

LIVEWIRE GPIO OPERATION IN TIELINE CODECS

PURPOSE

The purpose of this tech note is to understand how Livewire GPIOs operate and how they are configured in Tieline codecs supporting Livewire.

INTRODUCTION

64 Livewire GPIOs are supported and Livewire uses ports to activate GPIOs and ports 1-8 are configured with 5 GPIs and GPOs. Port 9-16 are configured with 3 GPIs and GPOs. These inputs and outputs are also mapped to 64 Tieline GPIs and GPOs as displayed in the **Livewire GPIO panel** in the AoIP Web-GUI.

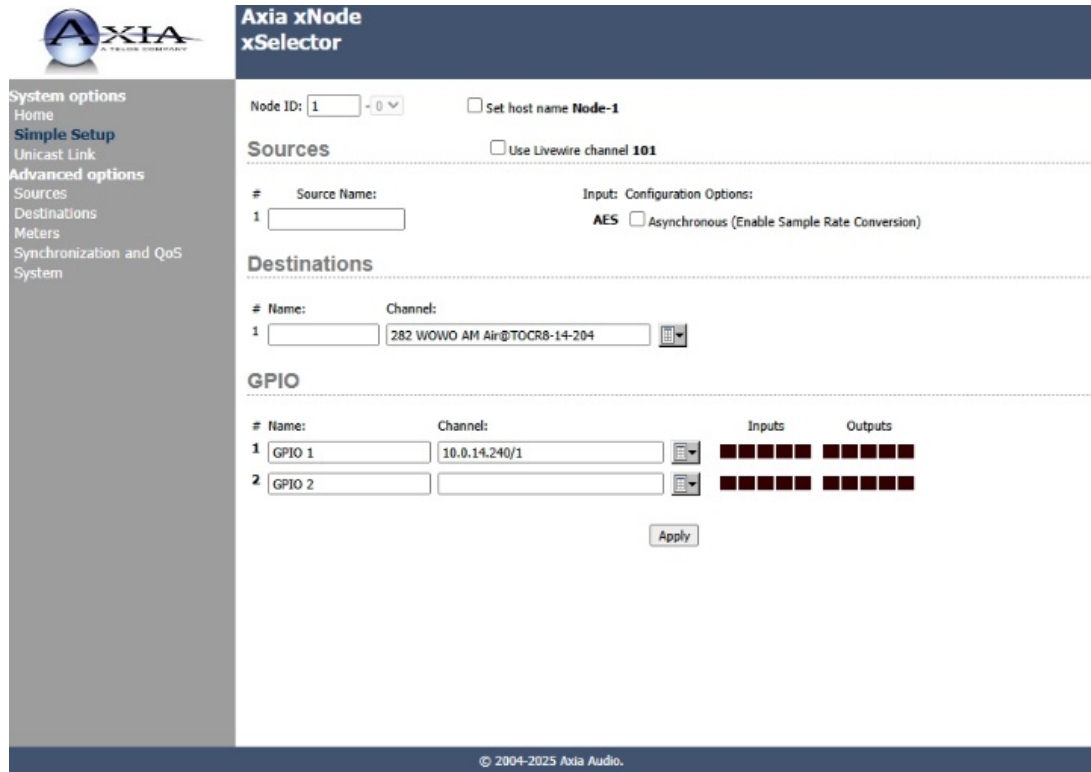
#	Name	Address / Channel	Inputs	Outputs
1	TL PORT 1	192.168.87.172/2	Livewire Bit 1 2 3 4 5 Tieline GPI	Livewire Bit 1 2 3 4 5 Tieline GPO
2	TL PORT 2	101	Livewire Bit 1 2 3 4 5 Tieline GPI	Livewire Bit 1 2 3 4 5 Tieline GPO

Livewire GPIO panel in the Toolbox Web-GUI displaying the first 10 GPIOs

HOW TO CONFIGURE AN XNODE TO LISTEN FOR CODEC LIVEWIRE GPIOs

To successfully detect Livewire GPIO activation over an AoIP network an xNode requires not only the channel number, but also the IP address for a GPIO source. In other words, the Channel configuration needs to look something like 10.0.10.19/1, which includes the codec's local IP address, and then apply this configuration.

