

# EVOLUTIONARY SPATIAL AUDIO

TiMax<sup>two</sup>  
soundhub

TiMax  
TRACKERd4



Performance  
Presentation  
Experience

out board  
[outboard.co.uk](http://outboard.co.uk)

 @TiMaxOutBoard

 @OutBoardTiMax

 @TiMaxOutBoard

TiMax  
[timaxspatial.com](http://timaxspatial.com)

# TiMax Workshop 2022

## Spatial Reinforcement \* Immersive Audio



# Award-Winning Spatial Reinforcement \* Immersive Audio



**Imperial Club**  
Brussels



**Sight & Sound Theatres**  
Lancaster, PA  
Branson, MO



Vocal localisation  
Performer tracking  
Immersive surround fx

# Broadway Musicals

**Aladdin** - New Amsterdam Theatre  
**Harry Potter & Cursed Child** - Lyric Theatre  
**Honeymoon in Vegas** - Nederlander Theatre  
**King & I** - Lincoln Centre  
**Fun Home** - Circle in the Square  
**Fiddler On The Roof** - Broadway Theatre  
**Shuffle Along** - Music Box  
**Hello Dolly** - Sam S Schubert Theatre  
**Carousel** - Imperial Theatre  
**My Fair Lady** - Lincoln Centre



THE NEW  
WEST END MUSICAL

Disney

Aladdin

Prince Edward Theatre  
A DELFON HACKINTOSH THEATRE

## London West End Musicals

**Aladdin** - Prince Edward Theatre

**Harry Potter** - Palace Theatre

**Life Of Galileo** - Young Vic

**Five Guys Named Moe** - Marble Arch Theatre

**The Divide** - Old Vic Theatre

HARRY  
POTTER  
and the CURSED CHILD  
— PARTS I & II —

A NEW PLAY BASED ON AN ORIGINAL NEW STORY BY  
J.K. ROWLING, JACK THORNE & JOHN TIFFANY

TiMax

Vocal localisation  
Performer tracking  
Immersive surround fx



# Open Air Opera

*Aida*

Szeged Szabadteri, Hungary

Vocal and orchestra spatialisation

Performer stagetracking

Immersive spatial reverb





Immersive panoramic spatialisation

Orchestral object-based rendering

TiMax SoundHub spatial mixing



The TiMax logo consists of the word "TiMax" in a bold, dark blue, sans-serif font. The letter "T" is stylized with a thick vertical stroke and a horizontal bar extending from its top right. The letter "i" has a short vertical stroke and a small dot. The letters "M" and "a" are joined together at their top.



# Corporates and Auto Shows

Detroit NAIAS -Jeep, Alfa, Dodge, Ford +

Frankfurt Auto Show, BMW, VW +

Porsche, VW, Jaguar, Range Rover, Rolls Royce



Immersive 3D sound effects

Audio showcontrol & scheduling

System Processing & Distribution

TiMax

# *St Michael's Caves*

Gibraltar



Immersive visitor experience

3D walk-in soundscape and spatial show

Multipurpose mixed-media space

TiMax



Multimedia immersive experience

Orchestra & choir spatial playback

SMPTE control of D3 video servers

# Tunnel Visions: Array

Barbican Tunnel London





7.1 mix spatial enhancement

21 speakers and subs

Spot effects playback



TiMax

Ziggodome Indie Rock Spatial Mix

## *The Kensington*



K1 & K2 4 front drops

K2 and Kara outshooters

Object-based spatial mix

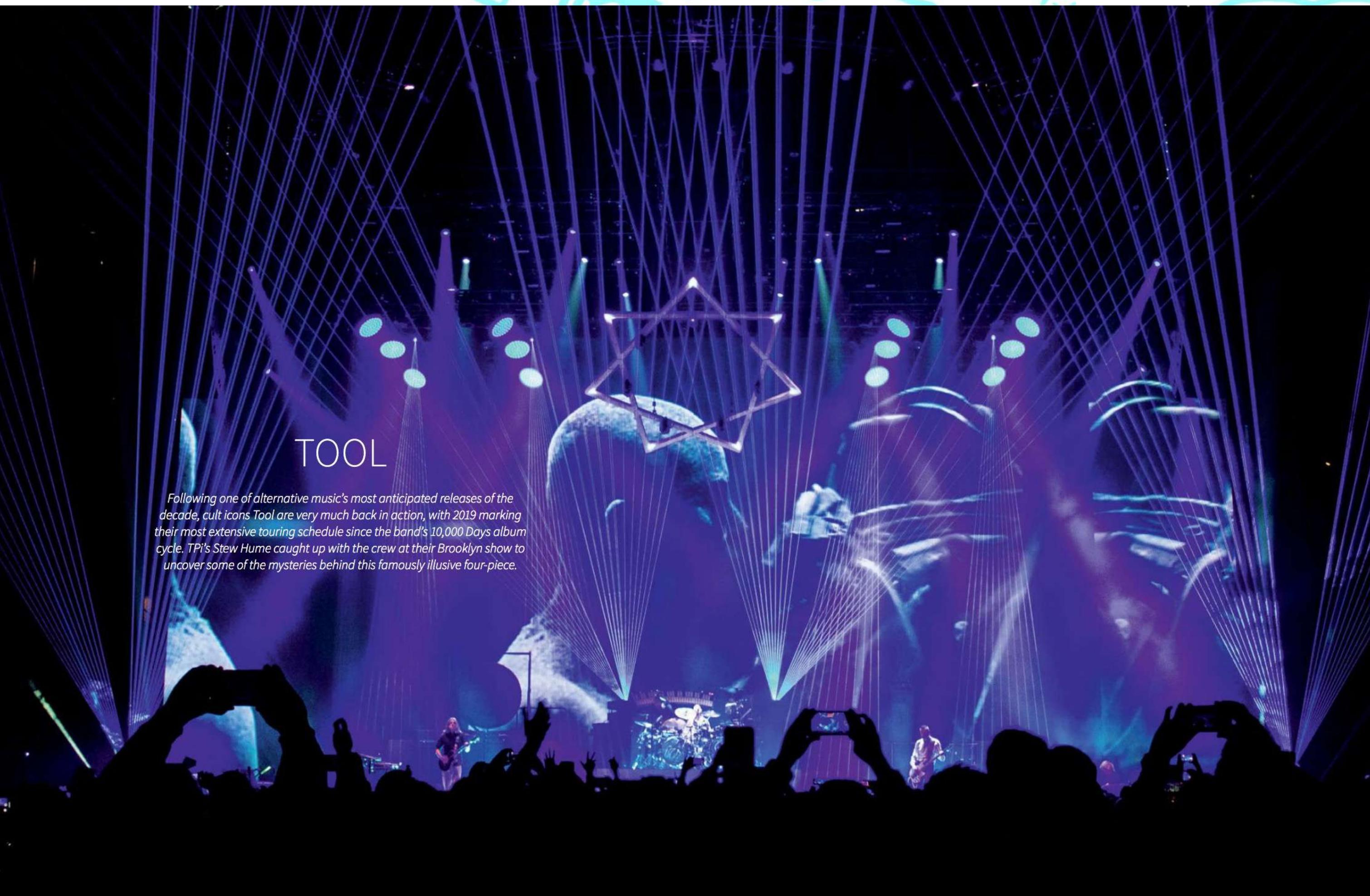
NoizBoyz Pieter Doms design

NvdB Kensington St. Helena live @ Ziggo Dome 2019

TiMax

# 3D Immersive Prog Metal Arena Tour

***Tool US Tour 2019 /20***



d&b Main, Overheads, Surround

Includes upper bleachers

24 live stems spatial mix

TouchOSC iPad Control

MIDI pan triggers from stage

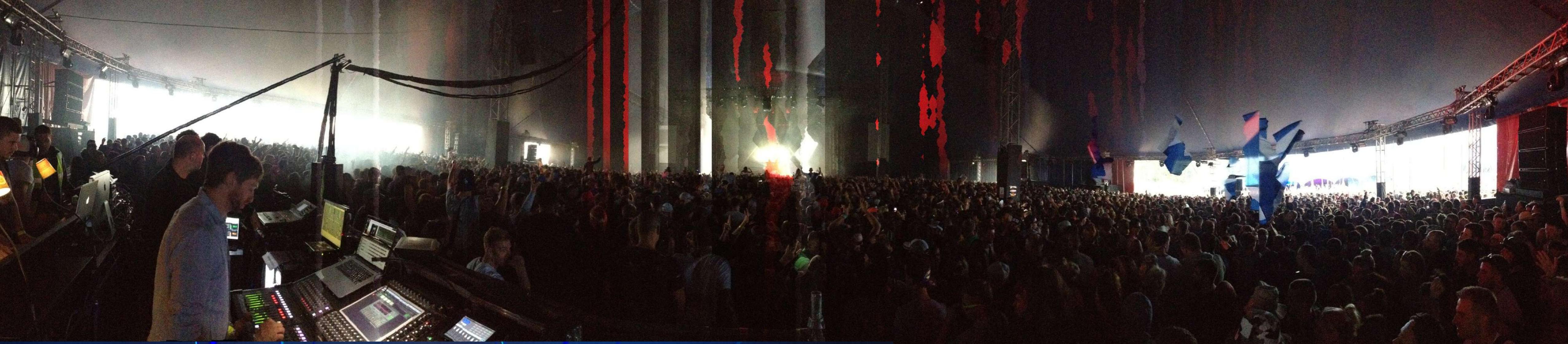
AES & Dante signal distribution

Eighth Day Sound

DataSound Consulting design

**EVOLUTIONARY  
SPATIAL AUDIO**

**TiMax**



Creamfields EDM  
**Axwell & Ingrosso** EDM DJ's  
8 channel VDosc surround  
iPad 3D immersive pan triggers  
AES & Dante signal distribution

TiMax

# Cruise Ships

HMS Britannia \* Crystal Serenity \* NCL Getaway

Virgin Voyages three ships -  
Scarlet Lady - Valiant Lady - Resilient Lady



Immersive 3D sound effects

Audio showcontrol

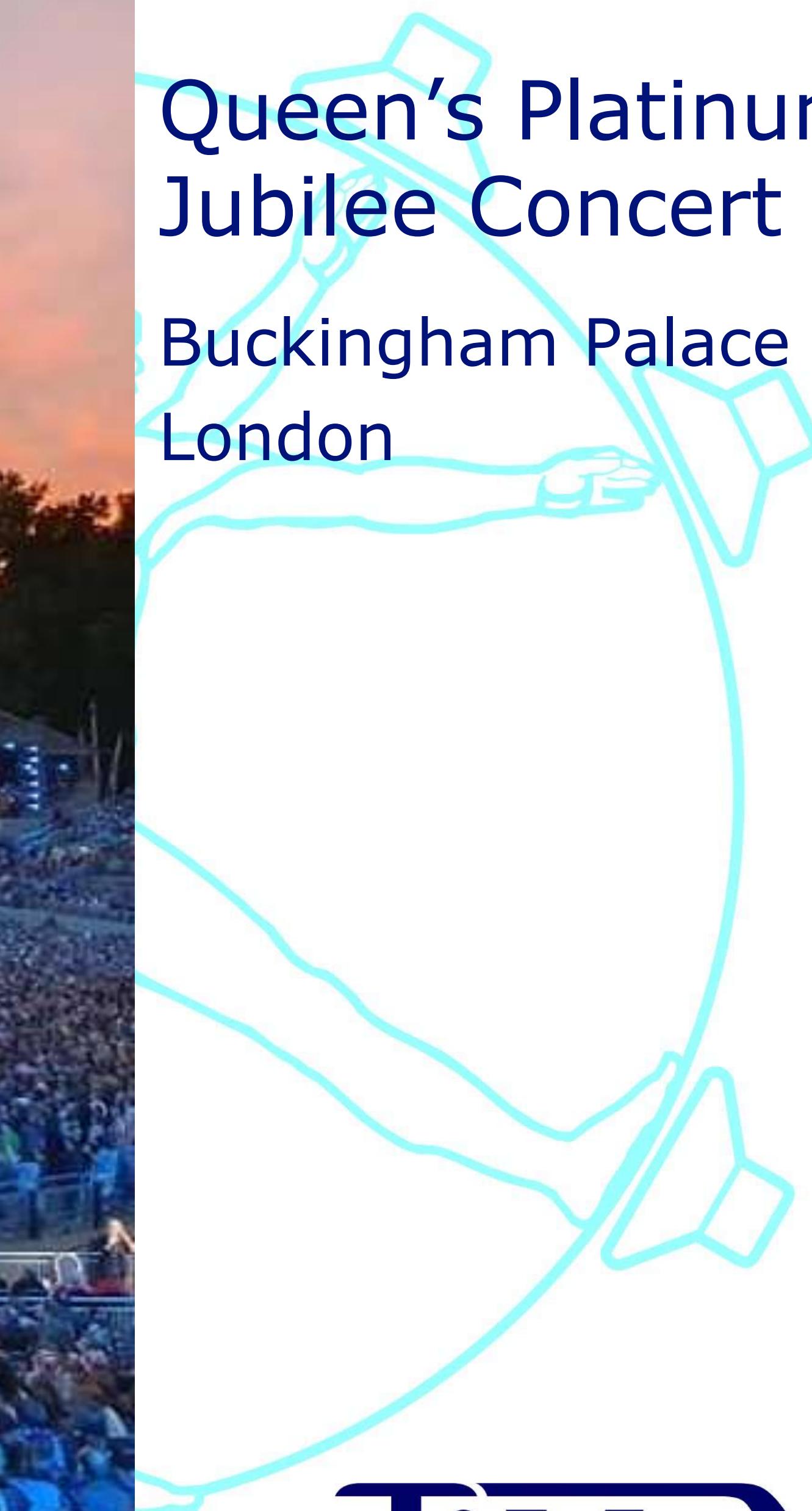
Signal processing & distribution

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Queen's Platinum  
Jubilee Concert  
Buckingham Palace  
London



