

## Configuring the Storm Audio ISP with Wisdom Audio Dante Amplifiers

### Notes:

- The Storm Audio ISP AoIP module outputs AES67, not Dante.
- All connected Dante devices must be AES67 capable. Wisdom DSP Amplifiers are AES67 capable.
- Dante Virtual Sound card is not AES67 capable.
- All Dante devices such as the Wisdom DSP amplifiers only support 48 kHz in AES67 mode.
- The Storm Audio ISP internal processing is at 48 kHz.
- AES67 mode can handle a maximum of 32 output streams (mono channels).
- Setup requires wired network connections, WiFi is not supported

Before beginning the software setup, be sure you have completed the amplifier rack layout and identified which amplifiers will be connected to which speakers or zones. Part of the DANTE setup includes naming amplifiers and/or properly identifying the amplifiers on the network. Having this information before beginning will make the setup much easier and faster.

It is **STRONGLY** recommended that you use a standalone network switch just for the AES67/Dante connections. Do not connect this switch to the main network unless you are configuring the system at the initial set-up stage. Once configuration is completed, disconnect the “Dante” switch from the home network. Ethernet for communication and control should be separate from Audio over IP (AoIP).

Alternatively, you can use a VLAN (Isolated) Switch just for the AES67/Dante connections.

Network configuration is the most likely cause of faulty or intermittent audio. For small systems an unmanaged gigabit switch should work without any issues. For large systems either use a managed switch that you configure based on recommendations from Audinate for Dante or Merging Technologies for Ravenna, or use a managed switch that has Dante or AES67 presets.

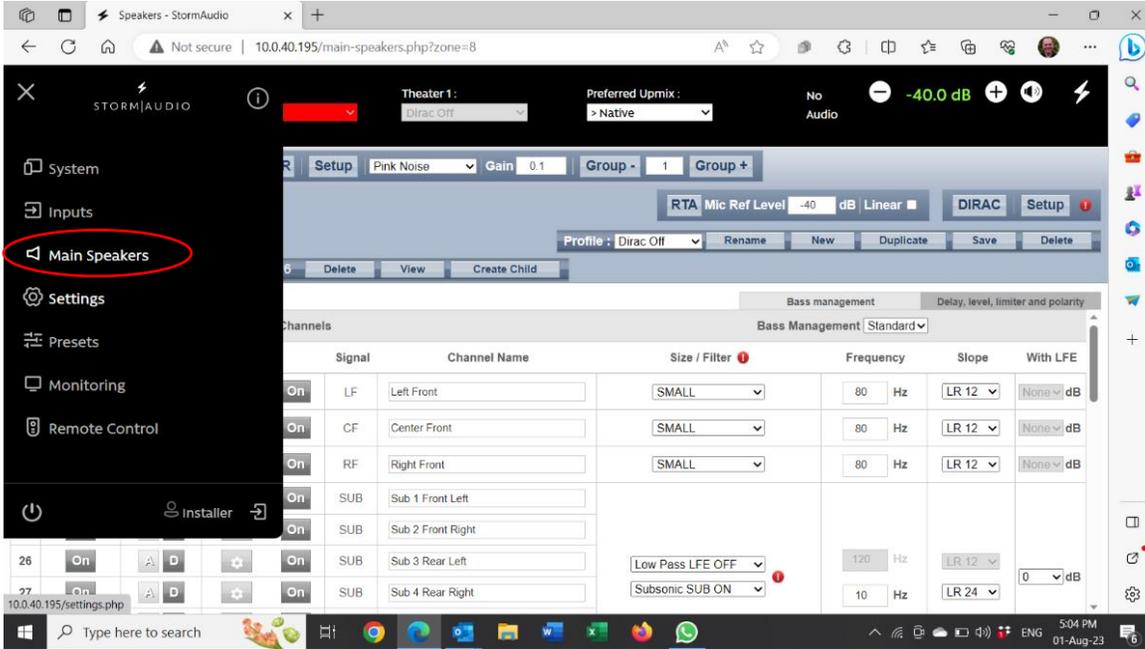
### Ethernet and AoIP Connections (Wired Network)

First, connect all the following network devices to the same network switch(s):

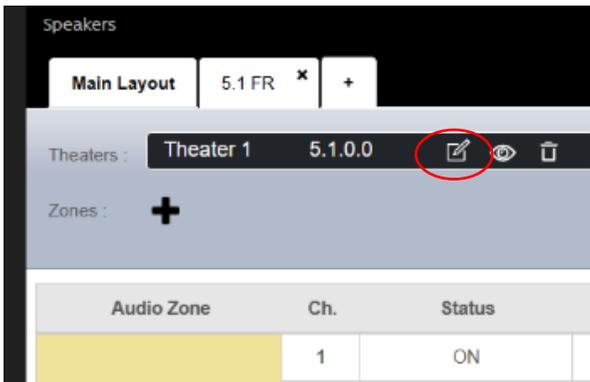
- A Storm Audio ISP equipped with the AoIP option, Ethernet and AoIP
- Wisdom SA-X DSP Amplifiers – Dante AoIP connections only, Ethernet setup should be done separately after Dante setup is complete keeping Ethernet and Dante on separate LAN
- A computer with Dante Controller installed.

## Set-up the Storm Audio ISP for Digital Output

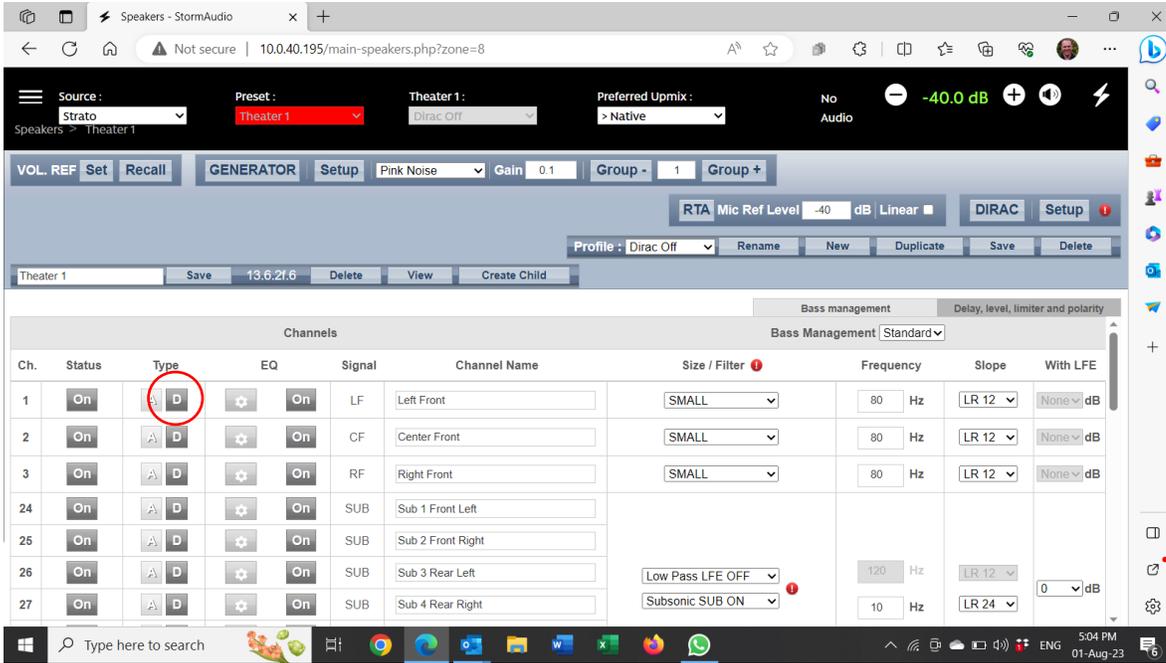
- Go into the Storm Audio WebUI. Navigate to “Main Speakers” Page.



- Click on the “Edit Theatre” symbol.



- In the “Type” column, set all channels to **D** (Digital) output and save the settings.



