TSDCA Annual Meeting

TUNING A SOUND SYSTEM WITH MEYER GALAXY

July 2026

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!!

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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

20log(3.28/D) = 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.

95dB at 1meter

35 feet

20log (3.28/35) =-20.56dB

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

20log(3.28ft / 1125ft) = -50.76dB 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.

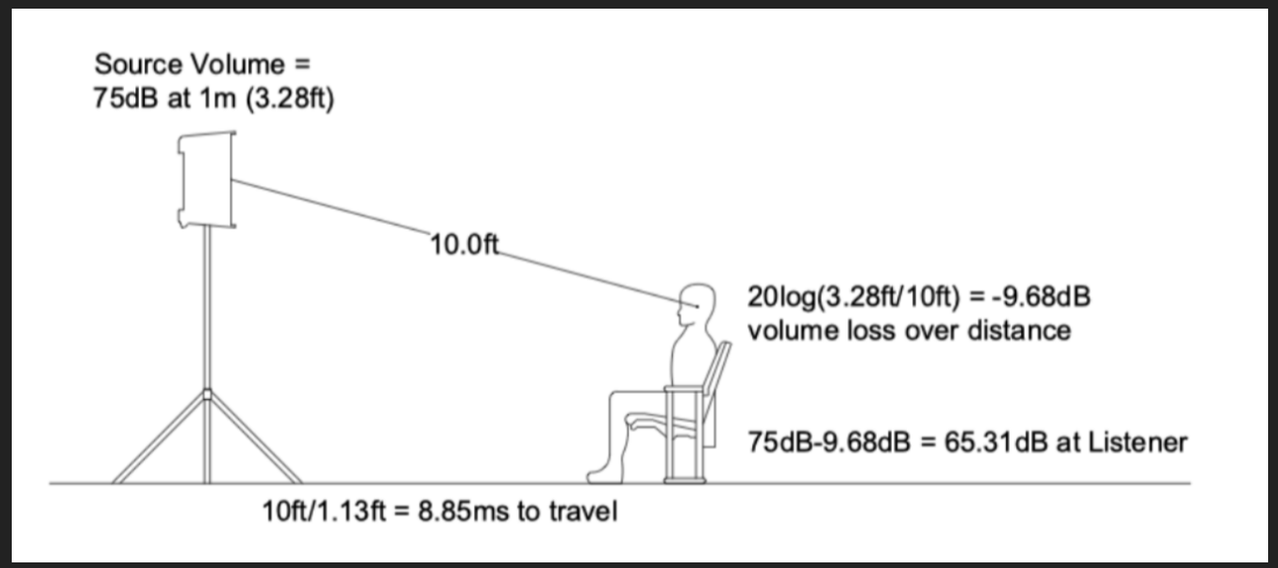
The formula to figure out the time between a sound source and a fixed point (like an audience member) is:

D/1.13 = ms

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

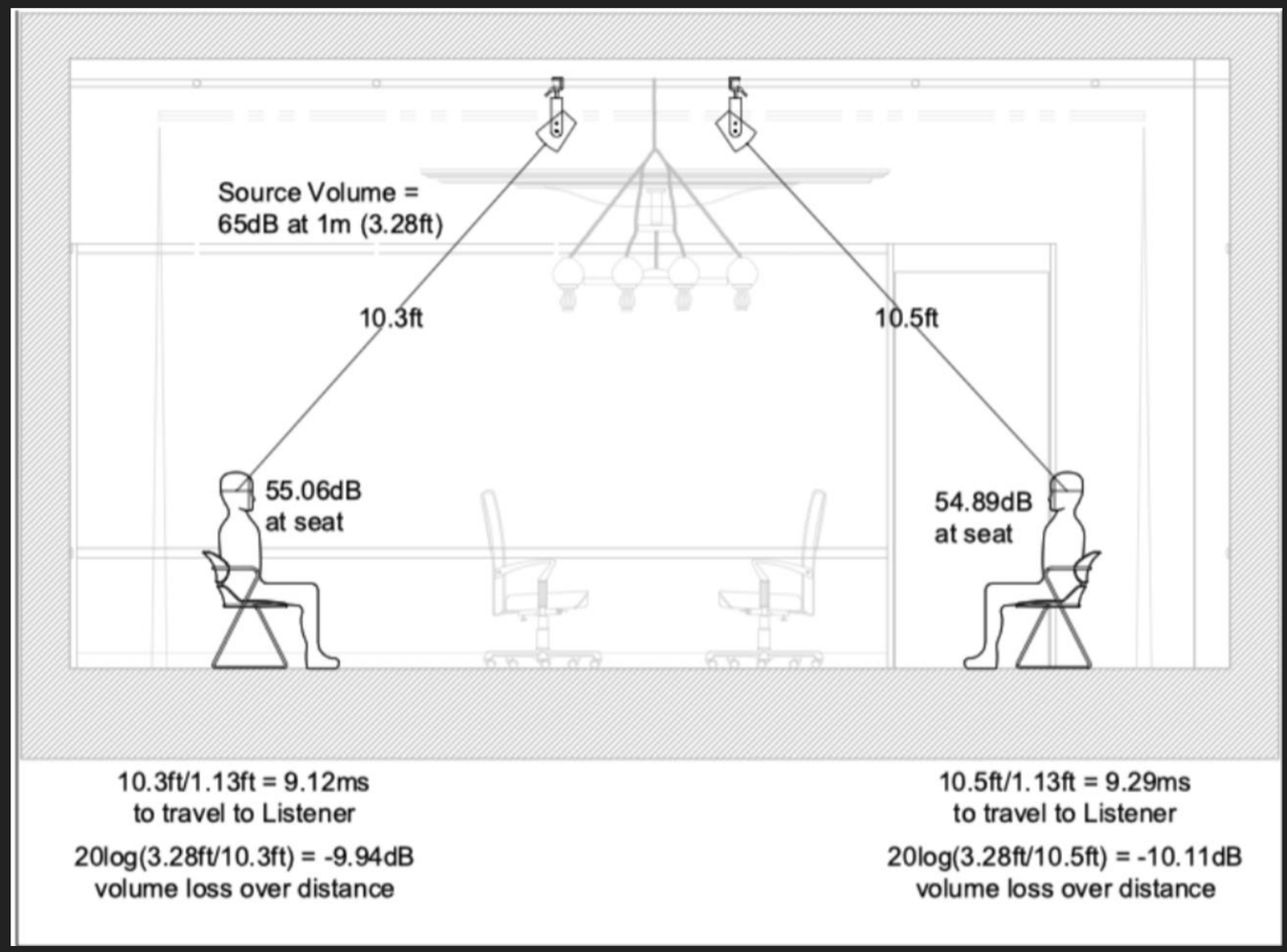
Reminder: Speed of Sound is 1125ft per second, so that’s where we get 1.13ft for milliseconds

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
20log(3.28/D)=dB Loss



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

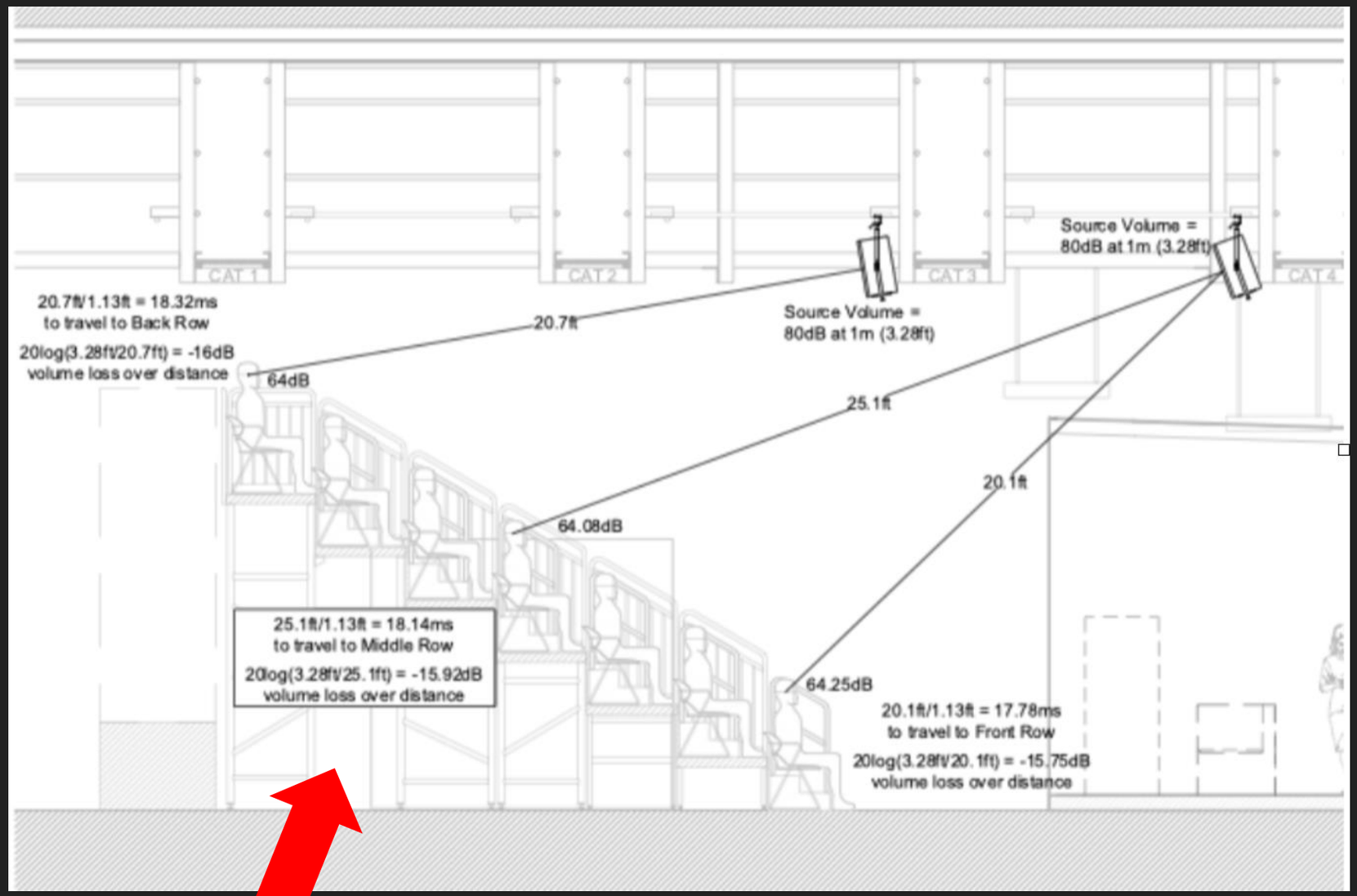
Let's say we are playing stuff at 65dB and it loses 9 or 10dB by the time it hits the audience.

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
20log(3.28/D)=dB 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.

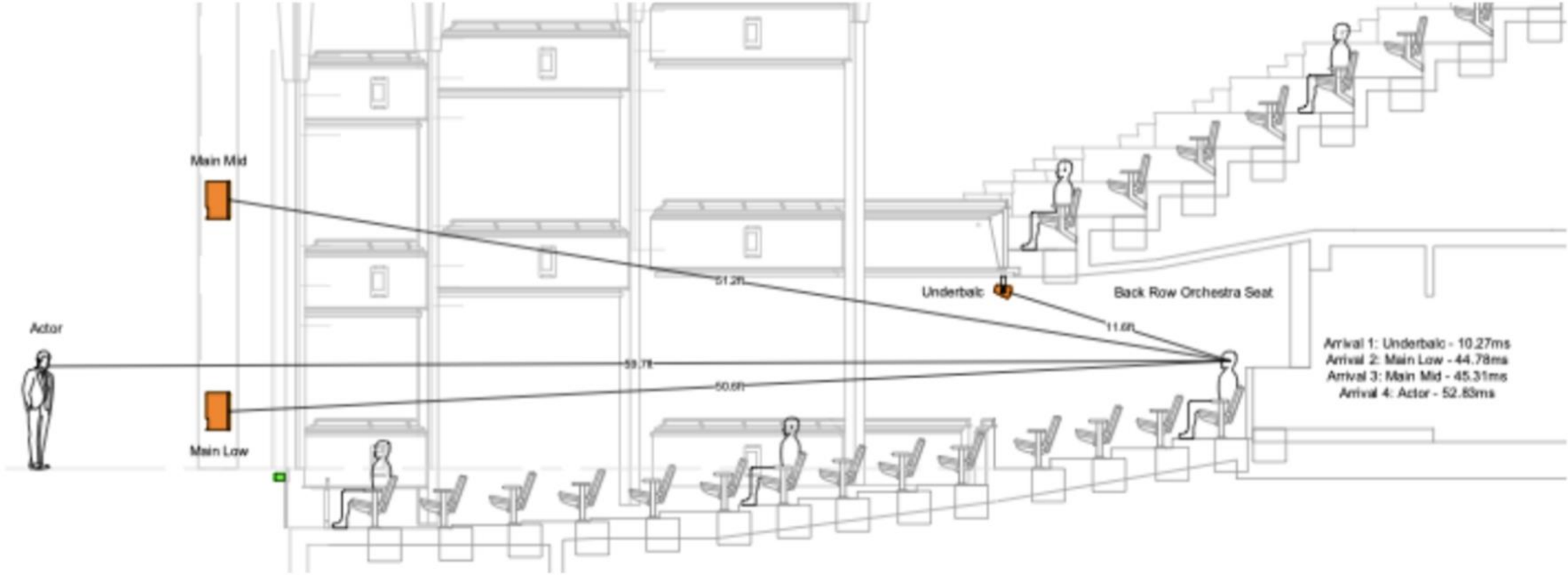
It takes 17-18ms for sound to arrive from the closest main speaker.

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”

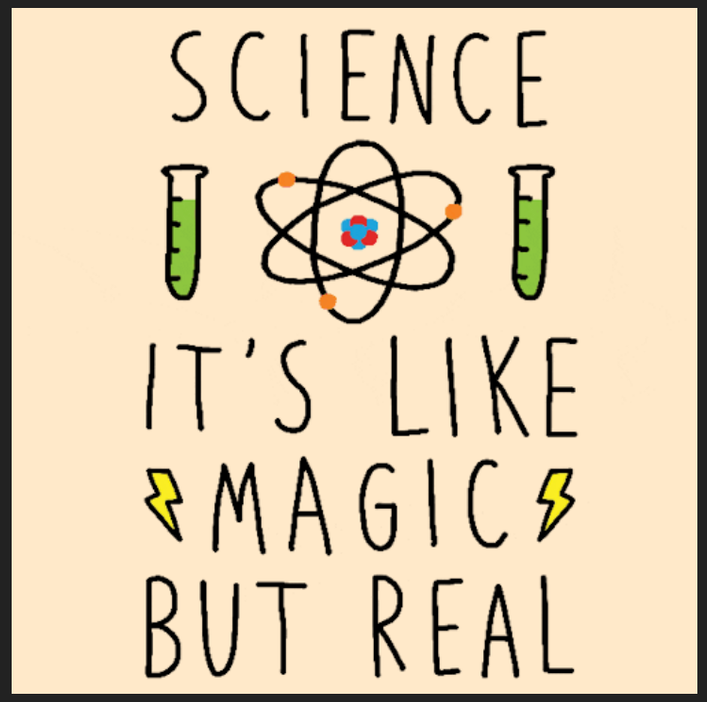
When you have a bunch of sound sources that are producing the same sound, but from different locations, things can start to sound ”echoey.” The sound is arriving at different times. You will get the closest sound first, followed by the rest at different arrival times. This can produce the effect of the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

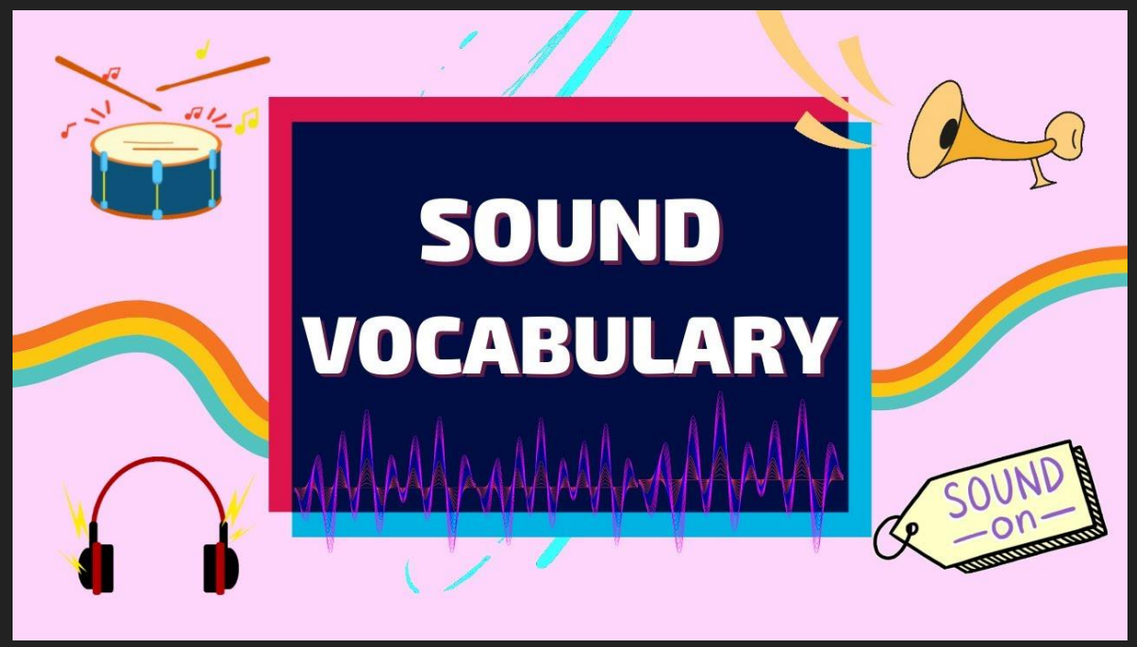
- In 1951 – Helmut Haas published his findings that “humans localize sound sources in the direction of the first arriving sound despite the presence of a single reflection from a different direction, and that in such cases only a single auditory event is perceived.” - That’s a wikipedia quote



- 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?

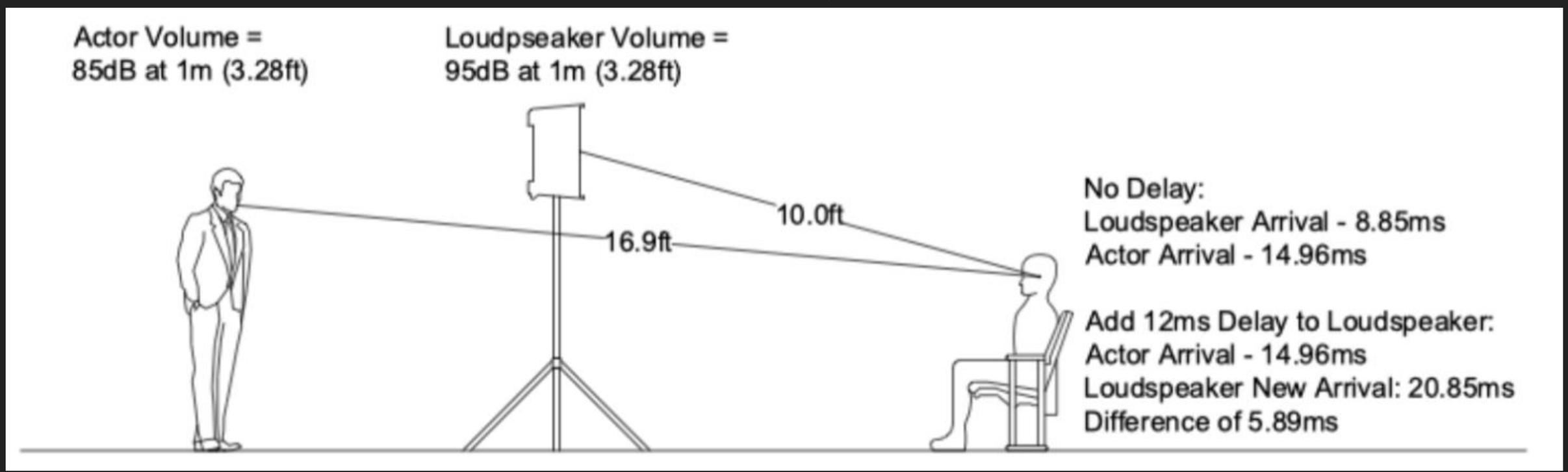
Example: Actor is First Arrival. Loudspeaker is Second Arrival.

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!!



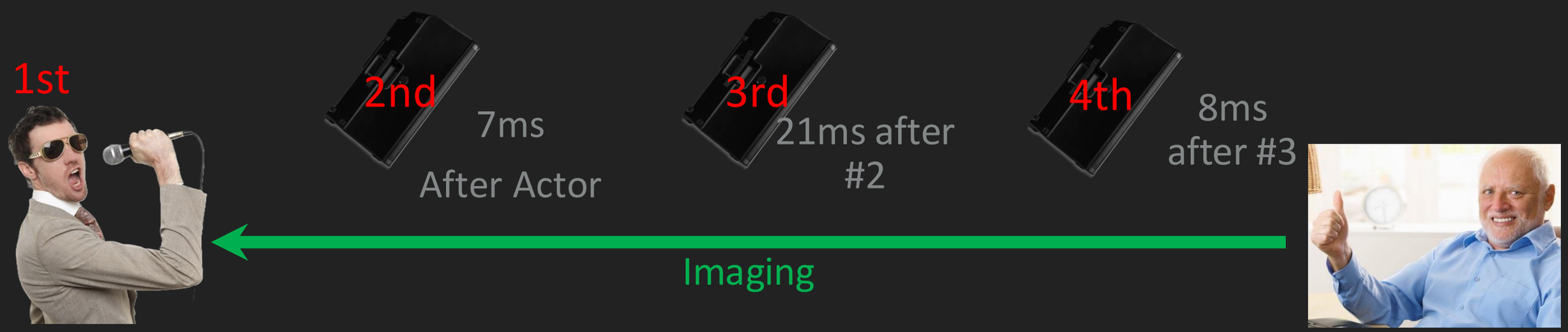
THIS EFFECT STACKS TO MULTIPLE ARRIVALS

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.

