

Asterisk PCI card install Guide

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HowTo-install AX-400p

To following this guide, you need a PC with linux and asterisk installed, AX-400p mother card and AX-110X FXO module or AX-110S FXS module

Configure Card:

The AX-400p is an FXO/FXS interchangeable card. You can configure it as FXO or FXS or hybrid one with the modules.

There are four module slot in the AX-400p mother board. In this demo, we put the AX-110X (the red one) modules to the TEL1 and TEL2 ports. And the AX-110S modules(the blue one) to the TEL3 and TEL4 ports. Then the tel1 and tel2 were configured as FXO ports. And tel3, tel4 configured as FXS ports. Remember to put the power cable to the AX-400p card when using FXS ports. Otherwise it will claim power error

Install Linux: I am using Redhat9.0 and AS4 update4 in the testing. Other Liunx version may suitable, please refer asterisk official website for more info about the linux support.

Install asterisk: to use AX-400P, you need to install zaptel driver. Libpri. And asterisk. Download these three file from <http://www.asterisk.org/downloads> download the latest version of asterisk 1.4.2, zaptel.1.4.1, libpri1.4.0 to local directory **/usr/src** .

When finish the downloading; move to /usr/src and unpack the source and run the installation orderly(firdst zaptel, then libpri,then asterisk

```
cd /usr/src
```

```
tar -zxvf zaptel-1.4.1.tar.gz
```

```
cd zaptel-1.4.1
```

```
make clean;make install ; finish the install of zaptel
```

```
cd ..
```

```
tar -zxvf libpri-1.4.0.tar.gz ; unpack the libpri source file
```

```
cd libpri-1.4.0
```

```
make clean;make install ; finish the install of libpri
```

```
cd ..
```

```
tar -zxvf asterisk-1.4.2.tar.gz ;unpack the asterisk source file
```

cd asterisk-1.4.2

make clean;make install ;finish the install of asterisk

Configure asterisk:

After success install zaptel , libpri and asterisk. You also need to run **make samples** ;to generate the default configure file for asterisk.

To configure AX-400P , you need to configure the following files:

/etc/zaptel.conf ; configure file for zaptel driver. Set the hardware description of AX-400P in this file

/etc/asterisk/zapata.conf ;configure file for asterisk. Interface the AX-400P to asterisk.

/etc/asterisk/extensions.conf: ;dial plan of asterisk.

/etc/asterisk/sip.conf ;sip account description.

The most important part of **zaptel.conf** is:

fxsks=1,2 ;FXO using FXS signaling

fxoks=3,4 ;FXS using FXO signaling

In the **/etc/asterisk/zapata.conf** file:

signalling = fxs_ks

context = pstn_incoming ; incoming call from port1,2 will route to this extensions.

channel => 1,2

signalling = fxo_ks

context => edwintest

channel => 3,4 ; when port3,port4 make calls, it will go to context edwintest in extensions.conf file

in the **sip.conf** file:

[8806] ; sip account 8806

type=friend

username=8806

host=dynamic

```
secret=8806
context=edwintest ; when 8806 make calls, it will go to context edwintest in
extensions.conf file
callerid="edwin"
mailbox=8806
```

in the **extensions.conf** file:

```
[pstn-incoming]
exten => _x.,1,Answer()
exten => _x.,2,Dial(zip/3,20,tr)
```

Run asterisk:

Connect the AX-400p's port1 to your pstn line and port2 to a normal phone.

Run

```
modprobe zaptel to load zaptel
modprobe wctdm to load the AX-400p driver
asterisk to run asterisk
ztcfg -vvvv to configure AX-400p channel
then run
asterisk again to run asterisk
```

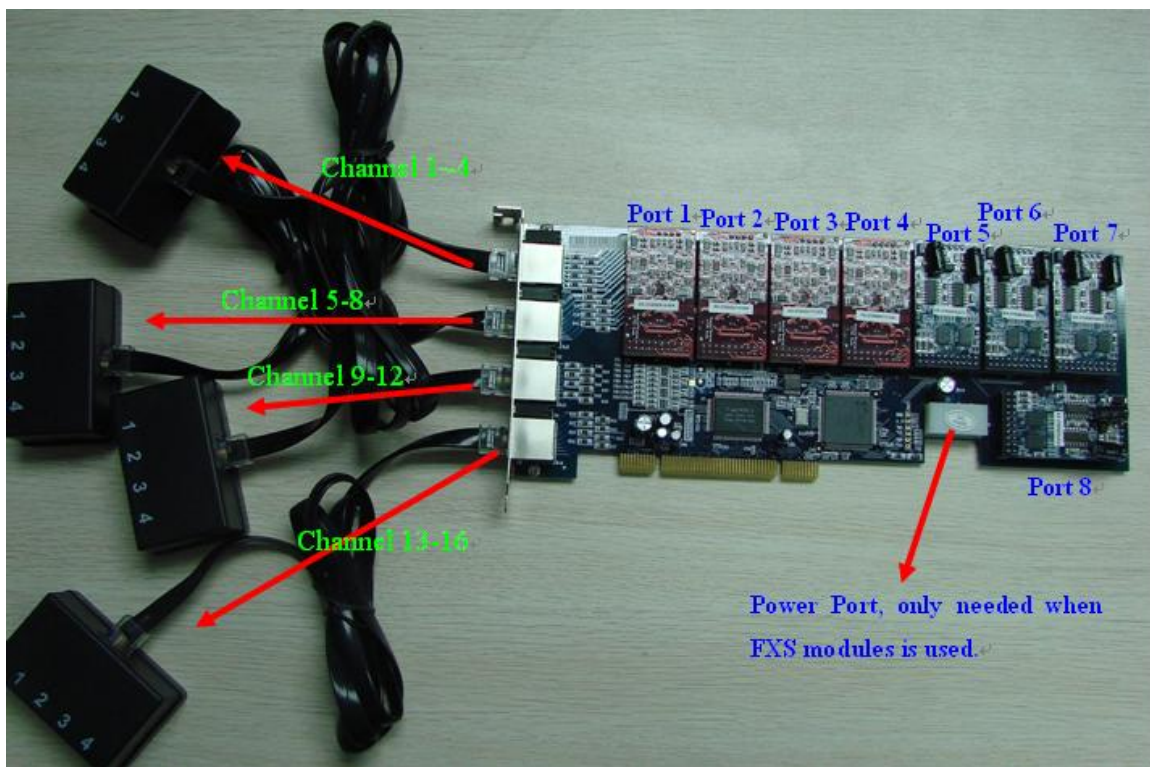
After asterisk is successful running , you can dial to the line connect to port1 via pstn, then the calls will be routed to port2. the normal phone which connect to port2 will ring and you can answer the calls..