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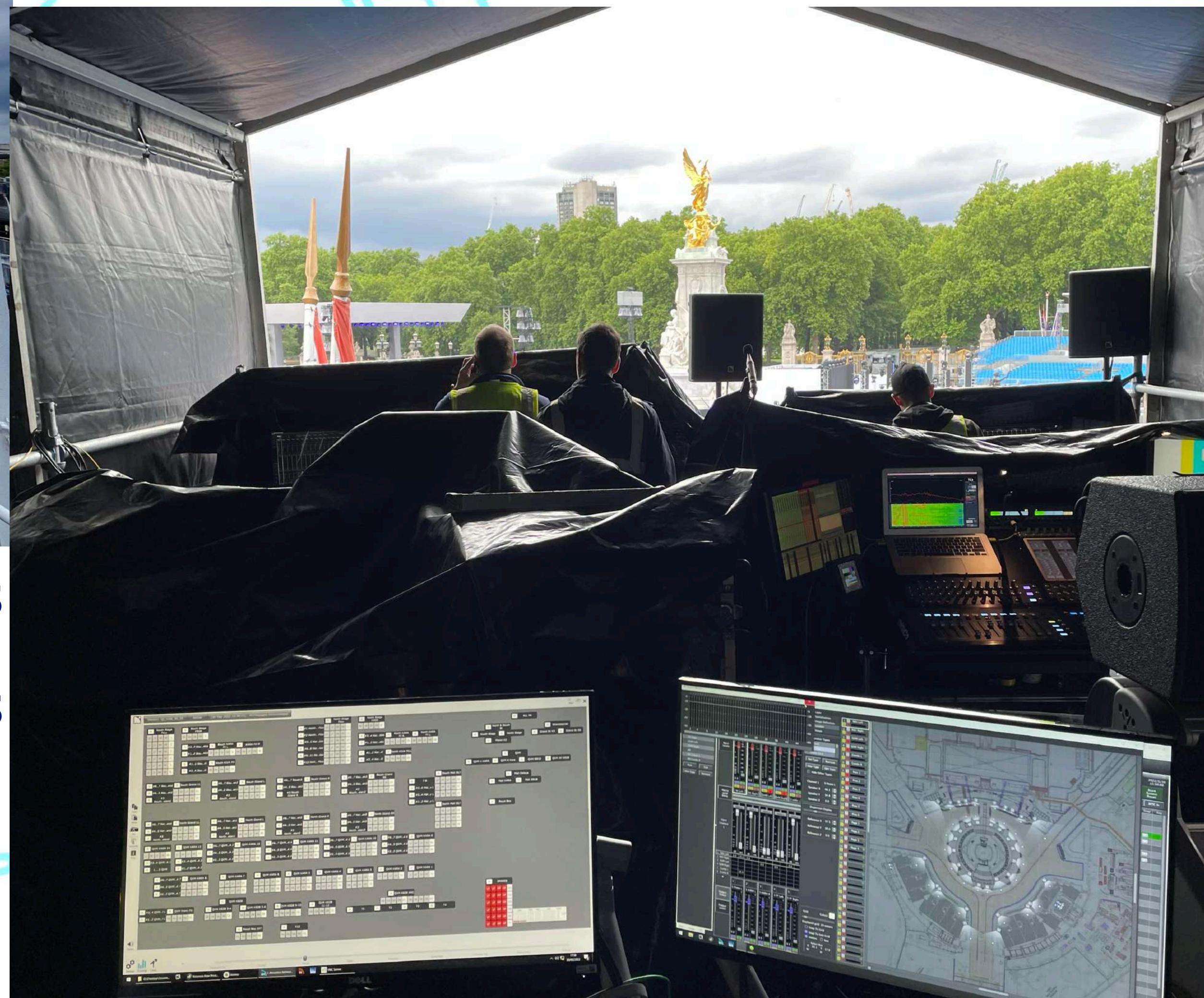


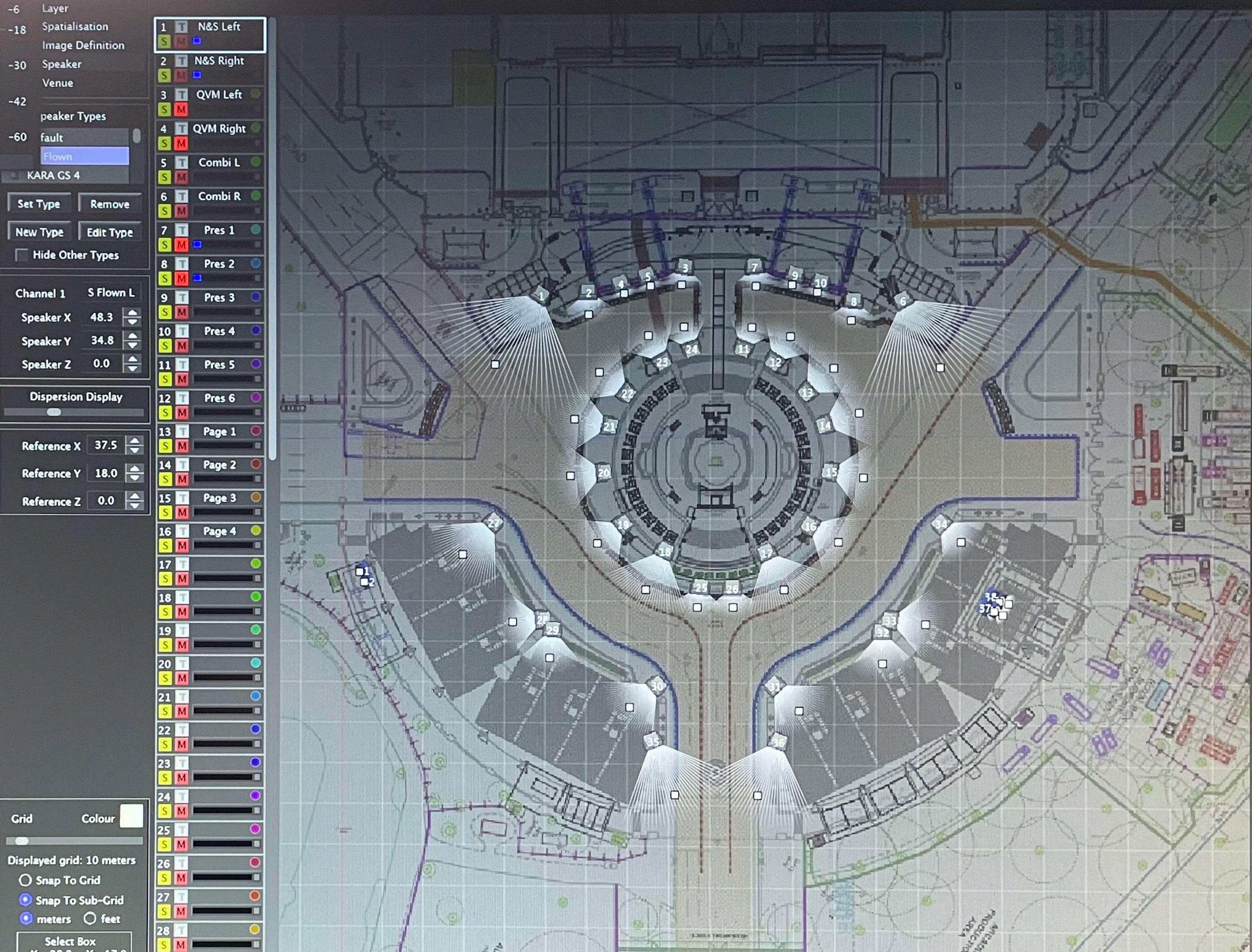
# Queen's Platinum Jubilee Concert

## Buckingham Palace London

Three Digicos, three stages  
Matrixed timing of multichannel L'Acoustics  
PanSpace mapping and rendering

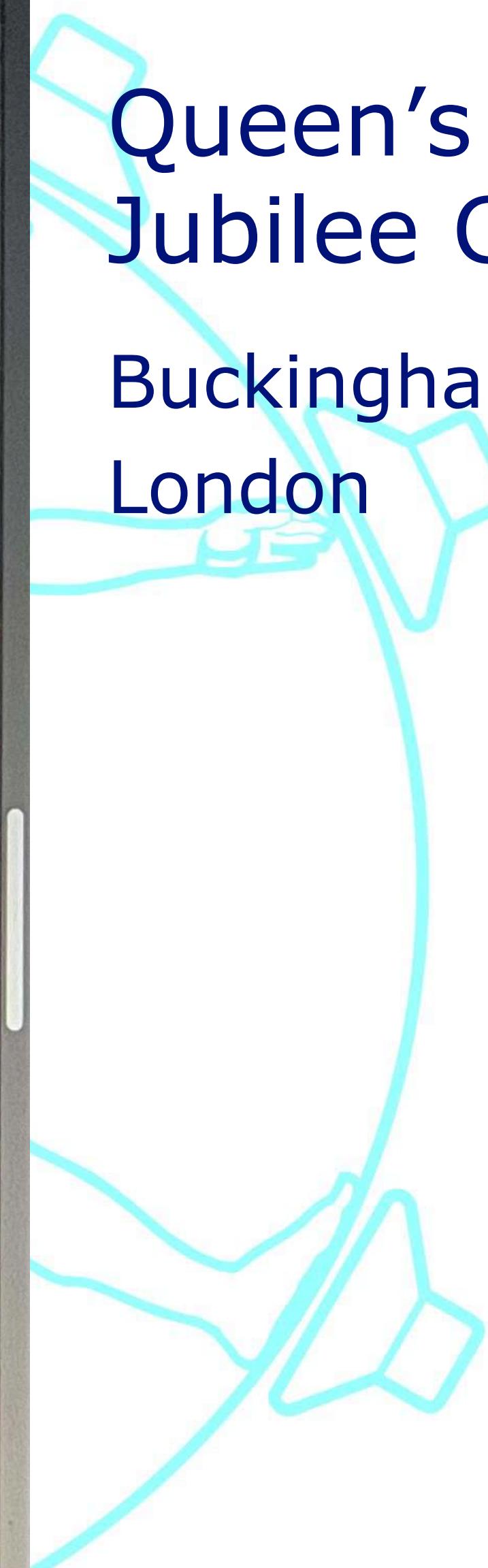
**TiMax**





# Queen's Platinum Jubilee Concert

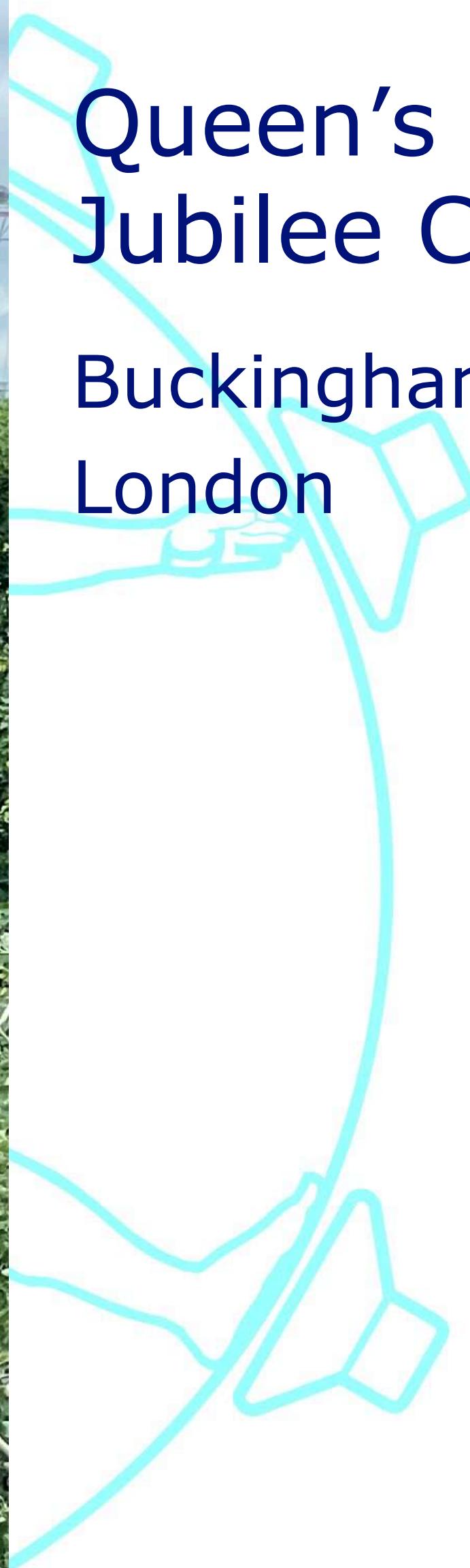
## Buckingham Palace London



**TiMax**



Queen's Platinum  
Jubilee Concert  
Buckingham Palace  
London



TiMax

# Spatial Mixing Objectives

Localise amplification to acoustic sources

Why Bother? What For? Who Cares?

Ears guide eyes, intelligibility. Reception vs Perception

Improve realism, immersion, reduce audience stress

Hear the actor, instrument and space, not the amplification

Maintain willing suspension of disbelief

Expand sweet-spot for whole audience

# Cocktail Party Effect

The brain can focus on a particular stimulus while filtering out others

Sounds coming from different directions are easier to differentiate (spatial unmasking)

Two ears are required to determine direction of sound.

Listeners hear much more detail in a 'mix' of sounds if each part of a 'spatial mix' comes from a different and contextual direction.



