FAQs

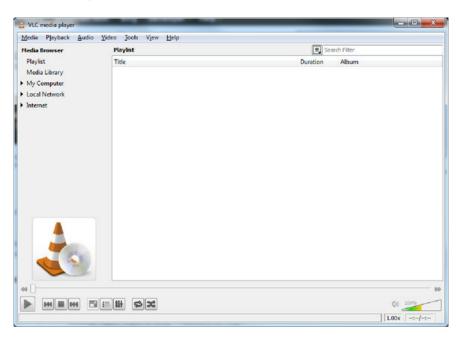
Sonifex Pro Audio Streamers Frequently Asked Questions (FAQ)

This FAQ (frequently asked questions) answers some of the popular questions asked about the Pro Audio Streamers. If you have any specific questions regarding the operation the Pro Audio Streamers which aren't covered below, please contact your nearest distributor, or Sonifex directly.

Pro Audio Streamer and VLC test setups: Download this FAQ as a PDF file >

VLC GUI:

RTP VLC to Pro Audio Streamer PS-PLAY/PS-AMP (so opening a file on a PC and streaming it to a Pro Audio Streamer PS-PLAY).



To stream from VLC using RTP click media and streaming.

(Dec	🛞 Diac	- Network	Capture	Device	
le Sele	ction				
bu can	select local	fies with the folio	wing list and but	tons.	
					Add
					Remove
Use a	subjties file		Cho	ose one or mo	re media file to open
_					Browse
					Er Omstern.
	ont size: 1	iormal .	-		
	ignment:		5		
PEALO	diana 6	010	2		

In the file selection box click Add and add an audio file to playback, once the track is showing in the file selection click stream.

ource		
This dialo You shoul	g will allow you to stream or convert your media for use locally, on your private network, or on the In d start by checking that source matches what you want your input to be and then press the "Next" b	ternet. utton to continue.
Source	C: \Users\jamespayne\Music\Wippercreep - Test\Audio\D1_NIPPERCREEP-Proces.ogg	
	File/Folder	
estination		Next
ptions		

Click next change the destination to RTP Audio/Video profile and click add next to the destination.

Stream Output	8 🔤
Source	
Destinations	
Destinations	
RTP/AVP	×
This module outputs the transcoded stre	am to a network via RTP.
Address	
Base port 5004 荣	
Profile	Video - H. 264 + AAC (MP4)
Previous	Next
Options	
Ab non es	

Change the port if needed to the required value for this example port 4444 will be used and set the address to RTP://and then the IP address required, e.g. RTP://192.168.0.35

Stream Output			8 X
Source			
Destinations			
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RTP/AV	P		×
This module outp	uts the transcoded stream	to a network via RTP.	
Address RTP:	//192.168.0.35		
Base port	4444 🜩		
Profile		Audio - MP3	- 💥 🗶 🗐
Previous			Next
			Stream Gancel

We also need to ensure the audio is in a format that is supported by the PS-PLAY, to do this select activate transcoding and set the profile to audio-MP3 the PS-PLAY/PS-AMP support all MP3 bitrates up to 320 k so in order to set this click the spanner next to the profile selection.

	lgn © MP4(MOV
	lgn © MP4(MOV
© MPEG-PS ◎ MJPEG ◎ WAV	© RX
TIMPEG 1 TO MKY RAW	© AVE
ASF/WMV	

Set encapsulation to RAW set the bitrate to 128, 160, 192, 256 or 320k.

Profile Name Audio - MP3 Encapsulation Video codec Audio codec Subtitles Audio Keep original audio track Codec MP3 Channels 320 kb/s © Channels 2 © Sample Rate 44100 ♥	Å	Form				Ş	x
Audio Keep original audio track Codec Bitrate 320 kb/s * Channels		Profile Name	Audio - MP3				
Keep original audio track Codec Bitrate Channels		Encapsulation	Video codec	Audio codec	Subtitles		
Codec MP3		Audio					
Bitrate 320 kb/s - Channels 2 -		🔲 Keep origina	al audio track				
Channels 2		Codec			MP3		•
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Sample Rate 44100 💌		Channels				2	A V
		Sample Rate				44100	-
Save Cancel						Save Can	el

HTTP VLC to Pro-Audio Streamer PS-PLAY:

VLC media player	<u>V</u> ideo Jools Vjew <u>H</u> elp		- 0 X
Media Browser	Playlist	Search Filter	
Playlist Media Library My Computer Local Network Internet	Title	Duration Album	
	e H		0 100%

Click media and Streaming.

