Asterisk Installation Guide

Version 1.0

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Preface

- RTDC was tested with Asterisk version 13.2.0 (which came with AsteriskNOW 6.12)
- It is recommended that the server runs on 64-bit hardware, so that Asterisk 64-bit can be installed.

Installation

1. Download AsteriskNOW (http://www.asterisk.org/downloads). Select the 64-bit version. If you have 32-bit hardware, or are unsure which version to use, download the 32-bit version.

2. Burn the .iso file on a DVD or USB.

3. Boot the machine from the DVD or USB containing the iso's content.

4. Select "Full Install" under Asterisk 13, as illustrated below. Wait a few minutes until Asterisk is done processing.
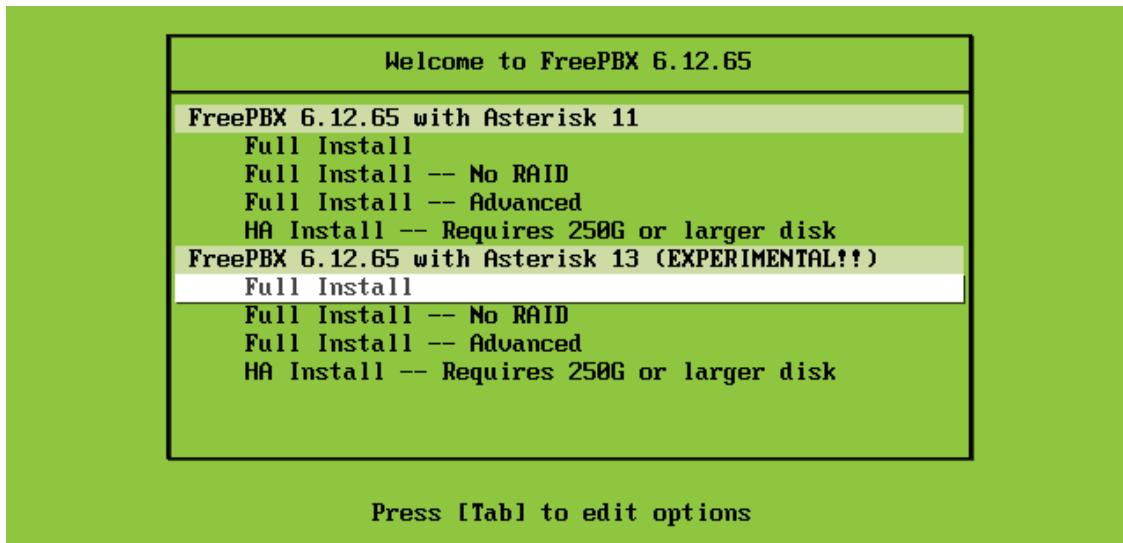

