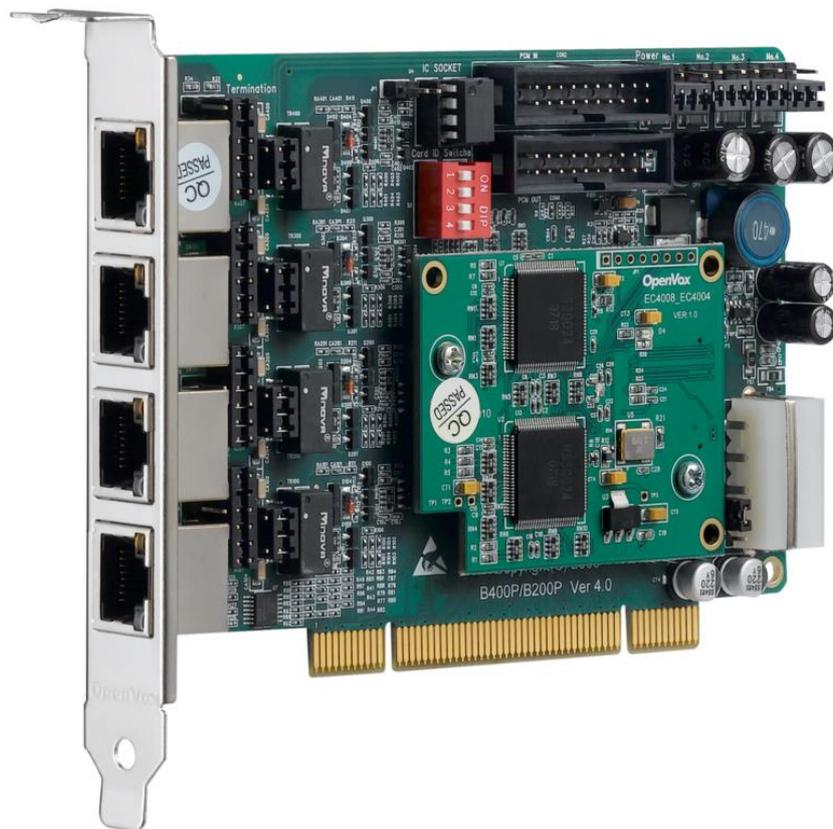




OpenVox Communication Co.Ltd



**OpenVox BRI Cards on Trixbox 2.8.0.4
User Manual**

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OpenVox Communication Co.Ltd

OpenVox-Best Cost Effective Asterisk Cards

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Test Environments

Trixbox 2.8.0.4 (CentOS-5.5)

Kernel version: 2.6.18-164.11.1.el5

DAHDI: openvox_dahdi-linux-complete-current

Asterisk: 1.6.0.26

Libpri: 1.4.10.2

Hardware: OpenVox BRI Cards

Chapter 1 Overview

1.1 What is Trixbox

Trixbox was initially released under the name Asterisk@Home, is a CentOS Linux distribution that provides an open source telephony package based on the famous Asterisk Voice-over-IP PBX. In October 2006, it was renamed to trixbox after Digium requested that its developers cease the use of the word "Asterisk"; the renaming was further justified by the fact that the product at that time consisted of much more than just Asterisk.

Here are some functions included for trixbox:

- Linux CentOS: Operating platform
- Asterisk: VoIP PBX
- FreePBX: Web GUI for Asterisk
- Dahdi/Zaptel: Telephony Hardware drivers
- LibPRI: Open source library that implements signaling for ISDN-PRI and ISDN-BRI
- MySQL: Database server
- Apache: Web server
- PHP: Server-side scripting language
- SugarCRM: Customer relationship management (CRM) tool