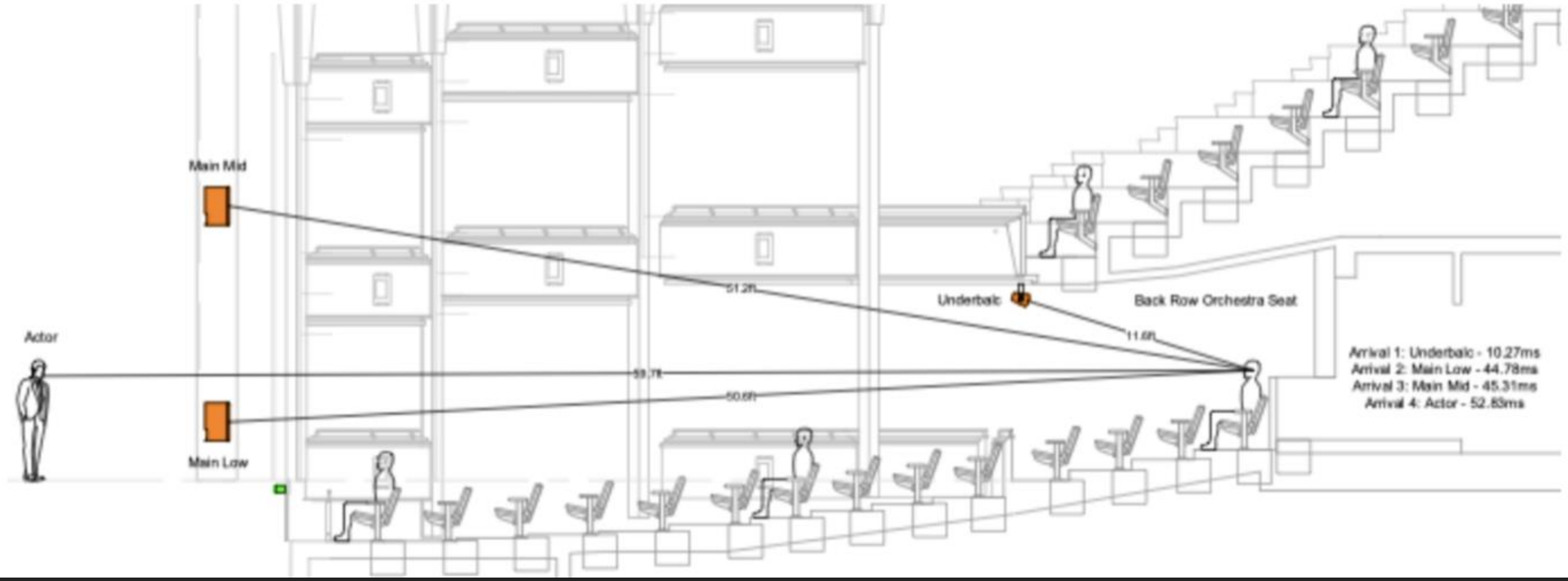
Our overall delay goals:

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 Underbalc 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

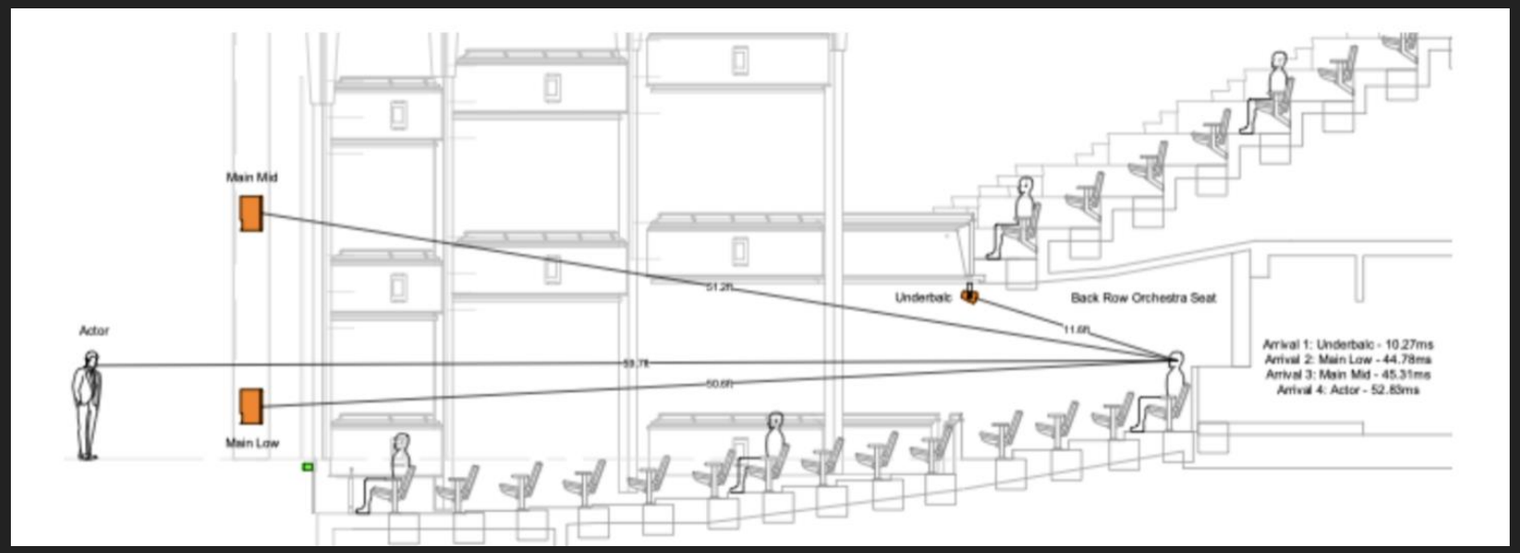
Adjusted Arrivals:

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 step 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!!

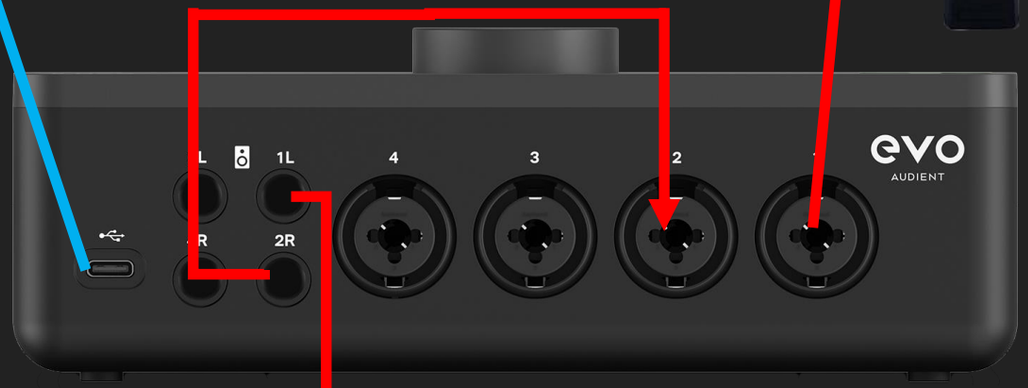
STEP 1: SETUP TUNING RIG

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.

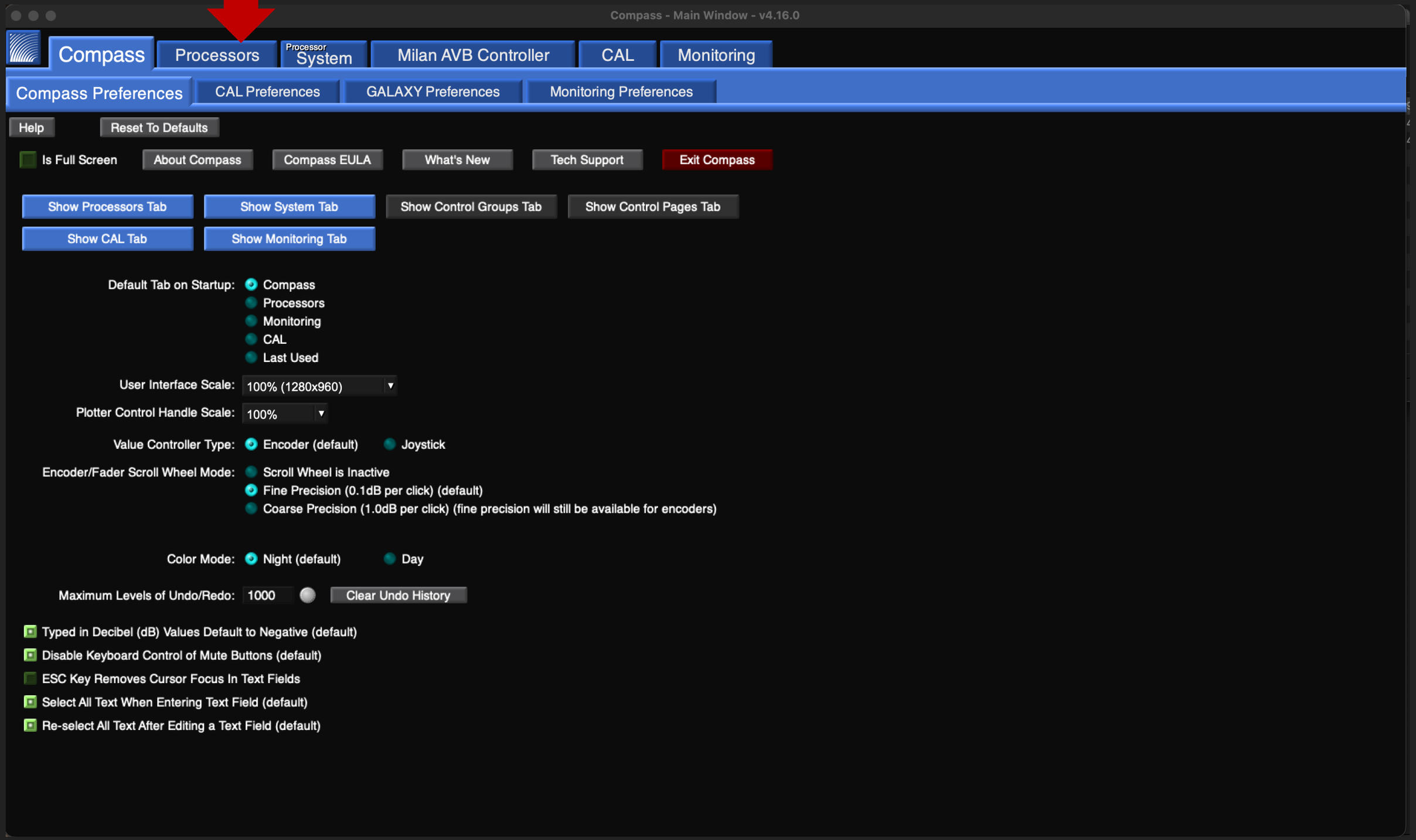
STEP 3: CONNECTING TO COMPASS

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.

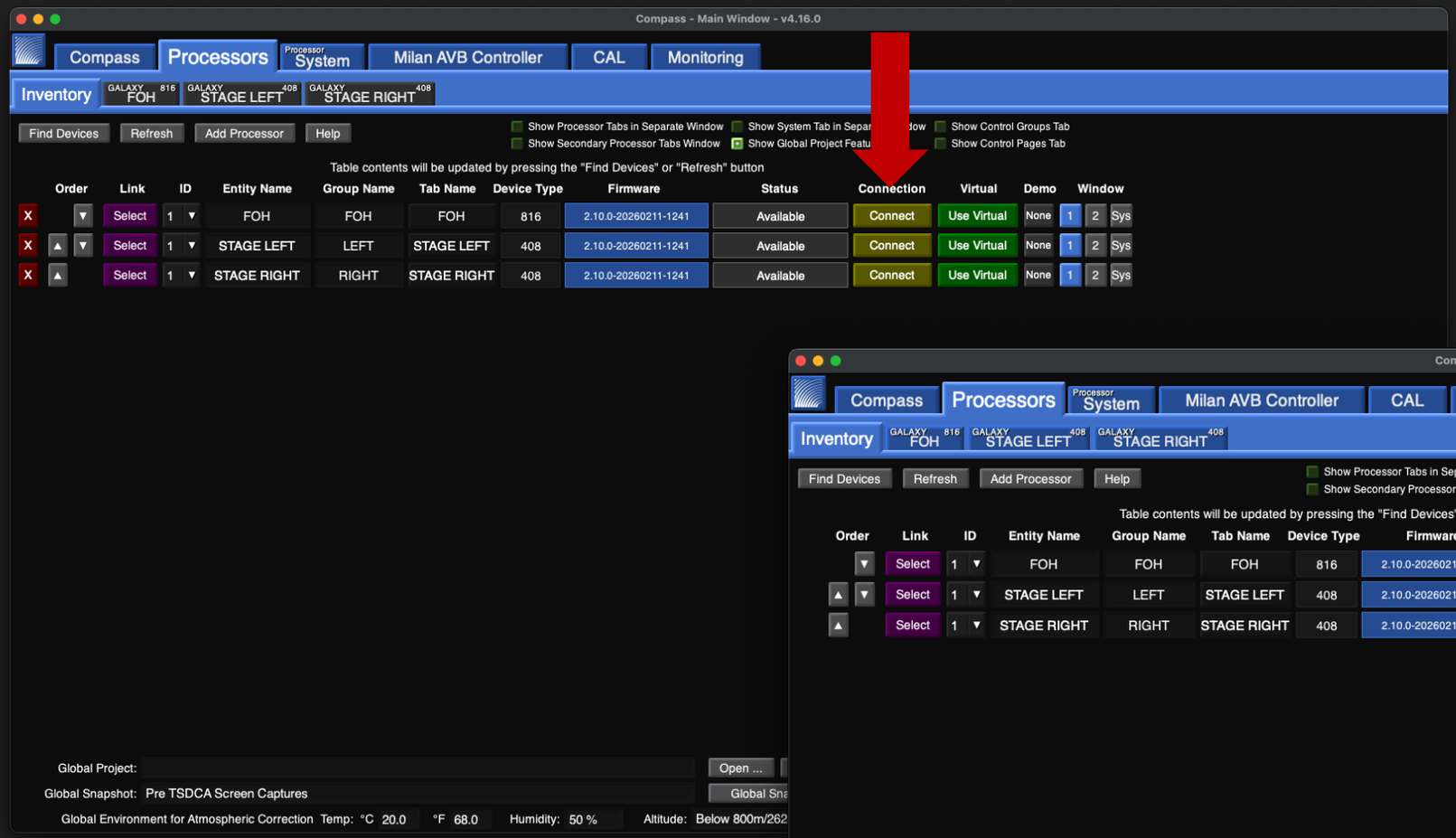
Click Here to see them.



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 FOH 816
GALAXY STAGE LEFT 408
GALAXY STAGE RIGHT 408
Find Devices
Refresh
Add Processor
Help
Show Processor Tabs in Separate Window
Show Secondary Processor Tabs Window
Show System Tab in Separate Window
Show Global Project Features
Show Control Groups Tab
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 Available Connect Use Virtual None 1 2 Sys
Select 1 STAGE LEFT LEFT STAGE LEFT 408 2.10.0-20260211-1241 Available Connect Use Virtual None 1 2 Sys
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 Environment for Atmospheric Correction Temp: °C 20.0 °F 68.0 Humidity: 50 % Altitude: Below 800m/262

