



Synway AST Series

AsteriskNOW 1.5.0 Installation Manual

Synway Information Engineering Co., Ltd

www.synway.net

Contents

Contents	i
Copyright Declaration	ii
Software License Agreement.....	iii
Preface	iv
Chapter 1 Preparation.....	1
1.1 Hardware.....	1
1.2 Software	1
Chapter 2 Installation of AsteriskNOW 1.5.0 System	2
2.1 Brief Introduction to AsteriskNOW System	2
2.2 Installation of AsteriskNOW System.....	2
Chapter 3 Compilation and Installation of Dahdi and SynAST.....	8
3.1 Install Compiling Environment.....	8
3.2 Install Driver	8
Chapter 4 Configuration and Management of AsteriskNOW	11
Appendix A Technical/Sales Support.....	19

Copyright Declaration

This manual is provided by Synway Information Engineering Co., Ltd (hereinafter referred to as 'Synway') as the support file for 'Synway AST Series board driver software'. Both the software and this manual are copyrighted and protected by the laws of the People's Republic of China.

All rights reserved; no part of this manual may be extracted, modified, copied, reproduced or transmitted in any form or by any means, electronic or mechanical, without prior written permission from Synway.

Synway reserves the right to revise this manual without prior note. Please contact Synway for the latest version of this manual before placing an order.

Synway has made every effort to ensure the accuracy of this manual but does not guarantee the absence of errors. Moreover, Synway assumes no responsibility in obtaining permission and authorization of any third party patent, copyright or product involved in relation to the use of this manual.

Software License Agreement

Synway Information Engineering Co., Ltd (hereinafter referred to as 'Synway') owns the copyright of 'this software and its accessories, relative files and archives' (hereinafter referred to as 'this product'). Any company or person can download the corresponding driver software and other useful documents for free directly from our website after purchasing a board of Synway.

Preface

When you use the Synway AST series boards to set up an AsteriskNOW system, this file provides the help for software installation and configuration.

Chapter 1 tells what to prepare before installing AsteriskNOW.

Chapter 2 introduces how to install the AsteriskNOW 1.5.0 system.

Chapter 3 unfolds how to compile and install the Dahdi and SynAST drivers.

Chapter 4 shows how to configure and use the AsteriskNOW system.

Appendix A gives the contact way of technical support and sales department in Synway.

Although Synway has scrupulously checked through this manual, but cannot guarantee the absence of errors and omissions. We sincerely apologize for any consequent inconvenience brought to you and will be very grateful if you kindly give your advice regarding amendments to this manual.

Chapter 1 Preparation

1.1 Hardware

First you shall prepare the following items: A PC with an empty HD (what we use herein is SAMSUNG, ATA/133 HDD 80GB), a Synway TEJ-1A/PCI board and a Synway FXM3201P board with two trunk modules (CH1 and CH2) and two station modules (CH3 and CH4).

You can install the Synway AST series boards either before or after the installation of the AsteriskNOW system. Here we install the AST boards first and then install the AsteriskNOW system.

All hardware manuals for the AST series boards can be downloaded from the following page.

<http://www.synway.net/Support/Resources.aspx>

1.2 Software

Make sure you have these software: AsteriskNOW 1.5.0, dahdi2.1.0.4+2.1.0.2 and SynAst-1.5.0.0.

AsteriskNOW 1.5.0, about 595MB in size, can be downloaded from:

http://dl.digium.com/load_balance.php?q=AsteriskNOW-1.5.0-i386-1of1.iso

Then burn the downloaded driver into a CD.

dahdi-linux-complete-2.1.0.4+2.1.0.2, about 1.58MB in size, can be downloaded from:

<http://downloads.asterisk.org/pub/telephony/dahdi-linux-complete/releases/dahdi-linux-complete-2.1.0.4+2.1.0.2.tar.gz>

SynAst-1.5.0.0, about 8.62MB in size, can be downloaded from:

http://www.synway.net/Download/Driver/Asterisk/AST1500/SynAST-1.5.0.0_en.tar.gz

Chapter 2 Installation of AsteriskNOW 1.5.0 System

2.1 Brief Introduction to AsteriskNOW System

The AsteriskNOW system is an integrated system which includes the operating system CentOS and other software like Asterisk, Dahdi, FreePBX. All necessary software can be installed well at one time, not requiring independent operation for any one of them. Then Asterisk and relative services will be automatically started up upon installation.

For detailed information about AsteriskNOW, please go to the official website of AsteriskNOW: <http://www.asterisknow.org>.

2.2 Installation of AsteriskNOW System

Step1: Set the guide mode

Set BIOS to boot from CD-ROM. Put the CD of AsteriskNOW system burned already into CD-ROM and start the PC.

Step2: Install AsteriskNOW

1. The system will go into the CD guide after the PC being started. Then the following interface will be shown on the screen. See Figure 1. Press Enter directly to go into the default installation mode.



Figure 1

Note: When all the installations are booted from CD-ROM, there may pop up the prompt 'Error downloading kickstart file' on the screen. Now you should select OK, but not Cancel; otherwise it may result in abnormal running of the system due to uninstallation of some packages.

