OpenVox Communication Co.Ltd

OpenVox-Best Cost Effective Asterisk Cards

OpenVox GSM/WCDMA Cards On Elastix Guide Manual

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Content

General Safety Instructions

CAUTION

1. The computers that have G400P card installed must comply with the country's specific safety regulations.
2. Only service personnel should install G400P card.
3. Before you install G400P card, please unplug the power cord from the computer and remove the cover from your PC.
4. For avoiding personal injuries and damage to your computer and G400P card, make sure bracket of the card is secured to the PC's chassis ground by fastening the card with screws.
5. Electrical Surges, ESD are very destructive to the equipment. To avoid it, make sure there is a low impedance discharge path from your computer to chassis ground.
6. To reduce the risk of damage or injury, please follow all steps or procedures as instructed.

Chapter 1 Hardware Setup

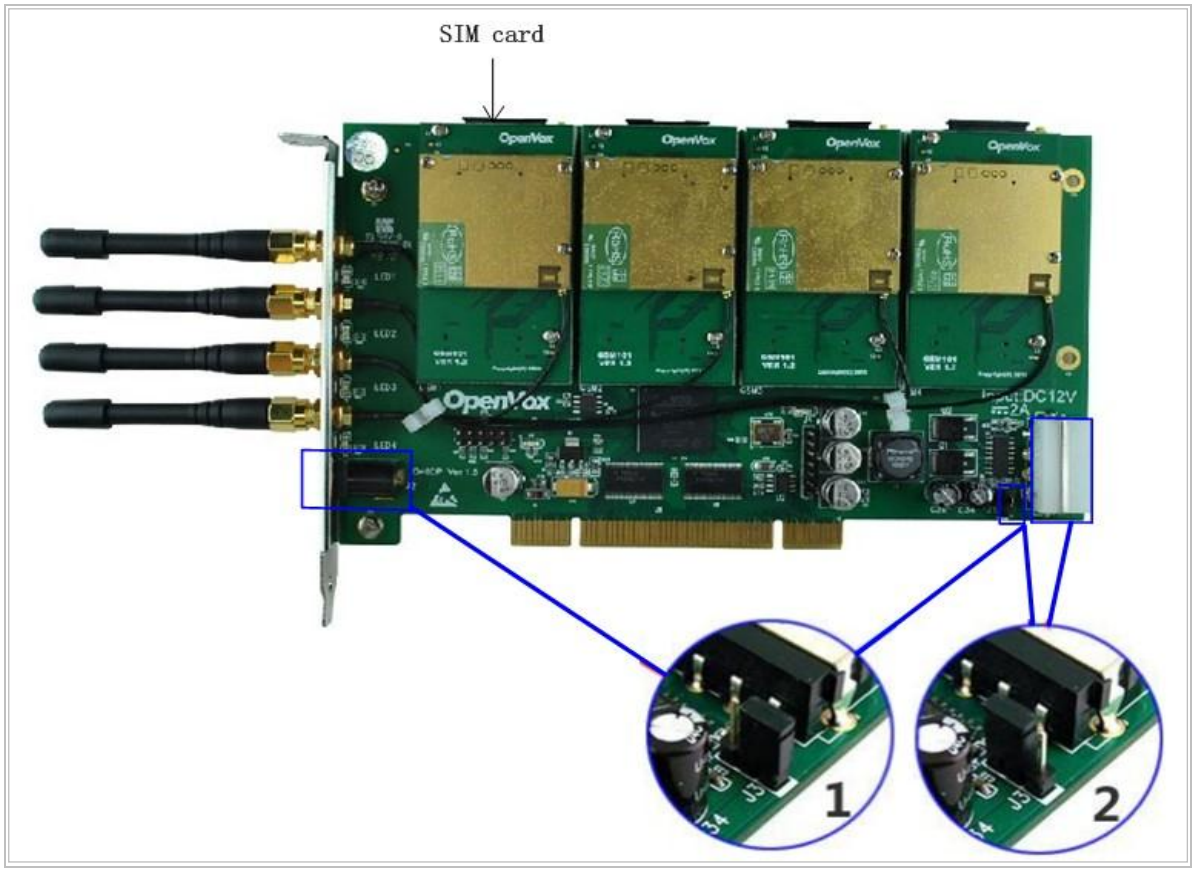
There are some points should be paid attention to setup GSM/WCDMA card. Here we take G400P as an example. This document is fit for all OpenVox GSM/WCDMA cards.

1.1 Power supply

Please take particular attention to power supply connection. There are two alternatives allow users to select a power supply.

