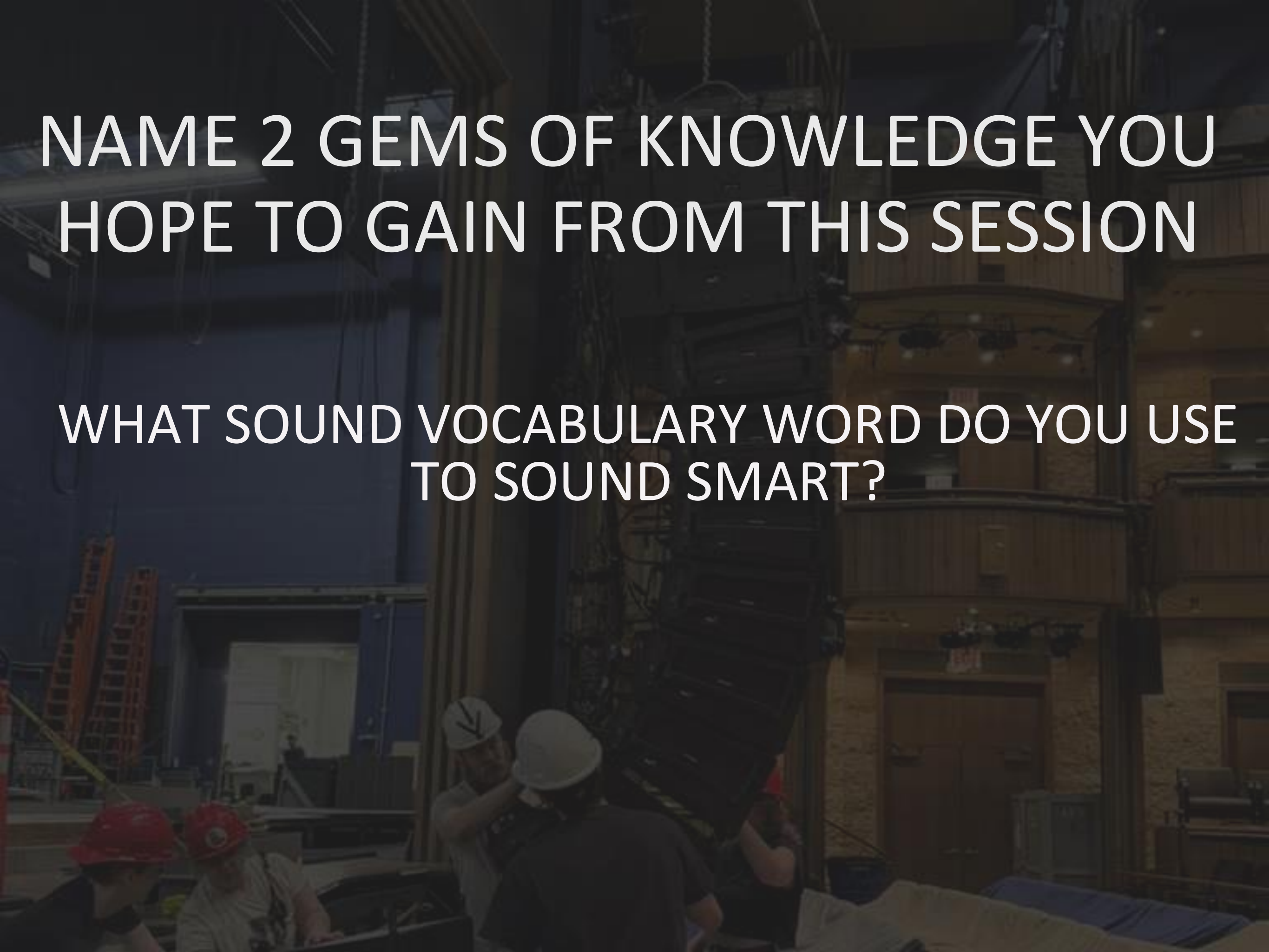


TSDCA Annual Meeting

TUNING A SOUND SYSTEM WITH MEYER GALAXY

July 2026



A dark, grainy photograph of a construction site at night. In the foreground, two workers wearing red hard hats are visible. In the background, other workers in white hard hats are working near a large structure. Scaffolding and construction equipment are visible throughout the scene.

NAME 2 GEMS OF KNOWLEDGE YOU
HOPE TO GAIN FROM THIS SESSION

WHAT SOUND VOCABULARY WORD DO YOU USE
TO SOUND SMART?

QUICK BACKGROUND ON US!!

STEPHANIE FARINA – STEPFARINA@GMAIL.COM

COSTA DAROS - CJDAROS@MEYERSOUND.COM

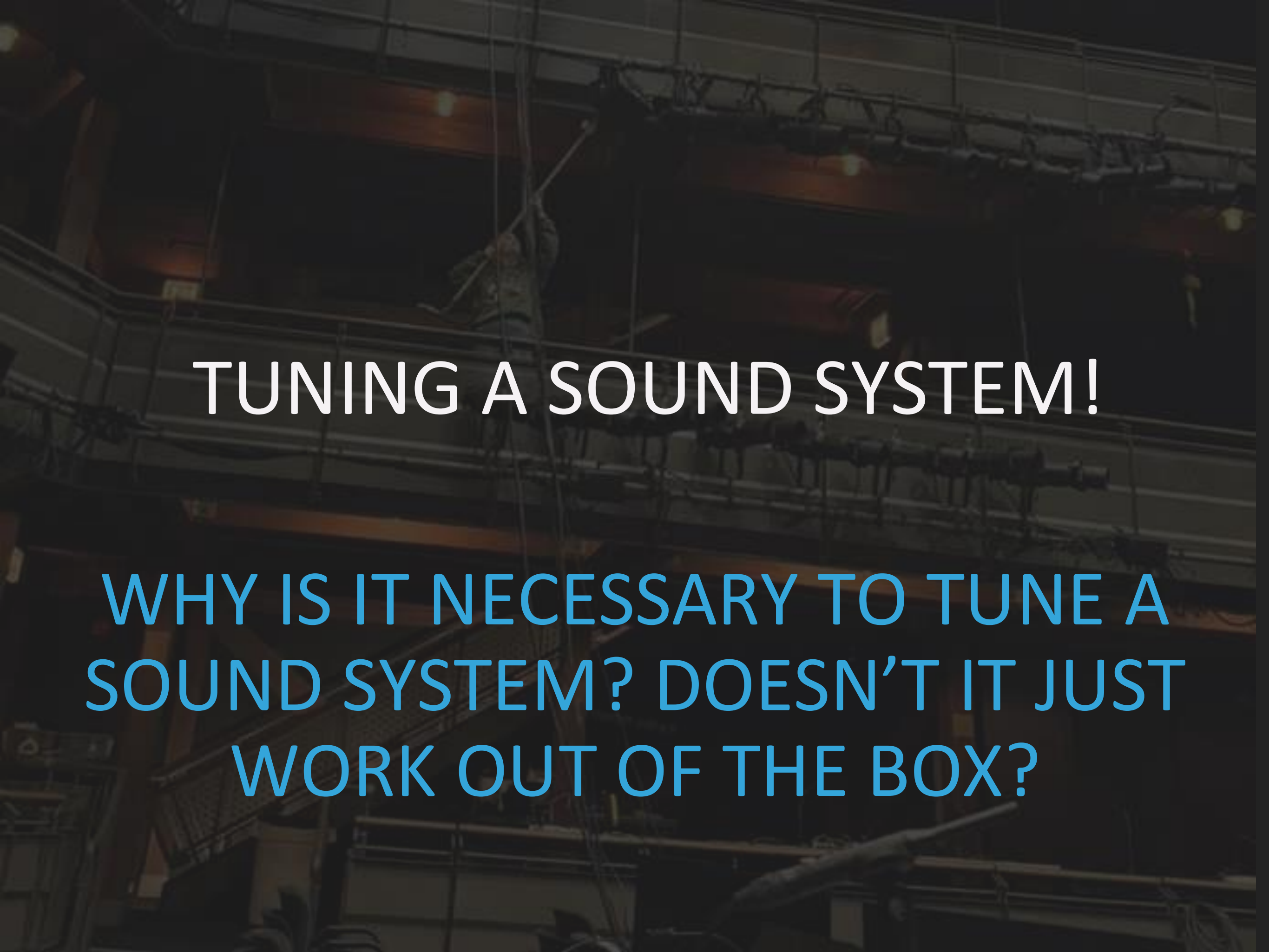


DISCLAIMER!!



HEY STEPH AND COSTA, WHAT ARE WE GOING TO LEARN TODAY?

- ▶ Quick review of sound system principles!
- ▶ How and why to put a Meyer Galaxy or any DSP into your system.
- ▶ How to utilize the features of the the Galaxy to optimize a system.
- ▶ Q & A



TUNING A SOUND SYSTEM!

WHY IS IT NECESSARY TO TUNE A
SOUND SYSTEM? DOESN'T IT JUST
WORK OUT OF THE BOX?

WELL, YES AND NO!

SPEAKER MANUFACTURERS ARE VERY SMART AND
CREATE WELL ENGINEERED CABINETS.

WELL THEN, YOU MAY ASK..
WHY DO IT?

I MAY THEN THROW IT BACK AT YOU AND SAY YOU
TELL ME!



IT'S FORMULA TIME!

DB LOSS OVER DISTANCE

$$20\log(3.28/D) = \text{dB Attenuation}$$

Why 3.28?

That's the conversion for 1 meter into feet.

And we measure loudspeaker volume at a distance of 1 meter from the front of the box.

D= Distance and Attenuation is a sound vocab word meaning volume reduction.



$$20\log(3.28/35) = -20.56\text{dB}$$

74.44dB at
Miss Piggy



THE SPEED OF SOUND

The Speed of Sound, as it travels through air, is 343 meters per second.

For Example:

Sound can reach a listener that is standing 1125 feet away or 0.21 miles away within ONE Second of time.

That's roughly the distance between Steppenwolf and Dick's Sporting Goods.



0.2miles according to
Google Maps



SPEED OF SOUND - 343 METERS PER SECOND

If I was to stand right outside STC's front door and started yelling my face off at 110dB, someone standing outside Dick's Sporting Goods might wonder what the heck was going on down the street.

There would be a 1 second delay between me shouting and the listener down the street hearing it.

My 110dB sound would also lose about 50dB over distance, but also be audible at about 60dB, so they'd still go WTF.



110dB

$$20\log(3.28\text{ft} / 1125\text{ft}) = -50.76\text{dB Loss}$$



343 meters OR 1,125ft
distance to travel



59.24dB

WELL, THAT WAS A STUPID EXAMPLE, STEPH AND COSTA!

Correct. Let's contextualize it for live audio.

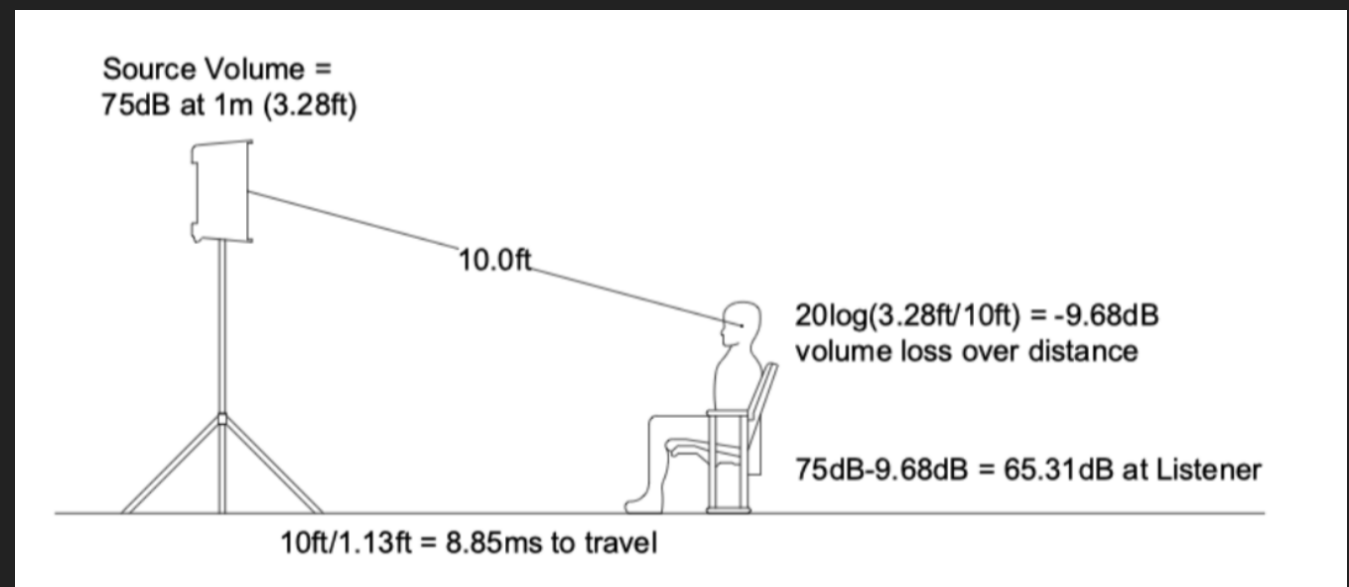
The formula to figure out the time between a sound source and a fixed point (like an audience member) is:

$$D/1.13 = \text{ms}$$

Physical distance measured in feet divided by 1.13ft = Time in Milliseconds

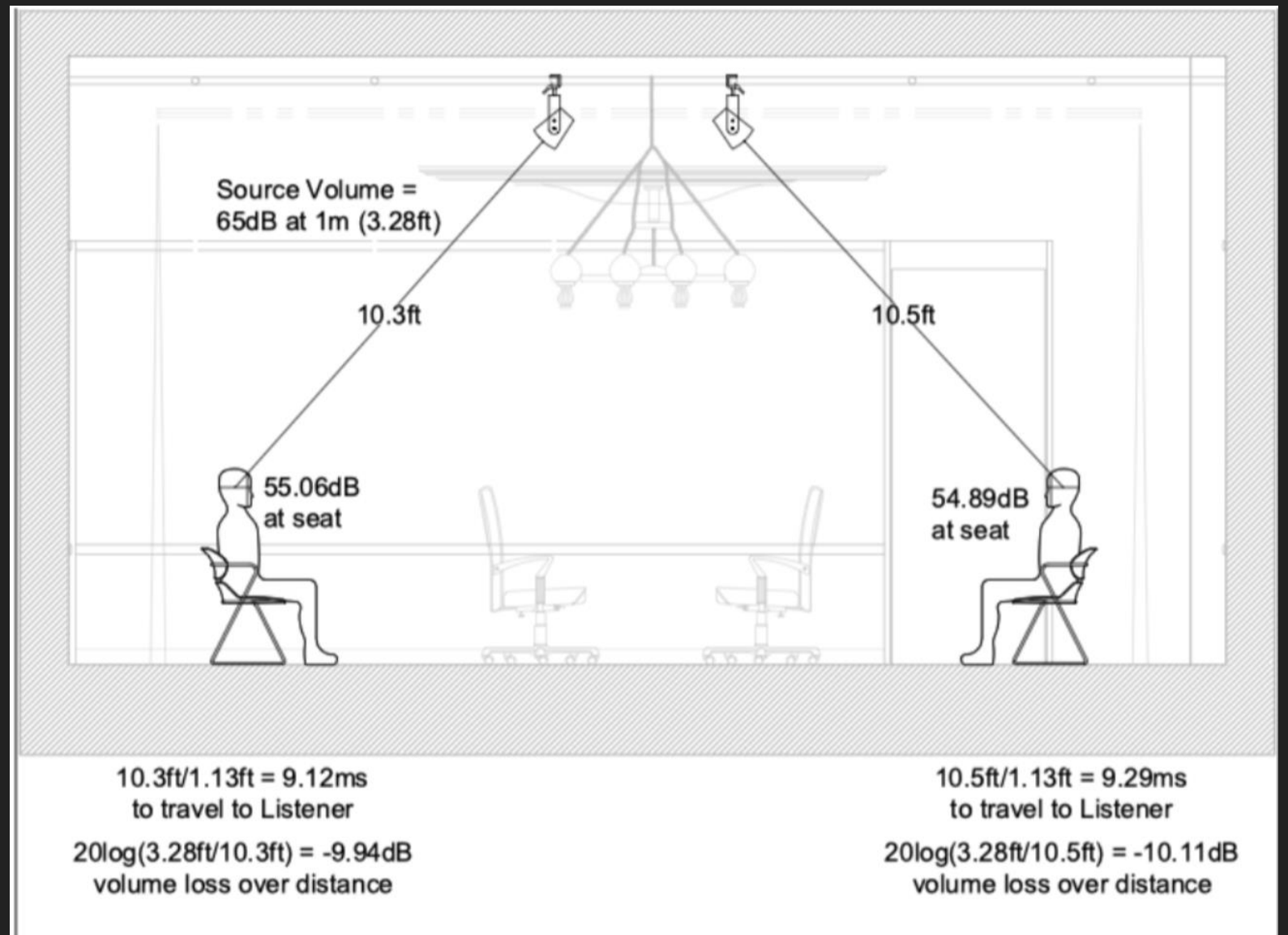
Reminder: Speed of Sound is 1125ft per second, so that's where we get 1.13ft for milliseconds

If a loudspeaker was 10 feet away from a human, it would take 8.85ms for the sound to travel between the two.



EXAMPLE 1:

Relevant Formulas:
 $D/1.13 = ms$
 $20\log(3.28/D) = dB \text{ Loss}$



We are playing some subtle piano motifs that don't get super loud.

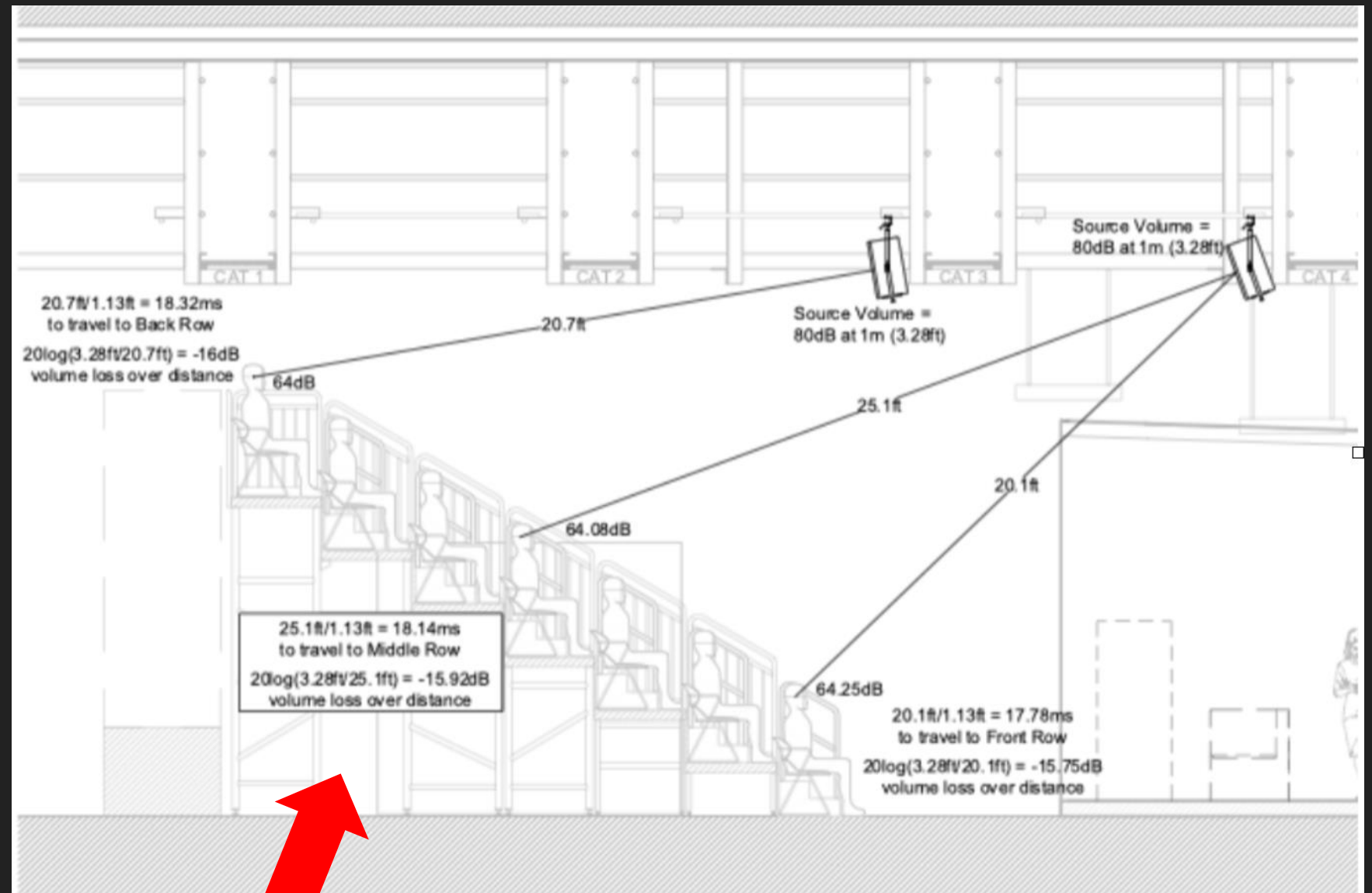
Let's say we are playing stuff at 65dB and it loses 9 or 10dB by the time it hits the audience.

The EAW JF60 has the potential to pump out 113dB max at 1 meter. We could potentially blast the audience with 103.6dB.

Regardless of how loud it is, the sound takes a little over 9ms to reach the shown audience members centered on axis to the loudspeakers.

EXAMPLE 2

Relevant Formulas:
 $D/1.13 = ms$
 $20\log(3.28/D) = dB \text{ Loss}$



If Sabrina Carpenter is playing at 80dB,
the audience on axis to the center of the loudspeakers are losing around 16dB over distance, leaving them with jams at 64dB.