2. Next, choose the language for installation. Here select 'English'.

To install with a new HD, the warning as shown in Figure 2 will pop up to remind you that creating new partitions requires driver initialization, which will cause the loss of all data on this driver. Click Yes to confirm.



Figure 2

3. To create new partitions, select the default setting 'Use free space on selected drives and create default layout' as a brand new HD is used here. Click Next to continue (see Figure 3).

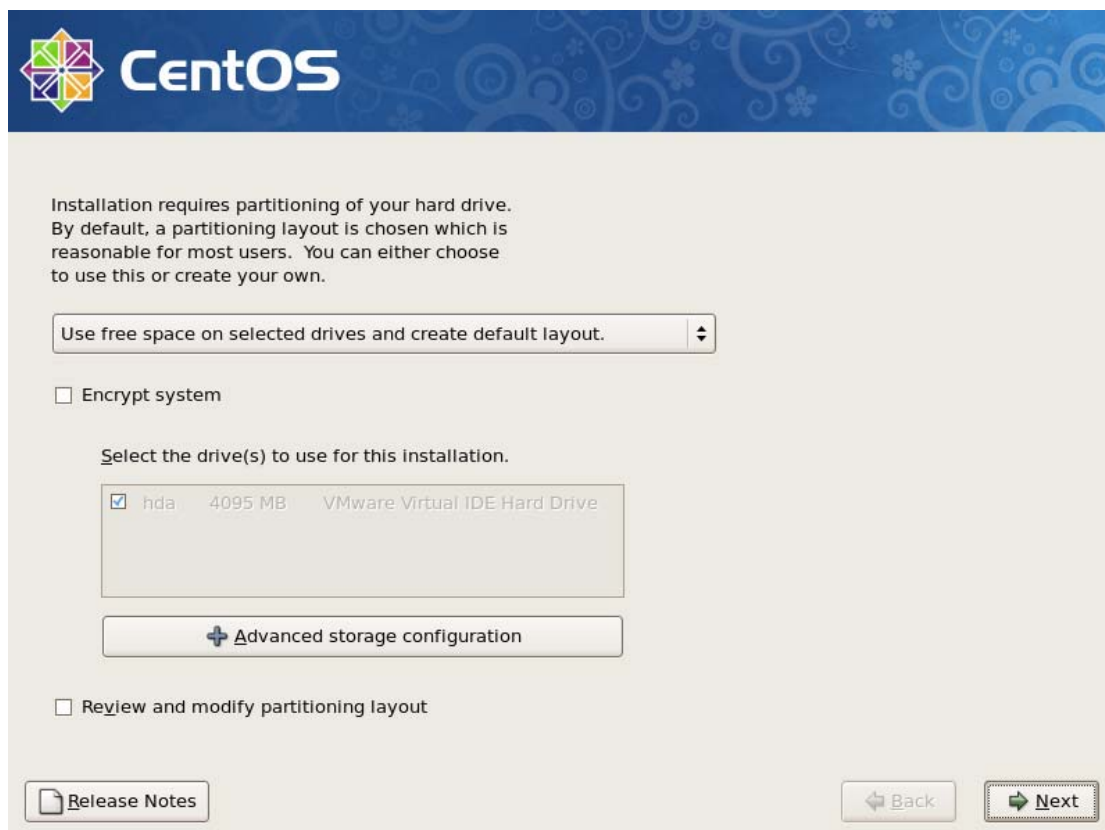


Figure 3

4. Choose a time zone according to your requirement. Here select 'America/New_York' (see Figure 4).



Figure 4

5. Next, enter the system administrator password (see Figure 5).



Figure 5

6. Then, the partitioning and formatting of the HD begins. After that, the system installation starts. Upon all files being installed successfully, there will pop up a prompt that ask you to restart the PC. Click Reboot to restart the computer. Note that you must take out the AsteriskNOW CD before rebooting the PC, or the system will go into the installation wizard again.



Figure 6

7. After the PC restart, the system will go into the configuration interface where you can configure some network parameters, including the IP address of the network card, the information about gateway and DNS server, as well as other software tools. If here you select Exit, you may use the setup command to start this interface after you log onto the system, too.

Step3: Log on the system

There will pop up the login prompt after the system startup. Please use the username 'root' to log in, and the password is just the one set during the installation process.

Step4: Configure the network

After entering the AsteriskNOW system, you should first configure the network so as to connect the system to Internet.

To be exact, run the command 'setup' to configure.

```
#setup
```

On the displayed menu:

Select 'Network configuration' and press 'Enter'. Select 'Edit a device params' and press 'Enter'. Then select your network card and configure the basic information of the network card, like the IP and gateway addresses. After that, click OK and then click Save. Return to the menu and select 'Edit DNS configuration' to configure the DNS server. When finished, click OK and then Save&Quit to exit the configuration tool.

Restart the network service to put the above configurations into effective.

```
# service network restart
```

Note: During the following installation process, the system will automatically link to Internet to download some relative files. Therefore, if the network has not been well configured, all subsequent operations will fail. However, for some networks that have DHCP servers to automatically allocate IP and gateway addresses, such network configuration is not required.