Figure 1: Asterisk Installation Screen

5. Make sure that the machine is connected to your network. Press Tab until the OK button is highlighted and press Enter.
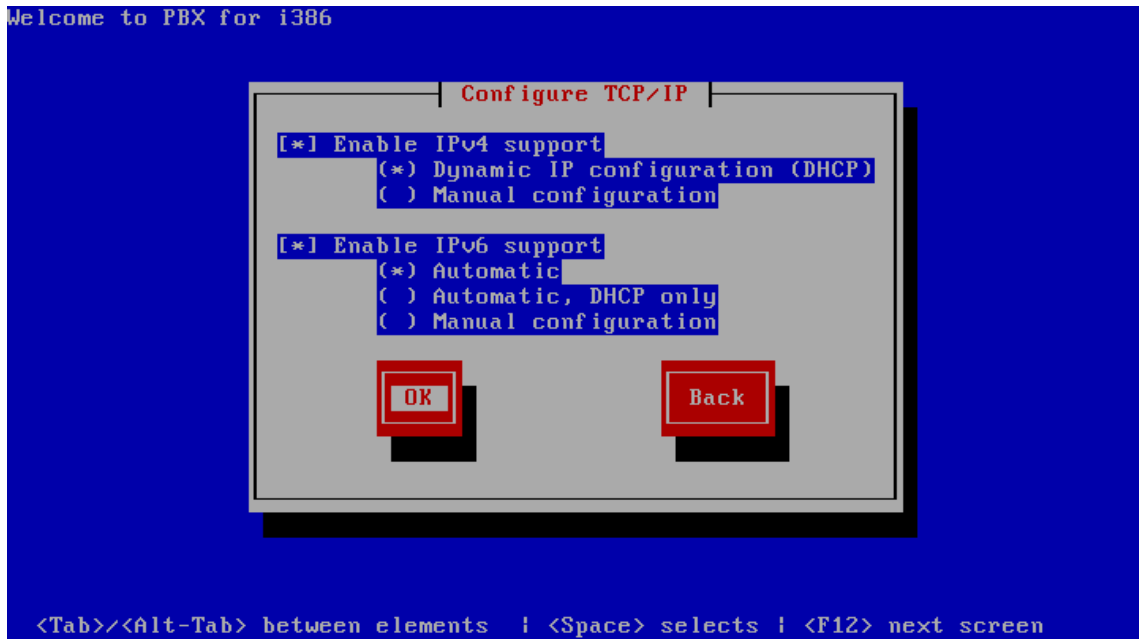
Figure 2: Network Configurations

6. Press Space to enable "System clock uses UTC" if your system's clock uses UTC (most systems do).

7. Press Tab, and use the arrow keys to select your time zone.

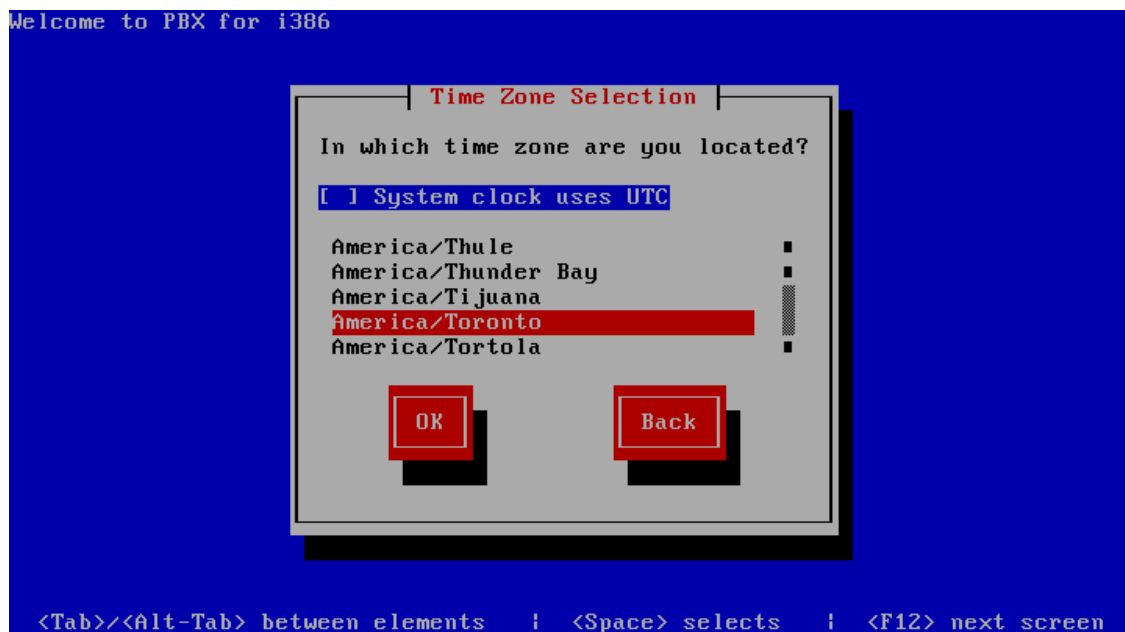8. Press Tab to highlight the OK button, and press Enter.