HowTo-install AX-1600p

AX-1600p is an asterisk PCI card support 16 analog ports. There are eight module interfaces in the AX-1600P board. It supports below modules:

- AX-110X single channel FXO module
- AX-110S single channel FXS module
- AX-210X dual channel FXO module
- AX-210S dual channel FXS module

You can see below for how to connect put modules in the AX-1600P mother boards



In these configuration, the Channel 1~8 are set as FXO channels and the channel 9~16 are set as FXS channels.

Below is the installation method in detail:

Install the AX-1600P in asterisk version 1.4

Install Linux: We use AS4 update4 in the testing. Other Linux version may suitable, please refer www.asterisk.org for more info about the linux support.

Install asterisk: to use AX-1600P, you need to install zaptel driver. Libpri. And asterisk. Download these three file from <http://www.asterisk.org/downloads> download the latest version of asterisk 1.4.2, zaptel.1.4.1, libpri1.4.0 to local directory **/usr/src** .

When finish the downloading; move to /usr/src and unpack the source and run the installation orderly(firsd zaptel, then libpri,then asterisk. **To use the AX-1600P , it is very important to replace the wctdm.c file in the zaptel source.** The wctdm.c file can be found in the installation CD.

```
[root@asterisk1 ~]# cd /usr/src
```

```
[root@asterisk1 ~]# tar -zxvf zaptel-1.4.1.tar.gz
```

```
[root@asterisk1 ~]# cd zaptel-1.4.1
```

Replace the wctdm.c file with the one in the installation CD

```
[root@asterisk1 ~]# make clean;make install ; finish the install of zaptel
```

```
cd ..
```

```
tar -zxvf libpri-1.4.0.tar.gz ; unpack the libpri source file
```

```
cd libpri-1.4.0
```

```
make clean;make install ; finish the install of libpri
```

```
cd ..
```

```
tar -zxvf asterisk-1.4.2.tar.gz ;unpack the asterisk source file
```

```
cd asterisk-1.4.2
```

```
make clean;make install ;finish the install of asterisk
```

Configure asterisk:

After success install zaptel , libpri and asterisk. You also need to run

```
[root@asterisk1 ~]# make samples ;to generate the default configure file for asterisk.
```

To configure AX-400P , you need to configure the following files:

/etc/zaptel.conf ; configure file for zaptel driver. Set the hardware description of AX-400P in this file

/etc/asterisk/zapata.conf ;configure file for asterisk. Interface the AX-400P to asterisk.

/etc/asterisk/extensions.conf: ;dial plan of asterisk.

/etc/asterisk/sip.conf ;sip account description.

The most important part of **zaptel.conf** is:

fxsks=1-8 ;FXO using FXS signaling

fxoks=9-16 ;FXS using FXO signaling

In the **/etc/asterisk/zapata.conf** file:

signalling = fxs_ks

context = pstn_incoming ; incoming call from channel 1-8 will route to this extensions.

channel => 1-8

signalling = fxo_ks

context => edwintest

channel => 9-16 ; when channel 9-16 make calls, it will go to context edwintest
in extensions.conf file

in the **sip.conf** file:

[8806] ; sip account 8806

type=friend

username=8806

host=dynamic

secret=8806

context=edwintest ; when 8806 make calls, it will go to context edwintest in
extensions.conf file

callerid="edwin"

mailbox=8806

in the **extensions.conf** file:

[pstn-incoming]

exten => _x.,1,Answer()

exten => _x.,2,Dial(zap/3,20,tr)

Run asterisk:

Connect the AX-400p's port1 to your pstn line and port2 to a normal phone.

