

????

- Debian, Ubuntu, CentOS 5.x
- Asterisk 1.6.2.14 (??? 1.4.x, 1.8.x)
- dahdi-linux-2.4.0
- FreePBX 2.8 (??? 2.9)

????

??????????

```
cd /etc/apt
cp -a sources.list sources.list.orig
vi sources.list
```

```
? archive.ubuntu.com ?? tw.archive.ubuntu.com
```

```
deb http://tw.archive.ubuntu.com/ubuntu natty main restricted universe
deb http://tw.archive.ubuntu.com/ubuntu natty-updates main restricted universe
deb http://tw.archive.ubuntu.com/ubuntu natty-security main restricted universe
deb http://archive.canonical.com/ubuntu natty partner
```

????????

```
apt-get update
```

????????

```
For Ubuntu/Debian)
??: Ubuntu 10/11/12, Debian Lenny
```

```
apt-get install build-essential linux-headers-`uname -r` ncurses-dev
apt-get install bison festival festival-dev libssl-dev zlib1g-dev libnewt-dev
apt-get install libvorbis-dev automake mysql-server mysql-client mysql-admin libmysqlclient15-dev
apt-get install php5 php5-cli php5-common php5-dev php5-mysql
apt-get install curl libgnutls26 libgnutls-dev libtiff4-dev libtiff-tools
apt-get install libasound2-dev portaudio19-dev libportaudio2 jackd
apt-get install unixodbc unixodbc-bin unixodbc-dev
apt-get install libbluetooth-dev libxml2-dev
apt-get install sox subversion
```

```
For CentOS/RedHat)
```

```
??: CentOS 5.X
```

```
yum install gcc-c++ make libxml2-devel zlib-devel openssl-devel ncurses-devel gtk2-devel libogg-devel
libvorbis-devel curl-devel unixODBC-devel libtool-ltdl-devel net-snmp-devel bzip2-devel newt-devel
lm_sensors-devel openldap-devel postgresql-devel gtk+-devel mysql-server mysql-devel subversion
```

????? Dahdi ????????? kernel source

yum install kernel-devel

NOTE:

* ????????????? MySQL ? root ???

* **Ubuntu 11)**

?? libmysqlclient15-dev ?? libmysqlclient-dev?

* **Ubuntu 12/14)**

?? libmysqlclient15-dev ?? libmysqlclient-dev
mysql-admin ??

* **Ubuntu 14)**

? libtiff4-dev ??? libtiff5-dev

* ??? **func_curl** ???????

libcurl4-gnutls-dev (for Ubuntu 11)

* ?? kernel source ?????? kernel ????????????? yum ?????????????? kernel-devel????? CentOS-Base.repo?? updates ??? enabled=0

* ??? **res_http_post** ???????

gmime-devel (for CentOS)

* **Asterisk 12)**

??? JSON ???

apt-get install libjansson-dev

?? Apache & MySQL ????

????? apache2, mysql

> ls /etc/rc3.d

?????

update-rc.d mysql defaults

?? **Speex codec(optional)**

cd /usr/src

wget http://downloads.xiph.org/releases/speex/speex-1.2rc1.tar.gz

tar xzf speex-1.2rc1.tar.gz

cd speex-1.2rc1

./configure --prefix=/usr

make

make install

```
ldconfig -v
```

```
?? SpanDSP module ????(optional)
```

```
????????? libspandsp-dev ??
```

```
cd /usr/src
```

```
wget http://www.soft-switch.org/downloads/spandsp/spandsp-0.0.6pre17.tgz
```

```
tar xzf spandsp-0.0.6pre17.tgz
```

```
cd spandsp-0.0.6
```

```
./configure --prefix=/usr
```

```
make
```

```
make install
```

```
ldconfig -v
```

Tips:

```
???? IAXmodem ????????????
```

```
?Asterisk 1.8 ???
```

```
- ??? res_fax, res_fax_spandsp ??????????? libspandsp-dev, libspandsp# (# ??1,2,etc..)?
```

```
- ????? res_fax, res_fax_spandsp??? app_fax ??????????????Asterisk ??????????????????????
```

```
?? googletalk module(optional)
```

```
???? Asterisk 1.8 ?
```

```
?????????
```

- Channel Drivers > chan_gtalk
- Resource Modules > res_jabber

```
?????
```

- libiksemel-dev
- Open SSL ????

```
?? dahdi ????(??? MeetMe ??????????)
```

```
cd /usr/src
```

```
wget http://downloads.asterisk.org/pub/telephony/dahdi-linux/dahdi-linux-current.tar.gz
```

```
tar xzf dahdi-linux-current.tar.gz
```

```
cd dahdi-linux-*
```

```
make
```

```
make install
```

```
cd /usr/src
```

```
wget http://downloads.asterisk.org/pub/telephony/dahdi-tools/dahdi-tools-current.tar.gz
tar xzf dahdi-tools-current.tar.gz
cd dahdi-tools-*
./configure
make
make install
make config
```