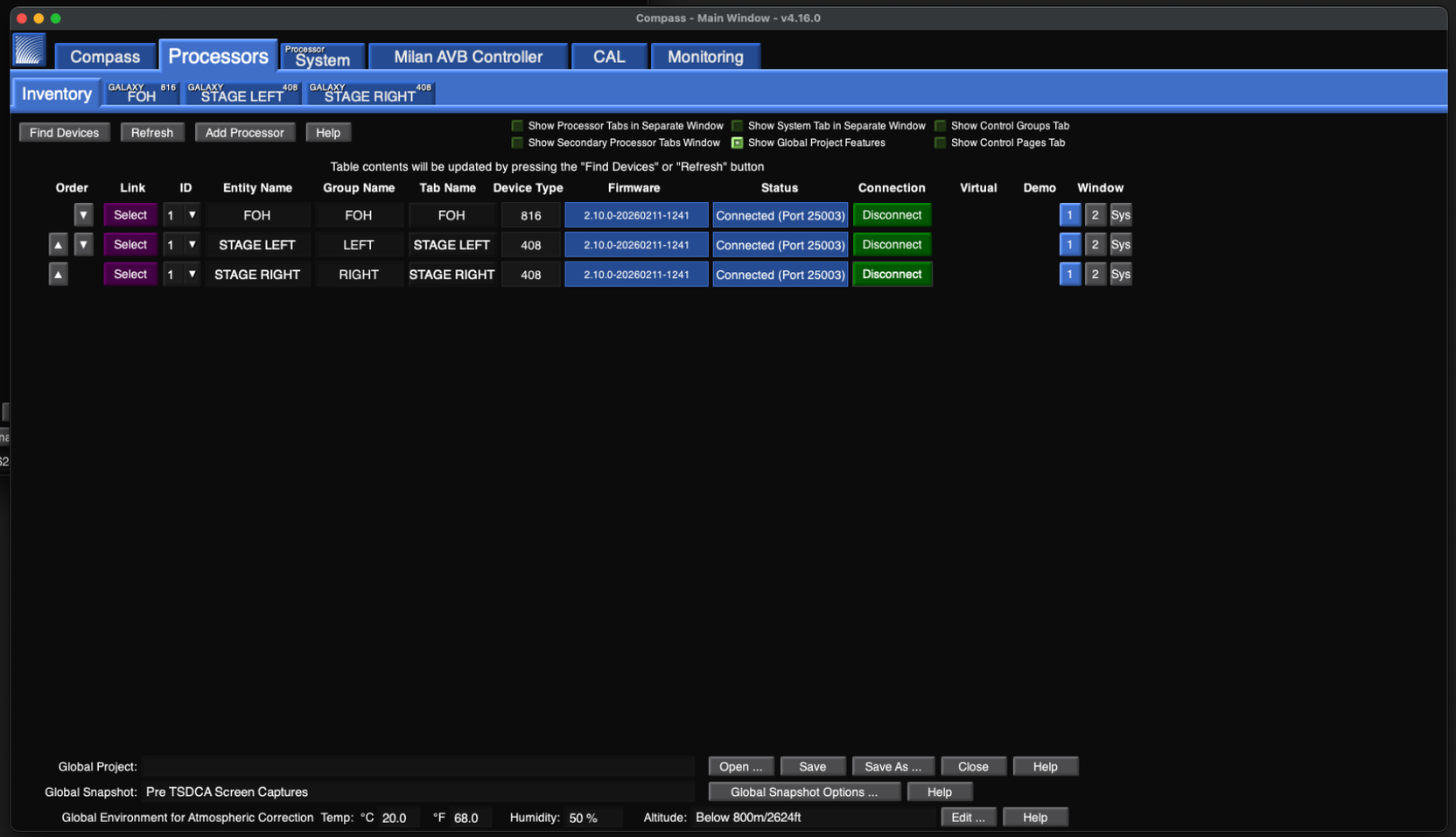

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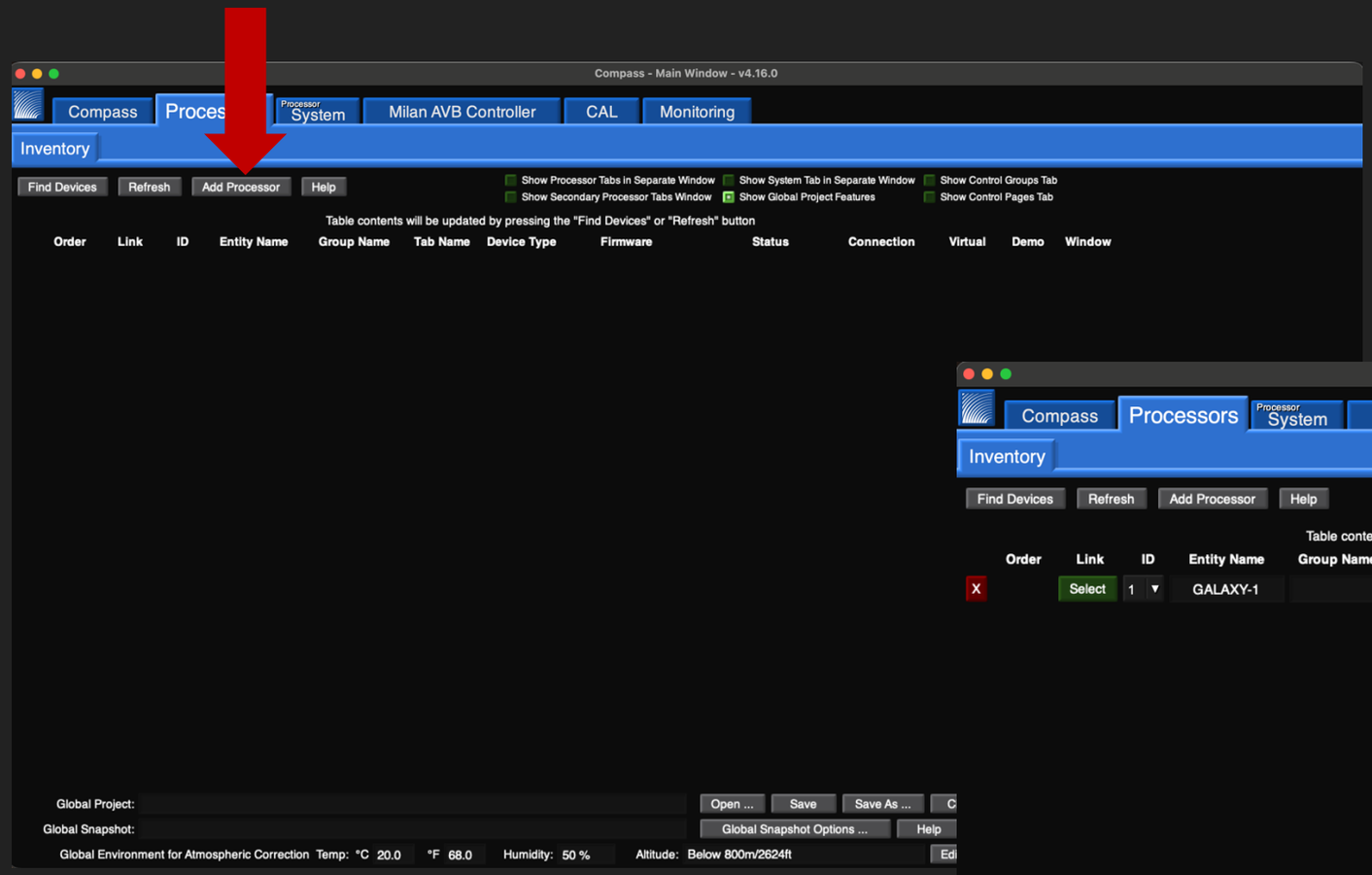
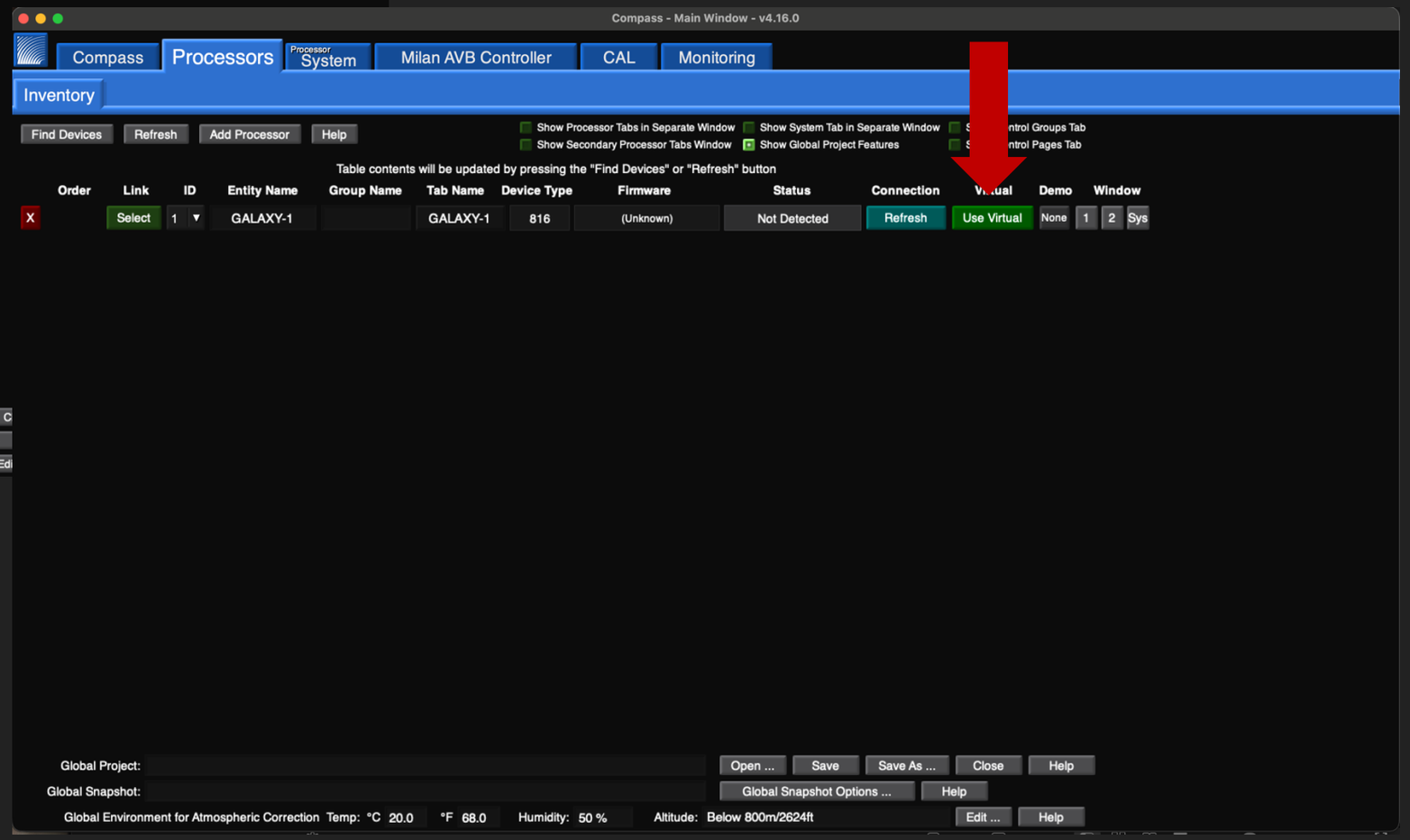
Table contents will be updated by pressing the "Find Devices" or "Refresh" button
Order Link ID Entity Name Group Name Tab Name Device Type Firmware Status Connection Virtual Demo Window
Select 1 FOH FOH FOH 816 2.10.0-20260211-1241 Connected (Port 25003) Disconnect 1 2 Sys
Select 1 STAGE LEFT LEFT STAGE 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!!

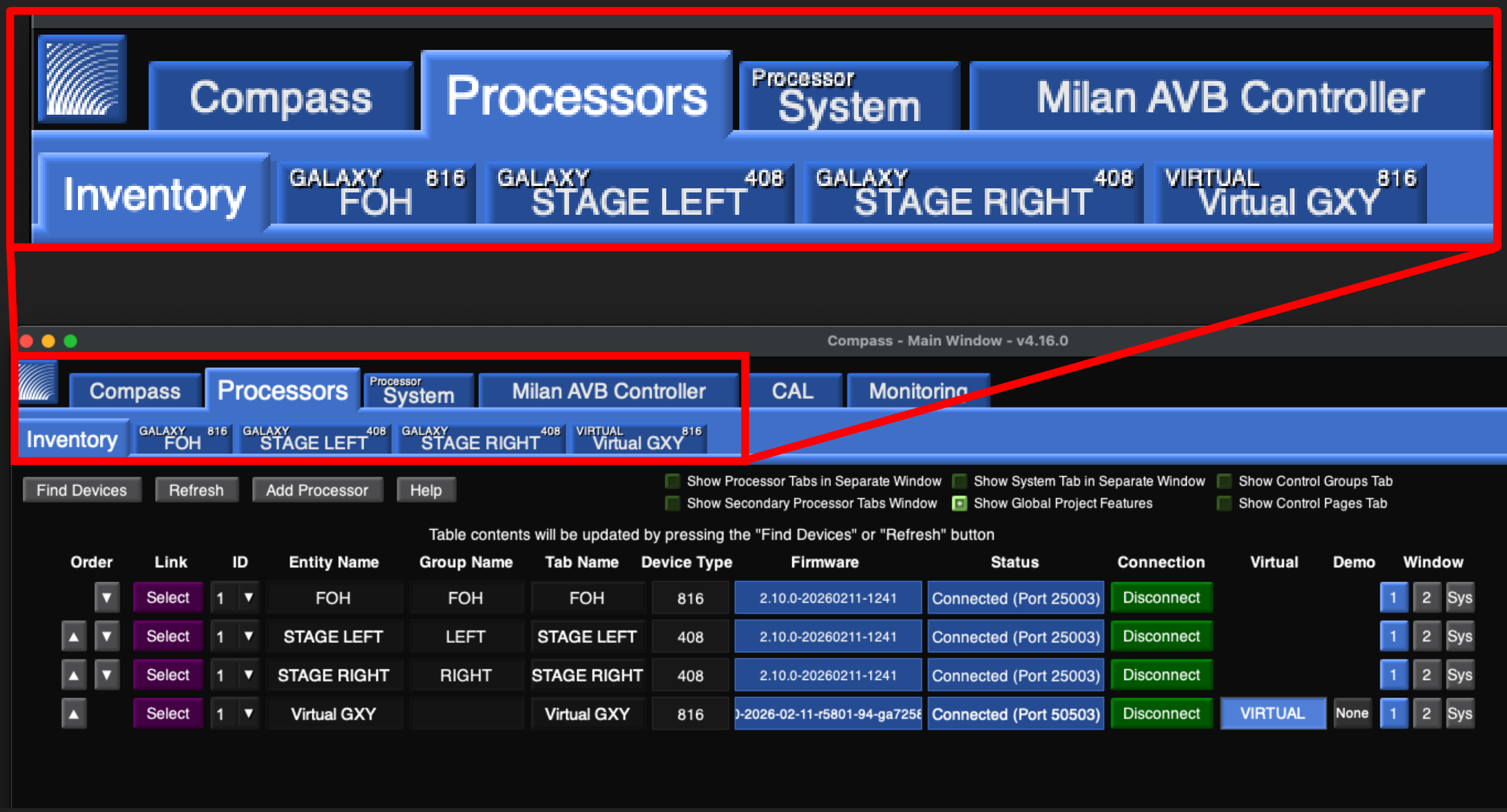




GREAT FOR PRE-PRODUCTION WORK

TAB STRUCTURE

TELLS WHAT DEVICES ARE USED



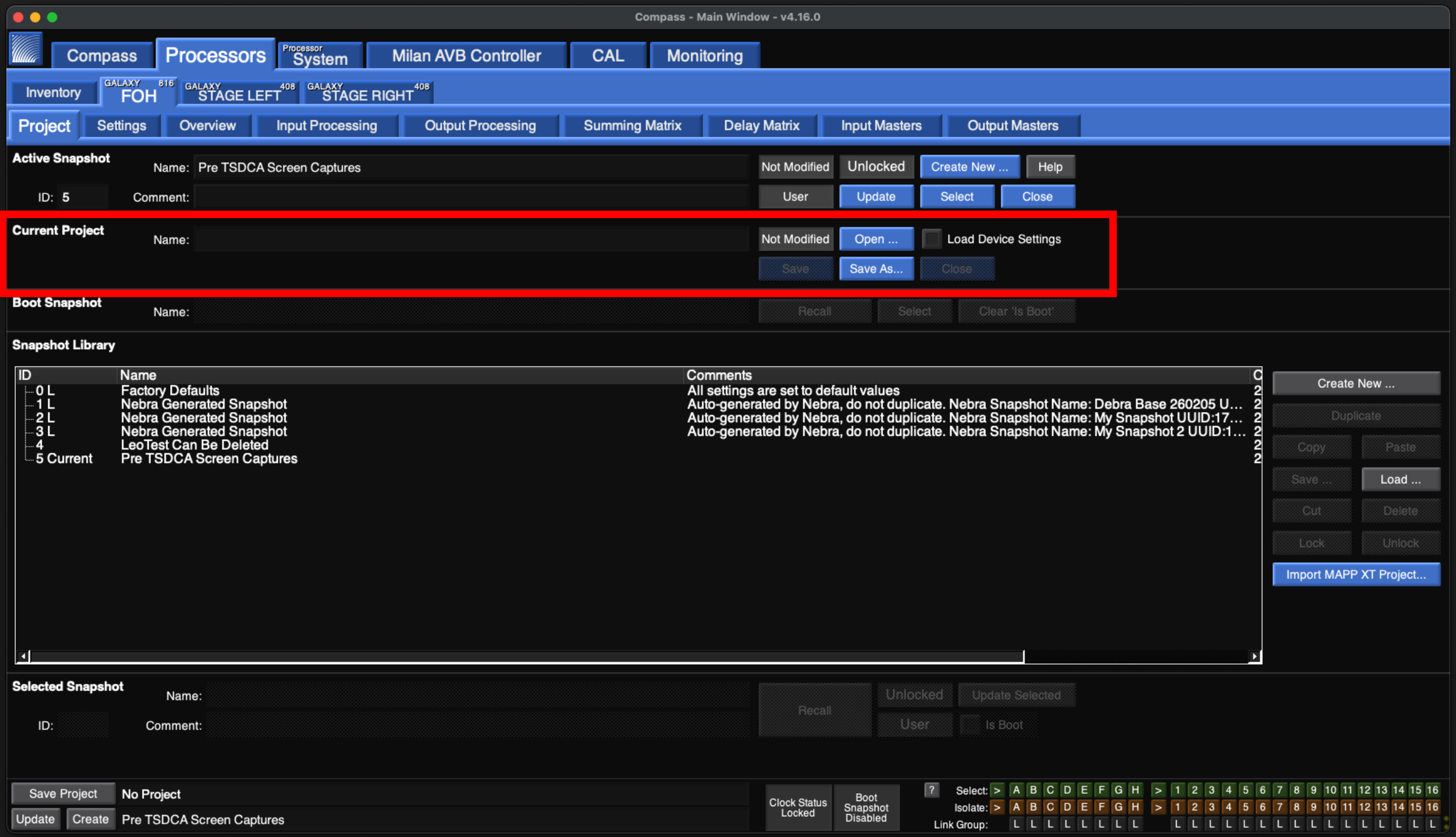
STEP 4:

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:

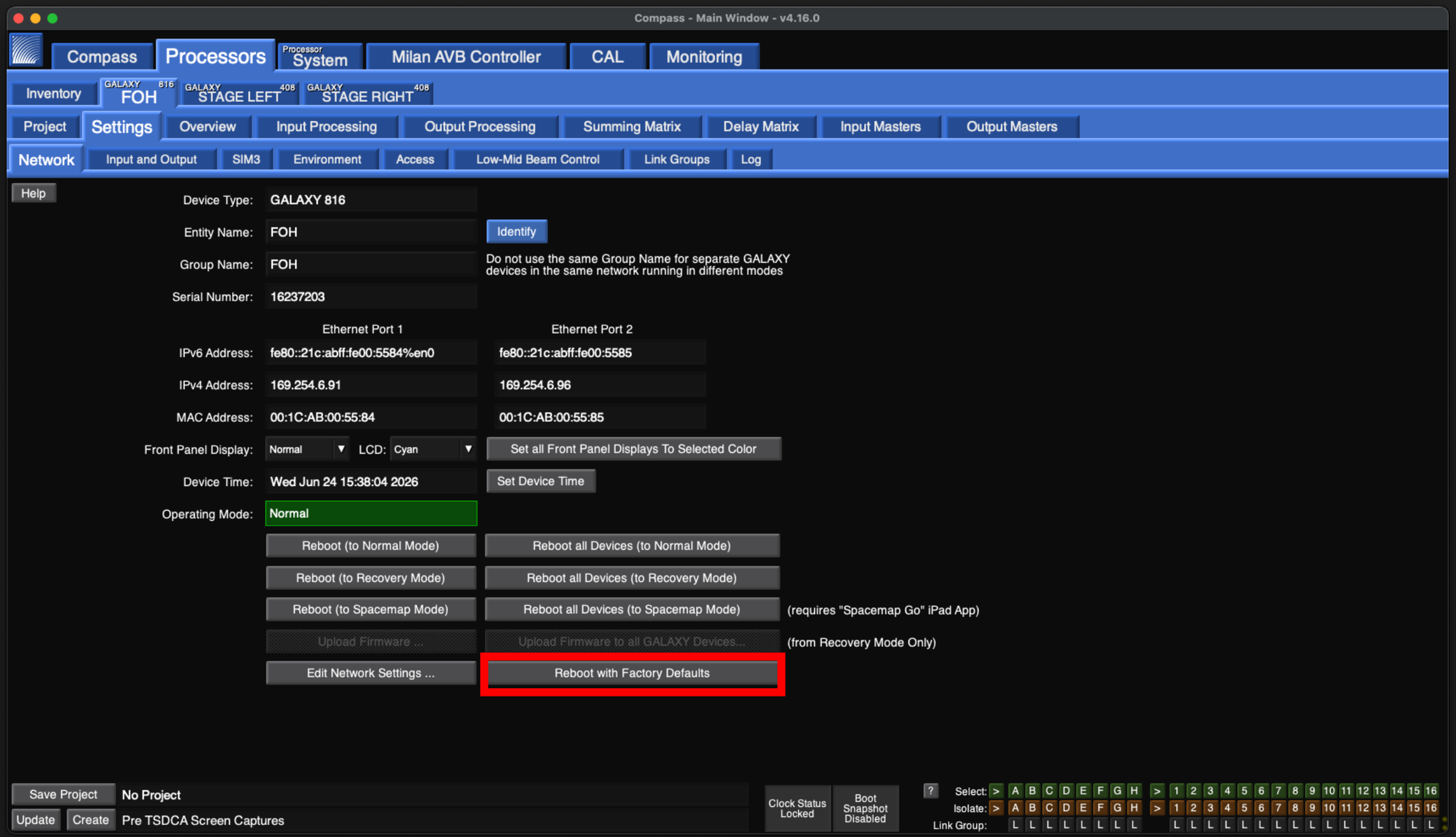
1 – REBOOT TO FACTORY DEFAULTS

(THIS WILL DELETE DEVICE SETTINGS AND ANY SNAPSHOTS)