Run

```
[root@asterisk1 ~]# modprobe zaptel          to load zaptel
[root@asterisk1 ~]# modprobe wctdm          to load the AX-1600p driver
[root@asterisk1 ~]# asterisk                to run asterisk
[root@asterisk1 ~]# ztcfg -vvvv            to configure AX-1600p channel
then run
[root@asterisk1 ~]# asterisk -vvvvvgrc      again to run asterisk
```

After asterisk is successful running , you can dial to the line connect to port1 to call the PSTN.

Install AX-1600P with Dahdi Driver and Asterisk 1.6

Step1: In your Linux machine, Download the Dahdi-linux, Dahdi-tool and Asterisk 1.6 source:

```
[root@asterisk1 ~]# wget http://downloads.digium.com/pub/telephony/asterisk/asterisk-1.6.0.9.tar.gz
[root@asterisk1 ~]# wget http://downloads.digium.com/pub/telephony/dahdi-linux/dahdi-linux-current.tar.gz
[root@asterisk1 ~]# wget http://downloads.digium.com/pub/telephony/dahdi-tools/dahdi-tools-current.tar.gz
```

Step2: Replace the wctdm.c file in the dahdi-linux directory, and install Dahdi and Asterisk

```
[root@asterisk1 ~]# tar -zxvf dahdi-linux-current.tar.gz
[root@asterisk1 ~]# cd dahdi-linux-2.0.0/dahdi/drivers/
[root@asterisk1 ~]# wget http://www.atcom.cn/down/program/en/card/wctdm.c.v1.6
[root@asterisk1 ~]# cp wctdm.c.v1.6 wctdm.c
[root@asterisk1 ~]# cd ../../
[root@asterisk1 ~]# make
[root@asterisk1 ~]# make install
[root@asterisk1 ~]# cd ../
[root@asterisk1 ~]# tar -zxvf dahdi-tools-current.tar.gz
[root@asterisk1 ~]# cd dahdi-tools-2.0.0
[root@asterisk1 ~]# cd ./configure
[root@asterisk1 ~]# make
[root@asterisk1 ~]# make install
[root@asterisk1 ~]# cd ../
[root@asterisk1 ~]# tar -zxvf asterisk-1.6.0.9.tar.gz
[root@asterisk1 ~]# cd asterisk-1.6
[root@asterisk1 ~]# cd ./configure
[root@asterisk1 ~]# make
[root@asterisk1 ~]# make install
[root@asterisk1 ~]# make samples
```

Step3: Configure Asterisk and load the driver.

1/ edit /etc/dahdi/system.conf file like this:

```
fxsks=1-2    //configure port 1-2 as FXO port
fxoks=3-4    //configure port 3-4 as FXS port
```

2/ edit the /etc/asterisk/chan_dahdi.conf file

The part of chan_dahdi.conf should look like this:

```
group=0
signalling=fxs_ks
context=pstn-incoming
channel=>1-2
```

```
signalling=fxo_ks
context=test
channel=>3-4
```

3/ **edit extensions.conf**

```
[test]
;call phone 3
exten => 6603,1,Answer()
exten => 6603,2,Dial(dahdi/3,20,tr)
exten => 6603,3,Hangup()
```

```
;call phone 4
exten => 404,1,Answer()
exten => 404,2,Dial(dahdi/4,20,tr)
exten => 404,3,Hangup()
```

```
[pstn-incoming]
exten => s,1,Answer()
exten => s,2,NoOP(CALLERID:${CALLERID})
exten => s,3,VoiceMailMain()
exten => s,4,NoOP(CALLERID:${CALLERID})
exten => s,5,NoOP(EXTEN:${EXTEN})
exten => s,6,Hangup()
```

4/ **load dahdi driver**

```
modprobe dahdi
modprobe wctdm
dahdi_cfg -vvvvvvv
=====result of dahdi_cfg=====
```

DAHDI Tools Version - 2.1.0.2

DAHDI Version: 2.1.0.4

Echo Cancellor(s):

Configuration

=====

Channel map:

Channel 01: FXS Kewlstart (Default) (Slaves: 01)

Channel 02: FXS Kewlstart (Default) (Slaves: 02)

Channel 03: FXO Kewlstart (Default) (Slaves: 03)

Channel 04: FXO Kewlstart (Default) (Slaves: 04)

4 channels to configure.

Changing signalling on channel 1 from Unused to FXS Kewlstart

Changing signalling on channel 2 from Unused to FXS Kewlstart

Changing signalling on channel 3 from Unused to FXO Kewlstart

Changing signalling on channel 4 from Unused to FXO Kewlstart

=====

5/ asterisk -vvvvvvvgrc

After asterisk is successful running , you can dial to the line connect to port1 to call the PSTN.

Install AX-1600p on Trixbox2.2

To install the AX-1600p on Trixbox2.2 you need to download the source file of zaptel and override the wctdm.c file, otherwise the AX-1600P card can not be detected correctly. To build the zaptel in trixbox, you need to download the Trixbox kernel source code.

Install Kernel Source:

```
yum -y install kernel-devel kernel
yum -y install kernel-smp-devel //
```

there is a bug in the new kernel , to fix it, you need to:

```
cd /usr/src/kernels/2.6.9-34.0.2.EL-smp-i686/include/linux/
vi spinlock.h
```

search for rw_lock_t in that file, and change it to rwlock_t, otherwise there will be error when compile the zaptel driver

after doing above, you should able to compile zaptel driver.