????? dahdi-linux-complete-current ????????

```
cd /usr/src
wget http://downloads.asterisk.org/pub/telephony/dahdi-linux-complete/
dahdi-linux-complete-current.tar.gz
tar xzf dahdi-linux-complete-current.tar.gz
cd dahdi-linux-complete-*
make all
make install
make config
```

?? dahdi ????

/etc/init.d/dahdi start

Loading DAHDI hardware modules:

```
wct4xxp: done wcte12xp: done wct1xxp: done wcte11xp: done wctdm24xxp: done wcfxo: done
wctdm: done wcb4xxp: done wctc4xxp: done xpp_usb: done
No hardware timing source found in /proc/dahdi, loading dahdi_dummy
Running dahdi_cfg: done.
```

????????????????????

TIPS?

???? dahdi ??? Meetme ????????????????????????????????? /etc/dahdi/modules??????????

???: <https://wiki.asterisk.org/wiki/displ...stalling+DAHDI>

?? Asterisk ??

????: <http://downloads.asterisk.org/pub/telephony/asterisk/>

```
cd /usr/src
wget http://downloads.asterisk.org/pub/telephony/asterisk/asterisk-1.6.2-current.tar.gz
tar xzf asterisk-1.6.2-current.tar.gz
cd asterisk-1.6.2*
```

[??]????? iLBC codec ?????????????????????

????????? /usr/src/asterisk-* ????????

contrib/scripts/get_ilbc_source.sh
-> ? Enter ?? (NOTE: ? shell ??????????????)

The iLBC source code download is complete.

Notes?

- > ?????? subversion ???
- > ?????????? iLBC ?????????? codecs/ilbc/ ??????????
- > ?????? menuconfig ?? codec_ilbc ???

[??]????? mp3 ?????????????????? Asterisk 1.8.x?
????????? /usr/src/asterisk-* ??????????

contrib/scripts/get_mp3_source.sh

Notes?

- > ?????????? MP3 ?????????? addons/mp3/?
- > ?????? menuconfig -> addons -> ?? format_mp3?
- > ?????????? Playback ? MusicOnHold ?? MP3 ????

??????

./configure
make menuselect ? make menuconfig

- Applications -> app_fax (optional) ??? 1.6.x, ??? 1.8.x ??????????
- Codec Translators -> codec_ilbc (optional)
- Core Sound Package -> CORE-SOUNDS-EN-WAV
- Extras Sound Packages -> EXTRA-SOUNDS-EN-WAV (optional) ; ??? FreePBX ???
- Save & Exit

?Asterisk 1.8.x ???

? Asterisk 1.8.x ?????? asterisk-addon ?????????? make menuselect ?????????????? addon ??????????????

- Add-ons?
- > app_mysql
 - > cdr_mysql
 - > format_mp3 (* ?????? MP3 ????)

-> res_config_mysql

?????

Resources Modules (? ???? libspandsp-dev?)

-> res_fax

-> res_fax_spandsp

??? Asterisk ??????

make

make install

make samples

make config

?? asterisk-addons ?Asterisk-1.8.x ??????

cd /usr/src

wget http://downloads.asterisk.org/pub/telephony/asterisk/asterisk-addons-1.6.2-current.tar.gz

tar xzf asterisk-addons-1.6.2-current.tar.gz

cd asterisk-1.6.2*

./configure

make menuselect

Applications

-> app_addon_sql_mysql ;?? MySQL

-> app_saycountpl

Call Detail Recording

-> cdr_addon_mysql ;CDR ?? MySQL

Channel Drivers

-> chan_mobile ;?????(optional)

-> chan_ooh323 ;H.323 protocol ??(optional)

Format Interpreters

-> format_mp3 ;MP3 ??????(optional)

Resource Modules

-> res_config_mysql ; Asterisk Realtime Mode (?? mysql-devel ?????)