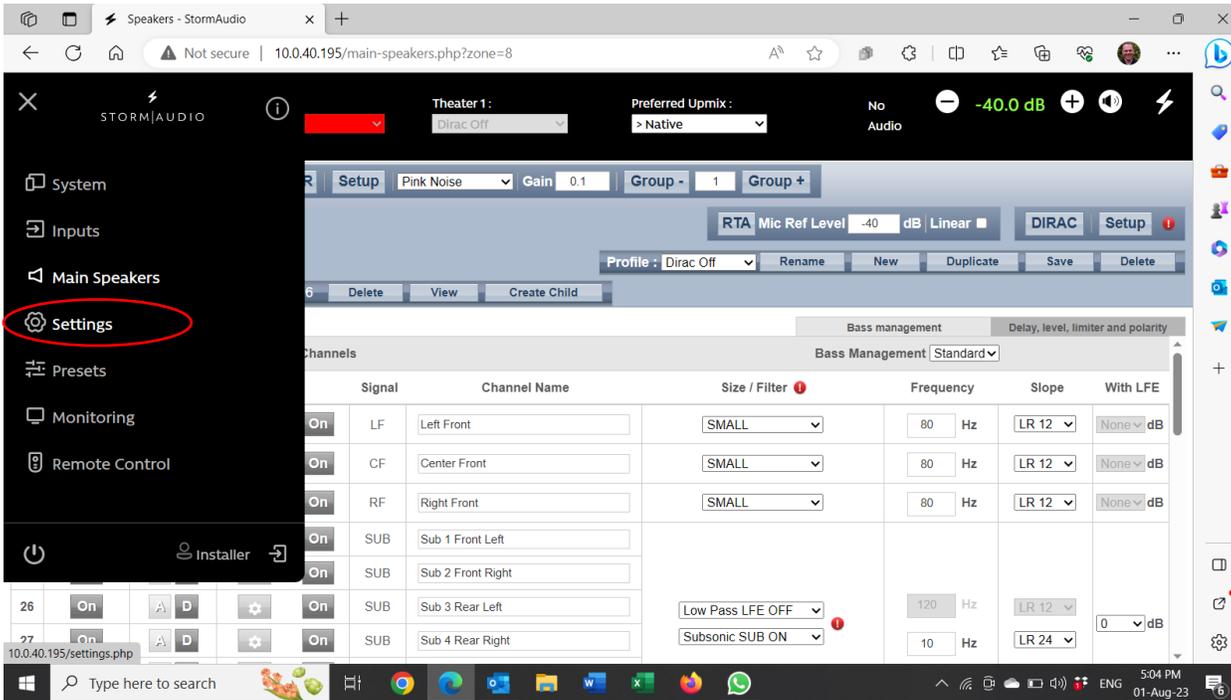
The screenshot shows the StormAudio web interface for a speaker setup. The 'Channels' table is visible, with the 'Type' column highlighted. The 'D' (Digital) output option is selected for all channels, indicated by a red circle around the 'D' button for channel 1.

Ch.	Status	Type	EQ	Signal	Channel Name	Size / Filter	Frequency	Slope	With LFE
1	On	D	On	LF	Left Front	SMALL	80 Hz	LR 12	None dB
2	On	D	On	CF	Center Front	SMALL	80 Hz	LR 12	None dB
3	On	D	On	RF	Right Front	SMALL	80 Hz	LR 12	None dB
24	On	D	On	SUB	Sub 1 Front Left				
25	On	D	On	SUB	Sub 2 Front Right				
26	On	D	On	SUB	Sub 3 Rear Left	Low Pass LFE OFF	120 Hz	LR 12	0 dB
27	On	D	On	SUB	Sub 4 Rear Right	Subsonic SUB ON	10 Hz	LR 24	

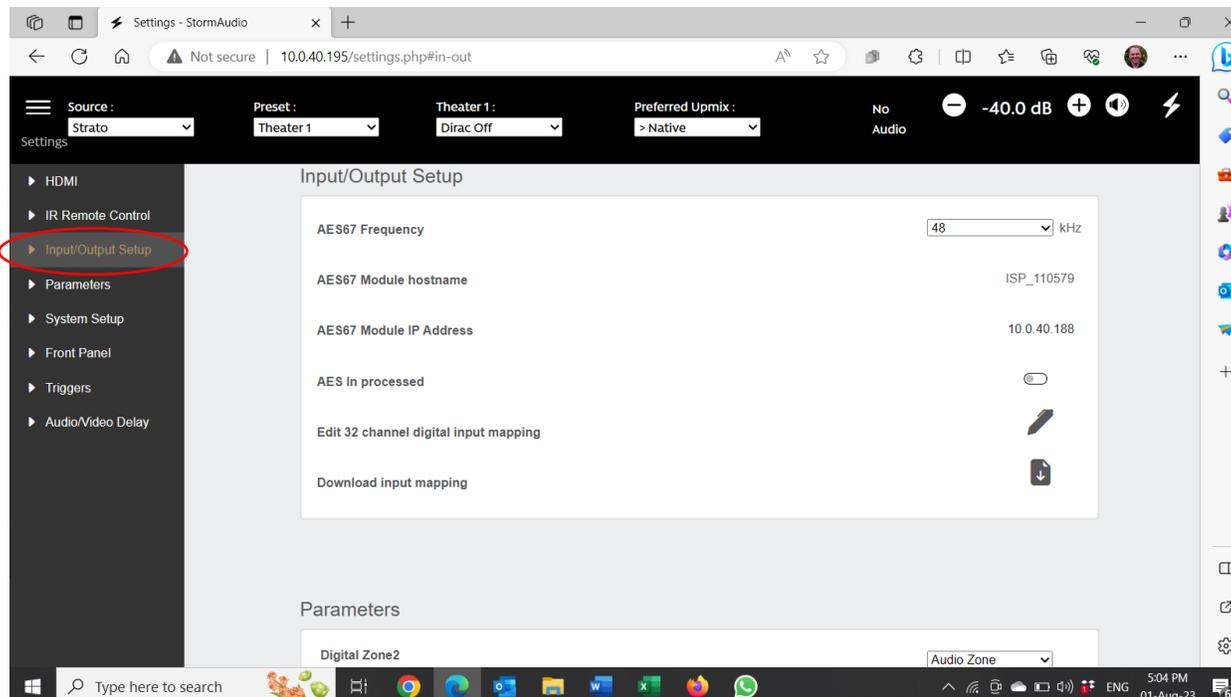
**NOTE** that after switching the output to Digital, the Analogue outputs are still active, but at a highly reduced signal quality.

## Create an AES67/DANTE destination.

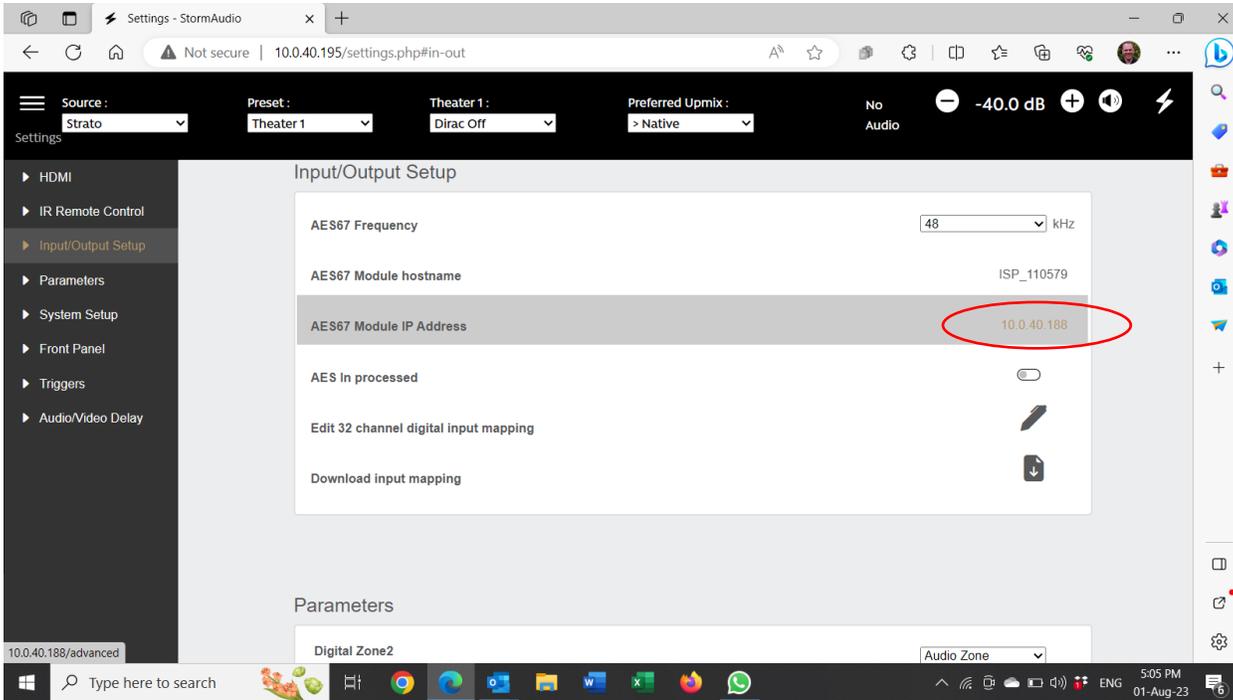
- In the Storm Audio WebUI, select the “settings” tab.