To check if the network is well running, use the ping command like the following.

```
# ping www.asterisk.org
```

Step5: When all the above steps are finished, the AsteriskNOW operating system has been installed successfully.

Chapter 3 Compilation and Installation of Dahdi and SynAST

To support the Synway AST series boards, you should install the SynAST driver based on the AsteriskNOW system. Here take the Synway TEJ-1A/PCI and FXM3201P boards as an example. As recompilation is required for driver installation, you should first install the compiling environment.

3.1 Install Compiling Environment

As the system does not install kernel-devel by default, the driver can not be compiled and installed immediately. Both the third party board and the driver should be installed after you install the compiling environment. First, use 'uname -r' to check the current version. The system version used here is 2.6.18-128.1.1.el5. Search for the corresponding version of kernel-devel on the network and download the corresponding rpm package. Here it should be kernel-devel-2.6.18-128.1.1.el5.i686.rpm.

At present you can download from the following website.

<ftp://ftp.chg.ru/pub/Linux/CentOS/5.3/updates/i386/RPMS/kernel-devel-2.6.18-128.1.1.el5.i686.rpm>

The exact command for installation is as follows.

```
# rpm -i kernel-devel-2.6.18-128.1.1.el5.i686.rpm          # Install kernel-devel
```

3.2 Install Driver

Step1: Stop relative services

```
# amportal stop          # Stop Asterisk services
```

amportal commands include stop, start, restart and some other operations. See the command description for details.

Note: When the board driver is being installed, the Dahdi driver needs to be recompiled before the configuration of Asterisk system. Asterisk services will be automatically started once the AsteriskNOW system is successfully installed, and the driver installation will fail if it is performed while Asterisk services are running. In such situation, you should manually stop Asterisk services first.

Step2: Install the SynAST driver

Put the prepared files under the /opt directory. Enter this directory and decompress relative installation packages.

```
# cd /opt
```

```
# tar -zxvf SynAST-1.5.0.0_en.tar.gz
```

```
# tar -zxvf dahdi-linux-complete-2.1.0.4+2.1.0.2.tar.gz
```

Enter SynAST-1.5.0.0_en to start auto installation:

```
# cd SynAST-1.5.0.0_en
```

```
# cd for_dahdi
```

```
# ./Setup install
```

Prompts on Screen:

```
Install SynAST AST package now!
```

```
Would you like to install SynAST AST package now? (y/n) Enter 'y'.
```

```
Please enter working dahdi directory [q](exit install) : Enter the directory to dahdi. Here please enter: /opt/dahdi-linux-complete-2.1.0.4+2.1.0.2
```

If there are TEJ boards installed on your machine, the following prompts will pop up on the screen.

```
SELECT TEJA MODE [t, e, j] : Select the TEJ board trunk working mode. Here select e which indicates working in E1 mode;
```

```
SELECT TEJA [75, 120]ohm : Select the trunk impedance in E1 mode. Here input 120 which indicates working in Twisted Pair, 120Ω mode.
```

Select OK to start installing. During the installation, the system will link to the network to download some relative files. When finished, the prompt **Install Driver Completed** appears. Then you will see the following line which reminds you of the board arrangement.

```
Would you like to configure the cards order now? (y/n)
```

If you have multiple boards of a same model, follow the section Configure Boards Order in the file *SynAST_UserManual.pdf* to handle. Here just input **n** and click 'Enter'.

Now both Dahdi and SynAST drivers are already installed.

In the above step, these options 'SELECT TEJA MODE [t, e, j]', 'SELECT TEJA [75, 120]ohm' will appear only when the system is installed with TEJ series boards. In other words, they will not appear if the system is installed only with FXM series boards.

Note: The system will automatically compile and install the Dahdi driver while installing the SynAST driver. Therefore, it is not necessary to compile and install the Dahdi driver separately.

Step3: Check if the driver module has been loaded

Input the command:

```
# lsmod | grep fxm
```

If properly installed, the first several lines of FXM information will display on the screen. If they include the **fxm32** line, it means the **fxm32.ko** module has been well loaded.

To check TEJ boards, just replace 'FXM' in the above command with 'TEJ'.

Step4: Auto configure Asterisk and Dahdi

```
# astcfg_dahdi trixbox      # Configure Dahdi
```

Step5: Start Asterisk

```
# amportal start           # Start Asterisk services
```

Now the SynAST driver installation is finished. Next, you are required to use the client (another PC) to log in the WEB interface to do configurations.

Note: If it is your first time to do configurations on the WEB interface, after you click 'apply configuration changes', you have to restart Asterisk to put all configurations into effective. Otherwise, any call test will fail. If you restart Asterisk before you click 'apply configuration changes', your configurations can not be truly applied either. However, if you properly restart Asterisk now, the next time when you do configurations on the WEB interface, it is no longer necessary to restart Asterisk again.

Chapter 4 Configuration and Management of AsteriskNOW

In the address bar of the browser, enter the IP address of the AsteriskNOW system to go into the initial interface of AsteriskNOW (see Figure 7). Click 'FreePBX Administration'. Enter the administrator username **admin** and the password **admin** to reach the configuration and management interface.