Listen to these two clips in sequence to witness spatial masking and unmasking

# **Haas-Effect Precedence Localisation**

**Control it or it controls you**

We localise to **first** wave-front arrival - survival mechanism

– *not the loudest* arrival

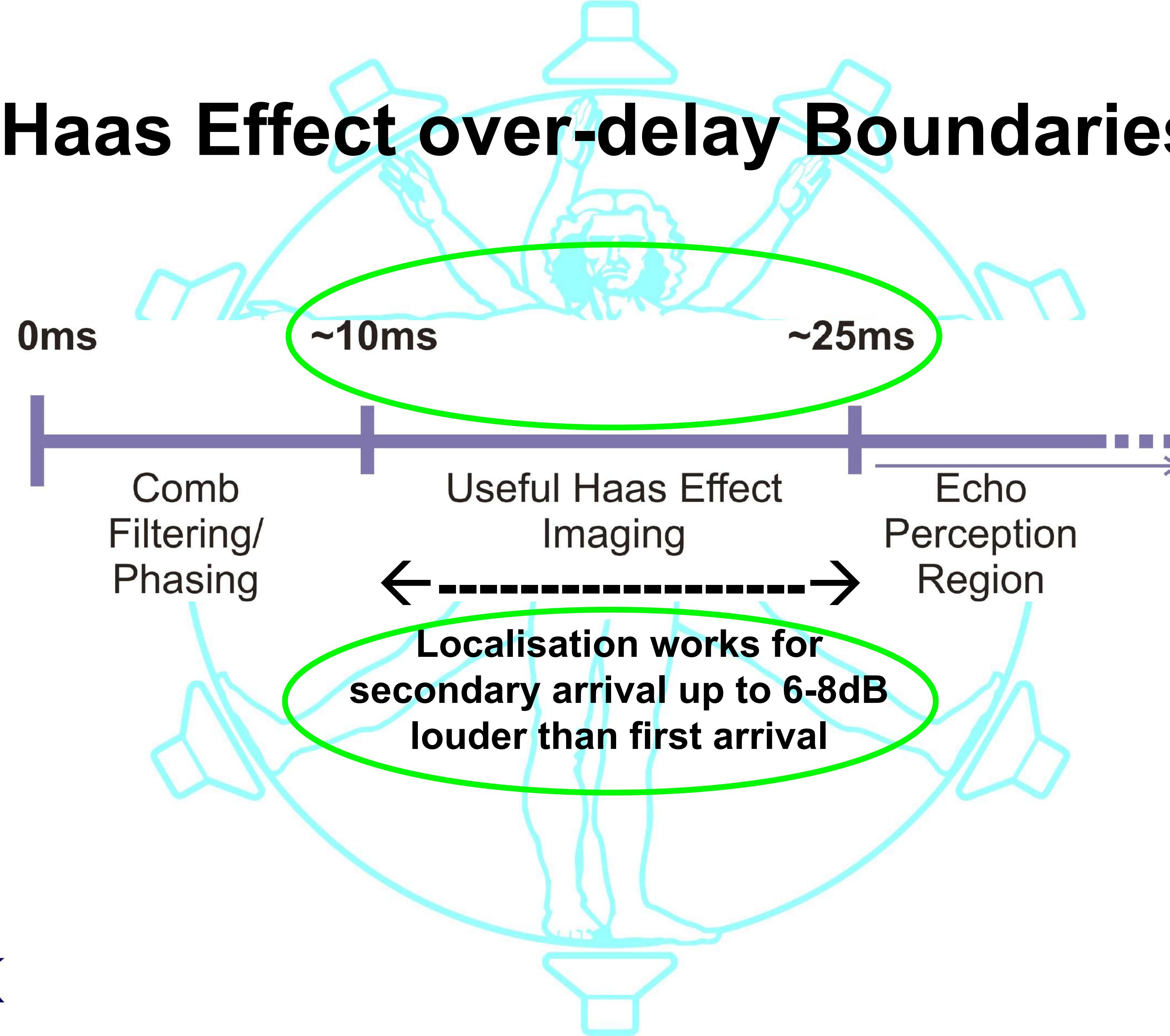
Often known as **Haas Effect**, using “over-delay”

Psycho-acoustic integration and **localisation**

Too-short over-delay > Comb-filtering / phasing

Too-long over-delay > Echo perception threshold

# Haas Effect over-delay Boundaries





routing \* mixing \* equalisation \* playback \* delay-matrix \* zone control \* level groups \* presets \* remote control \* spatial audio \* MADI & Dante \* analogue & AES3 \* TimeLine \* PanSpace Complete 32x32 or 64x64 dsp, playback and showcontrol in 2U



### TiMax2 SoundHub-R — Systems Integration

dsp, multi-I/O, simple playback and control, networking, TiMax Tracker

### TiMax2 Soundhub-S — Live Audio Showcontrol

dsp, multi-I/O, advanced playback, editing and audio showcontrol, networking, TiMax Tracker, spatial audio



### TiMax2 SoundHub-M — Museum & Exhibit

dsp, 16-64ch playback and output, advanced editing and audio showcontrol, networking, spatial audio



### TiMax2 SoundHub-VR — Ride Car & VR Server

dsp, 16ch playback and output, advanced editing and audio showcontrol, networking, spatial audio, compact chassis, 24V DC or 110-220V AC

**MADI-64**  
Ultimate MADI Interface

 **Dante™**  
SPOKEN HERE



**TiMax**



# TiMax

two

## soundhub

*HARDCore **FPGA** dsp engine*

*Holistic Audio Rendering Device*

**EVOLUTIONARY SPATIAL AUDIO**



HARDCore **FPGA** dsp engine

**Powerful adaptive FPGA algorithms**

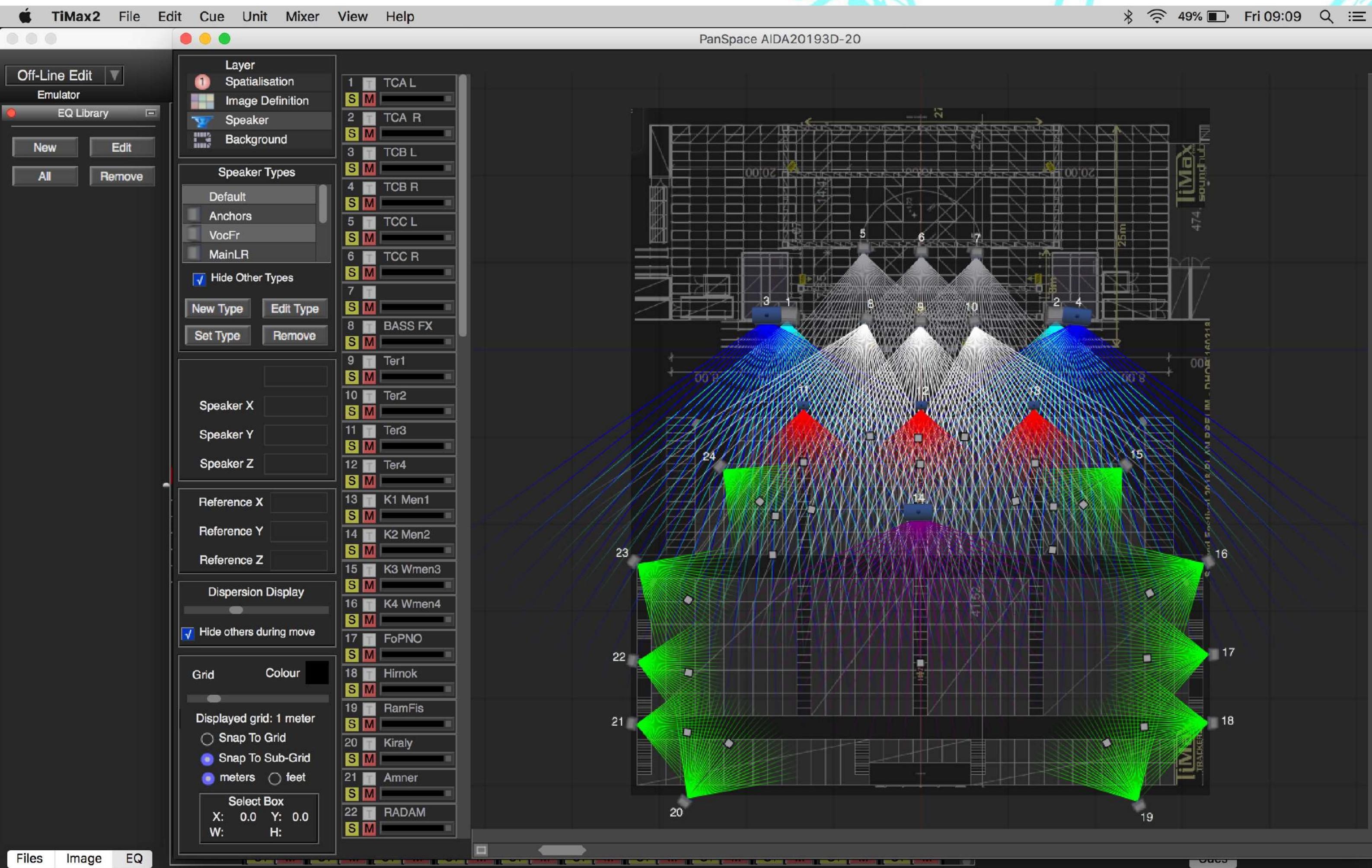
**Extended (1sec) dynamic delay-matrix memory**