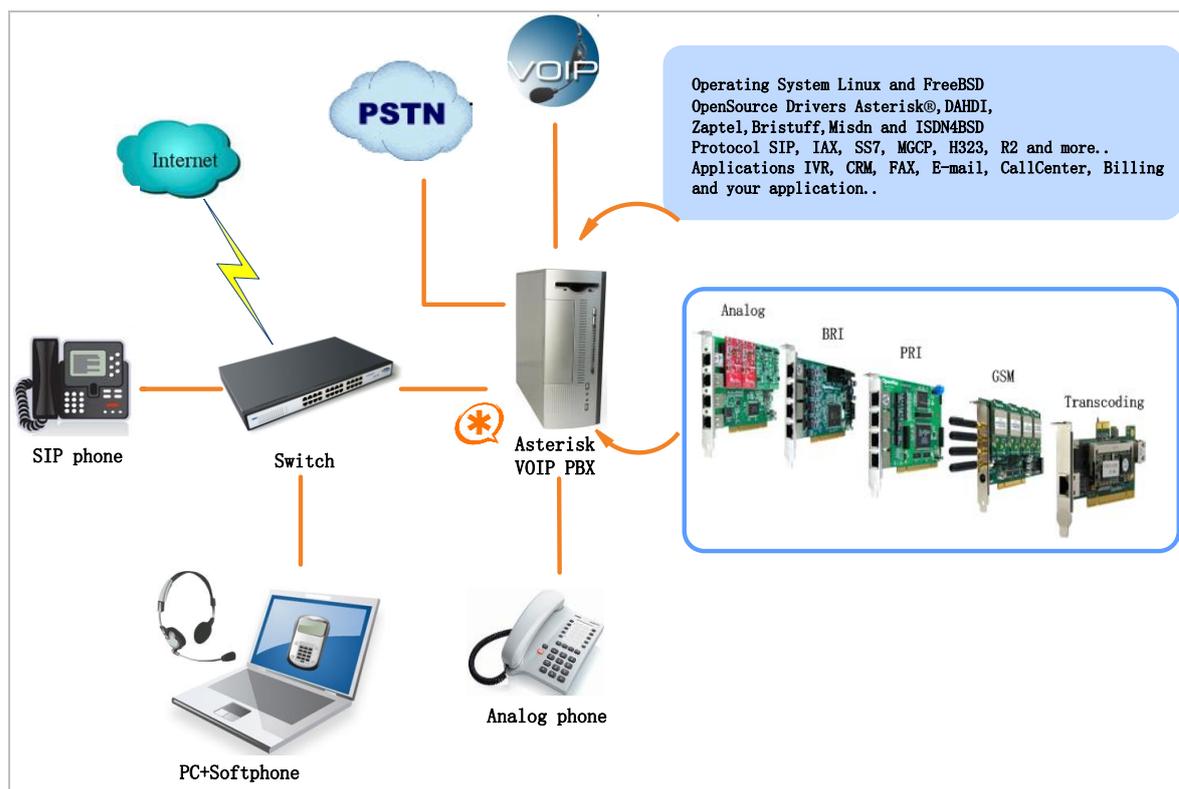


Figure 1 Topology

1.2 What is OpenVox BRI Telephony Cards

OpenVox provides full product line of ISDN BRI cards from 1 port to 8 ports with optional hardware Echo Cancellation Module. Superior quality products, reliability, high performance and quick support from our technical team are well known in the open source community. The BRI cards can turn the legacy ISDN BRI equipment into powerful Voice over IP devices and provide a soft migration path from ISDN technology to the Voice over IP world. BRI Telephony Cards work well with Asterisk®, Elastix®, FreeSWITCH™, PBX in a Flash, trixbox®, Yate™ and IPPBX/IVR projects as well as other Open Source and proprietary PBX, Switch, IVR, and VoIP gateway applications.

OpenVox BRI Telephony Cards can be divided into three classes in accordance with PCI bus interfaces:

- Mini PCI type III BRI cards
B100M/B200M/B400M
- PCI 2.2 compliant cards
B100P/B200P/B400P/B800P
BE200P/BE400P
- PCI Express 1.0 compliant cards
B100E/B200E/B400E
BE200E/BE400E

Target applications

- High Performance ISDN PC Cards
- ISDN PABX for BRI
- VoIP Gateways
- ISDN LAN Routers for BRI
- ISDN Least Cost Routers for BRI
- ISDN Test Equipments for BRI

Main features

- Provide 1 to 8 S/T interfaces
- Support 3 kinds of PCI bus interfaces
- ITU-T I.430 and TBR 3 certified and S/T ISDN supporting TE/NT

mode

- DTMF detection on all B-channels
- Multiparty audio conferences bridge
- Full software and hardware compatible with Junghanns.NET ISDN, mISDN driver, DADHI and so on.
- Certificates: CE, FCC, A-Tick
- trixbox™ Officially Certified
- Elastix® Officially Certified
- Lifetime warranty
- RoHS compliant

Chapter 2 Software Installation and Configuration

OpenVox BRI Telephony Cards support DAHDI software driver on Trixbox. To make full use of BRI Telephony Cards, it is need to download, compile, install and configure DAHDI, libpri and Asterisk. Before doing this, please stop Asterisk and DAHDI by operating:

```
# amportal stop  
  
# service dahdi stop
```

2.1 Installation of DAHDI



Caution: In general, Trixbox 2.8.0.4 has already built DAHDI, LibPRI and Asterisk in the system, so it is not need to reinstall them to build your own PABX with OpenVox BRI Cards. But there are a few of exceptional cases when use the following OpenVox BRI cards:

- B100M/B100P/B100E

You need to download the driver ‘zaphfc’ for B100M/B100P /B100E from OpenVox official website, because it is not contained in the original DAHDI driver which built in Trixbox.

- BE200P/BE200E/BE400P/BE400E

You need to download a patch for these cards from OpenVox official

website to enable the Hardware EC module.

- B800P

You need to download a patch for B800P from OpenVox official website to enable NT mode. While if you only use B800P on TE mode, it is not need to do that anymore!



If use the BRI cards have mentioned before, please just download a DAHDI source code package from OpenVox official website. Since **our current DAHDI driver** package contains all drivers for OpenVox BRI cards and all original drivers, it is very convenient to extend your PBX system and it is not need to reinstall the drivers. Downloading the current DAHDI driver package from OpenVox website will be a feasible solution for those cards:

http://downloads.openvox.cn/pub/drivers/dahdi-linux-complete/openvox_dahdi-linux-complete-current.tar.gz

Execute the following commands under the directory of /usr/src/ in general to download and decompress the driver packages:

```
# wget http://downloads.openvox.cn/pub/drivers/dahdi-linux-complete/openvox_dahdi-linux-complete-current.tar.gz
```

```
# tar -zxvf dahdi-linux-complete-current.tar.gz
# cd /usr/src/dahdi-linux-complete-<version>
# make
# make install
# make config
```

After doing these steps, please just skip to configuration part of the specific [USER MANUAL](#) about OpenVox BRI card.