			Capture De		
le Selection	1946 - 1947 1947 - 1947				
rou can select	ocal files with t	the following	ng list and buttons	1	
					Add
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Use a subjitte	s file		Choose	one or more	media file to open
_					-
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In the file selection box click Add and add an audio file to playback, once the track is showing in the file selection click stream.

🛓 Steen Output		2 ×
Source		
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		×
This module outputs the transcoded stre	on to a network via RTP.	
Address RTP: (7182.168.0.25		
Base port 4444 💿		
Transcoding spitons		
Kativate Transcoding		
Profile	Audo - 1993	• 🗶 🗶 🗊
heas		lext
Options		
		Stream Cancel

Click next and change the destination to HTTP profile and click add next to the destination.

Stream Output	2 ×
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нтр	×
This module outputs the transcoded str	eam to a network via HTTP.
Port 8050 💿	
Path /vicout	
Profile	(108811.2014 + AAC.(1994) • 😥 🗶 🛐
Previous	Next
upare	Stream Cancel

Enter a port number and a path. We also need to ensure the audio is in a format that is supported by the PS-PLAY, to do this select activate transcoding and set the profile to audio-MP3 the PS-PLAY/PS-AMP support all MP3 bitrates up to 320 k so in order to set this click the spanner next to the profile selection.

rofile Name Aux	io - MP3		
incepsulation	Ideo codec Audio codec	Subtities	
D NP09-75	🗇 Webm	Cog/Ogn	INP4MOV
) MPEG-PS	C MJPEG	© WAV	© RX
MPEC 1	© MW	RAW	I AVE
) ASF/WMV			

Set encapsulation to RAW set the bitrate to 128, 160, 192, 256 or 320k.

🛓 Form				3 X
Profile Name	Audio - MP3			
Encapsulation	Video codec	Audio codec	Subtitles	
Audio	audio track			
Codec			MP3	•
Bitrate				320 kb/s 🚔
Channels				2 💌
Sample Rate				44100 🔻
				Save Cancel

PS-SEND to VLC From the GUI:

VLC media player	
<u>M</u> edia Playback <u>A</u> udio <u>V</u> ideo Jools View <u>H</u> elp Media Browser Playlist	Search Filter
Playlist Title Media Library My Computer Local Network Internet	Duration Album
	0 1000 1.000

Click Media Open network stream.

			Capture Dev	
letwork Prot Nease enter		k URL:		
rtp://@ mms://m rtsp://se	1234 https://example.com	mple.com/strea imples.com/strea imple.org.808 tube.com/wate	tream.asx 0/test.sdp	
ring Ir wi	an your	A CONTRACTOR INCLU		

If the PS-SEND is configured to send an individual RTP stream then enter rtp://0.0.0.0:portnum* (* where portnum is the streaming port defined on the PS-SEND)

in the network URL and click play

to receive a http stream enter http://xxx.xxx.xxxcportnum/radiopath* (* where xxx.xxx.xxx =is the IP address of the PS-Send portnum is the streaming port of the PS-Send and radiopath is the streaming radio path of the PS-Send (set to pssend by default)) in the network URL and click play.

PS-SEND and PS-PLAY/ PS-AMP Icecast/Shoutcast Setup:

In cases where multiple clients may need to connect to a stream internet radio for example then the PS-SEND, PS-PLAY/PS-AMP support streaming to and from loccast/Shoutcast Servers.

A PS-SEND can be connected to a Shoutcast stream as either a source or a relay.