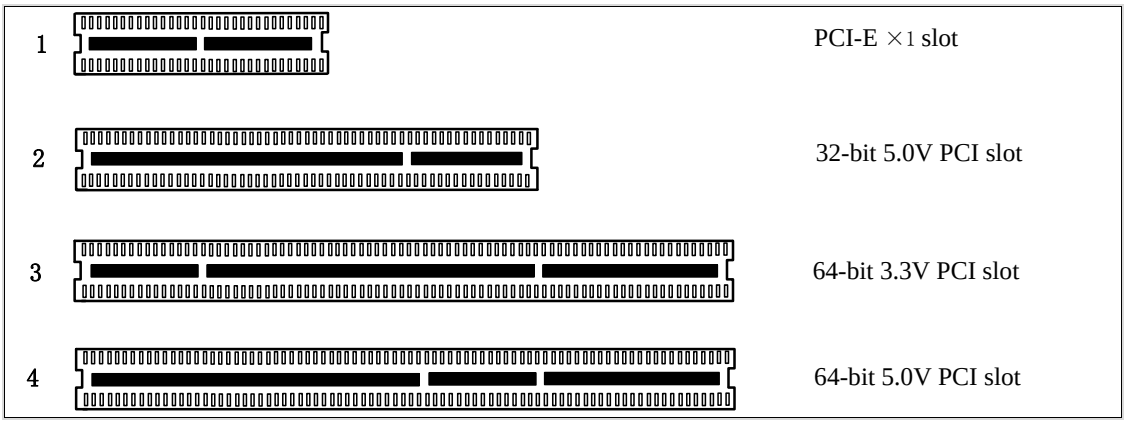
1. Using 12V external DC, you should adjust the jumper J3 to 1;

2. Using Molex connector by setting the jumper J3 to 2 as figure 3.



1.2 Slot compatibility

G400P is compatible with 32-bit 5.0V PCI slot (slot2), 64-bit 3.3V PCI slot (slot3), and 64-bit 5.0V PCI slot (slot 4), while it is not fit for PCI-E slot. You should confirm your slot type, and then insert G400P into a PCI slot. PCI and PCI-E slots are showed as follows:



1.3 Indication LEDs

There are 4 LEDs on the board. Each one indicates the working status of each SIM card. The detail explainations are as followings:

- LED off: SIM card does not work
- 64ms On/800ms: SIM card does not find the network(64ms On/800ms means the LED is light on 64ms then go out 800ms)
- 64ms On/3000ms:SIM card finds the network
- 64ms On/300ms: GPRS communication

In addition, there are two LEDs located at the bottom of the board which are D8 and D9, under normal circumstances, they are lit when powered

and D9 flashes more quickly than D8.

1.4 GSM modules and SIM cards

G400P supports 2G and 3G module, M20 is 2G module and WCD100 is 3G module, please go to here for modules' detail information. One GSM module supports one SIM card and one antenna, please plug a SIM card into the back of a GSM module and activate it. For more details, please refer to figure 3.

1.5 Introduction of main chipset

Designed for global market, M20 is quad-band GSM/GPRS engine that works on frequencies, GSM/GPRS 850/900/1800/1900 MHz.

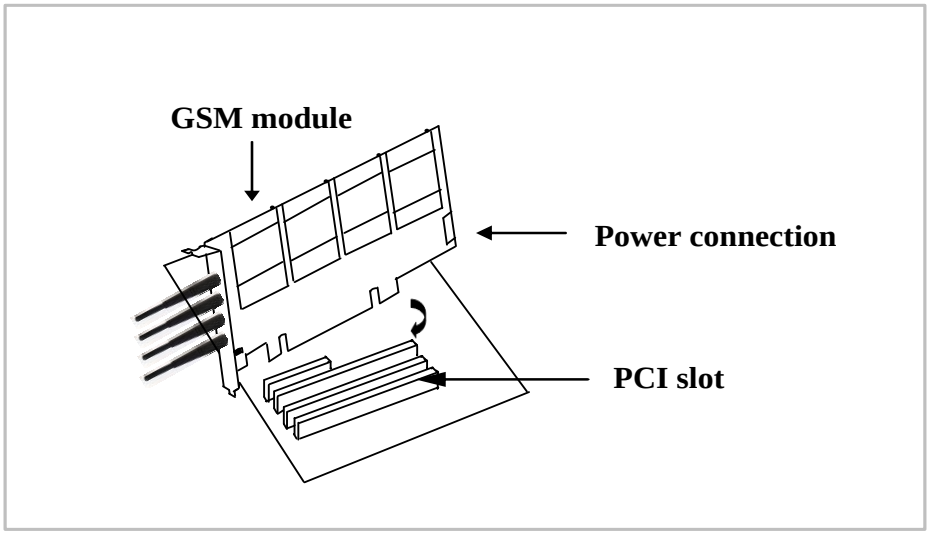
With a tiny configuration of 35mm ×32.5mm ×2.95 mm, M20 can fit almost all the space requirement in your application, such as smart phone, PDA phone, Car Phone, Wireless PSTN, and other mobile devices.

