

# Installing FreePBX 15 on Debian 9.6

## READ FIRST

Manual installations of FreePBX is considered an EXPERTS ONLY exercise. This method of installation is enough to get CORE functionality of FreePBX. Non-commercial modules may not function as expected or detailed in the Wiki's. Certain modules and features may require additional software to be installed and configured on the server.

**\*\*\*\* COMMERCIAL MODULES CANNOT BE INSTALLED ON THIS OS \*\*\*\***

For Asterisk 16 you must enable app\_macro in make menuselect

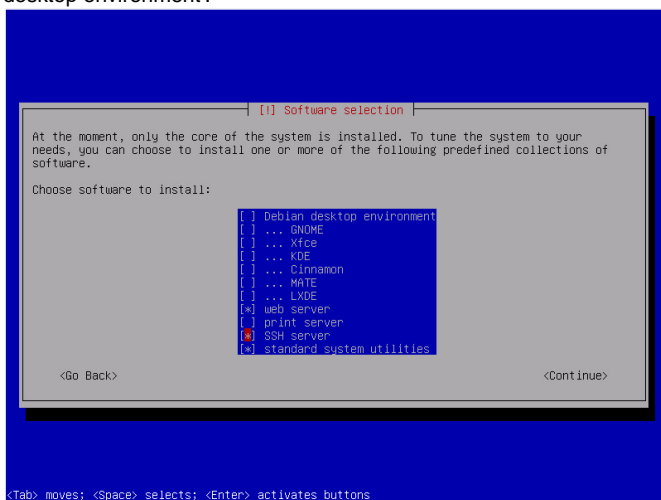
- Initial System Setup
  - Log in as, or switch to, the Root User
  - Update Your System
  - Install Required Dependencies
  - Install nodejs
  - Reboot server
- Install Prerequisites
  - Install MariaDB ODBC
  - Install Legacy pear requirements
  - MariaDB Warning!
- Install and Configure Asterisk
  - Download Asterisk source files.
  - Compile and install DAHDI.
  - Compile and install Asterisk
  - After selecting 'Save & Exit' you can then continue
- Install and Configure FreePBX
  - Create the Asterisk user and set base file permissions.
  - A few small modifications to Apache.
  - Configure ODBC
  - Download and install FreePBX.
  - Install all Freepbx modules
  - That's it!

Automatic Startup

## Initial System Setup

Debian 9.6 iso.

When installing the machine, at package selection make sure you pick - at least - 'web server' and 'SSH server'. You can also turn off 'Debian desktop environment'.



## Log in as, or 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 entire installer as the root user. It will be helpful to enable ssh logins as root. To do so, you need to change the line 'PermitRootLogin without-password' to 'PermitRootLogin yes' in /etc/ssh/sshd\_config. You can do this with the following commands.

```
sed -i 's/#PermitRootLogin prohibit-password/PermitRootLogin yes/' /etc/ssh
/sshd_config
service sshd restart
```

## 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 mariadb-server\
  mariadb-client bison flex php php-curl php-cli php-pdo php-mysql php-
pear php-gd php-mbstring php-intl\
  curl sox libncurses5-dev libssl-dev mpg123 libxml2-dev libnewt-dev
sqlite3\
  libsqlite3-dev pkg-config automake libtool autoconf git unixodbc-dev
uuid uuid-dev\
  libasound2-dev libogg-dev libvorbis-dev libicu-dev libcurl4-openssl-dev
libical-dev libneon27-dev libsrtmp0-dev\
  libspandsp-dev sudo subversion libtool-bin python-dev unixodbc dirmngr
sendmail-bin sendmail\
```

## Install nodejs

```
curl -sL https://deb.nodesource.com/setup_11.x | sudo -E bash -
sudo apt-get install -y nodejs
```

## Reboot server

```
reboot
```

## Install Prerequisites

After your machine has rebooted, you are now sure you're running the latest Linux kernel. (At the time of writing this document, the Kernel supplied was 3.16.)

## Install MariaDB ODBC

mariadb-connector-odbc\_3.0.7-1\_amd64.deb

mariadb-connector-client-library\_3.0.8-1\_amd64.deb

```
cd /usr/src/  
wget https://wiki.freepbx.org/download/attachments/122487323/mariadb-  
connector-client-library_3.0.8-1_amd64.deb  
# wget https://wiki.freepbx.org/download/attachments/122487323/mariadb-  
connector-odbc_3.0.7-1_amd64.deb  
dpkg -i mariadb-connector-client-library_3.0.8-1_amd64.deb  
# dpkg -i mariadb-connector-odbc_3.0.7-1_amd64.deb
```

*ODBC connector seems to be already present in mariadb-connector-client-library\_3.0.8-1\_amd64.deb*

## Install Legacy pear requirements