2.2 Installation of Libpri and Asterisk



If use OpenVox BRI cards on NT mode, you need to apply a patch for Asterisk-1.6.0.26. Get libpri and Asterisk software packages from Digium official website:

<http://downloads.asterisk.org/pub/telephony/libpri/releases/libpri-1.4.10.2.tar.gz>

<http://downloads.asterisk.org/pub/telephony/asterisk/releases/asterisk-1.6.0.26.tar.gz>

Execute the following commands under the directory of /usr/src/ in general to download and decompress these packages:

```
# wget http://downloads.asterisk.org/pub/telephony/libpri/releases/libpri-1.4.10.2.tar.gz

# tar -zxvf libpri-1.4.10.2.tar.gz

# wget http://downloads.asterisk.org/pub/telephony/asterisk/releases/asterisk-1.6.0.26.tar.gz

# tar -zxvf asterisk-1.6.0.26.tar.gz

# cd asterisk-1.6.0.26

# vi ./channels/chan_dahdi.c
```

Please comment out the following line:

```
/*ast_log(LOG_WARNING, "How cool would it be if someone Implemented this mode!For now, sucks for you.(line %d)\n", v->lineno);*/
```

Then add the following two lines after above action:

```
confp->chan.sig = SIG_BRI_PTMP;
confp->pri.nodetype = PRI_NETWORK
```

After that, please save and quit it, then execute the following commands to install libpri and Asterisk.

```
# cd libpri-1.4.10.2

# make
```

```
# make install
```

```
# cd asterisk-1.6.0.26
```

```
# ./configure
```

```
# make
```

```
# make install
```



DO NOT execute "make samples" here, or it will damage the configuration file in the directory of /etc/asterisk. This action will lead to a disaster that you have to reinstall your system if you did not backup your configurations before.

After finishing the above steps, please just skip to Configuration part of the specific [USER MANUAL](#) about OpenVox BRI card.

Chapter 3 Web GUI Configuration

Make sure your Trixbox server is running fine, then log in the server via web interface to start configurations.

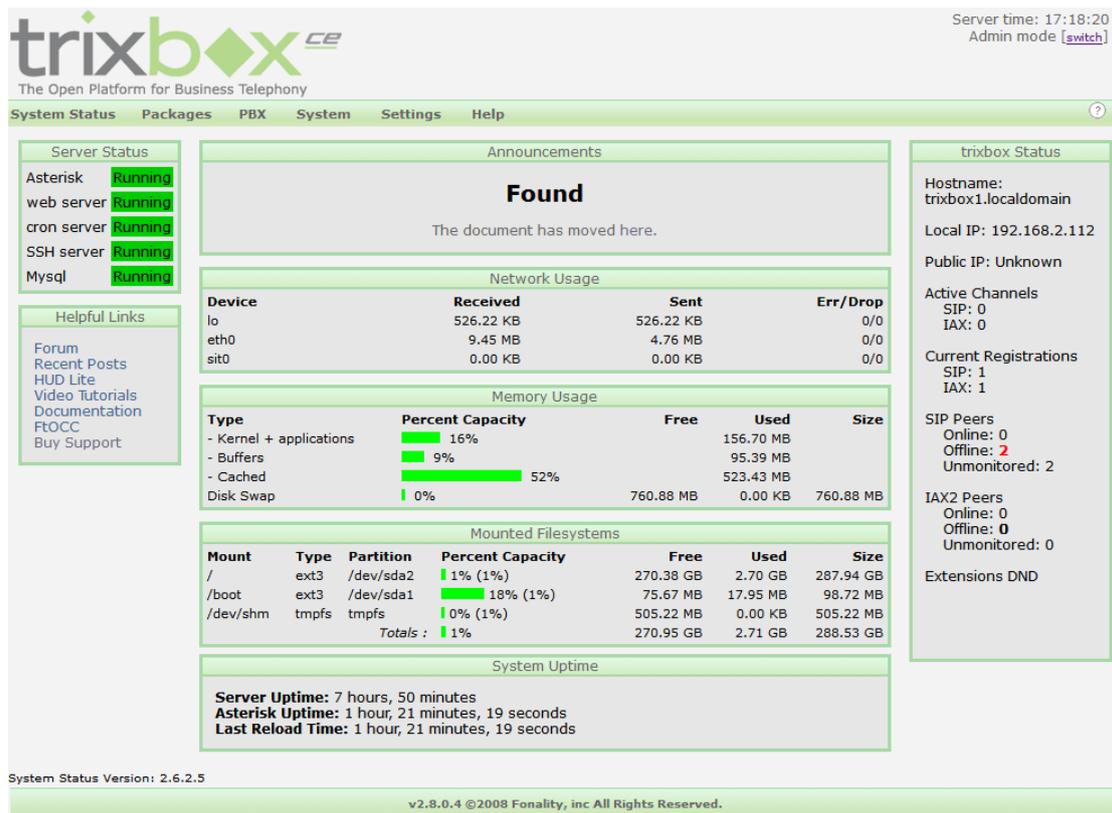


Figure 2 Main Page of GUI

3.1 Create Extensions

- Add SIP extensions

Click PBX→PBX Settings→Extensions, choose “Generic SIP Device”, finally submit it. You can refer to the following figure.

