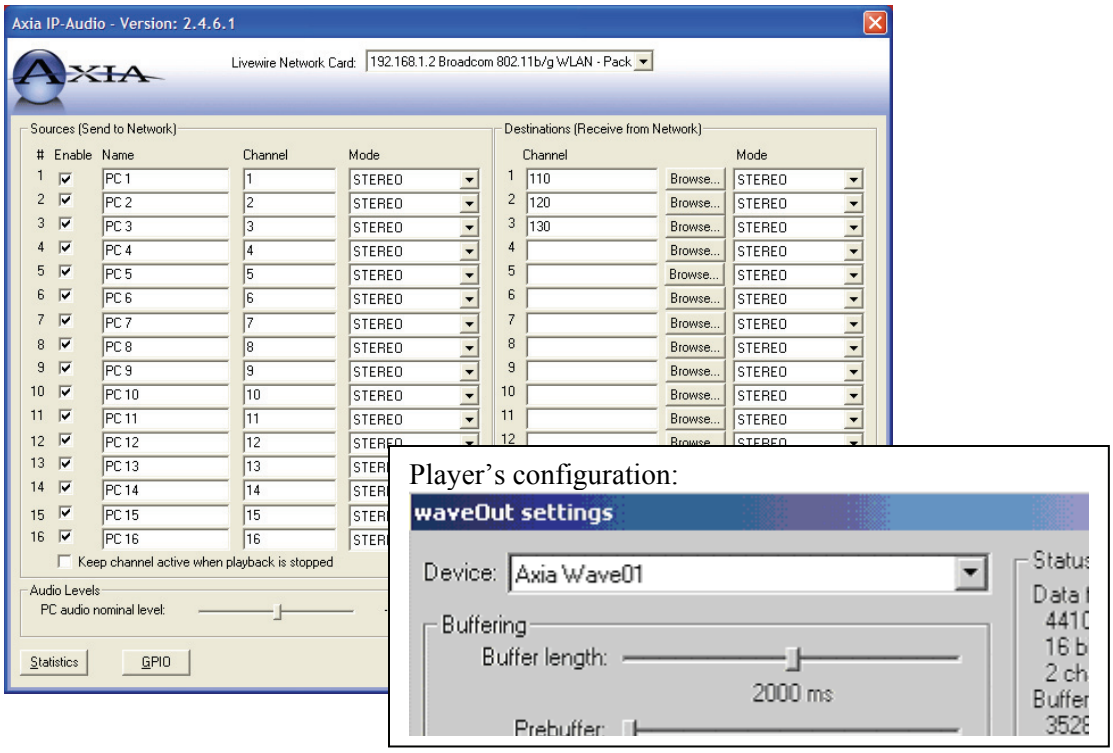
Using Axia Windows Driver GPIO

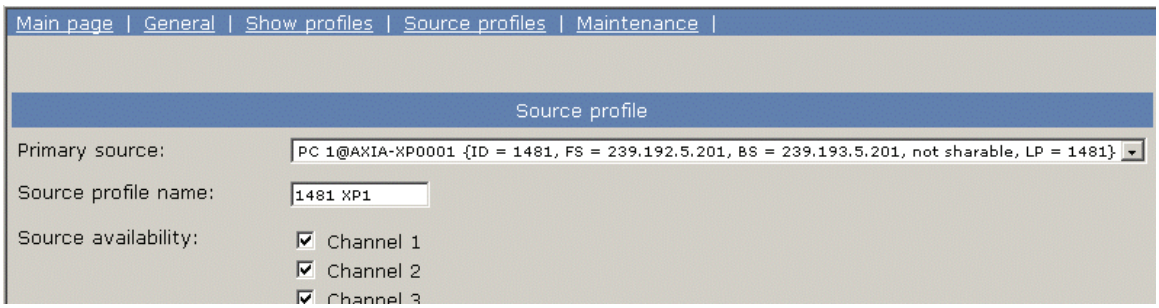
31 January 2007

Setup

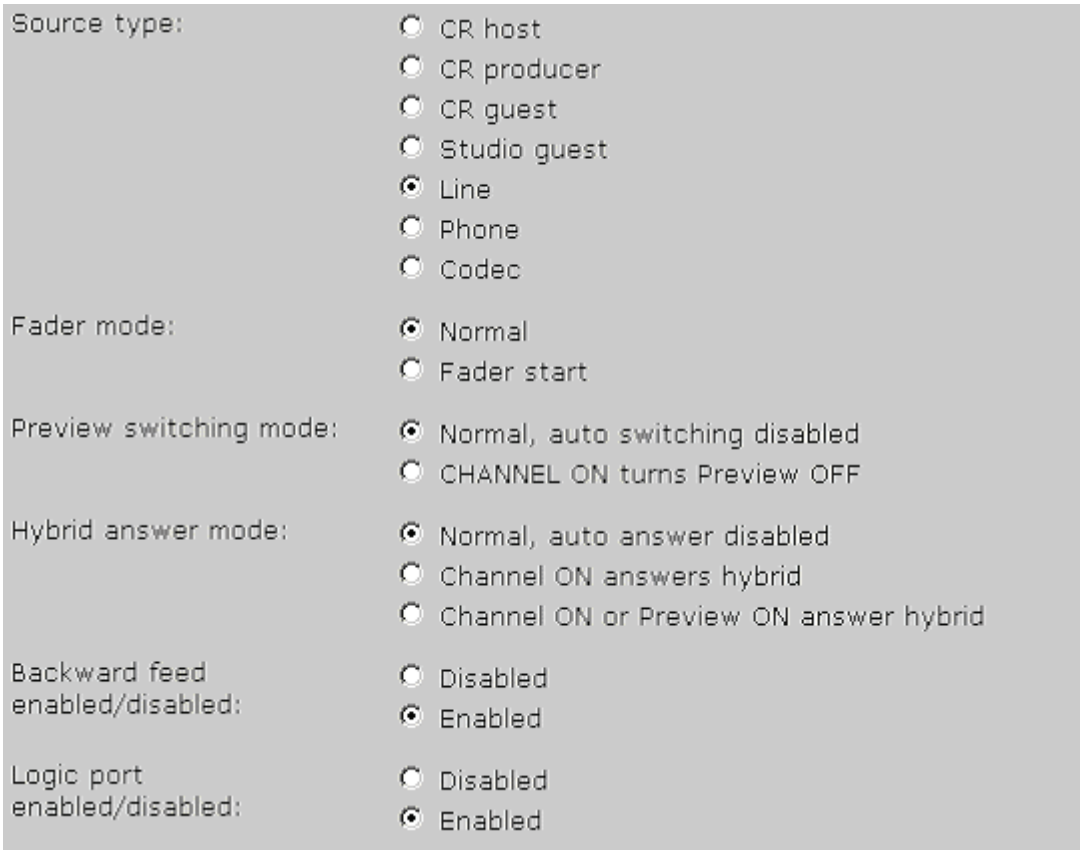
The driver has the following sources configured. In our example, we are going to use source 1, which corresponds to audio device: “Axia Wave01”