In cases where a dedicated online lcecast or Shoutcast streaming solution is not being used then an lcecast server can be installed on a PC on the network. This server is then capable of handling multiple steams from multiple sends and redistributing them.

Icecast:

The lcecast server install package can be downloaded from here: http://www.icecast.org/download.php Once installed and opened the interface appears as below:

Cocast2 Version 2.x		1	10
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decastorg			
Stop Server F Stat Server	on Severs Nature Runn		Ta Saiha
Server Status Source Level Stats			
Source Level Statistics Cleb source to view statistics	Taxa.		
Source Ustream ogg	Statute	Value Epilogue to Madress	1000
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	and a second second	T. State	
	non kilmeti	wanted	2

To configure the server ensure it is stopped and then edit the configuration. The default configuration is as below:

<!-- This config file contains a minimal set of configurable parameters, and mostly just contains the things you need to change. We created this for those who got scared away from the rather large and heavily commented icecast.xml.dist file. --> <icecast> <limits> <sources>2</sources> </limits> <authentication> <source-password>hackme</source-password> <relay-password>hackme</relay-password> <admin-user>admin</admin-user> <admin-password>hackme</admin-password> </authentication> <hostname>localhost</hostname> <listen-socket>

<port>8000</port>

</listen-socket>

<fileserve>1</fileserve>

<paths>

<logdir>./logs</logdir>

<webroot>./web</webroot>

<adminroot>./admin</adminroot>

<alias source="/" dest="/status.xsl"/>

</paths>

<logging>

<accesslog>access.log</accesslog>

<errorlog>error.log</errorlog>

<loglevel>3</loglevel> <!-- 4 Debug, 3 Info, 2 Warn, 1 Error -->

</logging>

</icecast>

The main setting here that we are interested in is the port and source password we also need to know the IP address of the PC the server is installed on.

The send is configured as an loccast source and the destination IP address and port for the Shoutcast server are entered into the basic settings screen as below:

Pre Audio Streamer - Send +	 	v
S 192168.0.148	😭 🔻 C 🛛 🚰 - Google	P 🟦 🗗
	V1.91 Mid. shows 08.08.81.41.09.00.00 Mid. Shows 08.08.81.41.09.00 Mid. Shows 08.08.81.00 Mid. Shows 08.08.00 Mid. Shows 08.08.00 Mid. Shows 08.08.00 Mid. Shows 08.08.00 Mid. Shows 08.00 Mid. Show 08.00 Mid. Shows 08.00	
Unit Status: Seeding Status S Analogue Imput Peak Value L 4 Analogue Imput Peak Value R d	GPI Status:	

To connect to the lcecast server installed on the test PC we would enter the relevant port number (here 8000) the IP address of the PC lcecast is running on and click submit to apply these settings.

A radio path must also be entered and submitted in the advanced stream settings Radio Path setting.

168.0.148		☆ ♥ C Score to	Ρ
		UV BIR	-
100		MAC address 00.08/E1 02:30:20	
A CON	IFEX	(P address: 192.168.0.148	
		Netmaak 256 256 255 0 Default gateway: 192 108 0.99	
PS-SEND Manufacturers of audi	and video equipment		
Basic Settings Advanced Settings U	pdate		
		Help	
STREAMING SETTI	IGS	Streaming Settings	
		Own Name	
Own Name		This is an identification string for the unit so that it maybe identified as the network. $\ ^{\pm}$	
Control GP1	1		
Active open/closed	closed -	Streaming Mode	
Send Contact Closure information	no 💌	Decide when the audio is streamed. The audio can be streamed when	
Trigger Level	1000	Send always - The audio is always streamed.	
Pre Trigger Start	0 msec	Send on level - The audio is only sent when the level is above the 'Tripper Level'. See	
Post Trigger Play	1024 msec	Advanced audio settings page for more details on the 'trigger' level.	
Buffer Undemun Mode (TCP)	skip • E	Send on I/O – Send when an input is detected and used in conjunction with Active open/closed and Costrol GP.	
Stream Packet Strategy	optimal package +	openneseus ane control en.	
Radio Path	/pssend	Control GPI	
icy-ut / SIP user		Select which GPI contrais the send operation.	
icy-genre			
Shoutcast stream	public -	Active open/closed Select whether the an open or closed state on the selected GPI is used to activate the	
Type of Service/DSCP	0	send operation.	
SNMP SETTINGS		Send Contact Closure Information	
Trap Target IP Address	0.0.0.0	If sending on VO and using the RTP transport protocol, the cleasure of the selected OPI	
1		can be sent to the receiving Play or Amp unit, and the relay contacts on that unit are	
Low Audio Level	0 Left 0 Right 0 Left 0 Right	closed.	
High Audio Level Trap Repeat	0 Left 0 Fight 0 Left(sec) 0 Right(sec) *	Trigger Level .	
	a cautane) a vagintane)		
Unit Status:		GPI Status:	
Sending Status SEND	NG	Input 1	
Analogue Input Peak Value L 4128 Analogue Input Peak Value R 4189		Input 2 Input 3 Input	
		Input 4	
		Input 5	