**Ultra-transparent smooth spatial morphing**

***COMING SOON* New generation immersive spatial reverb**

***COMING SOON 96KHz - dsp, Dante, playback***

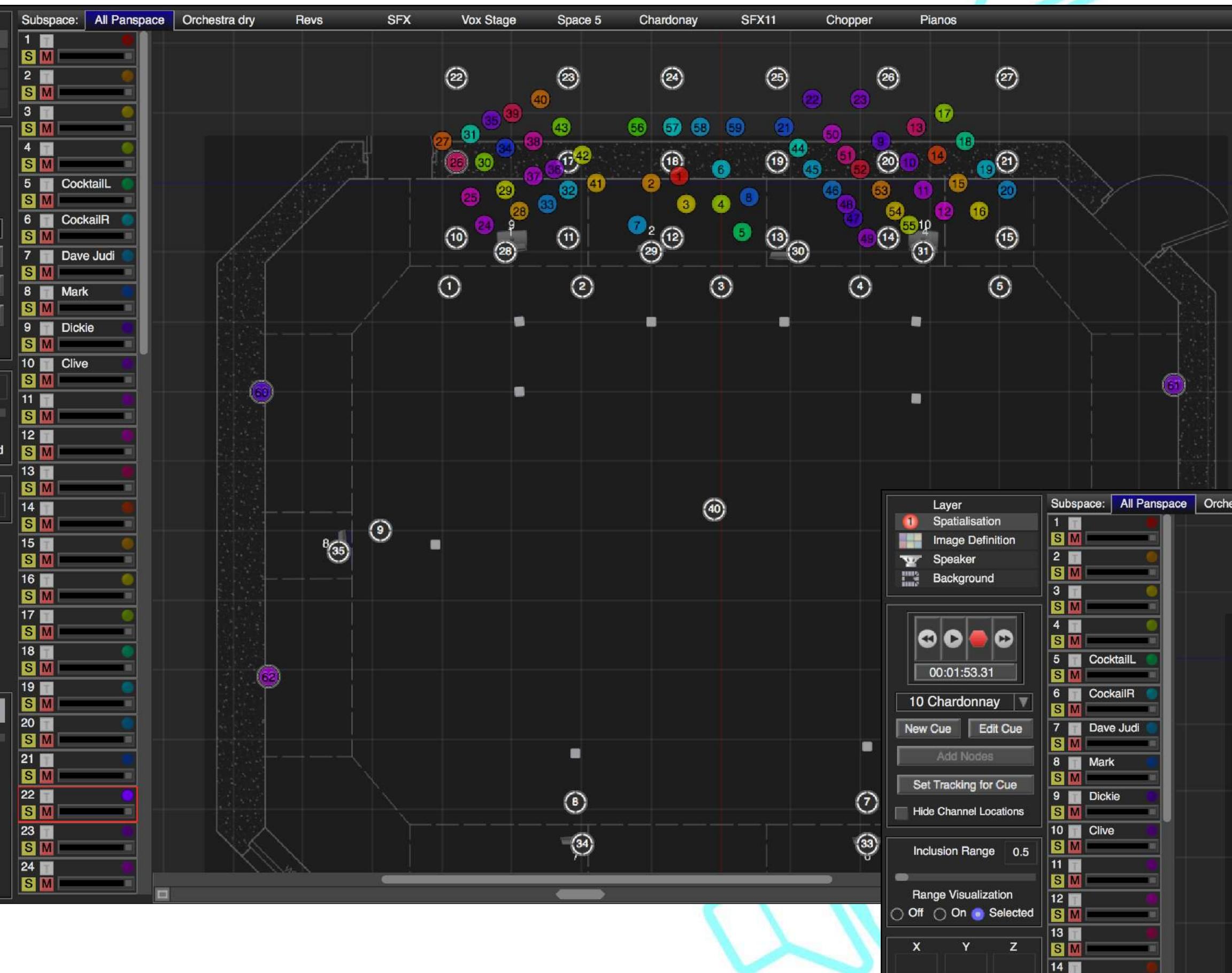
# PanSpace AutoCalc spatial rendering



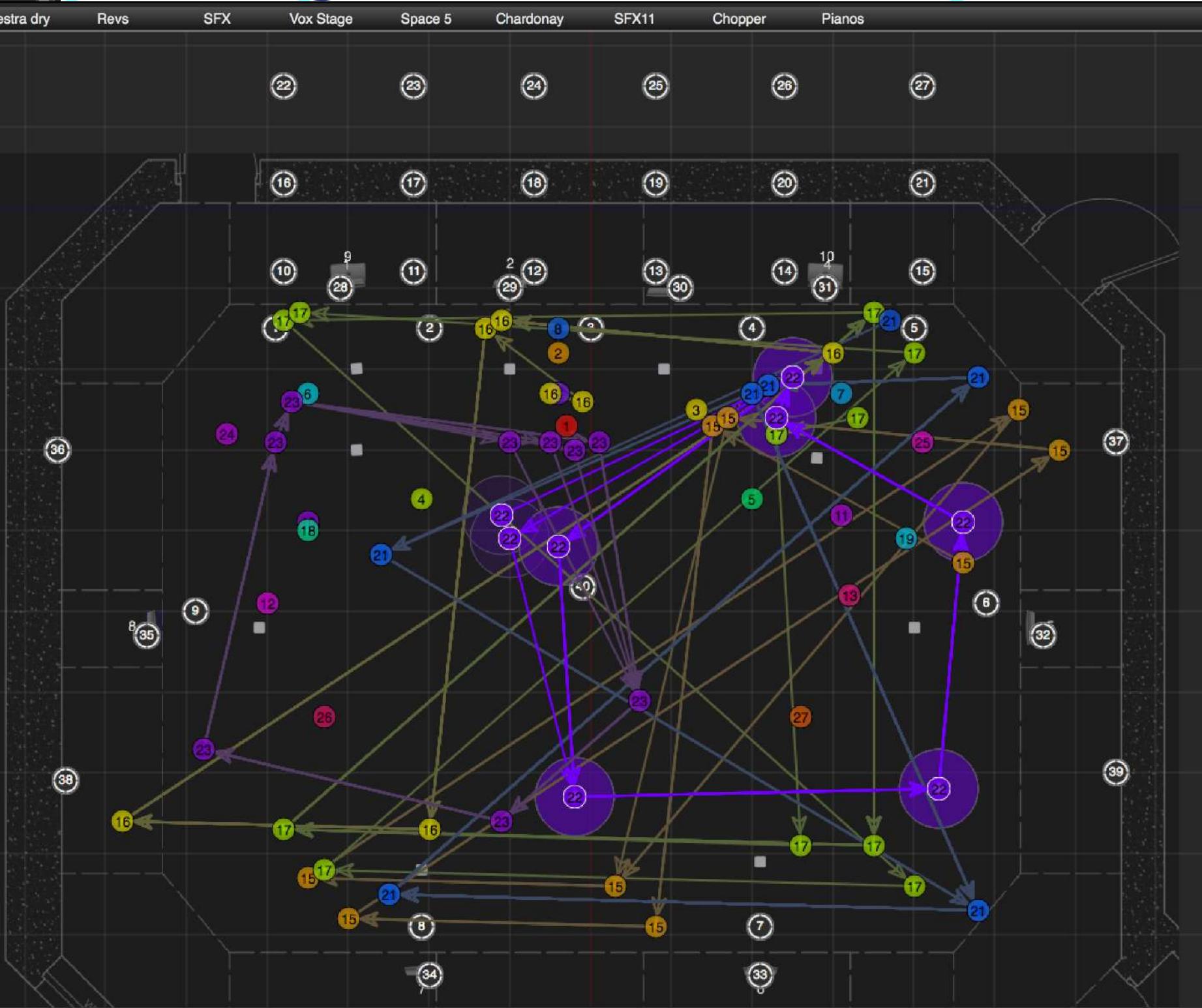
Import venue Background  
Place Speaker “Types”  
Place ImageDef “Types”  
Intelligent AutoCalculation  
Auto and manual refining  
Input object Spatialisation

TiMax

# TiMax PanSpace spatial mixing and panning

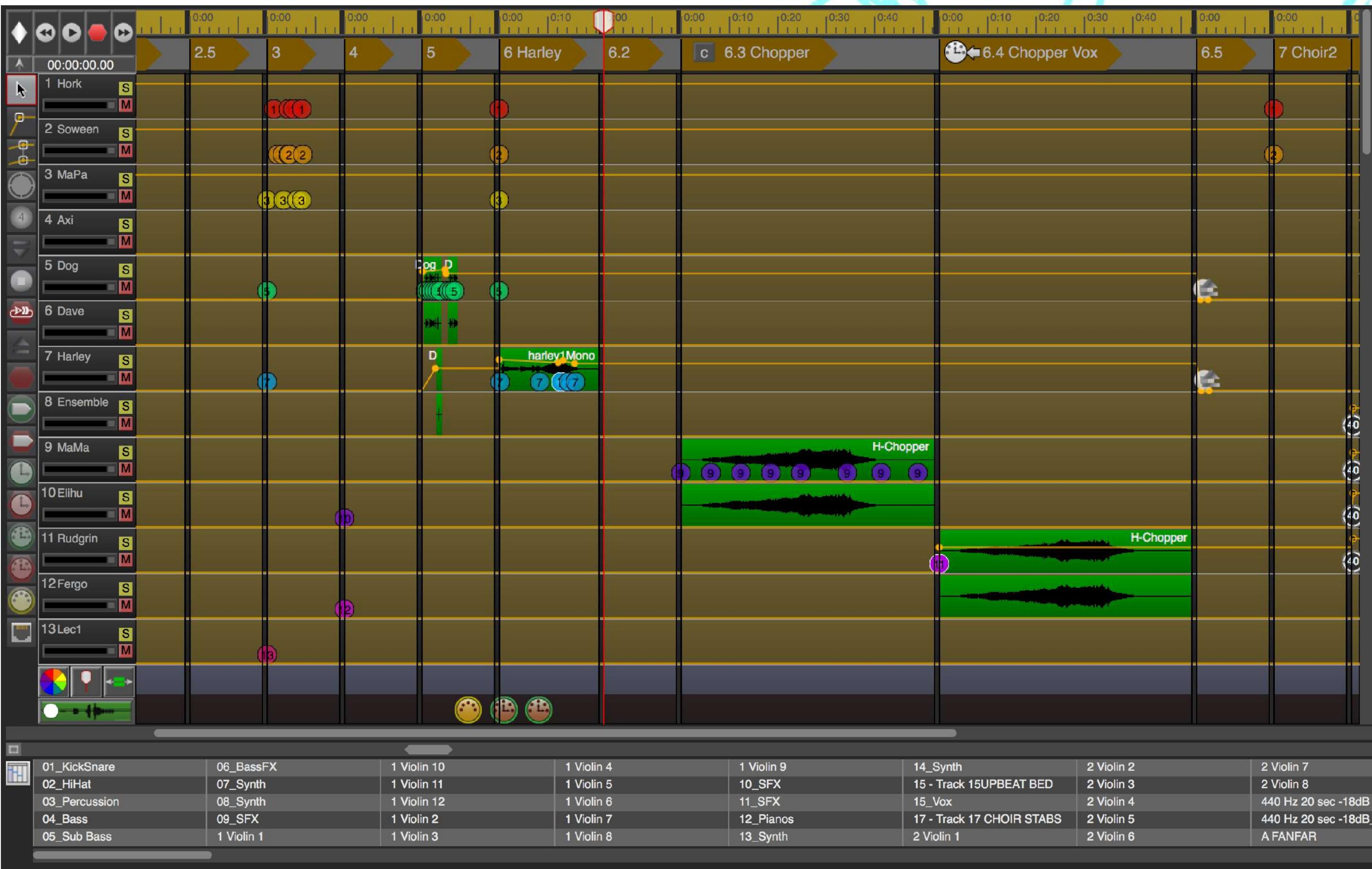


Object-based spatialisation / pan  
Input source objects  
Image Definition spatial objects  
Integrated TimeLine scheduling



**TiMax**

# TiMax TimeLine scheduling and showcontrol



Spatial event timing

Integrates with Panspace

Playback editing

Volume profiling

Showcontrol programming

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# TiMax Mixer, Cues, Files and Archives



