Configuring a SFX 4104 Pro Audio Receiver for Use on a Livewire Network

This document provides step-by-step instructions for configuring International Datacasting's SFX 4104 Pro Audio Receiver for use with Livewire, the audio-over-IP communication protocol developed and marketed by the AXIA Audio division of Telos Systems.

This is not an exhaustive guide to Livewire theory or best practice; for more information refer to page 21 of the *SFX Series Pro Audio Series Satellite Receiver Addendum*, your Livewire documentation or a local expert.

Any or all of the audio outputs of a Pro Audio receiver can be assigned to one of its Ethernet ports for use on a Livewire network. To enable Livewire outputs on your Pro Audio receiver:

1). Configure an IP Address on the Ethernet Port Designated for Livewire Use

Based on your local network architecture, you will need to assign an IP address (es) for your receiver on your Livewire network and (if needed) for connecting to your automation system for file delivery. The ins-and-outs of network architecture are beyond the scope of this document, but you should not use the same Ethernet port on your receiver for Livewire and for file operations.

Follow these steps to set your IP address for the dedicated Livewire interface:

a) Aim your favorite web browser at your receiver, and log in (admin/12345). Click the "Identity" link in the upper left part of the screen.

   IMPORTANT: If your web browser is being finicky about accessing the Pro Audio receiver, you may need to add the IP address to your "Trusted Sites" list or enter the address as https://xxx.xxx.xxx.xxx:2100

b) On the Identity page, click "Edit" (upper left part of the window).

c) Enter the IP address for your receiver in the appropriate boxes for the interface you want – the two Ethernet interfaces are identical, so it's mostly a matter of local convention which you use for your Livewire port. Be sure to enter your gateway information if needed.

d) Click "Send update" (upper left part of the window).

2). Assign Audio Decoders to Livewire Outputs

You can assign any or all of your audio decoders to Livewire outputs. To do that:

a) Click the "Audio" link on the main receiver page

b) Click the "Audio Configuration" puddle on the audio page

c) Click "Edit" (upper left part of the window)

d) Under the "Audio Player" section, select the Audio Player (decoder) you want to set. Use these settings to enable Livewire output:

   I. Interface: Leave on Satellite (sat0)
   II. Enable Livewire Output: check
   III. Async Data Rate: Leave on 9600 b/s

e) Click "Send update" (upper left part of the window)

   Important: You must click "Send Update" for each player before configuring the next one.

3). Configure Livewire on Your Receiver

To configure Livewire on your Pro Audio receiver after assigning audio outputs to players:

a) Click the “Configuration” link on the main receiver page

b) Click “Livewire Configuration”

c) Click “Edit Options” (upper left part of the window)

d) Set these items:

I. Interface: Select which interface you want to dedicate to your Livewire output.
II. Attenuation: -6 dBFS is the default. This matches NPR audio levels to the Livewire convention.
III. Forward Channel Description from Channel Guide: If enabled, the “Description” field in Livewire will display the Channel Guide label for that output.