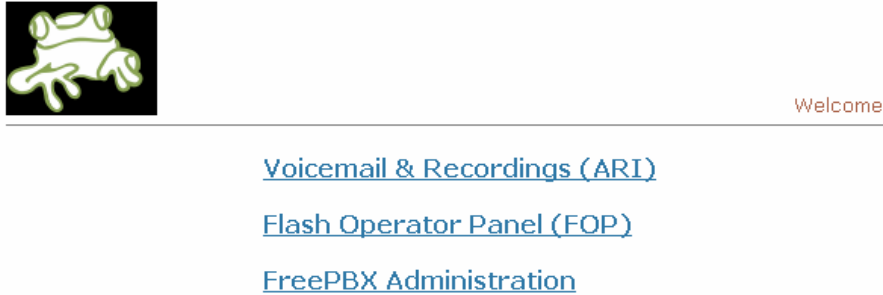


Figure 7

On the upward side of the main interface of AsteriskNOW is the menu bar, and on the left side is the navigation bar (Figure 8).



Figure 8

Then configure the PBX according to AsteriskNOW explanation.

Here we use an actual example to explain how to configure.

Take the FXM3201P board as an example. Install an FXM3201P motherboard with an FXO module and an FXS module. Channel 1 and Channel 2 on the board are FXO (trunk) while Channel 3 and Channel 4 are FXS (station). You can see from the above figure that the corresponding trunks in the AsteriskNOW system are zap channel 1 and channel 2, the corresponding stations are zap channel 3 and channel 4. If there are multiple boards in the system, the channels are arranged by board number.

Now we demonstrate such functions as making a call from extension to extension, a call from extension to trunk, and a call from trunk to extension.

First, click the item 'Extensions' in the left navigation bar (Figure 9).

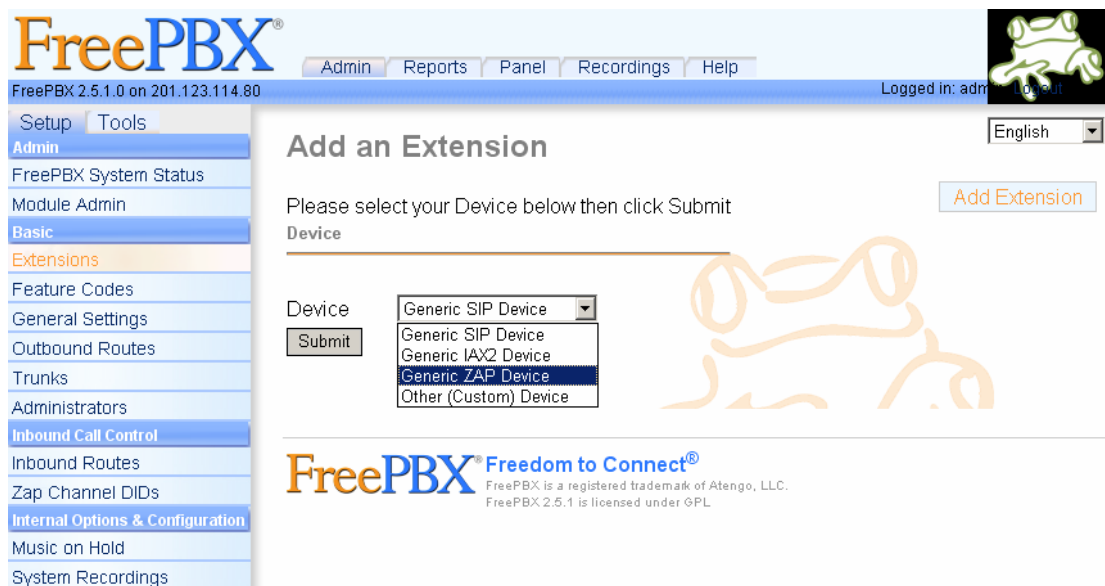
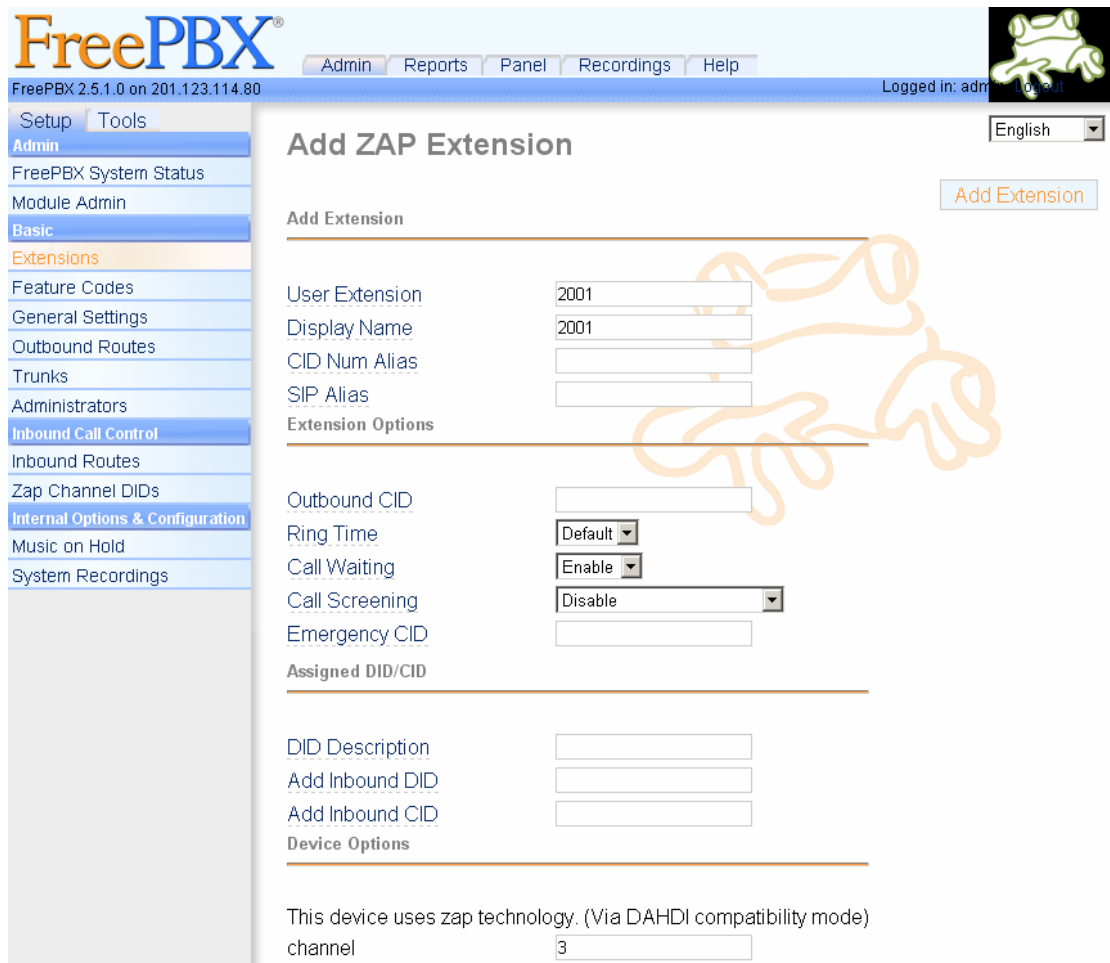