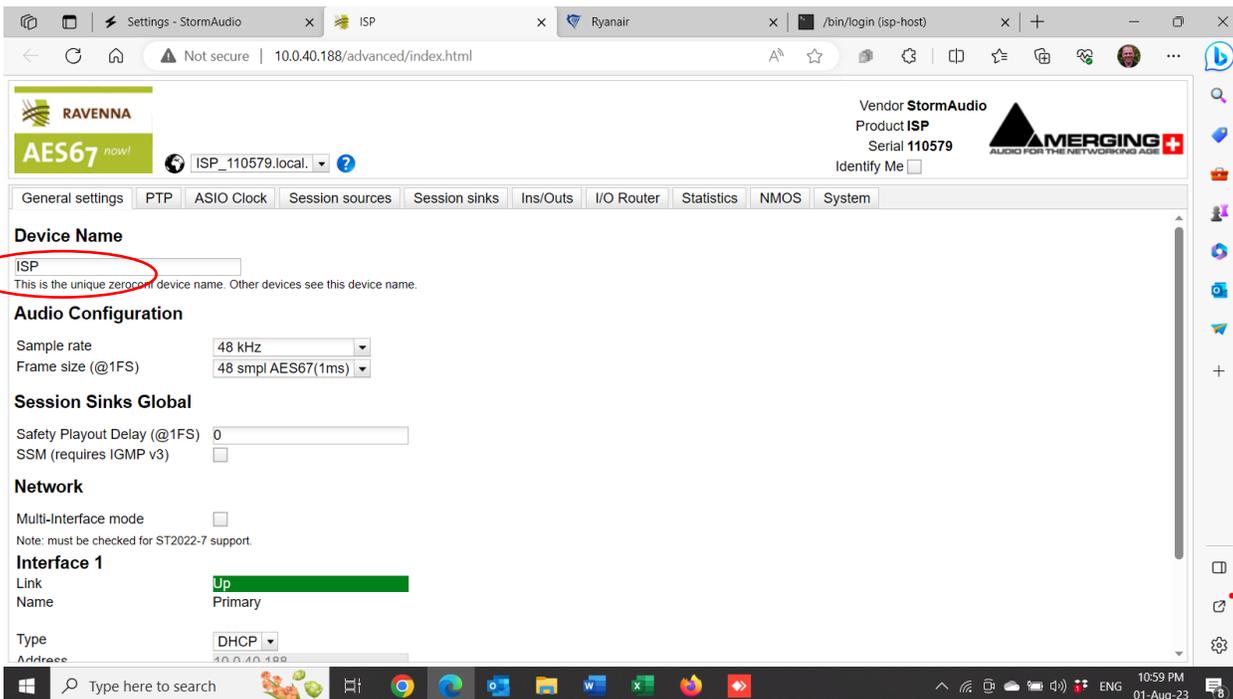
- Select “Input/Output Setup”



- Click on the AES67 Module IP Address and this will open a link to the Ravenna WebUI

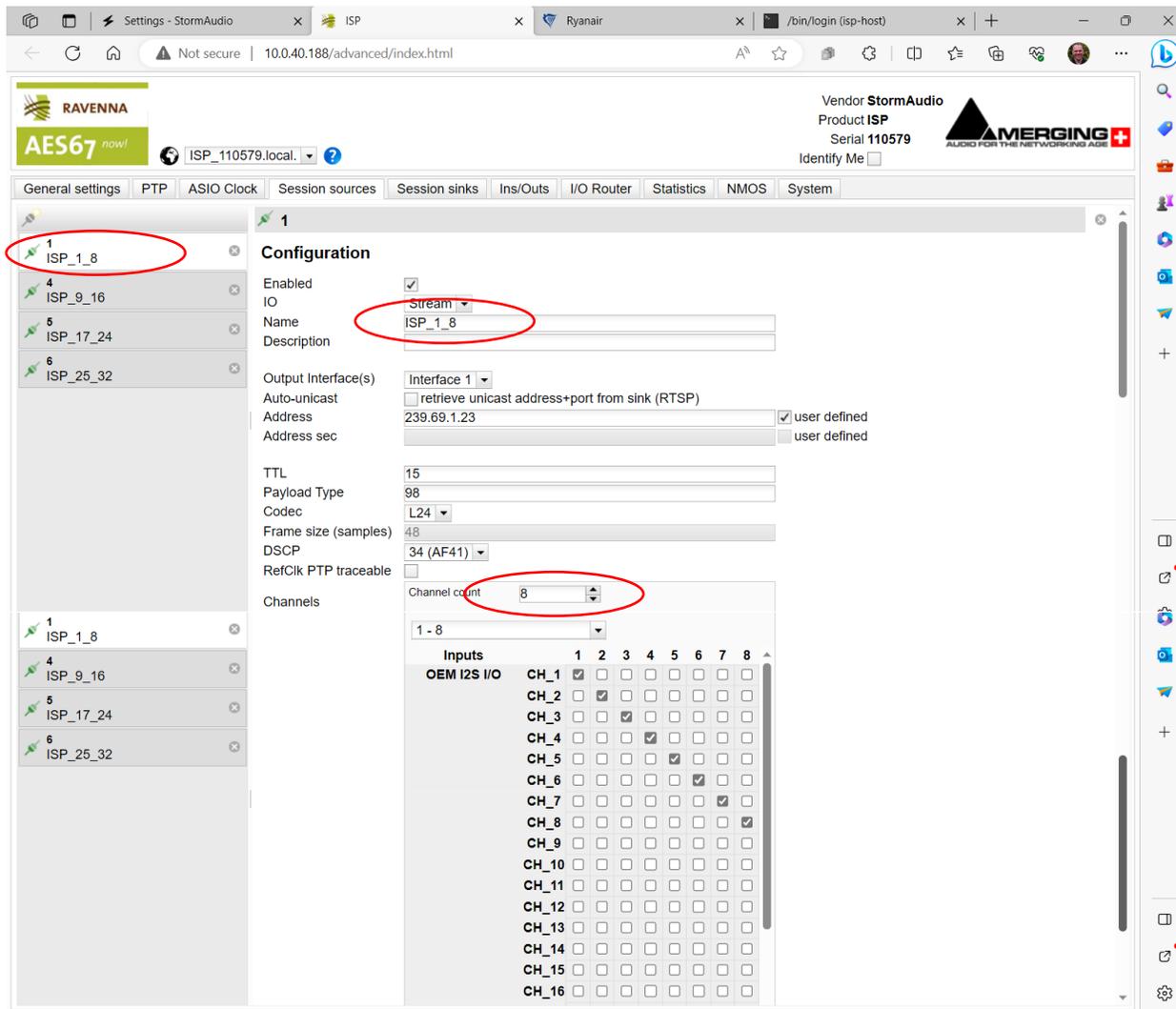


- Set the Storm AoIP Device name to ISP so that it is easy to identify.