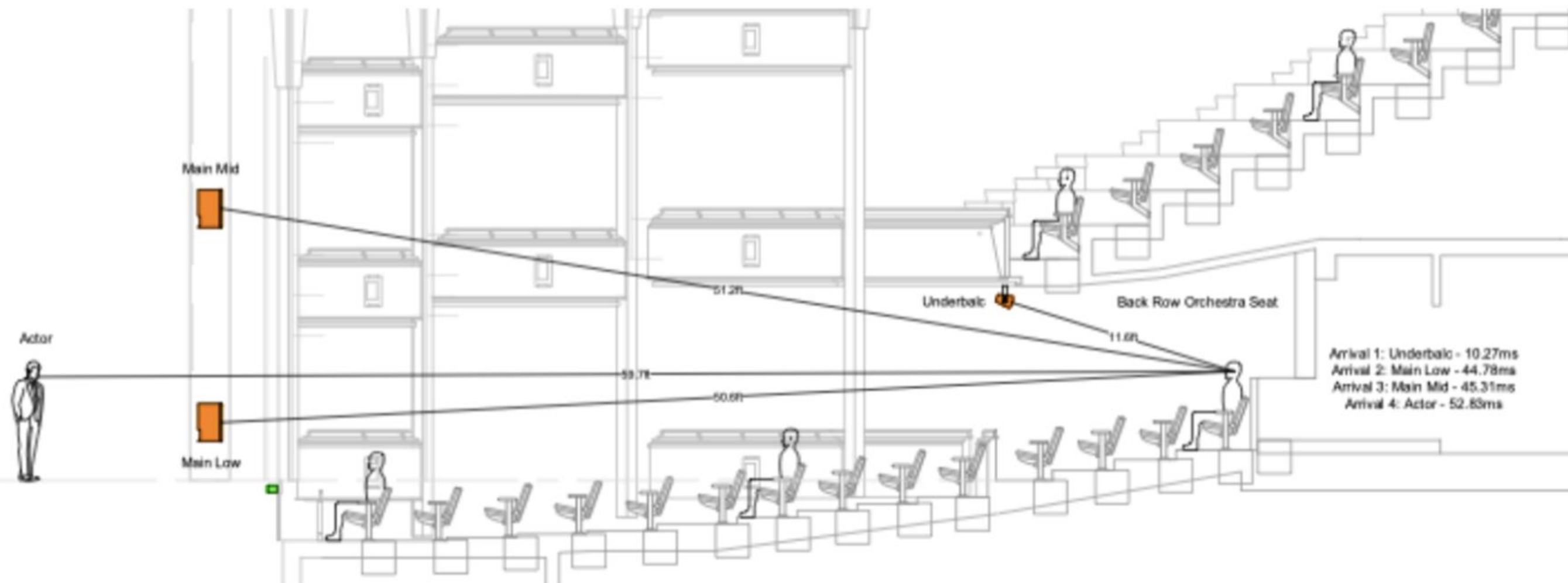
It takes 17-18ms for sound to arrive from the closest main speaker.

We could do more speakers and more measurements because the system is bigger and there is more data that could be accounted for.

GETTING THINGS “IN TIME”

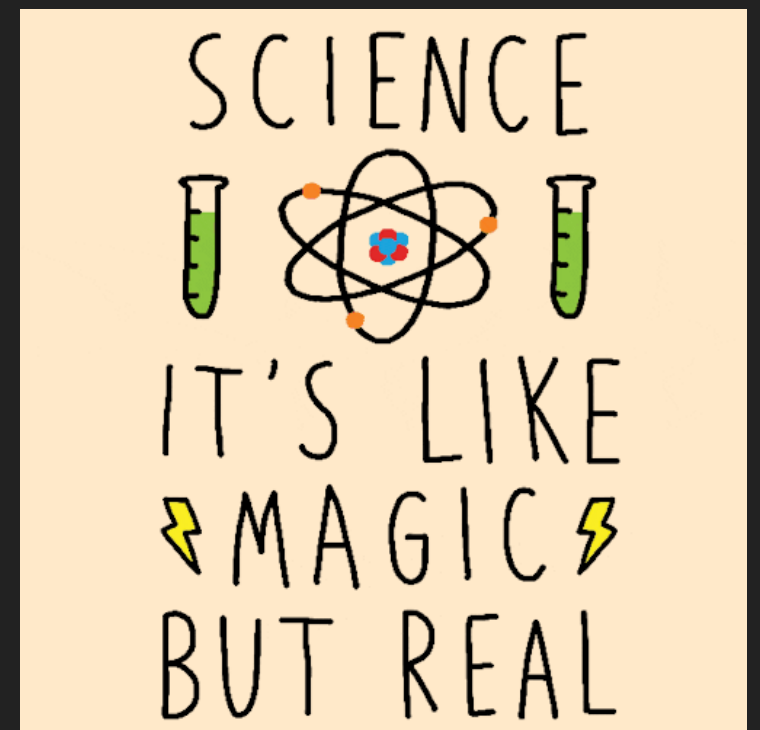
When you have a bunch of sound sources that are producing the same sound, but from different locations, things can start to sound “echoey.” The sound is arriving at different times. You will get the closest sound first, followed by the rest at different arrival times. This can produce the effect of the sound feeling too “reverberant” or “echoey” or “slappy.”

We add Delay Time to our system in order to manage all those different sound arrival times.

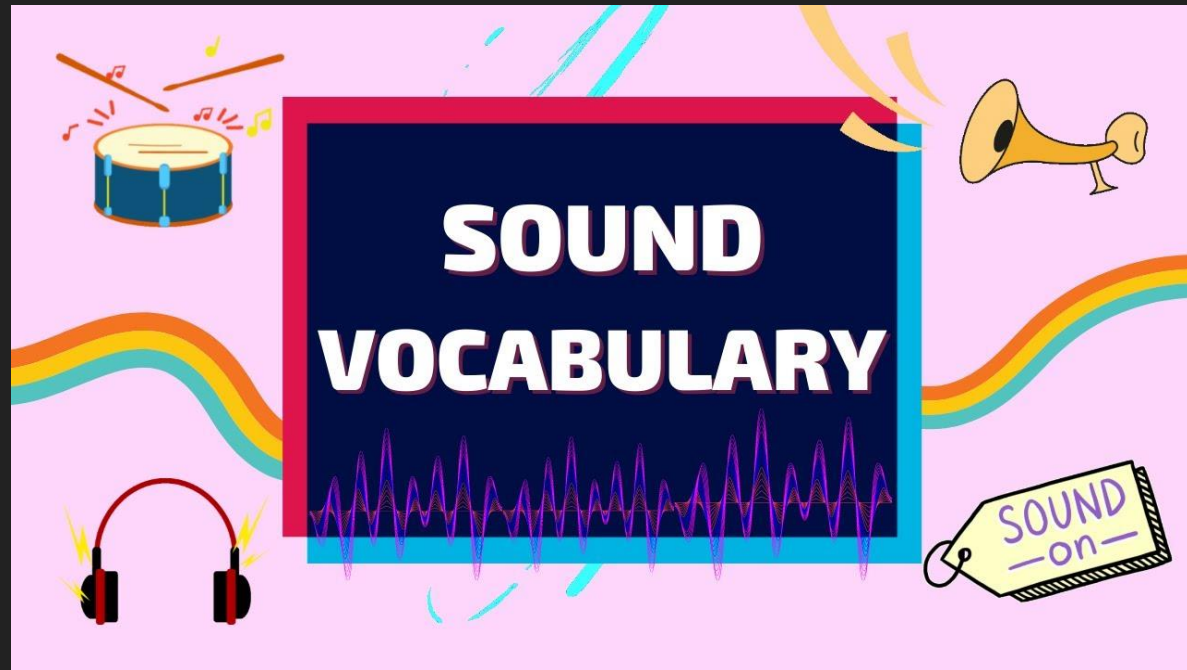


THE HAAS EFFECT OR PRECEDENCE EFFECT

- ▶ In 1951 – Helmut Haas published his findings that “humans localize sound sources in the direction of the first arriving sound despite the presence of a single reflection from a different direction, and that in such cases only a single auditory event is perceived.” - That’s a wikipedia quote
- ▶ Further Wikipedia Quote: “A single reflection arriving at a delay of between 5 and 30 ms can be up to 10 dB louder than the direct sound without being perceived as a secondary auditory event (i.e. it does not sound like an echo).”
- ▶ https://en.wikipedia.org/wiki/Precedence_effect



NEW VOCAB WORD: IMAGING



Imaging:

Where we feel like the sound is coming from

Are we “imaging” towards a certain speaker?

Are we “imaging” to the actor singing?”

Humans will image to the closest sound source.
The sound feels like it’s coming from First Arrival.

Through manipulation of delay times, we can choose the First Arrival.

WHAT ABOUT SECOND ARRIVAL?

We will image to first arrival.

Second arrival needs to come within the window of 5ms-30ms later.

If second arrival comes 5ms after first arrival,
the two sound sources will blend.

Second Arrival can be about 10dB louder than first arrival and we will still feel
like all of the sound is coming from first arrival.

WHAT ABOUT SECOND ARRIVAL?

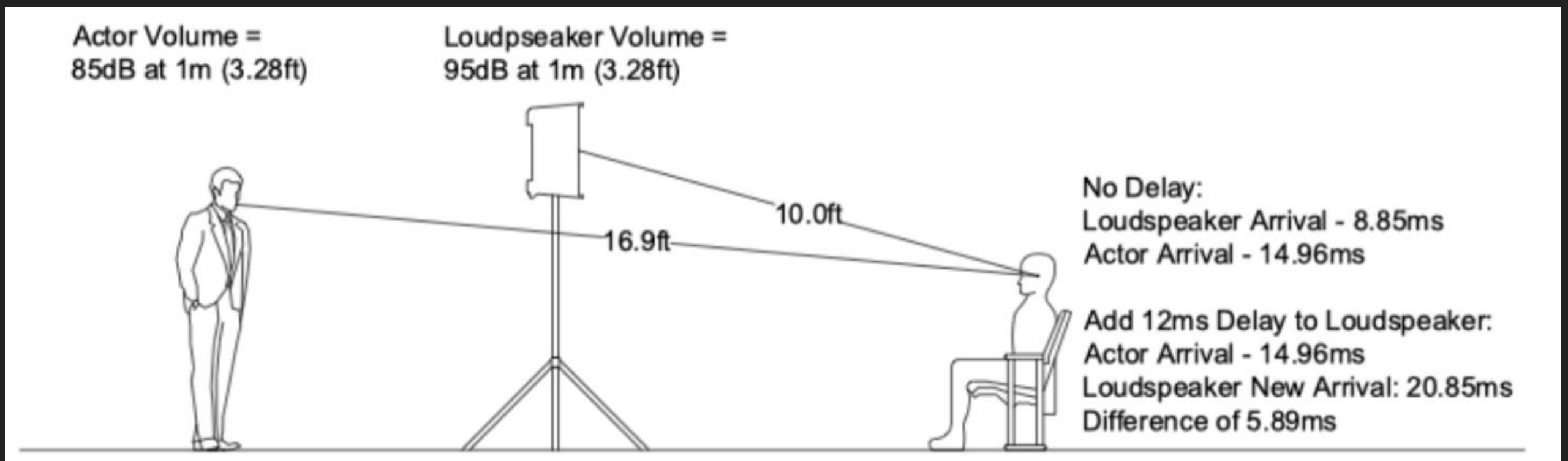
Example: Actor is First Arrival. Loudspeaker is Second Arrival.

An actor sings at 85dB.

We amplify their voice in one loudspeaker to 95dB and delay that loudspeaker to arrive 5ms after.

The audience will perceive the sound as coming from the human, AND receive the benefit of amplification.

I call this the Harry Potter Effect!!



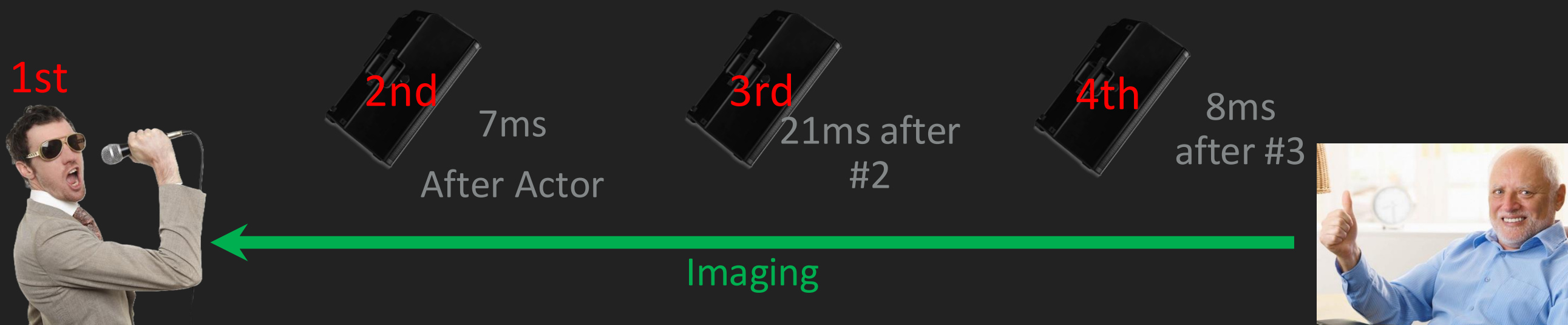
THIS EFFECT STACKS TO MULTIPLE ARRIVALS

As long as third arrival comes 5ms-30ms behind second arrival, you will still image to first arrival and add an additional 10dB.

Fourth arrival can come 5ms-30ms behind third arrival and you will still image to first arrival, and so on.

You can keep stacking systems if you have a really long venue.

The goal then becomes: Actor is First Arrival and everything else comes 5ms-30ms after in a chain.



DELAYS IN A MUSICAL ARE IMPORTANT!



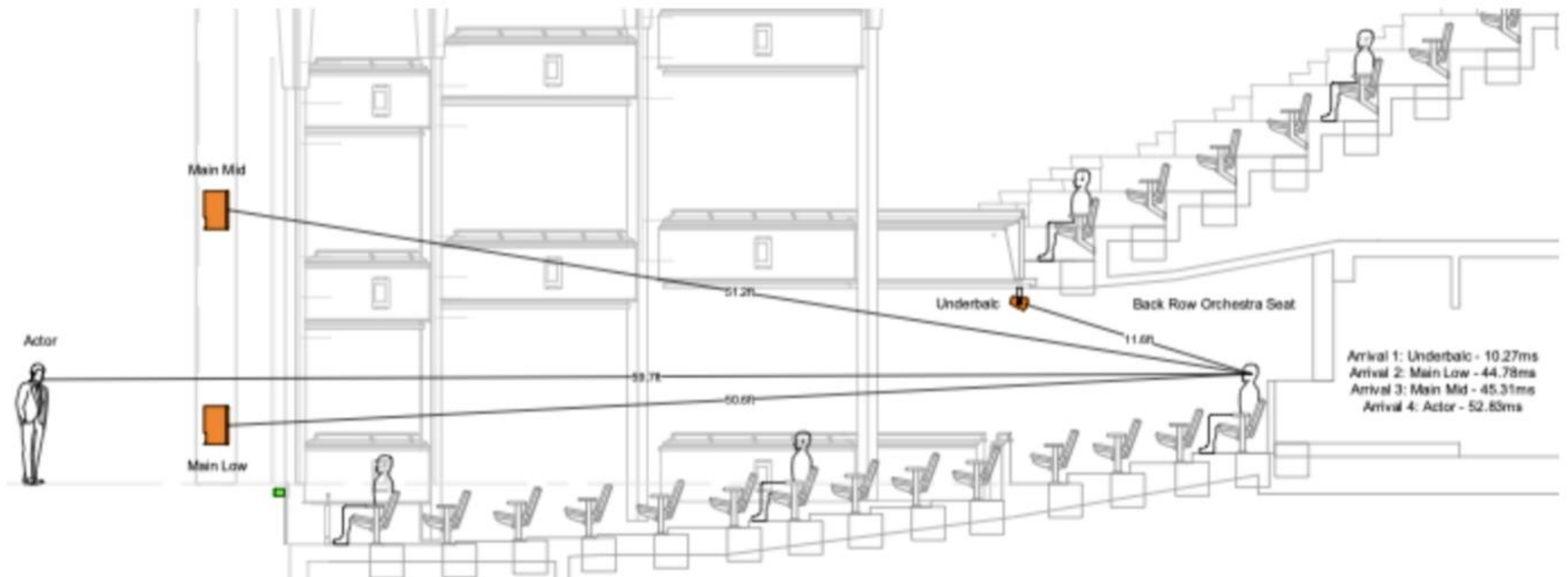
When amplifying vocals, the delay timing can make a big difference in quality of audience experience.

Our overall delay goals:

- 1) Eliminate “slap” and weird sounding reflections
- 2) Image the sound to the live actors. The show should happen on stage, not from the catwalks over your head.

GOING BACK TO OUR EXAMPLE FROM GOODMAN

If Actor wants to be first arrival, we need to delay the Mains behind the Actor and the Underbale behind the Mains.



DELAY MATH FOR THE LAST ROW SEAT:

Without Delays:

Underbalc: 10.27ms

Main Low: 44.78ms

Main Mid: 45.31ms

Actor: 52.83

Adding Delay:

+54ms = 64.27ms

+14ms = 57.78ms

+13ms = 58.31ms

+0ms = 52.83

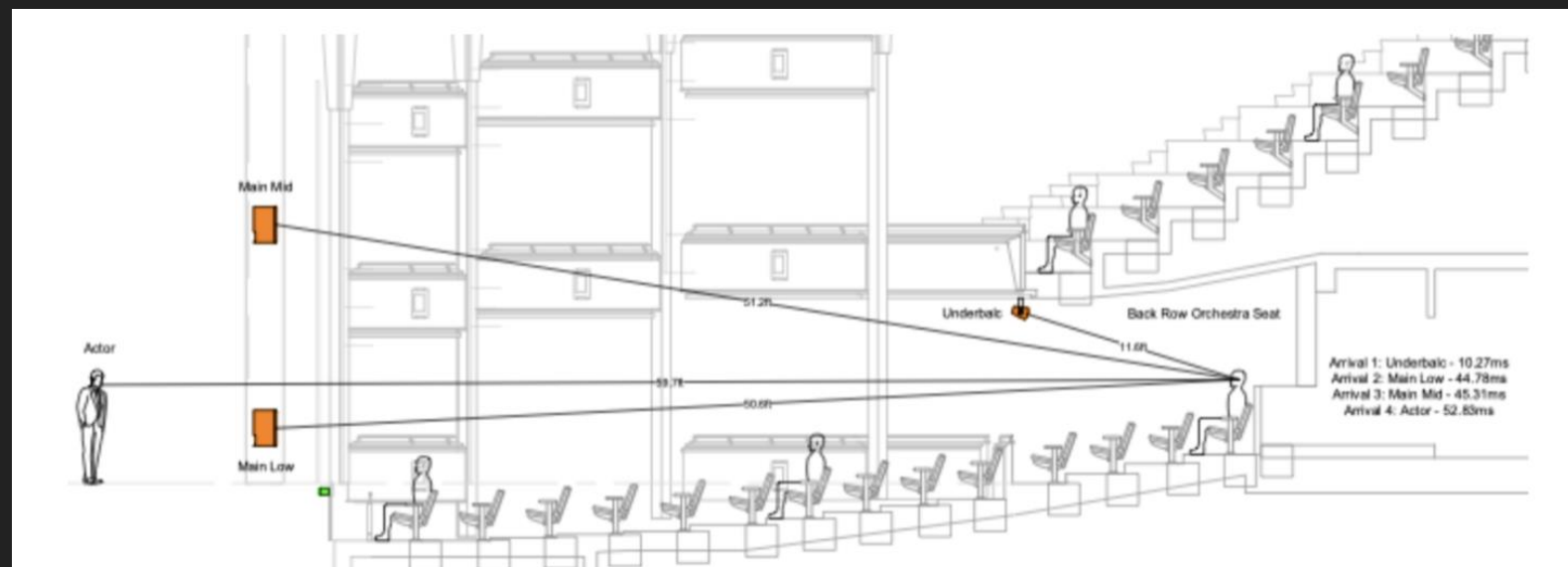
Adjusted Arrivals:

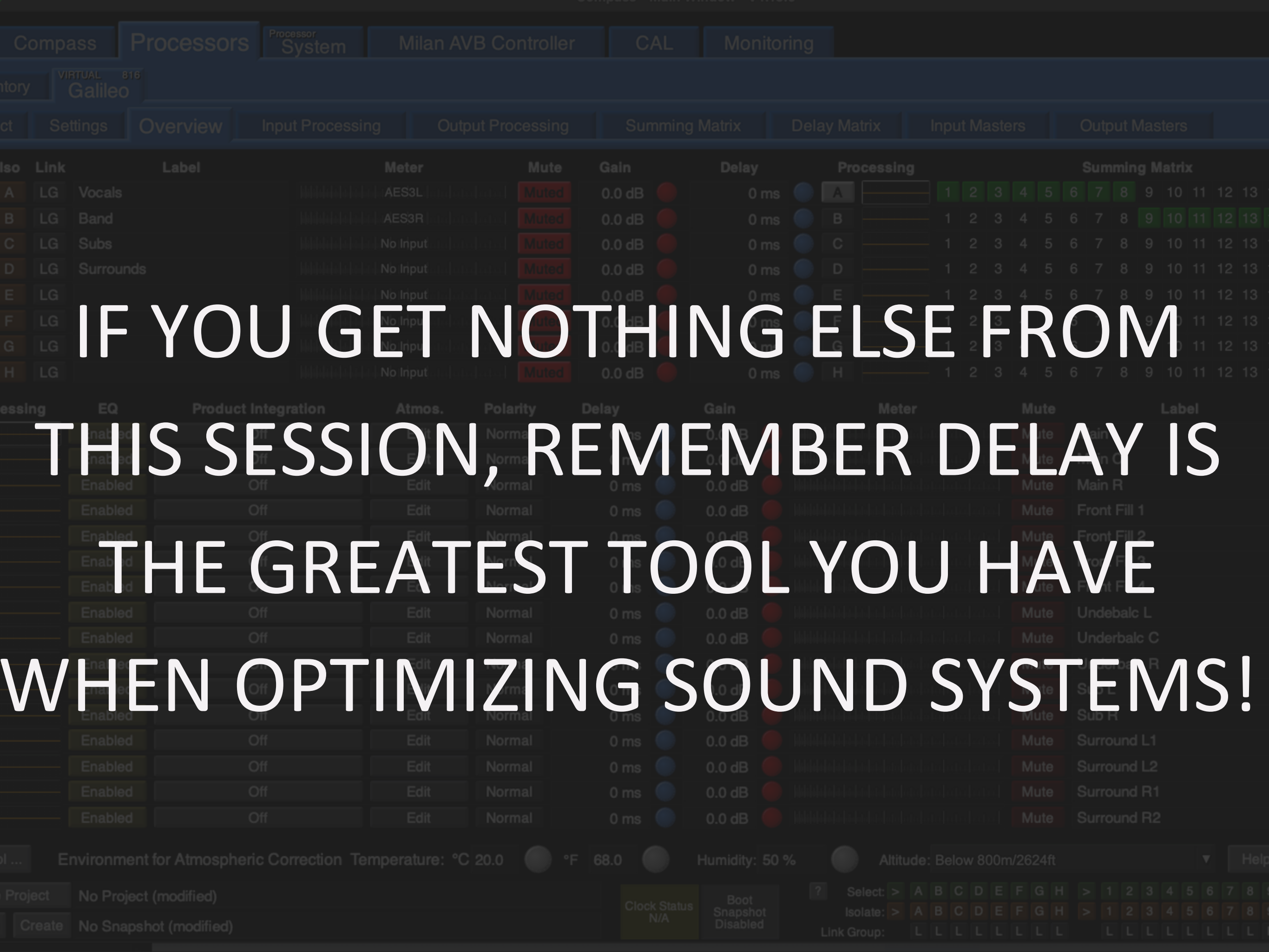
1: Actors

2: Main Low 5.9ms after actor

3: Main Mid 5.48ms after actor

4: Underbalcs 5.49ms after Main
5.96ms after
Main Mid Low





IF YOU GET NOTHING ELSE FROM
THIS SESSION, REMEMBER DELAY IS
THE GREATEST TOOL YOU HAVE
WHEN OPTIMIZING SOUND SYSTEMS!

