

IX130 IPPBX Appliance

Asterisk®/DAHDI/SS7

Software Installation in SS7

IX130 series IP-PBX supports combinations analog, BRI, PRI and GSM telephony cards, now let's take the combination of A400E and DE130E for an example to illustrate software installation. And assume that DE130E need to run in SS7 signaling.

1. Download and untar

Execute the following commands in the directory /usr/src/ in general to download and unzip the three source packages. Make sure the [DAHDI version](#) is 2.4.1.2 or higher from openvox.

```
# wget http://www.netfors.com/media/download/chan_ss7-2.1.0.tar.gz
# wget http://downloads.openvox.cn/pub/drivers/DAHDI-linux-complete/releases/1.3.5/openvox_dahdi-linux-complete-2.4.1.2+2.4.1.tar.gz
# wget http://downloads.asterisk.org/pub/telephony/asterisk/releases/asterisk-1.8.0.tar.gz
# tar -xvzf chan_ss7-2.1.0.tar.gz
# tar -xvzf openvox_dahdi-linux-complete-2.4.1.2+2.4.1.tar.gz
# tar -xvzf asterisk-1.8.0.tar.gz
```

2. Install DAHDI

Make sure your [necessary dependencies](#) have all been installed, and then get start to install DAHDI, Asterisk and chan_ss7.

```
# cd /usr/src/dahdi-linux-complete-XX
# make
# make install
# make config
```



Caution: If there is something wrong after "make", please refer to [HERE](#). In the url link, the moderator introduces you a method how to patch. After patching, save your changes and exit. Then run "make" again, if successfully, you are going to install Asterisk.

3. Install Asterisk

```
# cd asterisk-1.8.0
# ./configure
# make
# make install
# make samples
```



"make samples" will install the standard sample configuration file in the directory `/etc/asterisk`. As a freshman, you should perform make samples, that is to say, it is unnecessary to perform make samples every time. Because once performed, it will cover the old sample configuration files you have installed.

4. Install SS7

Before installing `chan_ss7`, please go to the directory of `chan_ss7` source code and modify Makefile like that:

```
#INCLUDE+==-I./source/telephony/zaptel/kernel
#CFLAGS+==-DUSE_ZAPTEL
ASTERISK_PATH=./asterisk-1.8.0/include
INCLUDE+==-I./dahdi-linux-complete-2.4.1.2+2.4.1/include
```

After that, please install `chan_ss7` and do some other modifications.

```
# cd chan_ss7
# make
# make install
# cp ss7.conf /etc/asterisk ; copy the ss7.conf file to /etc/asterisk
# cp chan_ss7.so /usr/lib/asterisk/modules
; copy the chan_ss7.so to /usr/lib/asterisk/modules
```

5. Driver loading

After compiling and installing DAHDI and Asterisk, please load the driver by running:

```
# modprobe dahdi
# modprobe opvx115
# modprobe wctdm
# dahdi_genconf
```



After running, there is not any indication information displayed if loaded normally and successfully. "opvx115" and "wctdm" are the driver module name of DE130E and A400E.

If there is any error, please trace the cause. Until all errors are clear up, you could execute "dahdi_genconf" again, and then go to the next step. By running "dahdi_genconf", it will generate `/etc/dahdi/system.conf` and `etc/asterisk/dahdi-channels.conf` automatically. Checking whether the generated files

information agrees with your hardware setup, if not, you should modify to your specific requirements. Do not forget to confirm dahdi-channels.conf is included in chan_dahdi.conf, if not, run command:

```
# echo "#include dahdi-channels.conf" >>
/etc/asterisk/chan_dahdi.conf
```

FXO ports use FXS signaling, while FXS ports adopt FXO signaling. A part of system.conf which is one of the basic channel configuration files is displayed.

```
# Span 2: WCTDM/4 "Wildcard TDM400P REV E/F Board 5" (MASTER)
fxoks=1
fxoks=2
fxsks=3
fxsks=4

# Global data

loadzone          = cn
defaultzone       = cn
;Modify these two parameters to peer your country or zone
```