- In the “session sources” tab, rename each Stream. e.g. ISP\_1\_8 then the next one ISP\_9\_16 etc. They are in banks of 8 streams (Channels). Underscores \_ must be used when naming as Hyphens - are not accepted.
- Make sure the multicast address ("Address" field) is using the Dante multicast prefix. Default is 239.69.xxx.xx. Each bank address must be unique. E.g. ISP\_1\_8 is set to 239.69.1.23 and then ISP\_9\_16 is set to 239.69.1.24...and so on.
- Set the Channel count to 8 and select the channels you need to stream as below.

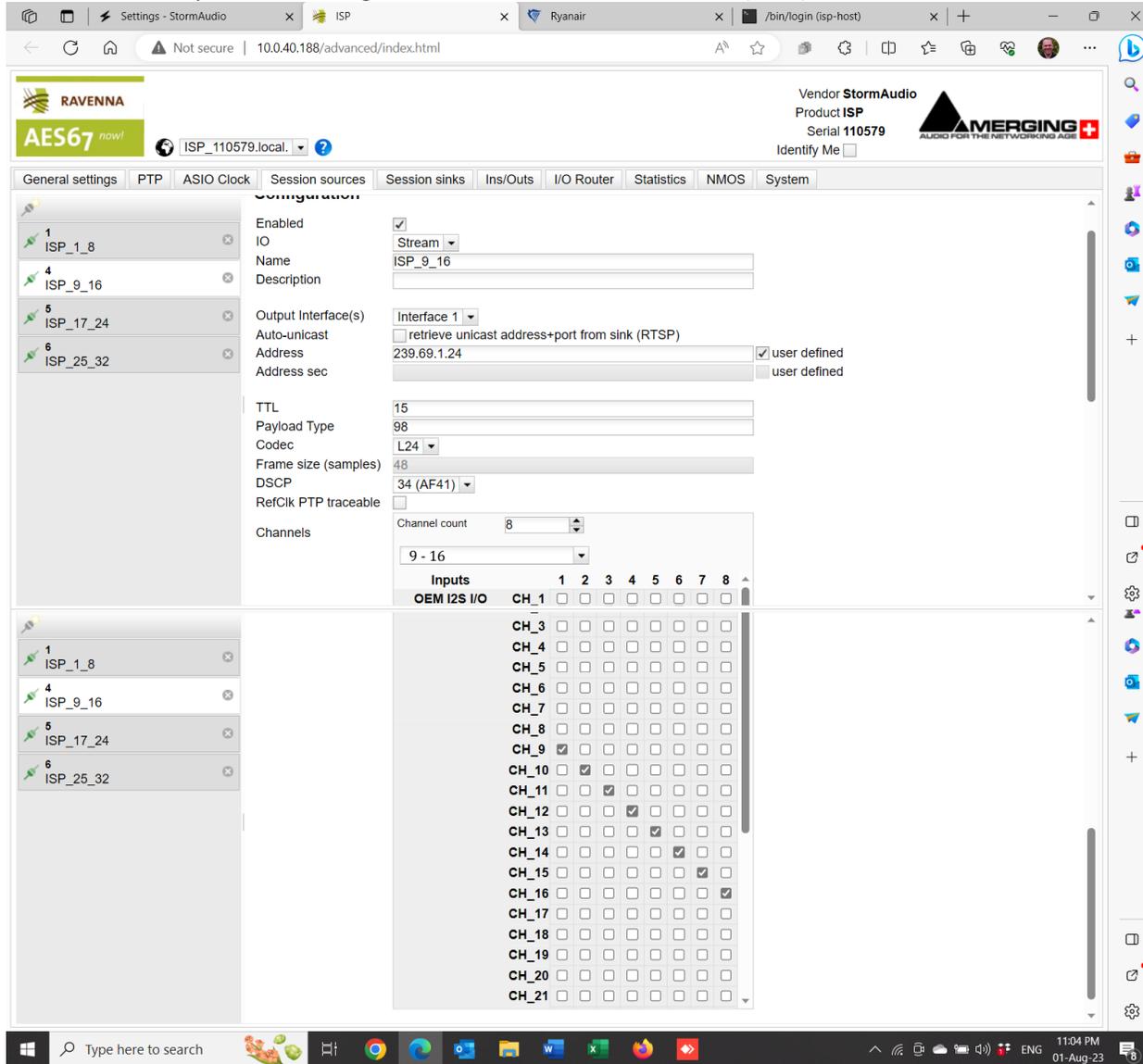
**NOTE:** Codec must be L24 and Frame size 48 samples



The screenshot shows the StormAudio ISP configuration interface. The 'Session sources' tab is active, displaying a list of session sources on the left and a configuration panel for the selected source '1' on the right. The configuration panel includes fields for 'Enabled', 'IO' (set to 'Stream'), 'Name' (set to 'ISP\_1\_8'), 'Description', 'Output Interface(s)' (set to 'Interface 1'), 'Auto-unicast', 'Address' (239.69.1.23), 'Address sec', 'TTL' (15), 'Payload Type' (98), 'Codec' (L24), 'Frame size (samples)' (48), 'DSCP' (34 (AF41)), 'RefCik PTP traceable', and 'Channel count' (set to 8). Below these fields is a table of inputs with columns for 'Inputs' (1-8) and rows for 'OEM I2S I/O' (CH\_1 to CH\_16). The 'Channel count' dropdown and the '1-8' input selection are circled in red.

Inputs	1	2	3	4	5	6	7	8
OEM I2S I/O	CH_1	CH_2	CH_3	CH_4	CH_5	CH_6	CH_7	CH_8
	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				
	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>					
	<input type="checkbox"/>	<input checked="" type="checkbox"/>						
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	<input type="checkbox"/>							
	<input type="checkbox"/>							

Below is an example of the configuration of next bank of 8 streams (9-16)



The screenshot shows the StormAudio configuration interface. The 'Session sinks' tab is active, displaying the configuration for a session sink named 'ISP\_9\_16'. The configuration includes:

- Enabled:**
- IO:** Stream
- Name:** ISP\_9\_16
- Description:** (empty)
- Output Interface(s):** Interface 1
- Auto-unicast:**  retrieve unicast address+port from sink (RTSP)
- Address:** 239.69.1.24  user defined
- Address sec:** (empty)  user defined
- TTL:** 15
- Payload Type:** 98
- Codec:** L24
- Frame size (samples):** 48
- DSCP:** 34 (AF41)
- RefClk PTP traceable:**
- Channels:** Channel count: 8, Range: 9 - 16

Below the configuration, there is a table for channel assignments:

Inputs	OEM I2S I/O	CH_1	2	3	4	5	6	7	8
CH_3	<input type="checkbox"/>								
CH_4	<input type="checkbox"/>								
CH_5	<input type="checkbox"/>								
CH_6	<input type="checkbox"/>								
CH_7	<input type="checkbox"/>								
CH_8	<input type="checkbox"/>								
CH_9	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
CH_10	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
CH_11	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
CH_12	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
CH_13	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
CH_14	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
CH_15	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				
CH_16	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>					
CH_17	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>						
CH_18	<input type="checkbox"/>	<input checked="" type="checkbox"/>							
CH_19	<input type="checkbox"/>								
CH_20	<input type="checkbox"/>								
CH_21	<input type="checkbox"/>								

