Sipura SPA-3000
Simplified Users Guide
Version 1.1e

A Step by Step Introduction

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Section 1 – Getting Started

When you receive your SPA-3000 it should contains the following items:

1. SPA-3000
2. Power supply
3. Phone cable
4. Network cable
5. Quickstart guide

Old Version (Sipura)

New Version (Linksys)

***** There is no difference between the Old Sipura SPA-3000 and the new Linksys SPA-3000 apart from the case. All firmware and internals are the same.**

Setting up the hardware:

Step 1: Connect the power cable to your SPA-3000
Step 2: Connect the network cable from your SPA-3000 to your DHCP enabled modem/router
Step 3: Connect an analogue phone to the "Phone" port in the SPA-3000.
Step 4: Turn the power on
Step 5: Pick up the phone and dial ******** (You should hear a voice saying Sipura Configuration Menu)
Step 6: Dial 110# (Write down the IP address that is returned)
Step 7: Connect your PSTN line to the "Line" port of the SPA-3000.

At this stage, you can choose whether to upgrade the firmware. The latest version of the SPA-3000 firmware at the time of writing this document is 3.1.10.

To upgrade the firmware see **Appendix D**.

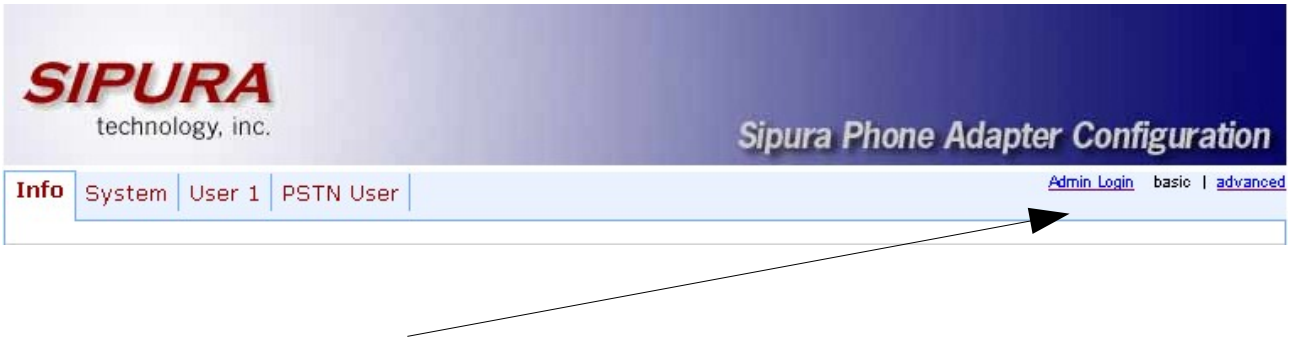
Section 2 – Configuring the SPA-3000 via the Web Interface

Once you have the IP address of your SPA-3000 you can access the web interface by opening a web browser and typing the following in the Address :

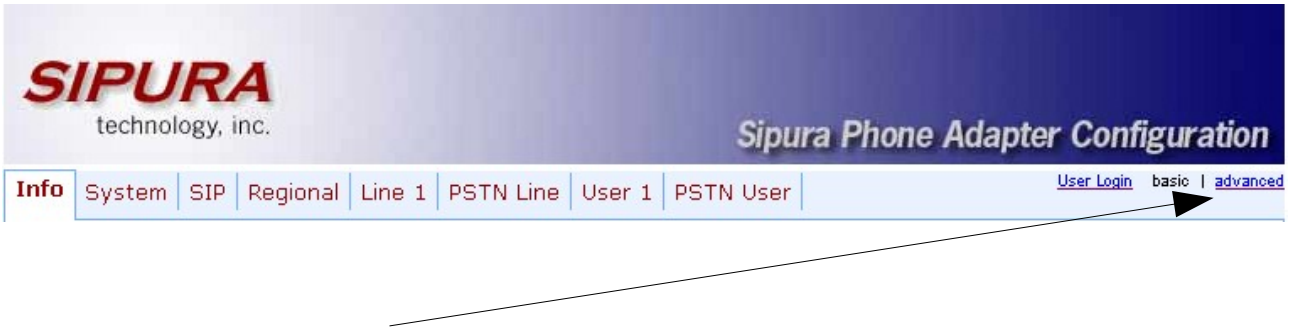
http://<*IP Address of SPA-3000*>

For example: http://192.168.1.10

You should now see the Sipura SPA-3000 Phone Adapter Configuration screen. Now you will need to log into the unit as Administrator and change the view to advanced. See images below.



Click on "Admin Login"



Click on "advanced"

Note: You can also go directly to the admin/advanced section by typing

http://192.168.1.10/admin/advanced

Section 3 – Regional Settings

Click on the "Regional" tab.

The following changes are optional, however they will make your SPA-3000 sound more Australian. Under the Call Progress Tones and Distinctive Ring Patterns headings change:

Dial tone:	400@-19,425@-19,450@-19;10(*/0/1+2+3)
Busy Tone:	425@-19;10(.375/.375/1)
Reorder Tone:	425@-19, 425@-29;60(.375/.375/1,.375/.375/2)
Ring Back Tone:	400@-19,425@-19,450@-19;*(.4/.2/1+2+3,.4/2/1+2+3)
MWI Dial Tone:	400@-19,425@-19,450@-19;2(.1/.1/1+2);10(*/0/1+2)
Ring1 Cadence:	60(.4/.2,.4/2)