Then the password in the advanced security screen should also be set to the source password in the lcecast config file, (in this case hackme). If there is already a password set then set will be displayed at the side of this box if not it will read unset.

To enter a new password simply type the password into the box and click submit.

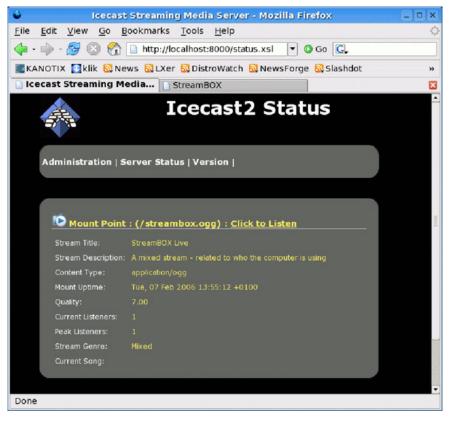
B Pro Audio Streamer - Send +	/	
 8 192168.0.148 	☆ ▼ C	P 🟦 🗈
before a contract of a co	V1919 MAGNING CONSTRAINED Provident (2018) TO 10 2000 Development Development Development Constraints (2018) To 2018 Constraints	
Unit Status: Sending Status SENDING Analogue froot Peak Value 1.4211 Analogue froot Peak Value R.4073	CPI Status:	

If the lcecast sever is not running then run it now and it should be possible to view a status page in a web browser by typing in the IP address of the PC and port number l.e. for this example: 192.168.0.92:8000.



To view status click the administration menu and when prompted enter the admin user-name and password defined in the loccast config file.

If the send is streaming correctly then it should be possible to see the radio path we specified as a mount point as below:



If this does not happen and all settings are correct then the most likely problem is that a firewall is blocking some or all of the ports required for use or the loccast application. To overcome this edit your firewall rules to make an exception for the loccast application.

Connecting the PS-PLAY/PS-AMP to the icecast server:

Connecting the PS-PLAY to the lcecast server is relatively simple the URL is entered as if it is a standard http stream i.e. URL 1 for our example would be : http://192.168.0.92:8000/pssend

Icecast Relay:

There are several reasons why it might be beneficial to relay the PS-SEND output via an lcecast server rather than as a source one of these is if a user wishes to embed meta-data in the Shoutcast stream. To achieve this the PS-SEND is set up as if it is just sending a standard http (internet radio) stream to the pc running the lcecast server.