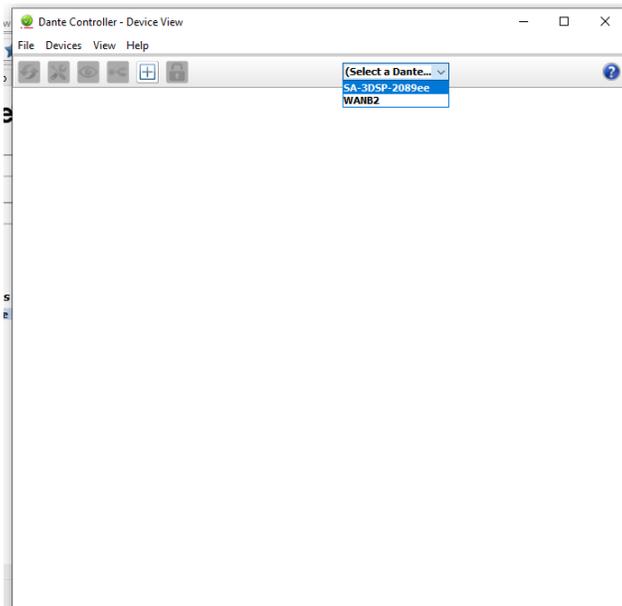
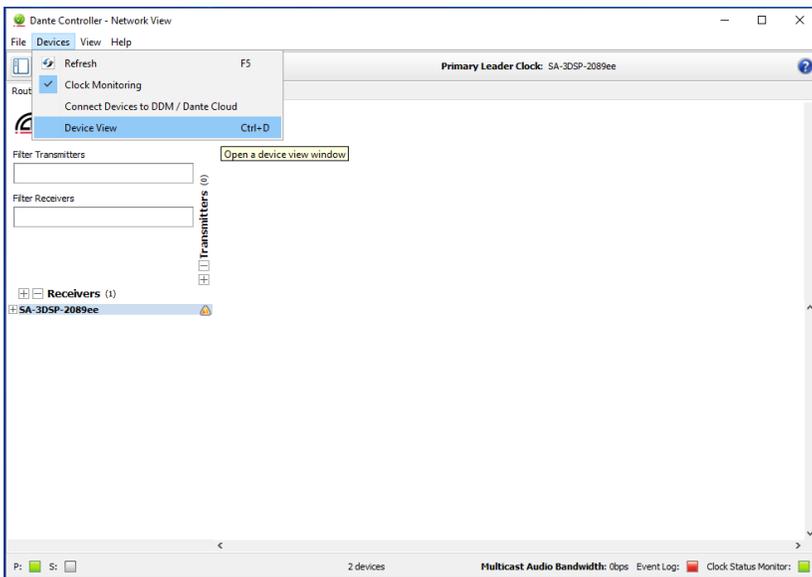
## Dante Controller - Configuration

Our SA-X DSP Amplifiers require that you enable their AES67 mode using Dante Controller. The DANTE network connection of each amplifier and the computer running [Dante Controller](http://www.Audinate.com) from [www.Audinate.com](http://www.Audinate.com).

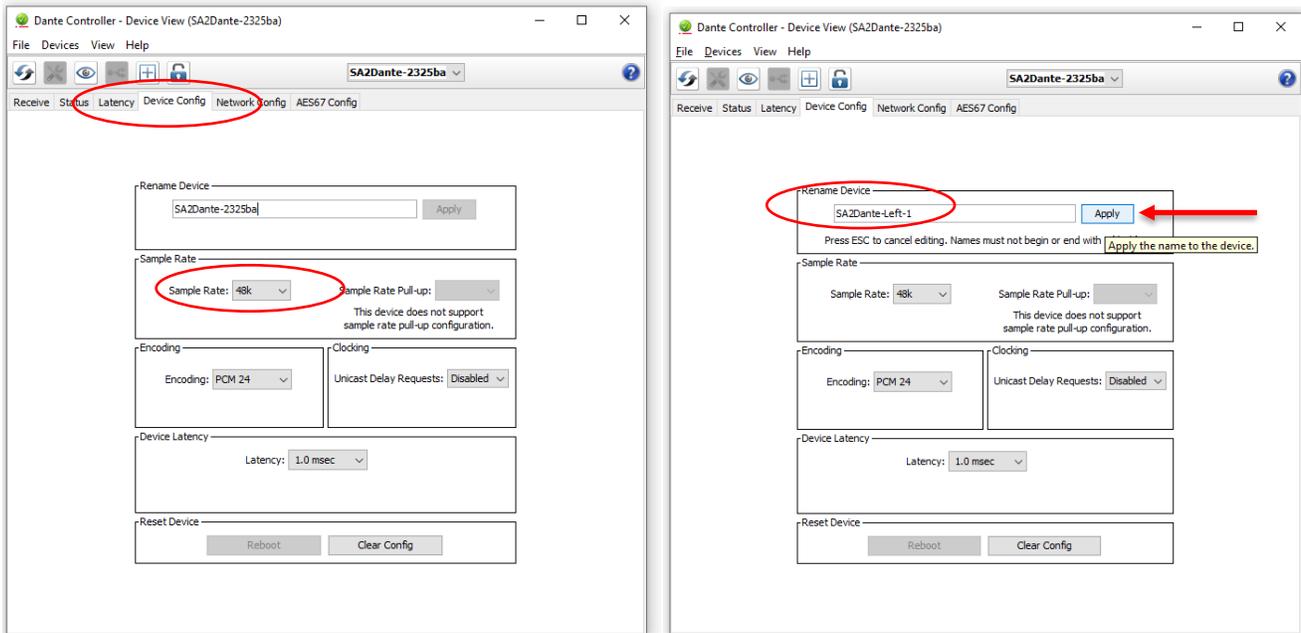
Begin with only the first amplifier powered on. This will make it easier to identify and name the amplifiers in Dante Controller. Add each amplifier one at a time as each is configured. Keeping notes about which amplifier and which speakers are connected to which stream on the Storm ISP is good practice.

To enable AES67 mode in Dante Controller:

- Open Dante Controller software application.
- Go in the Devices > Device View page. Select the first Dante device (SA-x amplifier). As more devices are added the list will grow.

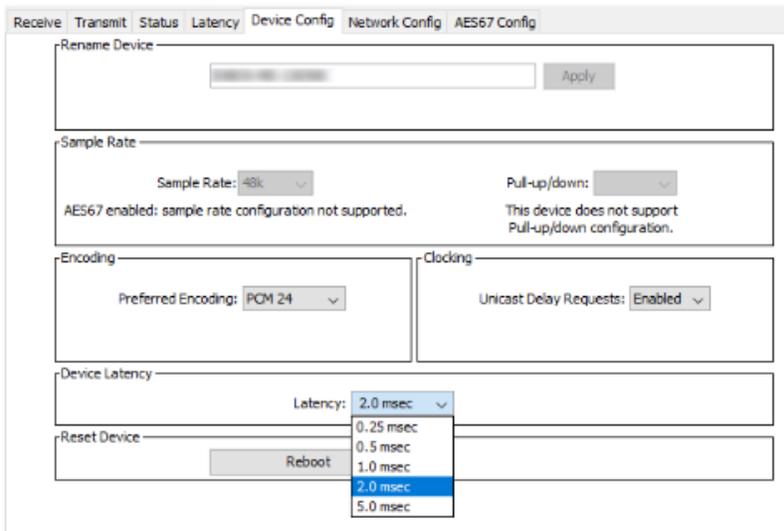


- Go to the “Device Config” tab.
- We recommend naming the amplifier now so that it is easy to identify. The list is sorted alphabetically so naming it in a way that makes it easy to find is also helpful. Renaming is not required but is helpful. Check that the Sample Rate is set to 48k (default).

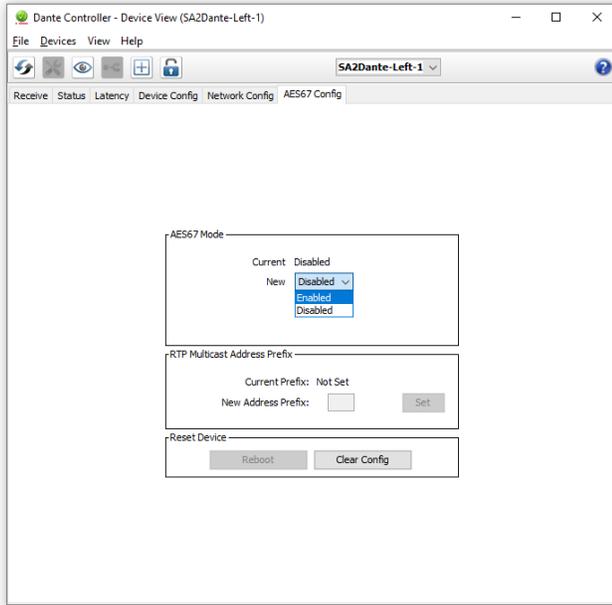


- Set the Latency to 2 ms.