Install Zaptel:

Download the zaptel driver.

```
cd /usr/src
tar -zxvf zaptel-1.2.10.tar.gz ;unpack the zaptel source file; notice , to install
AX-1600p, you need to override the wctdm.c file to /usr/src/zaptel-1.2.10 source file
cd zaptel-1.2.10
make clean;make install ; finish the install of zaptel
```

and reboot your machine.

after install the zaptel driver on the trixbox, you can run genzapconf to auto configure the card on Trixbox. Please refer the sample configure file if there is any problem.

Install AX-1600p on Trixbox2.6.2.2

Download link of TB2.6.2.2:

<http://master.dl.sourceforge.net/sourceforge/asteriskathome/trixbox-2.6.2.2.iso>

To install the AX-1600p on Trixbox2.6 ()

Install Kernel Source:

```
[trixbox1.localdomain ~]# yum -y install kernel-devel-`uname-r`
```

```
[trixbox1.localdomain ~]# yum -y install kernel-`uname-r`
```

```
[trixbox1.localdomain ~]# yum -y install make
```

```
[trixbox1.localdomain ~]# yum -y install gcc
```

Install Zaptel:

```
[trixbox1.localdomain ~]# wget http://downloads.digium.com/pub/zaptel/releases/zaptel-1.4.11.tar.gz
```

```
[trixbox1.localdomain ~]# tar -zxvf zaptel-1.4.11.tar.gz
```

```
[trixbox1.localdomain ~]# cd zaptel-1.4.11/kernel/
```

```
[trixbox1.localdomain kernel]# wget http://www.atcom.cn/down/program/en/card/wctdm.c.v1.4
```

```
[trixbox1.localdomain kernel]# cp wctdm.c.v1.4 wctdm.c
```

```
[trixbox1.localdomain kernel]# cd ..
```

```
[trixbox1.localdomain zaptel-1.4.11]# make clean;make
```

Note: you should have below problem when make the zaptel driver:

```
In file included from /usr/src/zaptel-1.4.11/kernel/xpp/xpd.h:26,from
/usr/src/zaptel-1.4.11/kernel/xpp/card_fxo.c:27:
/usr/src/zaptel-1.4.11/kernel/xpp/xdefs.h:117: error: conflicting types for 'bool'
include/linux/types.h:36: error: previous declaration of 'bool' was here
```

The fix is:

1. Open the URL copy the text in zaptel source directory (example : /usr/src/asterisk/zaptel-1.4.11)

i.e. copy all the data from http://bugs.digium.com/file_download.php?file_id=19260&type=bug and

place it in zaptel.patch thru vi editor

2. Apply the patch using following command you are done.

```
patch -p1 < zaptel.patch
```

it will prompt for which file to patch then u type : kernel/xpp/xdefs.h and enter

```
[trixbox1.localdomain zaptel-1.4.11]# make install
```

```
[trixbox1.localdomain zaptel-1.4.11]# cd kernel
```

```
[trixbox1.localdomain kernel]# cp wctdm.ko /lib/modules/2.6.18-92.1.18.el5/misc/
```

```
[trixbox1.localdomain kernel]# cp wctdm.ko /lib/modules/2.6.18-92.1.18.el5/extra/zaptel/
```

```
[trixbox1.localdomain zaptel-1.4.11]# reboot
```

After install the zaptel driver on the trixbox, you need to manually configure the `/etc/zaptel.conf` and `/etc/asterisk/zapata.conf` files. After you have configure these two files. Run below command to load the card:

```
[trixbox1.localdomain ~]# amportal stop
```

```
[trixbox1.localdomain ~]# rmmod wctdm
```

```
[trixbox1.localdomain ~]# modprobe wctdm
```

```
[trixbox1.localdomain ~]# genzaptelconf
```

Add this line

```
    #include zapata-channels.conf
```

in the end of the file `/etc/asterisk/zapata.conf`.

```
[trixbox1.localdomain ~]# ztcfg -vvvvvvv
```

```
[trixbox1.localdomain ~]# amportal start
```

HowTo-install AX-4E/AX-4T

Introduce: this guide is the instruction for how to install the AX-4E card on asterisk system, and making a simple local loop testing. The installation method of AX-4T is the same as Ax-4E.

To following this guide, you need a PC with linux and asterisk installed, AX-4E card and E1 cable.

Install AX-4E on Redhat9.0

Install Linux: I am using Redhat9.0 and AS4 update4 in the testing. Other Liunx may suitable, please refer asterisk official website for more info about the linux support.

Install asterisk: to use AX-4E, you need to install zaptel driver. Libpri. And asterisk. Download these three file from <http://www.asterisk.org/downloads> download the latest version of asterisk 1.4.2, zaptel.1.4.1, libpri1.4.0 to local directory **/usr/src** .