Call Progress Tones	
Dial Tone:	400@-19,425@-19,450@-19;10(*/0/1+2+3)
Second Dial Tone:	420@-19,520@-19;10(*/0/1+2)
Outside Dial Tone:	420@-16;10(*/0/1)
Prompt Tone:	520@-19,620@-19;10(*/0/1+2)
Busy Tone:	425@-19;10(.375/.375/1)
Reorder Tone:	425@-19, 425@-29;60(.375/.375/1,.375/.375/2)
Off Hook Warning Tone:	480@-10,620@0;10(.125/.125/1+2)
Ring Back Tone:	400@-19,425@-19,450@-19;*(.4/.2/1+ 2+3,.4/2/1+2+3)
Confirm Tone:	600@-16;1(.25/.25/1)
SIT1 Tone:	985@-16,1428@-16,1777@-16;20(.380/0/1,.380/0/2,.380/0/3,0/4/0)
SIT2 Tone:	914@-16,1371@-16,1777@-16;20(.274/0/1,.274/0/2,.380/0/3,0/4/0)
SIT3 Tone:	914@-16,1371@-16,1777@-16;20(.380/0/1,.380/0/2,.380/0/3,0/4/0)
SIT4 Tone:	985@-16,1371@-16,1777@-16;20(.380/0/1,.274/0/2,.380/0/3,0/4/0)
MWI Dial Tone:	400@-19,425@-19,450@-19;2(.1/.1/1+2); 10(*/0/1+2)
Cfwd Dial Tone:	350@-19,440@-19;2(.2/.2/1+2);10(*/0/1+2)
Holding Tone:	600@-19;*(.1/.1/1,.1/.1/1,.1/9.5/1)
Conference Tone:	350@-19;20(.1/.1/1,.1/9.7/1)
Secure Call Indication Tone:	397@-19,507@-19;15(0/2/0,.2/.1/1,.1/2.1/2)
VoIP PIN Tone:	600@-10;*(0/1/1,.1/.1/1,.1/.1/1,.1/.5/1)
PSTN PIN Tone:	600@-10;*(0/.7/1,.2/.1/1,.2/.1/1,.2/.5/1)
PSTN Warning Tone:	600@-10;5(0/.5/1,.05/.05/1,.05/.7/1)
Feature Invocation Tone:	350@-16;*(.1/.1/1)

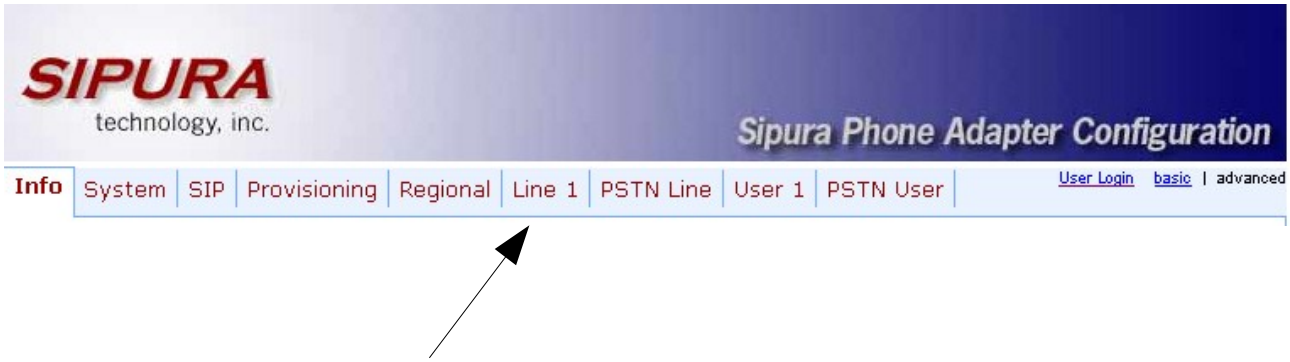
Distinctive Ring Patterns			
Ring1 Cadence:	60(.4/.2,.4/2)	Ring2 Cadence:	60(.3/.2,1/.2,.3/4)
Ring3 Cadence:	60(.8/.4,.8/4)	Ring4 Cadence:	60(.4/.2,.3/.2,.8/4)
Ring5 Cadence:	60(.2/.2,.2/.2,.2/.2,1/4	Ring6 Cadence:	60(.2/.4,.2/.4,.2/4)
Ring7 Cadence:	60(.4/.2,.4/.2,.4/4)	Ring8 Cadence:	60(0.25/9.75)

The following changes are required under the Miscellaneous heading :

FXS Port Impedance: 220+820||115nF

If you would like to configure the Time and Daylight savings, see **Appendix F**. This is completely optional.