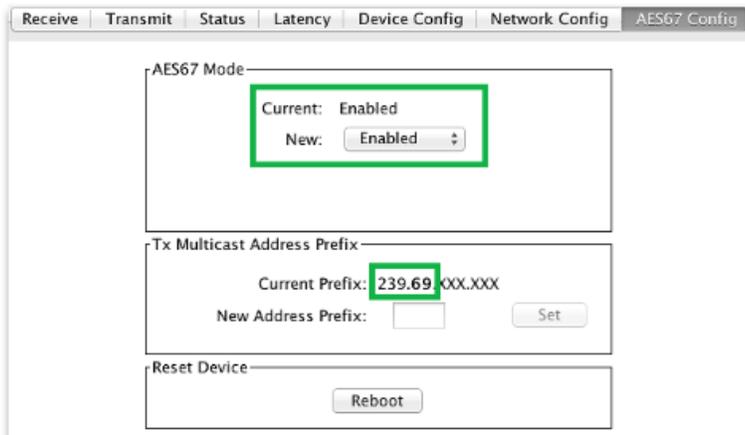
Note that Storm Audio recommends for large multiple channel theatres, the latency should be set to 5ms. We did not find this necessary in our Theatre and used 2ms with no issues.



- Go in the AES67 Config tab.
- Set the AES67 mode to Enabled.



- Make sure the Multicast Address Prefix is set to 239.IP.xxx.xxx. "IP" must be the same for all devices on the AoIP network, default is 69.

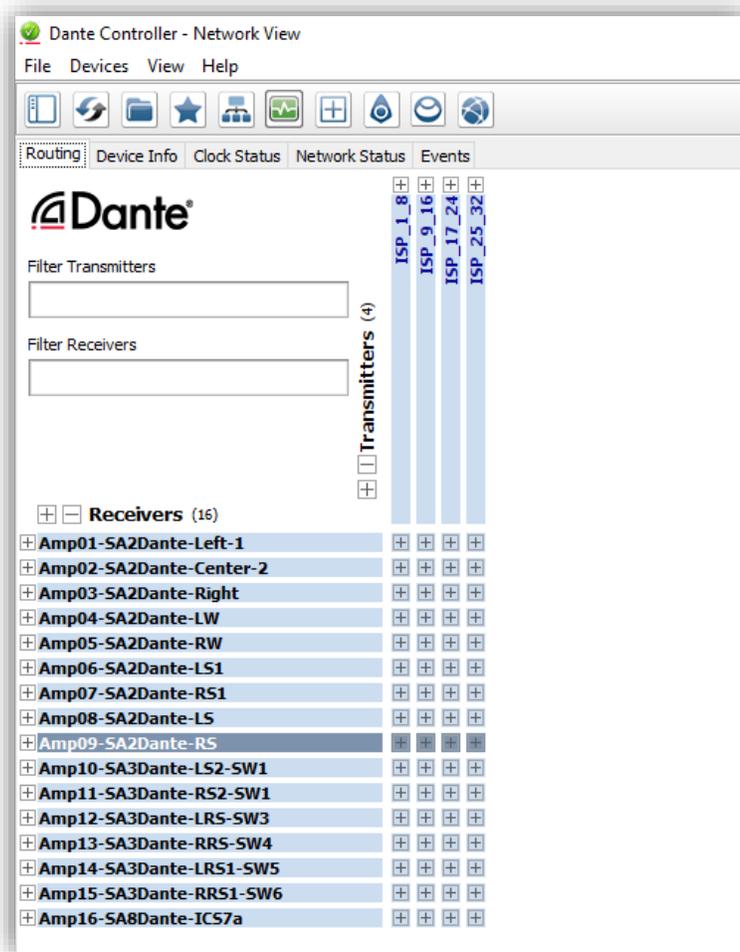


Repeat the above steps for each Wisdom amplifier in the system. Turn on one amplifier at a time and name them as you work to keep the setup easy to complete.

Below is a screenshot of our theatre system with the AES67 setup done and custom names entered. The Storm ISP can be seen as a transmitter, with 32 total channels (8x4).

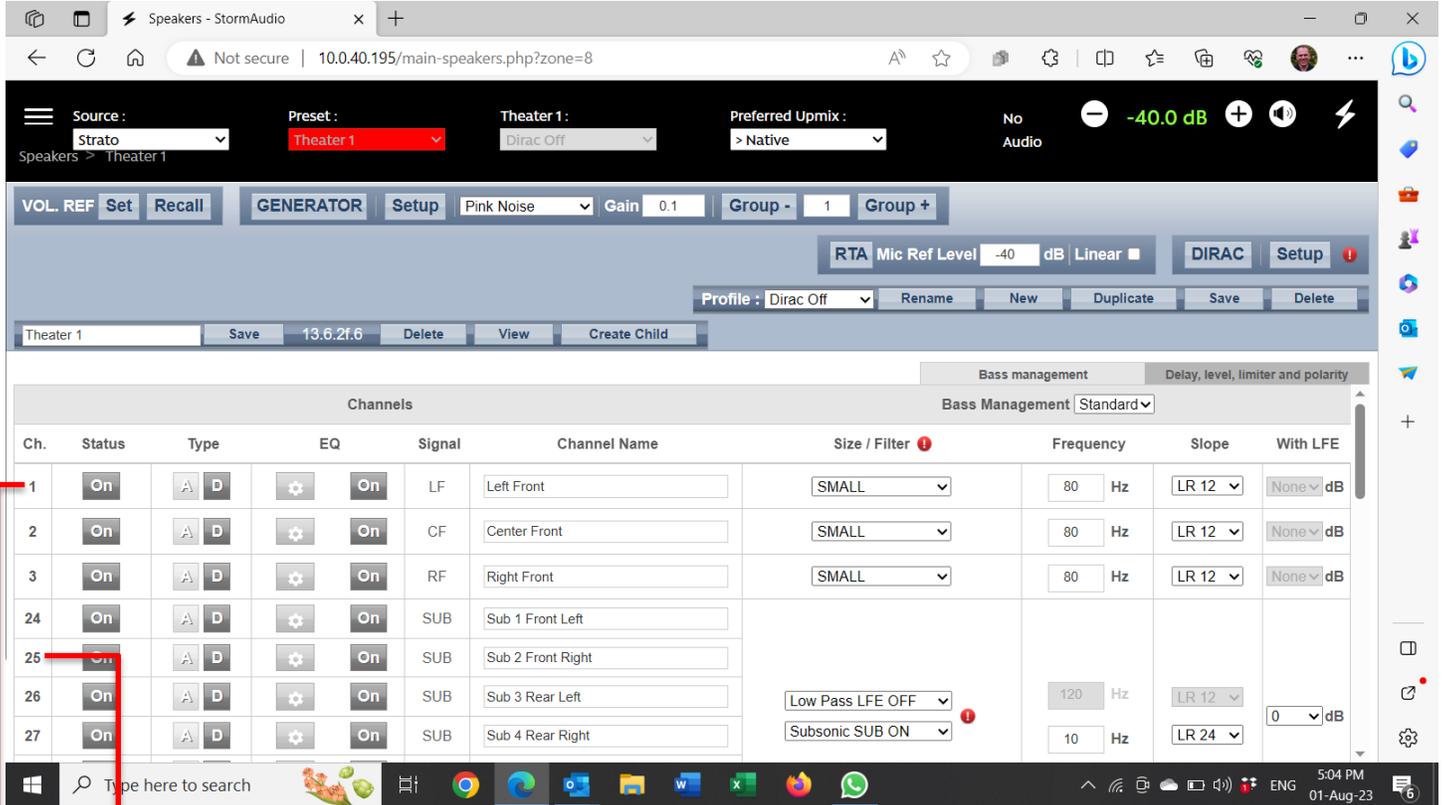
- In the below example the name has the physical order in the rack, plus a description of the speakers to be connected.
- Individual channels can also be named if needed.
- Next we will make the connections from Storm to Wisdom.