THAT WAS A LOT OF MATH AND
INFO!!

ANY QUESTIONS THUS FAR?

LET'S GET DOWN TO THE NUTS AND BOLTS!

These are the steps I take to tune a system!

I use SMAART and Meyer Galaxy (if I'm lucky) or

Meyer Galileo (cause you know theatre!)

I PERSONALLY FALL ASLEEP IF I AM
NOT INVOLVED IN A LECTURE SO, I
AM GOING TO RANDOMLY PICK
SOUND PEOPLE TO HELP ME!!

GET READY!!

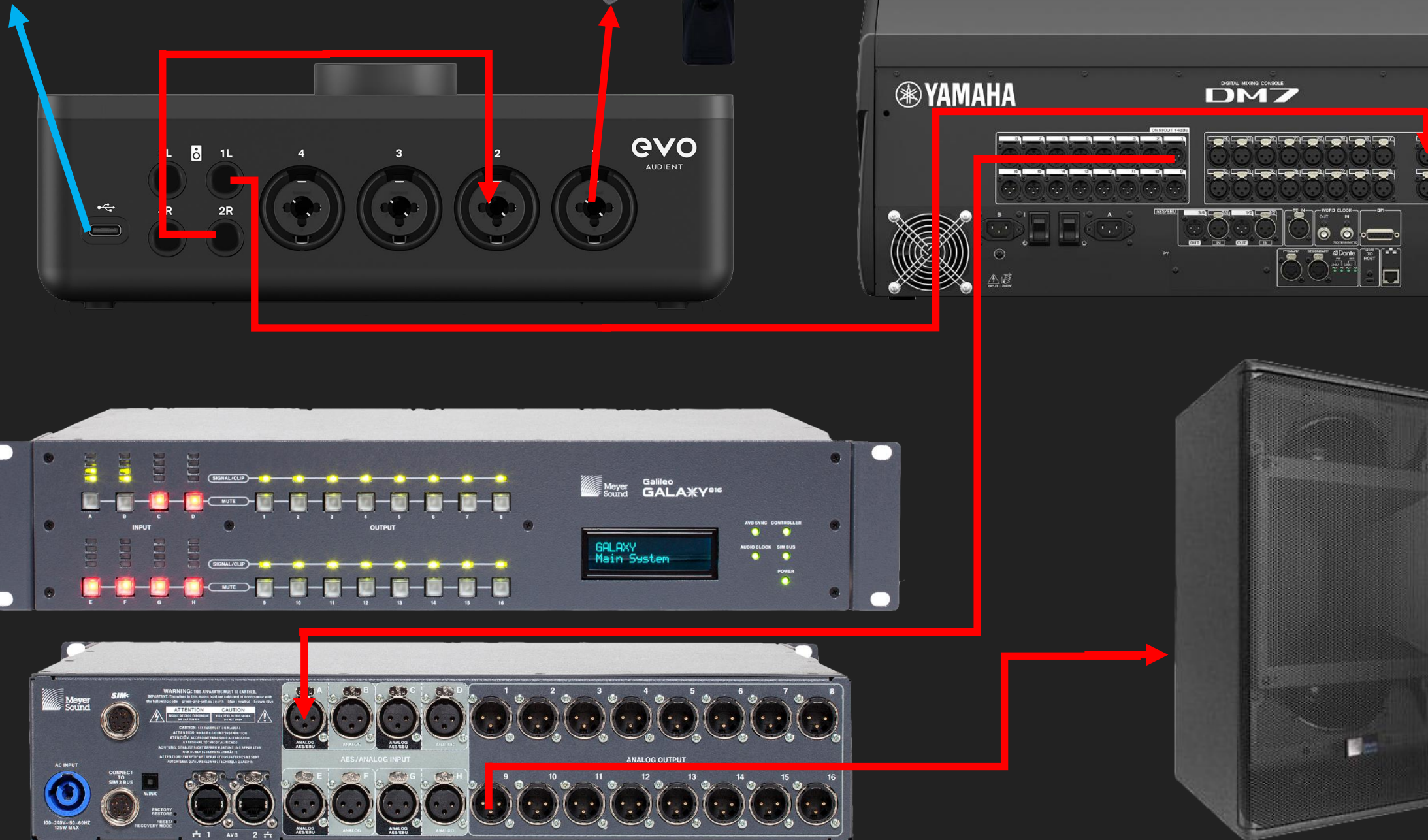
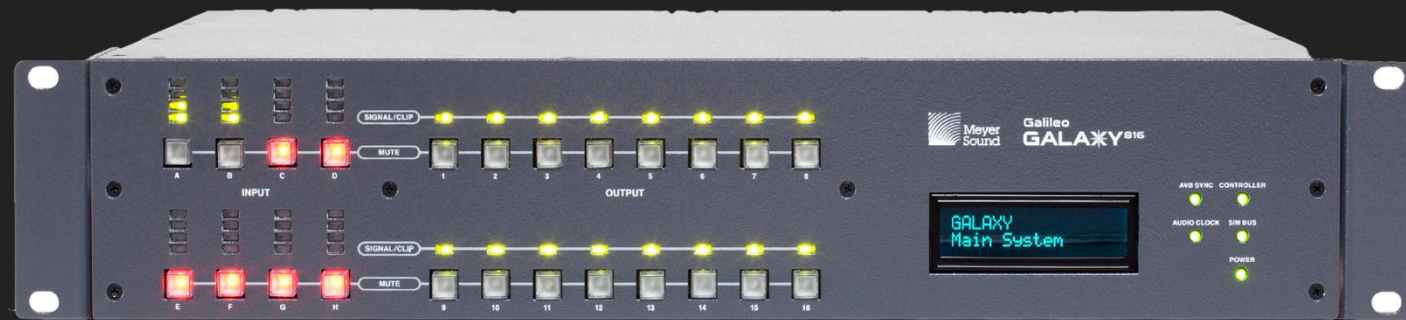
STEP 1: SETUP TUNING RIG

LIST OF ITEMS

- ▶ Audio interface
 - ▶ At least 2 ins and 2 outs
- ▶ A measurement mic.
 - ▶ I sprung for the Earth Works mic, but any cheaper measurement mic is 1000% fine!!
- ▶ SMAART Software.
 - ▶ This is a personal preference, there are other softwares that are open source, but I have always used SMAART.
- ▶ 2 long XLR cables
- ▶ Depending on your interface, 2 XLR male to TRS male adapters cabled.

STEP 2: SETUP TUNING RIG

PLUGGING IT ALL IN!



SETUP A REFERENCE SPEAKER THAT
WILL REPRESENT YOUR “ACTOR”
THIS WILL NOT BE USED THE SHOW,
BUT EMULATES OUR ZERO POINT.

STEP 3: CONNECTING TO COMPASS

MAKE SURE YOU ARE ON THE SAME NETWORK AS YOUR GALAXY.

USUALLY LABELED SOMETHING LIKE
CONTROL NETWORK

IF IT IS CORRECT, THE GALAXY SHOULD
AUTOMATICALLY CONNECT.

Click Here to see them.

Compass - Main Window - v4.16.0



Compass

Processors

Processor System

Milan AVB Controller

CAL

Monitoring

Compass Preferences

CAL Preferences

GALAXY Preferences

Monitoring Preferences

Help

Reset To Defaults

☐ Is Full Screen

About Compass

Compass EULA

What's New

Tech Support

Exit Compass

Show Processors Tab

Show System Tab

Show Control Groups Tab

Show Control Pages Tab

Show CAL Tab

Show Monitoring Tab

Default Tab on Startup:

☒ Compass

☐ Processors

☐ Monitoring

☐ CAL

☐ Last Used

User Interface Scale:

100% (1280x960)

▼

Plotter Control Handle Scale:

100%

▼

Value Controller Type:

☒ Encoder (default)

☐ Joystick

Encoder/Fader Scroll Wheel Mode:

☐ Scroll Wheel is Inactive

☒ Fine Precision (0.1dB per click) (default)

☐ Coarse Precision (1.0dB per click) (fine precision will still be available for encoders)

Color Mode:

☒ Night (default)

☐ Day

Maximum Levels of Undo/Redo:

1000

☐

Clear Undo History

☒ Typed in Decibel (dB) Values Default to Negative (default)

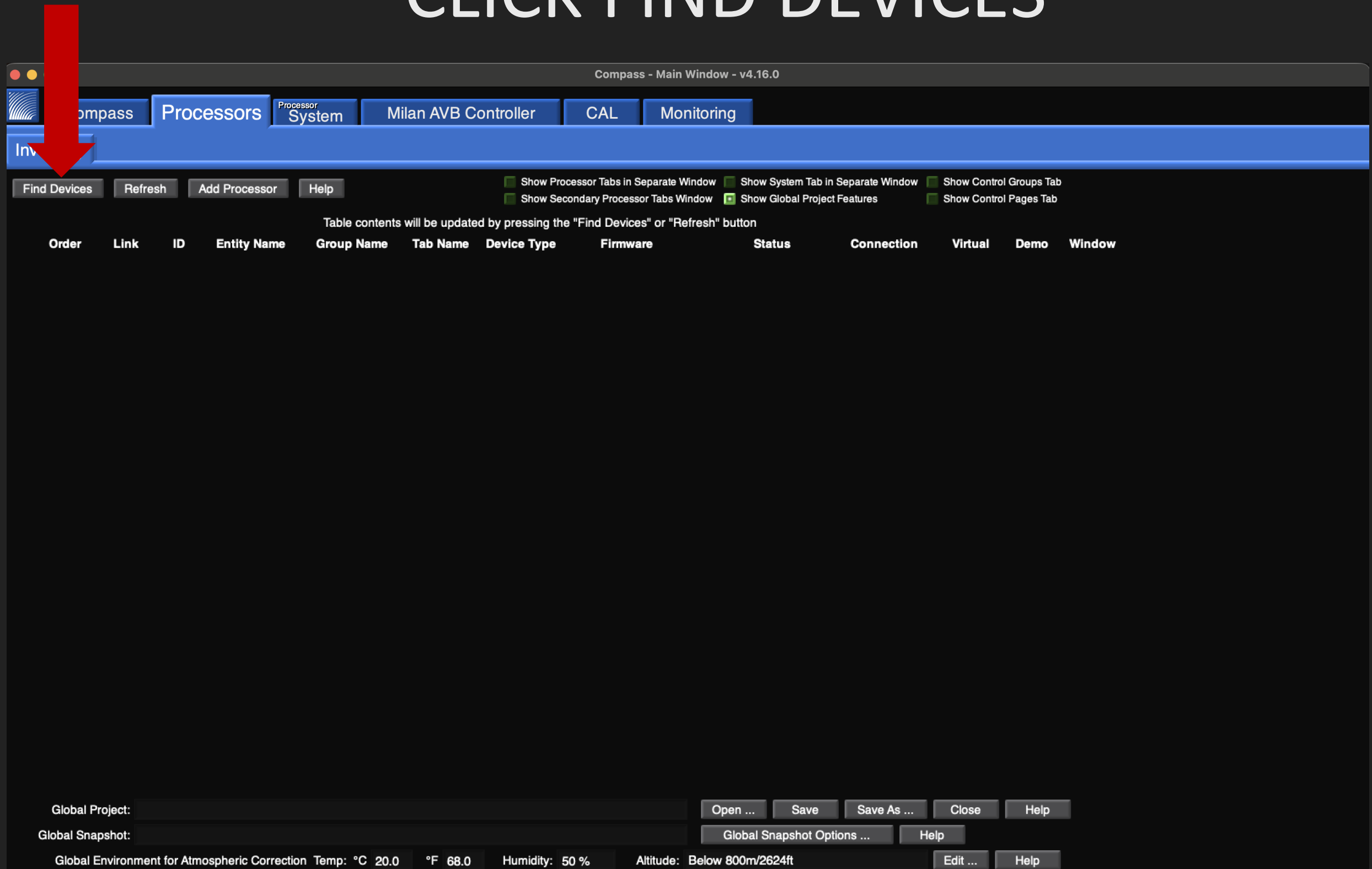
☒ Disable Keyboard Control of Mute Buttons (default)

☐ ESC Key Removes Cursor Focus In Text Fields

☒ Select All Text When Entering Text Field (default)

☒ Re-select All Text After Editing a Text Field (default)

IF IT DOES NOT POP UP, CLICK FIND DEVICES



CONNECT

Compass - Main Window - v4.16.0

Compass Processors Processor System Milan AVB Controller CAL Monitoring

Inventory GALAXY 816 FOH GALAXY 408 STAGE LEFT GALAXY 408 STAGE RIGHT

Find Devices Refresh Add Processor Help

☐ Show Processor Tabs in Separate Window ☐ Show System Tab in Separate Window ☐ Show Control Groups Tab
☐ Show Secondary Processor Tabs Window ☒ Show Global Project Features ☐ Show Control Pages Tab

Table contents will be updated by pressing the "Find Devices" or "Refresh" button

Order	Link	ID	Entity Name	Group Name	Tab Name	Device Type	Firmware	Status	Connection	Virtual	Demo	Window		
X	▼	Select	1 ▼	FOH	FOH	FOH	816	2.10.0-20260211-1241	Available	Connect	Use Virtual	None	1 2 Sys	
X	▲	▼	Select	1 ▼	STAGE LEFT	LEFT	STAGE LEFT	408	2.10.0-20260211-1241	Available	Connect	Use Virtual	None	1 2 Sys
X	▲	Select	1 ▼	STAGE RIGHT	RIGHT	STAGE RIGHT	408	2.10.0-20260211-1241	Available	Connect	Use Virtual	None	1 2 Sys	

Global Project: Open ...

Global Snapshot: Pre TSDCA Screen Captures Global Snapshot Options ...

Global Environment for Atmospheric Correction Temp: °C 20.0 °F 68.0 Humidity: 50 % Altitude: Below 800m/2624ft

Compass - Main Window - v4.16.0

Compass Processors Processor System Milan AVB Controller CAL Monitoring

Inventory GALAXY 816 FOH GALAXY 408 STAGE LEFT GALAXY 408 STAGE RIGHT

Find Devices Refresh Add Processor Help

☐ Show Processor Tabs in Separate Window ☐ Show System Tab in Separate Window ☐ Show Control Groups Tab
☐ Show Secondary Processor Tabs Window ☒ Show Global Project Features ☐ Show Control Pages Tab

Table contents will be updated by pressing the "Find Devices" or "Refresh" button

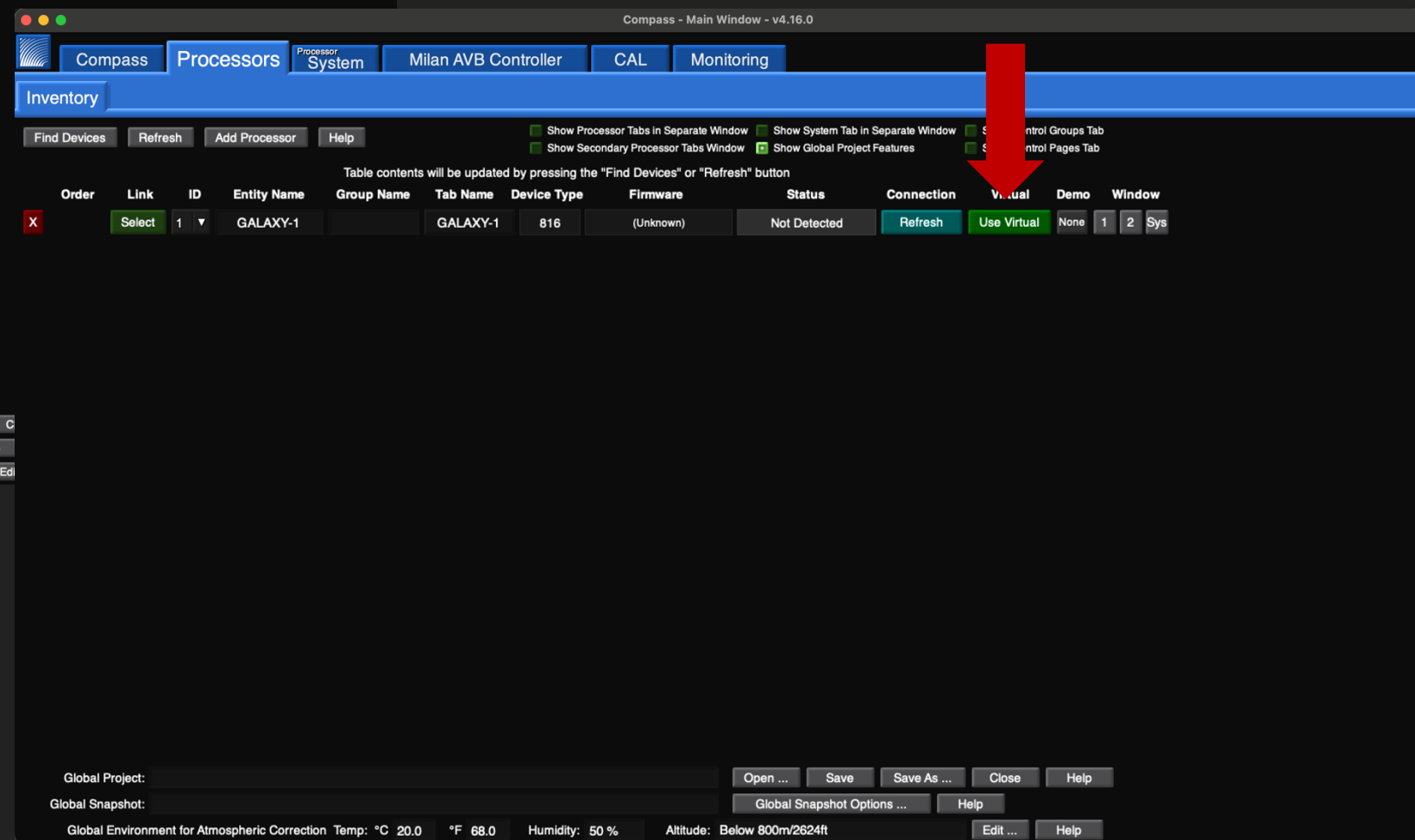
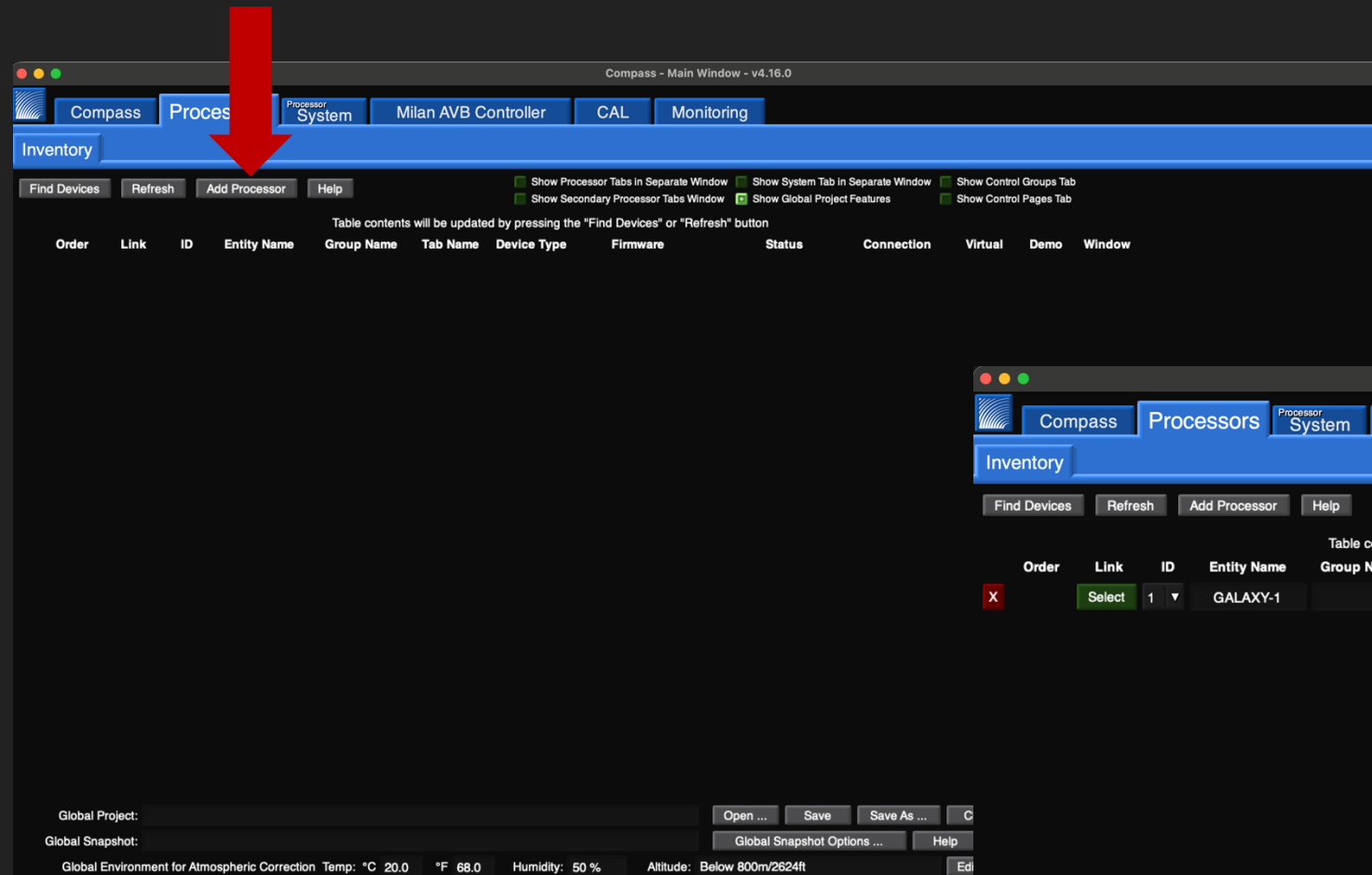
Order	Link	ID	Entity Name	Group Name	Tab Name	Device Type	Firmware	Status	Connection	Virtual	Demo	Window
▼	Select	1 ▼	FOH	FOH	FOH	816	2.10.0-20260211-1241	Connected (Port 25003)	Disconnect			1 2 Sys
▲	▼	Select	1 ▼	STAGE LEFT	LEFT	STAGE LEFT	408	2.10.0-20260211-1241	Connected (Port 25003)	Disconnect		1 2 Sys
▲	Select	1 ▼	STAGE RIGHT	RIGHT	STAGE RIGHT	408	2.10.0-20260211-1241	Connected (Port 25003)	Disconnect			1 2 Sys

Global Project: Open ... Save Save As ... Close Help

Global Snapshot: Pre TSDCA Screen Captures Global Snapshot Options ... Help

Global Environment for Atmospheric Correction Temp: °C 20.0 °F 68.0 Humidity: 50 % Altitude: Below 800m/2624ft Edit ... Help

IF YOU DON'T HAVE HARDWARE WITH YOU, YOU CAN USE VIRTUAL MODE!!