e) Click “Send Update” before going further

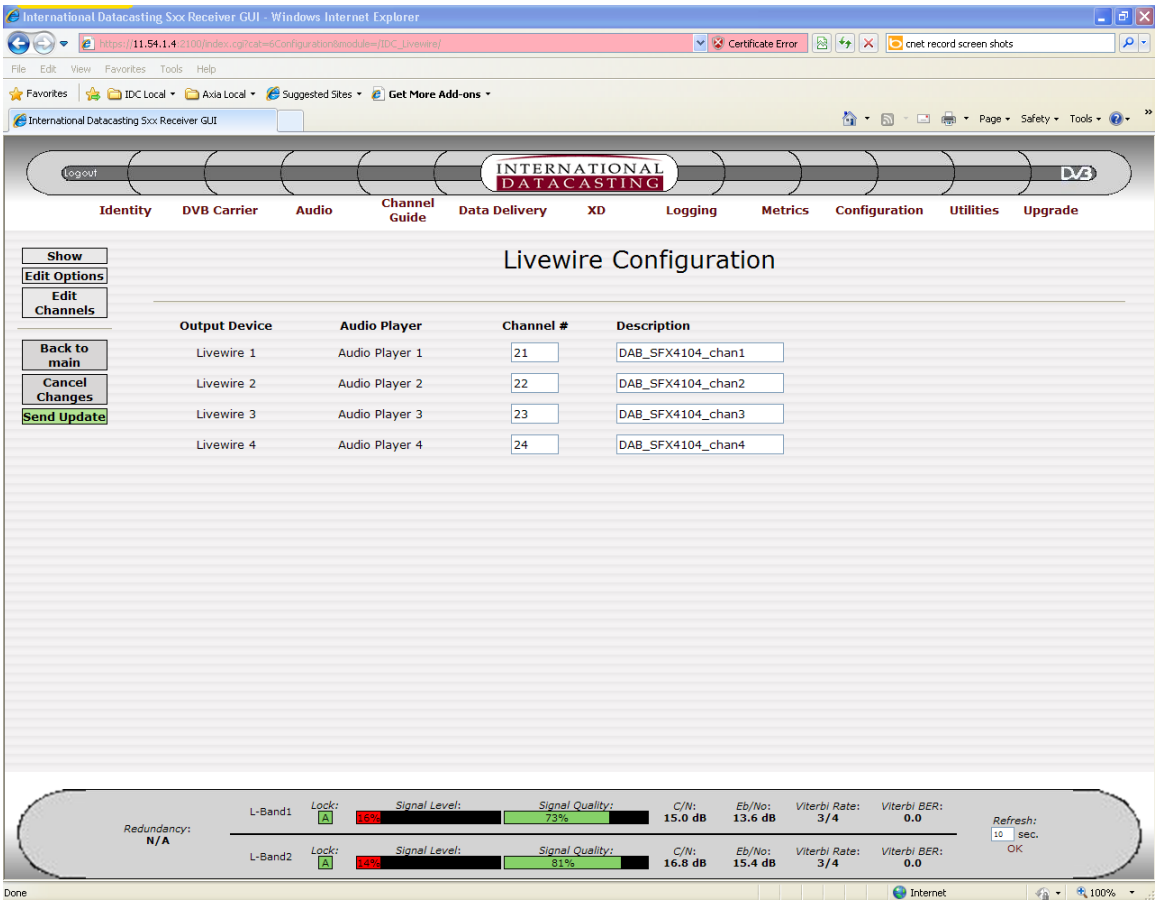
f) Click “Edit Channels” (upper left part of the window)

g) Set these items:

I. Channel Numbers: Add your Livewire Source ID Channel numbers
II. Description: Enter a description for each Audio Player

h) Click “Send Update” before going further

When you're done, the screen should look like this:



If the Pro Audio receiver is currently tuned to an active audio source, its Audio Decoder LEDs will be flashing, and the Livewire sources you have programmed are now available for automatic discovery or manual entry in your Axia network (see next step below).

4). Configuring PathFinder Server

If your PathFinder Server router control server software is set up to automatically discover new sources, it should see the new receivers as soon as they're plugged in. If you have the automatic discovery feature disabled then you must manually scan both the audio and GPIO networks to add new receivers. Depending on your specific network topology you can also choose to manually add a new device by entering the IP address(es) of the new receiver(s).

IMPORTANT: The software used to embed the Livewire functionality within the Pro Audio receiver defaults to 8 sources, 8 destinations and 8 ports of GPO. The default configuration for these sources, destinations and GPIO assignments is 1-8. Since the Pro Audio receiver only presents 4 audio sources and 4 GPO relay instances, this means that PathFinder "finds" audio and logic sources and destinations in each receiver that do not actually exist. To remove the unneeded resources, follow these steps:

a) Open up PathFinder Server so you can discover the new Pro Audio receivers.

