Freedom Fone

Troubleshooting Guide

Freedom Fone Pictus Lupinus 1.6

June 2010

Author: Kubatana.net

Document version 1

1. **I'm viewing the Freedom Fone server across our LAN but cannot see the controls next to audio files that enable me to play and listen to the files**

You need to install the Shockwave Flash plugin for your browser.

2. **I've tried to call and leave a voice message, but my key selections seem to be ignored.**

This problem usually arises because the DTMF (Dial Tone Modulated Frequency) tones associated with your keypad selections are not being correctly interpreted. Noise on the GSM network is usually the culprit. In countries where quality of service is well regulated, there is generally very little noise on the networks. However, in many developing countries the networks are very 'noisy' making it difficult to differentiate the subtle DTMF tones as you make your key selections.

Fix: If you are using MobiGaters you can make modifications using the graphical mic gain adjustment interface from the command line

- Open a terminal window by clicking the terminal icon in the centre of the title bar at the top of your screen.

- If you are prompted to do so, enter the password *lupinus*.

- For the first MobiGater connected to the Freedom Fone server do as follows

    1. At the prompt, type
       `alsamixer -c1 –Vcapt`

    2. You'll be presented with a "mixer" for capture (if it does not appear, try "`apt-get install alsa-utils`" to install it).

    3. Press the spacebar on the Mic so that the word "CAPTUR" appears on the screen in red.

    4. Use your mouse to click on the number displayed between Mic and CAPTUR – set it to zero.

    5. Trying calling the number in the MobiGater again and see if your key selections are recognized.

    6. If your selections are NOT detected, try setting the value up a little each time between tests until your key selections are recognized regularly.

- For additional MobiGaters connected to the system, modify the `-c1` parameter as follows
  `alsamixer -c2 –Vcapt`
  `alsamixer -c3 –Vcapt`

    Make sure the Microphone's sensitivity has been adjusted for each MobiGater attached.

Fix: If you are using a VoiceBlue Lite you can make modifications using the VoiceBlue Program

- Connect to the VoiceBlue and check settings under Gateway configuration > GSM basic parameters

- Check the **Reception** volume setting for the GSM modules for your make of VoiceBlue Lite. Look for the voice parameters section with a check box in it eg Siemens tone. This should be the section with the Reception volume setting you need to modify. On noisy networks (typically in developing countries), this should most likely be set to zero.

3. I can't hear the voice menu prompts because a voice keeps nagging me about Cepstral. I don't know if the system is working properly.

Cepstral is the text to speech (TTS) software used in Freedom Fone. Our software will work without a licence but before it reads each line of text, Cepstral will play a reminder that you need to buy a licence. We are using the Allison 8 Khz voice for Linux.

Fix 1: Buy and register a licence for Allison 8 Khz from the Cepstral website

A licence for the Allison 8 Khz voice for Linux can be bought from https://www.cepstral.com/. Once you get the licence you can register the voice by running the swift executable from the command prompt as follows:

- Open a terminal window by clicking the terminal icon in the centre of the title bar at the top of your screen.

- If you are prompted to do so, enter the password *lupinus*.

- At the prompt type
  `/opt/swift/bin/swift --reg-voice`

- Follow the instructions to enter the details associated with your licence. You will be asked for Name, Organisation and Licence key

Fix 2: Create your own audio files and avoid text to speech completely

- If you use your own audio files you do not need to use text to speech at all

4. I have tried to upload Menu options but none of my files are reflected on the Menu options screen. What's going wrong?

The chances are that the file you tried to upload was larger than the maximum file size of 10MB allowed. Downsize the audio file by shortening its duration and/or ensuring it has been created as a WAV or MP3 file that is mono with a sampling rate of 8Khz.

5. GSM channels and MobiGaters

a) How many GSM channels are supported?

You can use 3 GSM channels without adding special hardware. To add more GSM channels to the system you will need to buy a multi-TT USB hub. The technical reason behind this limitation is that the MobiGater includes a USB sound card that follows the 1.1 USB standard. USB 2.0 hubs commonly used in the PC motherboards cannot efficiently share the USB bandwidth when connected to 1.1 USB devices. For that reason you need to connect your additional MobiGaters using an

intermediary hub known as multi-TT USB hub. Want to know more? Check the following links: Cypress multi TT-USB Hub and multi-TT USB hub TomsHardware

b) How many MobiGaters can be attached to Freedom Fone?