GREAT FOR PRE-PRODUCTION WORK

TAB STRUCTURE

TELLS WHAT DEVICES ARE USED

The screenshot displays the Compass software interface, version 4.16.0. The top navigation bar includes tabs for Compass, Processors, Processor System, and Milan AVB Controller. Below this, a secondary bar shows Inventory, GALAXY FOH 816, GALAXY STAGE LEFT 408, GALAXY STAGE RIGHT 408, and VIRTUAL Virtual GXY 816. A red box highlights the top navigation bar and the secondary bar. Below the navigation bar, there are buttons for Find Devices, Refresh, Add Processor, and Help. To the right of these buttons are checkboxes for Show Processor Tabs in Separate Window, Show System Tab in Separate Window, Show Control Groups Tab, Show Secondary Processor Tabs Window, Show Global Project Features, and Show Control Pages Tab. Below the checkboxes, a message states: "Table contents will be updated by pressing the 'Find Devices' or 'Refresh' button". The main table displays the following data:

Order	Link	ID	Entity Name	Group Name	Tab Name	Device Type	Firmware	Status	Connection	Virtual	Demo	Window
▼	Select	1 ▼	FOH	FOH	FOH	816	2.10.0-20260211-1241	Connected (Port 25003)	Disconnect			1 2 Sys
▲ ▼	Select	1 ▼	STAGE LEFT	LEFT	STAGE LEFT	408	2.10.0-20260211-1241	Connected (Port 25003)	Disconnect			1 2 Sys
▲ ▼	Select	1 ▼	STAGE RIGHT	RIGHT	STAGE RIGHT	408	2.10.0-20260211-1241	Connected (Port 25003)	Disconnect			1 2 Sys
▲	Select	1 ▼	Virtual GXY		Virtual GXY	816	0-2026-02-11-r5801-94-ga7256	Connected (Port 50503)	Disconnect	VIRTUAL	None	1 2 Sys

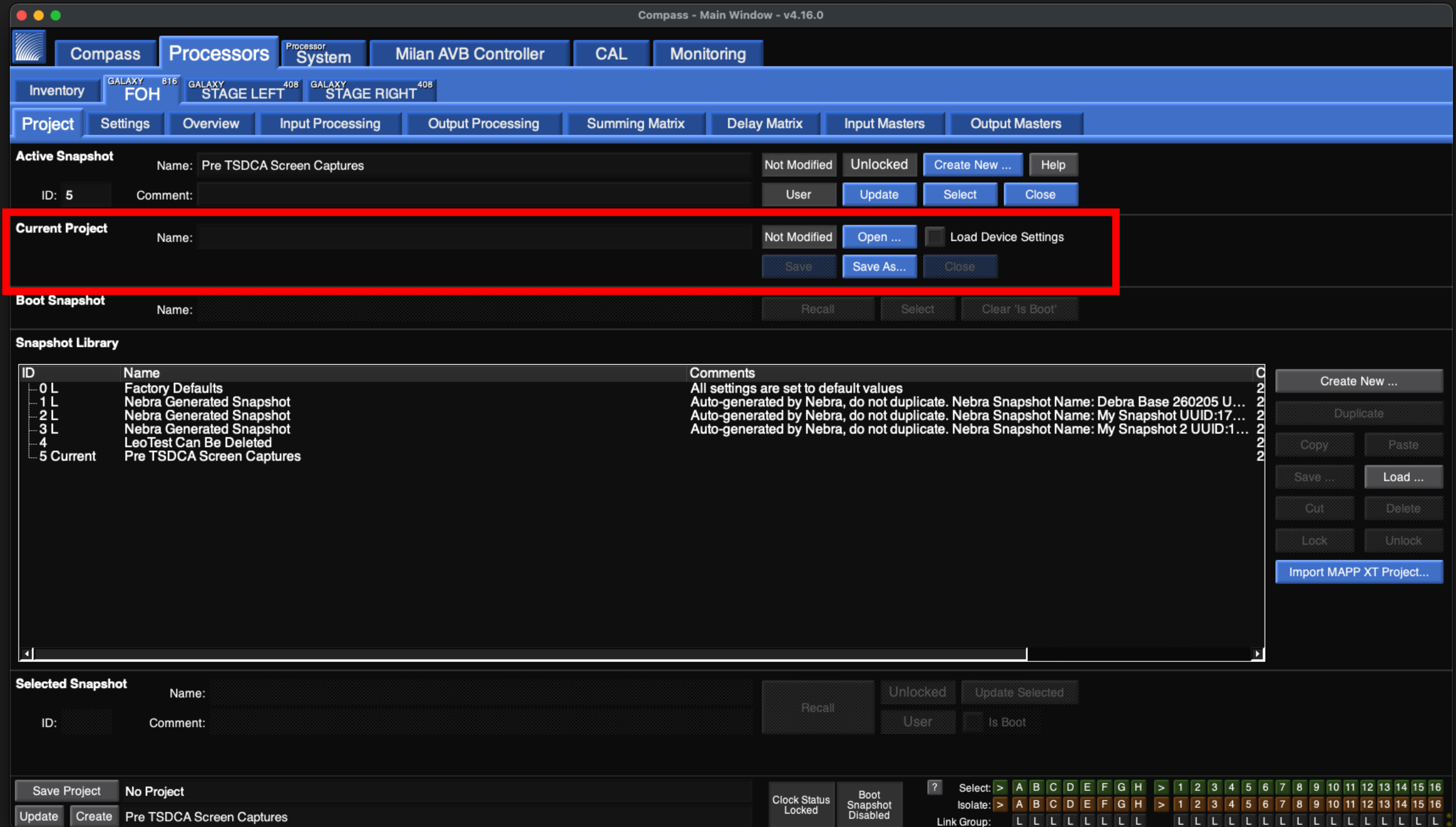
STEP 4:

BACKUP THE VENUE SETTINGS IF NEEDED
(SAVE A PROJECT)

IF YOU HAVE A PROJECT FROM PRE-
PRODUCTION – LOAD IT AND SKIP TO STEP
9

IF NOT, YOU NEED TO RESET THE SYSTEM
FOR A CLEAN SLATE

SAVE OR OPEN PROJECTS



STEP 4: RESET THE SYSTEM

TO START FROM A CLEAN SLATE,
YOU CAN:

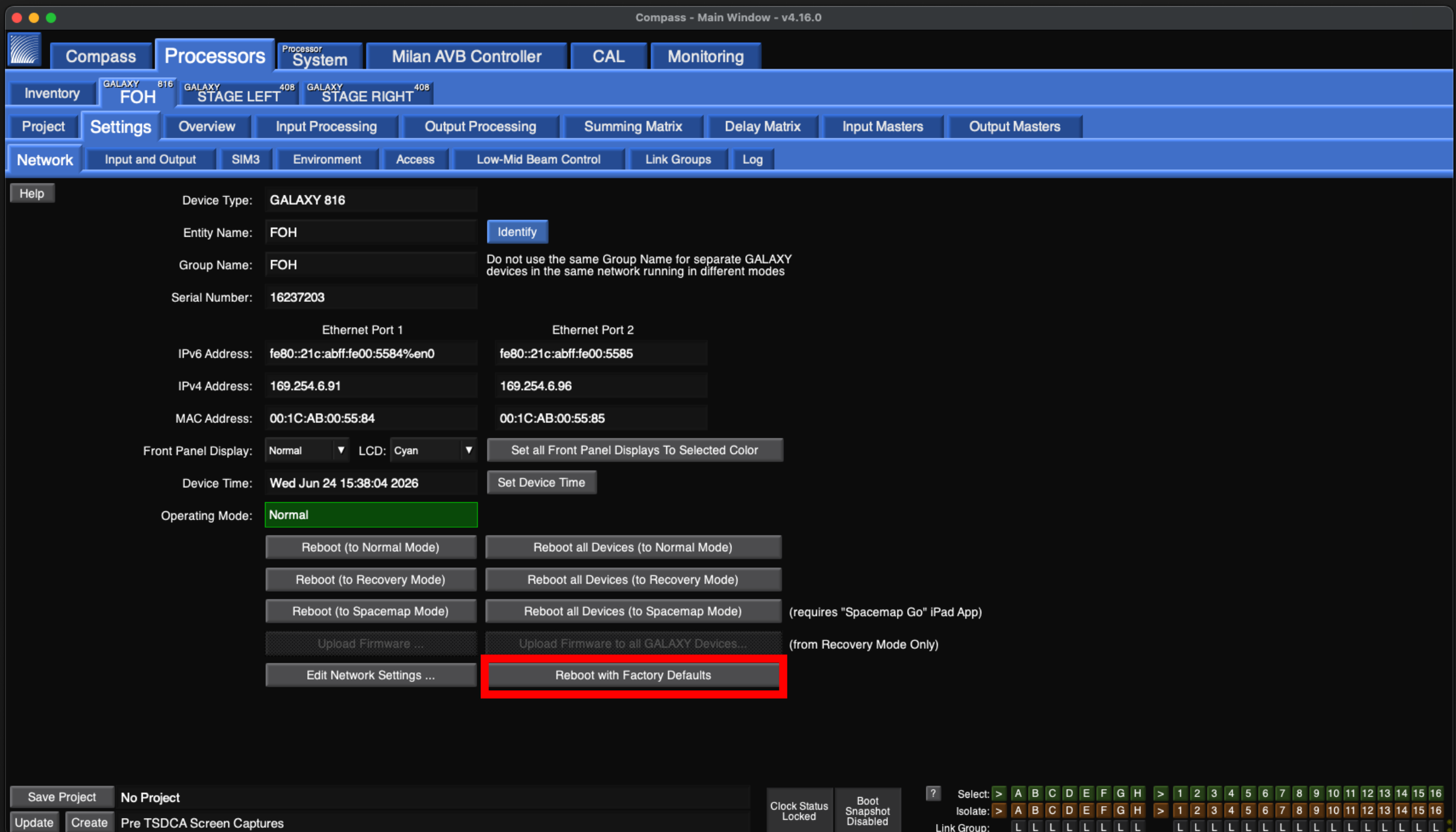
1 – REBOOT TO FACTORY DEFAULTS

(THIS WILL DELETE DEVICE SETTINGS AND ANY
SNAPSHOTS)

2 – TAKE THE FACTORY DEFAULT
SNAPSHOT

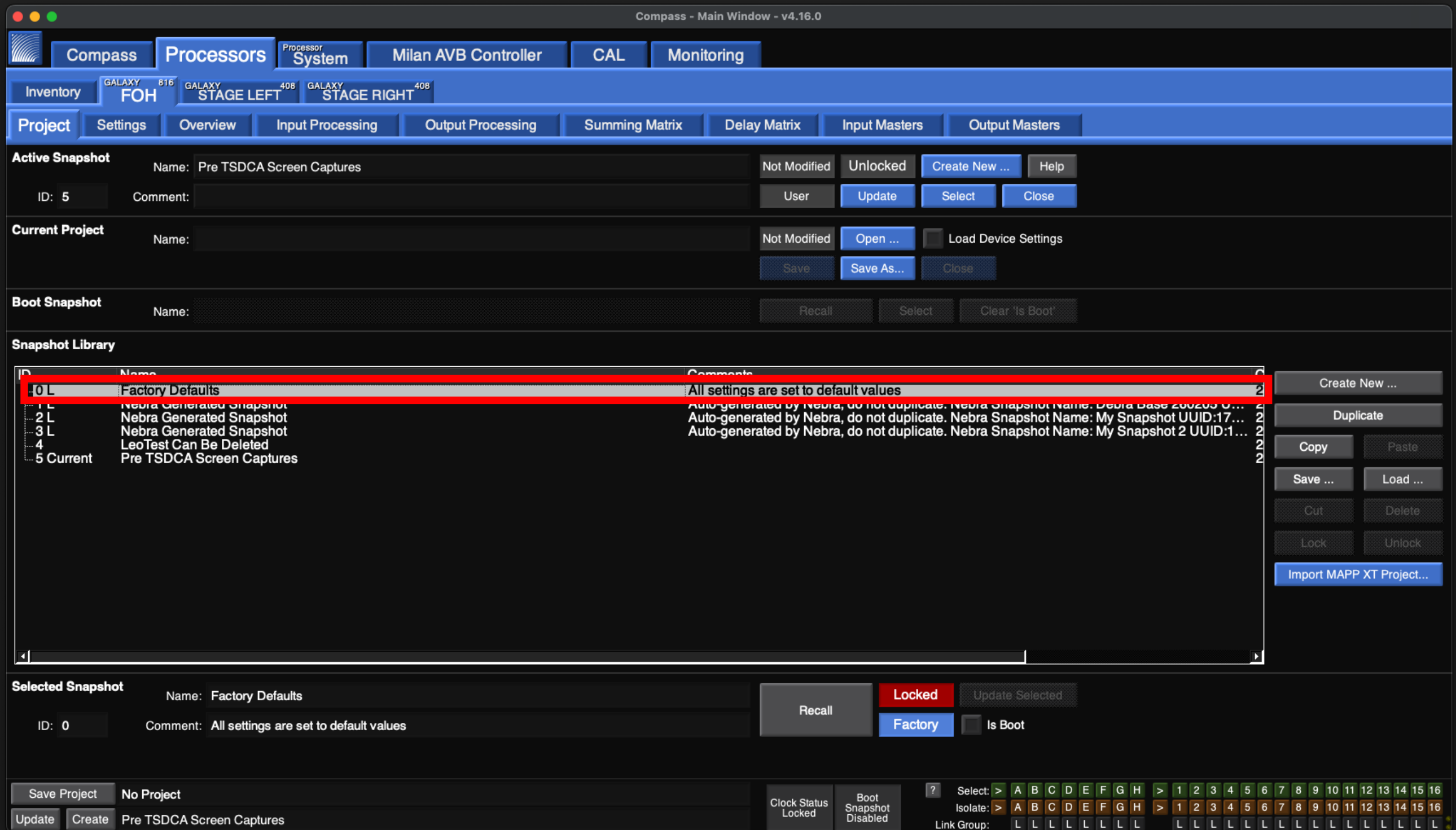
3 – RIGHT CLICK OVERVIEW TAB - RESET

OPTION 1: REBOOT TO FACTORY DEFAULTS



WILL DELETE SNAPSHOTS
AND SYSTEM SETTINGS

OPTION 2 – RECALL DEFAULT SNAPSHOT



OPTION 3 – RIGHT CLICK TRICK

The screenshot shows the Compass software interface with the 'Clipboard Options and Saved Settings' dialog box open. The dialog box contains the following text:

Clipboard Options and Saved Settings

Galileo: FOH

Setting: GALAXY Settings (FOH)

FOH [FOH]

Copy GALAXY Settings (FOH) Save Load Reset

Cancel Overview Help

A red arrow points to the 'Reset' button in the dialog box.

The background interface shows the 'Compass - Main Window - v4.16.0' with various tabs and sections. The 'Overview' tab is selected, showing a table of input processing settings. The table has columns for Sel, Iso, Link, Processing, EQ, Product Integration, Atmos., Polarity, Delay, Gain, Meter, Mute, Label, Sel, Iso, and Link. The table contains 16 rows of data, each representing a different input channel.

Sel	Iso	Link	Processing	EQ	Product Integration	Atmos.	Polarity	Delay	Gain	Meter	Mute	Label	Sel	Iso	Link
A	A	LG	Console L	Enabled	Off	Edit	Normal	0 ms	6.9 dB		Mute	FOH Left	1	1	LG
B	B	LG	Console R	Enabled	Off	Edit	Normal	0 ms	0.0 dB		Mute	FOH Right	2	2	LG
C	C	LG	Console S	Enabled	Off	Edit	Normal	0 ms	0.0 dB		Mute	FOH Subs	3	3	LG
D	D	LG	Console F	Enabled	Off	Edit	Normal	0 ms	0.0 dB		Mute		4	4	LG
E	E	LG	Input E	Enabled	Off	Edit	Normal	0 ms	0.0 dB		Mute		5	5	LG
F	F	LG	Input F	Enabled	Off	Edit	Normal	0 ms	0.0 dB		Mute		6	6	LG
G	G	LG	Input G	Enabled	Off	Edit	Normal	0 ms	0.0 dB		Mute		7	7	LG
H	H	LG	Input H	Enabled	Off	Edit	Normal	0 ms	0.0 dB		Mute		8	8	LG
				Enabled	Off	Edit	Normal	0 ms	0.0 dB		Mute	FF LL	9	9	LG
				Enabled	Off	Edit	Normal	0 ms	0.0 dB		Mute	FF LC	10	10	LG
				Enabled	Off	Edit	Normal	0 ms	0.0 dB		Mute	FF RC	11	11	LG
				Enabled	Off	Edit	Normal	0 ms	0.0 dB		Mute	FF RR	12	12	LG
				Enabled	Off	Edit	Normal	0 ms	0.0 dB		Mute		13	13	LG
				Enabled	Off	Edit	Normal	0 ms	0.0 dB		Mute		14	14	LG
				Enabled	Off	Edit	Normal	0 ms	0.0 dB		Mute		15	15	LG
				Enabled	Off	Edit	Normal	0 ms	0.0 dB		Mute		16	16	LG

The bottom of the interface shows environmental controls for atmospheric correction, including Temperature (°C 20.0, °F 68.0), Humidity (50 %), and Altitude (Below 800m/2624ft). There are also buttons for 'Save Project', 'Update', 'Create', 'Pre TSDCA Screen Captures', 'Clock Status Locked', and 'Boot Snapshot Disabled'.

BLANK SLATE

Compass - Main Window - v4.16.0

Compass

Processors

Processor System

Milan AVB Controller

CAL

Monitoring

Inventory

GALAXY 816 FOH

GALAXY 408 STAGE LEFT

GALAXY 408 STAGE RIGHT

Project

Settings

Overview

Input Processing

Output Processing

Summing Matrix

Delay Matrix

Input Masters

Output Masters

Sel	Iso	Link	Label	Meter	Mute	Gain	Delay	Processing	Summing Matrix																
A	A	LG	Input A	AES3L	Muted	0.0 dB	0 ms	A		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
B	B	LG	Input B	AES3R	Muted	0.0 dB	0 ms	B		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
C	C	LG	Input C	No Input	Muted	0.0 dB	0 ms	C		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
D	D	LG	Input D	No Input	Muted	0.0 dB	0 ms	D		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
E	E	LG	Input E	No Input	Muted	0.0 dB	0 ms	E		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
F	F	LG	Input F	No Input	Muted	0.0 dB	0 ms	F		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
G	G	LG	Input G	No Input	Muted	0.0 dB	0 ms	G		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
H	H	LG	Input H	No Input	Muted	0.0 dB	0 ms	H		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16

Processing	EQ	Product Integration	Atmos.	Polarity	Delay	Gain	Meter	Mute	Label	Sel	Iso	Link
1	Enabled	Off	Edit	Normal	0 ms	0.0 dB		Mute	Output 1	1	1	LG
2	Enabled	Off	Edit	Normal	0 ms	0.0 dB		Mute	Output 2	2	2	LG
3	Enabled	Off	Edit	Normal	0 ms	0.0 dB		Mute	Output 3	3	3	LG
4	Enabled	Off	Edit	Normal	0 ms	0.0 dB		Mute	Output 4	4	4	LG
5	Enabled	Off	Edit	Normal	0 ms	0.0 dB		Mute	Output 5	5	5	LG
6	Enabled	Off	Edit	Normal	0 ms	0.0 dB		Mute	Output 6	6	6	LG
7	Enabled	Off	Edit	Normal	0 ms	0.0 dB		Mute	Output 7	7	7	LG
8	Enabled	Off	Edit	Normal	0 ms	0.0 dB		Mute	Output 8	8	8	LG
9	Enabled	Off	Edit	Normal	0 ms	0.0 dB		Mute	Output 9	9	9	LG
10	Enabled	Off	Edit	Normal	0 ms	0.0 dB		Mute	Output 10	10	10	LG
11	Enabled	Off	Edit	Normal	0 ms	0.0 dB		Mute	Output 11	11	11	LG
12	Enabled	Off	Edit	Normal	0 ms	0.0 dB		Mute	Output 12	12	12	LG
13	Enabled	Off	Edit	Normal	0 ms	0.0 dB		Mute	Output 13	13	13	LG
14	Enabled	Off	Edit	Normal	0 ms	0.0 dB		Mute	Output 14	14	14	LG
15	Enabled	Off	Edit	Normal	0 ms	0.0 dB		Mute	Output 15	15	15	LG
16	Enabled	Off	Edit	Normal	0 ms	0.0 dB		Mute	Output 16	16	16	LG

Control ...

Environment for Atmospheric Correction

Temperature: °C 20.0 °F 68.0

Humidity: 50 %

Altitude: Below 800m/2624ft

Help

Save Project

No Project (modified)

Update

Create

Pre TSDCA Screen Captures (modified)

Clock Status Locked

Boot Snapshot Disabled

? Select: > A B C D E F G H > 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16

Isolate: > A B C D E F G H > 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16

Link Group: L L L L L L L L L L L L L L L L L L

STEP 5: NAMING INS AND OUTS

NAME YOUR INPUTS!