Save & Exit

make

```
make install
make samples
```

Asterisk ?????

```
?? Asterisk ???
for Ubuntu/Debian)
```

```
addgroup --system asterisk
adduser --system --ingroup asterisk --home /var/lib/asterisk --no-create-home --shell /bin/bash asterisk
```

for CentOS/RedHat)

```
groupadd -r asterisk
useradd -r -g asterisk -c "Asterisk User" -d /var/lib/asterisk -M asterisk
```

```
?? /etc/init.d/asterisk
```

for Ubuntu/Debian)

```
# ???
AST_USER="asterisk"
AST_GROUP="asterisk"
```

?Asterisk 1.8.x ???

```
?? /etc/default/asterisk ?
```

for CentOS/RedHat)

```
?? /etc/sysconfig/asterisk
```

```
??????
```

```
chown -R asterisk:asterisk /etc/asterisk
chown -R asterisk:asterisk /var/{run,log,spool,lib}/asterisk
chown -R asterisk:asterisk /dev/dahdi
adduser asterisk audio (?? asterisk ? group audio)
```

```
?? Asterisk ?????
```

```
/etc/init.d/asterisk start
```

```
?? Asterisk ??
```

```
/etc/init.d/asterisk stop
```

TIPS?

[[bug: asterisk 1.8.11.0](#)] ????? /etc/sysconfig/asterisk????????? root????????? COLOR=yes???????

?? CDR ???

? ????? FreePBX ??????????

```
mysqladmin -uroot -p create asteriskcdrdb
mysql -uroot -p asteriskcdrdb
```

```
mysql> CREATE TABLE cdr (
  calldate datetime NOT NULL default '0000-00-00 00:00:00',
  clid varchar(80) NOT NULL default '',
  src varchar(80) NOT NULL default '',
  dst varchar(80) NOT NULL default '',
  dcontext varchar(80) NOT NULL default '',
  channel varchar(80) NOT NULL default '',
  dstchannel varchar(80) NOT NULL default '',
  lastapp varchar(80) NOT NULL default '',
  lastdata varchar(80) NOT NULL default '',
  duration int(11) NOT NULL default '0',
  billsec int(11) NOT NULL default '0',
  disposition varchar(45) NOT NULL default '',
  amaflags int(11) NOT NULL default '0',
  accountcode varchar(20) NOT NULL default '',
  uniqueid varchar(32) NOT NULL default '',
  userfield varchar(255) NOT NULL default ''
);
```

```
mysql> CREATE USER 'astuser'@'localhost' IDENTIFIED BY 'mypass';
mysql> GRANT ALL PRIVILEGES ON asteriskcdrdb.* TO 'astuser'@'localhost';
mysql> flush privileges;
mysql> quit
```

?? /etc/asterisk/cdr_mysql.conf

```
[global]
hostname=localhost
dbname=asteriskcdrdb
table=cdr
password=mypass
user=astuser
port=3306
sock=/var/run/mysqld/mysqld.sock
;;sock=/var/lib/mysql/mysql.sock ; this is for CentOS
```


?? Asterisk ??

```
service asterisk stop
service asterisk start
```

?? CDR MySQL

```
# asterisk -rx "cdr mysql status"
Connected to asteriskcdrdb@localhost, port 3306 using table cdr for 2 minutes, 32 seconds.
Wrote 0 records since last restart.
```

?? FreePBX ????

?? SELinux ? iptables ??

?? /etc/selinux/config

SELINUX=disabled

?? iptables ??

```
# iptables -L -nv
Chain INPUT (policy ACCEPT 0 packets, 0 bytes)
pkts bytes target  prot opt in  out  source      destination

Chain FORWARD (policy ACCEPT 0 packets, 0 bytes)
pkts bytes target  prot opt in  out  source      destination

Chain OUTPUT (policy ACCEPT 0 packets, 0 bytes)
pkts bytes target  prot opt in  out  source      destination
```

?? iptables

```
# chkconfig iptables off
# service iptables stop
```

?? SELinux ??

```
# sestatus
SELinux status:      disabled
```

?? Asterisk Manager

?? /etc/asterisk/manager.conf

```
; ? no ?? yes
[general]
enabled = yes
```

?????????

```
; for FreePBX
[admin]
secret = amp123
deny = 0.0.0.0/0.0.0.0
permit = 127.0.0.1/255.255.255.0
read = system,call,log,verbose,command,agent,user
write = system,call,log,verbose,command,agent,user
```

???

```
asterisk -rx "reload"
asterisk -rx "manager show users"
```

?????????

```
for Ubuntu/Debian)
?: Ubuntu 11/12
```

```
apt-get install apache2 libapache2-mod-php5 mysql-common mysql-server mysql-client php5-mysql
php-pear php-db php5-gd
```

for CentOS/Redhat 5)

```
yum groupinstall "DNS Name Server"
yum groupinstall "Web Server"
yum groupinstall "Mail Server"
yum groupinstall "MySQL Database"
yum groupinstall "Development Tools"
```

```
yum install e2fsprogs-devel keyutils-libs-devel krb5-devel libogg libseline-devel libsepol-devel
libxml2-devel libtiff-devel
yum install gmp php-pear php-pear-DB php-gd php-mysql php-pdo ncurses-devel audiofile-devel
libogg-devel
yum install openssl-devel mysql-devel zlib-devel perl-DateManip sendmail-cf sox
```