Figure 9

Step1: Configure extensions

In this situation, there are two station channels on the FXM board respectively corresponding to zap channel 3 and zap channel 4. We need to add two Extensions whose numbers are supposed to be 2001 and 2002.

To add the information about the first extension 2001, choose Generic ZAP Device in the pull-down box for Device and press the Submit button to submit (see Figure 9). Then fill in some relative information on the page shown afterwards. Fill in 2001 for both options 'User Extension' and 'Display Name'. Find the sentence 'This device use technology. (Via DAHDI compatibility mode)' (see Figure 10) and fill in 3 for the following option 'channel'. This indicates Extension 2001 uses zap channel 3. Press Submit and the configuration of Extension 2001 is finished.



FreePBX 2.5.1.0 on 201.123.114.80

Admin Reports Panel Recordings Help

Logged in: admin

English

Setup Tools

Admin

FreePBX System Status

Module Admin

Basic

Extensions

Feature Codes

General Settings

Outbound Routes

Trunks

Administrators

Inbound Call Control

Inbound Routes

Zap Channel DIDs

Internal Options & Configuration

Music on Hold

System Recordings

Add ZAP Extension

Add Extension

Add Extension

User Extension: 2001

Display Name: 2001

CID Num Alias:

SIP Alias:

Extension Options

Outbound CID:

Ring Time: Default

Call Waiting: Enable

Call Screening: Disable

Emergency CID:

Assigned DID/CID

DID Description:

Add Inbound DID:

Add Inbound CID:

Device Options

This device uses zap technology. (Via DAHDI compatibility mode)

channel: 3

Figure 10

After that, return to the top 'Add Extension' to add Extension 2002. Configure it to use zap channel 4. Then both extensions are well configured.

When the modified configuration is submitted, there appears a prompt in orange 'Apply Configuration Changes' on the top of this page (see Figure 11). Click it and an orange dialog pops up (Figure 12). Click 'Continue with reload' to apply the modified configuration. Now we can make calls from extension to extension. Dial 2002 on the first extension to call the second extension.

Note: If it is the first configuration after you install the system, you have to restart Asterisk after clicking 'Continue with reload' to ensure the normal working of Asterisk.