**DO NOT CHANGE THE DEVICE NAMES ONCE YOU HAVE COMPLETED THE SETUP IN THE NEXT SECTION OR AUDIO WILL NOT CONNECT. DANTE USES NAMES TO MAKE CONNECTIONS, AND NOT IP ADDRESS.**

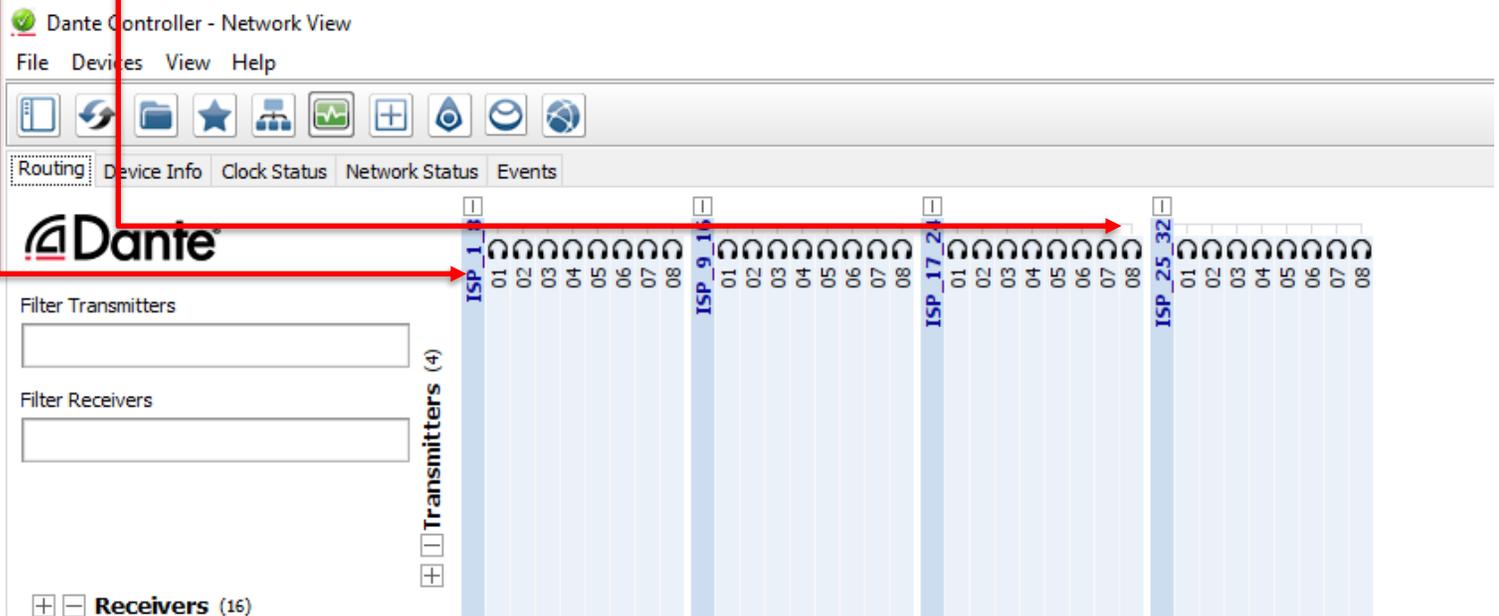


- Click the + to expand the Transmitter and the Receivers.

- The “Stream” in the Storm will be the Dante “Channel”. The below shows the Storm ISP setup. Streams are in groups of 8 channels
- For example: Ch1 in the Storm is Stream 1(1-8) , and Ch25 is Stream 1(25-32)



Ch.	Status	Type	EQ	Signal	Channel Name	Size / Filter	Frequency	Slope	With LFE
1	On	A D	On	LF	Left Front	SMALL	80 Hz	LR 12	None dB
2	On	A D	On	CF	Center Front	SMALL	80 Hz	LR 12	None dB
3	On	A D	On	RF	Right Front	SMALL	80 Hz	LR 12	None dB
24	On	A D	On	SUB	Sub 1 Front Left				
25	On	A D	On	SUB	Sub 2 Front Right				
26	On	A D	On	SUB	Sub 3 Rear Left	Low Pass LFE OFF	120 Hz	LR 12	0 dB
27	On	A D	On	SUB	Sub 4 Rear Right	Subsonic SUB ON	10 Hz	LR 24	



Dante Controller - Network View

File Devices View Help

Routing Device Info Clock Status Network Status Events

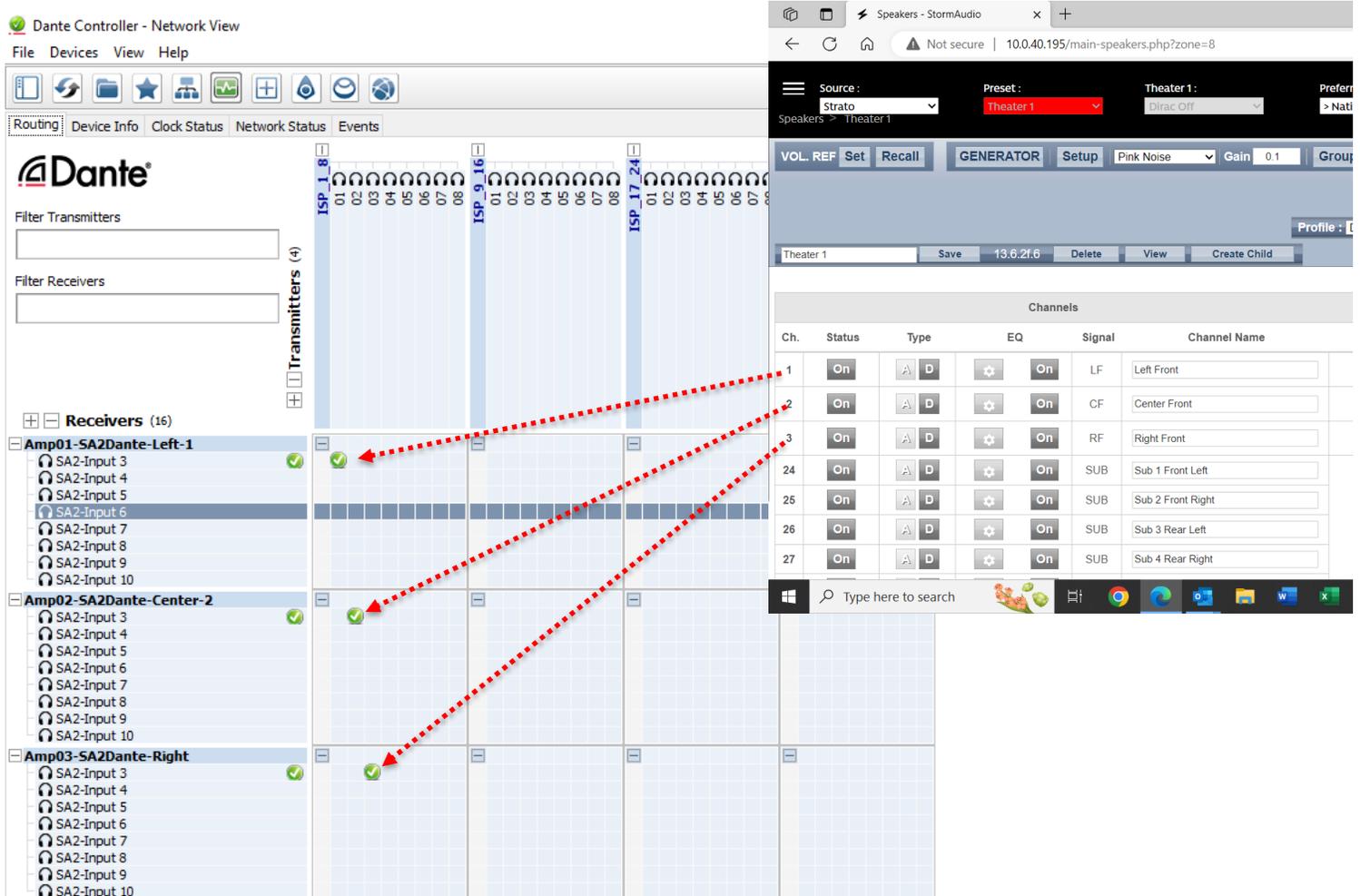
Filter Transmitters

Filter Receivers

Receivers (16)

Transmitters (4)

Connect the Storm ISP Streams to the Wisdom Amplifier. Keep track of which Dante input is used on the Wisdom amplifier so you can select the correct input in the amplifier setup. Tick the checkbox in the grid to make the connection. Once connected the green checkmark shows that audio is flowing and the connection is valid.