Some zonedata is available in the file
 ../dahdi-XX/tools/zonedata.c, you can refer to it to match your country mode.
 Meanwhile, you also need to modify another parameter which is in file
 /etc/asterisk/indications.conf.
country=cn

6. Edit files for ss7

6.1 Edit /etc/dahdi/system.conf like:

```
vim /etc/dahdi/system.conf
This file is parsed by the Dahdi Configurator, dahdi_cfg
#
# Span 1: TE4/0/1 "T4XXP (PCI) Card 0 Span 1" HDB3/CCS/CRC4 RED
Span=1,1,0,ccs,hdb3,crc4
# termtype: te
bchan=1-31
#dchan=16
```

6.2 edit /etc/asterisk/ss7.conf

```
[linkset-siuc]
enabled => yes
enable_st => no
use_connect => no
hunting_policy => even_mru
context => ss7
language => da
t35 => 15000,timeout
subservice => auto
;signallingtype=>ISUP(TUP)
variant => CHINA

[link-11]
linkset => siuc
channels => 1-15,17-31
schannel => 16
firstcic => 0
;sls => 1
;sltm => no
enabled => yes
echocancel => no
;echocan_train => 350
;echocan_taps => 128

[host-zmdvoip]                                zmdvoip is your asterisk server name
enabled => yes
opc => 0x10ff48
dpc => siuc:0x10fff6
links => 11:1
```



Some parameters in this file need to be changed according to your situation. Please replace “zmdvoip” by your asterisk server name. If “opc” is 0x10fff6 and “dpc” is 0x10ff48 carrier gives you, you must set “opc => 0x10ff48 dpc => siuc:0x10fff6” like the above figure.

6.3 Edit /etc/asterisk/dahdi-channels.conf

Please comment out the settings for DE130E, otherwise it will be contradictory with ss7

```
;Span 1: TE4/0/1 "T4XXP (PCI) Card 0 Span 1" HDB3/CCS/CRC4 RED
;group=0,11
;context=from-pstn
;switchtype = euroisdn
;signalling = pri_cpe
;channel => 1-15,17-31
;context = default
;group = 63
```

After these tasks finished, please execute the following command:

```
# service dahdi restart
# dahdi_cfg -vvvvvv
```

The command is used for reading and loading parameters in the configuration file system.conf and writing to the hardware.

7. Asterisk initiation

```
# asterisk -vvvvvvvvc
```

If Asterisk is already activate, run "asterisk -r" instead. In the CLI, please run the following command:

```
localhost*CLI> ss7 link status
```

```
linkset siuc, link 11/16 INSERVICE, sls 0, total: 8684336, 8684368
```

```
localhost*CLI> ss7 linestat
```

```
Linkset: siuc
CIC  0  Idle
CIC  1  Idle
CIC  2  Idle
CIC  3  Idle
CIC  4  Idle
CIC  5  Idle
CIC  6  Idle
CIC  7  Idle
CIC  8  Idle
CIC  9  Idle
CIC 10  Idle
CIC 11  Idle
CIC 12  Idle
CIC 13  Idle
CIC 14  Idle
CIC 16  Idle
CIC 17  Idle
CIC 18  Idle
CIC 19  Idle
CIC 20  Idle
CIC 21  Idle
CIC 22  Idle
CIC 23  Idle
CIC 24  Idle
CIC 25  Idle
CIC 26  Idle
CIC 27  Idle
CIC 28  Idle
CIC 29  Idle
CIC 30  Idle
```

```
localhost*CLI> dahdi show channels
```

Chan Pseudo	Extension	Context	Language	MOH Interpret
	1	from-internal		default
	2	from-internal		default
	3	from-pstn		default
	4	from-pstn		default

If DAHDI and ss7 channels are found and up, it means they have been loaded into Asterisk successfully. The last thing is to edit your extension (softphone or hard phone) and dialplan by your requirements. After right dialplan, I will say “congratulations to you!”

Appendix

```
# yum install bison
# yum install bison-devel
# yum install ncurses
# yum install ncurses-devel
# yum install zlib
# yum install zlib-devel
# yum install openssl
# yum install openssl-devel
# yum install gnutls-devel
# yum install gcc
# yum install gcc-c++
# yum install libxml2
```