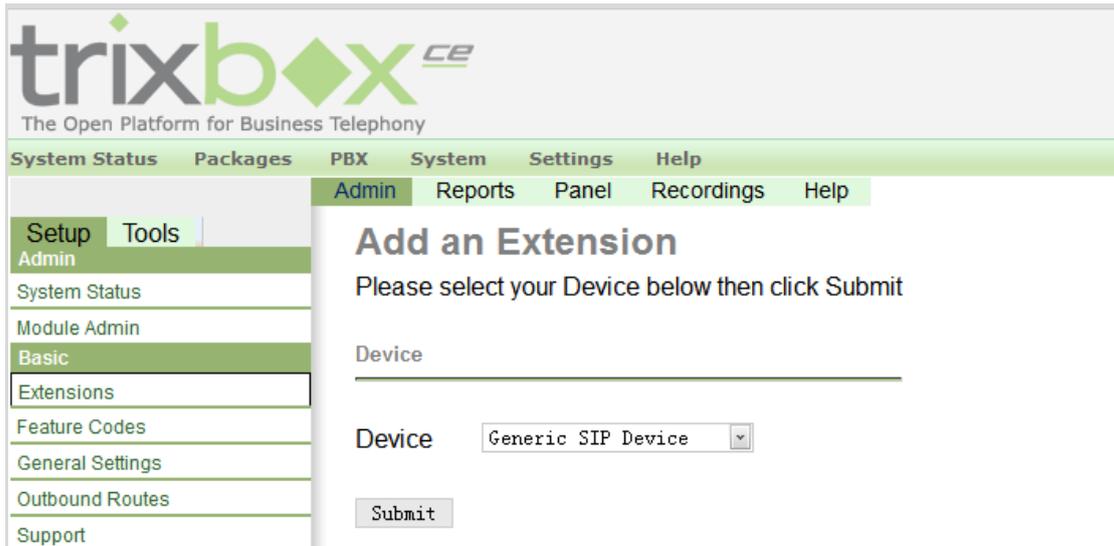


Figure 3 Add a SIP Extension

Configure “User Extension”, “Display Name”, “Secret”, and submit your configurations.

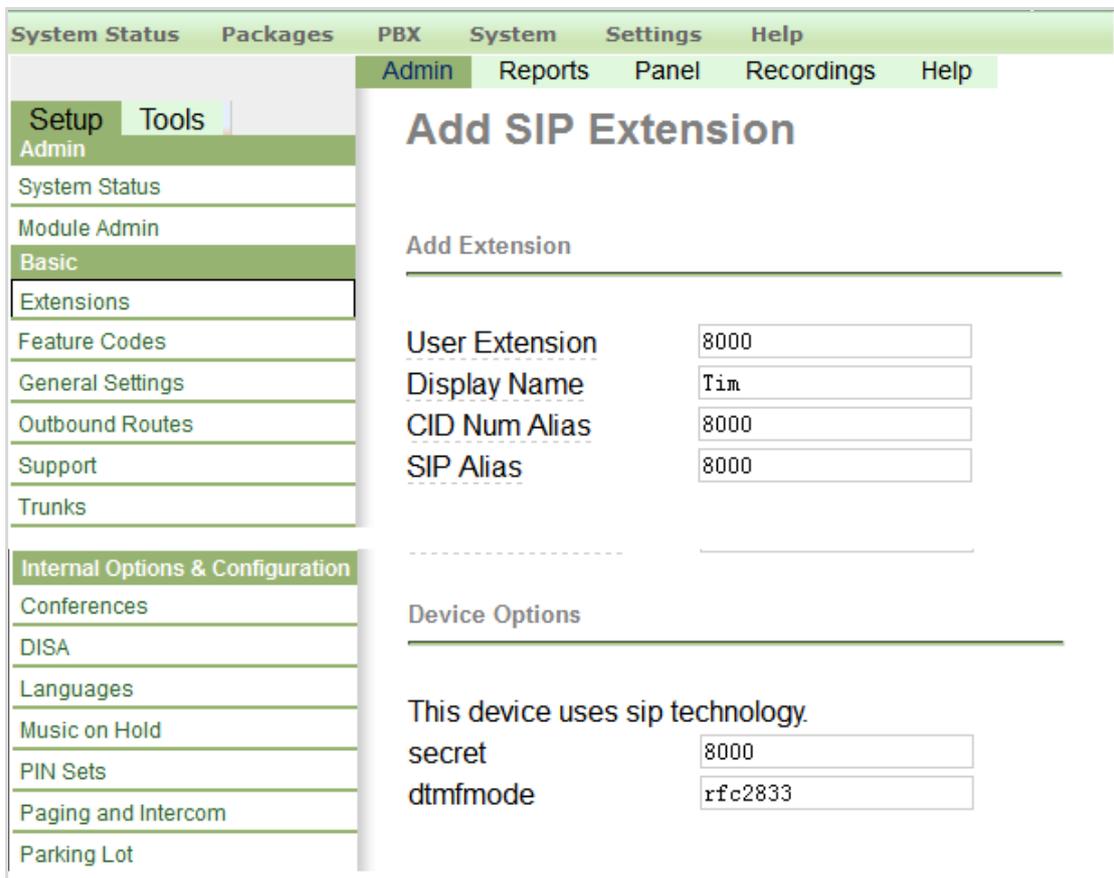


Figure 4 Configure a SIP Extension

After successfully added, click “Apply Configuration Changes” button to take your configurations effect. Also you are able to add another SIP extension by click “Add Extension”.