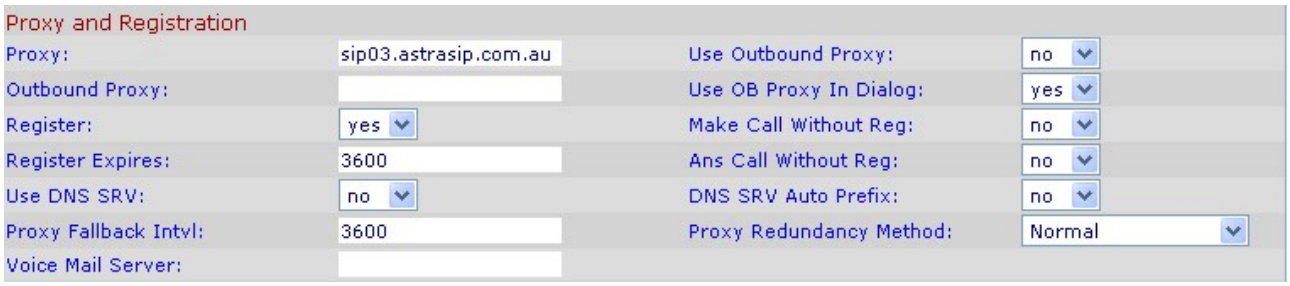
Section 4 – Line 1 Settings



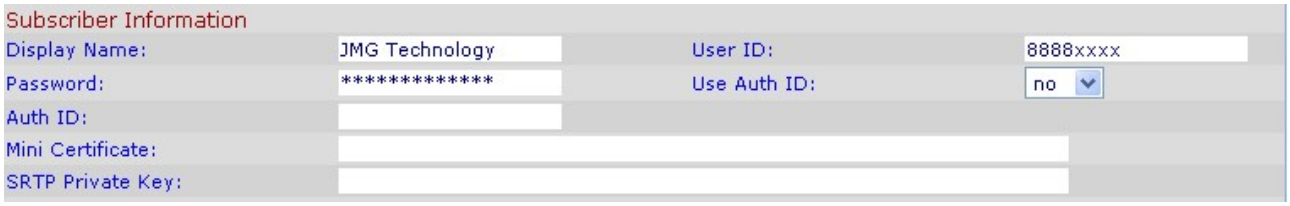
Click on the "Line 1" tab.

The first thing that needs to be changed is under the Proxy and Registration heading. Here you will need to enter the proxy and registration information given to you by your VoIP provider.

The following image shows the setup for Astratel.



The second thing that needs to be configured is under the Subscriber Information heading. Here you will need to enter your user id and password for given to you from your VoIP provider.



For **some** VoIP providers you will also have to enter the Auth ID and set Use Auth ID to yes.

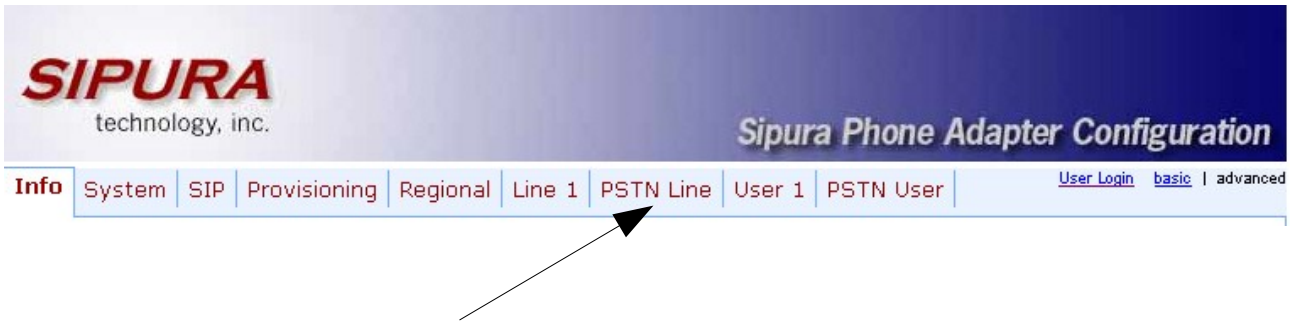
The next thing that needs to be altered is under the Audio Configuration heading. The following change is required.

Preferred Codec: G729a

The final item that requires changing is under the Dial Plan heading. The dial plan will vary from provider to provider. The dial plan show below is an example only, and may require alteration depending on which VoIP provider you subscribe to. See **Appendix A** for a detailed description of how dial plans work.

Dial Plan: (000S0<:@gw0>|<#0,:>xx.<:@gw0>|xx.)

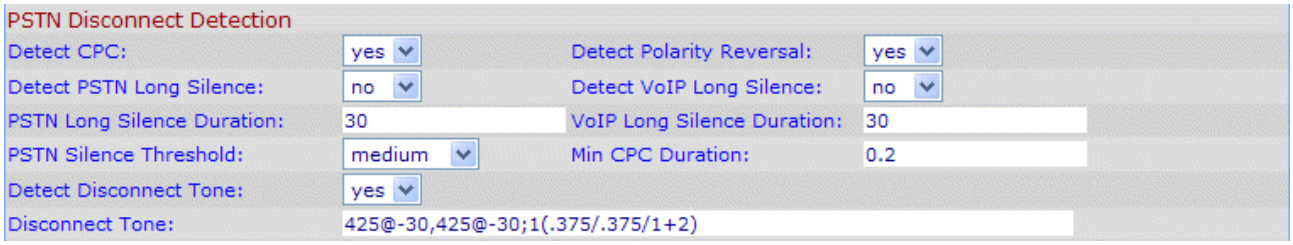
Section 5 – PSTN Line Settings



Click on the "PSTN Line" tab.

The first thing that needs to be changed is under the PSTN Disconnect Detection heading. The following change is required:

Disconnect Tone: 425@-30,425@-30;1(.375/.375/1+2)

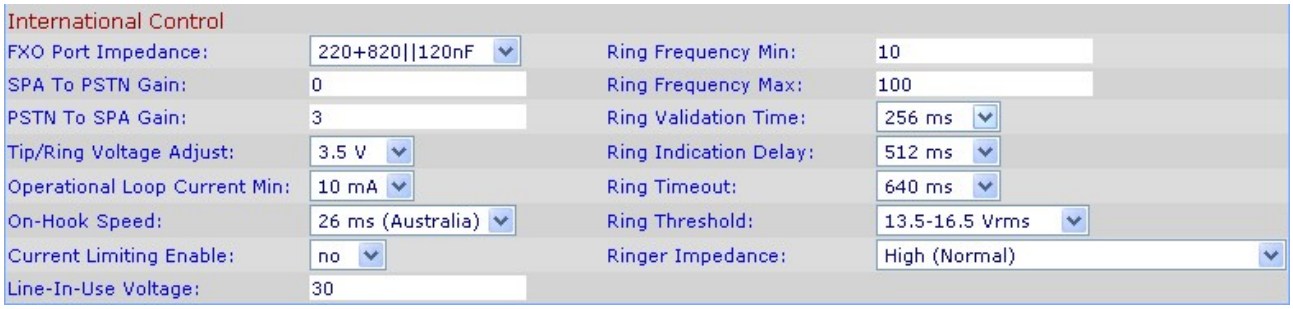


Some users have reported that the disconnect tone for Optus is slightly different than the above disconnect tone. If you are using Optus and are having problems, it is recommended that you try the following code:

Optus Disconnect Tone: 425@-30,425@-30;**10**(.375/.375/1+2)

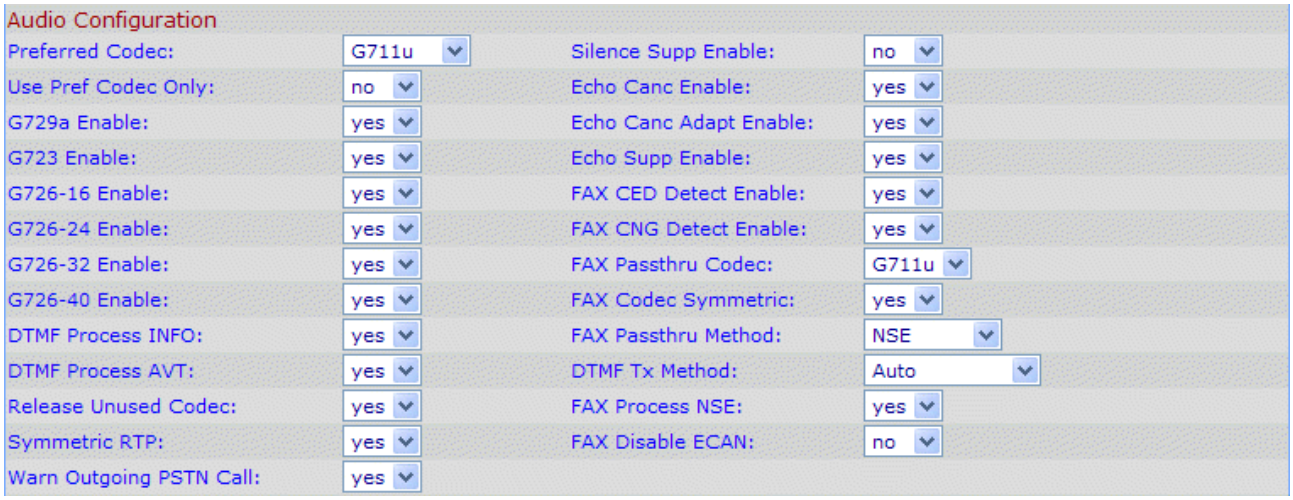
The next thing that needs to be changed is under the International Control heading. The following changes are required:

FXO Port Impedance: 220+820||120nF
PSTN To SPA Gain: 3
On-Hook Speed: 26ms (Australia)



If you are concerned about your calls going out the PSTN line by mistake and being charged non VoIP rates. It is recommended that you enable the Warn on Outgoing PSTN call option. This is under the Audio Configuration on the PSTN tab.

Warn Outgoing PSTN Call: Yes



Warning: Do not set Preferred Codec to G729a and set the Use Pref Codec Only to yes. This will stop PSTN calls.

Everything should now be setup and ready to use. Make sure you press the Submit All Changes button to save the settings to the SPA-3000.

The Submit All Changes button will save the changes on all pages. You can however hit that button at the end of each section if you wish to do so.

Appendix A – Dial Plans

Dial plans can be very confusing at first glance. However they are invaluable feature of the SPA-3000 so you should at least learn the basics of how they work. The following dial plans are to show how to use the various features of dial plans. You should play around with them to suit your needs.

Dial Plan Syntax

( )	- The entire dial plan must be surrounded by an open and close bracket.
|	- Each individual dial plan must be separated by a pipe | character.
0-9	- Treated as normal digits
x	- Treated as any normal digit 0-9 on phone
*****	- Treated as normal * character on phone
#	- Treated as normal # character on phone
.	- Repetition
< : >	- Replacement, eg <02:612> means replace 02 with 612
<:@gw0>	- Gateway 0 is the PSTN line
<:@gw1>	- Gateway 1 (Advanced Feature)
<:@gw2>	- Gateway 2 (Advanced Feature)
<:@gw3>	- Gateway 3 (Advanced Feature)
<:@gw4>	- Gateway 4 (Advanced Feature)
S0	- Dial Immediately
!	- Barring a number, place this at the end of the number to bar it
,	- Provides a dial tone
[ ]	- Limiting choices, eg [24] means either 2 or 4, [2-5] means 2,3,4 and 5, [24-68] means 2,4,5,6,8

Example Dial Plans

Dial Plan 1: (000S0<:@gw0>)

Description: The above dial plan is extremely simple, yet extremely important. When you dial 000 (Emergency number) your call will go out through Gateway 0 (<:@gw0) which is your normal PSTN line, immediately (S0) after you have dialed the 3rd 0.

Dial Plan 2: (000S0<:@gw0>|1800xxxxxxS0<:@gw0>)

Description: The above dial plan contains two individual plans, building on from Dial Plan 1. You will notice that a | separates the 1st dial plan from the 2nd .The 2nd dial plan is used to route 1800 numbers through the your PSTN line. It works the same way as the 1st dial plan, in that when you dial a 1800 number followed by 6 other digits (0-9) it will be directed through your PSTN line.

Dial Plan 3: (<*1:0123456789>)

Description: This plan demonstrates replacement. If you dial a * followed by a 1 then the number 0123456789 would be dialed.

Dial Plan 4: (<0:61>[2-9]xxxxxxxxS0)

Description: This plan demonstrates replacement and limiting choices. When you dial an 0 followed by a 2,3,4,5,6,7,8 or 9 and then nine of any other digit (0-9) it will prepend 61 and remove the 0. So if you rang 02 123456789 the actual number that would be called would be 61 2 123456789.