in firefox state		/	
Pro Audio Streamer - Send × Ho Ho S 192368.0.148	w to send metadata to a shoutcast × +	☆ ▼ C Sough	2 A D
C 0 1051000.140		The c line coops	~ (W) (M
	NIFEX I recto and video equipment rgs Updat	V1 (315) Mar2, andrews (30:06:01 (32:05:02) W addrews (30:06:07:05:05) W addrews (30:07:05:05) Suddent gatheres: (30: MS-0.39)	
		Status block	
BASIC SETTING	S	Sending status	
		The last recorded status of the unit and it shows either SENDING or INACTIVE.	
AUDIO SETTINGS			
Input source	Analogue XLR +	Analogue peak input values The last recorded peak input value displayed in dBs for both channels.	
ENCODING		The dat recorded peak riplic value disperyed in deal for both channels.	
Encoding	MPEG2 -	GPI Status	
Sample Rate	24kHz +	The last recorded GPI input status. Grey lock means currently open contact. Green	
Channel Mode	Stereo +	box means currently closed contact.	
MPEG Encoding quality	7Highest -	Basic settings	
STREAM SETTINGS		Input Source	
Streaming mode	send always •	Select the input source that will be used by clicking on the appropriate radio box. Only one can be selected at a time.	
Connection type	Internet Radio -	one can be selected at a time.	
PAddress	192 , 168 , 0 , 92	Channel Mode	
Port No.	8001	Select whether the source is Starso or Mono. If mono is selected, both left and right	
1.000		channels of the network stream contain left channel data. The stream becomes dust-mono.	
submit		war there.	
		Encoding	
		Cheose one of the encoding methods and sample rates. Please note that g 711 and	
		PCM have set bit rates while WPEG is variable. The quality drop box only affects WPEG encoding and determines the overall bit rate. If using the digital inputs, WPEG-1	
		will be used and the sample rate will be detected. The input sample rate is restricted	
		to 328/tz, 44.1 kHz or 488/tz. To work out the bit rate for G 211 and PCM, simply .	
Unit Status:		GPI Status:	
	SENDING	Input 1	
Analogue Input Peak Value L Analogue Input Peak Value R		Input 2	
	Sector and the sector of the s	Input 4	
		Input 5	-
		input 6	

The port must now be a different one from the one used by the lcecast server so for this example port 8001 is used. The password and radio path must all still be specified as well.

Then to begin sending meta-data you would then enter: http://<ip-ps-send>/rc.cgi?E=StreamTitle='Title'; in the navigation bar, so in our example: http://192.168.0.148/rc.cgi?E=StreamTitle='U2';

The lcecast server itself also needs some additional information so the config file would be changed as below:

<!-- This config file contains a minimal set of configurable parameters, and mostly just contains the things you need to change. We created this for those who got scared away from the rather large and heavily commented icecast.xml.dist file. --> <icecast> <limits> <sources>2</sources> </limits> <authentication> <source-password>hackme</source-password> <relay-password>hackme</relay-password> <admin-user>admin</admin-user> <admin-password>hackme</admin-password> </authentication> <hostname>localhost</hostname> <listen-socket> <port>8000</port> </listen-socket> <fileserve>1</fileserve> <paths> <logdir>./logs</logdir> <webroot>./web</webroot> <adminroot>./admin</adminroot> <alias source="/" dest="/status.xsl"/> </paths> <logging> <accesslog>access.log</accesslog> <errorlog>error.log</errorlog> <loglevel>3</loglevel> <!-- 4 Debug, 3 Info, 2 Warn, 1 Error --> </logging> <relav> <server>192.168.0.148</server>

- <port>8001</port>
- <mount>/pssend</mount>
- <local-mount>/test</local-mount>
- <relay-shoutcast-metadata>1</relay-shoutcast-metadata>
- </relay>
- </icecast>

The parts that have changed are all in the relay section, the first of these is the <server> field (this is the ip address of our send unit). The second is <port> (the port of our send unit) The third is <mount> (the radiopath of the send unit) the fourth is <local-mount> (the mount point for the relayed stream anything can be specified here but we have used test) the fifth is <relay-shoutcast-metadata> this is whether we wish to send metadata set to 0 for no data 1 for data, please note if set to 1 and then no metadata is sent from the send then the stream will not be relayed successfully.

Connecting a Play to the relayed stream:

The play url is then set to the url port and mountpoint of the lcecast server so for this example that would be: http://192.168.0.92:8000/test

Shoutcast:

To install a standalone Shoutcast server (non internet hosted), download the applicable version of Shoutcast DNAS2.0 from here: http://www.shoutcast.com/broadcast-tools Then run the install package on the PC you intend to run as your Shoutcast server.

