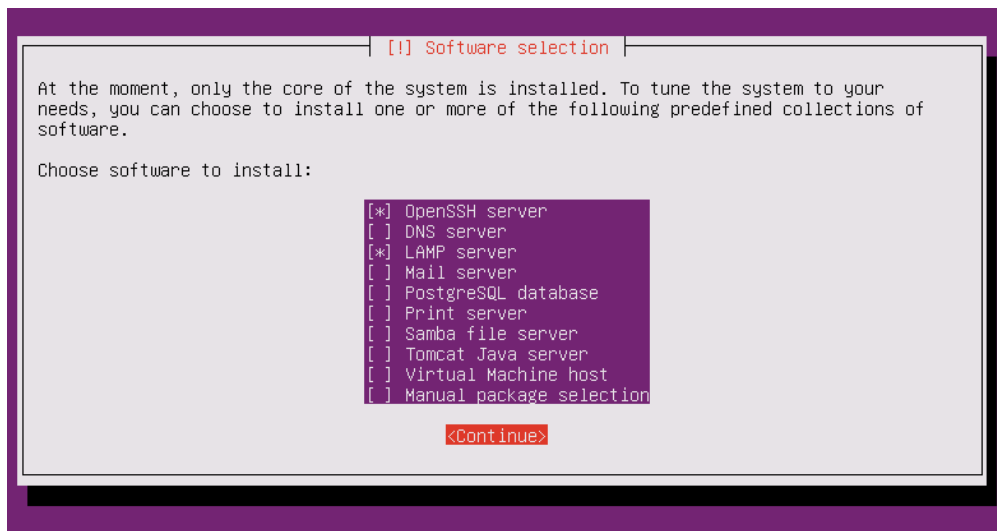


# Installing FreePBX 12 on Ubuntu Server 14.04 LTS

- Initial System Setup
  - Configure your root password.
  - Switch to the Root User
  - Update Your System
  - Install Required Dependencies
  - Reboot server
  - Install Dependencies for Google Voice (if required)
  - Install iksemel
- Install and Configure Asterisk
  - Download Asterisk source files.
  - Compile and install DAHDI.
  - Compile and install LIBPRI.
  - Compile and install pjproject
  - Compile and Install jansson
  - Compile and install Asterisk
  - Install Asterisk-Extra-Sounds
- Install and Configure FreePBX
  - Download and extract FreePBX.
  - Now create the Asterisk user and set ownership permissions.
  - A few small modifications to Apache.
  - Configure ODBC
  - Prepare MySQL
  - Configure Asterisk database in MYSQL.
  - Set permissions on MYSQL database.
  - Restart Asterisk and install FreePBX.
  - Finally, one last mod and start FreePBX.
- Start FreePBX
  - Navigate:

## Initial System Setup

When installing the machine, at package selection make sure you pick - at least - OpenSSH Server, and 'LAMP Packages'. This installs the base packages required.



## Configure your root password.

```
sudo passwd root
```

## Switch to the Root User

Please note: THIS IS IMPORTANT! You must run the **entire** process as root. Attempting to use 'sudo' later on **will not work**. Please don't ignore this. You must run this command to switch to an interactive root shell.

```
sudo -i
```

## Update Your System

```
apt-get update && apt-get upgrade -y
```

## Install Required Dependencies

```
apt-get install -y build-essential linux-headers-`uname -r` openssh-server  
apache2 mysql-server\  
mysql-client bison flex php5 php5-curl php5-cli php5-mysql php-pear php-  
db php5-gd curl sox\  
libncurses5-dev libssl-dev libmysqlclient-dev mpg123 libxml2-dev libnewt-  
dev sqlite3\  
libsqlite3-dev pkg-config automake libtool autoconf git subversion  
unixodbc-dev uuid uuid-dev\  
libasound2-dev libogg-dev libvorbis-dev libcurl4-openssl-dev libical-dev  
libneon27-dev libsrtp0-dev\  
libspandsp-dev libmyodbc
```

## Reboot server

```
reboot
```

## Install Dependencies for Google Voice (if required)

You may skip this section if you do not require Google Voice support.