When finish the downloading; move to /usr/src and unpack the source and run the installation orderly(firdst zaptel, then libpri,then asterisk

```
cd /usr/src
```

```
tar -zxvf zaptel-1.4.1.tar.gz ;unpack the zaptel source file; notice , to install AX-4E, you need to override the tormenta2.dat file to /usr/src/zaptel-1.4.1 source file
```

```
cd zaptel-1.4.1
```

```
make clean;make install ; finish the install of zaptel
```

```
cd ..
```

```
tar -zxvf libpri-1.4.0.tar.gz ; unpack the libpri source file
```

```
cd libpri-1.4.0
```

```
make clean;make install ; finish the install of libpri
```

```
cd ..
```

```
tar -zxvf asterisk-1.4.2.tar.gz ;unpack the asterisk source file
```

```
cd asterisk-1.4.2
```

```
make clean;make install ;finish the install of asterisk
```

Configure asterisk:

After success install zaptel , libpri and asterisk. You also need to run **make samples** ;to generate the default configure file for asterisk.

To configure AX-4E, you need to configure the following files:

/etc/zaptel.conf ; configure file for zaptel driver. Set the hardware description of AX-4E in this file

/etc/asterisk/zapata.conf ;configure file for asterisk. Interface the AX-4E to asterisk.

/etc/asterisk/extensions.conf: ;dial plan of asterisk.

/etc/asterisk/sip.conf ;sip account description.

The most important part of **zaptel.conf** is:

span=1,1,0,ccs,hdb3,crc4 ; configure port1 as synchronization source.(Net port)

span=2,0,0,ccs,hdb3,crc4 ; configure port2 as CPE port

span=3,0,0,ccs,hdb3,crc4 ; configure port3 as CPE port

span=4,0,0,ccs,hdb3,crc4 ; configure port4 as CPE port

#span 1

bchan=1-15

dchan=16

bchan=17-31

#span 2

bchan=32-46

dchan=47

bchan=48-62

#span 3

bchan=63-77

dchan=78

bchan=79-93

#span 4

bchan=94-108

dchan=109

bchan=110-124

in the **/etc/asterisk/zapata.conf** file:

context=isdn-callin ; all calls to port1 will go to context isdn-callin in extensions.conf file.

group=1
signalling=pri_net
channel=>1-15
channel=>17-31

context=group2
group=2
signalling=pri_cpe
channel=>32-46
channel=>48-62

context=group2
group=2
signalling=pri_cpe
channel=>63-77
channel=>79-93

context=group2
group=2
signalling=pri_cpe
channel=94-108
channel=110-124

in the **sip.conf** file:

[8806] ; sip account 8806
type=friend
username=8806
host=dynamic
secret=8806
context=edwintest ; when 8806 make calls, it will go to context edwintest in extensions.conf file
callerid="edwin"
mailbox=8806

in the **extensions.conf** file:

```
[isdn-callin]
exten => _x.,1,Answer()
exten => _x.,2,Playback(hello-world)
exten => _x.,3,Hangup

[edwintest]
exten => 1006,1,Answer()
exten => 1006,2,Dial(zap/g2/2001)
exten => 1006,3,Hangup()
```

Run asterisk:

Connect the AX-4E's port1 and port2 with an E1 cable. Since we configure port1 as net port, and port2 as cpe port, we can make calls between port1 and port2

Run

```
[root@localhost ~]#modprobe zaptel          to load zaptel driver
[root@localhost ~]#modprobe tor2           to load the AX-4E card, the LED will turn to RED
[root@localhost ~]#asterisk                to run asterisk
[root@localhost ~]#ztcfg -vvvv            to configure AX-4E channel, the LED will turn to
```

yellow when the channel configured successfully.

then run

```
[root@localhost ~]#asterisk                to run asterisk
```

after asterisk is successful running , you can register 8806 account use an sip softphone and call to 1006 , then the calls will be routed to a free channel in port2. since port2 has established link to port1, then the calls will be routed to port1 via E1 cable. Then you will listen "Hello world " which means the test is finish.

Install AX-4E on Trixbox2.2

To install the AX-4E on Trixbox2.2 you need to download the source file of zaptel and override the tormenta2.dat file, otherwise the port2 and port 4 can not work properly. To build the zaptel in trixbox, you need to download the Trixbox kernel source code.

Install Kernel Source:

```
yum -y install kernel-devel kernel  
yum -y install kernel-smp-devel //
```

there is a bug in the new kernel , to fix it, you need to:

```
cd /usr/src/kernels/2.6.9-34.0.2.EL-smp-i686/include/linux/  
vi spinlock.h
```

search for rw_lock_t in that file, and change it to rwlock_t, otherwise there will be error when compile the zaptel driver

after doing above, you should able to compile zaptel driver.

Install Zaptel:

Download the zaptel driver.

```
cd /usr/src
```

```
tar -zxvf zaptel-1.2.10.tar.gz ;unpack the zaptel source file; notice , to install AX-4E,
```

you need to override the **tormenta2.dat** file to /usr/src/zaptel-1.2.10 source file

```
cd zaptel-1.2.10
```

```
make clean;make install ; finish the install of zaptel
```

and reboot your machine.

after install the zaptel driver on the trixbox, you can run genzapconf to auto configure the card on Trixbox. Please notice that the zaptel.conf and Zapata.conf configure files are wrong generated. You need to change them to work properly. Please refer the sample configure file if there is any problem.