Please note Windows Vista and & 7 users should install to a directory other than program files that they have full access to or logging etc will fail due to Windows UAE.

Once installed open the installation directory in a file manager there are several default configurations provided

by default for this example we are going to use sc_serv_simple.conf as below:

; NOTE: for any relative paths specified are relative to ; sc_serv and not to where the conf file is being stored

; here we will setup where the log and other related files ; will be stored. make sure that these folders exist else ; sc_serv will throw an error and will close itself down. ; we will make the logs save to the sc_serv2 directory logfile=logs\sc_serv.log w3clog=logs\sc_w3c.log banfile=control\sc_serv.ban ripfile=control\sc_serv.rip

; the following will force any sources to be public which ; allows us to then connect and be listed on the YP publicserver=always;

password used by sc_trans or the Winamp DSP plug-in; NOTE: remember to change this to something else password=testing; password used for accessing the administation pages; NOTE: remember to change this to something else adminpassword=changeme; as we are going to connect to the YP then we need to fill; in the required options so we can authenticate to the YP2; see sc_serv.txt - section 3.0 for details on getting this; make sure that you completely replace the string; <enter_your_auth_key_here> with the authorisation key you; obtained when registering the stream for the SHOUTcast YP; e.g. if you auth hash key is 12345 then the line would be; streamauthhash=12345 streamauthhash=<enter_your_auth_key_here>

open this file in a text editor and change the line that reads:

publicserver=always to publicserver=never

and save the file. This bascically means that the stream will not be listed on shoutcast.com, if you wish your stream to be listed you must obtain an Auth hashkey to enter into your conf file.

Now open the same directory in a command prompt window and enter sc_serv.exe sc_serv_simple.conf text similar to that below should be seen:

- SHOUlcast Dis - Copyright SC2	tributed Metwork Andia Server. 1976-2004 Mulkandt, Jec. All Rights Reserved.
· Ose "se mesw	filename.ini" to specify an ini file.
bent ligt 80/20/02/021:15: 80/20/06/21:15: 101/20/06/21:15:	80) 15000Jeantj DM80.v6532 v1.7.7 film 23.2006) starting up 80) Innis] landed cod by From C: Program Piles Simultanetus_corr
해 21.76.221 15 82.21.76.221 15 82.21.76.221 15 82.21.76.21 15 82.21.76.21 15 82.21.76.21 15 82.21.76.221 15 82.21.76.221 15 82.21.76.221 15 82.21.76.221 15 82.21.76.221 15 82.21.76.221 15 82.21.76.221 15	005 Lamia 1 No Ban File Tourd (an Inter-Ing) 005 Lamia 1 No Eigh File Tourd (an Inter-File) 005 Lamia 1 Sparsing Franze tourbat 005 Lamia 1 Sparsing Franze tourbat 005 Lamia 1 Sparsing File Tourbat 005 Lamia 1 Sinter String For extended 003 Lamiting 005 Lamia 1 Sinter String For Lamia 1 Sinter String 005 Lamia 1 Sinter String For Lamia 1 Sinter String 005 Lamia 1 Sinter String For Lamia 1 Sinter String 005 Lamia 1 Sinter String For Lamia 1 Sinter String 005 Lamia 1 Sinter String For Lamia 1 Sinter String 005 Lamia 1 Sinter String For Lamia 1 Sinter String 005 Lamia 1 Sinter String For Lamia 1 Sinter String 005 Lamia 1 Sinter String For Lamia 1 Sinter String 1 Sinter String 005 Lamia 1 Sinter String 1 Sinter
00/28/06921:16: 00/28/06921:16: n station/Computation Decimal ANNIAL Trans 00/28/06921:17/	235 (survey) log-monthibutesst : log-sig(); hop-sintHOR (b) (spaced) (systematics) is no give encoder (ask) (b) (spaced) (systematics) is give monthied encoded and and (spaced) (systematics) (space log-letterni, disability (spaced) (s

You should now be able to connect to the Shoutcast server through a webbrowser by entering the default port within sc_serv_simple.conf (in this case 8000)

so to open it the url would be:

http://192.168.0.34:8000

(where 192.168.0.34 is the ip address of the Shoutcast PC)

A page similar to the one below should be seen if not check that Shoutcast is not being blocked by a firewall running on the PC or on a network device like a router.