The M20 provides RF antenna interface. Customer's antenna should be located in the customer's main board and connect to module's antenna pad through micro strip line or other type RF traces whose impendence must be controlled in 50Ω.

The M20 is integrated with the TCP/IP protocol， Extended TCP/IP AT commands are developed for customers to use the TCP/IP protocol easily, which is useful for those data transfer applications.

1.6 Hardware setup procedure

- Power off your PC, remember unplug the AC power cable
- Place SIM cards for GSM modules
- Insert G400P into a PCI slot
- Select a power supply way as previously stated
- Fix the board by a screw
- Power on your PC



Caution: During the above processes, an ESD wrist strap is needed. Once power is on, you must not attempt to install or take down the board. After hard ware setup, it is time to install software.

Chapter 2 Configuration

2.1 Hardware detection

Detect hardware by executing command:

```
# lspci -vvvv
```

Check the outcome and confirm your system has recognized G400P. If it has been recognized, the outputs information will be showed like that:

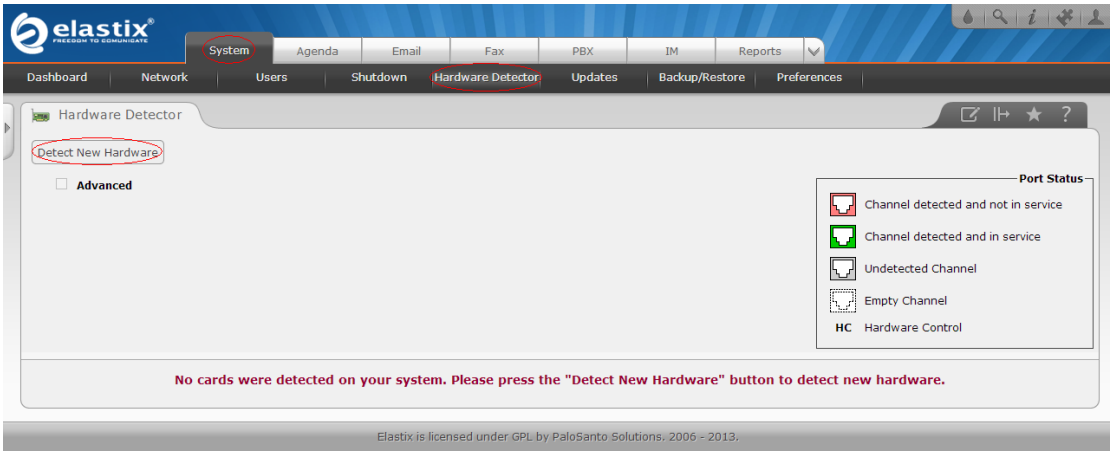
```
04:00.0 Unassigned class [ffff]: Device 1b74:0100 (rev ff) (prog-if ff)
        Subsystem: Device 1b74:0104
        Flags: bus master, VGA palette snoop, stepping, fast Back2Back,
66MHz, user-definable features, ?? devsel, latency 0, IRQ 10
        Memory at 7ebf0000 (32-bit, non-prefetchable)
        Kernel modules: opvxg4xx
```

If G400P is not recognized by the system, you have to check hardware connection, try to power off and take out of the card, and then insert it into another PCI slot.