As an example, the following images represent where a Tieline codec has been configured to activate a Livewire GPIO and an xSelector and an xNode 2 have been configured correctly for this Channel configuration setup as follows.



Axia xNode xSelector

Node ID: - 0 ☐ Set host name **Node-1**

Sources ☐ Use Livewire channel **101**

Source Name: Input: Configuration Options:
 1 AES ☐ Asynchronous (Enable Sample Rate Conversion)

Destinations

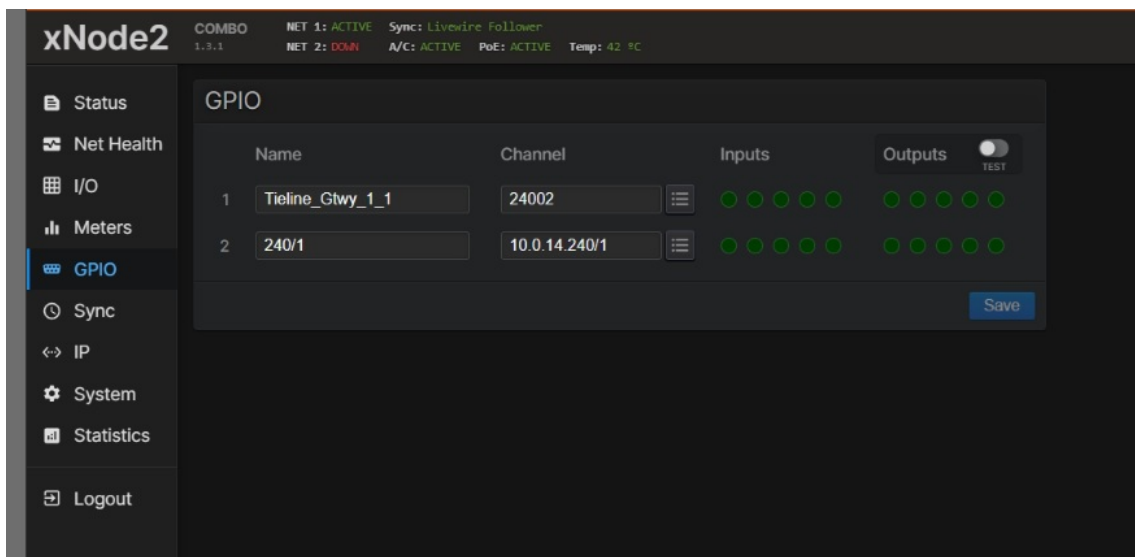
Name: Channel:
 1 282 WOWO AM Air@TOCR8-14-204

GPIO

#	Name:	Channel:	Inputs	Outputs
1	GPIO 1	10.0.14.240/1	☐	☐
2	GPIO 2		☐	☐

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Axia xNode xSelector displaying correct GPIO Channel format



xNode2 COMBO 1.3.1 NET 1: ACTIVE Sync: Livewire Follower NET 2: DOWN A/C: ACTIVE PoE: ACTIVE Temp: 42.9C

GPIO

Name	Channel	Inputs	Outputs
1 Tieline_Gtwy_1_1	24002	☐	☐
2 240/1	10.0.14.240/1	☐	☐

Axia xNode2 displaying correct GPIO Channel format

ABOUT LIVEWIRE GPIO USE

In general Livewire devices think of GPIs as signals going to the network and GPOs as signals coming from the network. A Livewire port can be configured in 3 ways:

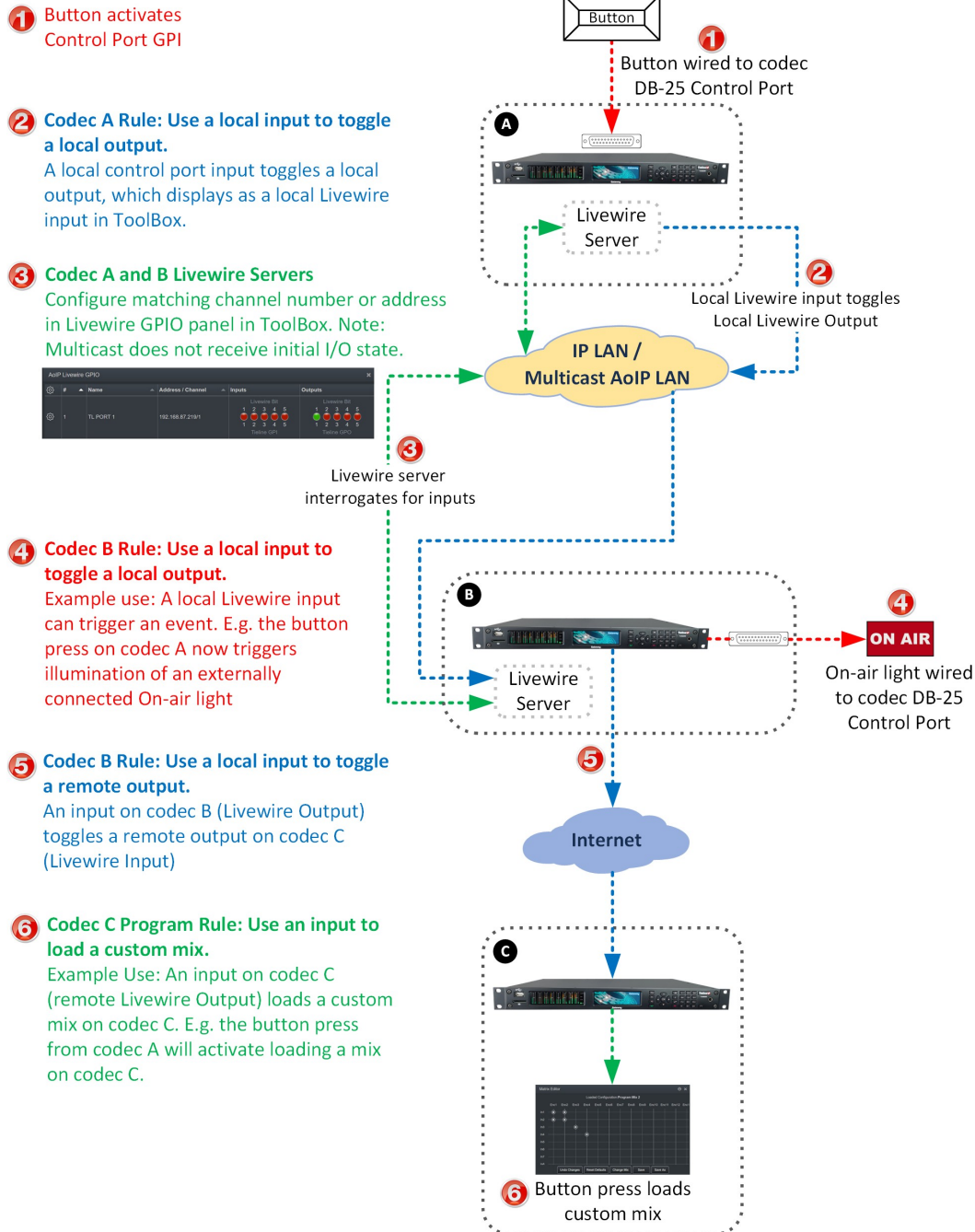
1. Port routing with Tieline's browser-based AoIP Web-GUI: GPI activity on a port will trigger the GPO of the port being configured. To do this enter the IP address of the device, followed by a forward slash and the port number.
2. Channel assignment with Tieline's browser-based AoIP Web-GUI: The GPIO port will follow the logic defined by a control surface (or the codec) through the use of the unique channel number loaded to a fader or other console functionality.
3. Pathfinder PC Server software can monitor and control GPIO pins on any of these ports using its event system. It can also route closures using the IP address and port number.