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File Las Vers Facultur 1	lant Help			
anter + + + 10 10 (2)	Quant Ufauter Ottal	(11)(日前)(日本)		100 State 1
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ALC: NOTION OF	cast D.N.A.S	Otherstern		-
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		Conversit Relation in C. Ma		
0				itianat

Setting up the PS-SEND is very similar to setting it up for Icecast in the basic settings the IP address of the Shoutcast server PC and the port number should be entered and then submitted, i.e url 1 would be http://192.168.0.92:8000/pssend

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			and the second se		
Beer Saffrer Advanced Saffre	STIFEX andle and video equipment g: Unity		V1011 Mic address 0000 £1011 Platform 300 300 11.00 Netroia 2002063 2000 Distort prinney 300 100 1		
BASIC SETTING	5		Status block Sending status		-
AUDIO SETTINGS				he unit and it shows either SENDRIG or INI-CITYE	
Input source	Analogue XJ.R	1	Analogue peak input The list recorded peak input	values Liste depined in dbs for both channels.	
ENCODING			GPI Status		
Encoding	MP3	*		datus. Oney box means currently open contact. O	1940
Savgle Rate	44.1894z	-	box means currently closed		
Channol Mode	Storeo	2	Basic settings		
MPEG Encoding quality	7 Highest		Input Source		
STREAM SETTINGS			Select the legisl cource that one can be estected at a lim	will be used by clicking on the appropriate radio by	ox. Only
Streaming mode	Send elways		one can be selected at a lan		
Select Connection	Stepm 1	*	Channel Mode		
Connection type	Shoutcest	-		s Stereo or Mono. It mono is selected, both left and ran contain left channel date. The stream become	
IP Address	192166.11.13	_	dual-nono.		
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uted			Oncose one of the encoding PO/theve set bit rates while MPEO encoding and deterning will be used and the sample	insthods and sample roles. Prose role that g 21 UPEO is variable. The quality displace only affect res the samell bit role. If using the digital laport, a role with tw disclost. The travel samella role is role . To work out the bit role for 0.718 and PCM, simple	81 900-1 1940ad
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The stream settings also need modifying and again these are very similar to lcecast except that icy genre and name must be specified. For example a name of sonifexadio and genre of pop could be used.

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Then submit the stream settings. As with loccast a Shoutcast server requires a pssword from any sources connecting to it in this case the password in the conf file used is testing, enter this and click submit.

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Now if you refresh your Shoutcast web page there should be 1 stream available logging in with the default user/ password of admin/ changeme should show the details of the PS-SEND stream .

The PS-PLAY setup is identical to the setup for loccast the only parameters that need to be entered are teh ip address and port number of the Shoutcast server.

Pro-Streamer Web Update

Select 'Update' from the top menu bar.

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			will be used and the sample rate will be detacted. The input sample rate is reatricted to 32Mitz, 44.1 Mitz or 45Mitz. To work out the bit rate for G.711 and PGM, simply Ψ	
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Select 'Please click here to continue'.

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Latency Between The Pro Audio Streamer PS-SEND & PS-PLAY/PS-AMP

Both the PS-SEND and the PS-PLAY allow audio to be passed through an IT network infrastructure. The time taken for the audio to appear from the input on the PS-SEND to the PS-PLAY/PS-AMP, or latency, is dependent on a number of factors:

- 1. The time taken to encode/decode the audio.
- 2. The time taken for the stream to travel through the network.
- 3. The time taken to buffer the stream.

1. Latency Involved in Encoding/Decoding The Audio

The encoder samples the audio it receives in order for it to be handled in the digital domain. Sending each sample directly would generate a lot of traffic, for example, a 48kHz sample rate would send 48,000 samples, each within its own Ethernet frame. As an Ethernet frame's minimum size is 60bytes this would lead to traffic of around 23Mbps. So, it's important that samples be grouped into a reasonable packet size in order to avoid clogging up the network.