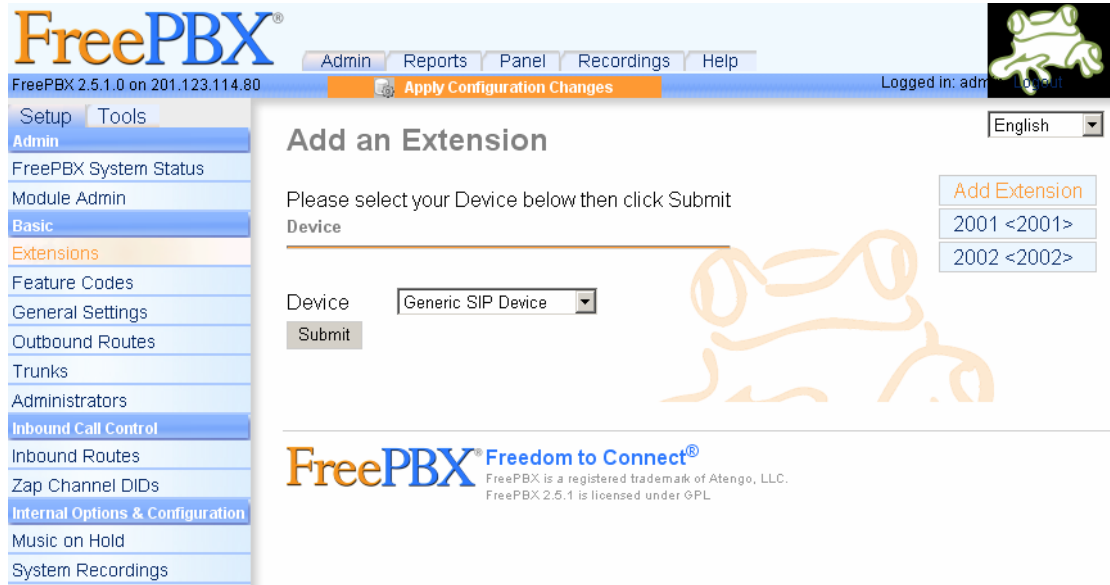


Figure 11

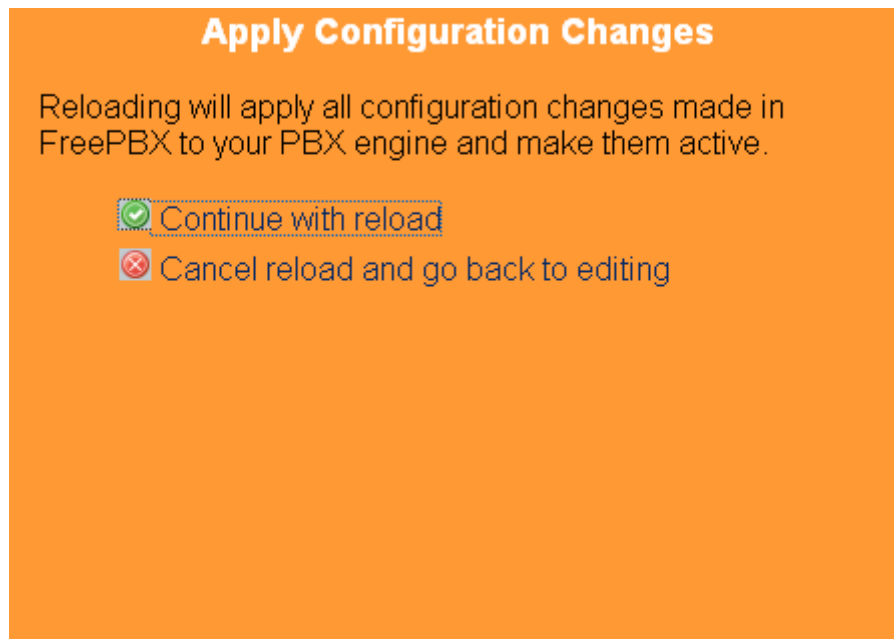


Figure 12

Step2: Configure trunks

Now there are two trunk channels on the FXM board respectively corresponding to zap channel 1 and zap channel 2.

Click the item Trunks in the left navigation bar. You can see from the right side of this page (Figure 13) that the default setting already includes a trunk. Click 'Trunk ZAP/g0' and you will see the default value of 'Zap Identifier (trunk name)' is g0. Modify it to 1 which indicates this trunk uses zap channel 1 and leave other parameters unchanged. Save the change and the configuration of the first trunk is finished (Figure 14).