I/O, Submix & Delay Matrix

Fader, Solo, Mute, EQ

32 nested DCA Groups

I/O Label entry & import

Show Files and Archives

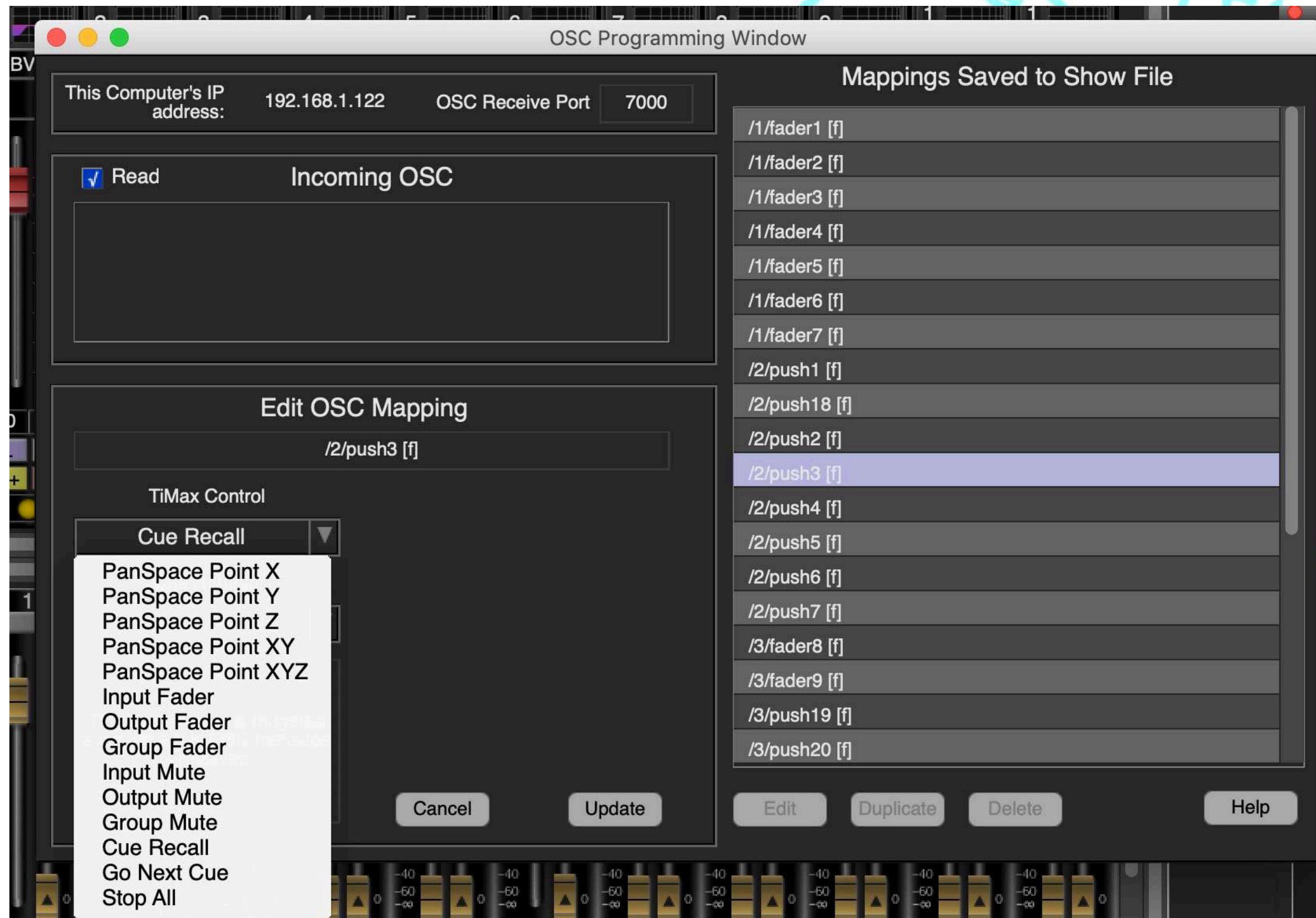
Cue List and Snapshots

System Preset

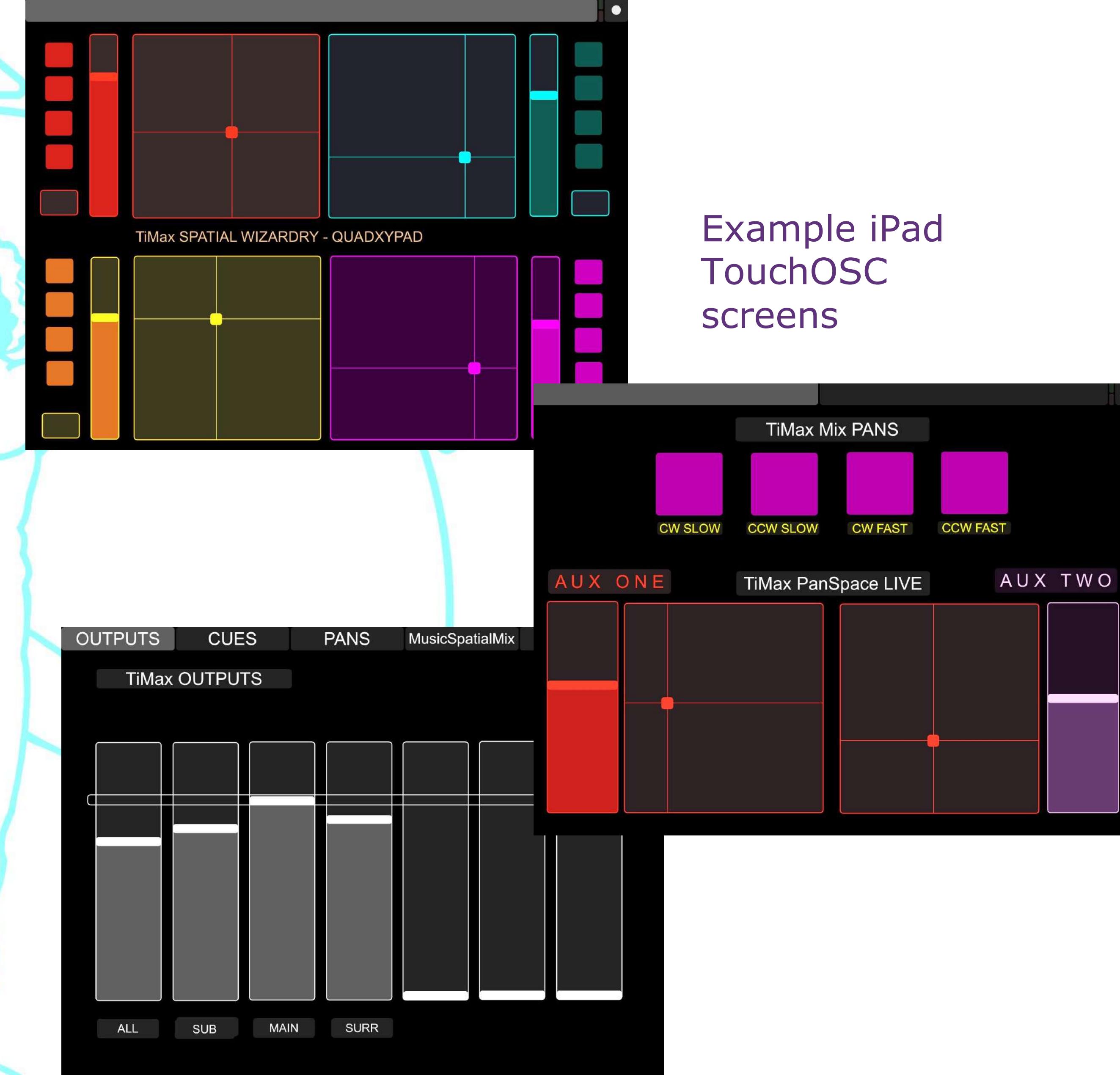
Utilities

**TiMax**

# TiMax & TouchOSC



Example  
TiMax software View > Show OSC  
Window



Example iPad  
TouchOSC  
screens

EVOLUTIONARY  
SPATIAL AUDIO 

# TiMax Spatial Rendering and Mix Workflow

**Mapping sound sources** via speaker locations to seating positions, and add Haas Effect over-delay for imaging

**Image Definition objects** - “portable delay-matrix presets”, auto-calculated, adaptive, user-adjustable

**Multiple 3D time-alignments** and over-delays applied to desk channel Direct Outputs and Groups for localisation.

**Variable control of the matrix delays** to move the sound, using Cues or performer stagetracking.

**Achieves real-time *object-based spatial mixing and immersion***



# TiMax

## TRACKER d4

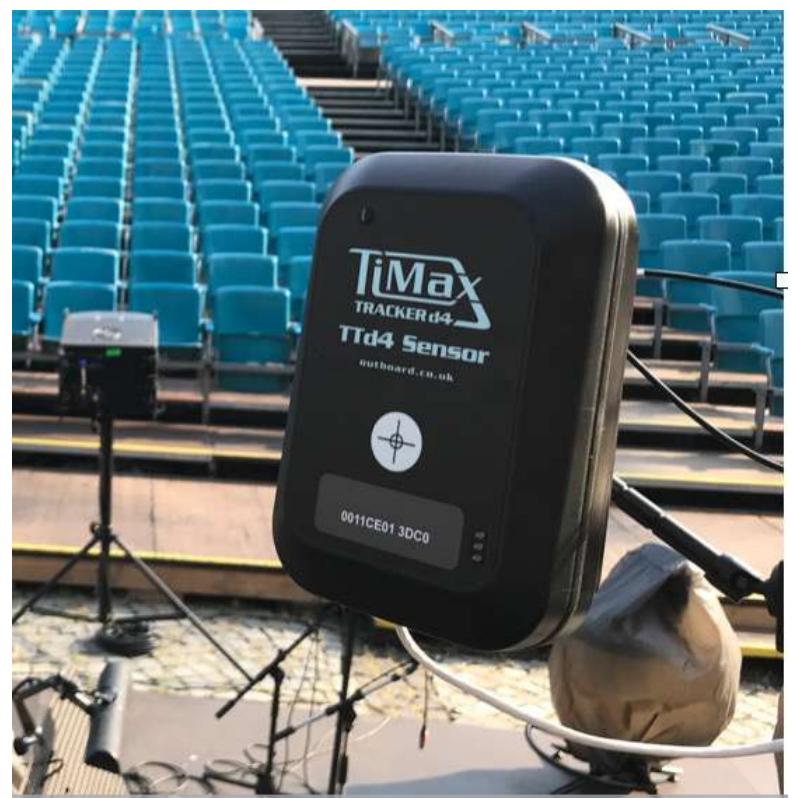
Precision Stagetracking

*Enhanced ROI all-purpose performer tracking*



# Precision Stagetracking

TTd4  
Sensors



TTd4  
Tags



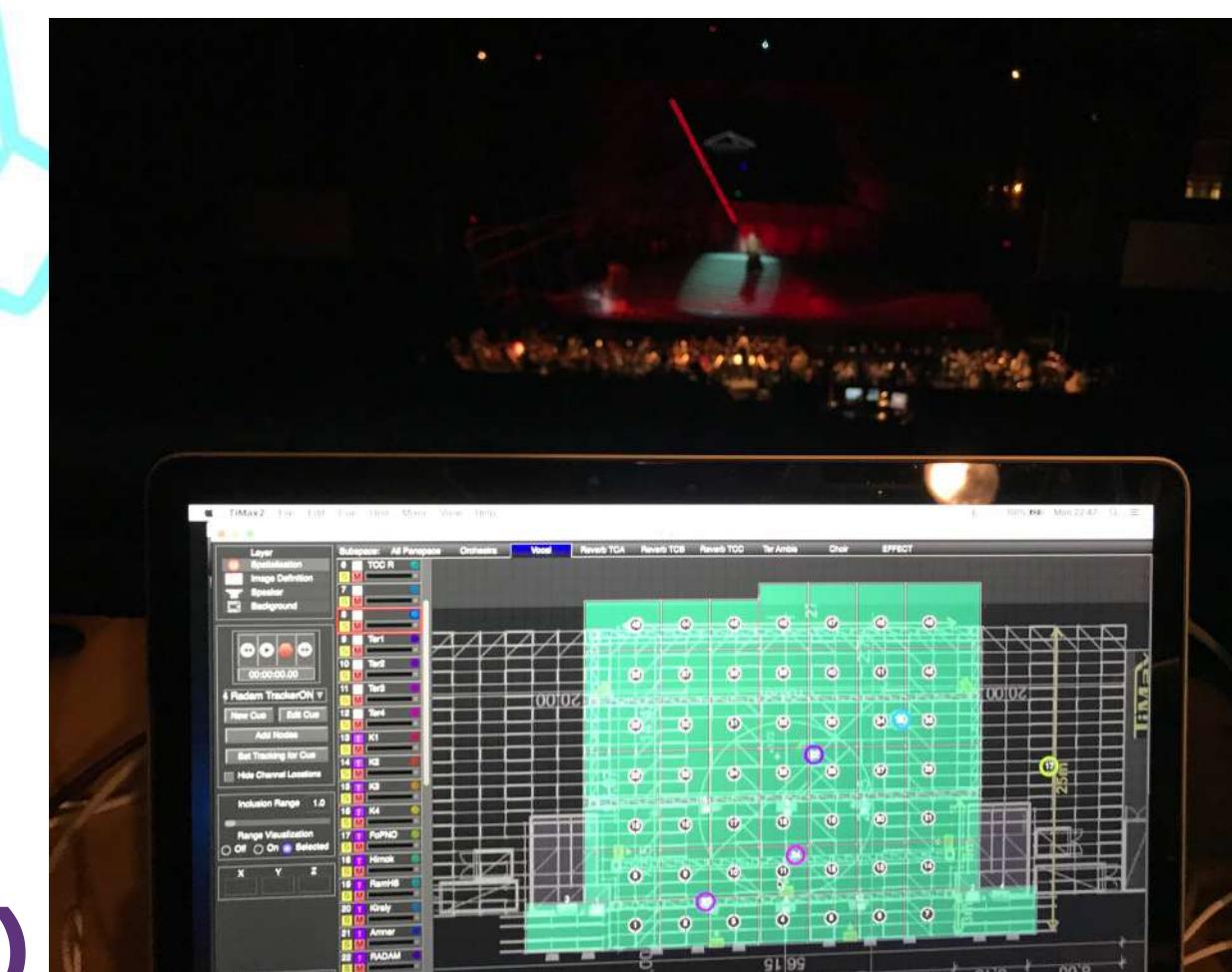
Dual-Mode UWB Tracking  
*Angle of Arrival (AOA)*  
and  
*Time Difference of Arrival (TDOA)*

Affordable, Durable, Portable

Audio, Lighting, Media control

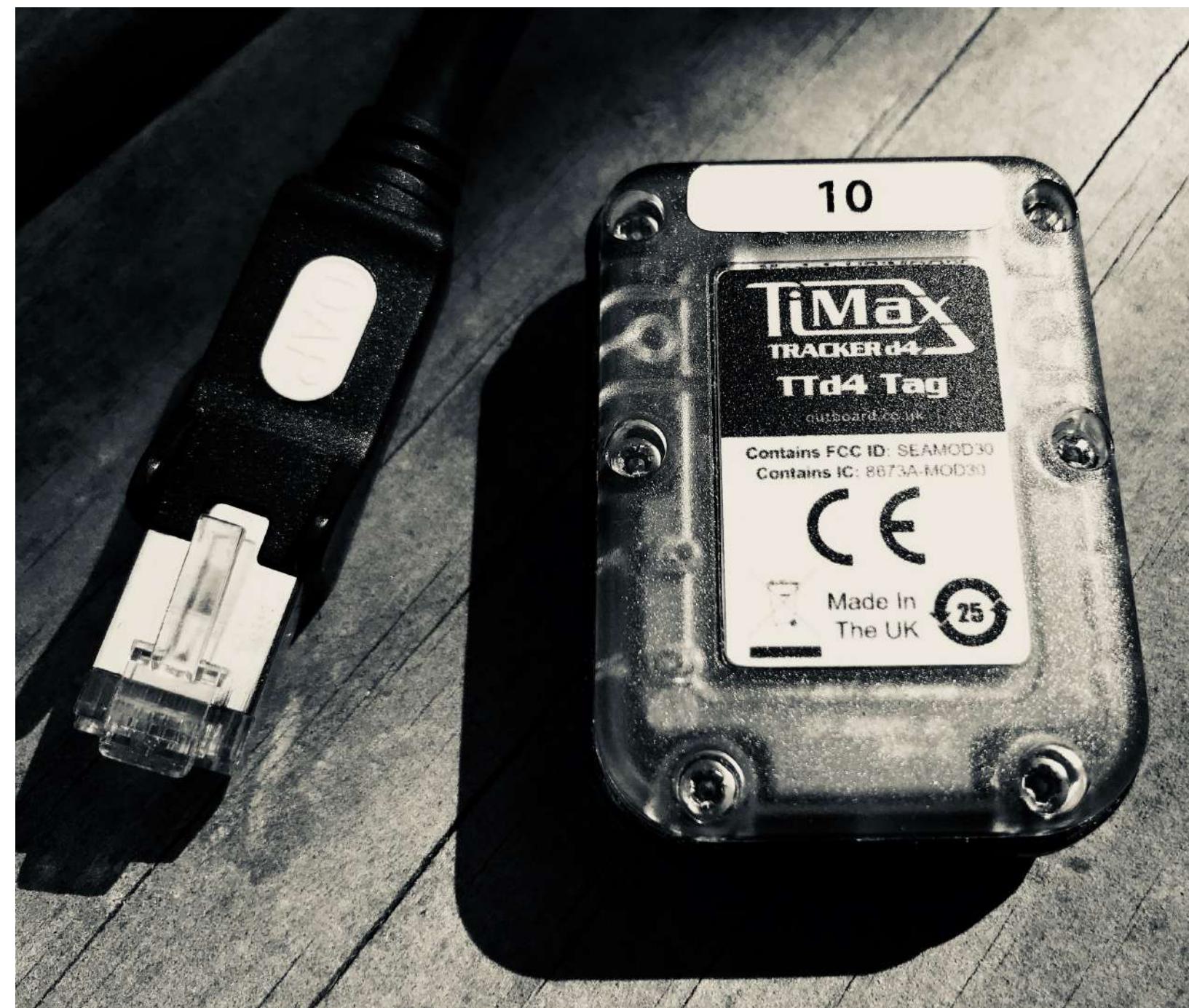
3rd Party Integration via OSC,  
PosiStageNet, ArtNet, sACN

(inc. Soundscape, L-Isa, Disguise, GrandMA, ETC-Eos)

