



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 IP-Audio - Version: 2.4.6.1												
Livewire Network Card: 192.168.1.2 Broadcom 802.11b/g WLAN - Pack												
AXIA												
- 501	- Sources (Sand to Natwork)											
#	Enable	Name	Channel	Mode		De	Channel	III NE(WOIK)	Mode			
1		PC 1		STEBEO	-	1	110	Browse	STEBEO			
2	1	PC 2	2	STEBEO		2	120	Browse	STEBEO			
3	•	PC 3	3	STEBEO	-	3	130	Browse	STEBEO			
4	~	PC 4	4	STEREO	-	4		Browse	STEREO			
5		PC 5	5	STEREO	-	5	<u></u>	Browse	STEREO			
6	$\overline{\mathbf{v}}$	PC 6	6	STEREO	-	6		Browse	STEREO			
7		PC 7	7	STEREO	-	7	<u></u>	Browse	STEREO			
8	◄	PC 8	8	STEREO	-	8	[Browse	STEREO			
9	$\overline{\mathbf{v}}$	PC 9	9	STEREO	•	9	[Browse	STEREO			
10	~	PC 10	10	STEREO	•	10	1	Browse	STEREO	-		
11	◄	PC 11	11	STEREO	•	11		Browse	STEREO	•		
12	◄	PC 12	12	STEREO		12		Browse	STEREO			
13	◄	PC 13	13	STER	Dlavor	,	onfigurati	on.				
14	$\overline{\mathbf{v}}$	PC 14	14	STER	Flayer	50	Johngulati	011.				
15	$\overline{\mathbf{v}}$	PC 15	15	STER	waveC	lut	settings					
16	◄	PC 16	16	STER								
	∏ Ke	ep channel active v	when playback is stopp	ed	Devio	Device: Avia V (ava01						- Status
Auc	Audio Levels						Device. Axia waveut					
PC audio nominal level:					Duilfering -							4410
					Burrening							16.6
Statistics <u>G</u> PIO					Buffer length:							2.46
									2000 m	15		Duffer
												Durrer
						-	-rebutter: I-					3526

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).

<u>Main page General </u>	Show profiles Source profiles Maintenance
	Source profile
Primary source:	PC 1@AXIA-XP0001 {ID = 1481, FS = 239.192.5.201, BS = 239.193.5.201, not sharable, LP = 1481} 💌
Source profile name:	1481 XP1
Source availability:	🗹 Channel 1
	Channel 2
	Channel 3





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 <u>www.AxiaAudio.com/manuals</u>.

Source type:	 CR host CR producer CR guest Studio guest Line Phone Codec
Fader mode:	 Normal Fader start
Preview switching mode:	 Normal, auto switching disabled CHANNEL ON turns Preview OFF
Hybrid answer mode:	 Normal, auto answer disabled Channel ON answers hybrid Channel ON or Preview ON answer hybrid
Backward feed enabled/disabled:	 Disabled Enabled
Logic port enabled/disabled:	 Disabled Enabled

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 IIII GPI 2 IIIII [...] GPI 16 IIIII END ADD GPO BEGIN GPO 1 hhhhh GPO 2 hhhhh [...] GPO 16 IIIII END Operator turns the channel OFF by pressing button on the Console: from GPIO logic table: STOP Pulse (Low) GPO 1 hhhhL from GPIO logic table: OFF Lamp (Low) GPO 1 hLhhl from GPIO logic table: STOP Pulse (High) GPO 1 hlhhH 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) from GPIO logic table: START Pulse (High) GPO 1 lhhHh An automation system turns the channel ON, remotely: **GPI 1 HHHHH**

An automation system turns the channel OFF, remotely:

GPI 1 HHHHH GPI 1 xLxxxx

GPI 1 LXXXXX



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)

telnet 192.168.2.154 93

PC 2

192.168.2.148

Axia IP-Driver GPIO module (message destination)

telnet 192.168.2.148 93

<u>Step 1:</u> 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)

<u>Step 2:</u> Subscribe to receive GPO indications: **ADD GPO**

Send GPIO command on Port 7 LOGIN GPI 7 CMD:"My Command"

> <u>Step 3 - indication:</u> Received: GPO 4 CMD:"My Command"

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