Without using any special hardware you can attach 3 Mobigaters to your Freedom Fone installation. The default installation assumes that three Mobigaters are connected (5000, 5001, 5002). If you use only one MobiGater, edit the file: /usr/local/freedomfone/xml_curl/dialplan.xml and decide what application is visible to the GSM channel. The first Mobigater is 5000 and can be associated to application IVR (4100) or LAM (2100)

```
<extension name="inbound_Mobigater1">
   <condition field="destination_number" expression="^5000$">
      <action application="transfer" data="4100 XML default"/>
   </condition>
 </extension>
```

c) I don't want to use the default settings for associating MobiGaters and other telephony devices to Freedom Fone functions. How do I change these default settings?

We have built an internal logic to allow multiple instances of our applications to exist under the same installation. The logic is as follows: each application has an internal extension number, the internal extension number consists of two parts AAAAXXXX. AAAA indicates the application ID, while XXXX indicates the instance of such application. For example, application leave a message has AAAA=2 while the IVR has AAAA=4. Internal extension 2100 means, leave-a-message instance 100.

Version 1.6 of Freedom Fone has two applications pre-configured: leave-a-message (2100) and IVR (4100)

Every GSM interface (interface1, interface2, interface3) has an internal extension assigned with the form 5XXX. Freedom Fone 1.6 has three GSM channels preconfigured: 5000, 5001, 5002. The leave-a-message application has an internal extension 2100 (2=leave a message 100=instance number). When a call arrives at the GSM interface, we transfer the call from its internal extension (5XXX) to the application's internal extension.

This is done by editing the file: /usr/local/freedomfone/xml_curl/dialplan.xml

```
<extension name="inbound_Mobigater1">
    <condition field="destination_number" expression="^5000$">
      <action application="transfer" data="4100 XML default"/>
    </condition>
</extension>
<extension name="inbound_Mobigater2">
    <condition field="destination_number" expression="^5001$">
      <action application="transfer" data="4100 XML default"/>
    </condition>
</extension>
<extension name="inbound_Mobigater3">
    <condition field="destination_number" expression="^5002$">
      <action application="transfer" data="2100 XML default"/>
    </condition>
```

```
        </extension>
```

You can see that the default values are 5000->4100, 5001->4100, 5002->2100. In version 2.0, this file will be created via the GUI once we implement ACL with the system.

6. SIP devices

a) Can I test Freedom Fone using a SIP device?

Yes, we have left the accounts 1000, 1001,...1019 configured in the system. Check the IP address of your installation and register your SIP devices as 1000-1019. The password by default is 1234. Once the device is registered you can call 2100 for leave-a-message or 4100 for the IVR.

b) What IP address is assigned to Freedom Fone?

By default Freedom Fone is trying to retrieve the IP via DHCP. Make sure that you have a DHCP server in your network. You can check the IP address of the box by issuing the command /sbin/ifconfig eth0 from the terminal. You can manually configure a static IP address for your server.

c) Can I connect my SIP based GSM gateway (such as the http://www.2n.cz/products/gsm_gateways/voip_gsm_gateway/voiceblue_voip_gsm_gateway.html Voice Blue Lite) to Freedom Fone?

Yes, register the GSM gateway as one of the extensions (1000,1001,...) and make sure that the INCOMING calls are forwarded to one of the Application internal extensions (2100 for leave-a-message, 4100 for IVR). Remember the password is 1234.

A guide to setting up the VoiceBlue Lite with Freedom Fone is available in your documentation folder and online at http://freedomfone.org/page/documentation

d) Can I stream/listen to the audio files on another computer?

Freedom Fone is designed not to depend on Internet connectivity to operate. Freedom Fone can operate using GSM-only as a voice channel. If you want to listen/stream the audio files to another computer you need to edit two configuration files.

Edit the file /usr/local/freedomfone/config/gui_config_core.php and change the IP address for your local IP address.

```
    define ('MY_DOMAIN','http://192.168.46.238/freedomfone/');
```

Edit the file /usr/local/freedomfone/config/leave_message_100_core.conf and edit the variable lmURIRoot for your "visible IP address". If you want to make Freedom Fone visible to the world and your box is "port forwarded" in your external router.