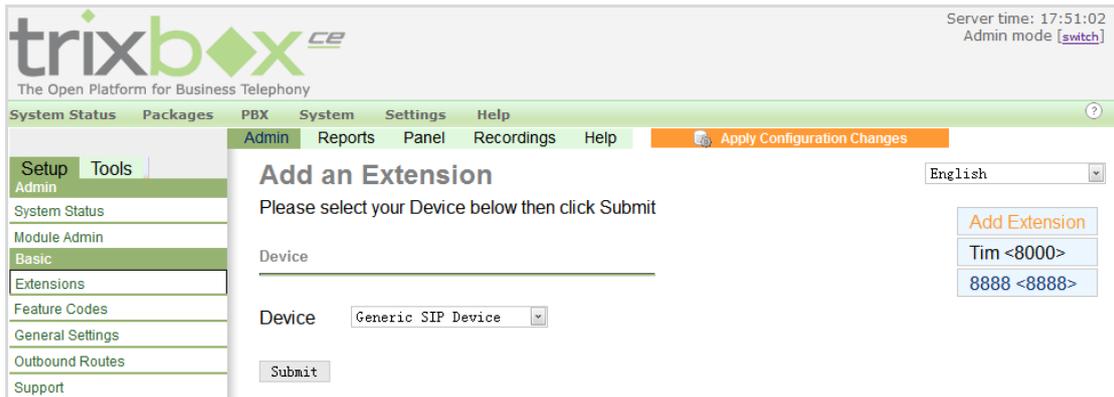


Figure 5 Configuration Changes

- Add ISDN extensions

The way to add an ISDN phone is similar to a SIP phone. The figure below will make it clear.

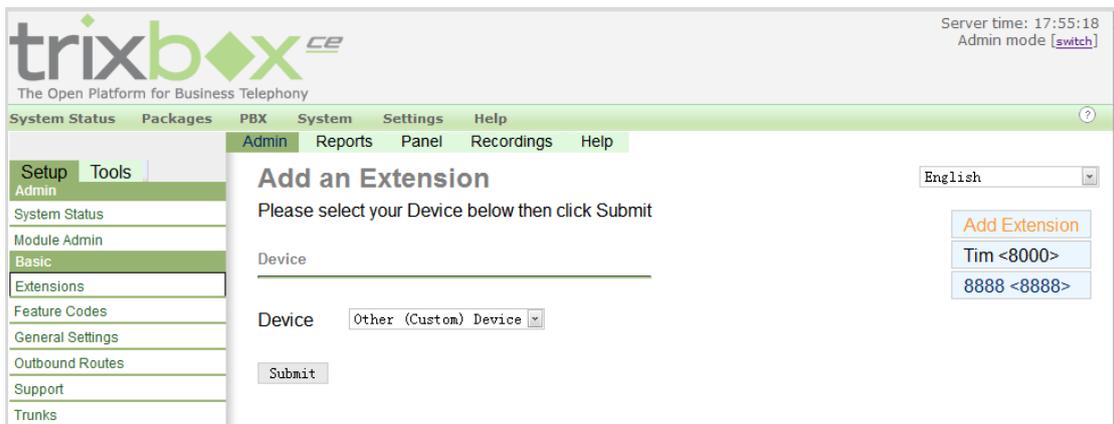


Figure 6 Add a Custom Extension

Choose “Other (Custom) Device”, and submit it. Then configure “User Extension”, “Display Name”, “Device Options”, and submit your configurations.

Figure 7 Configure a ISDN Extension



Here you must configure it based on the file

`/etc/asterisk/dahdi-channels.conf.`

```

; Span 1: B4/0/1 "B4XXP (PCI) Card 0 Span 1" (MASTER) AMI/CCS
group=0,11           # The trunk for ISDN outline will use 'g0' here
context=from-pstn   # The default context for outbound setting
switchtype = euroisdn
signalling = bri_cpe_ptmp # The signalling for TE mode
channel => 1-2
context = default
group = 63

; Span 2: B4/0/2 "B4XXP (PCI) Card 0 Span 2" AMI/CCS
group=1,12          # The configuration for ISDN extension will use 'g1' here
context=from-internal # The context for internal extensions
switchtype = euroisdn
signalling = bri_net_ptmp # The signalling for NT mode
channel => 4-5
context = default
group = 63
    
```

Figure 8 Configuration of dahdi-channels.conf

After setting, do not forget to click “Apply Configuration Changes” button to make your configurations effective.