THERE ARE TWO SCHOOLS OF THOUGHT!

1 – GROUP BY PURPOSE

2 - GROUP BY SPEAKER LOCATIONS

I AM SURE THERE ARE MANY MORE...REFER
TO MY DISCLAIMER

STEP 5: NAME ALL INS AND OUTS!

Compass

Processors

Processor System

Milan AVB Controller

CAL

Monitoring

Inventory

GALAXY 816

FOH

Project

Settings

Overview

Input Processing

Output Processing

Summing Matrix

Delay Matrix

Input Masters

Output Masters

Sel	Iso	Link	Label	Meter	Mute	Gain	Delay	Processing	Summing Matrix
A	A	LG	Main L	AES3L	Muted	0.0 dB	0 ms	A	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
B	B	LG	Main R	AES3R	Muted	0.0 dB	0 ms	B	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
C	C	LG	Center Cluster	No Input	Muted	0.0 dB	0 ms	C	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
D	D	LG	FF	No Input	Muted	0.0 dB	0 ms	D	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
E	E	LG	Delay	No Input	Muted	0.0 dB	0 ms	E	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
F	F	LG	Subs	No Input	Muted	0.0 dB	0 ms	F	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
G	G	LG		No Input	Muted	0.0 dB	0 ms	G	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
H	H	LG		No Input	Muted	0.0 dB	0 ms	H	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16

Processing	EQ	Product Integration	Atmos.	Polarity	Delay	Gain	Meter	Mute	Label	Sel	Iso	Link
1	Enabled	Off	Edit	Normal	0 ms	0.0 dB		Mute	Main L Up	1	1	LG
2	Enabled	Off	Edit	Normal	0 ms	0.0 dB		Mute	Main L Down	2	2	LG
3	Enabled	Off	Edit	Normal	0 ms	0.0 dB		Mute	Main R Up	3	3	LG
4	Enabled	Off	Edit	Normal	0 ms	0.0 dB		Mute	Main R Down	4	4	LG
5	Enabled	Off	Edit	Normal	0 ms	0.0 dB		Mute	Center Cluster	5	5	LG
6	Enabled	Off	Edit	Normal	0 ms	0.0 dB		Mute	FF In	6	6	LG
7	Enabled	Off	Edit	Normal	0 ms	0.0 dB		Mute	FF Out	7	7	LG
8	Enabled	Off	Edit	Normal	0 ms	0.0 dB		Mute	Mid Delay	8	8	LG
9	Enabled	Off	Edit	Normal	0 ms	0.0 dB		Mute	Rear Delays	9	9	LG
10	Enabled	Off	Edit	Normal	0 ms	0.0 dB		Mute		10	10	LG
11	Enabled	Off	Edit	Normal	0 ms	0.0 dB		Mute	Subs Forward	11	11	LG
12	Enabled	Off	Edit	Normal	0 ms	0.0 dB		Mute	Subs Rear	12	12	LG
13	Enabled	Off	Edit	Normal	0 ms	0.0 dB		Mute		13	13	LG
14	Enabled	Off	Edit	Normal	0 ms	0.0 dB		Mute		14	14	LG
15	Enabled	Off	Edit	Normal	0 ms	0.0 dB		Mute		15	15	LG
16	Enabled	Off	Edit	Normal	0 ms	0.0 dB		Mute		16	16	LG

Control ...

Environment for Atmospheric Correction

Temperature: °C 20.0 °F 68.0 Humidity: 50 % Altitude: Below 800m/2624ft

Help

Save Project

No Project (modified)

Update

Create

No Snapshot (modified)

Clock Status Locked

Boot Snapshot Disabled

Select: >

A B C D E F G H

Isolate: >

A B C D E F G H

Link Group: L L L L L L L L

>

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16

>

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16

L L L L L L L L L L L L L L L L

Compass

Processors

Processor System

Milan AVB Controller

CAL

Monitoring

Inventory

FOH

Project

Settings

Overview

Input Processing

Output Processing

Summing Matrix

Delay Matrix

Input Masters

Output Masters

Network

Input and Output

SIM3

Environment

Access

Low-Mid Beam Control

Link Groups

Log

Help

AVB Control Mode: Internal Controller

Channel Selection for: Inputs

A Analog

B Analog

C Analog

D No Input

E No Input

F No Input

G No Input

H No Input

Enable AES ASRC

Clock Status

Media Status

Input Sample Rate

Stream Info

AVB Clock Selection

CRF AVB: <No Connection Configured>

crf AVB: <No Connection Configured>

Unlocked

0

Info

System Clock

Clock Mode: Internal

Clock Status: Locked

Internal Sample Rate: 96000

AVB Talker Stream Presentation Time

Outputs 1-8 (96 kHz): 2.000 ms

Outputs 9-16 (96 kHz): 2.000 ms

SIM Outputs (96 kHz): 2.000 ms

Input Split (96 kHz): 2.000 ms

48kHz Outputs 1-8 (48 kHz): 2.000 ms

48kHz Outputs 9-16 (48 kHz): 2.000 ms

Input & Output Voltage Range

+16dBu

+26dBu

Save Project

No Project (modified)

Update

Create

No Snapshot (modified)

Clock Status Locked

Boot Snapshot Disabled

Select: > A B C D E F G H >

Isolate: > A B C D E F G H >

Link Group: L L L L L L L L

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16

L L L L L L L L L L L L L L L L

STEP 6: SET INPUT TYPES

The screenshot displays the Compass software interface, specifically the 'Processors' tab. The 'Input and Output' settings are visible, showing a list of inputs (A-H) and their corresponding output types (Analog). A red arrow points to the 'Meter' column in the 'Input and Output' table.

Input and Output Settings:

Channel Selection for:	Inputs	System Clock
A	Analog	Clock Mode: Internal
B	Analog	Clock Status: Locked
C	Analog	Internal Sample Rate: 96000
D	Analog	
E	Analog	
F	Analog	
G	Analog	
H	Analog	

AVB Clock Selection:

CRF: AVB: <No Connection Configured>
crf: AVB: <No Connection Configured>

Input and Output Table:

Sel	Iso	Link	Label	Meter	Mute	Gain	Delay	Processing	Summing Matrix
A	A	LG	Main L	Analog	Muted	0.0 dB	0 ms	A	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
B	B	LG	Main R	Analog	Muted	0.0 dB	0 ms	B	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
C	C	LG	Center Cluster	Analog	Muted	0.0 dB	0 ms	C	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
D	D	LG	FF	Analog	Muted	0.0 dB	0 ms	D	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
E	E	LG	Delay	Analog	Muted	0.0 dB	0 ms	E	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
F	F	LG	Subs	Analog	Muted	0.0 dB	0 ms	F	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
G	G	LG		Analog	Muted	0.0 dB	0 ms	G	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
H	H	LG		Analog	Muted	0.0 dB	0 ms	H	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16

Processing Table:

Processing	EQ	Product Integration	Atmos.	Polarity	Delay	Gain	Meter	Mute	Label	Sel	Iso	Link
1	Enabled	Off	Edit	Normal	0 ms	0.0 dB		Mute	Main L Up	1	1	LG
2	Enabled	Off	Edit	Normal	0 ms	0.0 dB		Mute	Main L Down	2	2	LG
3	Enabled	Off	Edit	Normal	0 ms	0.0 dB		Mute	Main R Up	3	3	LG
4	Enabled	Off	Edit	Normal	0 ms	0.0 dB		Mute	Main R Down	4	4	LG
5	Enabled	Off	Edit	Normal	0 ms	0.0 dB		Mute	Center Cluster	5	5	LG
6	Enabled	Off	Edit	Normal	0 ms	0.0 dB		Mute	FF In	6	6	LG
7	Enabled	Off	Edit	Normal	0 ms	0.0 dB		Mute	FF Out	7	7	LG
8	Enabled	Off	Edit	Normal	0 ms	0.0 dB		Mute	Mid Delay	8	8	LG
9	Enabled	Off	Edit	Normal	0 ms	0.0 dB		Mute	Rear Delays	9	9	LG
10	Enabled	Off	Edit	Normal	0 ms	0.0 dB		Mute		10	10	LG
11	Enabled	Off	Edit	Normal	0 ms	0.0 dB		Mute	Subs Forward	11	11	LG
12	Enabled	Off	Edit	Normal	0 ms	0.0 dB		Mute	Subs Rear	12	12	LG
13	Enabled	Off	Edit	Normal	0 ms	0.0 dB		Mute		13	13	LG
14	Enabled	Off	Edit	Normal	0 ms	0.0 dB		Mute		14	14	LG
15	Enabled	Off	Edit	Normal	0 ms	0.0 dB		Mute		15	15	LG
16	Enabled	Off	Edit	Normal	0 ms	0.0 dB		Mute		16	16	LG

Environment for Atmospheric Correction:

Temperature: °C 20.0 °F 68.0 Humidity: 50 % Altitude: Below 800m/2624ft

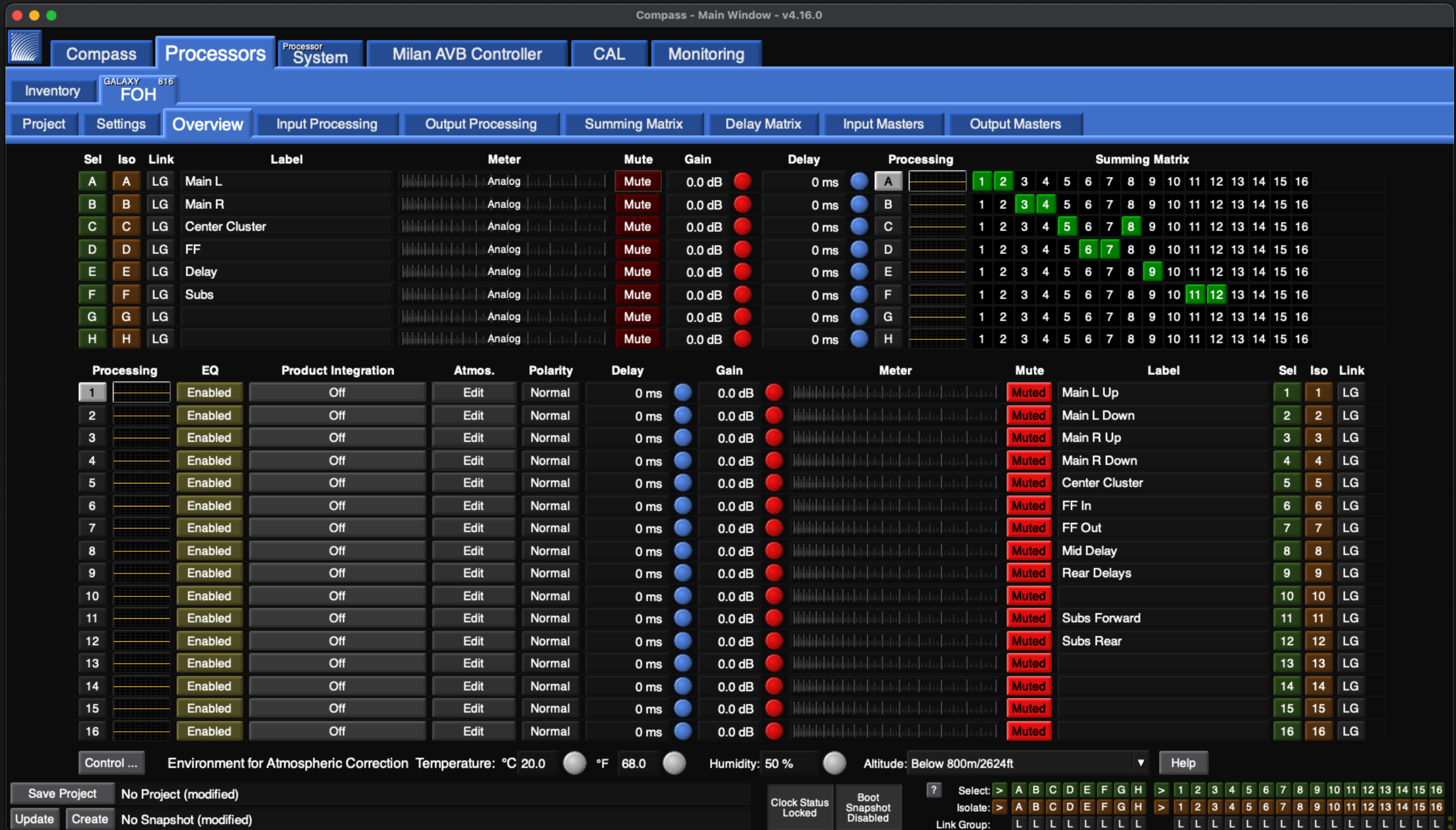
Buttons: Save Project, Update, Create, No Project (modified), No Snapshot (modified), Clock Status Locked, Boot Snapshot Disabled, Select, Isolate, Link Group.

[illegible]

STEP 7: ROUTE YOUR INS TO YOUR OUTS



STEP 7: ROUTE YOUR INS TO YOUR OUTS



STEP 8: CONFIRM SIGNAL PATH

Compass

Processors

Processor System

Milan AVB Controller

CAL

Monitoring

Inventory

GALAXY 816

FOH

Project

Settings

Overview

Input Processing

Output Processing

Summing Matrix

Delay Matrix

Input Masters

Output Masters

Sel	Iso	Link	Label	Meter	Mute	Gain	Delay	Processing	Summing Matrix
A	A	LG	Main L		Mute	0.0 dB	0 ms	A	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
B	B	LG	Main R		Mute	0.0 dB	0 ms	B	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
C	C	LG	Center Cluster		Mute	0.0 dB	0 ms	C	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
D	D	LG	FF		Mute	0.0 dB	0 ms	D	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
E	E	LG	Delay		Mute	0.0 dB	0 ms	E	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
F	F	LG	Subs		Mute	0.0 dB	0 ms	F	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
G	G	LG			Mute	0.0 dB	0 ms	G	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
H	H	LG			Mute	0.0 dB	0 ms	H	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16

Processing	EQ	Product Integration	Atmos.	Polarity	Delay	Gain	Meter	Mute	Label	Sel	Iso	Link
1	Enabled	Off	Edit	Normal	0 ms	0.0 dB		Muted	Main L Up	1	1	LG
2	Enabled	Off	Edit	Normal	0 ms	0.0 dB		Muted	Main L Down	2	2	LG
3	Enabled	Off	Edit	Normal	0 ms	0.0 dB		Muted	Main R Up	3	3	LG
4	Enabled	Off	Edit	Normal	0 ms	0.0 dB		Muted	Main R Down	4	4	LG
5	Enabled	Off	Edit	Normal	0 ms	0.0 dB		Muted	Center Cluster	5	5	LG
6	Enabled	Off	Edit	Normal	0 ms	0.0 dB		Muted	FF In	6	6	LG
7	Enabled	Off	Edit	Normal	0 ms	0.0 dB		Muted	FF Out	7	7	LG
8	Enabled	Off	Edit	Normal	0 ms	0.0 dB		Muted	Mid Delay	8	8	LG
9	Enabled	Off	Edit	Normal	0 ms	0.0 dB		Muted	Rear Delays	9	9	LG
10	Enabled	Off	Edit	Normal	0 ms	0.0 dB		Muted		10	10	LG
11	Enabled	Off	Edit	Normal	0 ms	0.0 dB		Muted	Subs Forward	11	11	LG
12	Enabled	Off	Edit	Normal	0 ms	0.0 dB		Muted	Subs Rear	12	12	LG
13	Enabled	Off	Edit	Normal	0 ms	0.0 dB		Muted		13	13	LG
14	Enabled	Off	Edit	Normal	0 ms	0.0 dB		Muted		14	14	LG
15	Enabled	Off	Edit	Normal	0 ms	0.0 dB		Muted		15	15	LG
16	Enabled	Off	Edit	Normal	0 ms	0.0 dB		Muted		16	16	LG

Control ...

Environment for Atmospheric Correction

Temperature: °C 20.0 °F 68.0 Humidity: 50 % Altitude: Below 800m/2624ft

Help

Save Project

No Project (modified)

Update

Create

No Snapshot (modified)

Clock Status Locked

Boot Snapshot Disabled

Select: > A B C D E F G H

Isolate: > A B C D E F G H

Link Group: L L L L L L L L L L L L L L L L L L

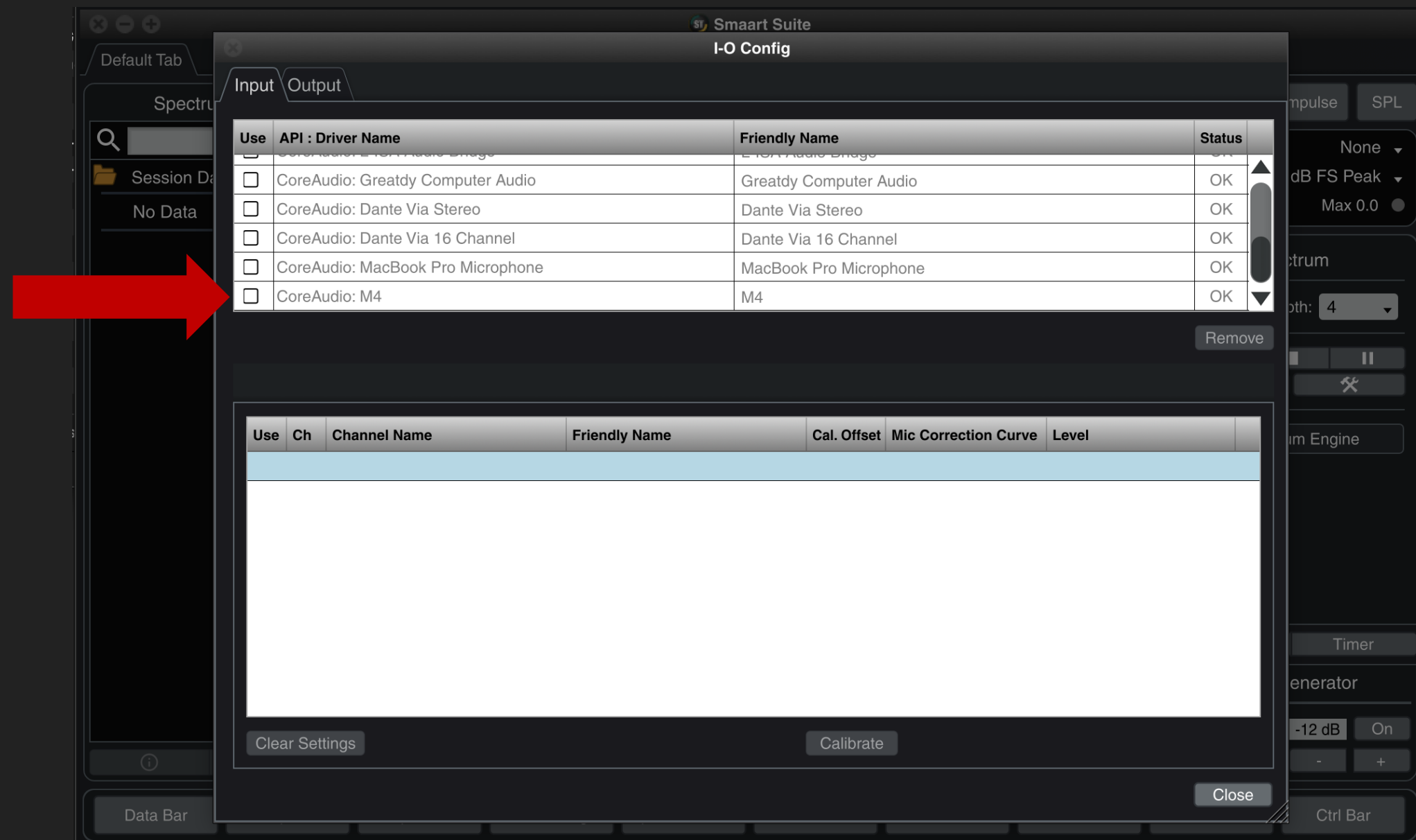
TEST THE PATH INTO THE GALAXY AND OUT TO THE LOUDSPEAKERS

MAKE SURE ANYTHING GOING
THROUGH THE GALAXY ONLY DOES
NOT HAVE DELAY OR EQ OR PHASE
FLIP ANYWHERE ELSE IN THE
SYSTEM!

THIS HAS BONED ME SEVERAL
TIMES!!

