules by running the following commands:

```
apt-get install apache2
a2enmod proxy
a2enmod proxy_http
a2enmod ssl
a2enmod headers
a2enmod rewrite
a2enmod cache
/etc/init.d/apache2 restart
```

We can now redirect port 80 (less secure) or port 443 (secure) to port 5080, to do this we need to create a virtual host, to do this do the following:

```
vi om.yourdomain.com-ssl
```

and add the following:

```
<IfModule mod_ssl.c>
  #NameVirtualHost *:443
  ProxyRequests Off
  <VirtualHost *:80>
    ServerAdmin hostmaster@domain.com
    ServerName om.yourdomain.com
    ProxyPreserveHost On
    RewriteEngine on
  </VirtualHost>
</IfModule>
```

Now for SSL redirect *(using a Cert on Apache instead of keystore)* do the following

```
vi om.yourdomain.com-ssl
```

and add the following:

```
<IfModule mod_ssl.c>
  #NameVirtualHost *:443
  ProxyRequests Off
  <VirtualHost *:80>
    ServerAdmin hostmaster@domain.com
    ServerName om.yourdomain.com
    ProxyPreserveHost On
    RewriteEngine on
  </VirtualHost>
</IfModule>
```