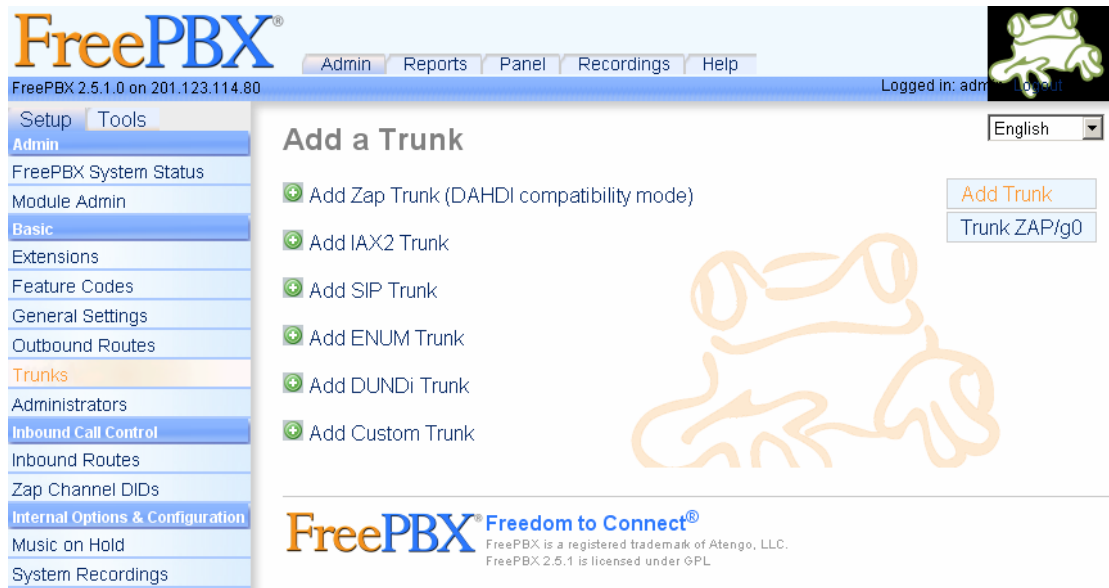


Figure 13

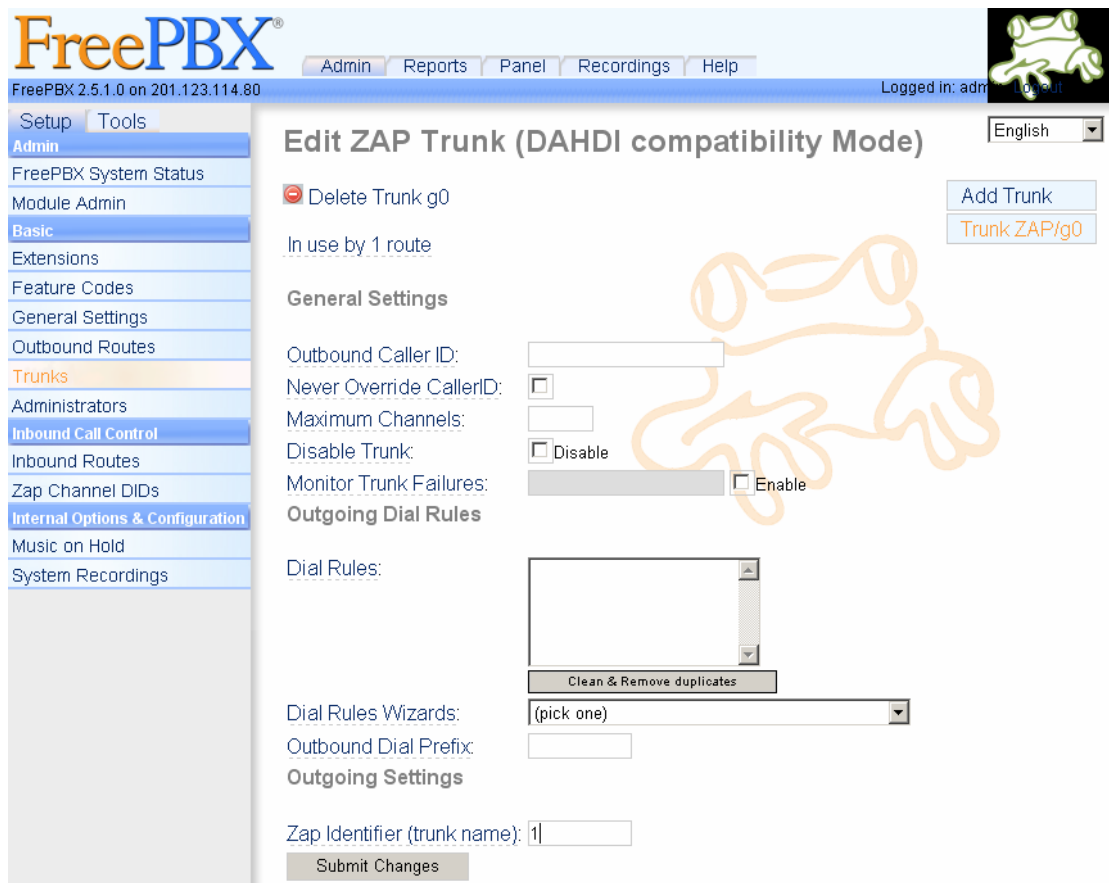


Figure 14

Then add the second trunk. Click 'Add Trunk' on the right and press 'Add Zap Trunk (DAHDI compatibility mode)' (Figure 14). Fill in 2 for 'Zap Identifier (trunk name)' which indicates this trunk uses zap channel 2. Click the Submit button to submit. Now trunks are properly configured. If you want these configurations to be effective immediately, click 'apply configuration changes', or you may click 'apply configuration changes' after you complete all configurations to apply all of them at

one time.

Next, we shall manage to perform the call from extension to trunk.

Step3: Configure the outbound route for calls from extension to trunk

Find the option Basic in the left navigation bar and click Outbound Routes. You can see from the right side of this page that the default setting already includes a route with the name of 0 9_outside which indicates the rule to dial 9 before the phone number (Figure 15). The outbound call is routed on ZAP/1. Actually, dial 9+phone number on the extension and the call will be routed out through zap channel 1. You can modify the configuration according to your requirements and apply it to make calls from extension to trunks.