Figure 3: Time Zone Configurations

9. Enter a password for Asterisk's root (admin) account.

10. Press Tab, and enter your password again as confirmation.

11. Press Tab to highlight the Ok button, and hit Enter.

Asterisk will start the installation process. This can take between 30-45 minutes, depending on your hardware. Once the installation is complete, Asterisk will reboot. If the installation appears to be frozen, there is no need to worry. Some operations may take a while.

12. Once the installation is complete, Asterisk will prompt you to login. The username is *root* and the password is the one you created at step 9.

13. Confirm that Asterisk has an IP address, as illustrated below. This is the IP used by the RTDC application to connect to the Asterisk.

Congratulations! You've successfully installed AsteriskNOW.

Asterisk Configurations

Once Asterisk is successfully installed, there a few changes that need to be made before it is ready to use. It is recommended to use an SSH client such as MobaXterm to make the setup easier, but it is not required.

1. Login as an administrator (i.e. root).

2. To ensure that Asterisk uses the correct driver, we need to disable a file. Type the following commands into the terminal:

   ```
   cd /etc/asterisk
   mv pjsip.conf pjsip.conf_old
   ```

3. Setup the sip.conf file.

   a. Backup the current configurations: `mv sip.conf sip.conf_old`

   b. Create the new configurations: `vi sip.conf`

   c. Press i on your keyboard to enable text insertion. The word "INSERT" will appear at the bottom of the screen.

   d. Type the text found in Appendix A – sip.conf (or copy-paste it from you SSH client)

   e. Save your changes by pressing the Escape key, typing ":wq" and pressing Enter.

4. Setup the extensions.conf file.

   a. Backup the current configurations: `mv extensions.conf extensions.conf_old`

   b. Follow steps 3b to 3e using Appendix B – extensions.conf instead of A.

5. Create the Asterisk real-time database.

   a. Launch mysql by entering: `mysql`

   b. Create the database by entering: `CREATE DATABASE asterisk_realtime;`

   c. Make sure asterisk_realtime is created by entering: `show databases;`

6. Create a database account to be used by the RTDC application.

   a. Enter the following command, where user is a username of your choice, and password is a password of your choice:

      ```
      CREATE USER 'user'@'%' IDENTIFIED BY 'password';
      ```

      Please note that the username and password that you choose will have to be updated in the RTDC app's source code.

b. Enter the following command, where user is the username from the previous step:

```
GRANT ALL ON *.* TO 'user'@'%';
```

c. Enter this last command:

```
FLUSH PRIVILEGES;
```

7. Create the database tables.

a. Enter the following: `use asterisk_realtime`

b. Enter the SQL command found in Appendix C – sip_buddies Create Table Script.

c. Enter the SQL command found in Appendix D – extensions Create Table Script.

8. Quit the MySQL command line by typing: `exit`

9. Edit the file name *extconfig.conf*

a. If you are not already in /etc/asterisk/ simply change directories using the following command: `cd /etc/asterisk/`

b. Follow steps 3b to 3e using Appendix E – extensions.conf instead of A.

10. Edit the file name *res_mysql.conf*

a. Follow steps 3b to 3e using Appendix F – res_mysql.conf instead of A.

11. Change the *bind-address* variable in my.cnf to *0.0.0.0*

a. Go back one directory (to /etc/): `cd ..`

b. Enter the following command to edit the file: `vi my.cnf`

c. Press i on your keyboard to enable text insertion.

d. Replace `bind-address = 127.0.0.1` with `bind-address = 0.0.0.0`

e. Save your changes by pressing the Escape key, typing ":wq" and pressing Enter.

12. Reboot the system to apply all changes.

    a. Enter the following command: `reboot`

After following these steps and changing the RTDC source code accordingly, the application should be able to connect to the Asterisk server and do audio/video calls.

Note: If you notice that these features are not working as they should (ex: you can't hear the other user during an audio call), you may need to open up ports in the computer's firewall. Open up port 5060 (as that is the default port that Asterisk will use to directly connect to users) and ports 10 000 to 20 000 (those ports are the RTP ports used for audio/video calls).