Dial Plan 5: (1900xxxxxx!)

Description: This plan demonstrates number barring. If you enter a 1900 followed by 6 more digits (0-9) you call will not be placed.

Dial Plan 6: (<#9:>xx.<:@gw0>)

Description: This plan demonstrates replacement and repetition. When you enter a #9 followed by any number of digits(a timeout is used to determine the end) it will go out through the PSTN line (Gateway 0).

Putting it all together

Dial Plan 7: (000S0<:@gw0>|1[38]xxx.<:@gw0>|1900xxxxxx!| 0[2-9]xxxxxxxxS0| <#9:>xx.<:@gw0>)

Description: This plan combines elements from all the above dial plans. It routes all 000, 1800, 1300 calls out via the PSTN line. Its bars 1900 numbers. It allows an Australian land line to be called and it also allows you to select the PSTN line by dialing a #9.

Appendix B - Factory Reset

To perform a factory reset on your SPA-3000 remove the Ethernet cable and the PSTN line cable, leaving just the power and the phone connected. Dial **** on the phone. You should hear a Sipura message asking you to enter your selection. . Then dial 73738#.

WARNING: This will restore your unit back to factory defaults, all your information will be lost.

Appendix C - Saving your Configuration

Method 1 – ProgramUtility

There is a utility that has been written to save/restore SPA-3000 configurations. The file is called NewSipuraUtil and can be downloaded from the following site:

http://www.dualarrow.com

Method 2 - Manually

To save your configuration, log into your SPA-3000 web interface as admin. Change the view to advanced. Select the ***File – Save As*** option from your web brower and save the configuration page to your PC's hard drive. Thats it!

Now to restore settings that you have previously saved, you need to edit the configuration page that you saved to your PC's hard drive. To do this, find the page on your hard drive, right click on it and ***Open With – Notepad***. Now, do a search for the following line of code.

<FORM action=”asipua.spa” .....

You need to change this line to read:

<FORM action=”http://*IP Address of Sipura*/admin/asipura.spa” .....

Where *IP Address of Sipura* is the IP address of your Sipura SPA-3000.

Now save the page, then load it up in your web browser, when you hit Submit Changes, your saved configuration will be loaded back into your SPA-3000.

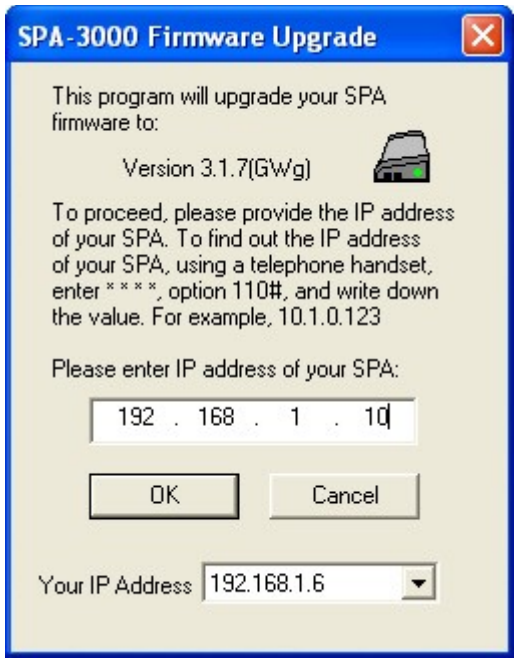
Appendix D – Upgrading Firmware

The latest firmware for the Sipura SPA-3000 can be located on the Sipura support site.

http://www.sipura.com/support/index.htm

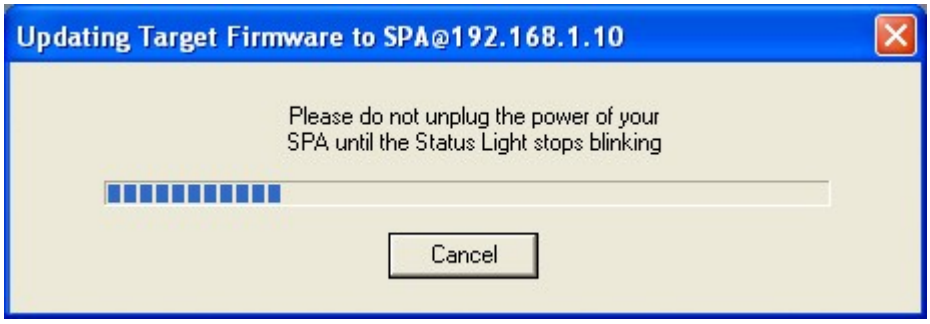
To upgrade the firmware in your SPA-3000 download the latest firmware, unzip it and run the exe file provided. At the time of writing this document v3.1.7Gwg is the latest firmware,

The first thing that you need to do is enter the IP address of your SPA into the spaces provided. In the example below the SPA-3000 is located at 192.168.1.10.



Click on the OK button to begin so the program can find your SPA-3000. When the program locates the SPA, it will interrogate it and you will be shown a confirmation screen.

Click on the Upgrade button to begin the upgrade procedure. The upgrade itself should only take a minute or so. Whatever you do don't turn the power of during this operation.



Once the procedure has finished, you should be presented with the following screen and your upgrade has been completed.

Note: The upgrade procedure does not effect your current settings.

Appendix E – Setting up Gateways

The SPA-3000 allows you to configure up to 4 extra VoIP providers, through the use of gateways. Please note that not all providers can be used in the extra gateways because they require registering.

To add a provider into one of the 4 gateways you will need to know user userid, password and the proxy address of the VoIP provider.

The following image shows how to set up Astratel as gateway 1.

Setup Gateway 1.

Gateway 1: *userid@proxy*
GW1 Auth ID: *userid*
GW1 Password: *password*

where *userid* is your VoIP number given to you by your provider, *proxy* is the sip proxy address and *password* is the password given to you by your provider.