Install AX-4E In Trixbox 2.6 and Elastix 1.3

Install Kernel Source:

```
[trixbox1.localdomain ~]# yum -y install kernel-devel kernel
[trixbox1.localdomain ~]# yum -y install make
[trixbox1.localdomain ~]# yum -y install gcc
```

Install Zaptel:

```
[trixbox1.localdomain ~]# wget http://downloads.digium.com/pub/zaptel/releases/zaptel-1.4.10.tar.gz
[trixbox1.localdomain ~]# tar -zxvf zaptel-1.4.10.tar.gz //Replace the tormenta2.rbt file in the zaptel directory, and
install zaptel
[trixbox1.localdomain ~]# cd zaptel-1.4.10/kernel/
[trixbox1.localdomain kernel]# wget http://www.atcom.cn/down/program/en/card/tormenta2.rbt //replace the
tormenta2.rbt file
[trixbox1.localdomain kernel]# cd .. //change the directory to zaptel-1.4.10
[trixbox1.localdomain zaptel-1.4.10]# make clean;make
[trixbox1.localdomain zaptel-1.4.10]# make install
[trixbox1.localdomain zaptel-1.4.10]# reboot
```

After install the zaptel driver on the trixbox, you need to manually configure the /etc/zaptel.conf and /etc/asterisk/zapata.conf files. After you have configured these two files. Run below command to load the card:

```
[trixbox1.localdomain ~]# modprobe zaptel //to load zaptel driver
[trixbox1.localdomain ~]# modprobe tor2 //to load AX-4E card, the LED will turn to RED
[trixbox1.localdomain ~]# asterisk //to run asterisk
[trixbox1.localdomain ~]# ztcfg -vvvvv
[trixbox1.localdomain ~]# asterisk -vvvgrc
```

Install AX-4E with Dahdi Driver and Asterisk 1.6

Step1: In your Linux machine, Download the Dahdi-linux, Dahdi-tool and Asterisk 1.6 source:

```
[root@asterisk1 ~]#wget http://downloads.asterisk.org/pub/telephony/asterisk/asterisk-1.6.1.0.tar.gz
[root@asterisk1 ~]#wget http://downloads.asterisk.org/pub/telephony/libpri/libpri-1.4.10.tar.gz
[root@asterisk1 ~]#wget http://downloads.asterisk.org/pub/telephony/dahdi-linux/dahdi-linux-current.tar.gz
[root@asterisk1 ~]#wget http://downloads.asterisk.org/pub/telephony/dahdi-tools/dahdi-tools-current.tar.gz
```

Step2: Replace the tormenta2.rbt file in the dahdi-linux directory, and install Dahdi and Asterisk

```
[root@asterisk1 ~]# tar -zxvf dahdi-linux-current.tar.gz
[root@asterisk1 ~]#wget
```

```

[root@asterisk1 ~]#cd dahdi-linux-2.1.0.4/dahdi/drivers/dahdi
[root@asterisk1 ~]#wget http://www.atcom.cn/download/program/en/card/tormenta2.rbt
//replace the tormenta2.rbt file
[root@asterisk1 ~]#cd ../../ //change the directory to dahdi-linux-2.1.0.4
[root@asterisk1 ~]#make; make install
[root@asterisk1 ~]#cd ..
[root@asterisk1 ~]#tar -zxvf libpri-1.4.10.tar.gz
[root@asterisk1 ~]#cd libpri-1.4.10 // change the directory to libpri-1.4.10
[root@asterisk1 ~]#make; make install
[root@asterisk1 ~]#cd ..
[root@asterisk1 ~]#tar -zxvf dahdi-tools-current.tar.gz
[root@asterisk1 ~]#cd dahdi-tools-2.1.0.2 // change the directory to dahdi-tools-2.1.0.2
[root@asterisk1 ~]#./configure
[root@asterisk1 ~]#make; make install
[root@asterisk1 ~]#cd ..
[root@asterisk1 ~]#tar -zxvf asterisk-1.6.1.0.tar.gz
[root@asterisk1 ~]#cd asterisk-1.6.1.0 // change the directory to asterisk-1.6.1.0
[root@asterisk1 ~]#./configure
[root@asterisk1 ~]#make; make install
[root@asterisk1 ~]#make samples

```

Step3: Configure the Dahdi driver for the AX-4E card.

1/ edit the system.conf under /etc/dahdi, please keep in mind that the system.conf works as zaptel.conf in zaptel. There are detail description for the parameters in this file. The demo configure here set the port1 as network port and the port2,3,4 as CPE port.

```

File: /etc/dahdi/system.conf
span=1,1,0,ccs,hdb3,crc4
span=2,0,0,ccs,hdb3,crc4
span=3,0,0,ccs,hdb3,crc4
span=4,0,0,ccs,hdb3,crc4
#span 1
bchan=1-15
dchan=16
bchan=17-31
#span 2
bchan=32-46
dchan=47
bchan=48-62
#span 3
bchan=63-77

```

```
dchan=78
bchan=79-93
#span 4
bchan=94-108
dchan=109
bchan=110-124
```

2/ edit the chan_dahdi.conf in /etc/asterisk, the chan_dahdi.conf works as zapata.conf in zaptel

The part of chan_dahdi.conf should be like this:

File: /etc/asterisk/ chan_dahdi.conf

```
switchtype=euroisdn

context=group1
group=1
signalling=pri_net
channel=>1-15
channel=>17-31

context=group2
group=2
signalling=pri_cpe
channel=>32-46
channel=>48-62

context=group2
group=2
signalling=pri_cpe
channel=>63-77
channel=>79-93

context=group2
group=2
signalling=pri_cpe
channel=94-108
channel=110-124
```

3/ load the dahdi driver

```
modprobe dahdi
modprobe tor2
dahdi_cfg -vvvvvvv
```

to configure AX-4E channel,the LED will turn to red when the channel configured successfully. In the demo setting, you can use the E1 cable to connect port 1 and port2 for loop test. the LED of port1 and port2 should turn to green when the channels are up.

then run asterisk and perform the testing.