2 – TAKE THE FACTORY DEFAULT SNAPSHOT

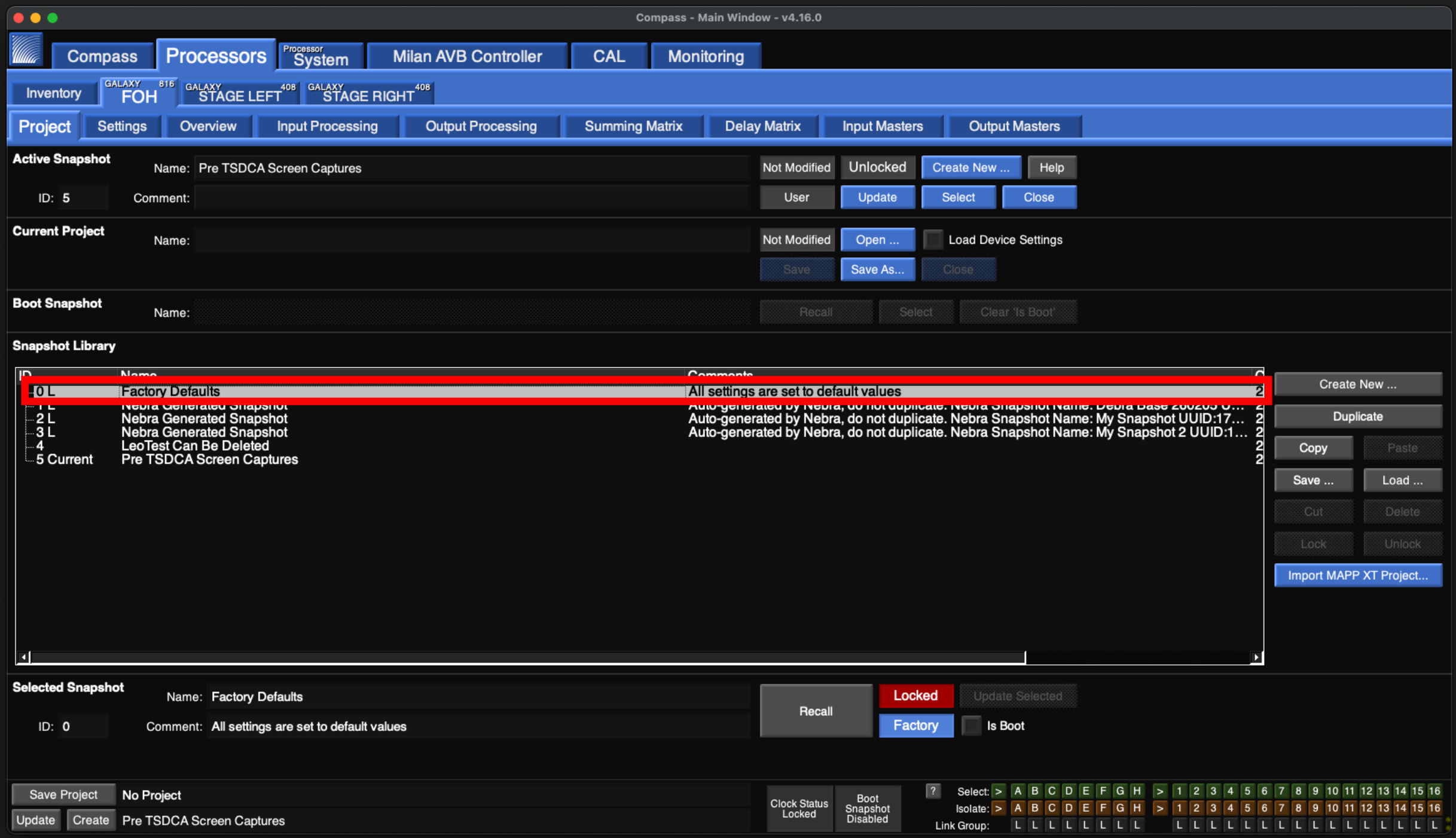
3 – RIGHT CLICK OVERVIEW TAB - RESET

OPTION 1: REBOOT TO FACTORY DEFAULTS

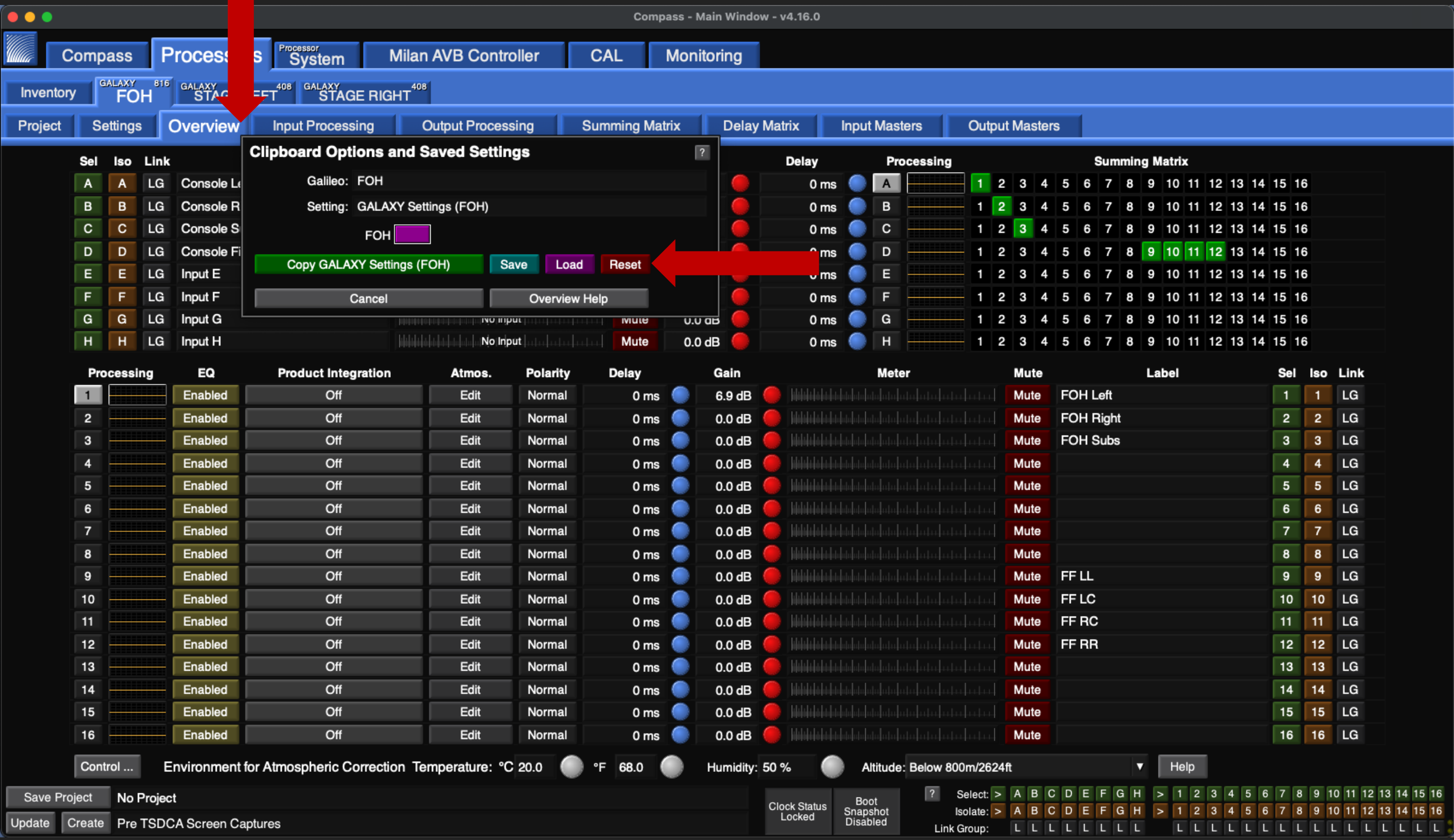


WILL DELETE SNAPSHOTS
AND SYSTEM SETTINGS

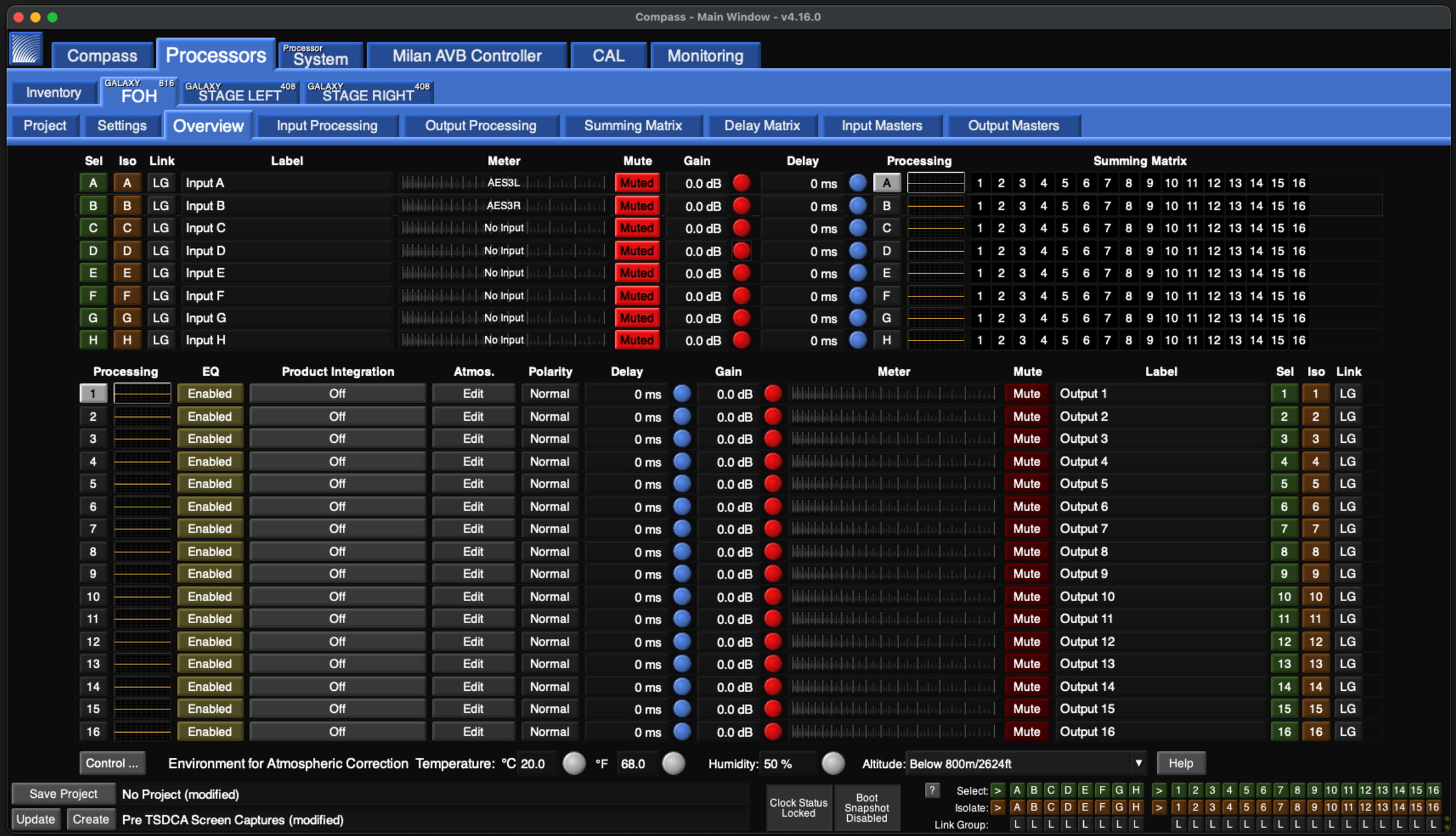
OPTION 2 – RECALL DEFAULT SNAPSHOT



OPTION 3 – RIGHT CLICK TRICK



BLANK SLATE


Compass - Main Window - v4.16.0
Compass
Processors
Processor System
Milan AVB Controller
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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
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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: Isolate: Link Group:

STEP 5: NAMING INS AND OUTS

NAME YOUR INPUTS!

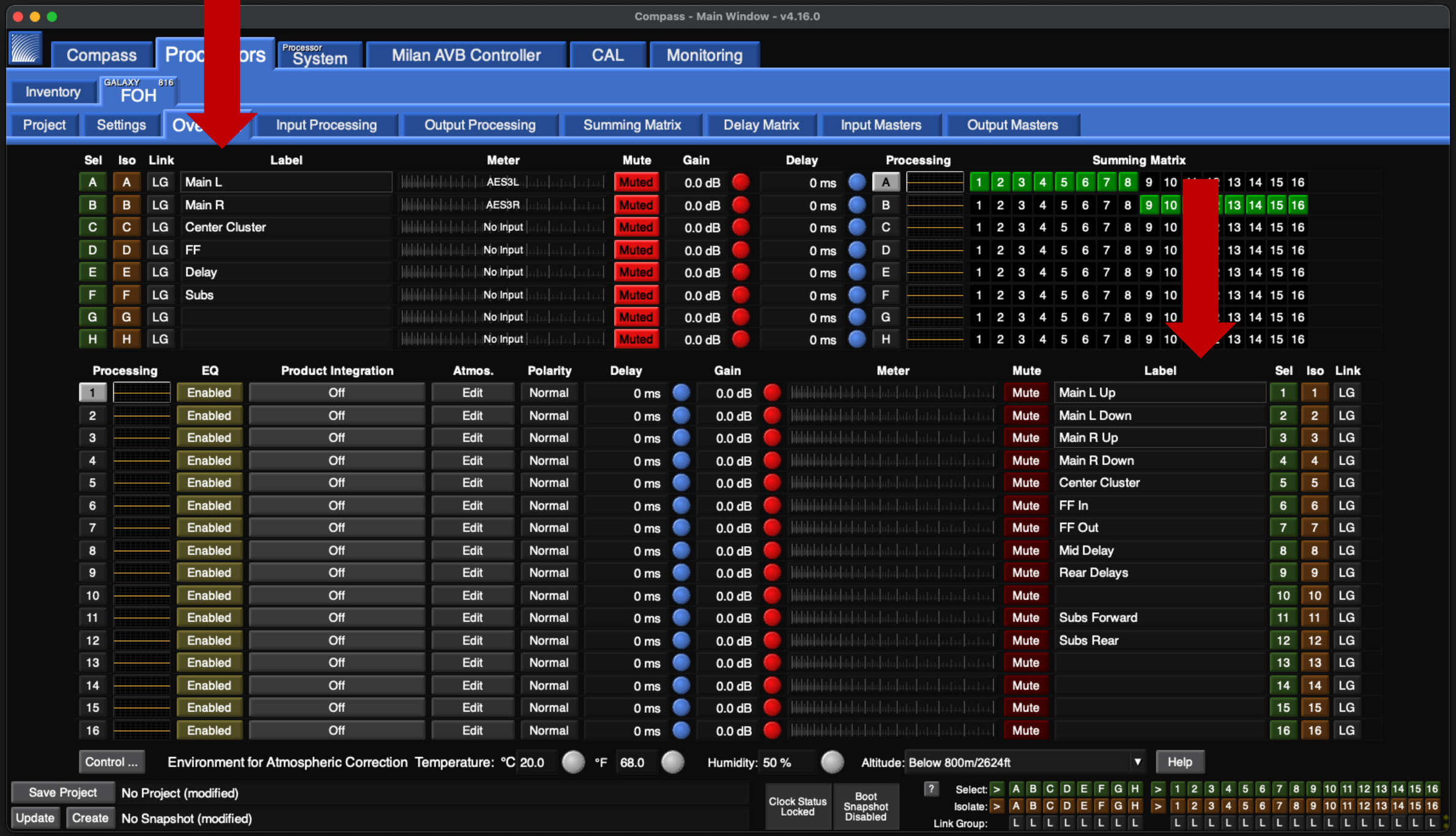
THERE ARE TWO SCHOOLS OF THOUGHT!

1 – GROUP BY PURPOSE

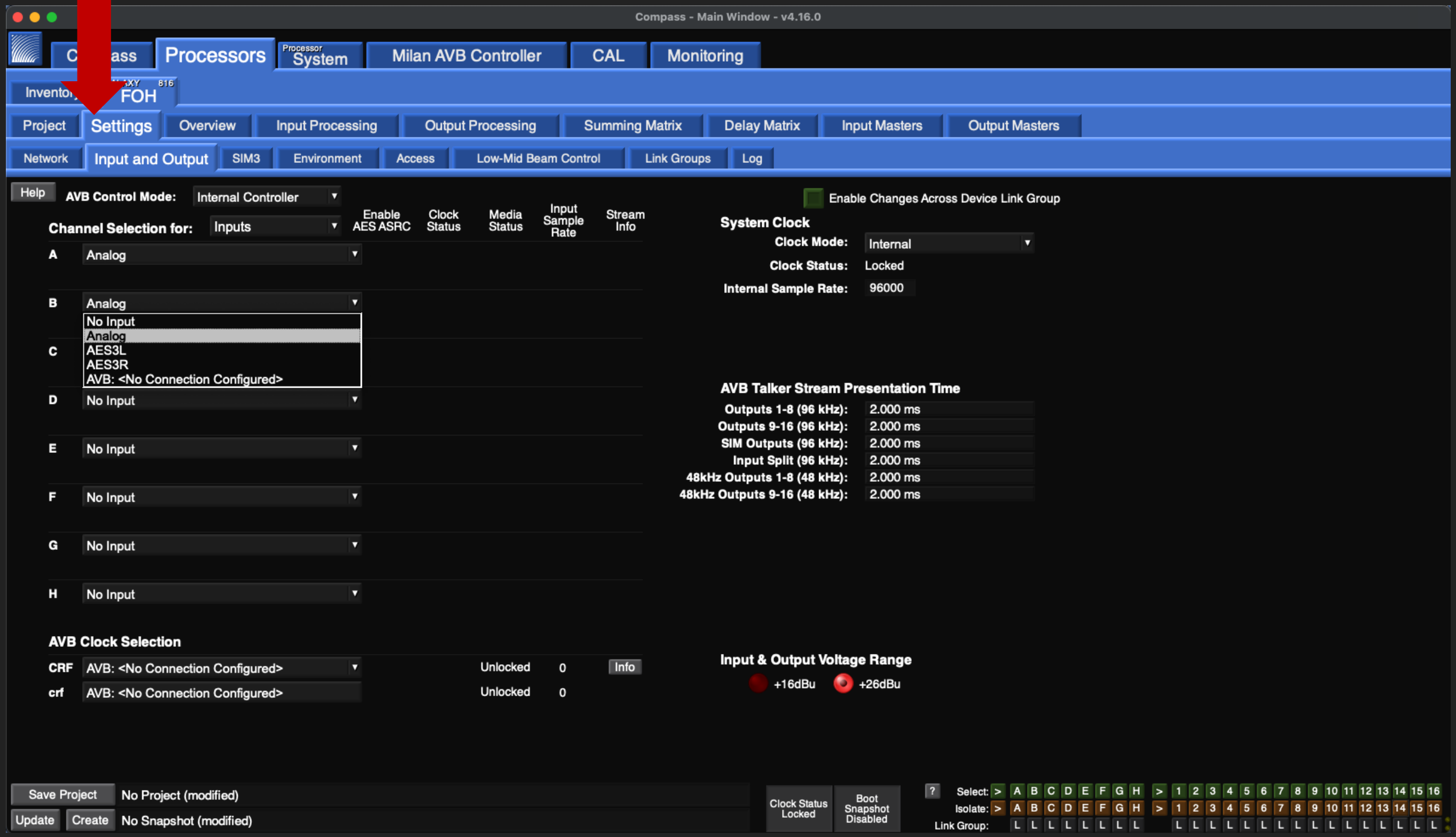
2 - GROUP BY SPEAKER LOCATIONS

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

STEP 5: NAME ALL INS AND OUTS!



STEP 6: SET INPUT TYPES



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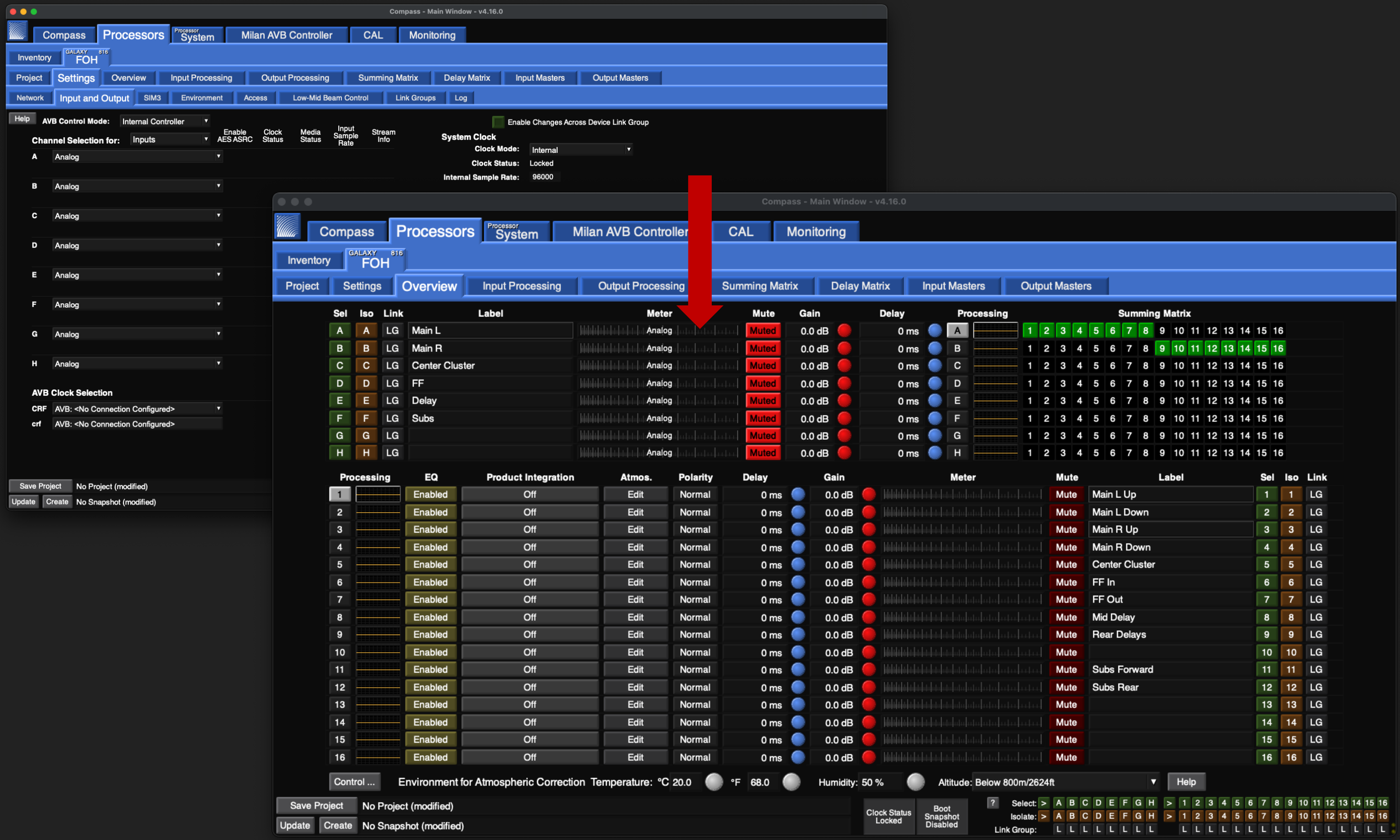
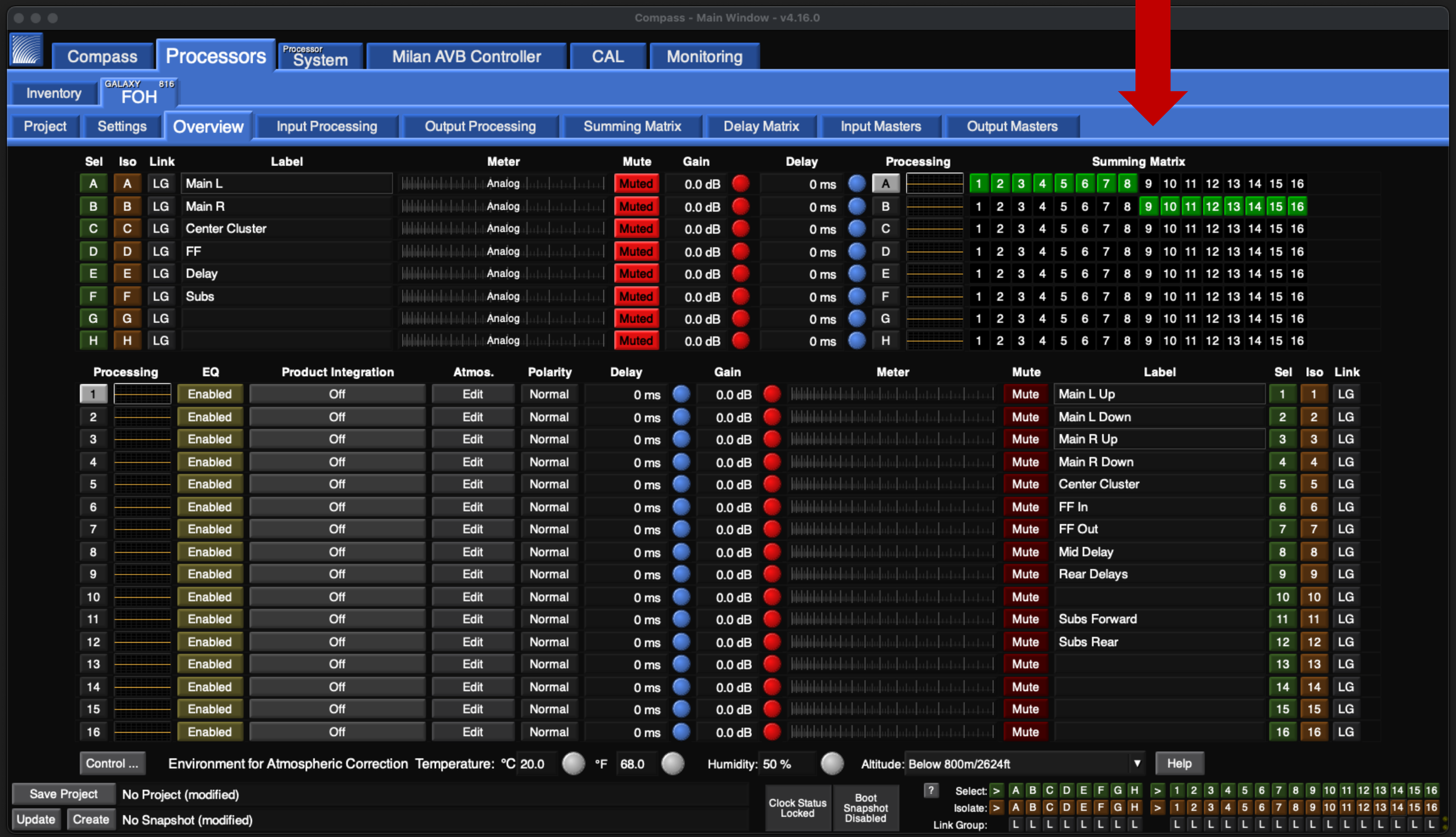