CentOS 6)

```
yum groupinstall core
yum groupinstall base
yum install gcc gcc-c++ lynx bison mysql-devel mysql-server php php-mysql php-pear php-mbstring
tftp-server httpd make ncurses-devel libtermcap-devel sendmail sendmail-cf caching-nameserver sox
newt-devel libxml2-devel libtiff-devel audiofile-devel gtk2-devel subversion kernel-devel git subversion
kernel-devel php-process crontabs cronie cronie-anacron
```

NOTE:

?? core ?????????? selinux* ??????????????

?? MySQL & Aapache

chkconfig mysqld on
chkconfig httpd on
service httpd start
service httpd start

?? **PHP**

?? /etc/php5/apache2/php.ini

; ? On ?? Off

magic_quotes_gpc = Off

upload_max_filesize = 120M

date.timezone = "Asia/Taipei"

?? pearDB

peral install db

NOTE:

????????????????????

?? **Apache**

for Ubuntu/Debian)

?? /etc/apache2/envvars

export APACHE_RUN_USER=asterisk

export APACHE_RUN_GROUP=asterisk

?? apache ??

/etc/init.d/apache2 restart

for CentOS/RedHat)

?? /etc/httpd/conf/httpd.conf

User asterisk

Group asterisk

?? apache ??

service httpd restart

?? FreePBX

- <http://www.freepbx.org/download-freepbx>
- [Installing FreePBX 2.11 on Centos 6.3](#)

```
cd /usr/src
wget http://mirror.freepbx.org/freepbx-2.8.0.tar.gz
tar xzf freepbx-2.8.0.tar.gz
```

????? asterisk

```
mysqladmin -uroot -p create asterisk
mysqladmin -uroot -p create asteriskcdrdb
mysql -uroot -p
```

```
mysql> CREATE USER 'astuser'@'localhost' IDENTIFIED BY 'mypass';
mysql> GRANT ALL PRIVILEGES ON asterisk.* TO 'astuser'@'localhost';
mysql> GRANT ALL PRIVILEGES ON asteriskcdrdb.* TO 'astuser'@'localhost';
mysql> flush privileges;
mysql> quit
```

```
mysql -uroot -p <<-END_SQL
CREATE USER 'astuser'@'localhost' IDENTIFIED BY 'mypass';
GRANT ALL PRIVILEGES ON asterisk.* TO 'astuser'@'localhost';
GRANT ALL PRIVILEGES ON asteriskcdrdb.* TO 'astuser'@'localhost';
flush privileges;
END_SQL
```

?????

```
cd /usr/src/freepbx-2.8.0
mysql -uastuser -pmypass asterisk < SQL/newinstall.sql
mysql -uastuser -pmypass asteriskcdrdb < SQL/cdr_mysql_table.sql
```

????????????????????

- **???? SELinux?**
- ??? asterisk ????? = astuser, ??=mypass
- ???????=localhost
- Asterisk Manager Interface ???=admin, ??=amp123
- AMP web root ??=/var/www
- AMP IP address=? IP
- FOP ??????=1234
- ?????????=extensions
- AMP ???=/var/lib/asterisk/bin
- Super-user ???=/usr/local/sbin

```
chown -R asterisk:asterisk /var/www/html/
```

```
cd /usr/src/freepbx-2.8.0
service asterisk stop
./start_asterisk start
./install_amp
```

Enter your USERNAME to connect to the 'asterisk' database:
[asteriskuser] astuser

Enter your PASSWORD to connect to the 'asterisk' database:
[amp109] mypass

Enter the hostname of the 'asterisk' database:
[localhost]

Enter a USERNAME to connect to the Asterisk Manager interface:
[admin]

Enter a PASSWORD to connect to the Asterisk Manager interface:
[amp111] amp123

Enter the path to use for your AMP web root:
[/var/www/html]
/var/www

Enter the IP ADDRESS or hostname used to access the AMP web-admin:
[xx.xx.xx.xx] 192.168.7.65

Enter a PASSWORD to perform call transfers with the Flash Operator Panel:
[passw0rd] 1234

Use simple Extensions [extensions] admin or separate Devices and Users [deviceanduser]?
[extensions]

Enter directory in which to store AMP executable scripts:
[/var/lib/asterisk/bin]

Enter directory in which to store super-user scripts:
[/usr/local/sbin]

...
...