HowTo-install AX-4S

Install AX-4S in Asterisk Version 1.2

Notice: before install AX-4S, please read carefully the AX-4S jumper setting and set the jumper properly

1: go to asterisk source file ./asterisk/channels/misdn.

Run make misdn, then asterisk will update the misdn driver from @cvs.isdn4linux.de, so make sure your internet connection before running it.

```
[root@localhost misdn]# make misdn
```

2: and then go to the ../asterisk directory

And run: make to build asterisk.

```
[root@localhost asterisk-1.2.13]# make
```

3. Then you will see chan_mISDN.so under ../asterisk/channels directory.

4: go to ../asterisk , run make install to install asterisk. And the mISDN driver will be installed together with asterisk

```
[root@localhost asterisk-1.2.13]# make install
```

5. Then make samples.

6: Configure AX-4S

Run

```
[root@localhost /]# /etc/init.d/misdn-init scan
```

If it shows

```
[OK] found the following devices:
```

```
card=1,0x4 <== AX-4S is detected
```

```
[ii] run "/usr/sbin/misdn-init config" to store this information to /etc/misdn-init.conf
```

Then run

```
[root@localhost ~]# /etc/init.d/misdn-init config
[OK] /etc/misdn-init.conf already present. backing it up to /etc/misdn-init.conf.save
[OK] /etc/misdn-init.conf created. It's now safe to run "/usr/sbin/misdn-init start"
[ii] make your ports (1-4) available in asterisk by editing "/etc/asterisk/misdn.conf"
```

And then configure:

```
/etc/misdn-init.conf
```

```
& /etc/asterisk/misdn.conf
```

Then run `/usr/sbin/misdn-init start` to load AX-4S.

Install AX-4S Asterisk Version 1.4

Notice: before install AX-4S, please read carefully the AX-4S jumper setting and set the jumper properly, insert the card on the PCI slot.

1. First, download and install mISDN and chan_mISDN. To do it, please follow
 - a) `cd /usr/src`
 - b) `wget http://www.misdn.org/downloads/mISDN.tar.gz`
 - c) `wget http://www.misdn.org/downloads/mISDNUser.tar.gz`
 - d) `tar -zxvf mISDN.tar.gz`
 - e) `tar -zxvf mISDNUser.tar.gz`
 - f) `cd mISDN-1_1_2`
 - g) `make install`
 - h) `cd ../mISDNUser-1_1_2`
 - i) `make install`

2. After that you should be able to reconfigure asterisk like:
 - a) `cd /usr/src/asterisk`
 - b) `./configure`
 - c) `make menuselect`
 - d) **now you should enable `chan_misdn` in the `menuselect`, you can find `chan_misdn` in Channel Driver Section.**

3. Reinstall asterisk with
 - a) `make install`

4. After doing above, you should be able to run misdn-init tool to scan and configure the AX-4S

a) misdn-init scan

It shows:

[OK] found the following devices:

card=1,0x4 <== AX-4S is detected

[ii] run "/usr/sbin/misdn-init config" to store this information to /etc/misdn-init.conf

b) misdn-init config

c) configure the /etc/misdn-init.conf file and /etc/asterisk/misdn.conf file.

d) misdn-init start ; to load the card , you should see the LED of card blinking.

Install AX-4S in Trixbox

Please refer this link for the installation guide of the AX-4S in different Trixbox version:

<http://trixbox.org/wiki/chan-misdn>

HowTo-install AX-1E

Install AX-1E in Asterisk Version 1.2

Notice: before install AX-1E, please read carefully the AX-1E jumper setting and set the jumper properly

1: go to asterisk source file `./asterisk/channels/misdn`.

Run `make misdn`, then asterisk will update the misdn driver from `@cvs.isdn4linux.de`, so make sure your internet connection before running it.

```
[root@localhost misdn]# make misdn
```

2: and then go to the `./asterisk` directory

And run: `make` to build asterisk.

```
[root@localhost asterisk-1.2.13]# make
```

3. Then you will see `chan_mISDN.so` under `./asterisk/channels` directory.

4: go to `./asterisk`, run `make install` to install asterisk. And the mISDN driver will be installed together with asterisk

```
[root@localhost asterisk-1.2.13]# make install
```

5. Then make samples.

6: Configure AX-1E

Run

```
[root@localhost /]# /etc/init.d/misdn-init scan
```

If it shows

```
[OK] found the following devices:
```

```
card=1,0x1 <== AX-1E is detected
```

```
[ii] run "/usr/sbin/misdn-init config" to store this information to /etc/misdn-init.conf
```

Then run

```
[root@localhost ~]# /etc/init.d/misdn-init config
```

```
[OK] /etc/misdn-init.conf already present. backing it up to /etc/misdn-init.conf.save
```

```
[OK] /etc/misdn-init.conf created. It's now safe to run "/usr/sbin/misdn-init start"
```

And then configure:

/etc/misdn-init.conf

& /etc/asterisk/misdn.conf

Then run **/usr/sbin/misdn-init start** to load AX-1E. for more info of how to configure AX-1E and AX-4S ,please refer description in the **/etc/misdn-init.conf** and /etc/asterisk/misdn.conf file

Install AX-1E in Asterisk Version 1.4

Notice: before install AX-1E, please read carefully the AX-1E jumper setting and set the jumper properly, insert the card on the PCI slot.