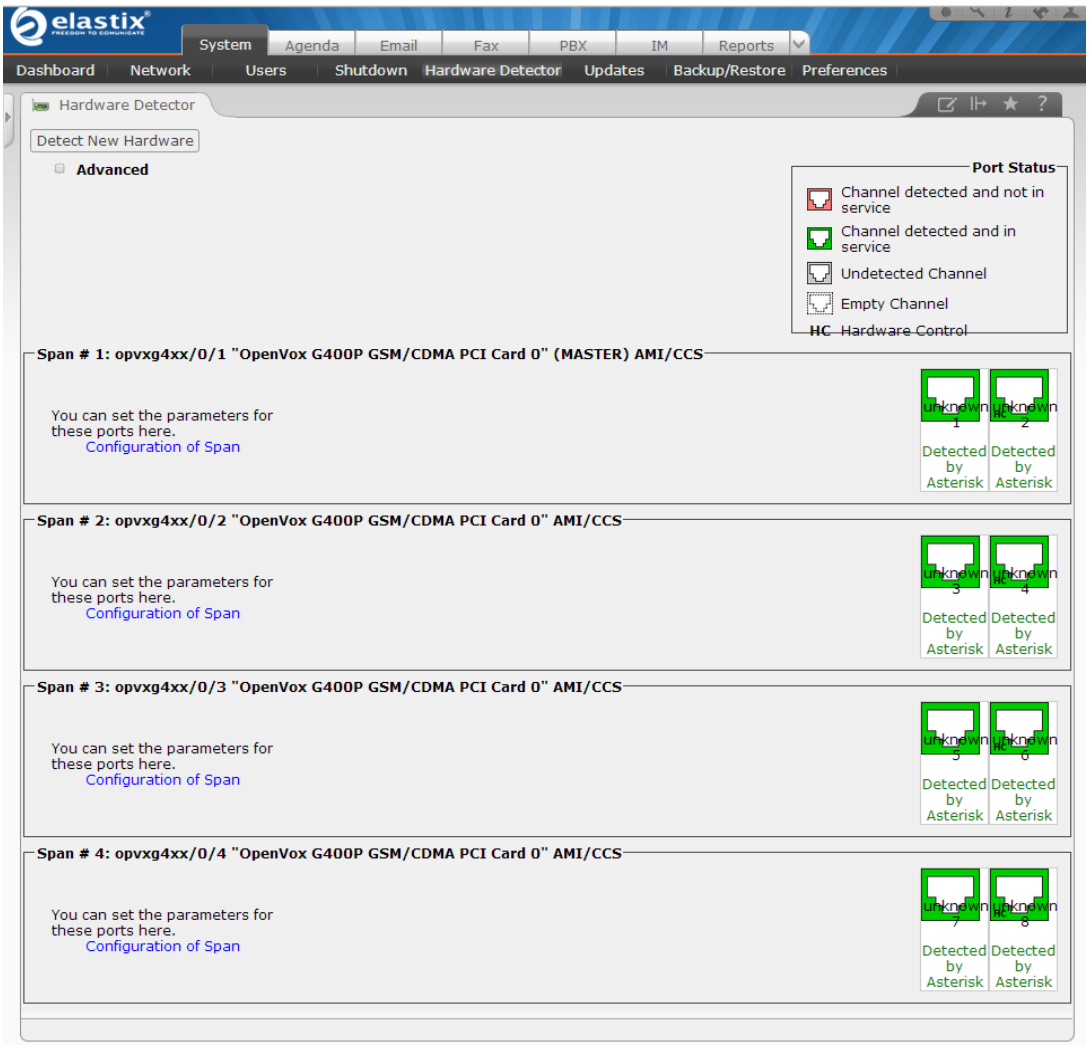
2.2 Configure hardware

Login to Web panel of your Elastix system:

Click “System→Hardware Detector→Detect New Hardware” to make G400P recognized by Elastix Web panel.



After clicked “Detect New Hardware”, the G400P will be showed as follows:



Above step will generate some configuration files, you need to focus on one of them, /etc/asterisk/extra-channels.conf, you will use it with trunk settings for G400P.

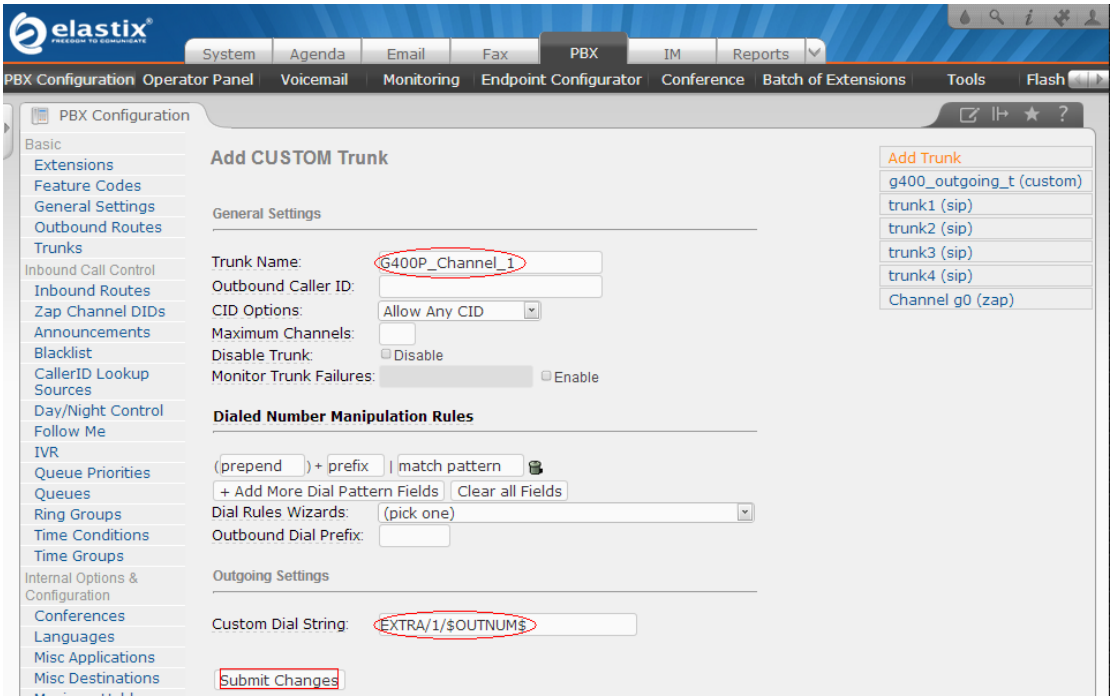
```
; Autogenerated by /usr/sbin/dahdi_genconf on Fri Nov 22 11:27:13 2013
; If you edit this file and execute /usr/sbin/dahdi_genconf again,
; your manual changes will be LOST.
; Dahdi Channels Configurations (chan_extra.conf)
;
; This is not intended to be a complete chan_extra.conf. Rather, it is intended
; to be #include-d by /etc/chan_extra.conf that will include the global settings
;

; Span 1: opvxg4xx/0/1 "OpenVox G400P GSM/CDMA PCI Card 0" (MASTER)
group=11
context=from-pstn
signalling = gsm
;pin=1234
channel => 1
context = default
group = 63

; Span 2: opvxg4xx/0/2 "OpenVox G400P GSM/CDMA PCI Card 0"
group=12
context=from-pstn
signalling = gsm
;pin=1234
channel => 3
context = default
group = 63

; Span 3: opvxg4xx/0/3 "OpenVox G400P GSM/CDMA PCI Card 0"
group=13
context=from-pstn
signalling = gsm
;pin=1234
channel => 5
context = default
group = 63

; Span 4: opvxg4xx/0/4 "OpenVox G400P GSM/CDMA PCI Card 0"
group=14
context=from-pstn
signalling = gsm
;pin=1234
channel => 7
context = default
group = 63
```