STEP 9: SMAART SETUP

- ▶ Select audio interface for inputs



STEP 10: SMAART SETUP

- ▶ Label friendly name for input 1 and 2

I-O Config

Input Output

Use	API : Driver Name	Friendly Name	Status
☐	CoreAudio: E-107 Audio Bridge	E-107 Audio Bridge	OK
☐	CoreAudio: Greatdy Computer Audio	Greatdy Computer Audio	OK
☐	CoreAudio: Dante Via Stereo	Dante Via Stereo	OK
☐	CoreAudio: Dante Via 16 Channel	Dante Via 16 Channel	OK
☐	CoreAudio: MacBook Pro Microphone	MacBook Pro Microphone	OK
☒	CoreAudio: M4	M4	OK

Remove

M4

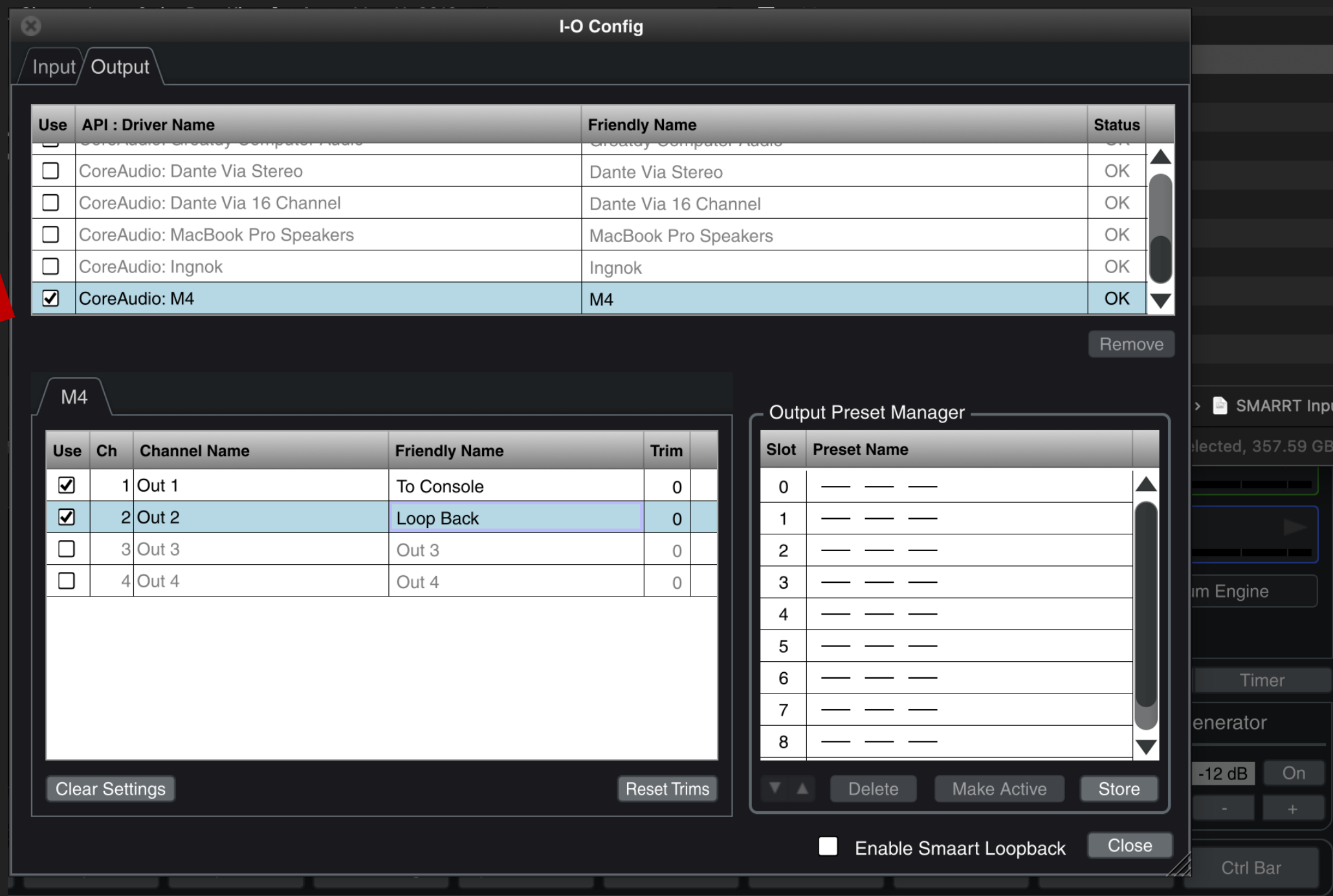
Use	Ch	Channel Name	Friendly Name	Cal. Offset	Mic Correction Curve	Level
☒	1	In 1	Mic	0.0	None	
☒	2	In 2	Reference	0.0	None	
☐	3	In 3	In 3	0.0	None	
☐	4	In 4	In 4	0.0	None	
☐	5	Loopback 1	Loopback 1	0.0	None	
☐	6	Loopback 2	Loopback 2	0.0	None	
☐	7	Loopback Mix 1	Loopback Mix 1	0.0	None	
☐	8	Loopback Mix 2	Loopback Mix 2	0.0	None	

Clear Settings Calibrate

Close

STEP 11: SMAART SETUP

- ▶ Select Audio interface for outputs



I-O Config

Input Output

Use	API : Driver Name	Friendly Name	Status
☐	CoreAudio: Creative Computer Audio	Creative Computer Audio	OK
☐	CoreAudio: Dante Via Stereo	Dante Via Stereo	OK
☐	CoreAudio: Dante Via 16 Channel	Dante Via 16 Channel	OK
☐	CoreAudio: MacBook Pro Speakers	MacBook Pro Speakers	OK
☐	CoreAudio: Ingnok	Ingnok	OK
☒	CoreAudio: M4	M4	OK

Remove

M4

Use	Ch	Channel Name	Friendly Name	Trim
☒	1	Out 1	To Console	0
☒	2	Out 2	Loop Back	0
☐	3	Out 3	Out 3	0
☐	4	Out 4	Out 4	0

Clear Settings Reset Trims

Output Preset Manager

Slot	Preset Name
0	— — —
1	— — —
2	— — —
3	— — —
4	— — —
5	— — —
6	— — —
7	— — —
8	— — —

▼ ▲ Delete Make Active Store

☐ Enable Smart Loopback Close

STEP 11: SMAART SETUP

- Label friendly name for Output 1 and 2.

The screenshot shows the 'I-O Config' window with the 'Output' tab selected. The main table lists various audio drivers. Below this, the 'M4' output preset is configured. A red arrow points to the 'Friendly Name' column of the 'M4' table, specifically to the 'Loop Back' entry for 'Out 2'. The 'Output Preset Manager' is also visible on the right side of the window.

Use	API : Driver Name	Friendly Name	Status
☐	CoreAudio: Creative Computer Audio	Creative Computer Audio	OK
☐	CoreAudio: Dante Via Stereo	Dante Via Stereo	OK
☐	CoreAudio: Dante Via 16 Channel	Dante Via 16 Channel	OK
☐	CoreAudio: MacBook Pro Speakers	MacBook Pro Speakers	OK
☐	CoreAudio: Ingnok	Ingnok	OK
☒	CoreAudio: M4	M4	OK

Remove

M4

Use	Ch	Channel Name	Friendly Name	Trim
☒	1	Out 1	To Console	0
☒	2	Out 2	Loop Back	0
☐	3	Out 3	Out 3	0
☐	4	Out 4	Out 4	0

Clear Settings Reset Trims

Output Preset Manager

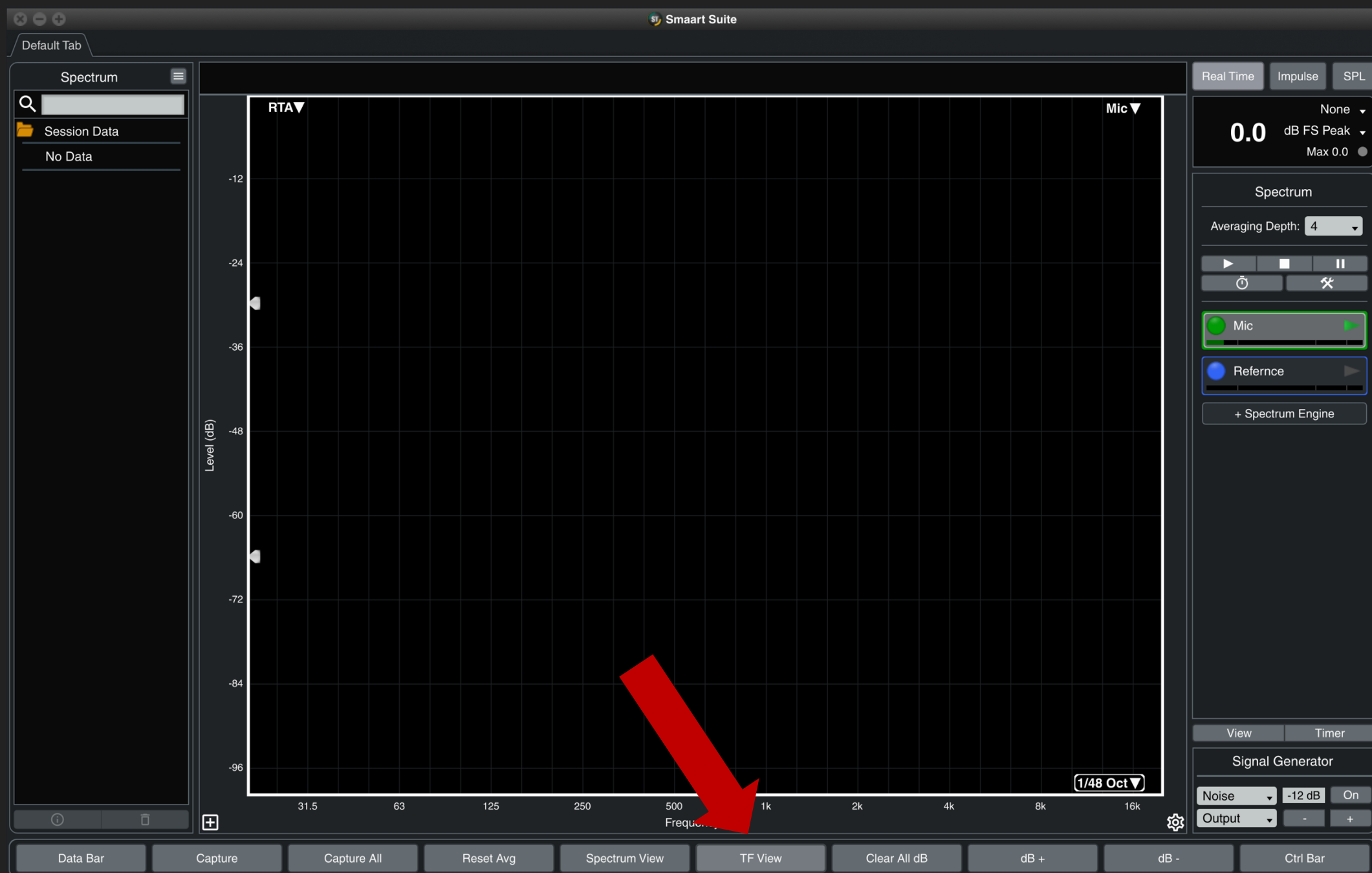
Slot	Preset Name
0	— — —
1	— — —
2	— — —
3	— — —
4	— — —
5	— — —
6	— — —
7	— — —
8	— — —

▼ ▲ Delete Make Active Store

☐ Enable Smart Loopback Close

STEP 12: SMAART SETUP

- ▶ Go to transfer function view



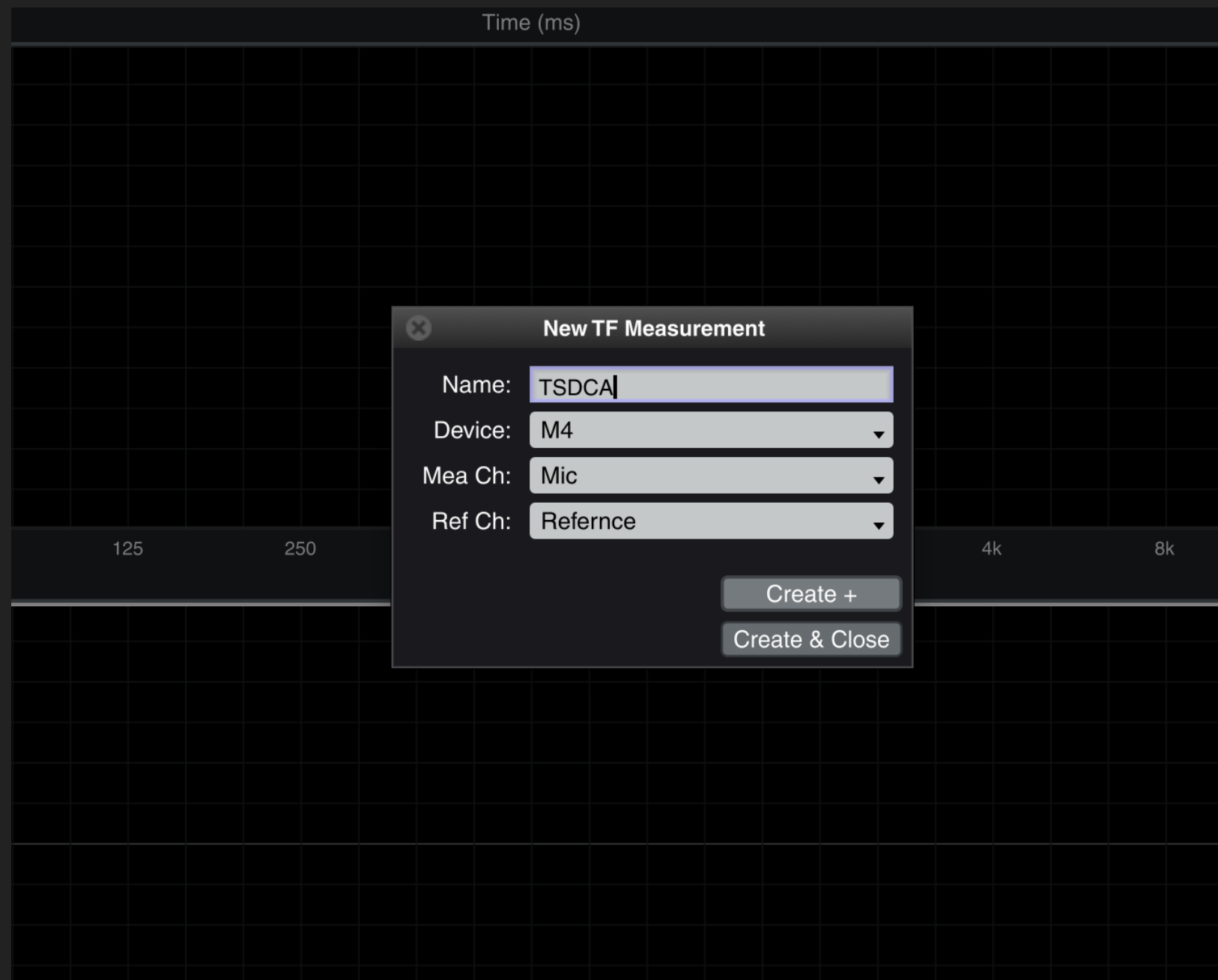
STEP 13: SMAART SETUP

- Create new transfer function engine



STEP 13: SMAART SETUP

- ▶ Name transfer function engine and select mics



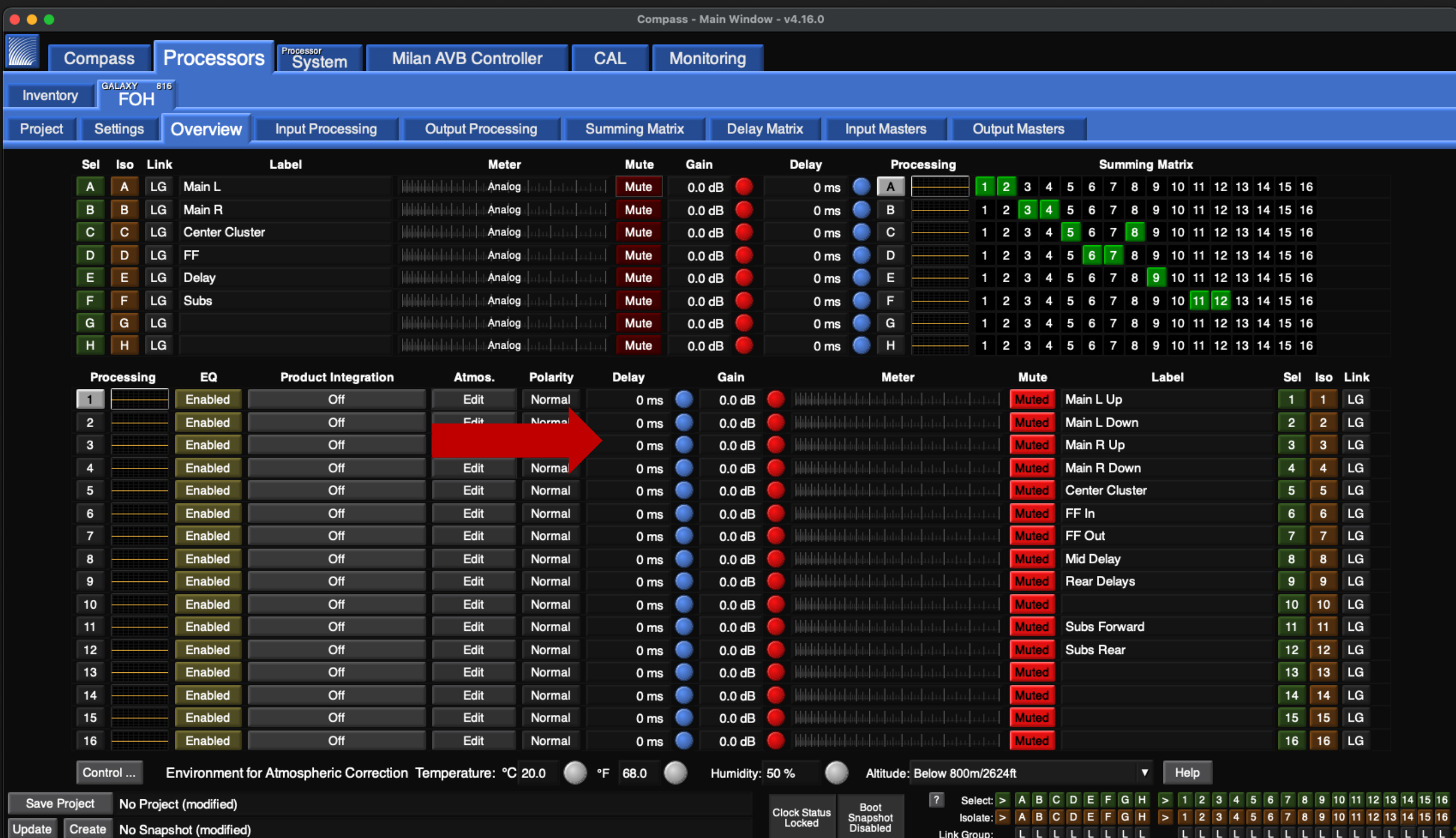
STEP 13: SMAART SETUP

- Press play and check meters



STEP 14: FIND DELAY

- ▶ I pick a spot in the space to start and place my measure mic there.
 - ▶ I first send pink noise to my reference speaker.
 - ▶ I calculate delay and insert delay
- ▶ I stop pink from reference speaker and send it to the first speaker I am delaying.
 - ▶ I calculate delay time. I do not insert.
 - ▶ I put the delay time in compass.



YOU WILL SEE THE IMPULSE RESPONSE ON SMAART JUMP TO 0.

STEP 15: EQ THE SPEAKER

- ▶ Using the magnitude graph, I attempt to find any outliers.
- ▶ Word to the wise, DO NOT GO CRAZY WITH EQ
- ▶ On Compass you will have a bunch of filters!
 - ▶ DO NOT USE THEM ALL!!
- ▶ My goal is to have the magnitude be as flat as possible.
- ▶ I am not a big fan of additive EQ.

COMPASS EQ

- ▶ Input Processing
 - ▶ 5 Parametric Bands
 - ▶ U-Shaping
- ▶ Output Processing
 - ▶ 10 Parametric Bands
 - ▶ U-Shaping
 - ▶ All Pass Filters
 - ▶ High and Low Pass