STEP 7: ROUTE YOUR INS TO YOUR OUTS



STEP 7: ROUTE YOUR INS TO YOUR OUTS

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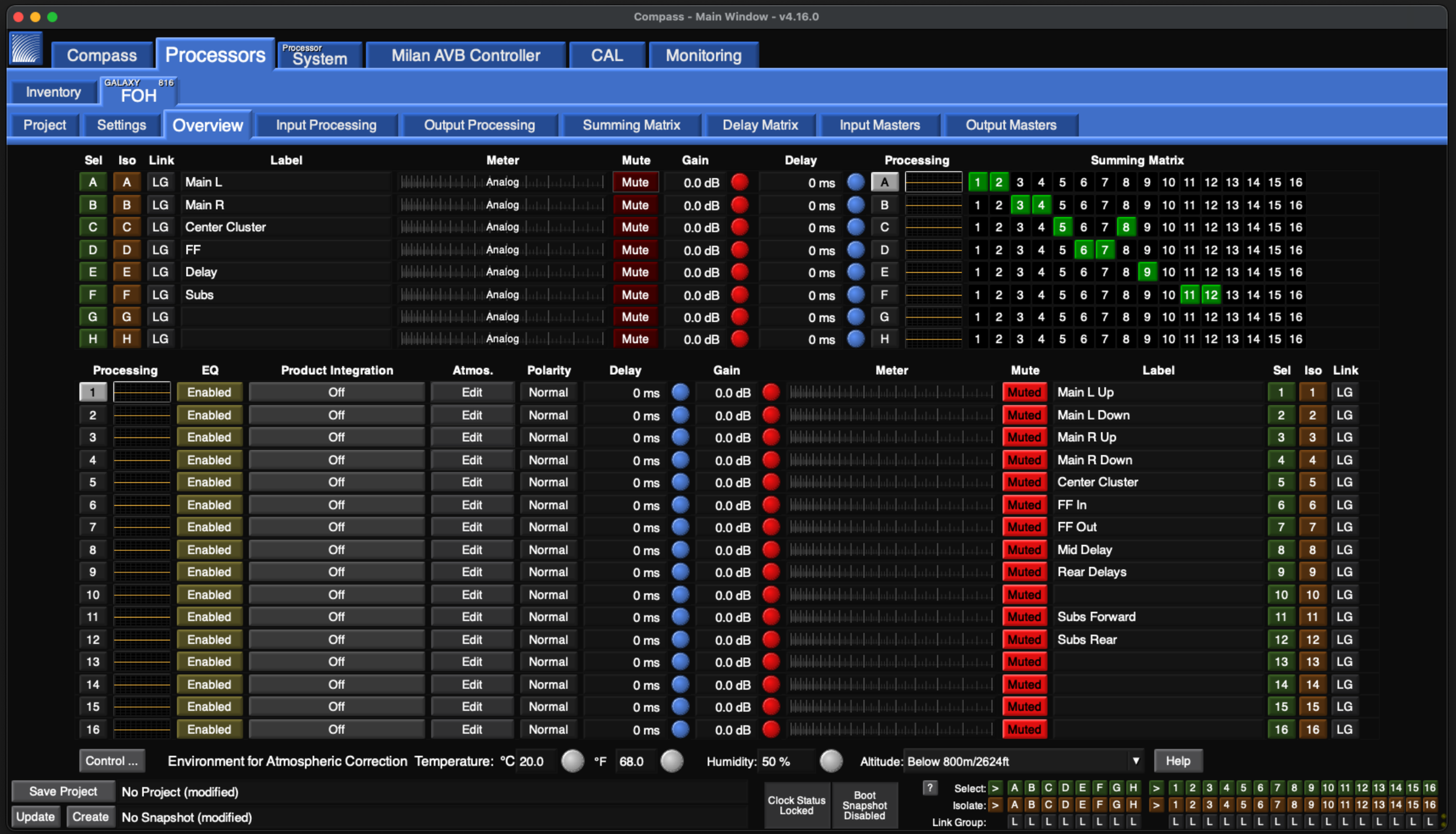


STEP 8: CONFIRM SIGNAL PATH

TEST THE PATH INTO THE GALAXY

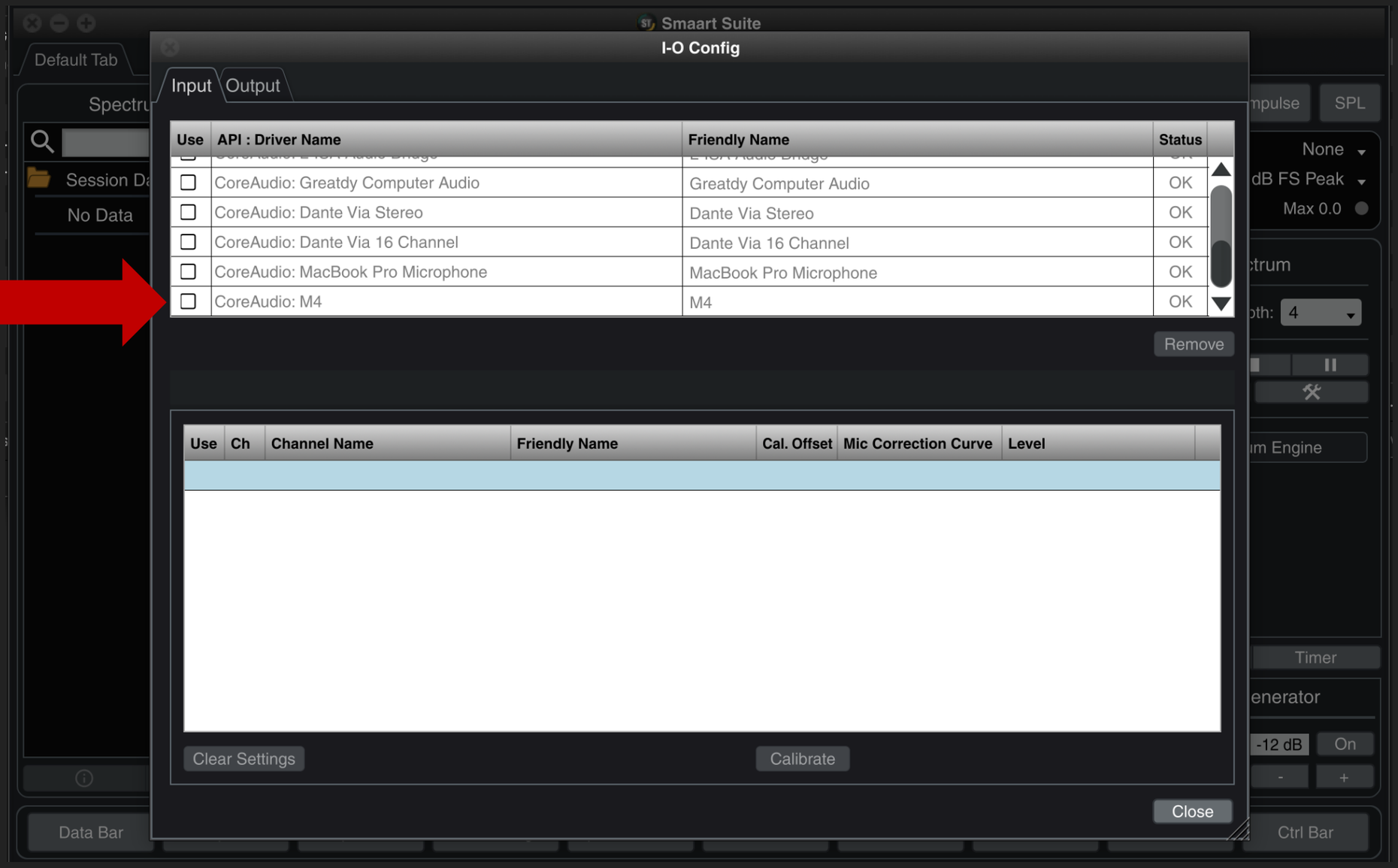
AND OUT TO THE LOUDSPEAKERS

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!!

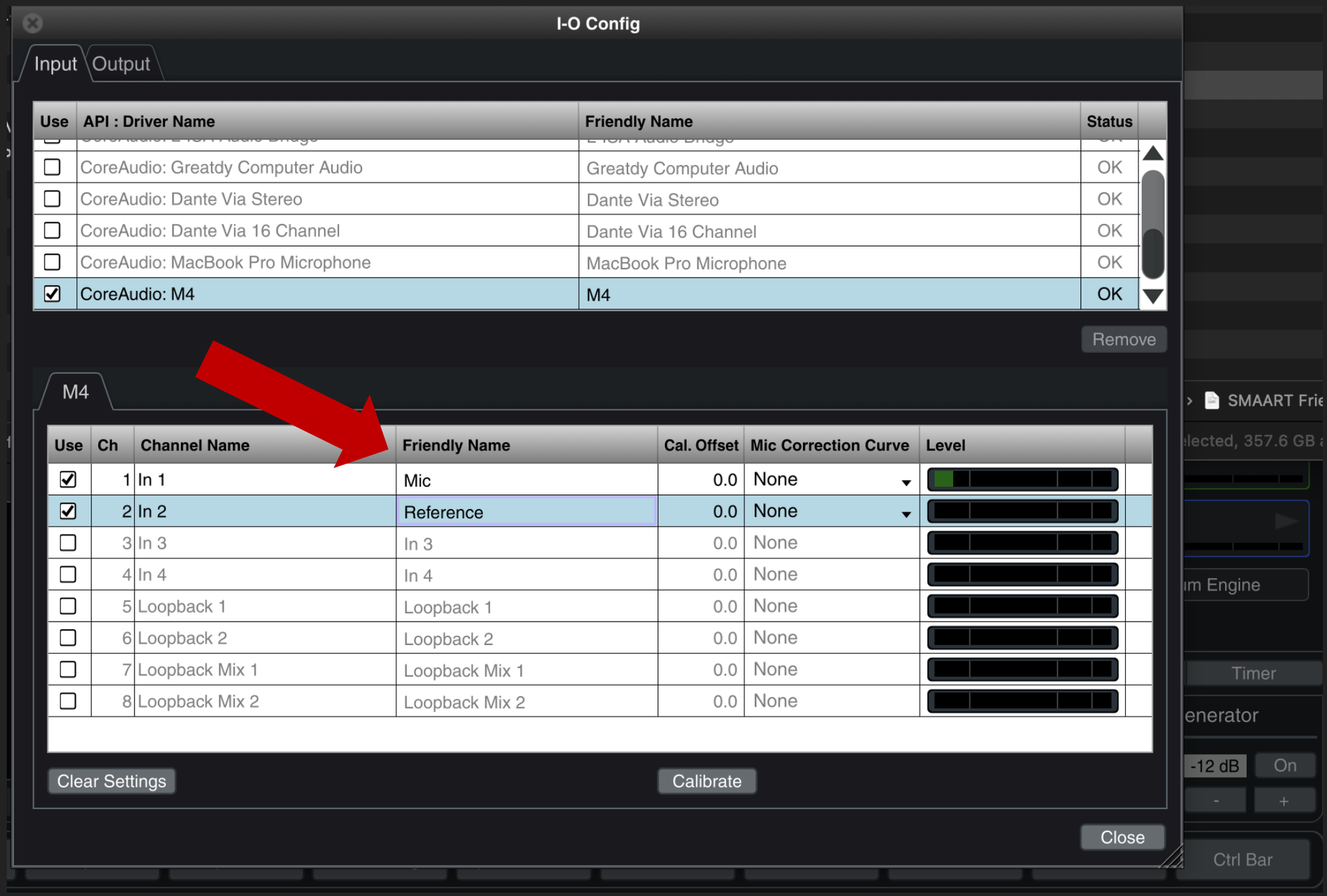
STEP 9: SMAART SETUP

- Select audio interface for inputs



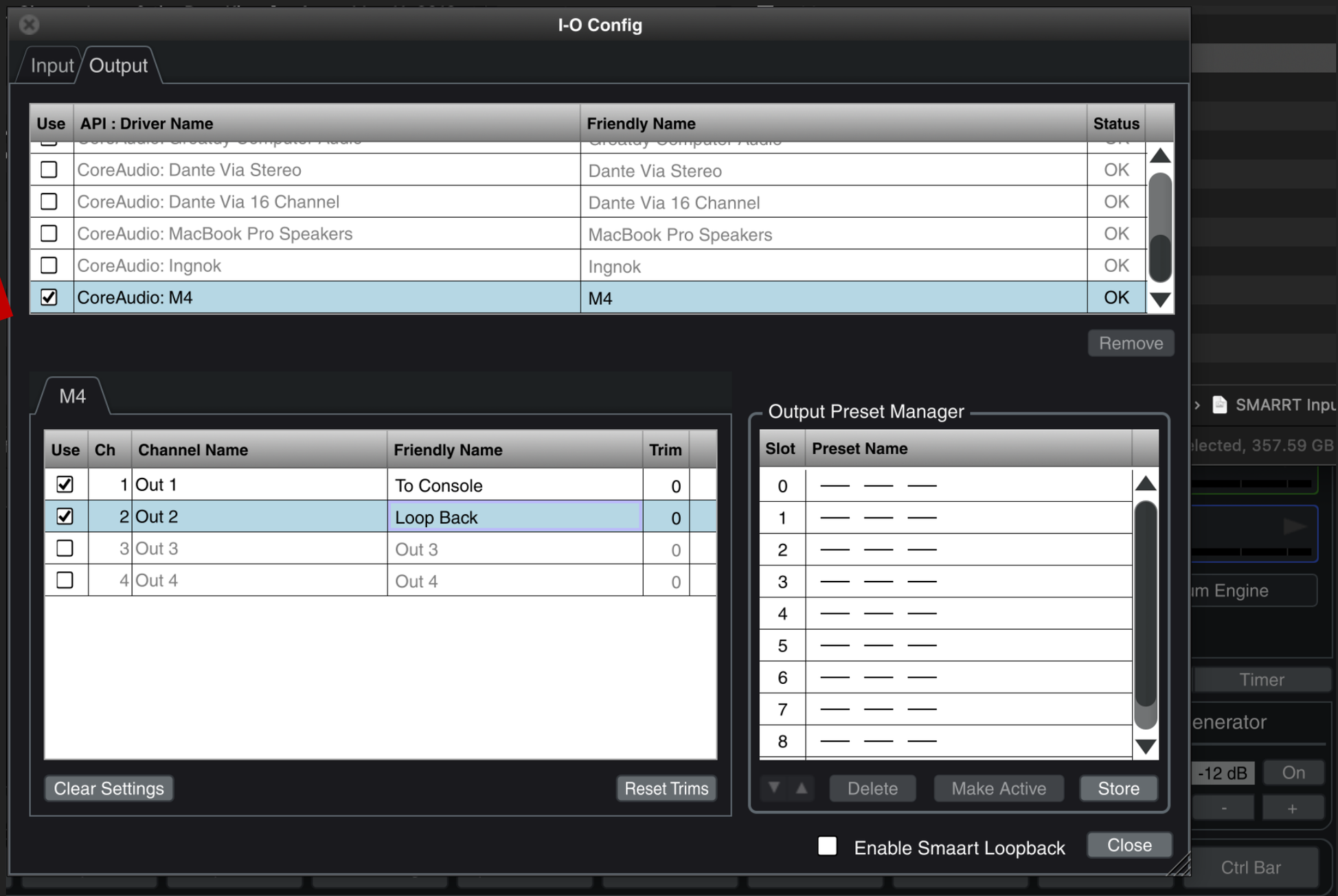
STEP 10: SMAART SETUP

- Label friendly name for input 1 and 2



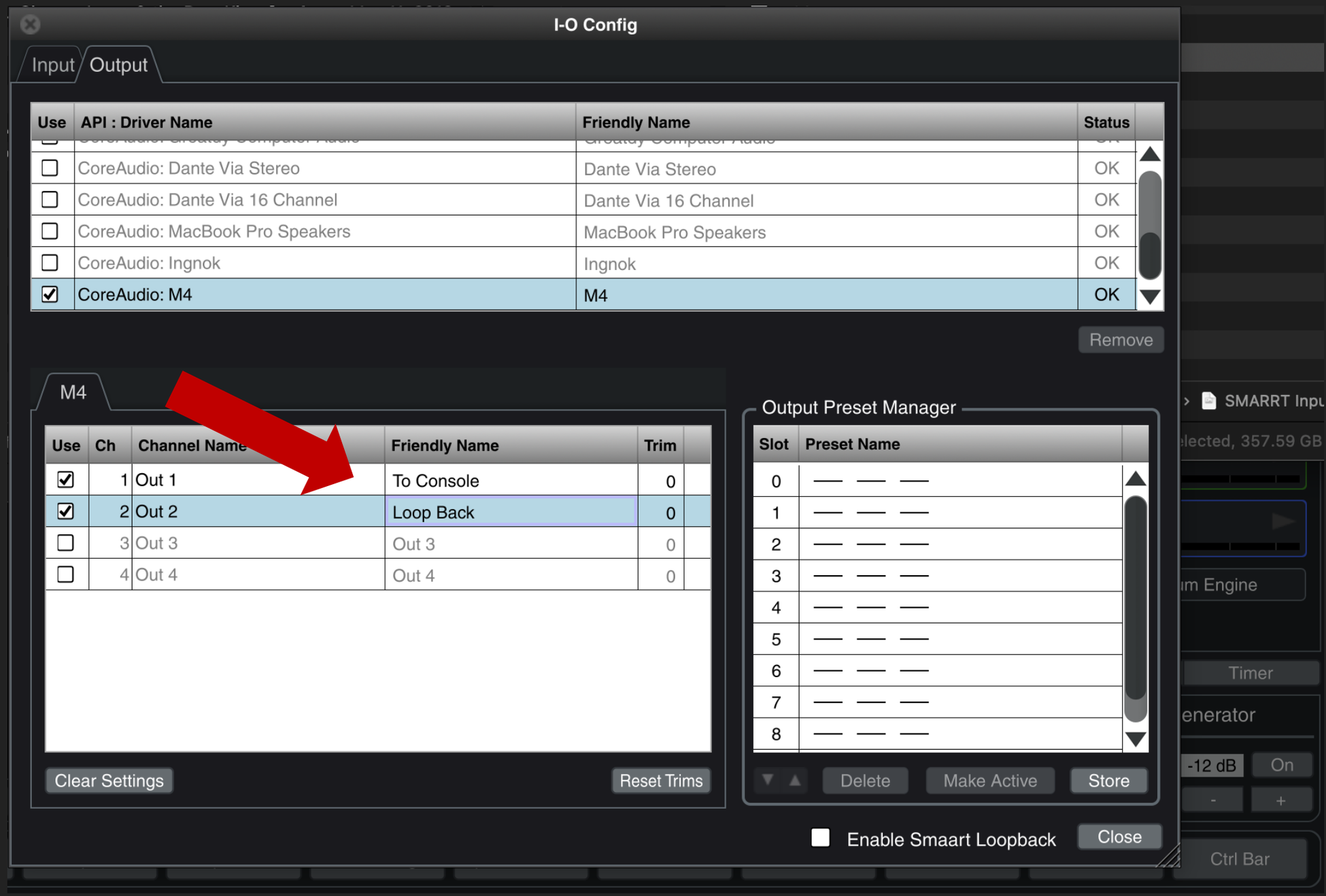
STEP 11: SMAART SETUP

- Select Audio interface for outputs



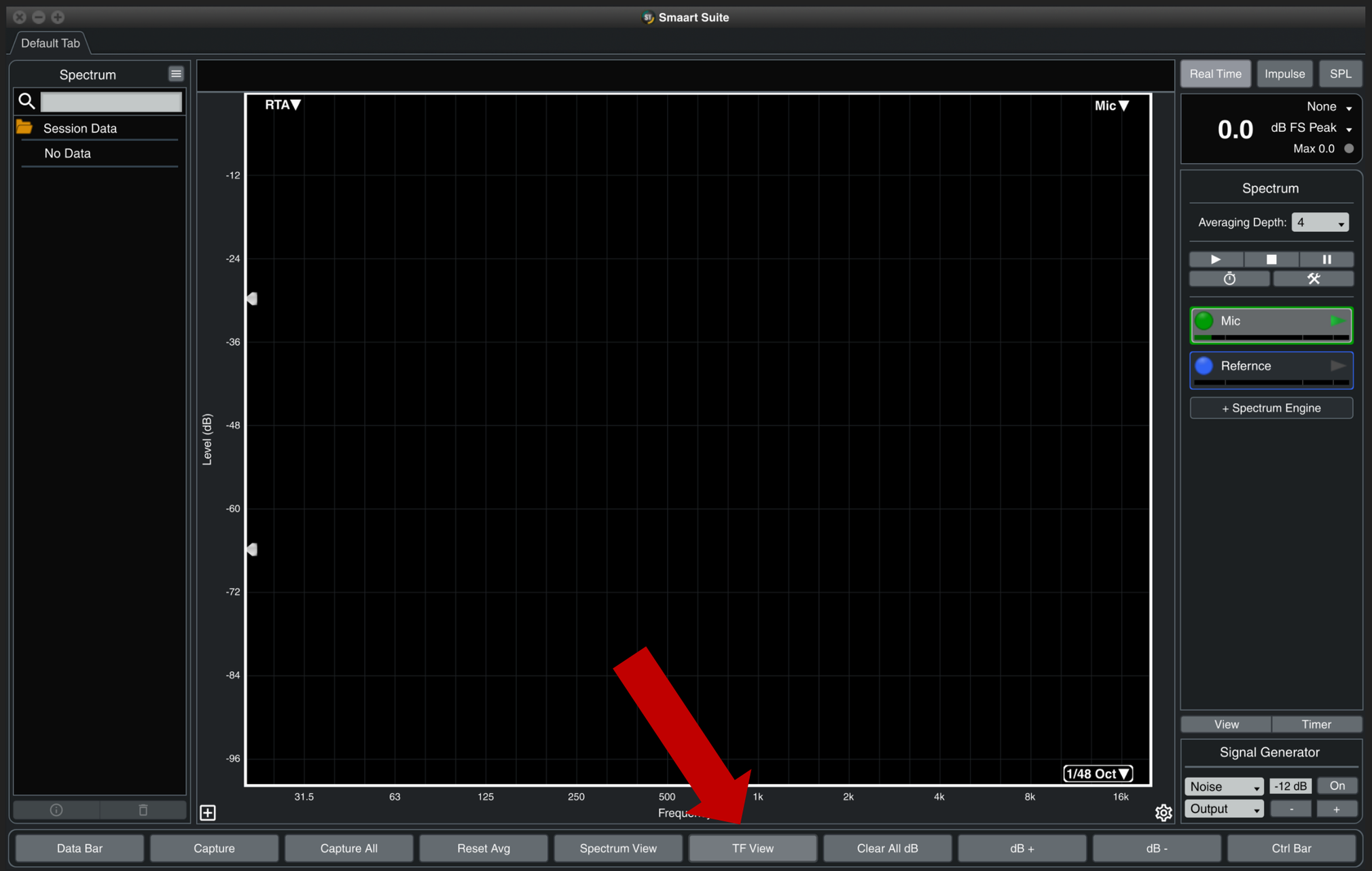
STEP 11: SMAART SETUP

- Label friendly name for Output 1 and 2.