Notice: You need to check this file when setup trunks for G400P.

2.3 **Trunks settings**

Click “PBX→Trunks→Add Custom Trunk” to create GSM trunks for G400P:

Here is an example to create a trunk for first GSM port on G400P:



You need to pay more attention on “Custom Dial String”, it is based on the settings in /etc/asterisk/extra-channels.conf. The format is:

“Channel Type/Channel Number or Channels group/Dialed number”

Instead of “DAHDI” technology, OpenVox develops a new channel type

named “EXTRA” for OpenVox GSM/WCDMA cards, so the dial string for the first GSM channel has to be:

EXTRA/1/$OUTNUM$

If you want to add all GSM channels to a group and send calls out via the group, you have to change the group number for each channel, and then the dial string must to be:

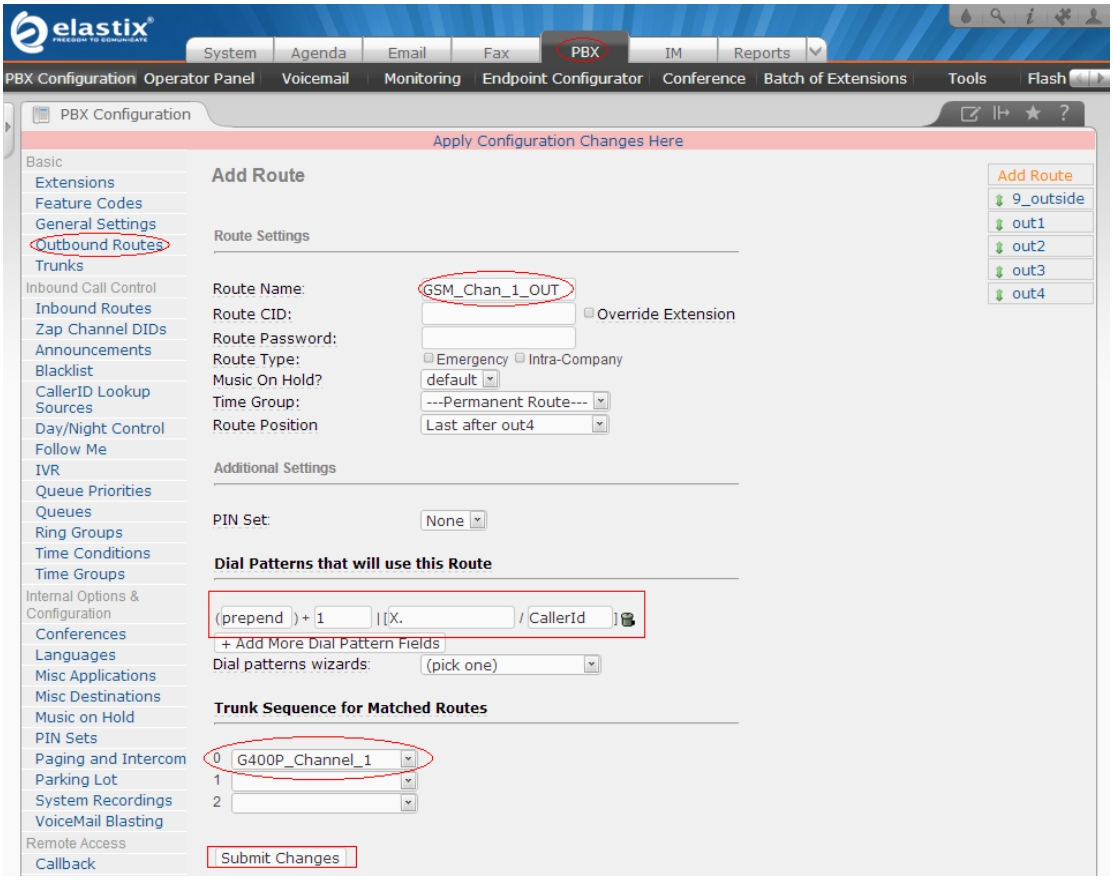
EXTRA/g11/$OUTNUM$

```
; Span 1: opvxg4xx/0/1 "OpenVox G400P GSM/CDMA PCI Card 0" (MASTER)
group=11                          // EXTRA/g11/$OUTNUM$
context=from-pstn
signalling = gsm
;pin=1234
channel => 1                     // EXTRA/1/$OUTNUM$
context = default
group = 63

; Span 2: opvxg4xx/0/2 "OpenVox G400P GSM/CDMA PCI Card 0"
group=11                         // EXTRA/g11/$OUTNUM$
context=from-pstn
signalling = gsm
;pin=1234
channel => 3                    // EXTRA/3/$OUTNUM$
context = default
group = 63

; Span 3: opvxg4xx/0/3 "OpenVox G400P GSM/CDMA PCI Card 0"
group=11                        // EXTRA/g11/$OUTNUM$
context=from-pstn
signalling = gsm
;pin=1234
channel => 5                    // EXTRA/5/$OUTNUM$
context = default
group = 63

; Span 4: opvxg4xx/0/4 "OpenVox G400P GSM/CDMA PCI Card 0"
group=11                        // EXTRA/g11/$OUTNUM$
context=from-pstn
signalling = gsm
;pin=1234
channel => 7                    // EXTRA/7/$OUTNUM$
context = default
group = 63
```