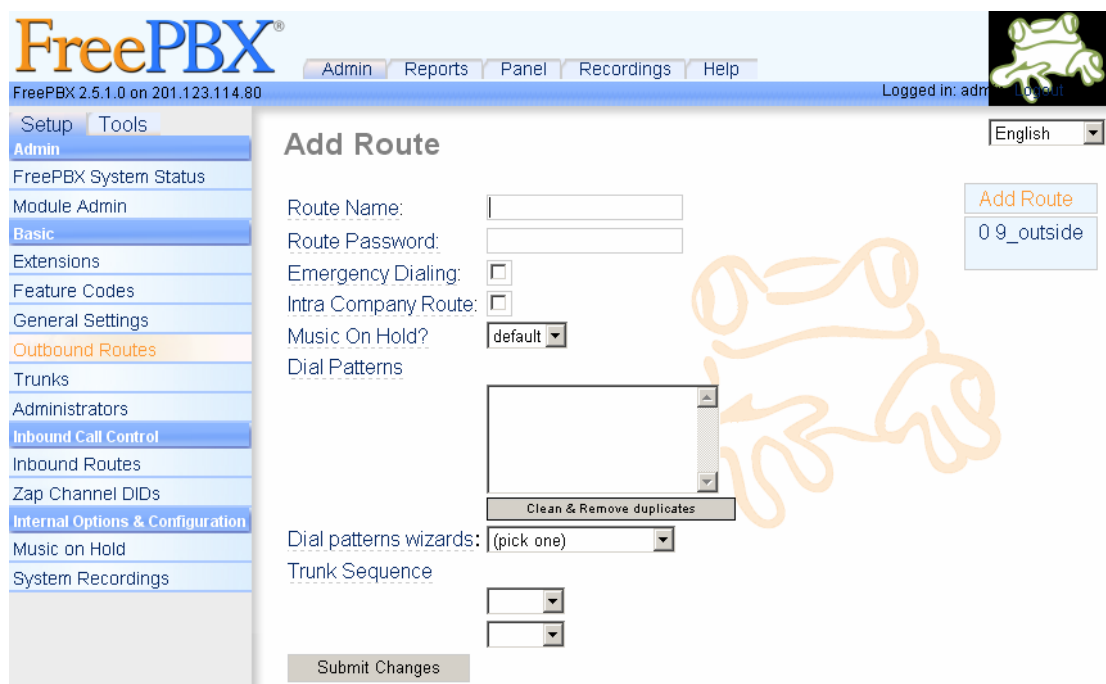


Figure 15

Step4: Make calls from trunk to extension

To make calls from trunk to extension, you need to configure 'Inbound Routes'. Find the option Inbound Call Control in the navigation bar and select Inbound Routes. Go to the bottom of the displayed page to find Set Destination (Figure 16). Select Extensions and designate some extension (Figure 17). Thus, when a call comes in from a trunk, the specified extension rings directly. Just pick up the call and talk. Also you can set other inbound routes like IVR to complete corresponding flows. However, the IVR must be set beforehand.



FreePBX 2.5.1.0 on 201.123.114.80

Admin Reports Panel Recordings Help

Logged in: admin Logout

English

Setup Tools

Admin

FreePBX System Status

Module Admin

Basic

Extensions

Feature Codes

General Settings

Outbound Routes

Trunks

Administrators

Inbound Call Control

Inbound Routes

Zap Channel DIDs

Internal Options & Configuration

Music on Hold

System Recordings

Add Incoming Route

Add Incoming Route

Description:

DID Number:

Caller ID Number:

CID Priority Route: ☐

Options

Alert Info:

CID name prefix:

Music On Hold:

Signal RINGING: ☐

Pause Before Answer:

Figure 16



Privacy

Privacy Manager:

Fax Handling

Fax Extension:

Fax Email:

Fax Detection Type:

Pause After Answer:

Set Destination

☐ Terminate Call:

☐ Extensions:

Submit Clear Destination & Submit

FreePBX® Freedom to Connect®

FreePBX is a registered trademark of Atengo, LLC.
FreePBX 2.5.1 is licensed under GPL

Figure 17

At last don't forget to click 'Apply Configuration Changes' to make modified configurations effective; otherwise, no modification works. Then you can perform call tests based on the above configurations.

Now you are allowed to use the Synway FXM3201P board in the AsteriskNOW system to make simple calls. To achieve other more complicated functions, go to <http://www.asterisk.org/asterisknow> to refer to relative documents.

Appendix A Technical/Sales Support

Thank you for choosing Synway. Please contact us should you have any inquiry regarding our products. We shall do our best to help you. However, our technicians and salesmen are mainly responsible for maintaining our boards and providing relative technical support. If there are problems about Asterisk, please keep touch with Digium Inc. for help.

Headquarters

Synway Information Engineering Co., Ltd

<http://www.synway.net/>

9F, Synway D&R Center, No.3756, Nanhuan Road, Binjiang District,
Hangzhou, P.R.China, 310053

Tel: +86-571-88860561

Fax: +86-571-88850923

Technical Support

Tel: +86-571-88864579

Mobile: +86-18905817070

Email: techsupport@sanhuid.com

Email: techsupport@synway.net

MSN: synway.support@hotmail.com

Sales Department

Tel: +86-571-88860561

Tel: +86-571-88864579

Fax: +86-571-88850923

Email: sales@synway.net