STEP 12: SMAART SETUP

- Go to transfer function view

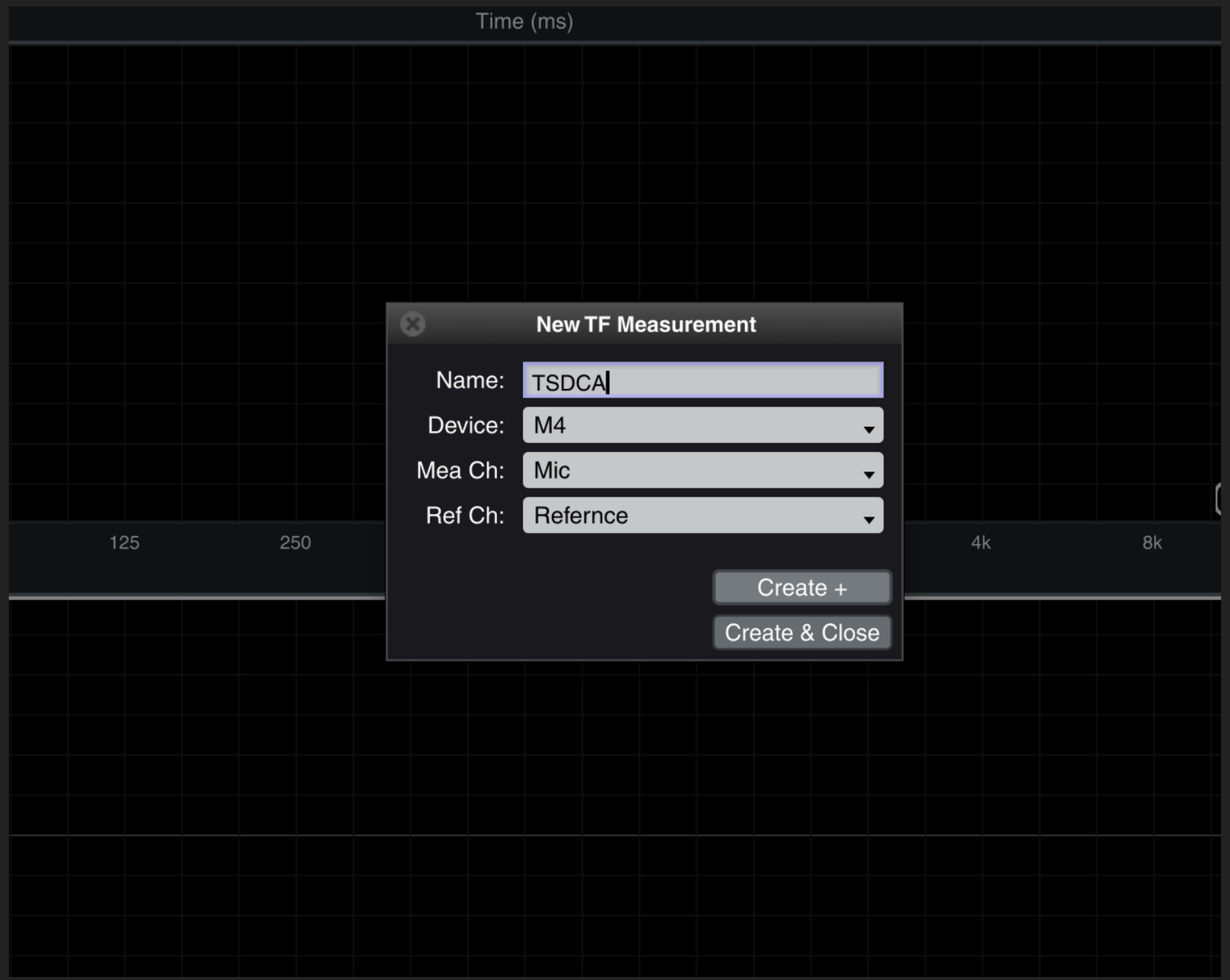


STEP 13: SMAART SETUP

- 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.

ADDITIONAL FEATURE: DELAY MATRIX

DELAY PER CROSSPOINT

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

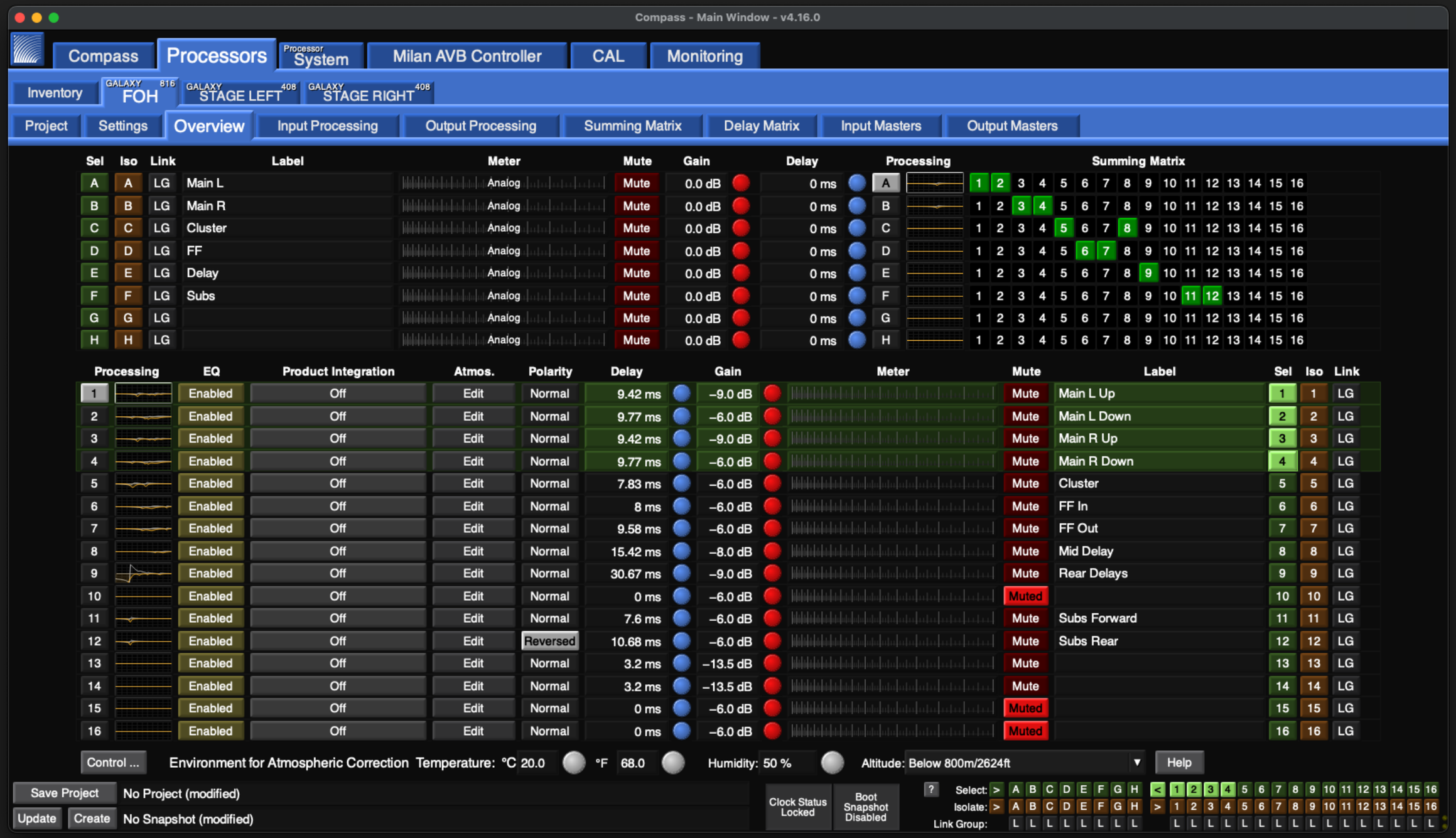
- Input Processing
  - 5 Parametric Bands
  - U-Shaping
- Output Processing
  - 10 Parametric Bands
  - U-Shaping
  - All Pass Filters
  - High and Low Pass

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

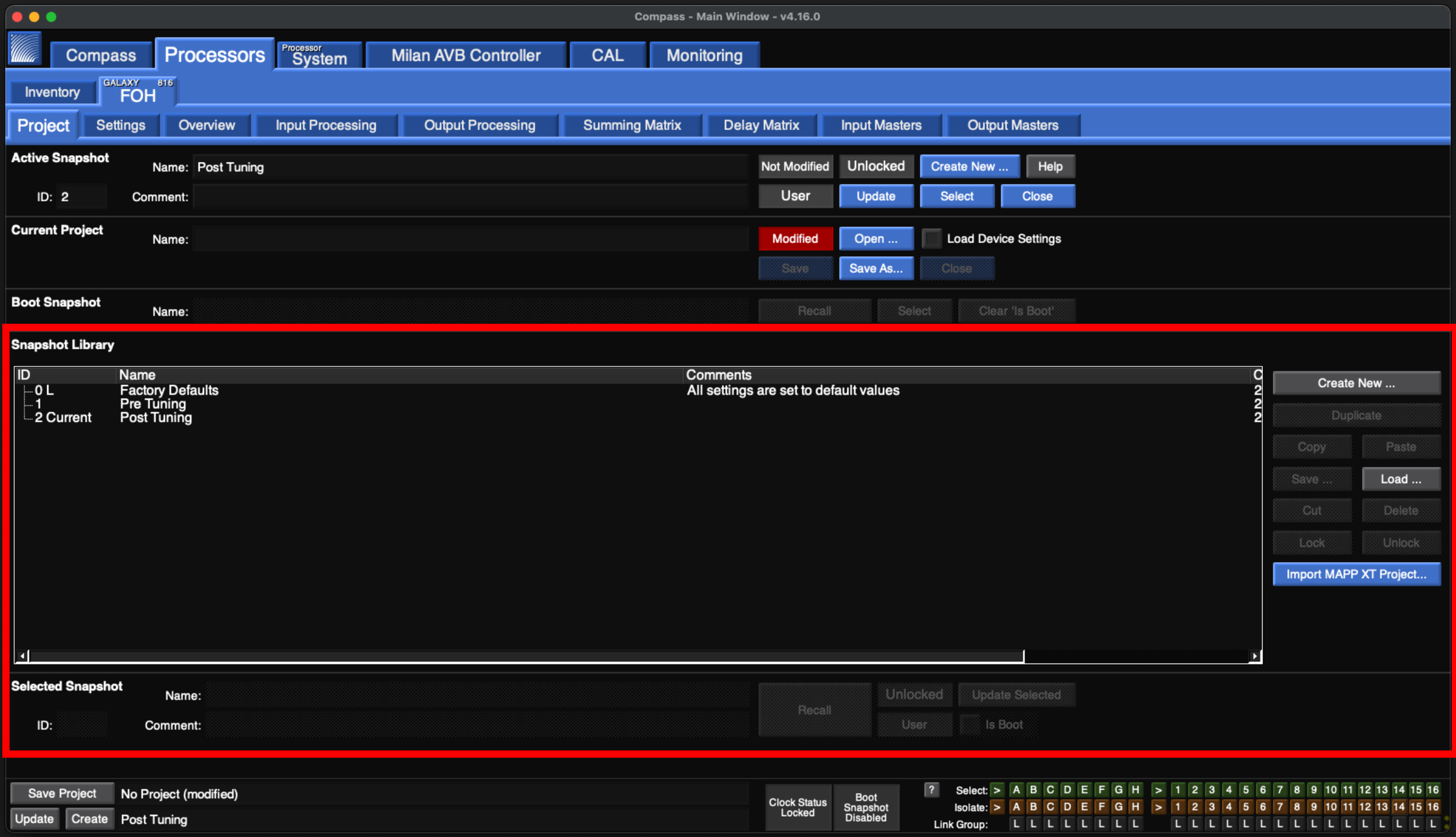
- I use Michael Buble's "You've Got What It Takes"
  - It has a male and female voice and it just works for me.
- I will also play some music in the style of the show.

SAVING IN COMPASS
SNAPSHOTS VS PROJECTS

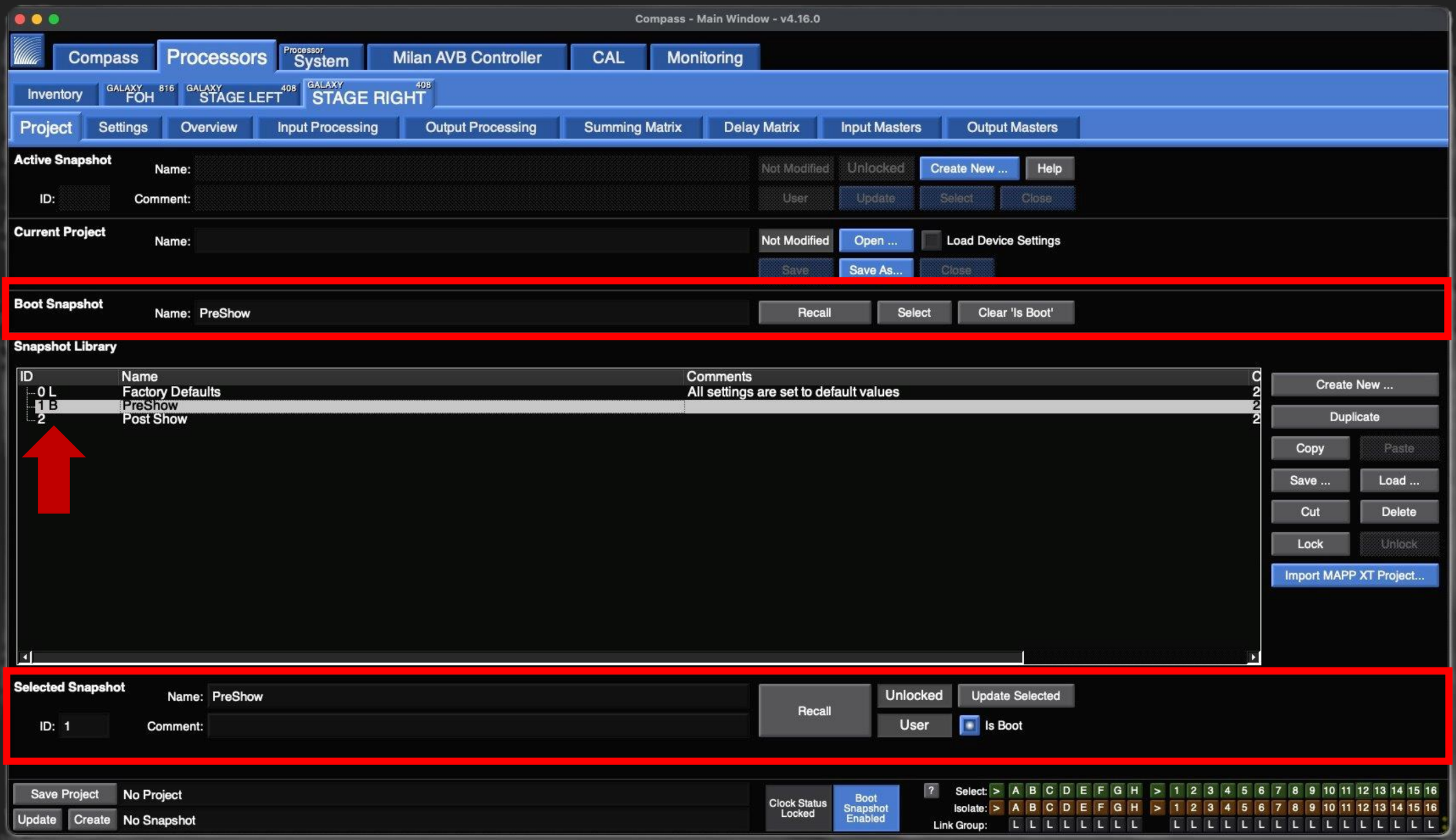
- Snapshots
  - Capture GALAXY Settings
  - Stored to the Hardware itself
- Virtual GALAXY has no hardware so if you close, they will disappear