The next thing that is required is to add an entry into the dial plan to allow calls to be made using the gateway you have just setup.

For simplicity sake, I have added the following entry to the dial plan.

<#1,:>xx.<:@gw1>

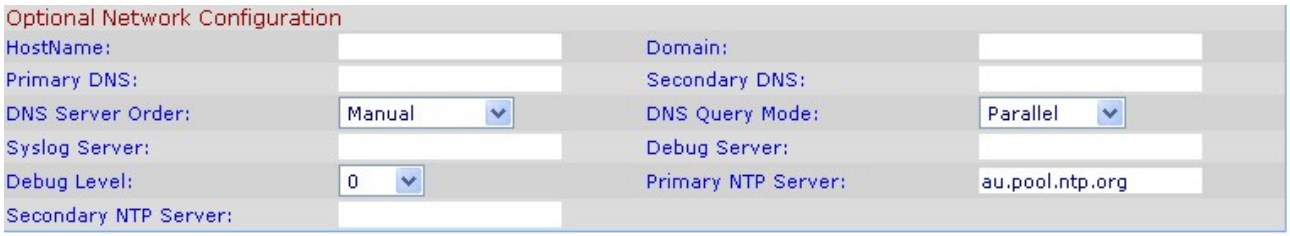
What this means is any number you dial after typing #1 will go out through gateway 1.

You can setup the other 3 gateways in exactly the same way. Gateway 2 uses <:@gw2>, Gateway 3 uses <:@gw3> and Gateway 4 uses <:@gw4>

Appendix F – Setting up a Time Server and Daylight Saving Rules

You can configure the SPA-3000 to automatically retrieve the current date and time. (Including daylight savings). To do this you will need to enter in a NTP server. Some providers will provide you with one.

Change to the "System" tab



Primary NTP Server: au.pool.ntp.org

Change to the "Regional" tab

For NSW these settings seem to work:

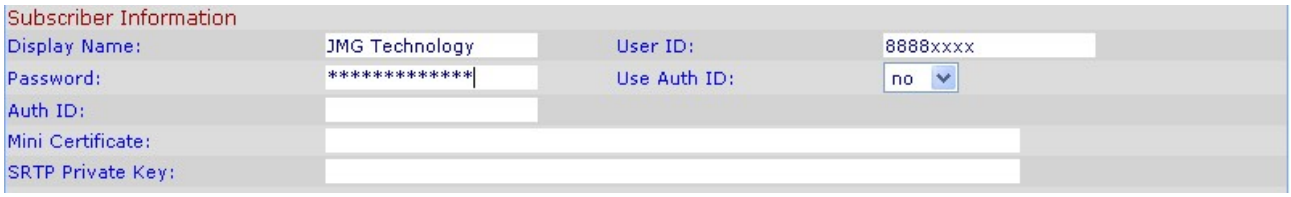
Time Zone: GMT+11:00
Daylight Saving Time Rule: start=3/-1/7/3;end=10/-1/7/2;save=-1

Appendix G – Setting up a PSTN to VoIP Gateway

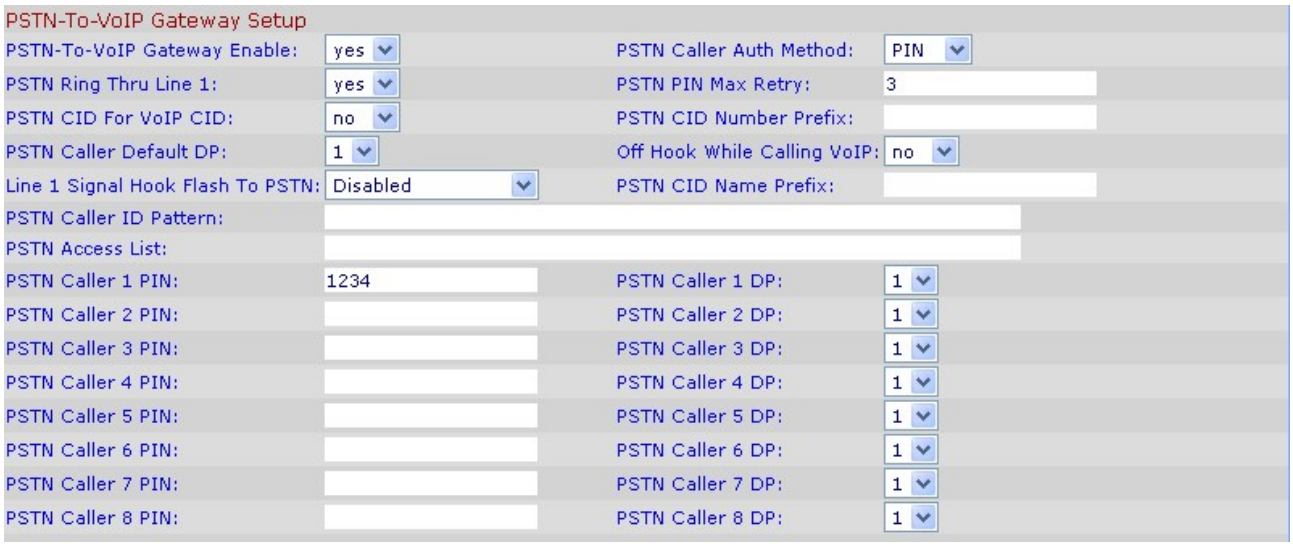
The Sipura SPA-3000 allows you to dial in from an external location, through the PSTN line and then dial out using a VoIP provider. **This is an advanced feature that should only be enabled if you need to use it.**

To do this you need to have a VoIP provider registered on the PSTN tab. The example below shows Astratel being registered.

You also must enter your subscriber details, the same way as was done in the Line 1 registration.