b) Choose your Audio Router

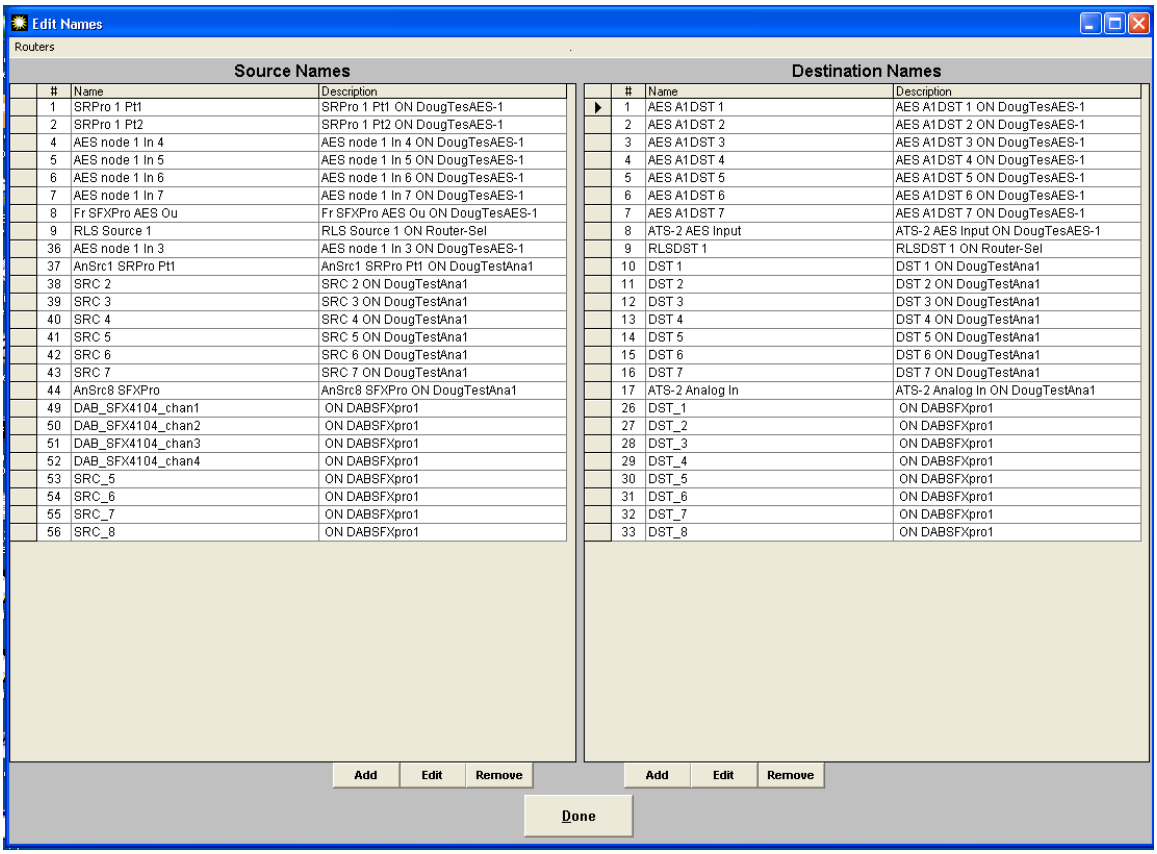
c) Edit Router

d) Next

e) Next

As you can see in the sample Edit Names window below, the Pro Audio receiver indicates that it has 8 sources and 8 destinations. Under Source Names below the legitimate entries are numbers 49-52 and improper entries associated with the Pro Audio receiver are numbers 53-56. *Note these sources and destination numbers are examples only; your numbers will be different.*