Appendices

Appendix A – sip.conf

```
[general]
context = users
videosupport = yes
disallow = all
allow = g729,ilbc,gsm,ulaw,alaw,h263,h263p,h264,vp8
qualify = no
nat = no
canreinvite = no
rtptimeout = 5
accept_outofcall_message = yes
outofcall_message_context = messages
rtcachefriends = yes ;prevents a cache error when using realtime
```

Appendix B – extensions.conf

```
[users]
switch => Realtime

[messages]
exten => _.,1,NoOp(To ${MESSAGE(to)})
exten => _.,n,NoOp(From ${MESSAGE(from)})
exten => _.,n,NoOp(Body ${MESSAGE(body)})
exten => _.,n,Set(ACTUALTO=${CUT(MESSAGE(to),@,1)})
exten => _.,n,ExecIf($["${ACTUALTO}" != "sip:${EXTEN}"]?Set(ACTUALTO=sip:${EXTEN}))
exten => _.,n,MessageSend(${ACTUALTO},${MESSAGE(from)})
```

Appendix C – sip_buddies Create Table Script

```
CREATE TABLE `sip_buddies` (
  `id` int(11) NOT NULL,
  `name` varchar(80) NOT NULL,
  `callerid` varchar(80) default NULL,
  `defaultuser` varchar(80) NOT NULL,
  `regexten` varchar(80) default NULL,
  `secret` varchar(80) default NULL,
  `mailbox` varchar(50) default NULL,
  `accountcode` varchar(20) default NULL,
  `context` varchar(80) default NULL,
  `amaflags` varchar(7) default NULL,
  `callgroup` varchar(10) default NULL,
  `defaultip` varchar(15) default NULL,
  `dtmfmode` varchar(7) default NULL,
  `fromuser` varchar(80) default NULL,
  `fromdomain` varchar(80) default NULL,
  `fullcontact` varchar(80) default NULL,
  `host` varchar(31) NOT NULL,
  `insecure` varchar(4) default NULL,
  `language` char(2) default NULL,
  `md5secret` varchar(80) default NULL,
  `deny` varchar(95) default NULL,
  `permit` varchar(95) default NULL,
  `mask` varchar(95) default NULL,
```

```sql
  `pickupgroup` varchar(10) default NULL,
  `port` varchar(5) NOT NULL default '5060',
  `restrictcid` char(1) default NULL,
  `rtpholdtimeout` char(3) default NULL,
  `type` varchar(6) NOT NULL default 'friend',
  `musiconhold` varchar(100) default NULL,
  `regseconds` int(11) NOT NULL default '0',
  `ipaddr` varchar(15) default NULL,
  `cancallforward` char(3) default 'yes',
  `lastms` int(11) NOT NULL default 0,
  `useragent` char(255) default NULL,
  `regserver` varchar(100) default NULL,
  PRIMARY KEY  (`id`),
  UNIQUE KEY `name` (`name`),
  KEY `name_2` (`name`)
);
```

Appendix D – extensions Create Table Script

```sql
CREATE TABLE `extensions` (
  `id` int(11) NOT NULL auto_increment,
  `context` varchar(20) NOT NULL default '',
  `exten` varchar(20) NOT NULL default '',
  `priority` tinyint(4) NOT NULL default '0',
  `app` varchar(20) NOT NULL default '',
  `appdata` varchar(128) NOT NULL default '',
  PRIMARY KEY  (`context`,`exten`,`priority`),
  KEY `id` (`id`)
);
```

Appendix E – extconfig.conf

```
[settings]
;file.conf => driver,database,table
sipusers => mysql,general,sip_buddies
sippeers => mysql,general,sip_buddies
extensions => mysql,general,extensions
```

Appendix F – res_mysql.conf

```
[general]
dbhost = 127.0.0.1
dbname = asterisk_realtime
dbuser = root
dbpass =
dbport = 3306
```