Configure the variable lmURIRoot as your external IP address. e.g. http://www.myexternalip_domain.org/freedomfone.

If your Freedom Fone runs on the 192.168.0.0/24 network you might want to edit: Change:

```
    var lmURIRoot = "http://localhost/freedomfone/";
```

To:

```
var lmURIRoot = "http://192.168.x.x/freedomfone/";
```

Why all these changes? In the current version we have two variables that need to be set to the IP address of the box (or the IP address that the box is visible on from the outside). The variable MY_DOMAIN is used in the MVC (Cake GUI) to create the "links" that stream the audio files that you upload. The second variable "lmURIRoot" is used by the leave-a-message (LAM) application to inform the dispatcher and in turn the GUI where the files have been stored.

We have designed Freedom Fone's components so they can run on one single computer or distributed on several servers.

7. Security

a) Problems with SSHing to the box remotely?

The 1.5pre ISO has an SSH server that gets broken during installation. The quick fix is to uninstall and install openssh-server

```
apt-get update
apt-get remove openssh-server
apt-get install openssh-server
```

In version 1.6 you can just run

```
dpkg-reconfigure openssh-server
```

b) Can I SSH into the Freedom Fone box?

In order to enable SSH server in the box, you need to re-install/reconfigure the SSH server. There are some issues that we need to address in the next version so SSH keys are generated at boot-up and not mirrored in the image.

```
 sudo apt-get update
 sudo apt-get remove openssh-server
 sudo apt-get install openssh-server
```

c) How do i ensure better security in my GUI?

The GUI has a unique "Salt" that needs to be edited in each installation. Edit the configuration file
 /usr/local/freedomfone/gui/app/config/core.php
and change the following variable for a random long string
```
 Configure::write('Security.salt', 'lsdkfppphsahsjatusrocks!OIUIUd8d83');
```

8. Can Freedom Fone run in a Virtualised environment?

We have successfully tested Freedom Fone 1.5 and 1.6 using Virtualbox and OpenVZ under Linux. Problems have been reported (20100214) using Virtualbox under Windows as it seems that the USB modem is not visible to the guestOS.

The main challenge to running Freedom Fone in a virtual environment is the access to the GSM USB modem from the guest operative system. The GSM modem is in fact both a serial port (/dev/ttyACM0) and a sound card /dev/snd/XXX. No matter what virtualization platform you use, you need to ensure that the Mobigater is seen from the guest operative system and is writable.

Every virtualization platform vmware, openvz, virtualbox has very specific mechanism to support USB in the guest operative system.

9. How do i turn on debugging in the GUI?

The GUI has a debugging mode that can be turn on and off by editing this file: /usr/local/freedomfone/gui/app/config/core.php

To turn on / off debugging edit the following variable

```
Configure::write('debug', 3);
```

Change 3 for 0 to turn off debugging.

10. I connected my Freedom Fone server to my Windows network and now I'm having trouble accessing shared folders on the network.

These networking issues are associated with the default master browser settings in /etc/samba/smb.conf. Settings in this configuration file need to be modified to prevent the Linux computer from assuming responsibility in this regard. Read Configuring Workgroup Browsing at
http://www.samba.org/samba/docs/man/Samba-HOWTO-Collection/NetworkBrowsing.html#DMB

11. I'm confused by the difference between the simple Leave-a-Message and advanced Leave-a-Message IVR Menu prompts and functionality.

If you are would like to make it as easy as possible for callers to leave you voice messages, provide only the Welcome and Record Instructions prompts. Instruct callers to leave their message after the beep and then hang up. Their voice messages will be saved when they end the call.

If you feel that it is important that callers have the opportunity to review and, if necessary, delete their messages before specifically selecting to save their voice message, you must provide the additional voice prompts that are revealed when you click the **advanced options** link on the Leave-a-Message IVR Menu. To activate the functionality that gives callers the option to review their message (press *), delete the message (press 0) or save their message (press 1), callers MUST select the hash key (#) AFTER they have left their voice message and BEFORE they hang up.

The caller's selection after leaving a voice message determines whether the simple or advanced functionality is used by the system. If they hang up directly after leaving a voice message, the message is saved; if they press the # key after leaving their voice message, the system will await further key selections to determine what should be done with the voice message.