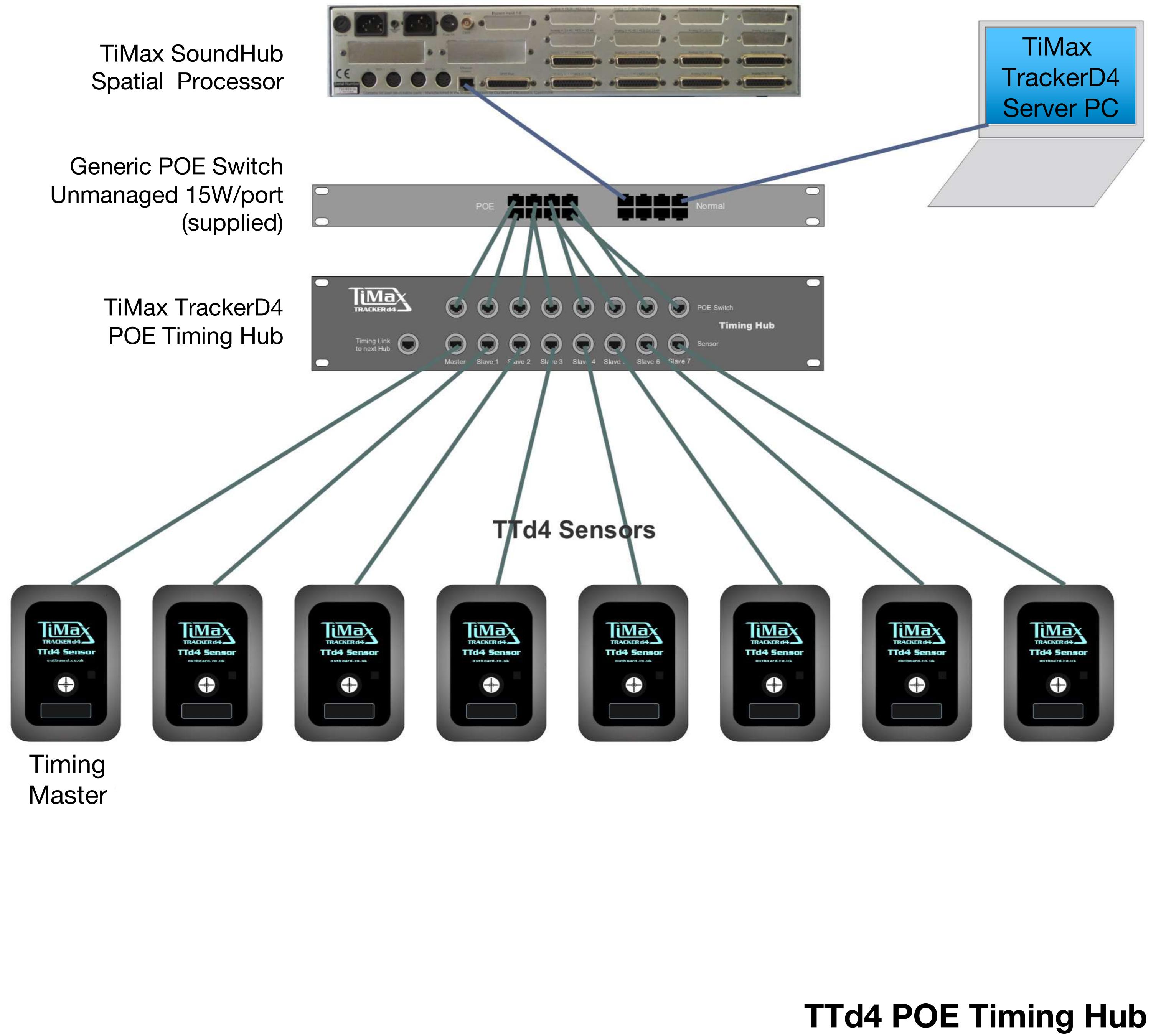




## TiMax TrackerD4 Sensor and Tag



# HOOK UP



**Configure logging**

**Show all** **Show selected** Showing 2 devices

**Configure the cell hierarchy**

**Stop listening** Listening on 192.168.1.80... Showing 1827 events

**Import** **Export** **Clear**

**Show view options** **2D** **3D**

**Import representations**

**Add background objects**

**Place devices**

**Configure timing**

**Sensor network configuration**

**Solve sensor parameters**

**Set up tag filters**

**Configure 2.4GHz receivers**

**View sensor status**

**Review location events**

View real-time and historical location events on a map of the system

**View trace messages**

**Replace infrastructure**

**Sensor software/firmware**

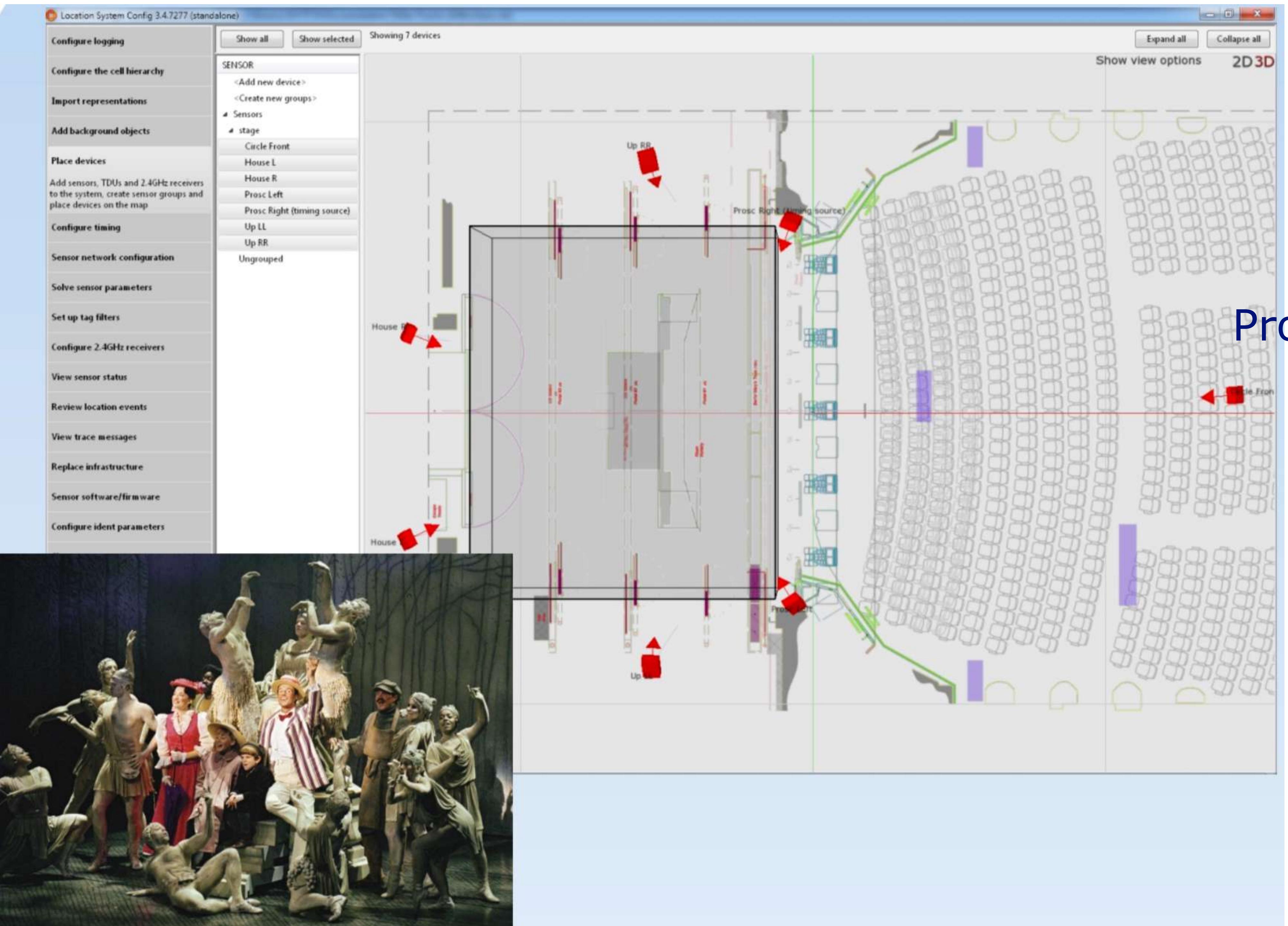
**Configure ident parameters**

Event 1826 00:11:CE:00:00:00:9B:F7 seq 0  20/04/2020 17:58:25 stage [OK] (-50.203800343, -1.96572, 0.51 (variance 0.245836)	Event 1827 00:11:CE:00:00:00:9B:F7 seq 1  20/04/2020 17:58:25 stage [OK] (-0.763827, -1.94138, 0.51 (variance 0.244256)
--	--

**SENSOR AZIMUTH ELEVATION AOA STATUS POWER**

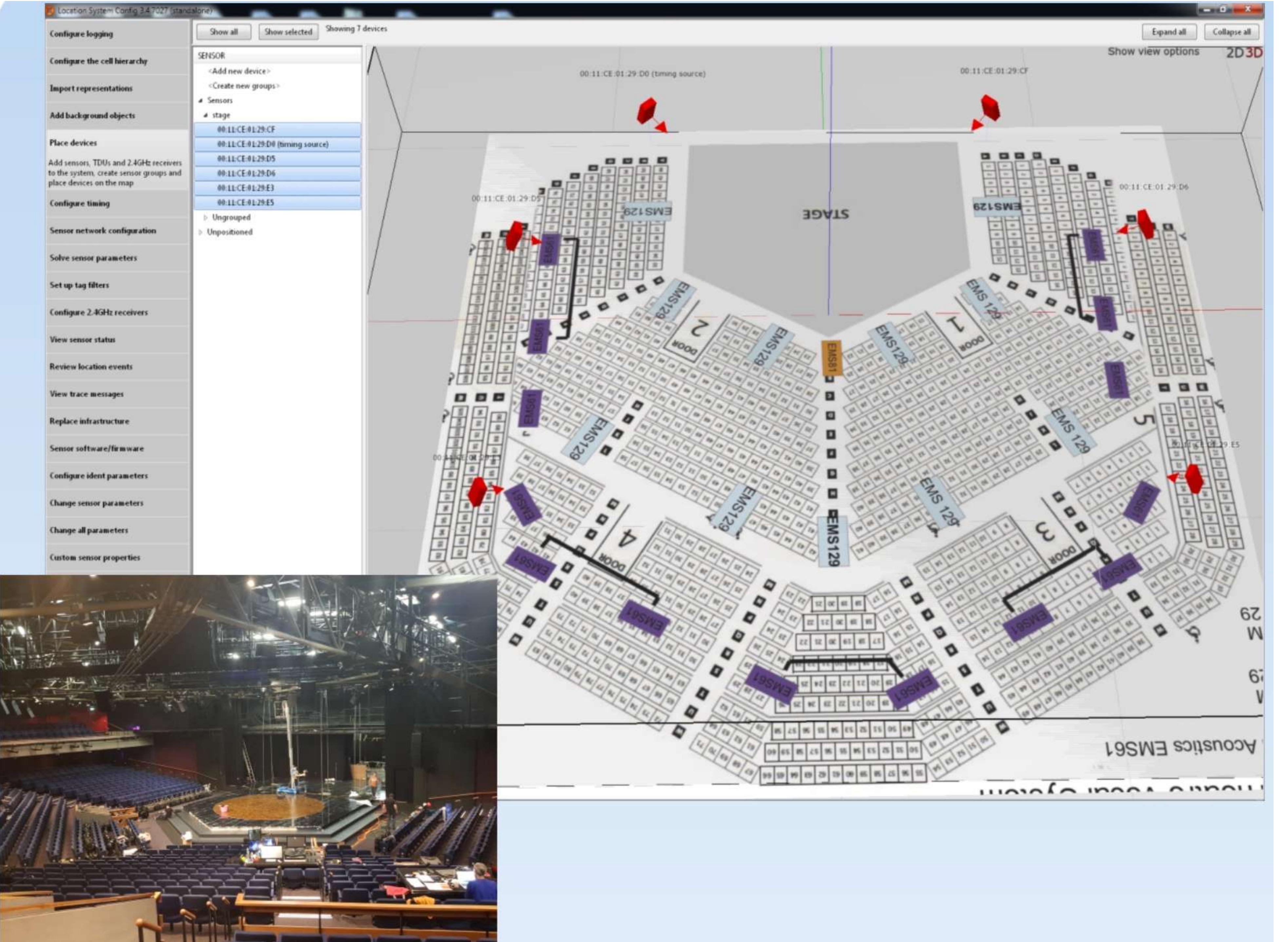
00:11:C...01:3D:47 3.1	10.9	Accepted	1.6
00:11:CE:01:3F:39 -25.6	-0.1	Accepted	1.57