You can refer the above comments to create trunks for each GSM channel (1, 3, 5, 7), and also create a specific group trunk for all GSM channels (g11).

2.4 **Outbound Routes**

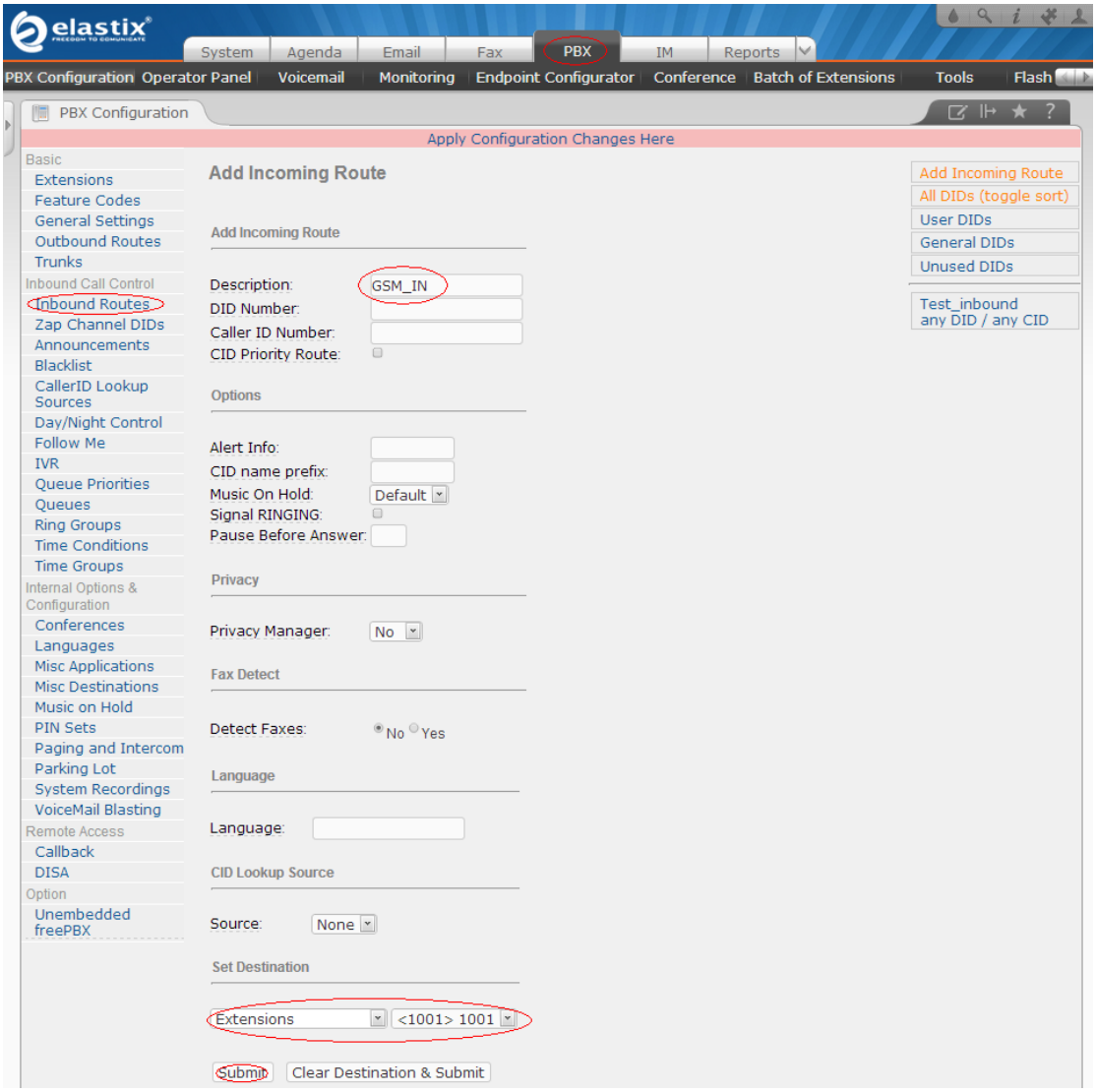
Click "PBX→Outbound Routes" to create an outbound route for the GSM trunk above, when dialed number start with digit "1", the call will be routed to the GSM channel or GSM channels group you chose.