Axia Element or SmartSurface consoles will use this source, so a Source Profile must be configured, as shown below (See the Element or SmartSurface users manual for instructions on how to construct a Source Profile).



For automation systems, the “Computer Player” source type should be used (older software does not have this type, so “Line Input Logic” should be selected instead). Logic port must be enabled. GPIO signals available for every source type are defined in Element and SmartSurface manuals available at www.AxiaAudio.com/manuals .



In the example above, the channel is configured as “Line” source type. The Element and SmartSurface manuals refer to hardware pin numbers; in the GPIO protocols those pins are directly mapped to logical inputs and outputs.

All GPIO pins are active Low. This means that the automation system will react to state changes from High to Low.

GPIO protocol

Computer player opens a TCP/IP connection to port 93. Developers can use telnet to test commands and troubleshoot the system.

telnet 127.0.0.1 93

Commands sent by automation system (or user from telnet session) are in bold. Indications sent by GPIO module to the automation system are in normal text.

The automation system listens to GPO control messages from the console. From the console's point of view, the automation system is a playback device, so the console controls its "virtual" general-purpose outputs.

The automation system will send GPI commands to trigger actions on the console. Through the protocol, the PC triggers changes on "virtual" console's inputs.

First, the automation system subscribes for GPI and GPO updates using 'ADD GPI' and 'ADD GPO" commands, as illustrated below:

ADD GPI
BEGIN
GPI 1 lllll
GPI 2 lllll
[…]
GPI 16 lllll
END

ADD GPO
BEGIN
GPO 1 hhhhh
GPO 2 hhhhh
[…]
GPO 16 lllll
END

Operator turns the channel OFF by pressing button on the Console:

GPO 1 hhhhL	from GPIO logic table: STOP Pulse (Low)
GPO 1 hLhhl	from GPIO logic table: OFF Lamp (Low)
GPO 1 hlhhH	from GPIO logic table: STOP Pulse (High)

Operator turns the channel ON by pressing button on the Console:

GPO 1 hHhlh	from GPIO logic table: OFF Lamp (High), START Pulse (Low)
GPO 1 Lhhlh	from GPIO logic table: ON Lamp (Low)
GPO 1 lhhHh	from GPIO logic table: START Pulse (High)

An automation system turns the channel ON, remotely:

GPI 1 HHHHH
GPI 1 Lxxxxx

An automation system turns the channel OFF, remotely:

GPI 1 HHHHH
GPI 1 xLxxxx

Custom GPIO messages

This extension to GPI/GPO commands allows user messages to be routed along established GPIO routes. Livewire Routing Protocol needs to be used to establish a GPIO route from one device to another, and PathFinder PC software provides a user interface to allow such configurations. The functionality can be tested using standard telnet client (TCP/IP connection to port 93).

To send custom message use the following syntax (must LOGIN before):

GPI <source port number> CMD:"<custom command>"

Indications syntax (must ADD GPO before):

GPO <destination port number> CMD:"<custom command>"

Test example:

Let's connect two PC work stations with Axia Driver installed.

Scenario below, demonstrates LWRP message exchange between GPIO clients. Custom command, "My Command" is sourced at Port 7 of PC1 and delivered to Port 4 of PC2.

PC 1 192.168.2.154 Axia IP-Driver GPIO module (message source)	PC 2 192.168.2.148 Axia IP-Driver GPIO module (message destination)
telnet 192.168.2.154 93	**telnet 192.168.2.148 93**
	Step 1: Establish GPIO route from Port 7 of PC 1 to Port 4 of PC 2: **CFG GPO 4 SRCA:"192.168.2.154/7"** **SAVE** *(optional, save configuration)*
	Step 2: Subscribe to receive GPO indications: **ADD GPO**
Step 3: Send GPIO command on Port 7 **LOGIN** **GPI 7 CMD:"My Command"**	
	Step 3 - indication: Received: **GPO 4 CMD:"My Command"**

Custom GPIO messaging requires Axia IP-Audio Driver v2.4.6.1 or later.