The next thing, that you need to is configure the PSTN to VoIP gateway using a PIN number.



PSTN Caller Auth Method: PIN
PSTN Caller 1 PIN: (whatever number you choose)

The VoIP call will be made with whatever VoIP provider you have registered on the PSTN Line tab.

At this stage you may want to change the time it takes for the SPA-3000 to pick up the PSTN line when you ring into it.

FXO Timer Values (sec)			
VoIP Answer Delay:	0	VoIP PIN Digit Timeout:	10
PSTN Answer Delay:	8	PSTN PIN Digit Timeout:	10
PSTN-To-VoIP Call Max Dur:	0	PSTN Ring Thru Delay:	1
VoIP-To-PSTN Call Max Dur:	0	PSTN Ring Thru CWT Delay:	3
VoIP DLG Refresh Intvl:	0	PSTN Ring Timeout:	5
PSTN Dialing Delay:	2	PSTN Dial Digit Len:	.1/.1
PSTN Hook Flash Len:	.25		

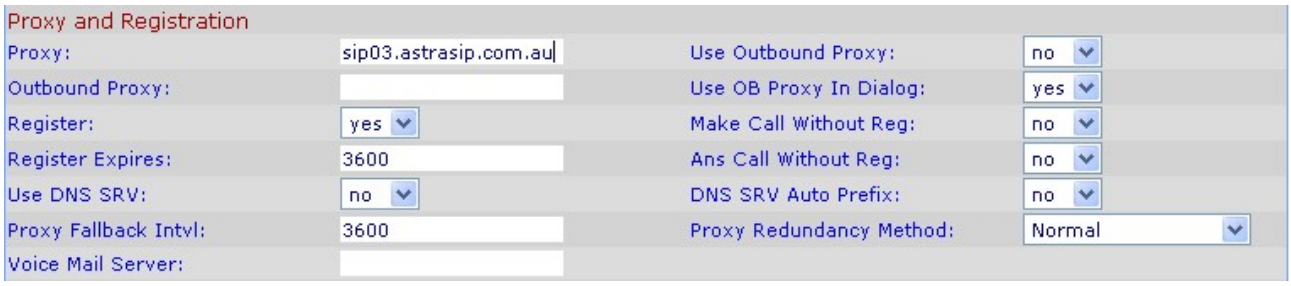
PSTN Answer Delay: 12; (Change this to whatever you think is good for you)
PSTN Dialing Delay: 2; (This seems to work well)

So now, you can dial into your home PSTN line from another location. The SPA-3000 will pick up the incoming call after the “PSTN Answer Delay” setting. You enter your PIN number followed by the # key and you should be given your VoIP dial tone. Now just dial a number and it will go out through the VSP that you have setup on the PSTN tab.

The dial plan used will be the Dial Plan that has been setup for that particular PIN number.

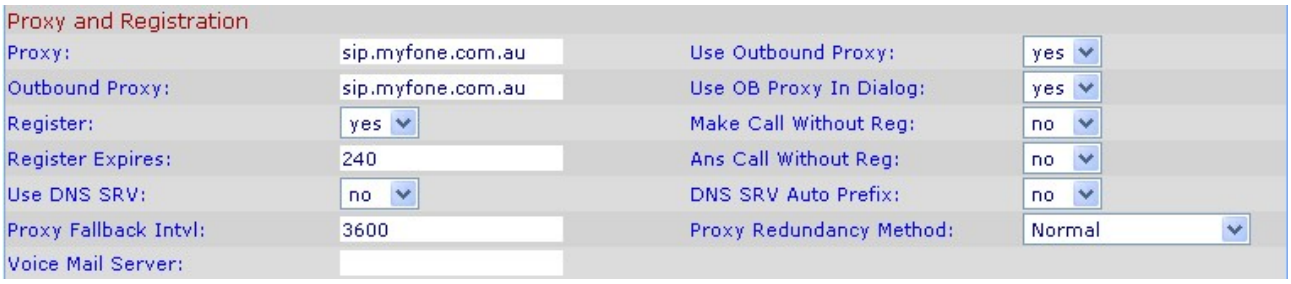
Appendix H – Proxy and Registration Settings For Common Providers

Astratel: Proxy and Registration Settings



Proxy: sip03.astrasip.com.au

MyNetFone: Proxy and Registration Settings



Proxy: sip.myfone.com.au
Use Outbound Proxy: yes
Outbound Proxy: sip.myfone.com.au
Register Expires: 240

more to come .....

Appendix I – Sipbroker

Sipbroker is a free service that allows you to dial between certain VoIP providers. To use sipbroker you will need to add the following entry to your dial plan.

<,:>[x*][x*].<:@sipbroker.com>**

Please see http://www.sipbroker.com to read all about the great service provided my sipbroker.

To test that Sipbroker is working for you, you first dial ** and then try one of the numbers below.

*266-300 monkey sounds
*266-301 echo test
*266-303 Ireland speaking clock
*266-305 music

Sipbroker uses SIP-codes to communicate between the various providers that are supported. Some common codes are shown below.

Astratel	*269
Pennytel	*234
Sipme	*320

So to dial someone on Astratel, you would dial **, followed by *269, followed by the Astratel number you are trying to reach.

You can setup another dial plan to dial Astratel numbers by adding a new dial plan, something like.

<:*269>8888xxxx<:@sipbroker.com>

This means that when you dial an Astratel 8888 number and it will use sipbroker to negotiate the connection.

To view the complete list of SIP-codes please visit the following site location.
http://www.sipbroker.com/sipbroker/action/providerWhitePages

Appendix J – Sipura IVR (Phone Menu)

The Interactive Voice Response (IVR) capabilities of the SPA are designed to give the administrator and/or user basic read/write capabilities such that the unit can attain basic IP network connectivity and the more advanced browser-based configuration menu may be accessed.