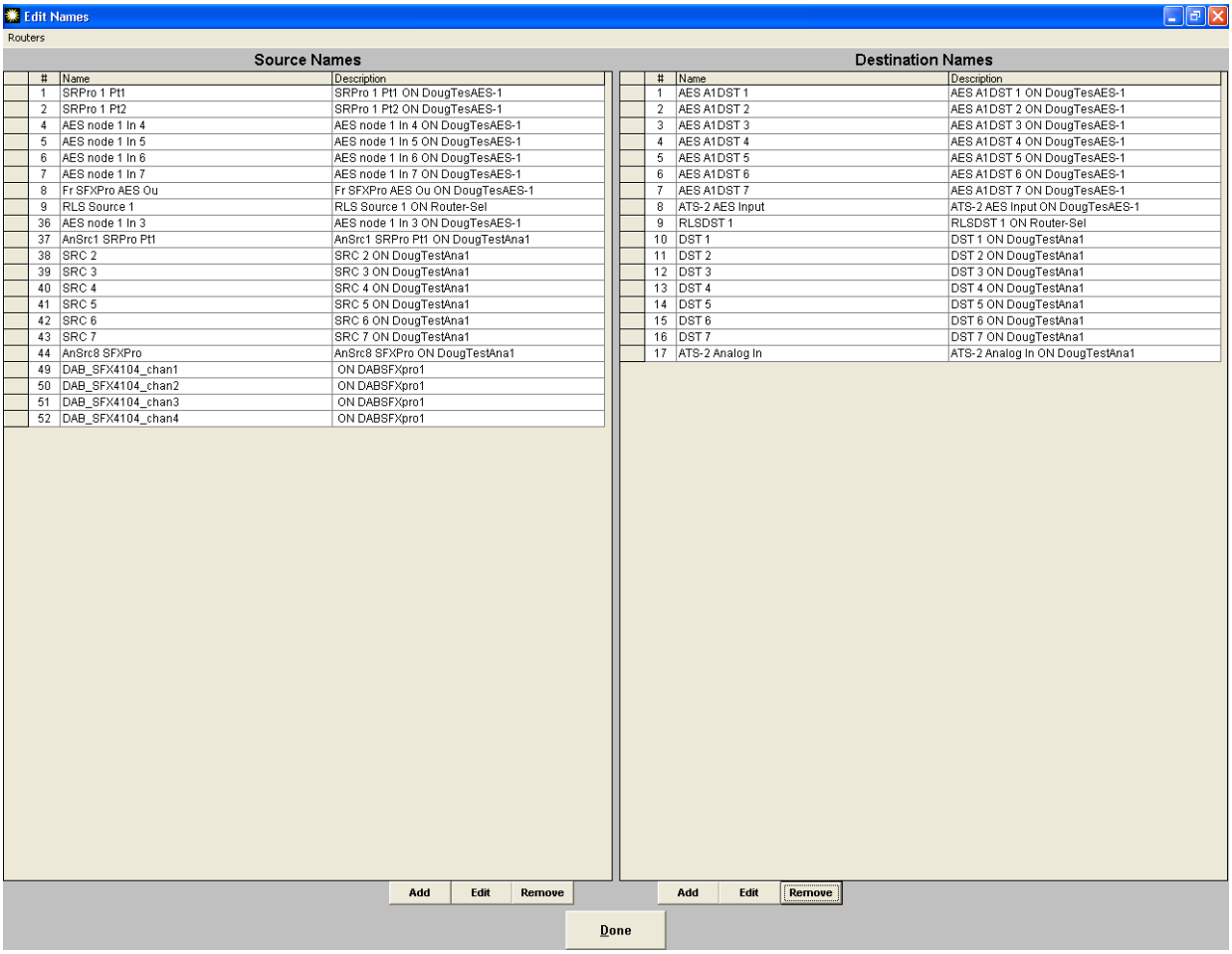
Under Destination Names, all 8 entries for the Pro Audio need to be removed.



#	Name	Description
1	SRPro 1 Pt1	SRPro 1 Pt1 ON DougTesAES-1
2	SRPro 1 Pt2	SRPro 1 Pt2 ON DougTesAES-1
4	AES node 1 In 4	AES node 1 In 4 ON DougTesAES-1
5	AES node 1 In 5	AES node 1 In 5 ON DougTesAES-1
6	AES node 1 In 6	AES node 1 In 6 ON DougTesAES-1
7	AES node 1 In 7	AES node 1 In 7 ON DougTesAES-1
8	Fr SFXPro AES Ou	Fr SFXPro AES Ou ON DougTesAES-1
9	RLS Source 1	RLS Source 1 ON Router-Sel
36	AES node 1 In 3	AES node 1 In 3 ON DougTesAES-1
37	AnSrc1 SRPro Pt1	AnSrc1 SRPro Pt1 ON DougTestAna1
38	SRC 2	SRC 2 ON DougTestAna1
39	SRC 3	SRC 3 ON DougTestAna1
40	SRC 4	SRC 4 ON DougTestAna1
41	SRC 5	SRC 5 ON DougTestAna1
42	SRC 6	SRC 6 ON DougTestAna1
43	SRC 7	SRC 7 ON DougTestAna1
44	AnSrc8 SFXPro	AnSrc8 SFXPro ON DougTestAna1
49	DAB_SFX4104_chan1	ON DABSFXpro1
50	DAB_SFX4104_chan2	ON DABSFXpro1
51	DAB_SFX4104_chan3	ON DABSFXpro1
52	DAB_SFX4104_chan4	ON DABSFXpro1
53	SRC_5	ON DABSFXpro1
54	SRC_6	ON DABSFXpro1
55	SRC_7	ON DABSFXpro1
56	SRC_8	ON DABSFXpro1