As an Ethernet frame can carry a payload of around 1500 bytes, 750 samples can be sent. To accumulate 750 samples at 48kHz, approximately 16 ms is required to collect the correct number of samples.

An additional time is added depending on which encoding method is chosen. Higher bit rates mean that the buffer in the PS-PLAY is filled faster and the delay can be reduced. It's also worth noting that the higher the compression of the audio the longer the PS-SEND will take to encode it. That being the case a high compression algorithm like MP3 will introduce a delay, in the order of 20–50ms (dependant on quality settings), whereas using a lower or no compression algorithm, like MPEG2 or PCM, will have less latency.

The decoding of the audio and sample buffer of the D/A in the receiver device will also cause a delay. Again, decoding of MP3 will be more processor intensive. The D/A sample buffer is handled in bytes, which means slower data rates will incur bigger delays at this stage.

2. Latency Involved Over a Network

Another factor involved is the transport protocol selected. HTTP is a TCP protocol which involves hand-shaking and error correction, which slows down packet reception. This means that large amounts are buffering are required for a stable stream which can add a substantial amount of delay. If RTP/ BRTP are chosen, which are based on the UDP protocol, the data is sent much more quickly and therefore less buffering is required, although the trade off is the occasional missed or erroneous packet.

Typically a LAN, (Local Area Network), should involve less latency than an internet stream, although obviously this is very much dependent on network configuration. Local network latency can be minimised in the usual ways such as using intelligent network switches to route traffic to the correct destinations.

3. Latency Involved in Receiving & Buffering The Stream

In a PS-PLAY, the receiver, when receiving an HTTP stream the default buffer is used as standard which is 60kBytes (61440bytes). So the latency for an HTTP stream would be:

For a 192kbs stream:

- 192000/8 = 24000 bytes
- 61440(buffer)/24000 = 2.56
- Latency of approx 2.56 seconds

When receiving an RTP stream, more flexibility is allowed and the buffer size can be changed. To make it simpler, rather than having to work out what buffer size is required for a given delay, the P-PLAY accepts a value in milliseconds and makes the calculation.

Found on the 'Streaming Settings' page on the web server, there is a box entitled 'RTP Delay'. The delay should be big enough to account for network jitter, otherwise the stream will become unstable. As mentioned above, the higher the bit rate, the smaller amount of delay required. The following are recommended values to use:

Algorithm & Rate	Recommended Delay
MP3	600ms
uLaw /ALaw 8kHz mono	444ms
PCM 8kHz mono	444ms
uLaw/ALaw 12kHz mono	316ms
PCM 12kHz mono	316ms
uLaw/ALaw 24kHz mono	188ms
PCM 24kHz mono	188m
uLaw/ALaw 32kHz mono	156ms
PCM 32kHz mono	152ms
PCM 44.1kHz mono	110ms
PCM 44.1kHz stereo	79ms
PCM 48kHz stereo	72ms

Conclusion

There are many sources of delay in the system, most significantly buffering to eliminate network jitter. As there will always be a delay present, it is worth configuring the system to use the highest bit rates and sample rates possible, providing that the bandwidth is available.

Some Real World Examples on a Typical Network (PS-SEND to PS-PLAY)

HTTP stream:

MP3 @ 44.1kHz; Quality setting 7 – 2.85s MP3 @ 44.1kHz; Quality setting 0 – 5.62s MP3 @ 32kHz; Quality setting 7 – 2.85s MP3 @ 32kHz; Quality setting 0 – 7.77s

RTP stream, using recommended RTP Delay settings:

MP3 @ 44.1kHz; Quality setting 7 – 0.73s MP3 @ 44.1kHz; Quality setting 0 – 0.73s MP3 @ 32kHz; Quality setting 7 – 0.80s MP3 @ 32kHz; Quality setting 0 – 0.80s PCM @ 8kHz 0.51s PCM @ 48kHz: 0.11s

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