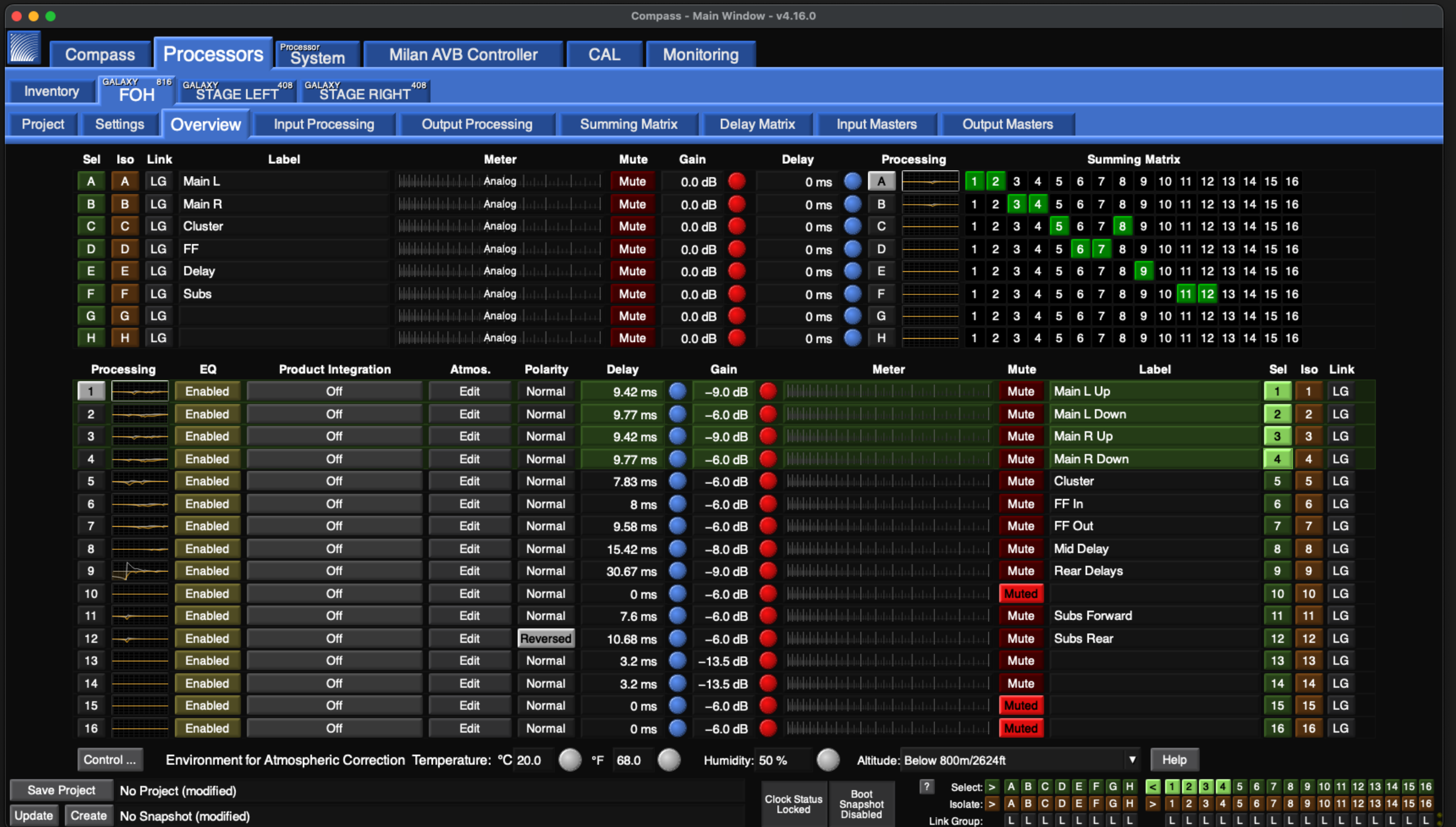
DO NOT USE EVERY BAND

COMPASS EQ



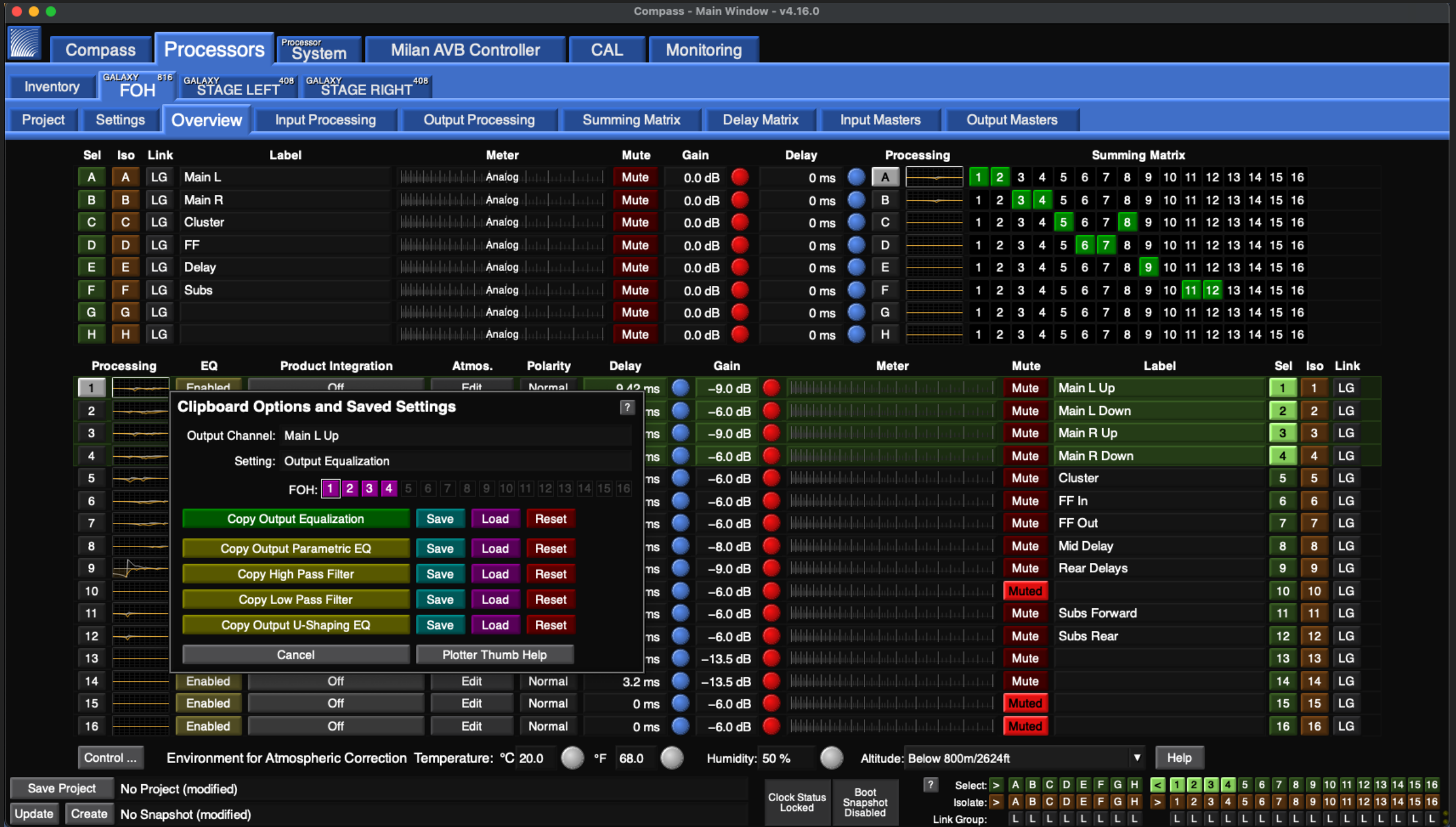
WHITE LINE IS PHASE SHIFT INTRODUCED WITH FILTER

WORKFLOW TIP #1



USE SELECTS TO CHANGE MULTIPLE CHANNELS AT ONCE
RELATIVE CHANGES BY DEFAULT (ALT OR OPT FOR ABSOLUTE)

WORKFLOW TIP #2



RIGHT CLICK CHANNELS TO
COPY, PASTE, SAVE, LOAD, OR RESET PER CHANNEL

**STEP 16: RINSE AND REPEAT FOR EVERY
SPEAKER IN THE SYSTEM**

AFTER I COMPLETE THIS FOR THE
WHOLE SYSTEM, I SET AWAY FROM
MY COMPUTER
AND USE MY EARS!!!



I PLAY A CLICK

I AM LISTENING FOR IMAGERY AND ALIGNMENT

- ▶ Garth Helm gave me this great click that I always use.
- ▶ I walk around with the ipad app of compass and dial in what sounds good to my ears, regardless of numbers
- ▶ With the app, you can literally dial up or down by fractions of a ms to get it right!

I THEN PLAY SPOKEN WORD

I AM LISTENING FOR IMAGERY AND CLARITY

- ▶ I use the standard track everyone uses.
- ▶ In my file it is label Lecture 48K – It is about modern electric acoustics.
- ▶ I also like it because it makes the electrician annoyed with is always fun!!

LASTLY, I PLAY SOME MUSIC

I AM LISTENING FOR FULLNESS OF SPECTRUM

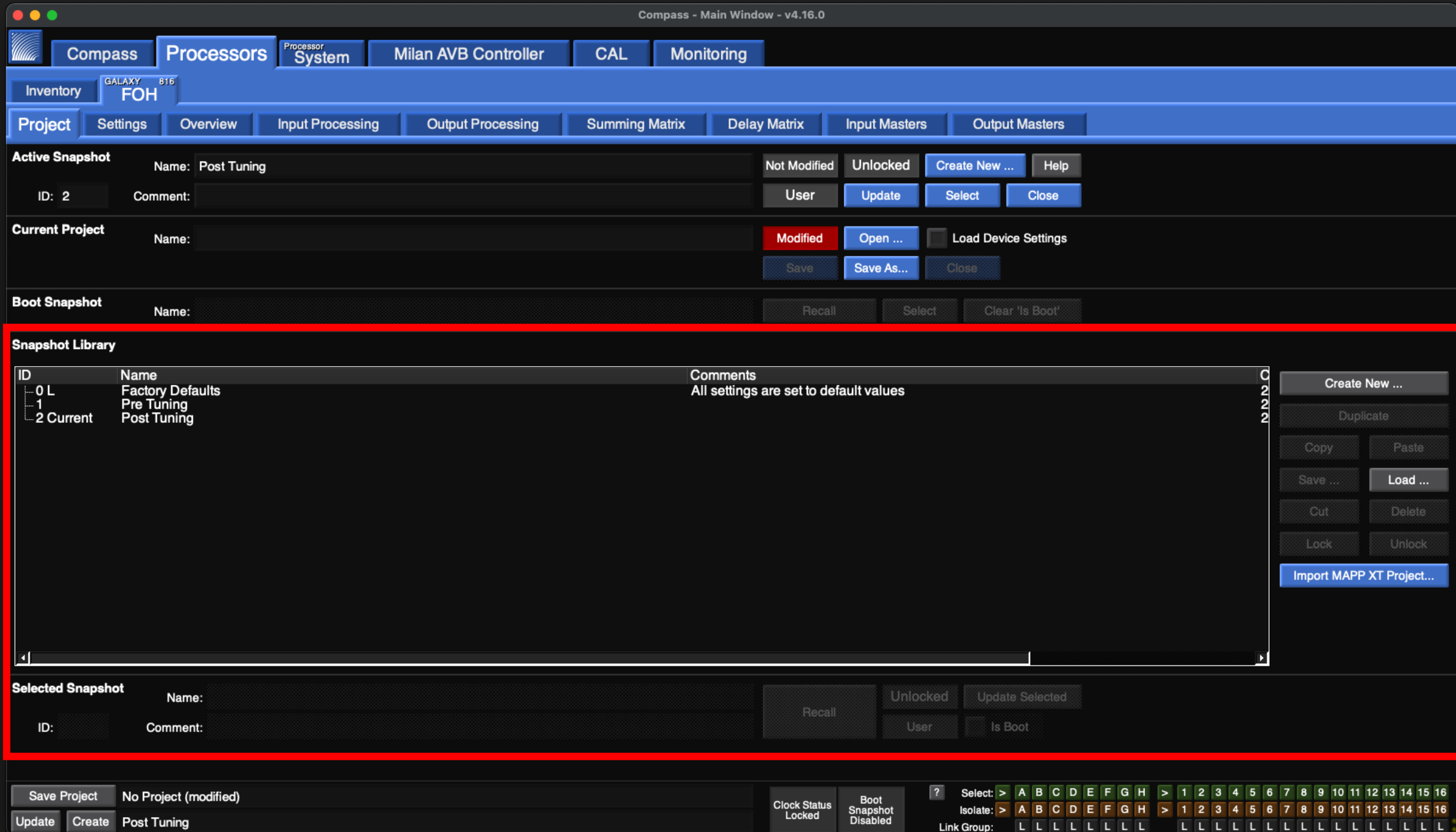
- ▶ I use Michael Buble's "You've Got What It Takes"
 - ▶ It has a male and female voice and it just works for me.
- ▶ I will also play some music in the style of the show.

SAVING IN COMPASS

SNAPSHOTS VS PROJECTS

- ▶ Snapshots
 - ▶ Capture GALAXY Settings
 - ▶ Stored to the Hardware itself
 - ▶ Virtual GALAXY has no hardware so if you close, they will disappear

SAVING IN COMPASS SNAPSHOTS



BOOT SNAPSHOTS

Compass - Main Window - v4.16.0

Compass Processors Processor System Milan AVB Controller CAL Monitoring

Inventory GALAXY 816 GALAXY 408 GALAXY 408
FOH STAGE LEFT STAGE RIGHT

Project Settings Overview Input Processing Output Processing Summing Matrix Delay Matrix Input Masters Output Masters

Active Snapshot

Name: Not Modified Unlocked Create New ... Help

ID: Comment: User Update Select Close

Current Project

Name: Not Modified Open ... Load Device Settings

Save Save As... Close

Boot Snapshot

Name: PreShow Recall Select Clear 'Is Boot'

Snapshot Library

ID	Name	Comments
0 L	Factory Defaults	All settings are set to default values
1 B	PreShow	
2	Post Show	

Create New ...

Duplicate

Copy Paste

Save ... Load ...

Cut Delete

Lock Unlock

Import MAPP XT Project...

Selected Snapshot

Name: PreShow Recall Unlocked Update Selected

ID: 1 Comment: User ☒ Is Boot

Save Project No Project

Update Create No Snapshot

Clock Status Locked Boot Snapshot Enabled

Select: > A B C D E F G H > 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16

Isolate: > A B C D E F G H > 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16

Link Group: L

SAVING IN COMPASS

SNAPSHOTS VS PROJECTS

- ▶ Projects
 - ▶ Saves the current state of the GALAXY and all snapshots
 - ▶ Saves to the computer
 - ▶ Can then send to others
 - ▶ Pre-Production, Troubleshooting, Backup

SAVING IN COMPASS PROJECTS

Compass - Main Window - v4.16.0

Compass Processors Processor System Milan AVB Controller CAL Monitoring

Inventory GALAXY 816 FOH VIRTUAL 816 Virtual Test

Project Settings Overview Input Processing Output Processing Summing Matrix Delay Matrix Input Masters Output Masters

Active Snapshot

Name: Not Modified Unlocked Create New ... Help

ID: Comment: User Update Select Close

Current Project

Name: /Users/education/CompassGalaxy_Settings/Projects/ShowFile.galaxyProject Not Modified Open ... Load Device Settings

Save Save As... Close

Boot Snapshot

Name: Recall Select Clear 'Is Boot'

Snapshot Library

ID	Name	Comments
0 L	Factory Defaults	All settings are set to default values
1	Pre Tuning	
2	Post Tuning	

Create New ...

Duplicate

Copy Paste

Save ... Load ...

Cut Delete

Lock Unlock

Import MAPP XT Project...

Selected Snapshot

Name: Recall Unlocked Update Selected

ID: Comment: User Is Boot

Save Project ShowFile.galaxyProject

Update Create No Snapshot

Clock Status N/A Boot Snapshot Disabled

? Select: > A B C D E F G H > 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16

Isolate: > A B C D E F G H > 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16

Link Group: L

SAVING IN COMPASS

GLOBAL SNAPSHOTS AND PROJECTS

- ▶ Great when using multiple GALAXY processors
- ▶ Global Snapshot
 - ▶ Creates a Snapshot with the same name on selected GALAXY processors
 - ▶ Can recall and update every GALAXY from one window

SAVING IN COMPASS

GLOBAL SNAPSHOTS

Compass - Main Window - v4.16.0

Compass Processors Processor System Milan AVB Controller CAL Monitoring

Inventory GALAXY 816 GALAXY 408 GALAXY 408
FOH STAGE LEFT STAGE RIGHT

Find Devices Refresh Add Processor Help

☐ Show Processor Tabs in Separate Window ☐ Show System Tab in Separate Window ☐ Show Control Groups Tab
☐ Show Secondary Processor Tabs Window ☒ Show Global Project Features ☐ Show Control Pages Tab

Table contents will be updated by pressing the "Find Devices" or "Refresh" button

Order	Link	ID	Entity Name	Group Name	Tab Name	Device Type	Firmware	Status	Connection	Virtual	Demo	Window
▼	Select	1 ▼	FOH	FOH	FOH	816	2.10.0-20260211-1241	Connected (Port 25003)	Disconnect			1 2 Sys
▲ ▼	Select	1 ▼	STAGE LEFT	STAGE LEFT	STAGE LEFT	408	2.10.0-20260211-1241	Connected (Port 25003)	Disconnect			1 2 Sys
▲	Select	1 ▼	STAGE RIGHT	RIGHT	STAGE RIGHT	408	2.10.0-20260211-1241	Connected (Port 25003)	Disconnect			1 2 Sys

Global Project: Open ... Save Save As ... Close Help

Global Snapshot: Global Snapshot Options ... Help

Global Environment for Atmospheric Correction Temp: °C 20.0 °F 68.0 Humidity: 50 % Altitude: Below 800m/2624ft Edit ... Help

SAVING IN COMPASS

GLOBAL SNAPSHOTS

Compass - Main Window - v4.16.0

Compass Processors System Milan AVB Controller CAL Monitoring

Inventory GALAXY 816 FOH GALAXY 408 STAGE LEFT GALAXY 408 STAGE RIGHT

Find Devices Refresh Add Processor Help

Table contents will be updated by pressing the "Find Devices" or "Refresh" button

Order Link ID

▼ Select 1 ▼

▲ ▼ Select 1 ▼

▲ Select 1 ▼

Global Snapshot Options

Entity Name	Group Name	Tab Name	Active Snapshot	
FOH	FOH	FOH	☒ Include	Post Tuning
STAGE LEFT	STAGE LEFT	STAGE LEFT	☒ Include	
STAGE RIGHT				

Active Global Snapshot:

Available Global Snapshots: Factory Defaults

Refresh

Close

Create New Global Snapshot

Snapshot Name: PreShow

Comment:

OK Cancel

Create New ...

Recall Set Boot Snapshot

Delete Duplicate

Lock Unlock

Global Project:

Global Snapshot:

Global Environment for Atmospheric Correction Temp: °C 20.0 °F 68.0 Humidity: 50 % Altitude: Below 800m/2624ft

Open ... Save Save As ... Close Help

Global Snapshot Options ... Help

Edit ... Help

SAVING IN COMPASS

GLOBAL SNAPSHOTS

Compass - Main Window - v4.16.0

Compass

Processors

Processor System

Milan AVB Controller

CAL

Monitoring

Inventory

GALAXY 816 FOH

GALAXY 408 STAGE LEFT

GALAXY 408 STAGE RIGHT

Find Devices

Refresh

Add Processor

Help

☐ Show Processor Tabs in Separate Window

☐ Show System Tab in Separate Window

☐ Show Control Groups Tab

☐ Show Secondary Processor Tabs Window

☒ Show Global Project Features

☐ Show Control Pages Tab

Table contents will be updated by pressing the "Find Devices" or "Refresh" button

Order

Link

ID

▼

Select

1

▼

▲

▼

Select

1

▼

▲

▼

Select

1

▼

Global Snapshot Options

Entity Name	Group Name	Tab Name	Active Snapshot	
FOH	FOH	FOH	☒ Include	Post Show
STAGE LEFT	STAGE LEFT	STAGE LEFT	☒ Include	Post Show
STAGE RIGHT	RIGHT	STAGE RIGHT	☒ Include	Post Show

Active Global Snapshot: Post Show

Update

Create New ...

Available Global Snapshots: Factory Defaults
Post Show
PreShow

Refresh

Recall

Set Boot Snapshot

Delete

Duplicate

Lock

Unlock

Close

Global Project:

Open ...

Save

Save As ...

Close

Help

Global Snapshot: Post Show

Global Snapshot Options ...

Help

Global Environment for Atmospheric Correction

Temp: °C 20.0 °F 68.0 Humidity: 50 % Altitude: Below 800m/2624ft

Edit ...

Help

SAVING IN COMPASS

GLOBAL SNAPSHOTS AND PROJECTS

- ▶ Global Project
 - ▶ Creates an overall project that contains multiple GALAXY processors
 - ▶ Can also save individual project files – Great for Backups

SAVING IN COMPASS

GLOBAL PROJECTS

Compass - Main Window - v4.16.0

Compass

Processors

Processor System

Milan AVB Controller

CAL

Monitoring

Inventory

GALAXY 816 FOH

GALAXY 408 STAGE LEFT

GALAXY 408 STAGE RIGHT

Find Devices

Refresh

Add Processor

Help

☐ Show Processor Tabs in Separate Window

☐ Show System Tab in Separate Window

☐ Show Control Groups Tab

☐ Show Secondary Processor Tabs Window

☒ Show Global Project Features

☐ Show Control Pages Tab

Table contents will be updated by pressing the "Find Devices" or "Refresh" button

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▼	Select	1 ▼	FOH	FOH	FOH	816	2.10.0-20260211-1241	Connected (Port 25003)	Disconnect			1 2 Sys
▲ ▼	Select	1 ▼	STAGE LEFT	STAGE LEFT	STAGE LEFT	408	2.10.0-20260211-1241	Connected (Port 25003)	Disconnect			1 2 Sys
▲	Select	1 ▼	STAGE RIGHT	RIGHT	STAGE RIGHT	408	2.10.0-20260211-1241	Connected (Port 25003)	Disconnect			1 2 Sys

Global Project:

Open ...

Save

Save As ...

Close

Help

Global Snapshot: Post Show

Global Snapshot Options ...

Help

Global Environment for Atmospheric Correction

Temp: °C 20.0 °F 68.0

Humidity: 50 %

Altitude: Below 800m/2624ft

Edit ...

Help

SAVING IN COMPASS

GLOBAL PROJECTS

Compass - Main Window - v4.16.0

Compass Processors System Milan AVB Controller CAL Monitoring

Inventory GALAXY 816 FOH GALAXY 408 STAGE LEFT GALAXY 408 STAGE RIGHT

Find Devices Refresh Add Processor Help

☐ Show Processor Tabs in Separate Window ☐ Show System Tab in Separate Window ☐ Show Control Groups Tab
☐ Show Secondary Processor Tabs Window ☒ Show Global Project Features ☐ Show Control Pages Tab

Table contents will be updated by pressing the "Find Devices" or "Refresh" button

Order	Link	ID	Entity Name	Group Name	Tab Name	Device Type	Firmware	Status	Connection	Virtual	Demo	Window
▼	Select	1 ▼	FOH	FOH	FOH	816	2.10.0-20260211-1241	Connected (Port 25003)	Disconnect		1 2 Sys	
▲ ▼	Select	1 ▼	STAGE LEFT	STAGE LEFT	STAGE LEFT	408	2.10.0-20260211-1241	Connected (Port 25003)	Disconnect		1 2 Sys	
▲	Select	1 ▼	STAGE RIGHT	RIGHT								

Save Global Project

Global Project File:
/Users/education/CompassGalaxy_Settings/Projects/MyShowBackup.galaxyGlobalProject

Entity Name	Group Name	Tab Name	
FOH	FOH	FOH	☒ Include in Global Project
STAGE LEFT	STAGE LEFT	STAGE LEFT	☒ Include in Global Project
STAGE RIGHT	RIGHT	STAGE RIGHT	☒ Include in Global Project

Retrieve Projects Cancel ☒ Save Individual Project Files

Global Project: Open ... Save Save As ... Close Help

Global Snapshot: Post Show Global Snapshot Options ... Help

Global Environment for Atmospheric Correction Temp: °C 20.0 °F 68.0 Humidity: 50 % Altitude: Below 800m/2624ft Edit ... Help

SAVING IN COMPASS

GLOBAL PROJECTS

Compass - Main Window - v4.16.0

Compass

Processors

Processor System

Milan AVB Controller

CAL

Monitoring

Inventory

GALAXY 816 FOH

GALAXY 408 STAGE LEFT

GALAXY 408 STAGE RIGHT

Find Devices

Refresh

Add Processor

Help

Show Processor Tabs in Separate Window

Show System Tab in Separate Window

Show Control Groups Tab

Show Secondary Processor Tabs Window

Show Global Project Features

Show Control Pages Tab

Table contents will be updated by pressing the "Find Devices" or "Refresh" button

Order	Link	ID	Entity Name	Group Name	Tab Name	Device Type	Firmware	Status	Connection	Virtual	Demo	Window
▼	Select	1 ▼	FOH	FOH	FOH	816	2.10.0-20260211-1241	Connected (Port 25003)	Disconnect		1 2 Sys	
▲ ▼	Select	1 ▼	STAGE LEFT	STAGE LEFT	STAGE LEFT	408	2.10.0-20260211-1241	Connected (Port 25003)	Disconnect		1 2 Sys	
▲	Select	1 ▼	STAGE RIGHT	RIGHT	STAGE RIGHT						ys	

Save Global Project

Global Project File:
/Users/education/CompassGalaxy_Settings/Projects/MyShowBackup.galaxyGlobalProject

Entity Name	Group Name	Tab Name	
FOH	FOH	FOH	Have Project
STAGE LEFT	STAGE LEFT	STAGE LEFT	Have Project
STAGE RIGHT	RIGHT	STAGE RIGHT	Have Project

Save Global Project

Cancel

☒ Save Individual Project Files

Global Project:

Open ...

Save

Save As ...

Close

Help

Global Snapshot: Post Show

Global Snapshot Options ...