```
pear install Console_Getopt
```

## MariaDB Warning!

If the MariaDB server works in 'STRICT\_TRANS\_TABLES' mode you need to change mode in **my.conf**

```
[mysqld]  
sql_mode=NO_ENGINE_SUBSTITUTION, STRICT_TRANS_TABLES
```

to

```
[mysqld]  
sql_mode=NO_ENGINE_SUBSTITUTION
```

or

```
[mysqld]  
sql_mode= ''
```

Let's check mode login in mysql -u freepbxuser -p(the\_password) :

```
MariaDB [(none)]> SELECT @@SQL_MODE, @@GLOBAL.SQL_MODE;
```

Thanks [Astashov\\_Alexey](#)

## Install and Configure Asterisk

### Download Asterisk source files.

```
cd /usr/src
wget http://downloads.asterisk.org/pub/telephony/asterisk/asterisk-16-
current.tar.gz
```

## Compile and install DAHDI.

If you don't have any physical PSTN hardware attached to this machine, you don't need to install DAHDI. (For example, a T1 or E1 card, or a USB device). Most smaller setups will not have DAHDI hardware, and this step can be safely skipped.

```
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
```

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

## Compile and install Asterisk

Some scripts will have you enable CORE-SOUNDS and EXTRA-SOUNDS but this is unnecessary on FreePBX as the Sound Languages module will do this for you

```
cd /usr/src
tar xvfz asterisk-16-current.tar.gz
rm -f asterisk-16-current.tar.gz
cd asterisk-*
contrib/scripts/get_mp3_source.sh
contrib/scripts/install_prereq install
./configure --with-pjproject-bundled --with-jansson-bundled
make menuselect.makeopts
menuselect/menuselect --enable app_macro --enable format_mp3 menuselect.
makeopts
```

**After selecting 'Save & Exit' you can then continue**

```
make
make install
make config
ldconfig
update-rc.d -f asterisk remove
```

## Install and Configure FreePBX

**Create the Asterisk user and set base file 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/php/7.0/apache2/php.ini
cp /etc/apache2/apache2.conf /etc/apache2/apache2.conf_orig
sed -i 's/^(User|Group)\).*\/\1 asterisk/' /etc/apache2/apache2.conf
sed -i 's/AllowOverride None/AllowOverride All/' /etc/apache2/apache2.conf
a2enmod rewrite
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 not go in the file, it simply signals to the 'cat' command that you have finished pasting.

```
cat <<EOF > /etc/odbcinst.ini
[MySQL]
Description = ODBC for MySQL (MariaDB)
Driver = /usr/local/lib/libmaodbc.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 <<EOF > /etc/odbc.ini
[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
```

## Download and install FreePBX.

```
cd /usr/src
wget http://mirror.freepbx.org/modules/packages/freepbx/freepbx-15.0-
latest.tgz
tar vxzf freepbx-15.0-latest.tgz
rm -f freepbx-15.0-latest.tgz
touch /etc/asterisk/{modules,cdr}.conf
cd freepbx
./start_asterisk start
./install -n
```

If you want to install Freepbx in another web root (e.g: *under /var/www/myroot*), modify some Apache settings and restart it.

```
cd /usr/src
wget http://mirror.freepbx.org/modules/packages/freepbx/freepbx-15.0-
latest.tgz
tar vxzf freepbx-15.0-latest.tgz
rm -f freepbx-15.0-latest.tgz
touch /etc/asterisk/{modules,cdr}.conf
cd freepbx
./start_asterisk start
./install --webroot=/var/www/myroot -n
sed -i 's/\var/www/html/\var/www/myroot/g' /etc/apache2/sites-
available/000-default.conf
sed -i 's/\var/www/html/\var/www/myroot/g' /etc/apache2/sites-
available/default-ssl.conf
service apache2 restart
```

## Install all Freepbx modules

```
fwconsole ma disablerepo commercial
fwconsole ma installall
fwconsole ma delete firewall
fwconsole r
```

## **That's it!**

You can now start using FreePBX. Open up your web browser and connect to the IP address or hostname of your new FreePBX server. You will see the Admin setup page, which is where you set your 'admin' account password, and configure an email address to receive update notifications.

There are (at the time of writing) approximately 50 additional modules that can be installed to enhance the usability of your FreePBX machine - you can install these via Module Admin.

We hope you enjoy using FreePBX 15!

## **Automatic Startup**

Please note you need to set up FreePBX to start asterisk (and it's associated services) on bootup. [You can view an example systemd startup script here.](#)