2.5 **Inbound Routes**

Similar to Analog PSTN line, there is no DID on GSM connection either.

So you can just create a inbound route with DID blank, then all incoming calls from GSM channels will be routed to destination extension 1001.



2.6 Advanced DID Settings

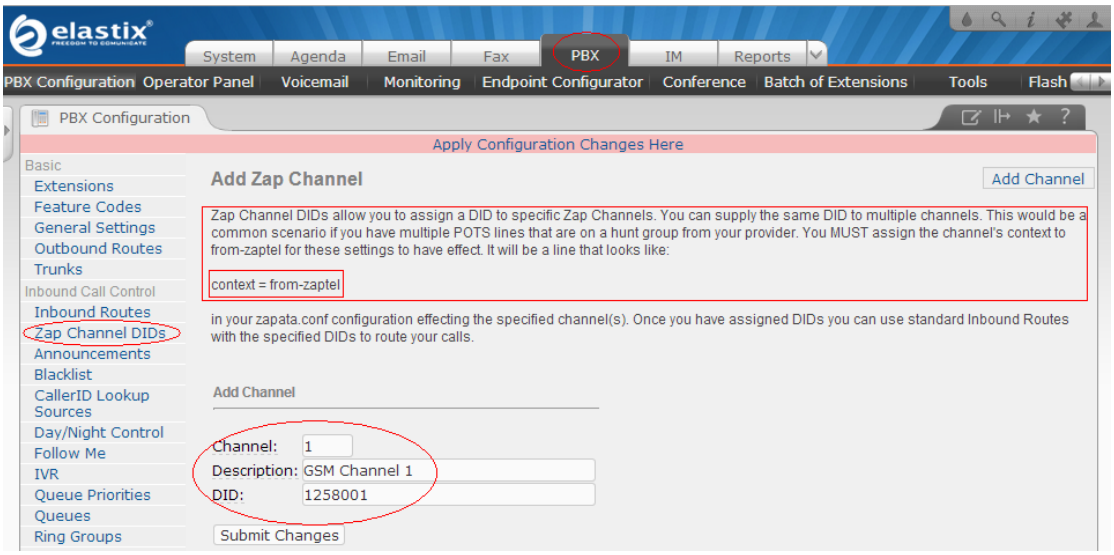
In general, the inbound route with DID blank is not fit for your specific requirement, maybe you would like to create an inbound route for each GSM channel, but limited by DID settings. It is known that binding DIDs to ZAP/DAHDI channels can help with creating inbound routes based on

DIDs for FXO channels which connected analog pstn lines.