The image shows two overlapping windows. The background window is the Dante Controller Network View, displaying a grid of connections between transmitters and receivers. The foreground window is the StormAudio web interface, showing a channel list with status, type, EQ, and signal information. Red dotted arrows point from the 'On' status in the StormAudio channel list to the green checkmarks in the Dante Controller grid.

**Dante Controller - Network View**

Routing | Device Info | Clock Status | Network Status | Events

Filter Transmitters

Filter Receivers

Transmitters (4)

- ISP\_1\_8
- ISP\_9\_16
- ISP\_17\_24

Receivers (16)

- Amp01-SA2Dante-Left-1
  - SA2-Input 3
  - SA2-Input 4
  - SA2-Input 5
  - SA2-Input 6
  - SA2-Input 7
  - SA2-Input 8
  - SA2-Input 9
  - SA2-Input 10
- Amp02-SA2Dante-Center-2
  - SA2-Input 3
  - SA2-Input 4
  - SA2-Input 5
  - SA2-Input 6
  - SA2-Input 7
  - SA2-Input 8
  - SA2-Input 9
  - SA2-Input 10
- Amp03-SA2Dante-Right
  - SA2-Input 3
  - SA2-Input 4
  - SA2-Input 5
  - SA2-Input 6
  - SA2-Input 7
  - SA2-Input 8
  - SA2-Input 9
  - SA2-Input 10

**Speakers - StormAudio**

Source: Strato | Preset: Theater 1 | Theater 1: Dirac Off

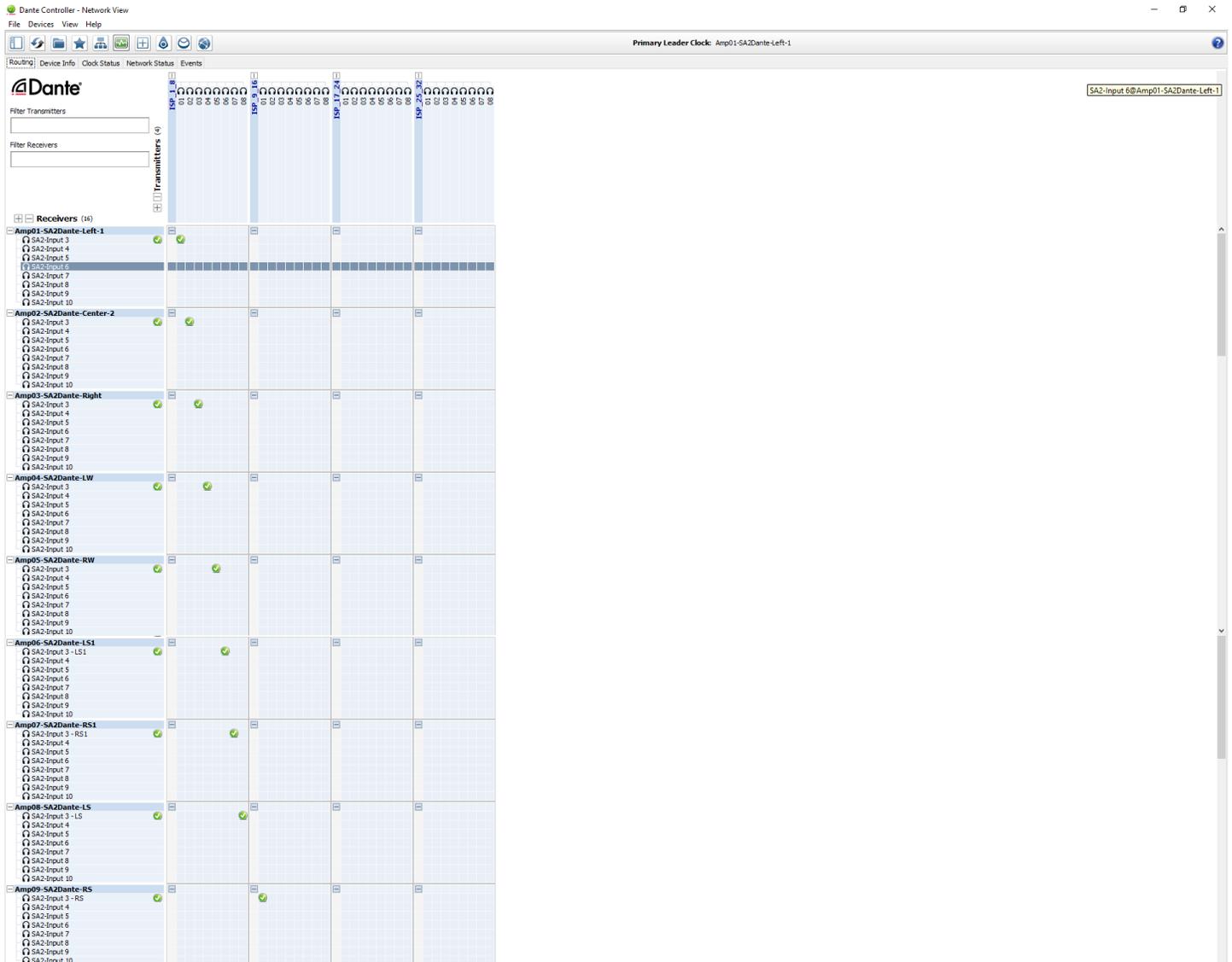
VOL. REF Set Recall GENERATOR Setup Pink Noise Gain 0.1 Group

Channels

Ch.	Status	Type	EQ	Signal	Channel Name
1	On	A D	On	LF	Left Front
2	On	A D	On	CF	Center Front
3	On	A D	On	RF	Right Front
24	On	A D	On	SUB	Sub 1 Front Left
25	On	A D	On	SUB	Sub 2 Front Right
26	On	A D	On	SUB	Sub 3 Rear Left
27	On	A D	On	SUB	Sub 4 Rear Right

Below is our completed system with all channels connected and all streams valid.

If you have connected the AoIP (Dante/AES67) network to the home network (Internet traffic), you can now disconnect it or set up the VLAN. Having both Internet and AoIP on the same network can cause high latency and audio dropouts or problems with Internet connectivity. AoIP does not need Internet access or any control once it is configured. All settings are stored locally and each device will make the connections independently from the other devices.



The screenshot displays the Dante Controller Network View interface. The window title is "Dante Controller - Network View". The primary leader clock is "Amp01-SA2Dante-Left-1". The interface shows a grid of 9 Dante processors, each with 10 SA2 inputs. The processors are:

- Amp01-SA2Dante-Left-1
- Amp02-SA2Dante-Center-2
- Amp03-SA2Dante-Right
- Amp04-SA2Dante-LW
- Amp05-SA2Dante-RW
- Amp06-SA2Dante-LS1
- Amp07-SA2Dante-RS1
- Amp08-SA2Dante-LS
- Amp09-SA2Dante-RS

Each processor has 10 SA2 inputs (SA2-Input 3 to SA2-Input 10). The status of each input is indicated by a green checkmark in the grid cells, signifying that all channels are connected and all streams are valid.

Using the Wisdom amplifier GUI, select the Dante input as needed. In the below example this is the setup for the SA-8DSP that is connected to the Atmos overhead channels. The default names of the Dante channels in the Dante Controller match the default names in the Wisdom user setup page.