SAVING IN COMPASS

SNAPSHOTS



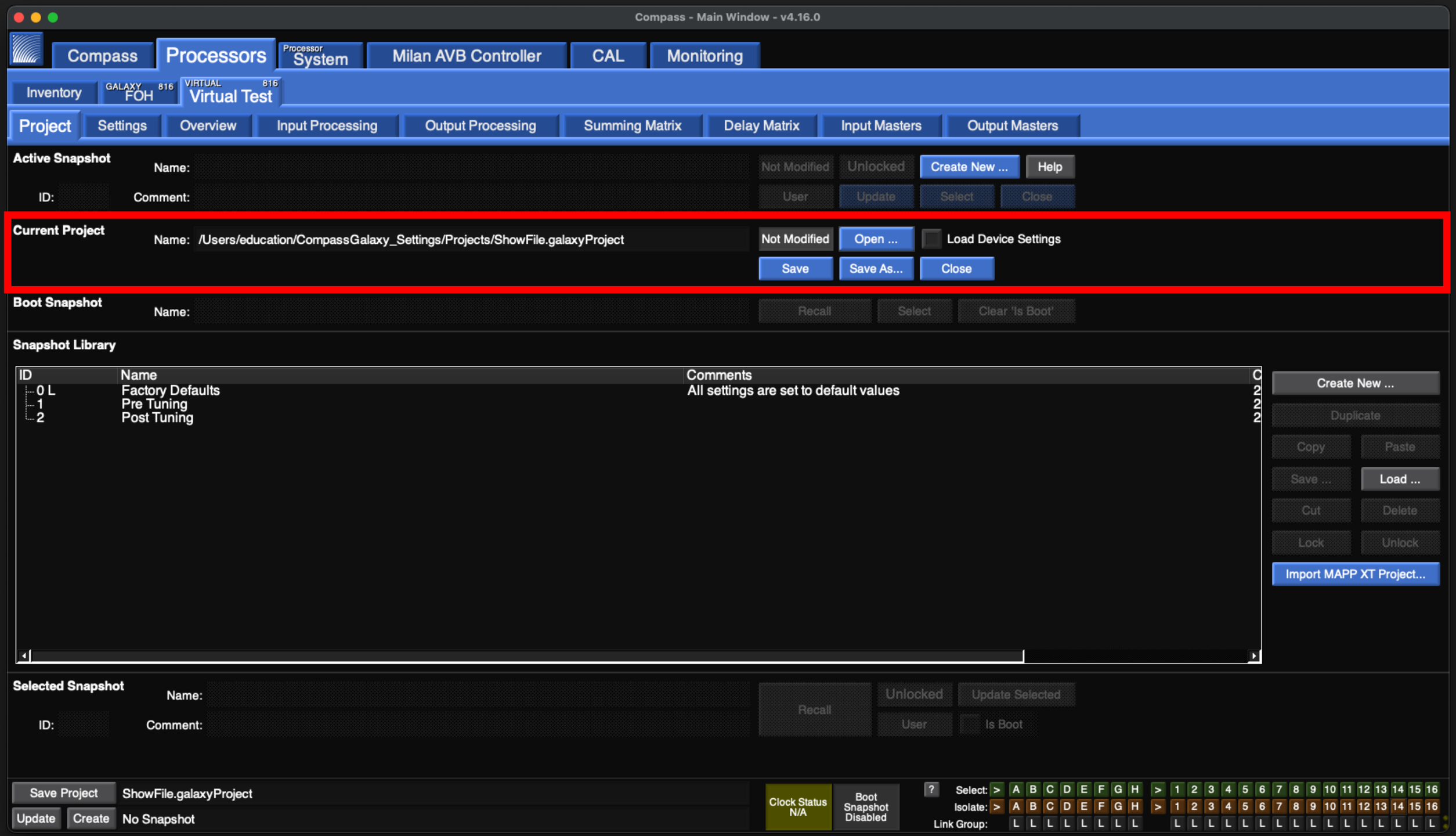
BOOT SNAPSHOTS



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

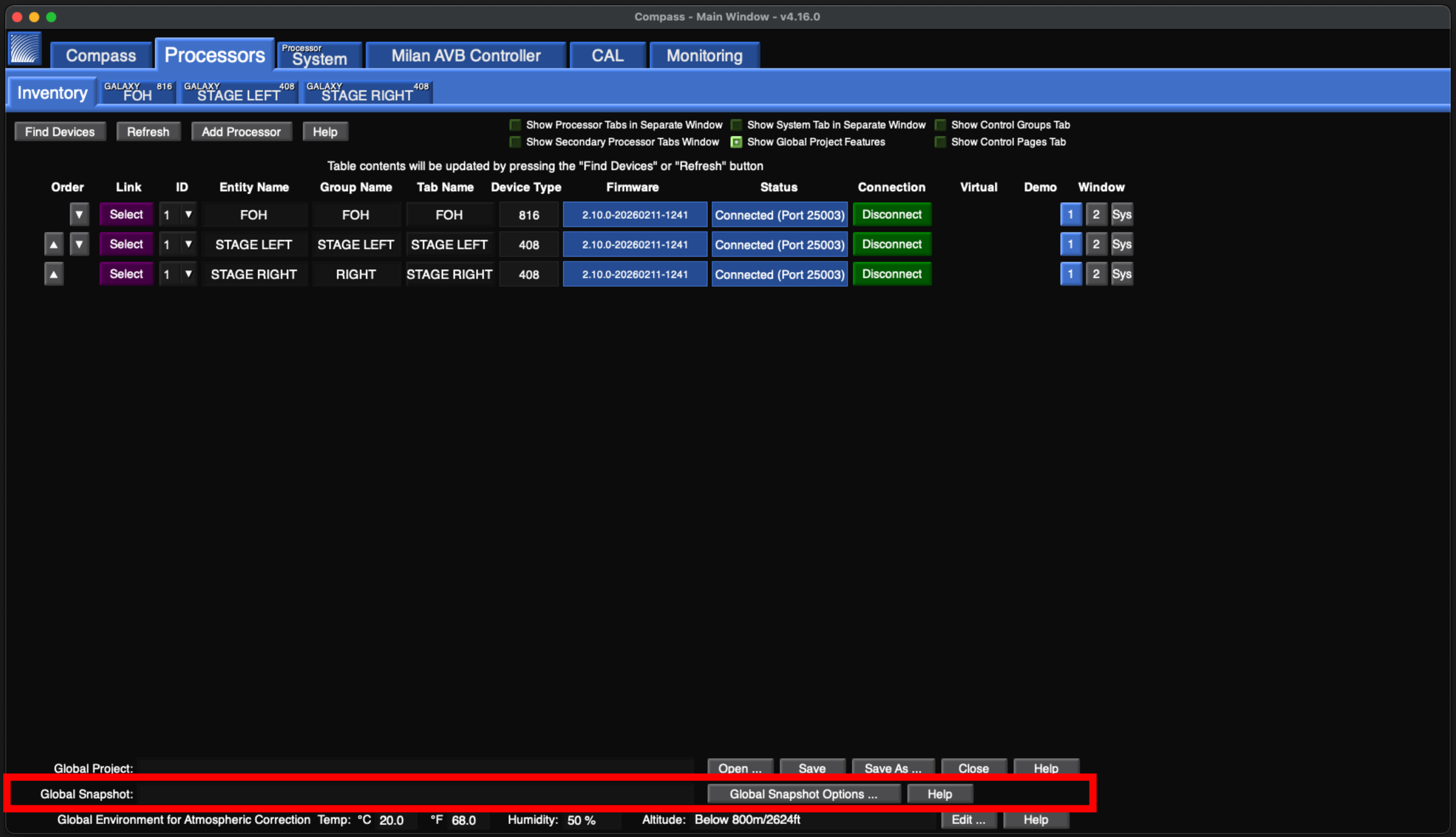
SAVING IN COMPASS PROJECTS



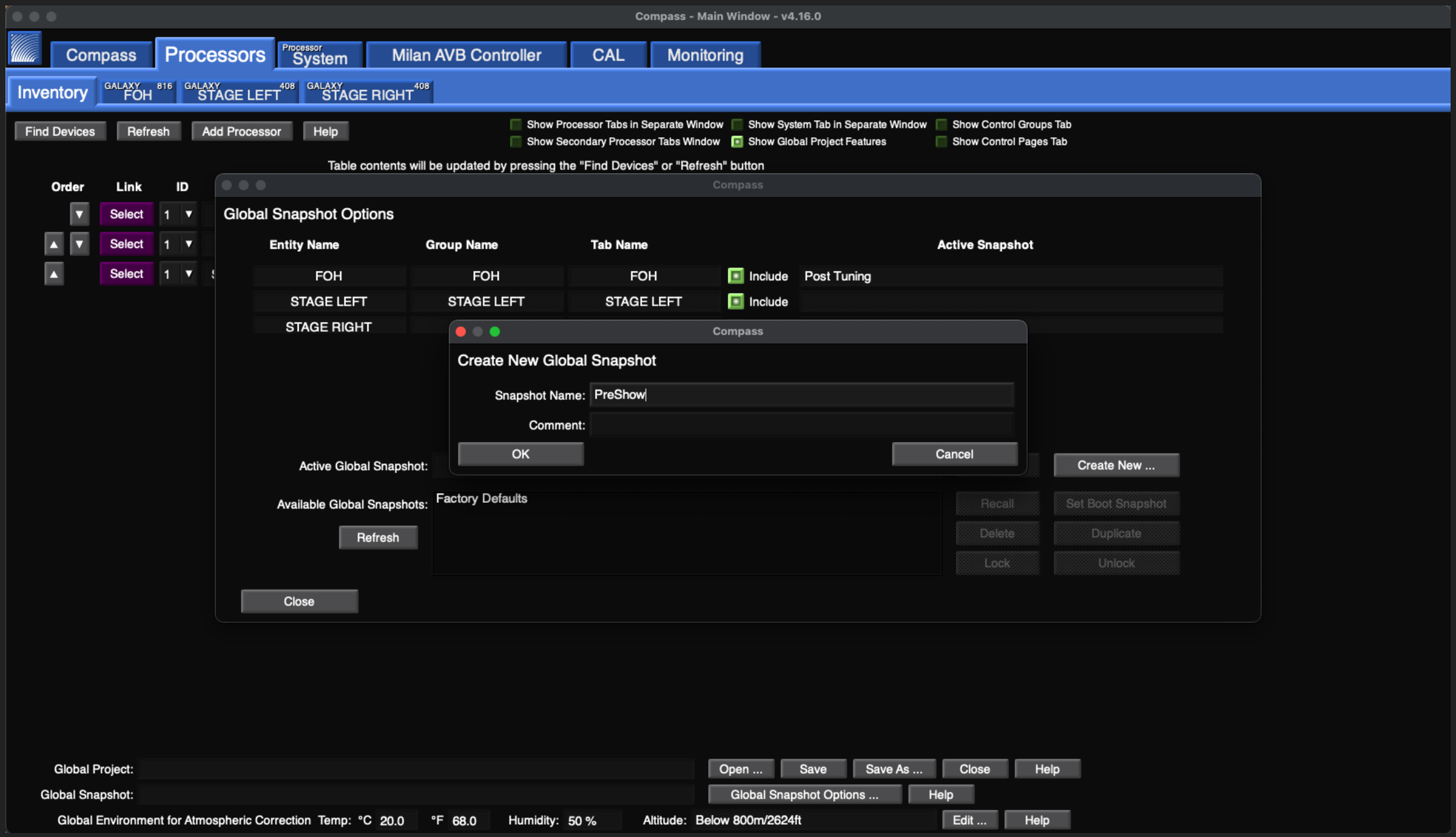
SAVING IN COMPASS
GLOBAL SNAPSHOTS AND PROJECTS

- 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

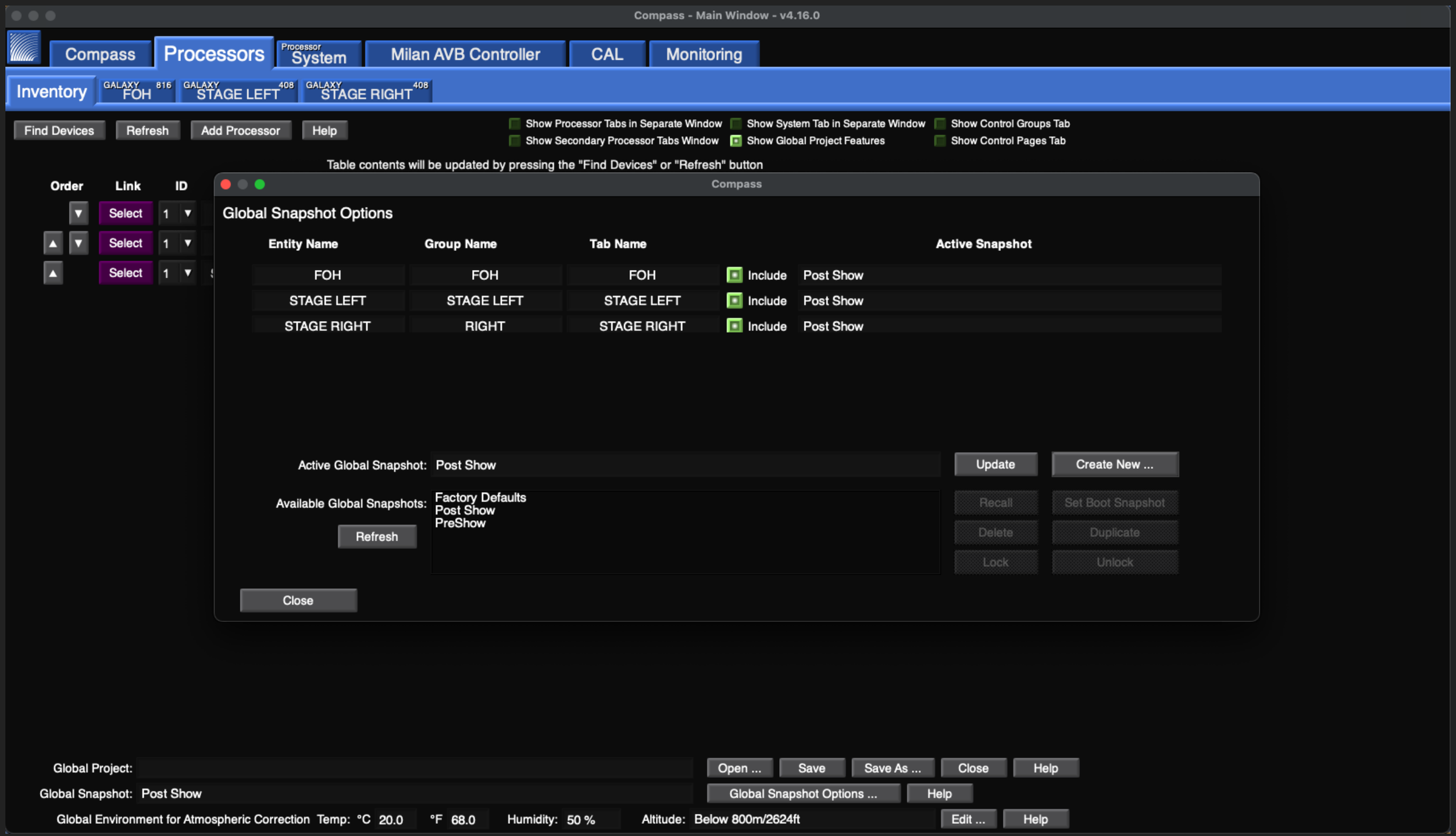
SAVING IN COMPASS
GLOBAL SNAPSHOTS



SAVING IN COMPASS
GLOBAL SNAPSHOTS



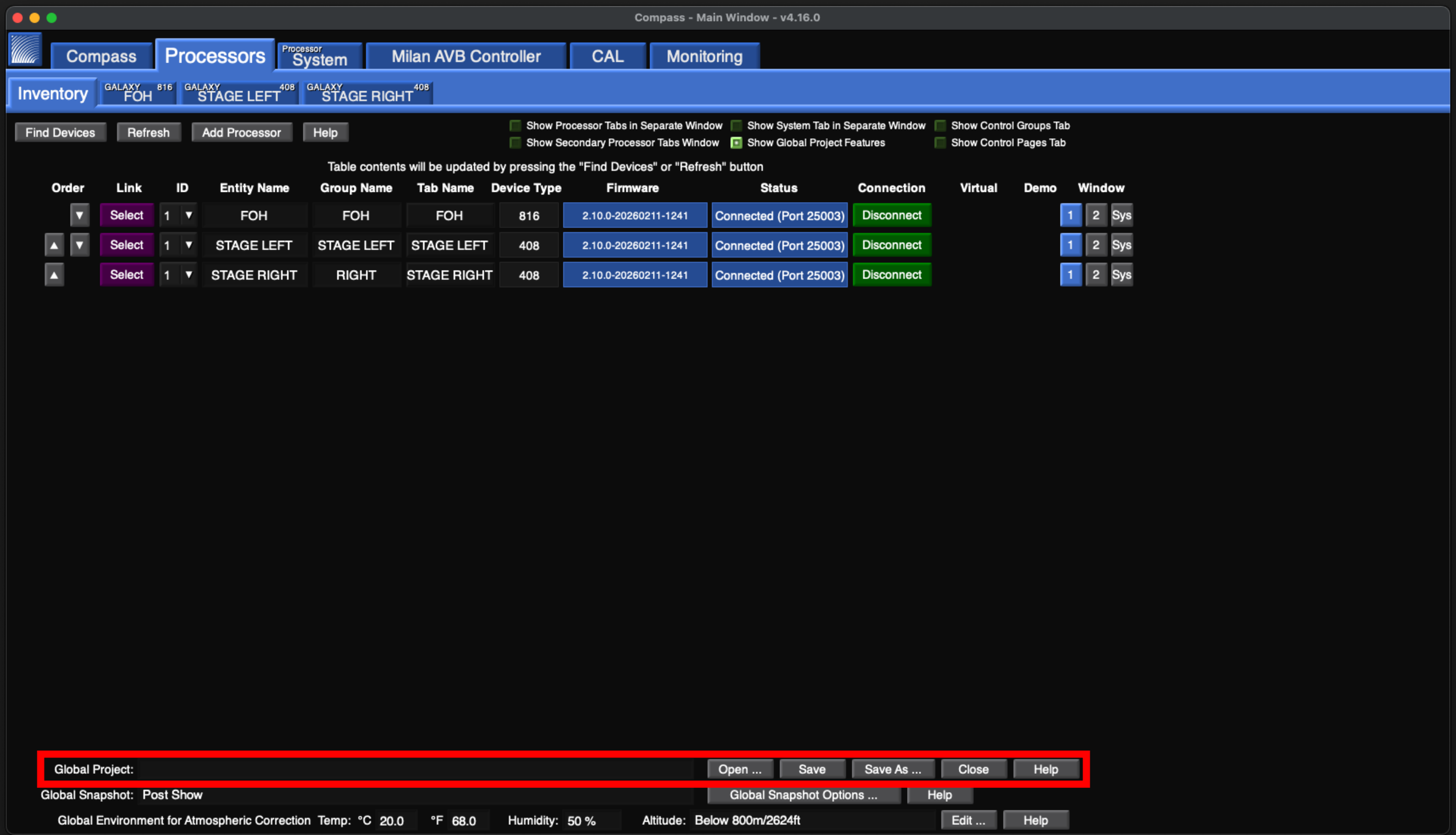
SAVING IN COMPASS
GLOBAL SNAPSHOTS



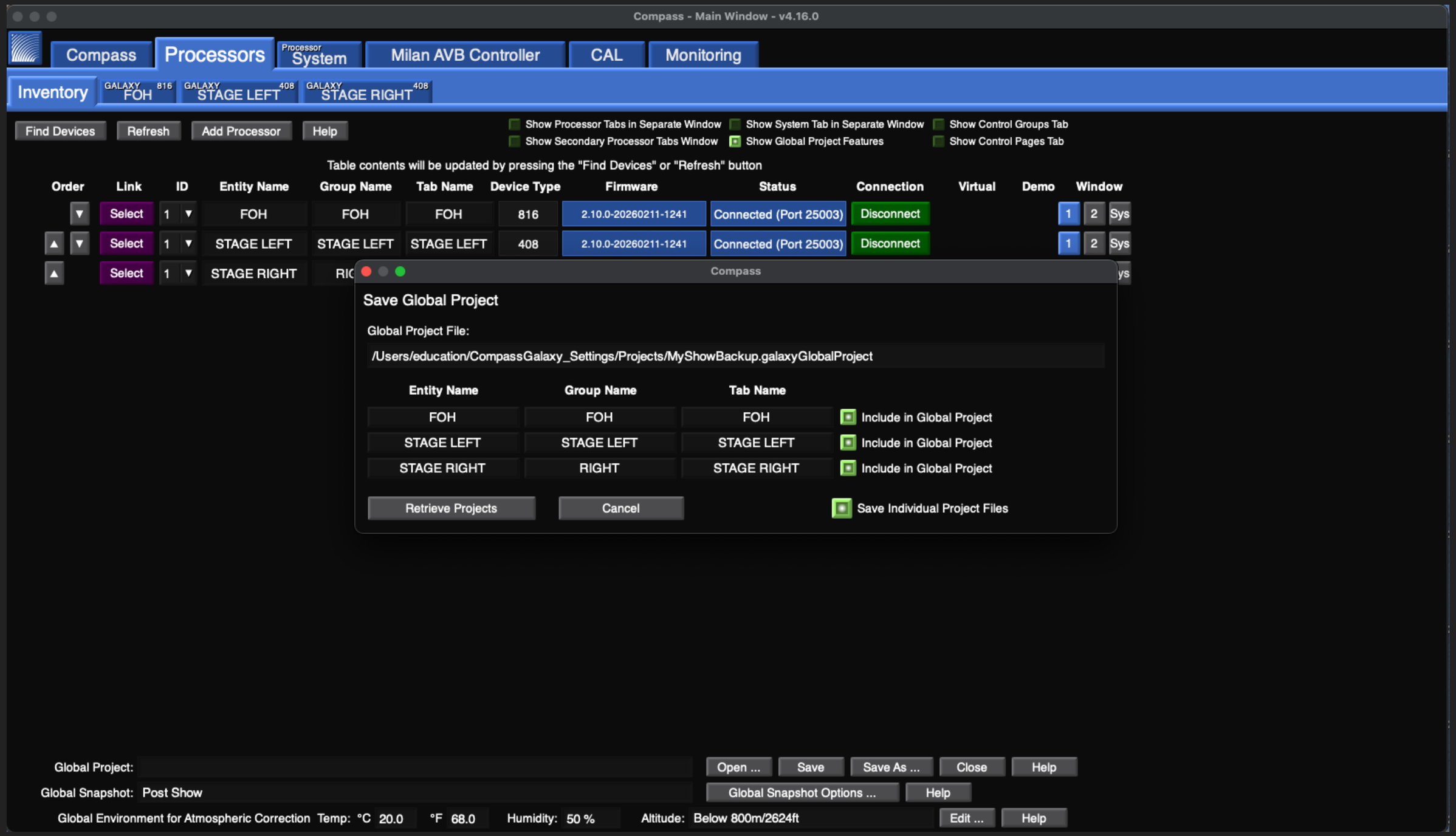
SAVING IN COMPASS
GLOBAL SNAPSHOTS AND PROJECTS