## Install iksemel

```
cd /usr/src  
wget https://iksemel.googlecode.com/files/iksemel-1.4.tar.gz  
tar xf iksemel-1.4.tar.gz  
cd iksemel-\  
./configure  
make  
make install
```

## Install and Configure Asterisk

Download Asterisk source files.

```
cd /usr/src
wget http://downloads.asterisk.org/pub/telephony/dahdi-linux-complete
/dahdi-linux-complete-current.tar.gz
wget http://downloads.asterisk.org/pub/telephony/libpri/libpri-current.tar.
gz
wget http://downloads.asterisk.org/pub/telephony/asterisk/asterisk-12-
current.tar.gz
git clone https://github.com/akheron/jansson.git
git clone https://github.com/asterisk/pjproject.git
```

## Compile and install DAHDI.

If you don't have any physical hardware you don't need to run these commands

```
cd /usr/src
tar xvfz dahdi-linux-complete-current.tar.gz
cd dahdi-linux-complete-*
make all
make install
make config
```

## Compile and install LIBPRI.

If you don't have any physical hardware you don't need to run these commands

```
cd /usr/src
tar xvfz libpri-current.tar.gz
cd libpri-*
make
make install
```

## Compile and install pjproject

```
cd /usr/src/pjproject
./configure --enable-shared --disable-sound --disable-resample --disable-
video --disable-opencore-amr
make dep
make
make install
```

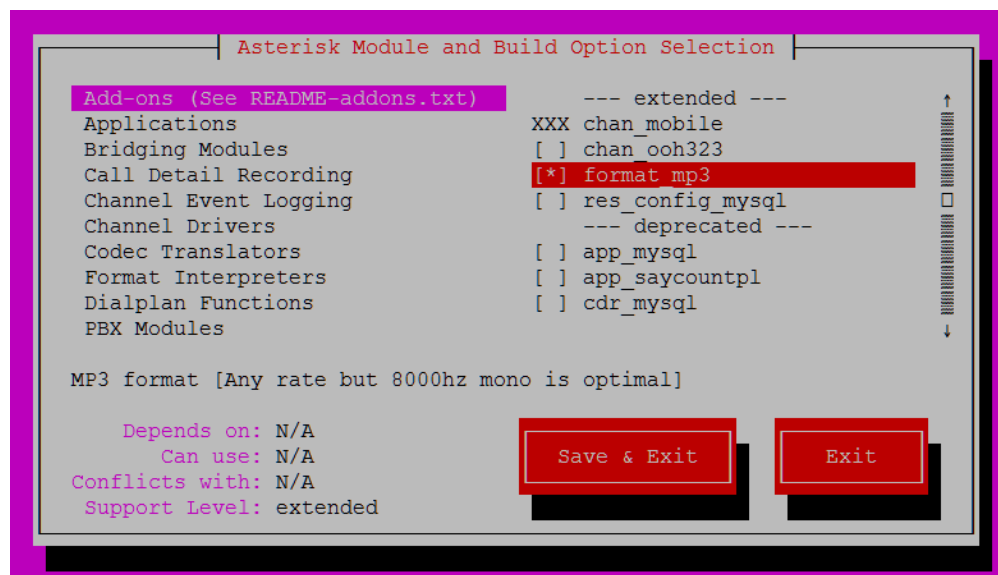
## Compile and Install jansson

```
cd /usr/src/jansson
autoreconf -i
./configure
make
make install
```

## Compile and install Asterisk

```
cd /usr/src
tar xvfz asterisk-12-current.tar.gz
cd asterisk-*
./configure
contrib/scripts/get_mp3_source.sh
make menuselect
```

You will be prompted at the point to pick which modules to build. Most of them will be enabled, but if you want to have MP3 support, you need to manually turn on 'format\_mp3' on the first page.



After selecting 'Save & Exit' you can then continue

```
make
make install
make config
ldconfig
```

## Install Asterisk-Extra-Sounds

Note that this installs the (8khz) 'wav' soundfiles. If you're planning on running G722 (High Definition 'Wideband') audio, you **also** want to download the 722 codec pack, which is the second part. If you're not planning on using Wideband, you can skip that part.

```
cd /var/lib/asterisk/sounds
wget http://downloads.asterisk.org/pub/telephony/sounds/asterisk-extra-sounds-en-wav-current.tar.gz
tar xfz asterisk-extra-sounds-en-wav-current.tar.gz
rm -f asterisk-extra-sounds-en-wav-current.tar.gz
# Wideband Audio download
wget http://downloads.asterisk.org/pub/telephony/sounds/asterisk-extra-sounds-en-g722-current.tar.gz
tar xfz asterisk-extra-sounds-en-g722-current.tar.gz
rm -f asterisk-extra-sounds-en-g722-current.tar.gz
```