Help

Global Environment for Atmospheric Correction

Temp: °C 20.0 °F 68.0

Humidity: 50 %

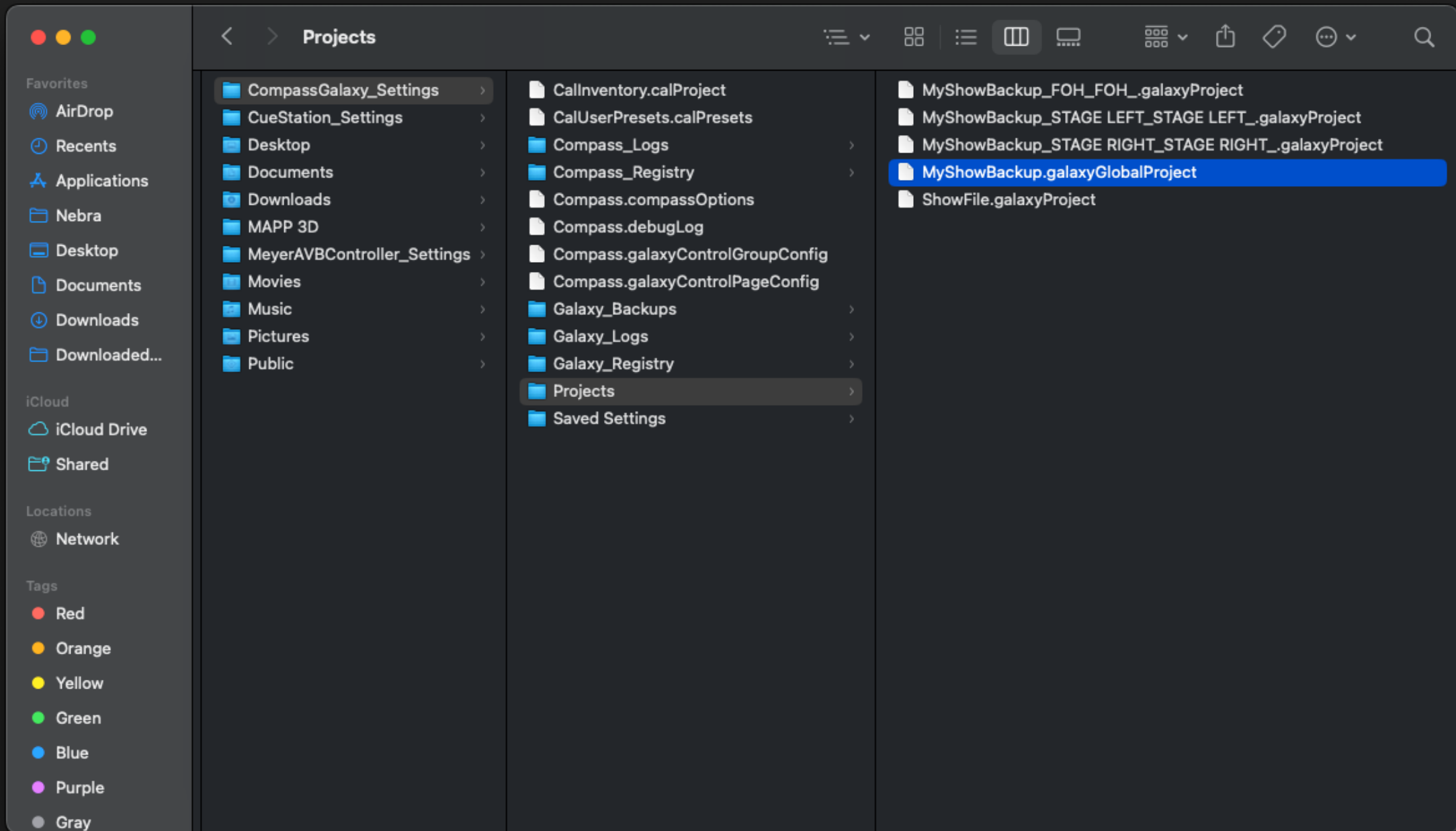
Altitude: Below 800m/2624ft

Edit ...

Help

SAVING IN COMPASS

GLOBAL PROJECTS



GALAXY PROCESSORS HAVE
SPACEMAP GO

IF YOUR SYSTEM WILL BE USING SPACEMAP
GO, WE RECOMMEND TUNING WHILE IN
SPACEMAP MODE

WHAT IF I TUNED FIRST AND NOW WANT TO SPACEMAP?

- Save a Snapshot before Rebooting into Spacemap Mode

The screenshot shows the 'Compass - Main Window - v4.16.0' interface. The 'Processors' tab is active, and the 'Inventory' section shows 'GALAXY 816' and 'FOH'. The 'Project' tab is selected, and the 'Active Snapshot' section is highlighted with a red box. This section displays the 'Pre Spacemap Mode Tuning' snapshot, which is 'Not Modified' and 'Unlocked'. It includes fields for 'Name', 'ID: 5', and 'Comment', along with buttons for 'Create New ...', 'Help', 'User', 'Update', 'Select', and 'Close'. Below this, the 'Current Project' section shows a 'Name' field, a 'Modified' status, and buttons for 'Open ...', 'Load Device Settings', 'Save', 'Save As...', and 'Close'. The 'Boot Snapshot' section has a 'Name' field and buttons for 'Recall', 'Select', and 'Clear 'Is Boot''. The 'Snapshot Library' section contains a table of snapshots:

ID	Name	Comments
0 L	Factory Defaults	All settings are set to default values
1	Pre Tuning	
2	Post Tuning	
3	PreShow	
4	Post Show	
5 Current	Pre Spacemap Mode Tuning	

To the right of the table are buttons for 'Create New ...', 'Duplicate', 'Copy', 'Paste', 'Save ...', 'Load ...', 'Cut', 'Delete', 'Lock', 'Unlock', and 'Import MAPP XT Project...'. The 'Selected Snapshot' section at the bottom shows the 'Pre Spacemap Mode Tuning' snapshot with buttons for 'Recall', 'Unlocked', 'Update Selected', 'User', and 'Is Boot'. The bottom status bar includes 'Save Project', 'No Project (modified)', 'Update', 'Create', 'Pre Spacemap Mode Tuning', 'Clock Status Locked', 'Boot Snapshot Disabled', and a grid of buttons for 'Select' and 'Isolate'.

WHAT IF I TUNED FIRST AND NOW WANT TO SPACEMAP?

Compass - Main Window - v4.16.0

Compass Processors Processor System Milan AVB Controller CAL Monitoring

Inventory GALAXY 816 FOH

Project Settings Overview Input Processing Output Processing Summing Matrix Delay Matrix Input Masters Output Masters

Network Input and Output SIM3 Environment Access Low-Mid Beam Control Link Groups Log

Help

Device Type: GALAXY 816

Entity Name: FOH Identify

Group Name: FOH Do not use the same Group Name for separate GALAXY devices in the same network running in different modes

Serial Number: 16237203

	Ethernet Port 1	Ethernet Port 2
IPv6 Address:	fe80::21c:abff:fe00:5584%en0	fe80::21c:abff:fe00:5585
IPv4 Address:	169.254.6.91	169.254.6.96
MAC Address:	00:1C:AB:00:55:84	00:1C:AB:00:55:85

Front Panel Display: Normal LCD: Cyan Set all Front Panel Displays To Selected Color

Device Time: Wed Jun 24 16:20:14 2026 Set Device Time

Operating Mode: Normal

Reboot (to Normal Mode)	Reboot all Devices (to Normal Mode)
Reboot (to Recovery Mode)	Reboot all Devices (to Recovery Mode)
Reboot (to Spacemap Mode)	Reboot all Devices (to Spacemap Mode) (requires "Spacemap Go" iPad App)
Upload Firmware ...	Upload Firmware to all GALAXY Devices... (from Recovery Mode Only)
Edit Network Settings ...	Reboot with Factory Defaults

Save Project No Project (modified)

Update Create Pre Spacemap Mode Tuning

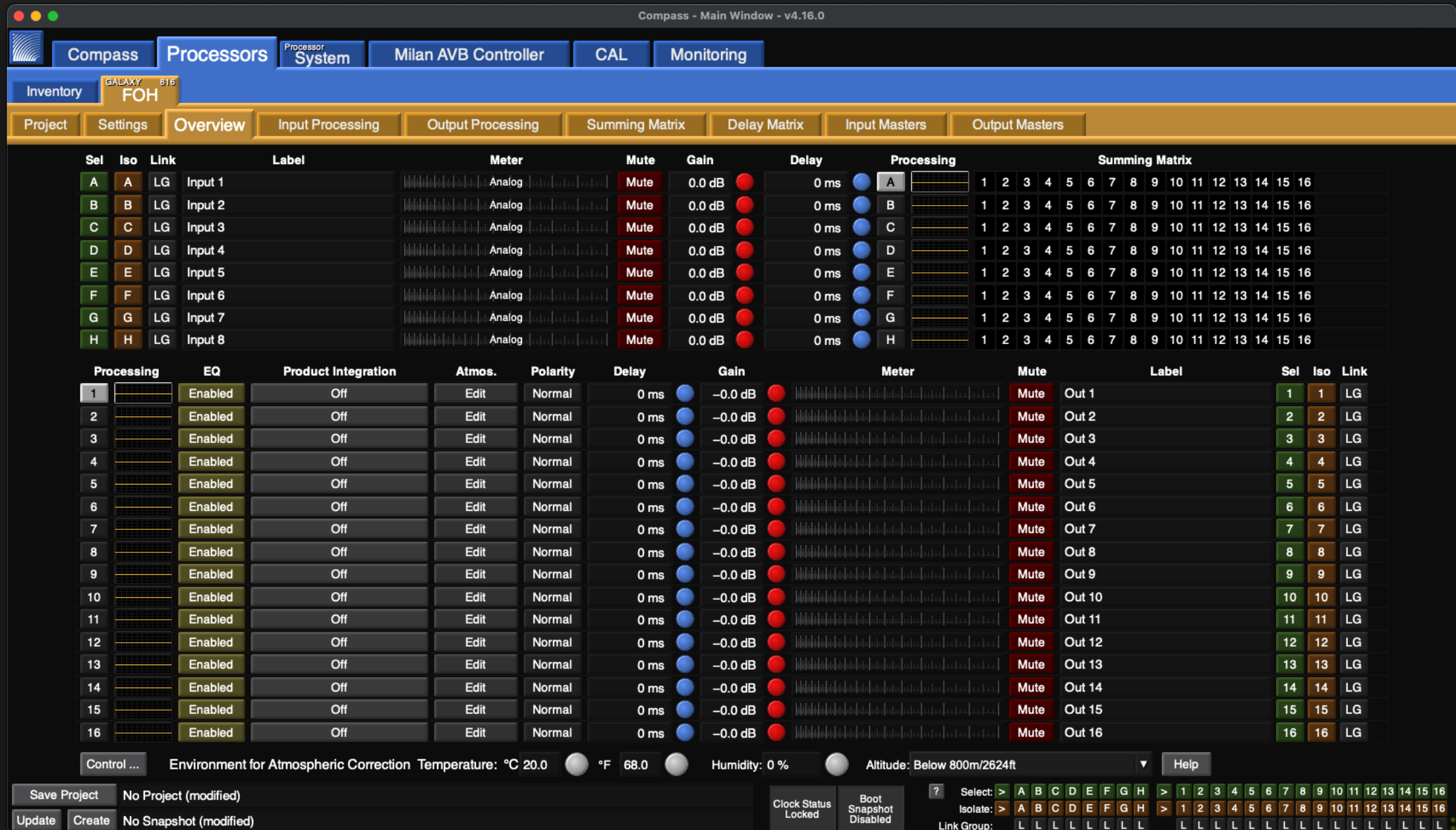
Clock Status Locked Boot Snapshot Disabled

? Select: > A B C D E F G H > 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16

Isolate: > A B C D E F G H > 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16

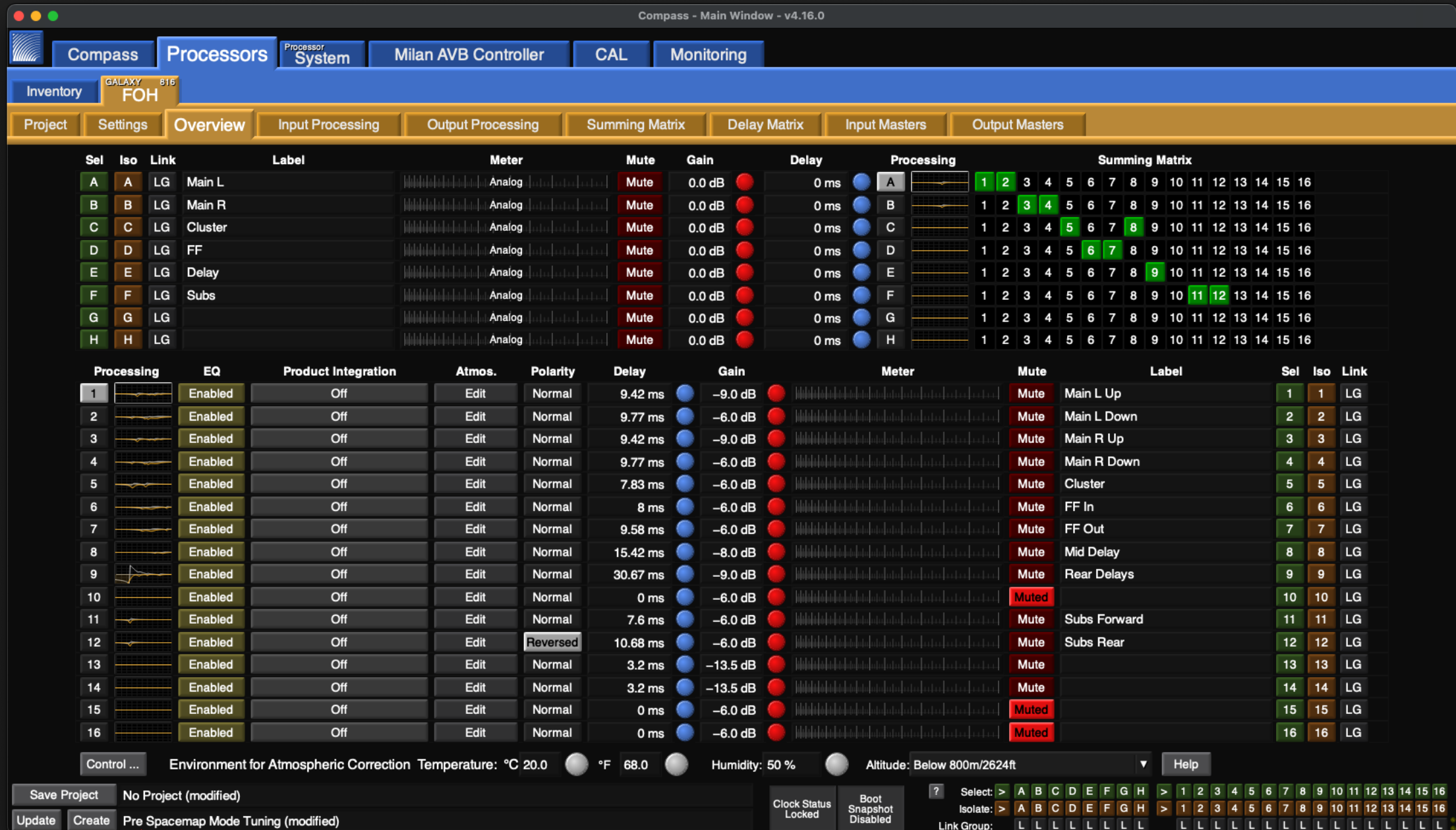
Link Group: L L L L L L L L L L L L L L L L

WHAT IF I TUNED FIRST AND NOW WANT TO SPACEMAP?



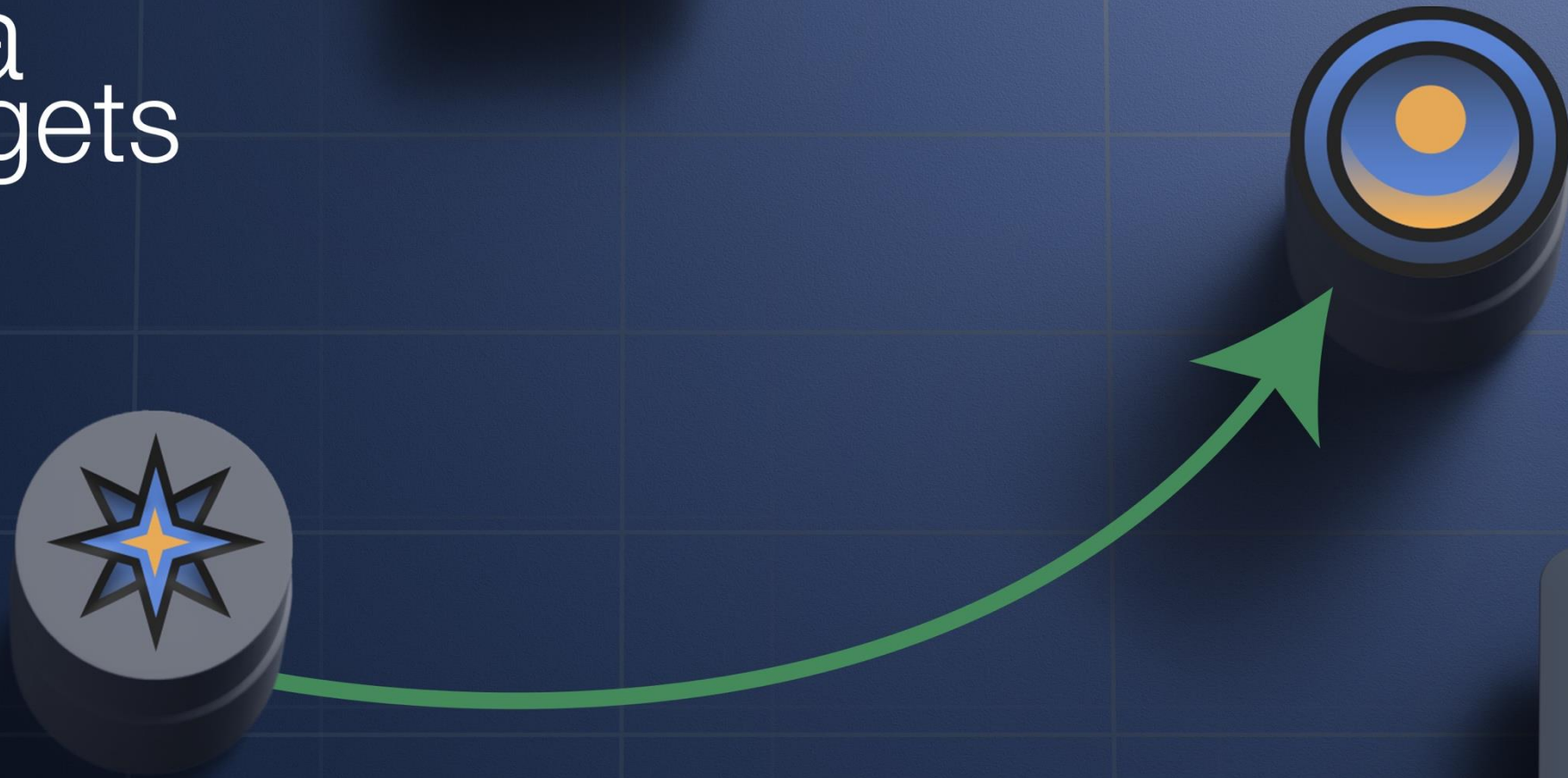
SPACEMAP GO CONFIGURATION IN APP SETUP WIPES GALAXY SETTINGS

WHAT IF I TUNED FIRST AND NOW WANT TO SPACEMAP?



RECALL THE SNAPSHOT TO RESTORE

#Nebra
nuggets



Compass Guides Our Way



 SEL (all)
 SEL (all)
 SEL (all)
 ISO (all)

 Filter

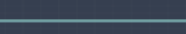
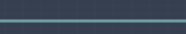
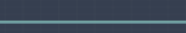
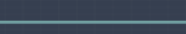
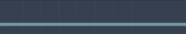


Age Group	Number of People
18-24	10
25-34	20
35-44	15




FOH  GX-816

Inputs: A-H
Device Inputs (1 - 8)

SEL	ISO	Label	Tags	Meter	Mute	Level (dB)	Delay (ms)	Processing	Level and Delay matrix
A	ISO	🔊 Main L	🔊	🟢 Analog 96 kHz ████████████████████ - inf ↕	M	0.0	0.00	 	12 1 2 3 4 5 6 7 8 9 10 11 12 13 14
B	ISO	🔊 Main R	🔊	🟢 Analog 96 kHz ████████████████████ - inf ↕	M	0.0	0.00	 	12 1 2 3 4 5 6 7 8 9 10 11 12 13 14
C	ISO	🔊 Cluster	🔊	🟢 Analog 96 kHz ████████████████████ - inf ↕	M	0.0	0.00	 	12 1 2 3 4 5 6 7 8 9 10 11 12 13 14
D	ISO	🔊 FF	🔊	🟢 Analog 96 kHz ████████████████████ - inf ↕	M	0.0	0.00	 	12 1 2 3 4 5 6 7 8 9 10 11 12 13 14
E	ISO	🔊 Delay	🔊	🟢 Analog 96 kHz ████████████████████ - inf ↕	M	0.0	0.00	 	12 1 2 3 4 5 6 7 8 9 10 11 12 13 14
F	ISO	🔊 Subs	🔊	🟢 Analog 96 kHz ████████████████████ - inf ↕	M	0.0	0.00	 	12 1 2 3 4 5 6 7 8 9 10 11 12 13 14
G	ISO	🔊 Enter label	🔊	🟢 Analog 96 kHz ████████████████████ - inf ↕	M	0.0	0.00	 	12 1 2 3 4 5 6 7 8 9 10 11 12 13 14
H	ISO	🔊 Enter label	🔊	🟢 Analog 96 kHz ████████████████████ - inf ↕	M	0.0	0.00	 	12 1 2 3 4 5 6 7 8 9 10 11 12 13 14

[> Inputs: 9-32](#)
 Network Inputs

Outputs: 1-16 LMBC

SEL	ISO	Label	Tags	Meter	Mute	Level (dB)	Delay (ms)	Processing	Atmospheric Correction (m)	⌵	Product Integration ⓘ	Connect
1	ISO	↻ Main L Up	🔊	-inf	M	-9.0	9.42	🔌	10 % 0.0 🔌	⌵	Off	
2	ISO	↻ Main L Down	🔊	-inf	M	-6.0	9.77	🔌	10 % 0.0 🔌	⌵	Off	
3	ISO	↻ Main R Up	🔊	-inf	M	-9.0	9.42	🔌	10 % 0.0 🔌	⌵	Off	
4	ISO	↻ Main R Down	🔊	-inf	M	-6.0	9.77	🔌	10 % 0.0 🔌	⌵	Off	
5	ISO	↻ Cluster	🔊	-inf	M	-6.0	7.83	🔌	10 % 0.0 🔌	⌵	Off	

QUESTIONS?