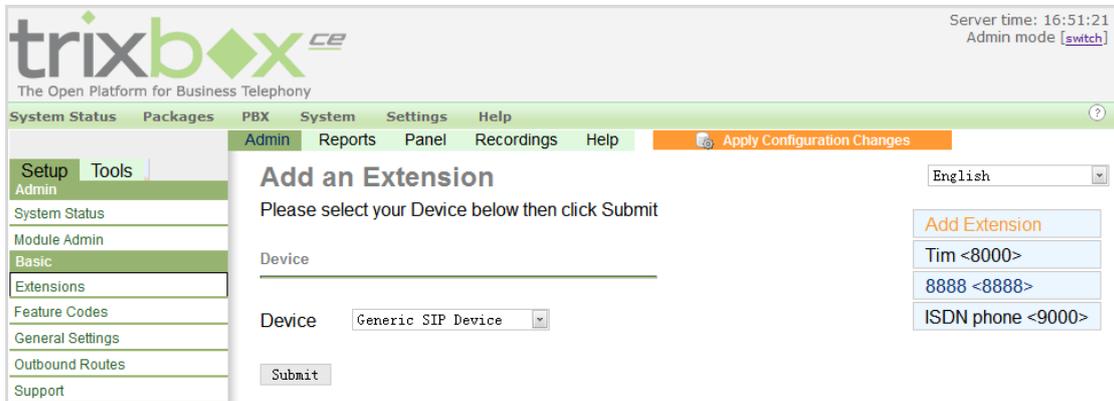


Figure 9 Apply Configuration Changes

More information about “Extensions”, please refer to [HERE](#).

3.2 Trunk settings

Click PBX→PBX Settings→Trunks, choose “Add Zap Trunk (DAHDI compatibility mode)” to create trunks based on the configuration of dahdi-channels.conf.

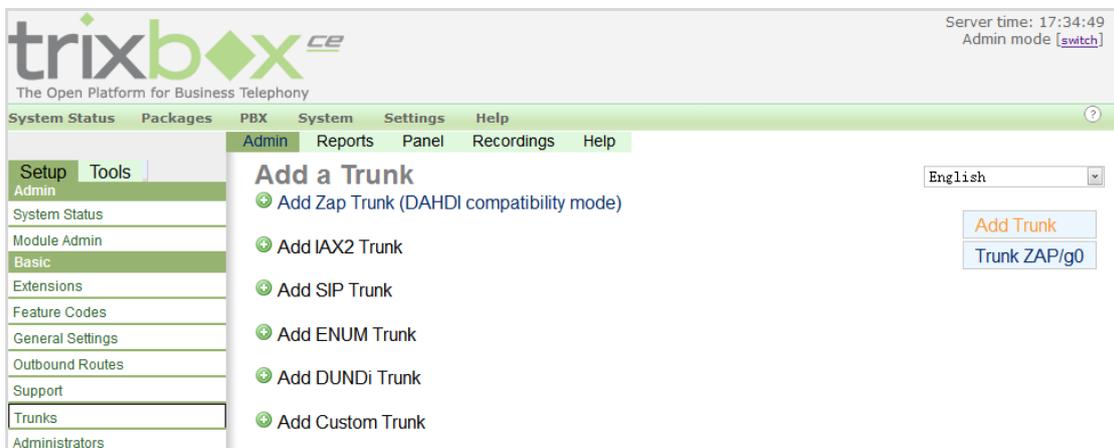


Figure 10 Add a Trunk

The default Trunk “Trunk ZAP/g0” is available here for the Spans of BRI card whose group number is “0”. More details please refer to **Figure 8** above.