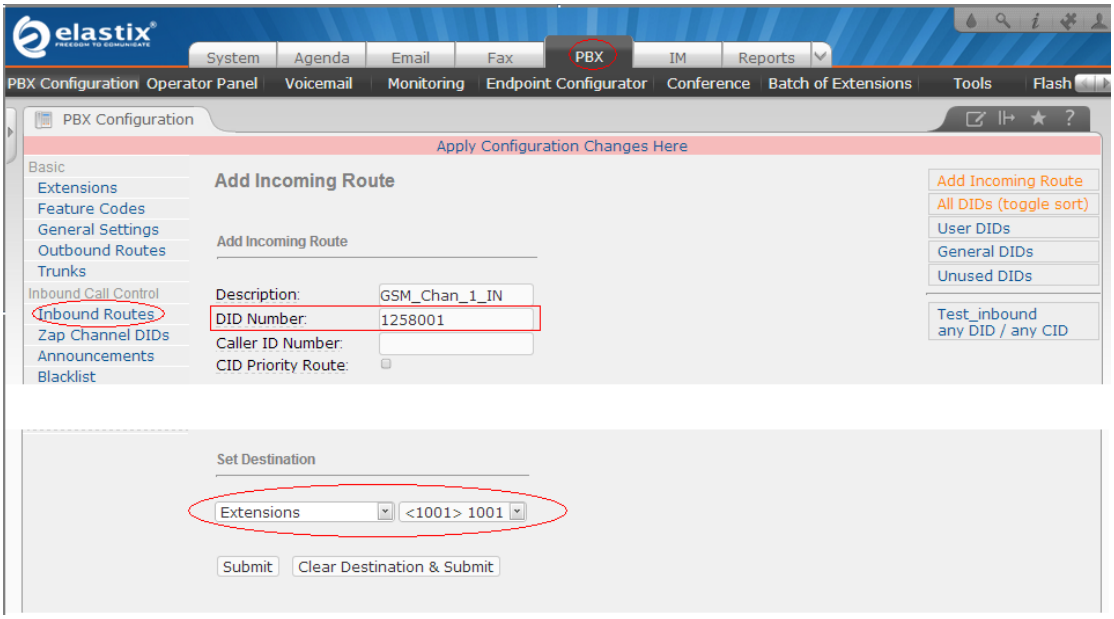
Here is a solution make it happen for GSM channels.

a. Bind DID to GSM channel

Click “PBX→Zap Channel DIDs” to assign DID number to specific GSM channel. Take the first GSM channel as an example.



b. Create an inbound route based on DID above



Then call from the first GSM port will be routed to extension 1001.

c. Add following dialplan in extensions_custom.conf:

```
[from-zaptel-custom]
exten => _X.,1,Set(DID=${EXTEN})
exten => _X.,n,Goto(s,1)
exten => s,1,Noop(Entering from-dahdi with DID == ${DID})
exten => s,n,Ringing()
exten => s,n,Set(DID=${IF($["${DID}"= ""]?s:${DID})})
exten => s,n,Noop(DID is now ${DID})
exten => s,n,GotoIf($["${CHANNEL:0:5}"="DAHDI"]?dahdiok:checkzap)
exten => s,n(checkzap),GotoIf($["${CHANNEL:0:3}"="Zap"]?zapok:checkextra)

;Add DID binding for GSM cards;
exten => s,n(checkextra),GotoIf($["${CHANNEL:0:5}"="EXTRA"]?extraok:neither)

exten => s,n(neither),Goto(from-pstn,${DID},1)
exten => s,n,Macro(Hangupcall,dummy)
exten => s,n(dahdiok),Noop(Is a DAHDI Channel)
exten => s,n,Set(CHAN=${CHANNEL:6})
exten => s,n,Set(CHAN=${CUT(CHAN,-,1)})
exten => s,n,Macro(from-dahdi-${CHAN},${DID},1)
exten => s,n,Noop(Returned from Macro from-dahdi-${CHAN})
exten => s,n,Goto(from-pstn,${DID},1)
exten => s,n(zapok),Noop(Is a Zaptel Channel)
exten => s,n,Set(CHAN=${CHANNEL:4})
exten => s,n,Set(CHAN=${CUT(CHAN,-,1)})
exten => s,n,Macro(from-dahdi-${CHAN},${DID},1)
exten => s,n,Noop(Returned from Macro from-dahdi-${CHAN})
exten => s,n,Goto(from-pstn,${DID},1)

;Check extra channels;
exten => s,n(extraok),Noop(Is a EXTRA Channel)
exten => s,n,Set(CHAN=${CHANNEL:6})
exten => s,n,Set(CHAN=${CUT(CHAN,-,1)})
exten => s,n,Macro(from-dahdi-${CHAN},${DID},1)
exten => s,n,Noop(Returned from Macro from-dahdi-${CHAN})
exten => s,n,Goto(from-pstn,${DID},1)


; end of [from-zaptel-custom]
```

Above dialplan is the key to make DID settings go into effect, otherwise those inbound routes based on DIDs will fail.

After all steps have been done, please execute “amportal restart” to restart asterisk and test calls.

Chapter 3 References

www.openvox.cn

www.digium.com

www.asterisk.org

www.voip-info.org

www.asteriskguru.com

Tips

Any questions during installation please consult in our forum or look up for answers from the following websites:

Forum

wiki