IVR Action	IVR Menu Choice	Parameters	Notes
Enter Menu	****	None	You should hear a message saying "Sipura Configuration Menu. Please enter option followed by the pound key or hang up to exit"
Check DHCP	100	None	IVR will announce whether DHCP is enabled or disabled
Enable/Disable DHCP	101	1 = Enable 0 = Disable	Will require password if set
Check IP Address	110	None	IVR will announce the current IP address of the SPA
Set Static IP Address	111	Enter IP address using numbers on the telephone key pad. Use the * (star) key when entering a decimal point.	DHCP must be disabled; will will require password if set
Check Network Mask	120	None	IVR will announce the current Network Mask of the SPA
Set Network Mask	121	Enter value using numbers on the telephone key pad. Use the * (star) key when entering a decimal point.	DHCP must be disabled; will will require password if set
Check Static Gateway IP Address	130	None	IVR will announce the current gateway IP address of SPA.
Set Static Gateway IP Address	131	Enter value using numbers on the telephone key pad. Use the * (star) key when entering a decimal point.	DHCP must be disabled; will will require password if set
Check MAC Address	140	None	IVR will announce the MAC address of SPA in hex string format.

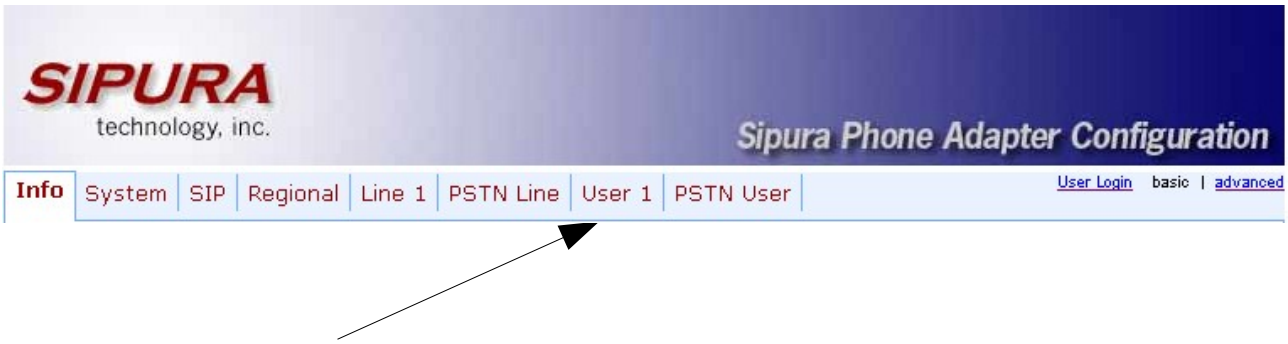
IVR Action	IVR Menu Choice	Parameters	Notes
Check Firmware Version	150	None	IVR will announce the version of the firmware running on the SPA.
Check Primary DNS Server Setting	160	None	IVR will announce the current setting in the Primary DNS field.
Set Primary DNS Server Setting	161	Enter IP address using numbers on the telephone key pad. Use the * (star) key when entering a decimal point.	Will require password if set.
Check Web Server Port	170	None	IVR will announce the port that the web server is listening on. (Default is 80)
Enable/Disable Web Server	7932	1 = Enable 0 = Disable	Will require password if set
Manual Reboot	732668	None	After you hear "Option Successful," hang-up. Unit will reboot automatically.
User Factory Reset **WARNING: ALL "User-Changeable" NON DEFAULT SETTINGS WILL BE LOST!** **This might include network and service provider data**	877778	Enter 1 to confirm * to cancel	SPA will prompt for confirmation. After confirming, you will hear "Option Successful." Hangup. Unit will reboot and all "User Changeable" configuration parameters will be reset to factory default values.
Factory Reset **WARNING:** **ALL NON-DEFAULT SETTINGS** **WILL BE LOST!** **This includes network and service provider data.**	73738	Enter 1 to confirm * to cancel	SPA will prompt for confirmation. After confirming, you will hear "Option Successful." Hangup. Unit will reboot and all configuration parameters will be reset to factory default values.

Appendix K – Setting up Speed Dials

Speed dials are easy to setup and use with the SPA-3000. You can enter a speed dial in two ways.

1. Via the web interface
2. Via the vertical service activation codes (Using the handset)

G.1 Web Interface:



Click on the "User 1"

Under the "Speed Dial Settings" heading, you enter the number that you wish to dial. You can also enter in URL or IP based dialing strings in the Speed Dial as well.

When entering a URL or IP based phone number, you need to "Enable IP Dialing" on the "Line 1" tab first.

Speed Dial 2 contains a simple number: 12345 which will be dialed through your default Line 1 VoIP provoder.

Speed Dial 3 contains a URL style number: *266300@sipbroker.com
(Give it a call; you should hear monkeys)

Speed Dial 4 contains a simple number: 12345 which will be dialed through the PSTN

Speed Dial 5 contains a simple number: 12345 which will be dialed though Gateway 1

G.2 **Vertical Service Activation Codes** (via Handset):

Firstly ensure that you have *xx somewhere in your dial plan to allow the entering of Vertical Service Activation Codes.

Now dial *74 - This is the "Speed Dial Activation Code"

Now, enter the number 2 – 9 that you wish to program, followed by the number you wish to store in the speed dial. After a second or so you should hear two short beeps. This tells you that the number has been stored successfully.

For example, dialing *74 6 99991111 will result in the number 99991111 being stored in speed dial 6.

Viewing the speed dials in the web interface would reveal:

G.3 **How to dial using a speed dial?**

To use one of your preset speed dials you simply dial the number followed by the # key. For example to dial our Sipbroker test number, we dial 3#