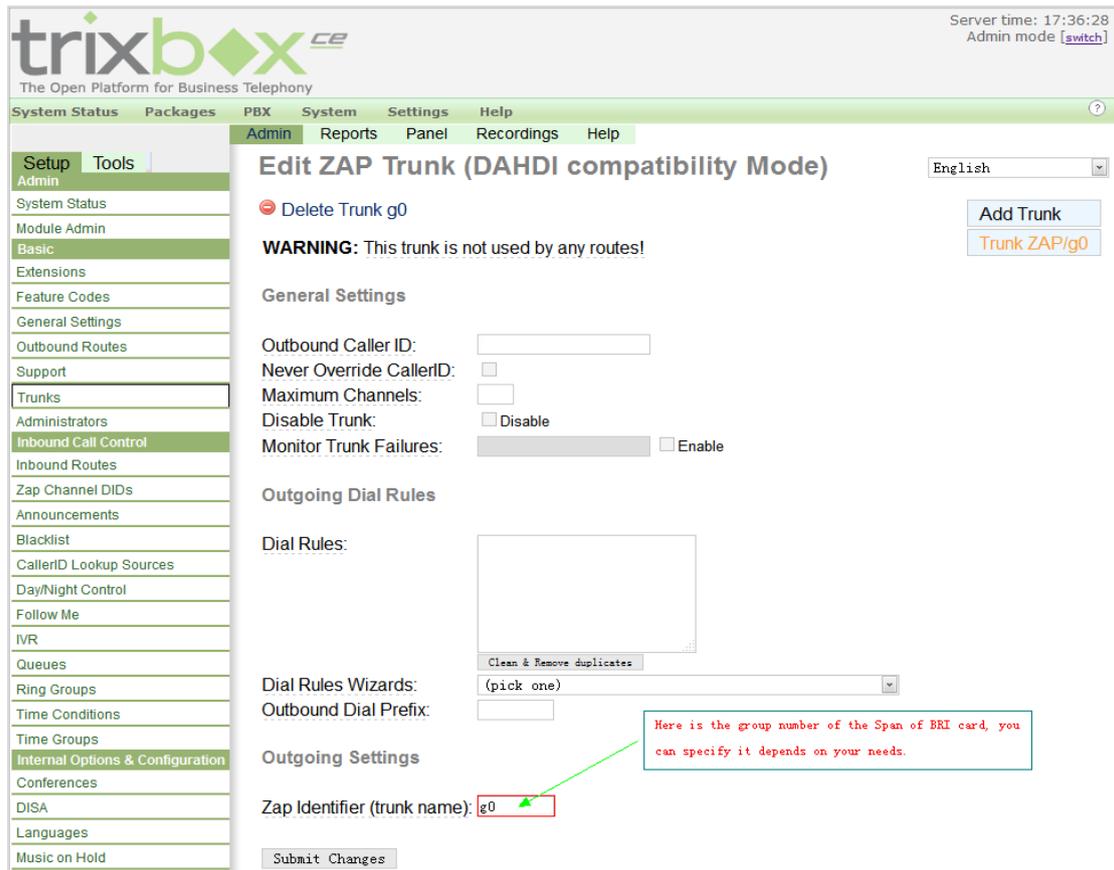


Figure 11 Edit ZAP Trunk

After finishing trunk settings, click “Apply Configuration Changes” button to take your configurations effect.

More information about trunk settings, please refer to [HERE](#).

3.3 Outbound Routes settings

Click PBX→PBX Settings→Outbound Routes, choose “Add Route” to

create Outbound Routes based on the configuration of trunk settings.

Then configure “Route Name”, “Dial Patterns”, “Trunk Sequence”, and submit your changes.

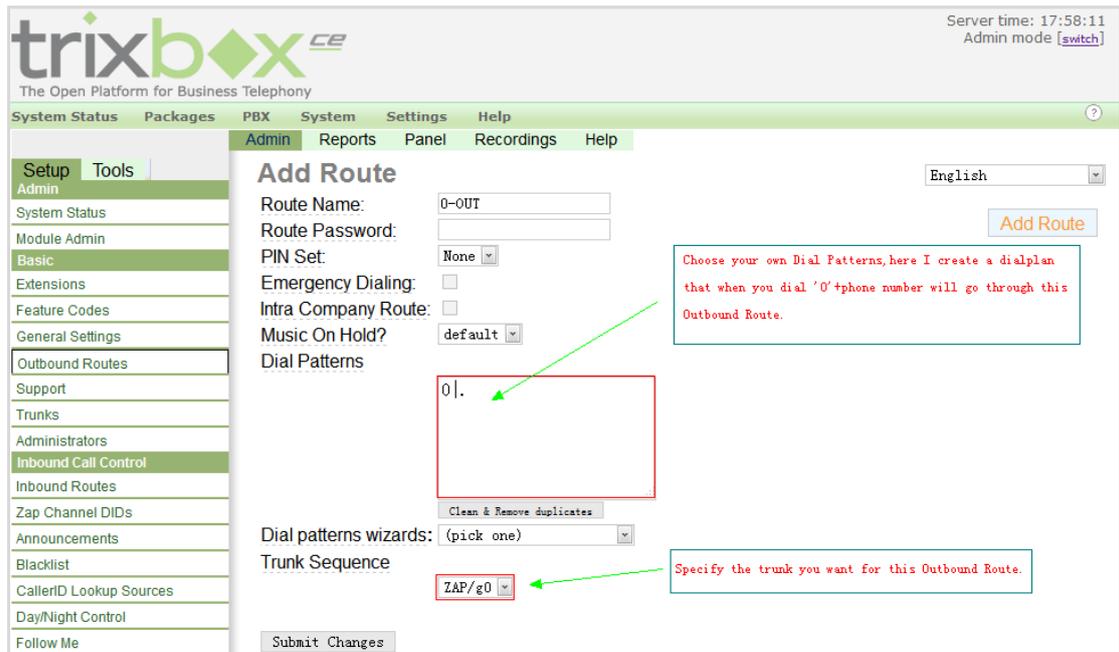


Figure 12 Edit Outbound Route

After finishing configuration, click “Apply Configuration Changes” button to bring your configurations into effect.

About configuration of “Dial Patterns”, please refer [HERE](#).

3.4 Inbound Routes settings

Before creating Inbound Routes, you’d better configure Zap/DAHDI channel DIDs first, click PBX→PBX Settings→Zap channel DIDs, choose “Add Channel” to bind DID to specific Zap/DADHI Channel.