In the IP Address/Port example, the GPIO device opens a TCP connection to the routed GPIO device and monitors the GPI pins tripping its own GPO pins. In the Livewire Channel number example, GPIO messages are sent as multicast messages in the same way as multicast audio traverses the network. A device monitors the GPIO multicast channel for closures tagged with the correct Livewire Channel number.

LIVEWIRE GPIO EXAMPLES

With Livewire, you can only read GPIs, whereas you can read and set GPOs. The following Livewire GPIO Rule examples assist in understanding how Livewire GPIOs integrate with Tieline codecs supporting Livewire.

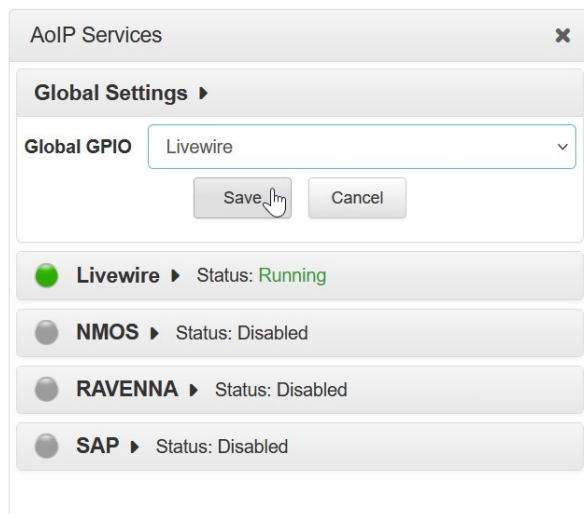
Livewire GPIO Rule Examples



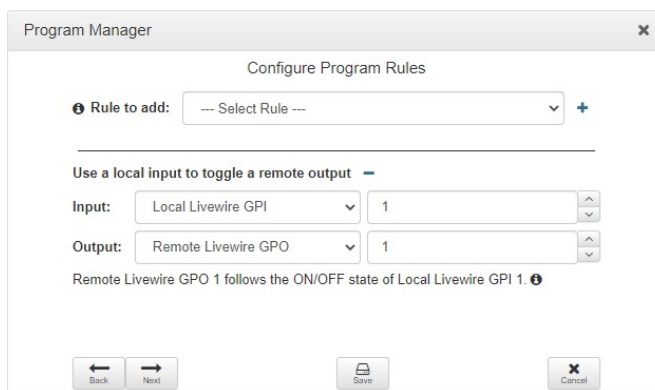
CONFIGURING A LIVEWIRE GPIO WITH THE CODEC WEB-GUI

The codec is capable of configuring Livewire logical GPIOs via the **AoIP Services panel** in the Toolbox Web-GUI. To adjust this setting:

1. Open the HTML5 Toolbox Web-GUI and click **AoIP** in the **Menu Bar**, then click **Services** to display the **AoIP Services panel**.
2. Select **Global Settings** and click **Edit**.
3. Click to select **Livewire** as the Global GPIO setting.
4. Click **Save**.



Program and stream level Livewire GPIO rules can be configured using the **Program Manager panel** when creating new programs.



The **Rules panel** can also be used to create Livewire GPIO rules for hardware or virtual IOs.

The screenshot shows a 'Rules' dialog box with a close button (X) in the top right corner. It contains two rows of configuration:

- Input:** A dropdown menu set to 'Local Livewire GPI' and a numeric field set to '1'.
- Output:** A dropdown menu set to 'Remote Livewire GPO' and a numeric field set to '1'.

Below these fields is a 'Rule summary:' section with the text: 'Remote Livewire GPO 1 follows the ON/OFF state of Local Livewire GPI 1.' followed by an information icon (i). At the bottom of the dialog are two buttons: 'Create rule' and 'Back'.

See the "Creating Rules" section in your codec user manual for more detailed information on configuring rules.