#	Name	Description
1	AES A1DST 1	AES A1DST 1 ON DougTesAES-1
2	AES A1DST 2	AES A1DST 2 ON DougTesAES-1
3	AES A1DST 3	AES A1DST 3 ON DougTesAES-1
4	AES A1DST 4	AES A1DST 4 ON DougTesAES-1
5	AES A1DST 5	AES A1DST 5 ON DougTesAES-1
6	AES A1DST 6	AES A1DST 6 ON DougTesAES-1
7	AES A1DST 7	AES A1DST 7 ON DougTesAES-1
8	ATS-2 AES Input	ATS-2 AES Input ON DougTesAES-1
9	RLSDST 1	RLSDST 1 ON Router-Sel
10	DST 1	DST 1 ON DougTestAna1
11	DST 2	DST 2 ON DougTestAna1
12	DST 3	DST 3 ON DougTestAna1
13	DST 4	DST 4 ON DougTestAna1
14	DST 5	DST 5 ON DougTestAna1
15	DST 6	DST 6 ON DougTestAna1
16	DST 7	DST 7 ON DougTestAna1
17	ATS-2 Analog In	ATS-2 Analog In ON DougTestAna1
26	DST_1	ON DABSFXpro1
27	DST_2	ON DABSFXpro1
28	DST_3	ON DABSFXpro1
29	DST_4	ON DABSFXpro1
30	DST_5	ON DABSFXpro1
31	DST_6	ON DABSFXpro1
32	DST_7	ON DABSFXpro1
33	DST_8	ON DABSFXpro1

To remove entries, select each line/entry and click the associated Remove button. After removing the 12 improper entries, the example PathFinder Server names appear as indicated below:



5). Programming GPO Functions

For the GPO functions of the Pro Audio receiver to appear properly in your router environment you will need to assign GPO port numbers to ports 1-4, add meaningful names so they are easily identified in your system and disable improper entries.

In the earlier audio examples, we assigned Livewire channel numbers 21-24 to the four audio ports of the receiver. We will continue that logic and assign GPO port numbers 21-24 to the four legitimate GPO ports.

Using a telnet client, such as PuTTY, open port 93 on to your receiver, then type:

LOGIN (MUST BE IN CAPS) then type CFG GPO and you should see something like:

```
LOGIN
CFG GPO
BEGIN
CFG GPO 1 SRCA:"1"
CFG GPO 2 SRCA:"2"
CFG GPO 3 SRCA:"3"
CFG GPO 4 SRCA:"4"
CFG GPO 5 SRCA:"5"
CFG GPO 6 SRCA:"6"
CFG GPO 7 SRCA:"7"
CFG GPO 8 SRCA:"8"
END
```

If, after typing LOGIN you get an error message like “ERROR 1000 bad command” try typing LOGIN more slowly.

Now that you see the syntax to use we can modify the settings accordingly and add a label to each:

CFG GPO 1 SRCA:”21” NAME:”GPO1 SFXPro1” when you hit return the receiver will echo your command
CFG GPO 1 SRCA:”21” NAME:”GPO1 SFXPro1” then on the next line type
CFG GPO 2 SRCA:”22” NAME:”GPO2 SFXPro1”

We’ll skip the echoes but the next commands are:

CFG GPO 3 SRCA:”23” NAME:”GPO3 SFXPro1”
CFG GPO 4 SRCA:”24” NAME:”GPO4 SFXPro1”
CFG GPO 5 SRCA:””
CFG GPO 6 SRCA:””
CFG GPO 7 SRCA:””
CFG GPO 8 SRCA:””
SAVE

Then you can type CFG GPO and it should echo back all 8 settings:

CFG GPO
BEGIN
CFG GPO 1 SRCA:"21" NAME:"GPO1 SFXPro1"
CFG GPO 2 SRCA:"22" NAME:"GPO2 SFXPro1"
CFG GPO 3 SRCA:"23" NAME:"GPO3 SFXPro1"
CFG GPO 4 SRCA:"24" NAME:"GPO4 SFXPro1"
CFG GPO 5 SRCA:""
CFG GPO 6 SRCA:""
CFG GPO 7 SRCA:""
CFG GPO 8 SRCA:""
END

If it is safe to temporarily loose audio programming on the receiver, perform a reboot command from GUI via Utilities/Restart Receiver then after it is back on-line, telnet back in after it boots and verify that the settings persisted by doing:

LOGIN
CFG GPO

If you want to see the state of the GPO ports on the receiver just type GPO and return.