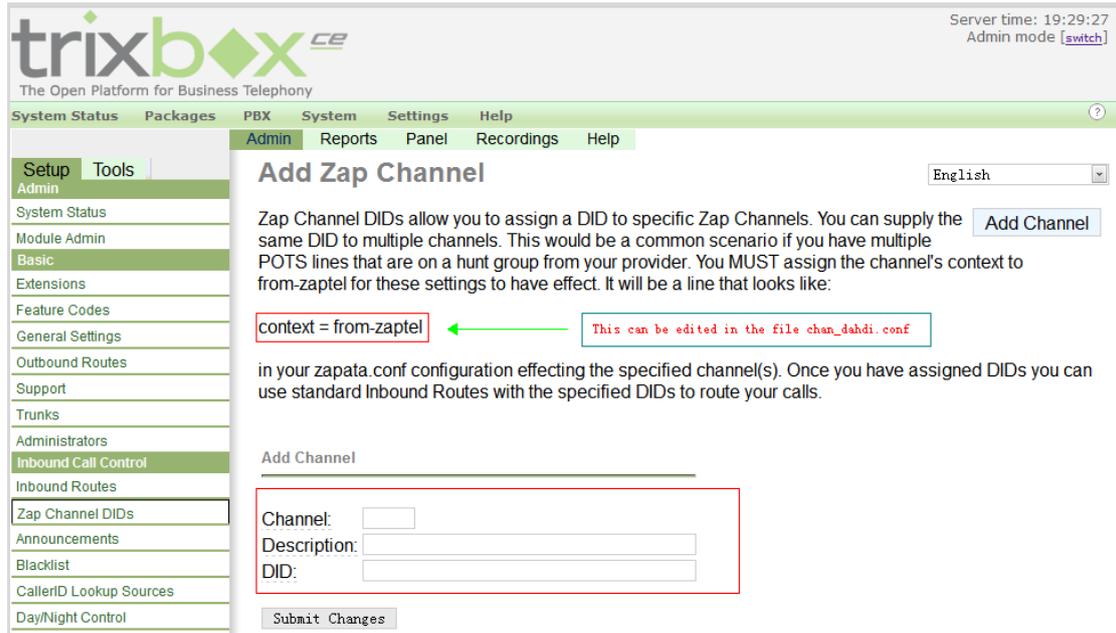


Figure 13 Configure DIDs

After completing configuration of DIDs, you can start to create Inbound Routes. Click PBX→PBX Settings→Inbound Routes, choose “Add Incoming Route” to create Inbound Routes based on the configuration of DIDs. Then set “Description”, “DID Number”, “Set Destination”, and submit your changes.

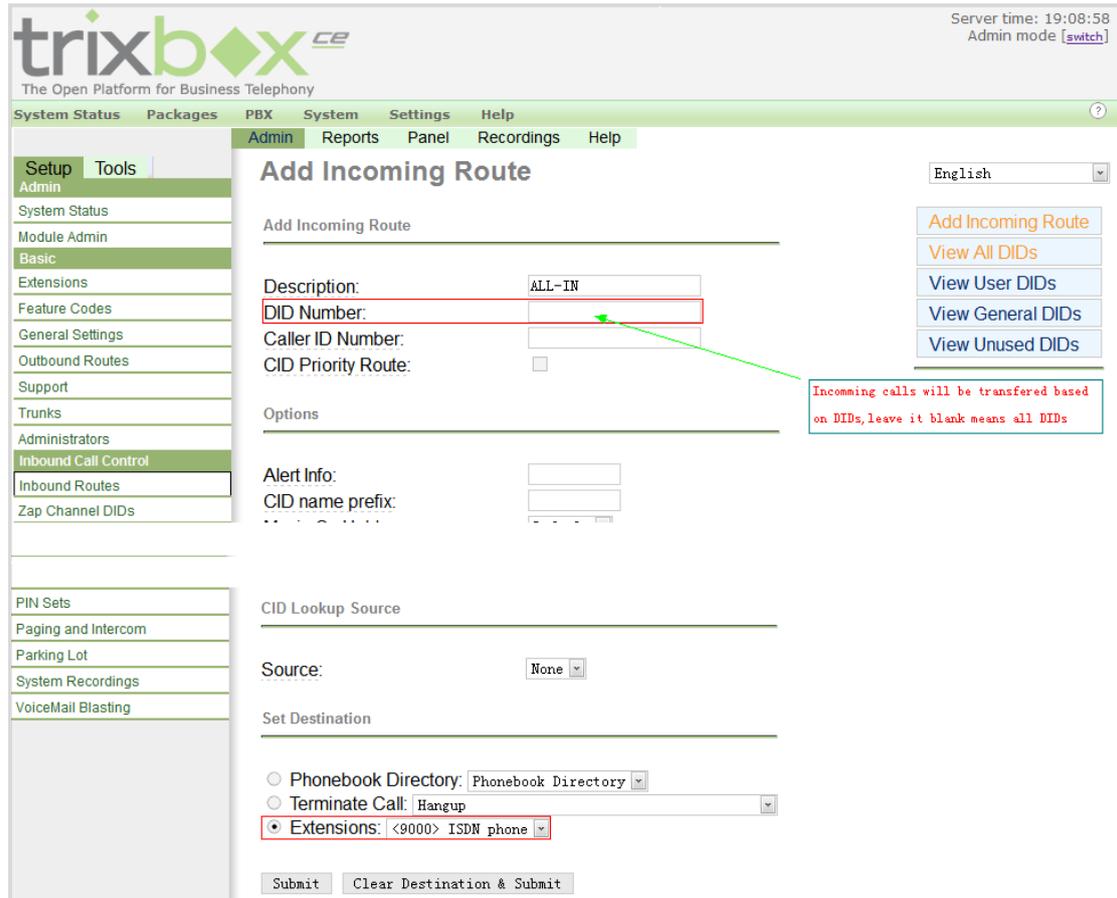


Figure 14 Edit Inbound Route

After that, please click “Apply Configuration Changes” button to bring your configurations into effect.

More information about “Inbound Routes”, please refer [HERE](#).



Chapter 4 Reference

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](#)