# TiMax TrackerD4 Location Engine and Sensor Management



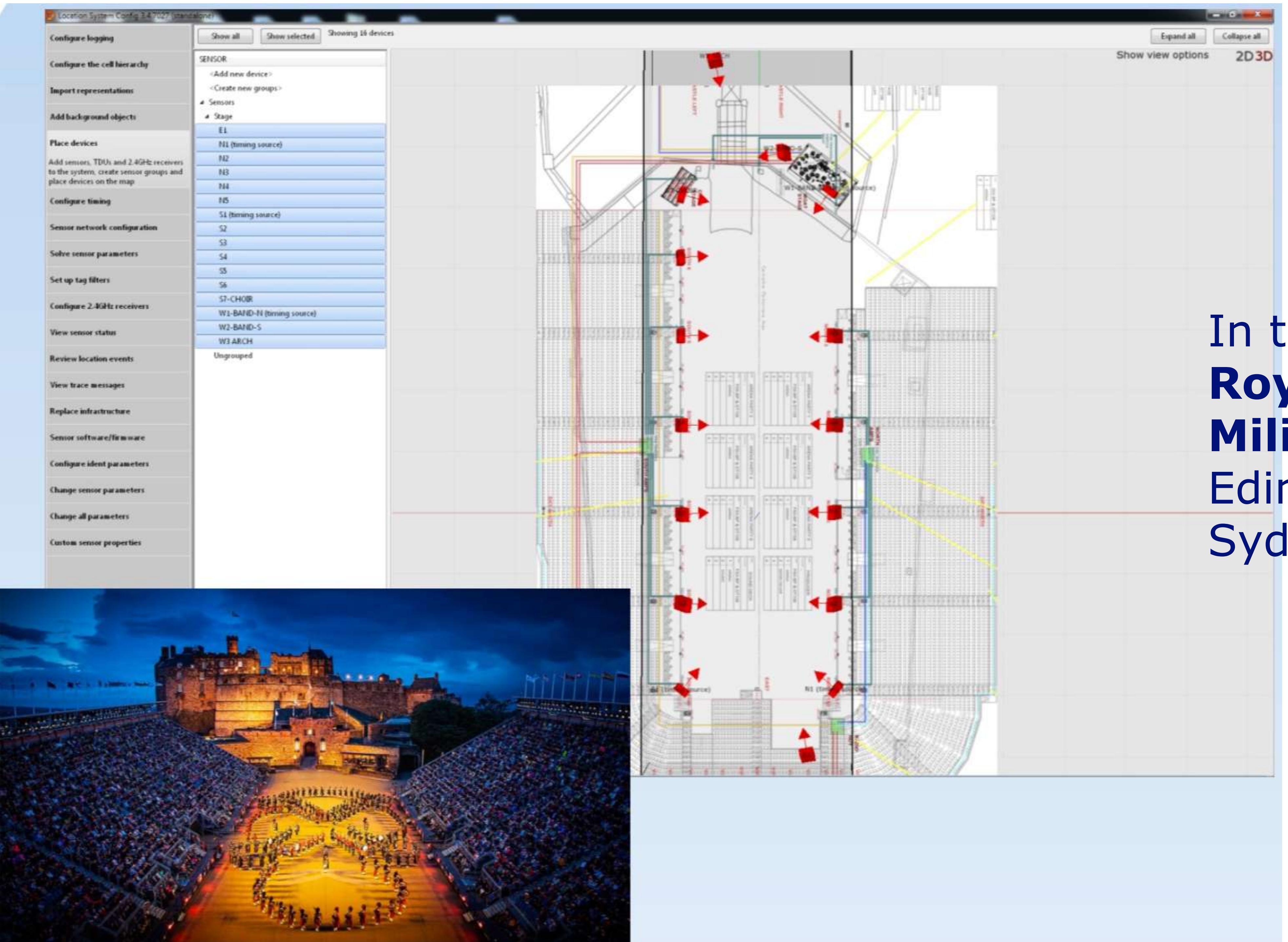
# Prosc Stage

# TiMax



# Thrust Stage Apollo 11 Los Angeles

TiMax



# In the Round Arena Royal Edinburgh Military Tattoo Edinburgh & Sydney

TiMax

File Setup



Global control

Pri

Sec

Ter

Off

 OSC Enabled

Capture settings

Size

1.0

m

Smoothing

Ave

3

Time

3

sec

Speed

0.1

m/s

Off location



Comms control

x

-2

y

0

z

0

On

Off

 Start on boot

1 Othello			-		13 Tag Name Here	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	25 Tag Name Here	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	37 Tag Name Here	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	49 Tag Name Here	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2 Lear		-	-		14 Tag Name Here	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	26 Tag Name Here	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	38 Tag Name Here	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	50 Tag Name Here	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3 Romeo		-	-		15 Tag Name Here	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	27 Tag Name Here	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	39 Tag Name Here	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	51 Tag Name Here	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4 Mr Pink		-	-		16 Tag Name Here	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	28 Tag Name Here	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	40 Tag Name Here	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	52 Tag Name Here	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5 Mr White		-	-		17 Tag Name Here	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	29 Tag Name Here	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	41 Tag Name Here	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	53 Tag Name Here	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6 Mr Orange		-	-		18 Tag Name Here	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	30 Tag Name Here	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	42 Tag Name Here	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	54 Tag Name Here	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7 Mao		-	-		19 Tag Name Here	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	31 Tag Name Here	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	43 Tag Name Here	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	55 Tag Name Here	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8 Mick		-	-		20 Tag Name Here	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	32 Tag Name Here	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	44 Tag Name Here	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	56 Tag Name Here	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9 Keith		-	-		21 Tag Name Here	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	33 Tag Name Here	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	45 Tag Name Here	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	57 Tag Name Here	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10 First Centurion		-	-		22 Tag Name Here	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	34 Tag Name Here	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	46 Tag Name Here	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	58 Tag Name Here	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11 Qlab8					23 Tag Name Here	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	35 Tag Name Here	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	47 Tag Name Here	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	59 Tag Name Here	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12 Tag Name Here	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	24 Tag Name Here	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	36 Tag Name Here	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	48 Tag Name Here	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	60 Tag Name Here	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

# Tracker Translate Tag Management

Inspect and edit tag		Name	Tag Pick List			Capture settings			Smoothing			Off location			Current location		
Tag #	5	Mr-White	<input type="checkbox"/> Primary Secondary Tertiary 0011CE000000A6B8			Size Off m Ave Off Time Off sec Speed Off m/s			Off location <input checked="" type="checkbox"/> x 0 y 0 z 0			Current location <input checked="" type="checkbox"/> x -1.93 y -1.05 z 0.5					
OSC String		/TiMaxTrackerD4/5			<input checked="" type="checkbox"/> Use Global Settings			<input checked="" type="checkbox"/> Use Global Settings									

**TiMax Tracker Translate - DH Demo.xml (2.0.14.0)**

**File** **Setup**

**Tag Pick List**

- Setup Interfaces
- Setup OSC Destination
- Setup PosiStageNet Destination
- OSC Remote Control

Dark Theme

1	Othello					13
2	Lear					14
3	Romeo					15
4	Mr Pink					16
5	Mr White					17
6	Mr Orange					18
7	Mao					19
8	Mick					20
9	Keith					21
10	First Centurion					22
11	Qlab8					23
12	Tag Name Here					24

**Tag Pick List**

0011CE0000007B6	0011CE0000009BF7	0011CE000000A660	0011CE000000A6B8	0011CE000000AA29	0011CE000000AA31	0011CE000000AA35	0011CE000000B11F
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**Capture settings**

Size	1.0	m	Ave	3
Time	3	sec		
Speed	0.1	m/s		

**Smoothing**

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**Off location**

x	-2
y	0
z	0

**Comms control**

**On** **Off**

Start on boot

**Tracker Translate Tag Pick List**

25	Tag Name Here					37	Tag Name Here					49	Tag Name Here			
26	Tag Name Here					38	Tag Name Here					50	Tag Name Here			
27	Tag Name Here					39	Tag Name Here					51	Tag Name Here			
28	Tag Name Here					40	Tag Name Here					52	Tag Name Here			
29	Tag Name Here					41	Tag Name Here					53	Tag Name Here			
30	Tag Name Here					42	Tag Name Here					54	Tag Name Here			
31	Tag Name Here					43	Tag Name Here					55	Tag Name Here			
32	Tag Name Here					44	Tag Name Here					56	Tag Name Here			
33	Tag Name Here					45	Tag Name Here					57	Tag Name Here			
34	Tag Name Here					46	Tag Name Here					58	Tag Name Here			
35	Tag Name Here					47	Tag Name Here					59	Tag Name Here			
36	Tag Name Here					48	Tag Name Here					60	Tag Name Here			

**Inspect and edit tag**

Name	Tag Pick List	Capture settings	Smoothing	Off location	Current location
Tag #	Othello	Size Off	m Ave Off	x 0	x -1.57
	Primary	Time Off	sec	y 0	y -0.98
1	0011CE000000B11F	Speed Off	m/s	z 0	z 0.50
	Secondary				
	Tertiary				
OSC String					
/TiMaxTrackerD4/1					

Use Global Settings  Use Global Settings

**TiMax Tracker Translate - DH Demo.xml (2.0.14.0)**

**File    Setup**

**Global control**

**TiMax TRACKERd4**

**Pri    Sec    Ter    Off**

**OSC Enabled**

**Capture settings**

**Smoothing**

**Off location**

**Comms control**

**Size 1.0 m Ave 3**

**Time 3 sec**

**Speed 0.1 m/s**

**Enable**

**x -2**

**y 0**

**z 0**

**On    Off**

**Start on boot**

**1 Othello 13 Tag Name Here 25 Tag Name Here 37 Tag Name Here 49 Tag Name Here**

**2 Lear 14 Tag Name Here**

**3 Romeo 15 Tag Name Here**

**4 Mr Pink 16 Tag Name Here**

**5 Mr White 17 Tag Name Here**

**6 Mr Orange 18 Tag Name Here**

**7 Mao 19 Tag Name Here**

**8 Mick 20 Tag Name Here**

**9 Keith 21 Tag Name Here**

**10 First Centurion 22 Tag Name Here**

**11 Qlab8 23 Tag Name Here 35 Tag Name Here 47 Tag Name Here 59 Tag Name Here**

**12 Tag Name Here 24 Tag Name Here 36 Tag Name Here 48 Tag Name Here 60 Tag Name Here**

**Setup OSC Destination**

**Destination Name IP Address Port Frequency**

**Add**

Go	Destination Name	IP Address	Port	Frequency
<input checked="" type="checkbox"/>	DS100	192.168.1.100	50010	0
<input checked="" type="checkbox"/>	TiMax	192.168.1.90	7000	0

**Delete**

**Inspect and edit tag**

**Name**

**Tag #**

**5**

**Primary**

**Secondary**

**Tertiary**

**Tag Pick List**

**OSC String**

**/TiMaxTrackerD4/5**

**Capture settings**

**Smoothing**

**Off location**

**Current location**

**Size Off m Ave Off**

**Time Off sec**

**Speed Off m/s**

**x 0**

**y 0**

**z 0**

**-1.93**

**-1.05**

**0.5**

**Use Global Settings**

**Use Global Settings**

**Tracker Translate OSC Destinations**

**-TiMax SoundHub**

**-DS100**

**Also**

**PosiStageNet**

**-GrandMA**

**-disguise**

**-ETC EOS**



select and edit tag

Name	Tag Pick List	Capture settings	Smoothing	Off location	Current location
Tag #	Othello	Size <input type="text" value="Off"/>	Ave <input type="text" value="Off"/>	x <input type="text" value="0"/>	x <input type="text" value="0"/>
Primary	Secondary	Time <input type="text" value="Off"/>	sec	y <input type="text" value="0"/>	y <input type="text" value="-2.24"/>
1	0011CE00000070BA	Speed <input type="text" value="Off"/>	m/s	z <input type="text" value="0"/>	z <input type="text" value="0.5"/>
OSC String	/dbaudio1/positioning/source_position/1	<input checked="" type="checkbox"/> Use Global Settings			

# Tracker Translate Source Interfaces -TiMax TrackerD4 -BlackTrax

**TiMax Tracker Translate - DH Demo.xml (2.0.14.0)**

**File    Setup**

**Global control**

**TiMax TRACKERd4**

**Pri    Sec    Ter    Off**

OSC Enabled

**Capture settings**

Size: 1.0 m   Ave: 3  
Time: 3 sec   Speed: 0.1 m/s

Enable

**Smoothing**

**Off location**

x: -2   y: 0   z: 0

**Comms control**

**On    Off**

Start on boot

**OSC Remote Control - Information**

/outboard/trackertranslate/activetags [i,i]

Where [i,i]=[channel #,selection]

Channel #: Selection

0=all   0=off  
1=channel 1   1=primary  
.....   2=secondary  
64=channel 64   3=tertiary

RC Port: 49499

**Tag Selection Grid**

1 Othello	2 Lear	3 Romeo	4 Mr Pink	5 Mr White	6 Mr Orange	7 Mao	8 Mick	9 Keith	10 First Centurion	11 Qlab8	12 Tag Name Here	13 Tag Name Here	14 Tag Name Here	15 Tag Name Here	16 Tag Name Here	17 Tag Name Here	18 Tag Name Here	19 Tag Name Here	20 Tag Name Here	21 Tag Name Here	22 Tag Name Here	23 Tag Name Here	24 Tag Name Here	37 Tag Name Here	38 Tag Name Here	39 Tag Name Here	40 Tag Name Here	41 Tag Name Here	42 Tag Name Here	43 Tag Name Here	44 Tag Name Here	45 Tag Name Here	46 Tag Name Here	47 Tag Name Here	48 Tag Name Here	49 Tag Name Here	50 Tag Name Here	51 Tag Name Here	52 Tag Name Here	53 Tag Name Here	54 Tag Name Here	55 Tag Name Here	56 Tag Name Here	57 Tag Name Here	58 Tag Name Here	59 Tag Name Here	60 Tag Name Here
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**Inspect and edit tag**

Name: **Mr White**

Tag Pick List:

Primary   Secondary   Tertiary

Tag #: **5**

0011CE000000A6B8

OSC String: /TiMaxTrackerD4/5

**Capture settings**

Size: Off m   Ave: Off  
Time: Off sec   Speed: Off m/s

Use Global Settings

**Smoothing**

**Off location**

**Current location**

x: -1.93   y: -1.05   z: 0.5

Use Global Settings

# Tracker Translate OSC Remote Control of Primary, Secondary and Tertiary tag selection (For backup tags and multiple performer groups/scenes)

**TiMax**  
two  
**soundhubVR**

Precision low-latency spatial audio

**RIDE CAR \* EXPERIENCE \* EXHIBIT**

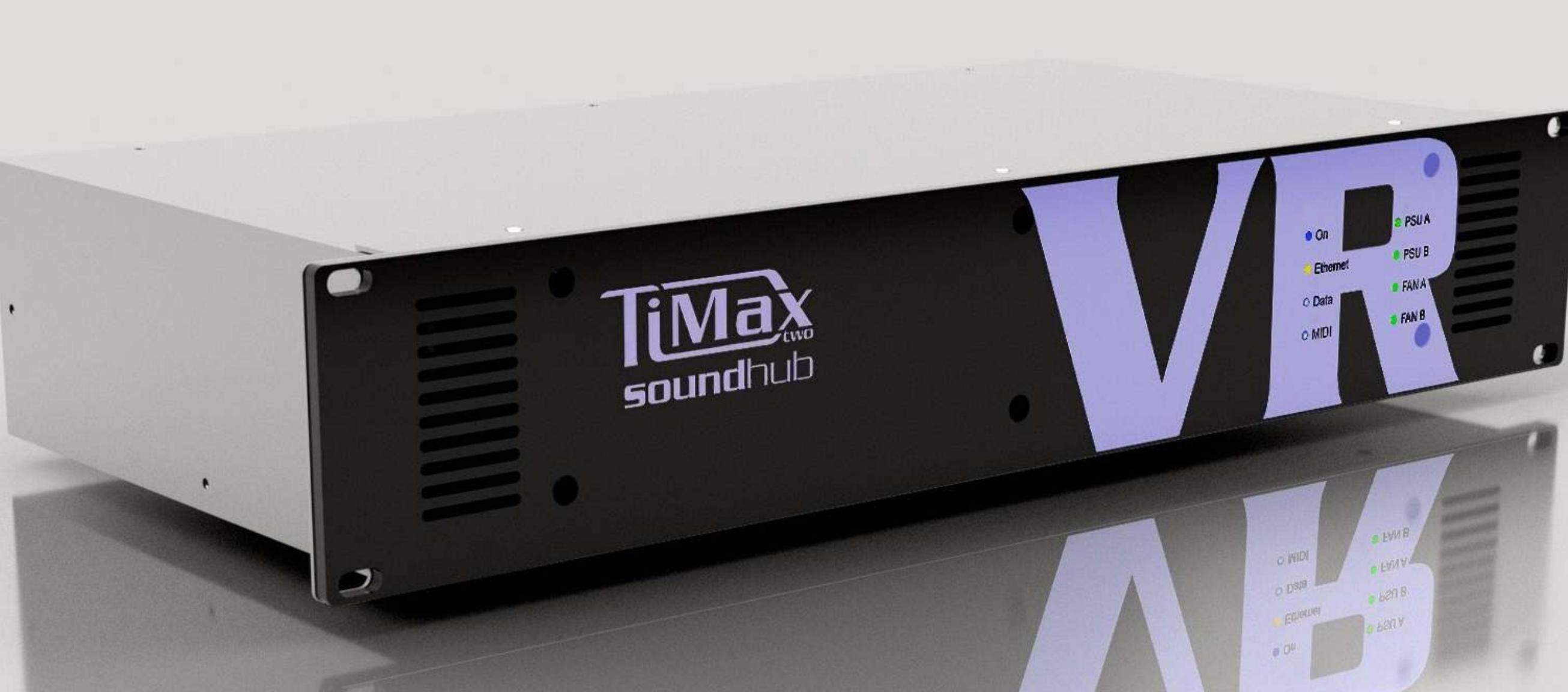


Fully Integrated & mobile  
dsp \* EQ \* delay \* 3D sound  
12-24VDC or 90-230VAC PSU  
16-source instant playback  
16 analogue or Dante out  
TiMax Portal showcontrol