1. First, download and install mISDN and chan_mISDN. To do it,please follow
 - a) **cd /usr/src**
 - b) **wget <http://www.misdn.org/downloads/mISDN.tar.gz>**
 - c) **wget <http://www.misdn.org/downloads/mISDNUser.tar.gz>**
 - d) **tar -zxvf mISDN.tar.gz**
 - e) **tar -zxvf mISDNUser.tar.gz**
 - f) **cd mISDN-1_1_2**
 - g) **make install**
 - h) **cd ../mISDNUser-1_1_2**
 - e) **make install**

2. After that you should be able to reconfigure asterisk like:
 - a) **cd /usr/src/asterisk**
 - b) **./configure**
 - c) **make menuselect**
 - d) **Now you should enable chan_misdn in the menuselect, you can find chan_misdn in Channel Driver Section.**

3. Reinstall asterisk with
 - a) **make install**

4. After doing above, you should able to run misdn-init tool to scan and configure the AX-4S
 - a) **misdn-init scan**

It shows:

[OK] found the following devices:

card=1,0x1 <== AX-1E is detected

[ii] run "/usr/sbin/misdn-init config" to store this information to /etc/misdn-init.conf

- b) **misdn-init config**
- c) **configure the /etc/misdn-init.conf file and /etc/asterisk/misdn.conf file.**
- d) **misdn-init start** ; to load the card , you should see the LED of card blinking.

Install AX-1E in Trixbox

Please refer this link for the installation guide of the AX-1E in different Trixbox version:

<http://trixbox.org/wiki/chan-misdn>

FAQ of AX-1E

1: L1 is up and L2 down issue

You need to check exactly the TX+/-, RX+/- order of the AX-1E, it should match your ISDN line order. otherwise you will see this problem.

2: Compatible problem of AX-1E and AX-400P.

If you install the AX-1E and AX-400p together, they can't work together. You need to modify the file in "/etc/modprobe.d/blacklist"

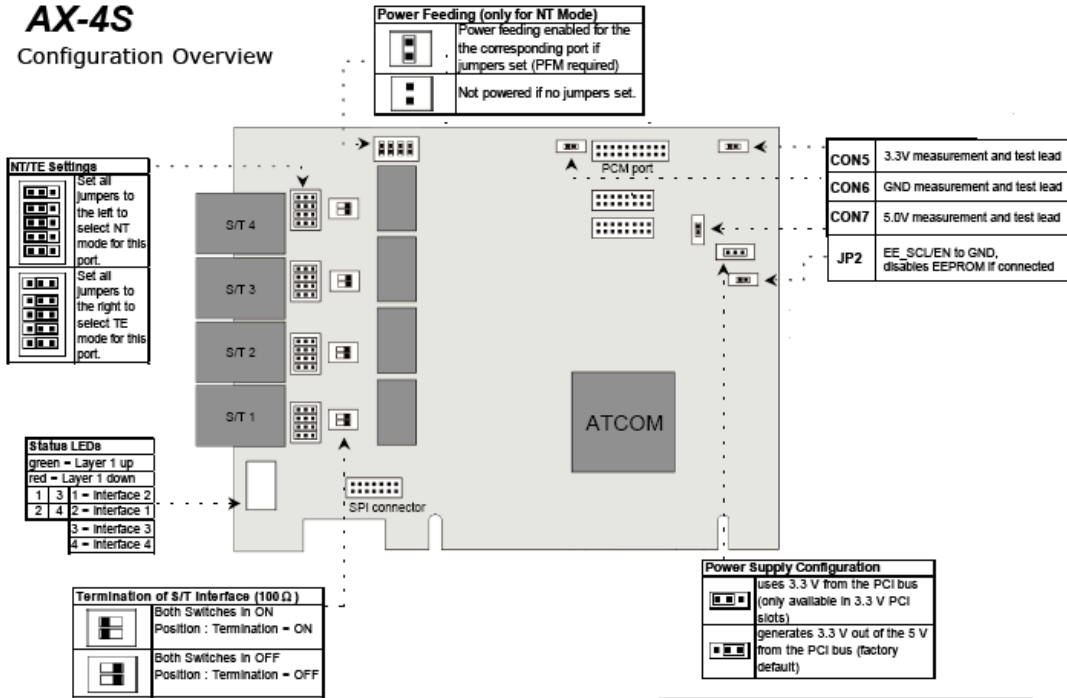
Add below line in the file:

blacklist netjetpci

Jumper Setting of AX-4S and AX-1E

AX-4S

AX-4S Configuration Overview



Warning
This equipment will be inoperable when main power fails



AX-1E