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

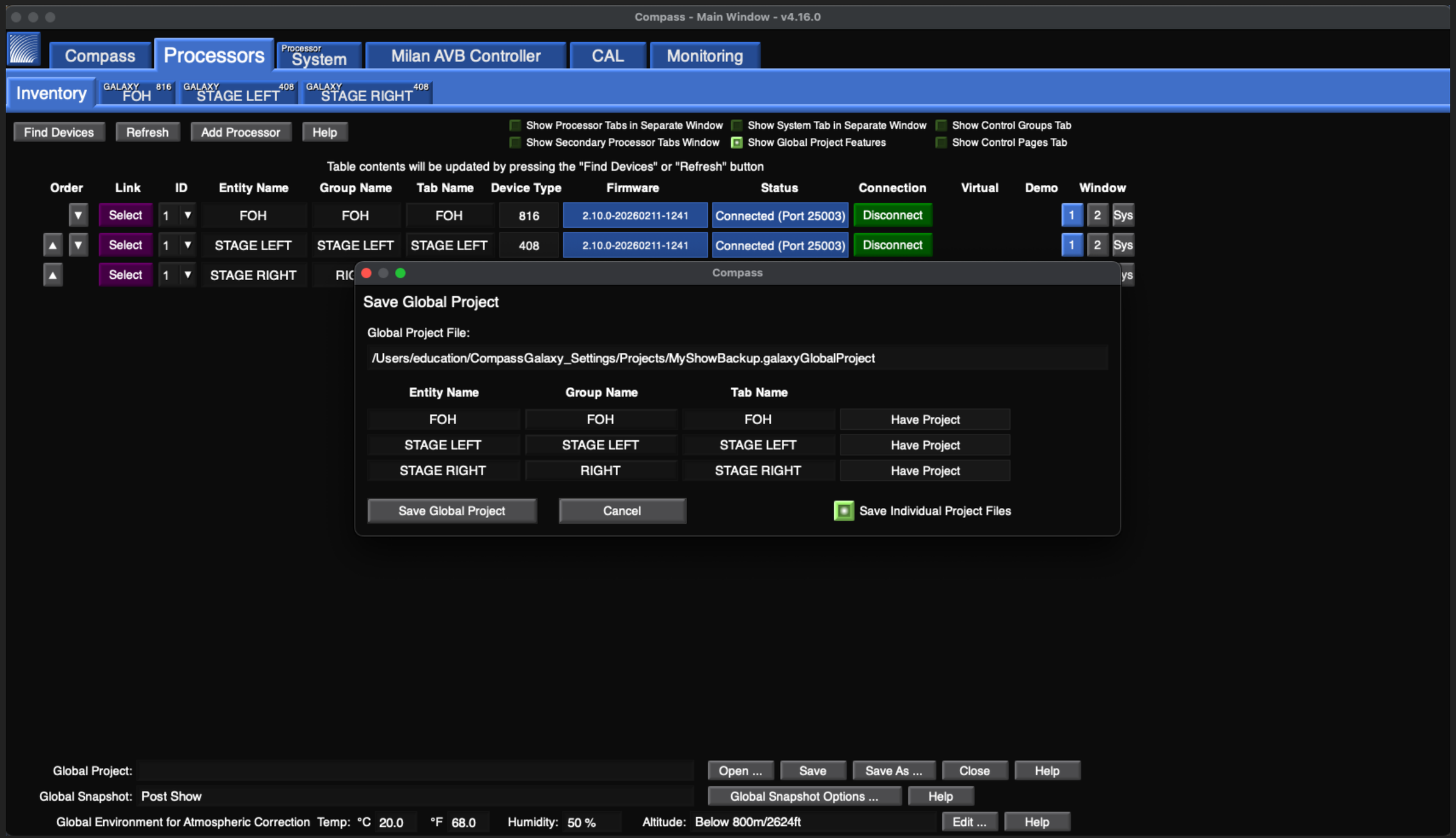
SAVING IN COMPASS
GLOBAL PROJECTS



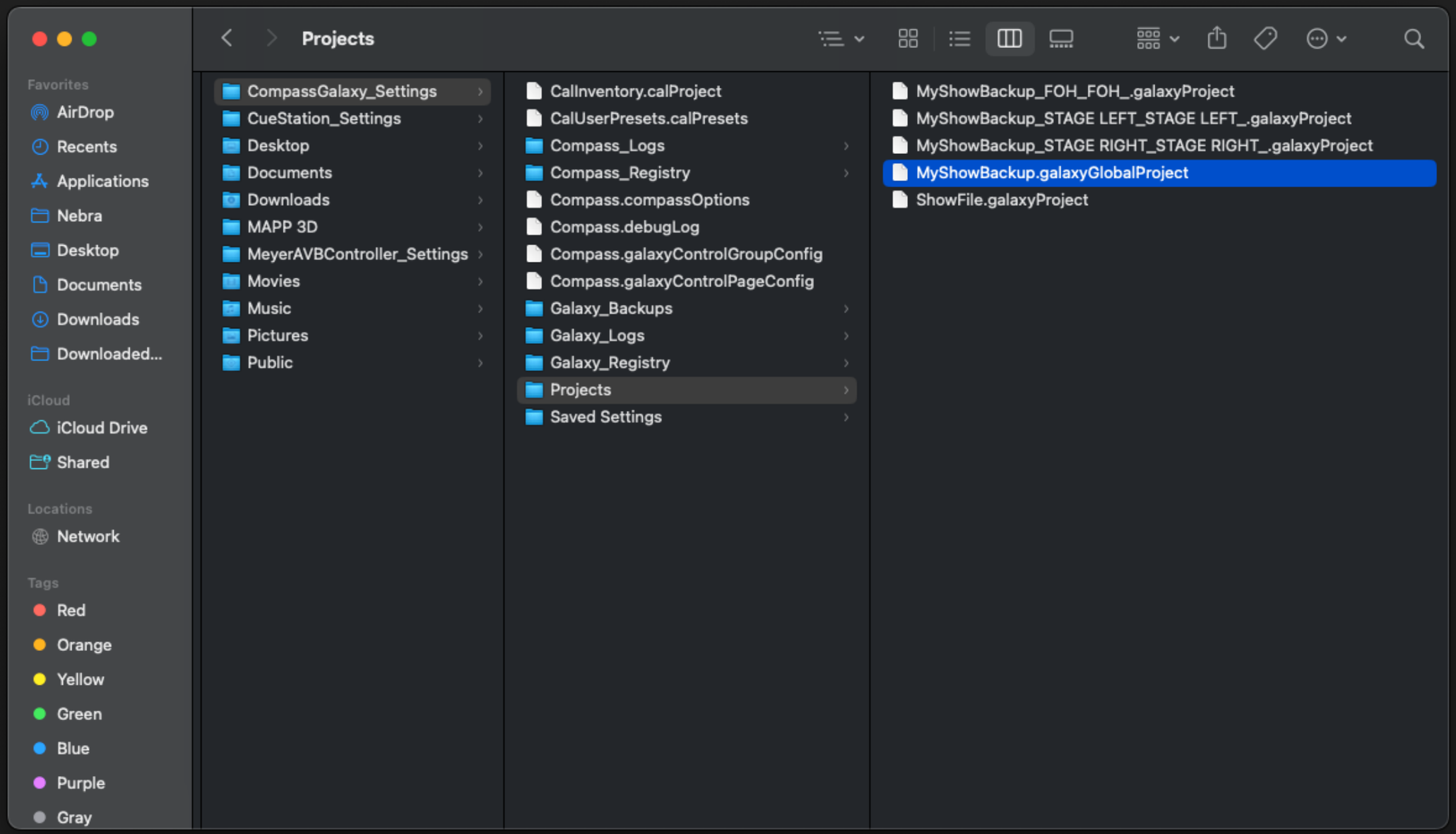
SAVING IN COMPASS
GLOBAL PROJECTS



SAVING IN COMPASS
GLOBAL PROJECTS



SAVING IN COMPASS
GLOBAL PROJECTS

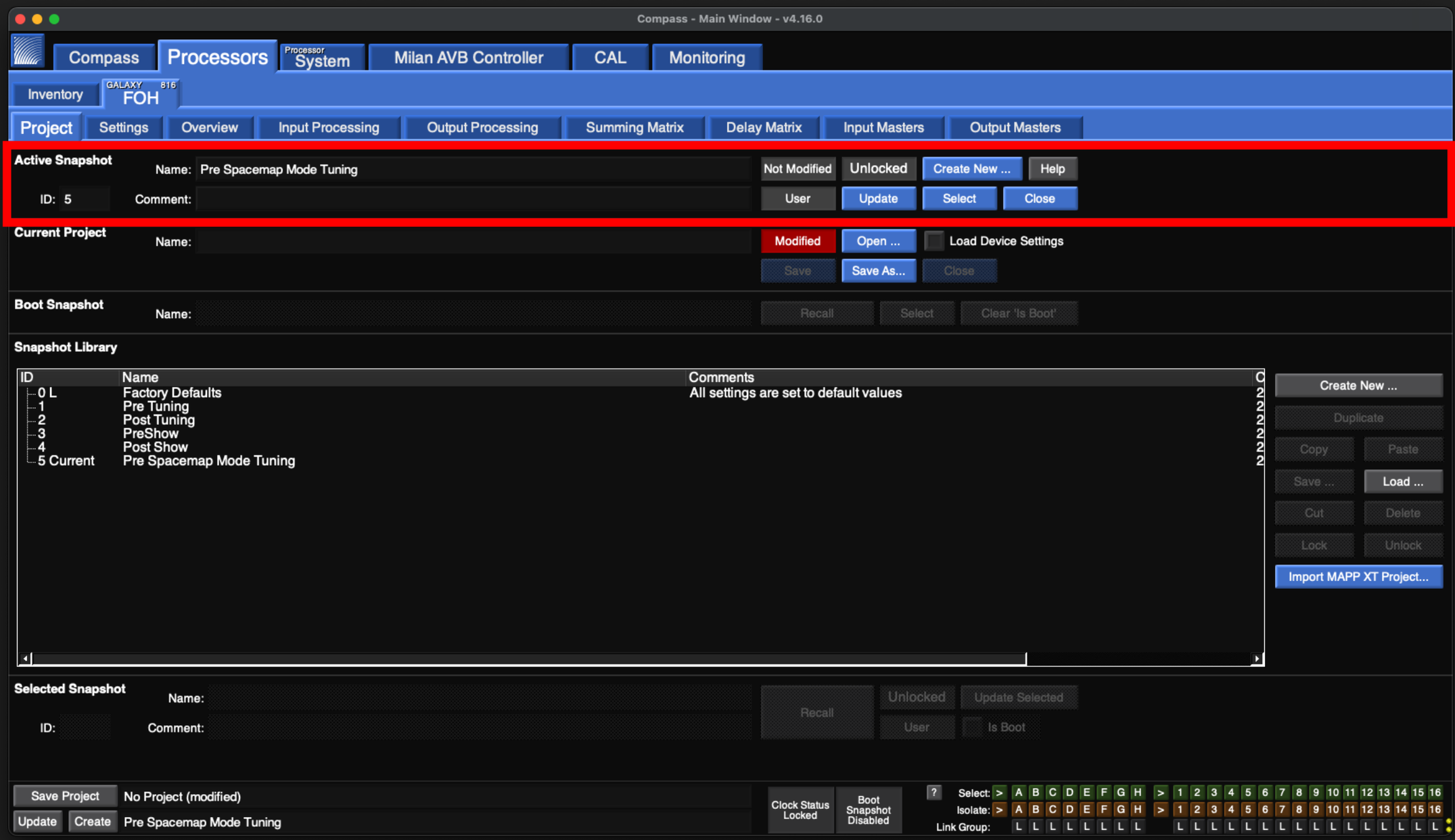


GALAXY PROCESSORS HAVE SPACEMAP GO

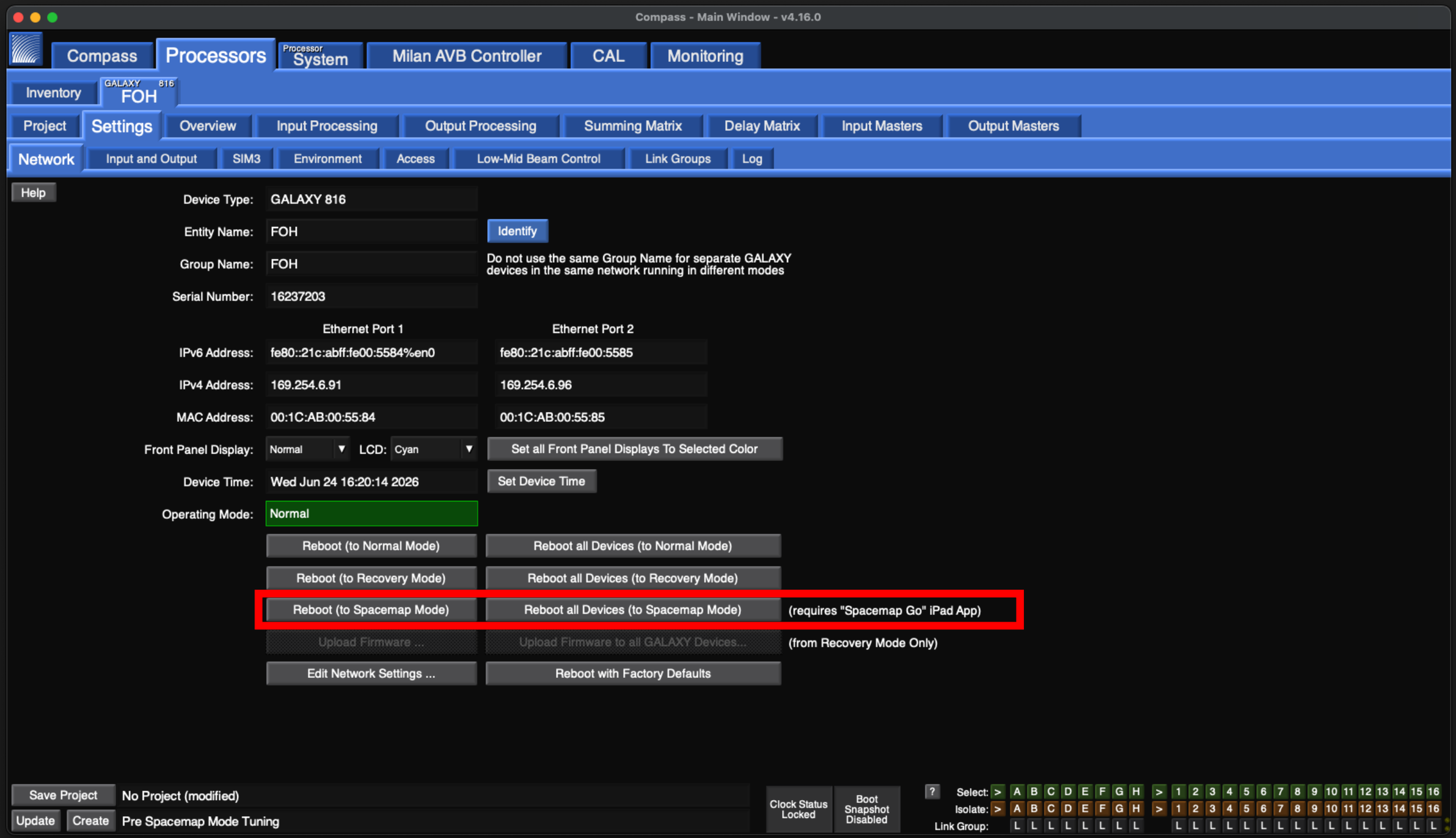
IF YOUR SYSTEM WILL BE USING SPACEMAP GO, WE RECOMMEND TUNING WHILE IN SPACEMAP MODE

WHAT IF I TUNED FIRST AND NOW WANT TO SPACEMAP?

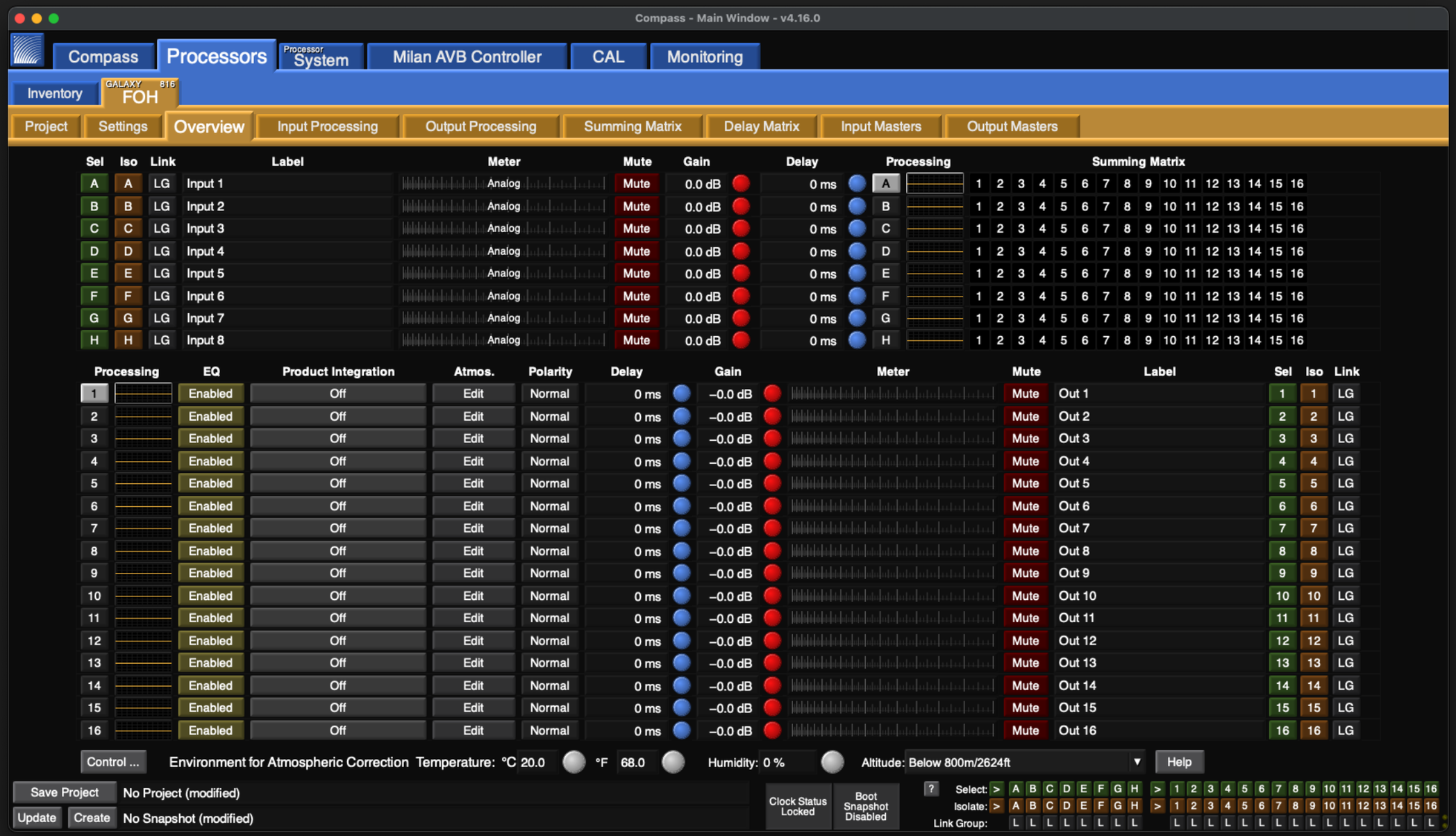
- Save a Snapshot before Rebooting into Spacemap Mode



WHAT IF I TUNED FIRST AND NOW WANT TO SPACEMAP?



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

Nebra - 2.4.10

Processing Overview

SEL (all) SEL (all) SEL (all) ISO (all) Search... Filter

Devices

Processors

- AUX — GX-816
- FOH — GX-816
- STAGE LEFT — GX-408
- STAGE RIGHT — GX-408

Loudspeakers

- USW-210P L — USW-210P
- USW-210P R — USW-210P

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		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		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		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		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		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		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		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		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	Connected
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	

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I/O Processing

SEL (all) | SEL (all) | SEL (all) | ISO (all) | Search... | Filter

Channels

Processors

STAGE LEFT
GX-408

Input Channels

A	ISO	Input A	
B	ISO	Input B	
C	ISO	Input C	
D	ISO	Input D	
E	ISO	Input E	
F	ISO	Input F	
G	ISO	Input G	
H	ISO	Input H	

Output Channels

1	ISO	Output 1	
2	ISO	Output 2	
3	ISO	Output 3	
4	ISO	Output 4	
5	ISO	Output 5	
6	ISO	Output 6	
7	ISO	Output 7	

OUT: 1
Output 1

Parametric | U-Shaping | HP/LP | All Pass | SEL | ISO

MUTE

-inf dB

Post EQ

0 -3 -6 -9 -12 -15 -18 -24 -30 -36 -42 -48 -60 -72 -90

Level (dB) 0.0

Delay (ms) 0.00

Gain (db)

+18 +12 +6 0 -6 -12 -18

Phase (°)

+180 +120 +60 0 -60 -120 -180

1 2 3 4 5 6 7 8 9 10

16 31.5 63 125 250 500 1k 2k 4k 8k 16k

Frequency (Hz)

	1	2	3	4	5	6	7	8	9	10
Gain (dB)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Freq (Hz)	32.0	63.0	125	250	500	1000	2000	4000	8000	16000
B/W	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

OUT: 2
Output 2

Parametric | U-Shaping | HP/LP | All Pass | SEL | ISO

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Level & Delay Matrix

Level Matrix | Delay Matrix

Processors

- AUX — GX-816
- FOH — GX-816
- STAGE LEFT — GX-408
- STAGE RIGHT — GX-408

FOH
GX-816

Set all to -inf

		Output	1 Main L Up	2 Main L Down	3 Main R Up	4 Main R Down	5 Cluster	6 FF In	7 FF Out	8 Mid Delay	9 Rear Delays	10	11 Subs Forward	12 Subs Rear	13	14	15	16
			-inf	-inf	-inf	-inf	-inf	-inf	-inf	-inf	-inf	-inf	-inf	-inf	-inf	-inf	-inf	-inf
Inputs: A-H	Device Inputs (1 - 8)																	
A	Main L -inf		0.0 dB	0.0 dB	-inf	-inf	-inf	-inf	-inf	-inf	-inf	-inf	-inf	-inf	-inf	-inf	-inf	-inf
B	Main R -inf		-inf	-inf	0.0 dB	0.0 dB	-inf	-inf	-inf	-inf	-inf	-inf	-inf	-inf	-inf	-inf	-inf	-inf
C	Cluster -inf		-inf	-inf	-inf	-inf	0.0 dB	-inf	-inf	0.0 dB	-inf	-inf	-inf	-inf	-inf	-inf	-inf	-inf
D	FF -inf		-inf	-inf	-inf	-inf	-inf	0.0 dB	0.0 dB	-inf	-inf	-inf	-inf	-inf	-inf	-inf	-inf	-inf
E	Delay -inf		-inf	-inf	-inf	-inf	-inf	-inf	-inf	-inf	0.0 dB	-inf	-inf	-inf	-inf	-inf	-inf	-inf
F	Subs -inf		-inf	-inf	-inf	-inf	-inf	-inf	-inf	-inf	-inf	-inf	0.0 dB	0.0 dB	-inf	-inf	-inf	-inf
G	-inf		-inf	-inf	-inf	-inf	-inf	-inf	-inf	-inf	-inf	-inf	-inf	-inf	-inf	-inf	-inf	-inf
H	-inf		-inf	-inf	-inf	-inf	-inf	-inf	-inf	-inf	-inf	-inf	-inf	-inf	-inf	-inf	-inf	-inf

\+ Inputs: 9-32
Network Inputs

STAGE LEFT
GX-408

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

QUESTIONS?