## Install and Configure FreePBX

### Download and extract FreePBX.

```
wget http://mirror.freepbx.org/modules/packages/freepbx/freepbx-12.0-latest.tgz
tar vxzf freepbx-12-latest.tgz
cd freepbx
```

### Now create the Asterisk user and set ownership permissions.

```
useradd -m asterisk
chown asterisk. /var/run/asterisk
chown -R asterisk. /etc/asterisk
chown -R asterisk. /var/{lib,log,spool}/asterisk
chown -R asterisk. /usr/lib/asterisk
rm -rf /var/www/html
```

### A few small modifications to Apache.

```
sed -i 's/(\^upload_max_filesize = \).*\/120M/' /etc/php5/apache2/php.ini
cp /etc/apache2/apache2.conf /etc/apache2/apache2.conf_orig
sed -i 's/^\(User\|Group\).*\/1 asterisk/' /etc/apache2/apache2.conf
service apache2 restart
```

## Configure ODBC

Edit /etc/odbcinst.ini and add the following. Note that this command assumes you are installing to a new machine, and that the file is empty. If this is not a freshly installed machine, please manually verify the contents of the file, rather than just copying and pasting the lines below. The 'EOF' does no go in the file, it simply signals to the 'cat' command that you have finished pasting.

```
cat >> /etc/odbcinst.ini << EOF
[MySQL]
Description = ODBC for MySQL
Driver = /usr/lib/x86_64-linux-gnu/odbc/libmyodbc.so
Setup = /usr/lib/x86_64-linux-gnu/odbc/libodbcmyS.so
```

```
FileUsage = 1

EOF
```

You may need to verify these paths, if you're not on a x86\_64 machine. You can use the command `find / -name libmyodbc.so` to verify the location

Edit or create `/etc/odbc.ini` and add the following section. Note that, again, this command assumes you are installing to a new machine, and the file is empty. Please manually verify the contents of the files if this is not the case.

```
cat >> /etc/odbc.ini << EOF
[MySQL-asteriskcdrdb]
Description=MySQL connection to 'asteriskcdrdb' database
driver=MySQL
server=localhost
database=asteriskcdrdb
Port=3306
Socket=/var/run/mysqld/mysqld.sock
option=3

EOF
```

## Prepare MySQL

You now need to generate a secure password for FreePBX to use to talk to MySQL.

```
export ASTERISK_DB_PW=`dd if=/dev/urandom bs=1 count=32 2>/dev/null |
base64 - | cut -c2-18`
```

That will generate a quasi-random 16 character long password, which should be secure enough for most things. If you had set the MySQL 'root' password to be something when you were installing the machine, you will need to add a `-p $yourpassword$`  flag to the following lines

## Configure Asterisk database in MYSQL.

```
mysqladmin -u root create asterisk
mysqladmin -u root create asteriskcdrdb
```

## Set permissions on MYSQL database.

```
mysql -u root -e "GRANT ALL PRIVILEGES ON asterisk.* TO
asteriskuser@localhost IDENTIFIED BY '${ASTERISK_DB_PW}';"
mysql -u root -e "GRANT ALL PRIVILEGES ON asteriskcdrdb.* TO
asteriskuser@localhost IDENTIFIED BY '${ASTERISK_DB_PW}';"
mysql -u root -e "flush privileges;"
```

## Restart Asterisk and install FreePBX.

```
./start_asterisk start
./install_amp --installdb --username=asteriskuser --
password=${ASTERISK_DB_PW}
amportal chown
amportal a ma installall
amportal a reload
amportal a ma refreshsignatures
amportal chown
```

### Finally, one last mod and start FreePBX.

```
ln -s /var/lib/asterisk/moh /var/lib/asterisk/mohmp3
amportal restart
```

### Start FreePBX

#### Navigate:

Now FreePBX is installed, it will be available via Apache. Open up your web browser and visit:

<http://Address.Of.FreePBX.Server/admin>