Please update your modules and reload Asterisk by visiting <http://192.168.7.65/admin>

* Note: It's possible that if you click the red 'Update Now' bar BEFORE *

```
* updating your modules, your machine will start dropping calls. Ensure *
* that all modules are up to date BEFORE YOU CLICK THE RED BAR. As long *
* as this is observed, your machine will be fully functional whilst the *
* upgrade is in progress. *
*****
```

FreePBX-2.9 ???

```
cd /etc/asterisk
mv mv extensions_custom.conf.sample extensions_custom.conf
mv sip_notify.conf sip_notify.conf.orig
```

FreePBX-2.10, FreePBX Distro-1.810.x ???

```
su - asterisk
cd /var/lib/asterisk/bin
./retrieve_conf
```

```
cd /etc/asterisk
mv sip_notify.conf sip_notify.conf.default
mv sip.conf sip.conf.default
mv features.conf features.conf.default
mv logger.conf logger.conf.default
mv extensions.conf extensions.conf.default
mv iax.conf iax.conf.default
```

```
mv extensions_custom.conf.sample extensions_custom.conf
```

??????

```
cd /usr/src
wget http://asteriskcop.berlios.de/fpfa/amportal
chmod u+x amportal
mv amportal /etc/init.d
ln -s /etc/init.d/amportal /etc/rc2.d/S99amportal
```

??

```
?? /etc/rc.local?? exit 0 ?????
```

...

```
/usr/local/sbin/amportal start
exit 0
```

????

?? FreePBX

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

```
???????http://????/admin?????admin / admin
```

FAQ

ERROR: codec_dahdi: Failed to open /dev/dahdi/transcode: Permission denied

Ans: chown -R asterisk:asterisk /dev/dahdi

?? Asterisk ??chan_iax2.so ?????messages ?????

```
[Apr 5 16:25:54] WARNING[412] loader.c: Error loading module 'res_crypto': /usr/lib/asterisk/modules/
res_crypto.so: cannot open shared object file: No such file or directory
```

```
[Apr 5 16:25:54] WARNING[412] loader.c: Error loading module 'chan_iax2.so': /usr/lib/asterisk/modules/
chan_iax2.so: undefined symbol: ast_aes_set_decrypt_key
```

Ans???????

```
Channel Drivers > [*] chan_iax2
```

```
Resources Modules > [*] res_crypto
```

```
?????? [XXX]?????????
```

```
apt-get install openssl libssl-dev
```

???Checking for PEAR DB.FAILED

Ans?

```
pear install db
```

???PHP Warning: date(): It is not safe to rely on the system's timezone settings.

Ans??? php.ini

```
date.timezone = "Asia/Taipei"
```

?????????Symlink from modules failed

Ans?

```
cd /etc/asterisk
```

```
mkdir old/
```

```
mv ccss.conf confbridge.conf udptl.conf features.conf sip.conf iax.conf logger.conf extensions.conf
```

```
sip_notify.conf old/
```

```
su - asterisk
```

```
cd /var/lib/asterisk/bin/
```

```
./retrieve_conf
exit
amportal stop
amportal start
```

????????????????

Downloading customappsreg Error(s) downloading customappsreg:
Error opening /var/www/html/admin/modules/_cache/customappsreg-2.11.0.2.tgz for writing

Ans?

```
mkdir /var/www/html/admin/modules/_cache
chown asterisk:asterisk /var/www/html/admin/modules/_cache
amportal chown
```

????????????

retrieve_conf failed to sym link:
/etc/asterisk/logger.conf from core/etc (Already exists, linked to something else)

Ans?

```
cd /var/www/html/admin/modules/core/etc
mv logger.conf logger.conf.old
ulink /etc/asterisk/logger.conf
amportal a r
```

????

- <http://www.asterisk-it.org/node/5>
- [FreePBX 2.8 Installation on Debian 5 \(Lenny\)](#)
- [Installing FreePBX](#)
- [Install process for CentOS 5.1](#)
- [Installing Asterisk 1.8 on CentOS and Ubuntu \(O'REILLY OFPS\)](#)
- [FreePBX Production Install Guide \(RHEL v6, Asterisk v1.8+, FreePBX v2.9+\)](#)
- [Installing FreePBX 2.8 with Asterisk 1.8 on CentOS 5.5](#)
- for Ubuntu
 - ? <http://ubuntuforums.org/showthread.php?t=1986217>
 - ? <http://thelamegerman.wordpress.com/2...zy-kernel-3-2/>
- [Setting up a Centos 6.3 Asterisk and Freepbx server](#)