[outboard.co.uk](http://outboard.co.uk)

**TiMax** EVOLUTIONARY  
SPATIAL AUDIO





3 speakers plus sub per seat

16 tracks spatial audio

Player, amps, show control cabinet

## Mobile Robotic Arm Ride-Car Player & Showcontrol



**TiMax** EVOLUTIONARY  
SPATIAL AUDIO

JOIN THE FIGHT  
WITH BATMAN  
OPENING SUMMER 2018



Dynamic multimedia dark ride

with synchronised motion,

sound and video

EVOLUTIONARY  
SPATIAL AUDIO



**TiMax**



Robotic Dark Ride In-Car Immersive Audio



# Military Tattoo & Pageants

Edinburgh Tattoo 2000-2019, 2022  
Basel Tattoo 2006-2019, 2022  
Basel & Zurich Christmas Tattoos  
Sydney, Melbourne, Wellington Tattoos  
Berlin Tattoos  
Kremlin Zoria



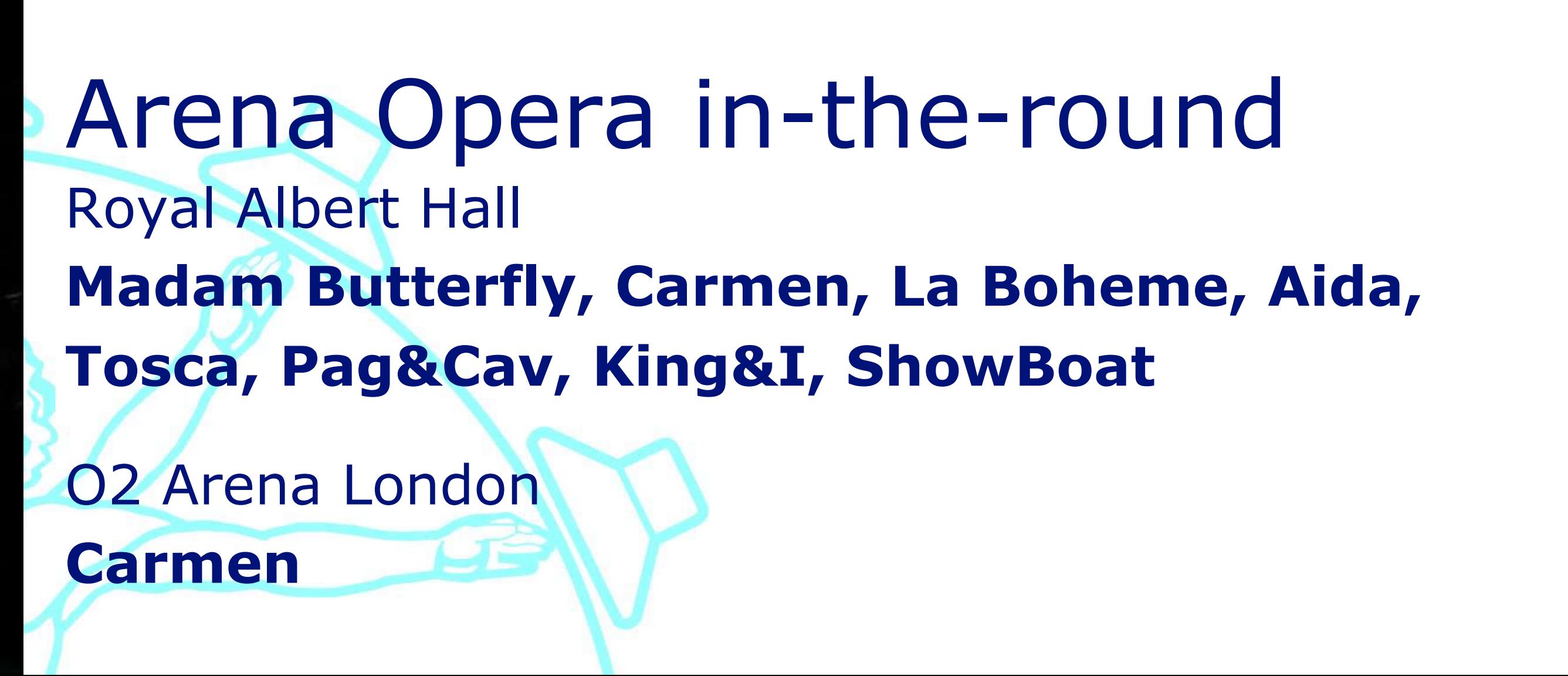
Marching band amplification

Musical timing control and spatial mix

TimeLine and PanSpace scheduling



Vocal spatial localisation  
Live performer tracking





Vocal and band spatial localisation  
Performer tracking  
Stage-Entertainment Germany & France

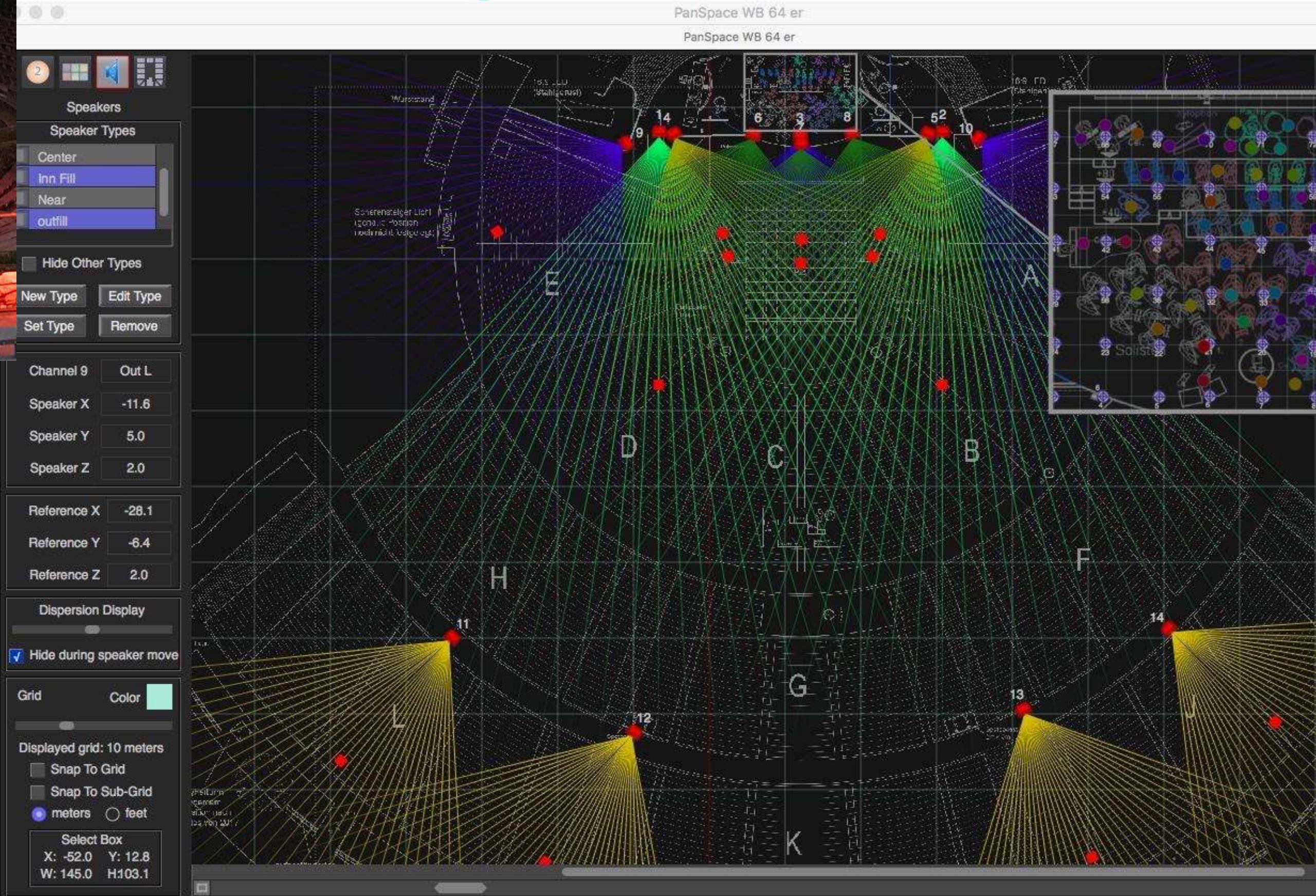
## Dance of the Vampires

Teater des Westerns Berlin  
Mogador Theatre Paris  
MDM Theatre Moscow





Immersive festival one-off  
Berlin Waldbühne

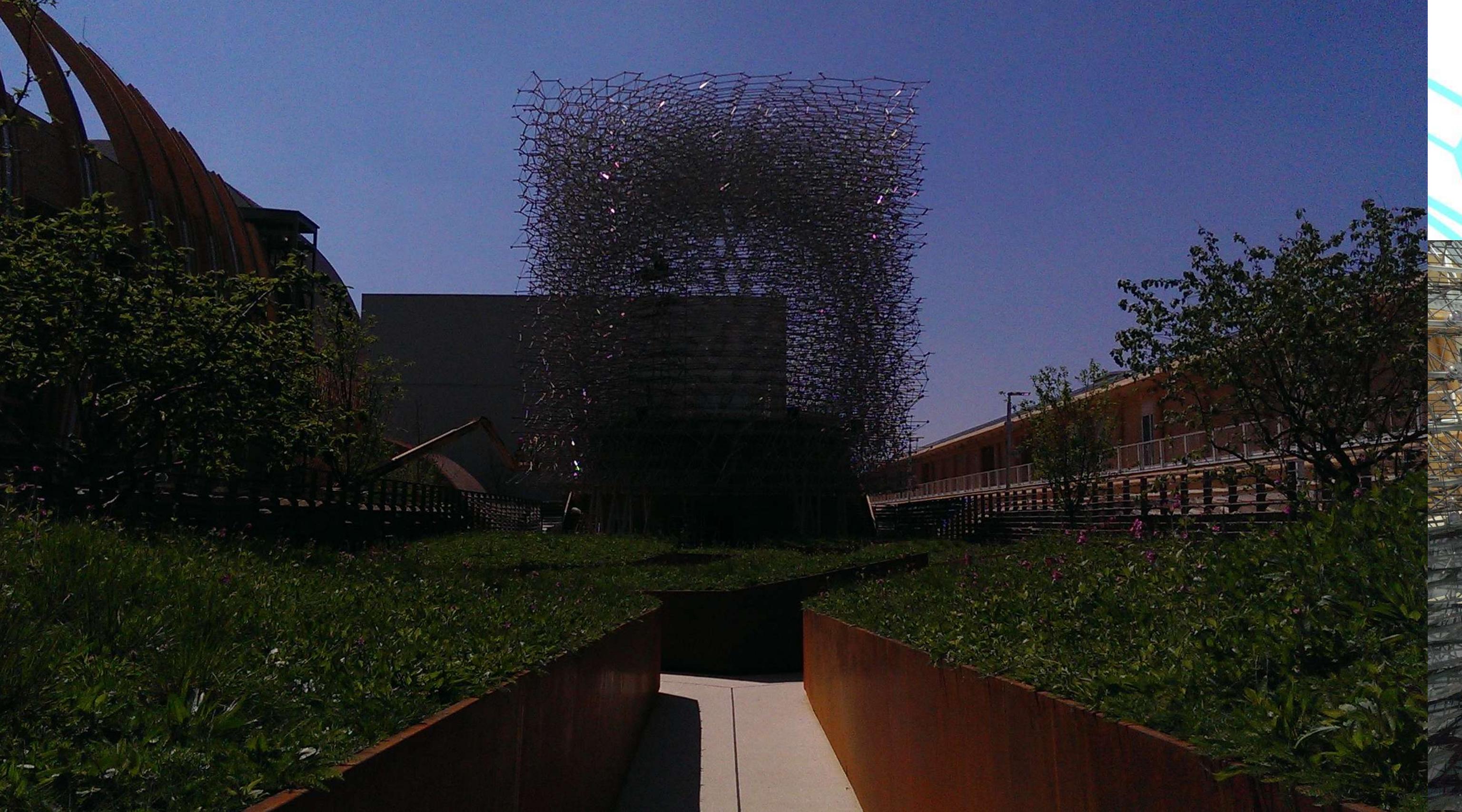


Orchestral object-based spatialisation

TiMax StageSpace Auto-Calc rendering

Standard stereo festival PA  
EVOLUTIONARY  
SPATIAL AUDIO

**TiMax**



# Milan Expo

UK Pavilion *The Hive* - and at Kew UK



Object-based Immersive 3D Spatial Audio

Multi-speaker spatial mapping

Dynamic soundscape synced via internet



Vocal and band spatial localisation  
Live performer stagetracking

# Open Air Musicals

Thunersee 2008-2018

- Jesus Christ Superstar, Titanic, CATS

Einsiedler Welttheater

Erfurt Domfestspiele

Schwerin Schlossfestspiele





# Rocky Horror Show

Cape Town

Johannesburg

Vocal and band immersive imaging

Surround FX with QLab

Best Sound Design NALEDI Awards

**TiMax** EVOLUTIONARY  
SPATIAL AUDIO





## Open Air Opera

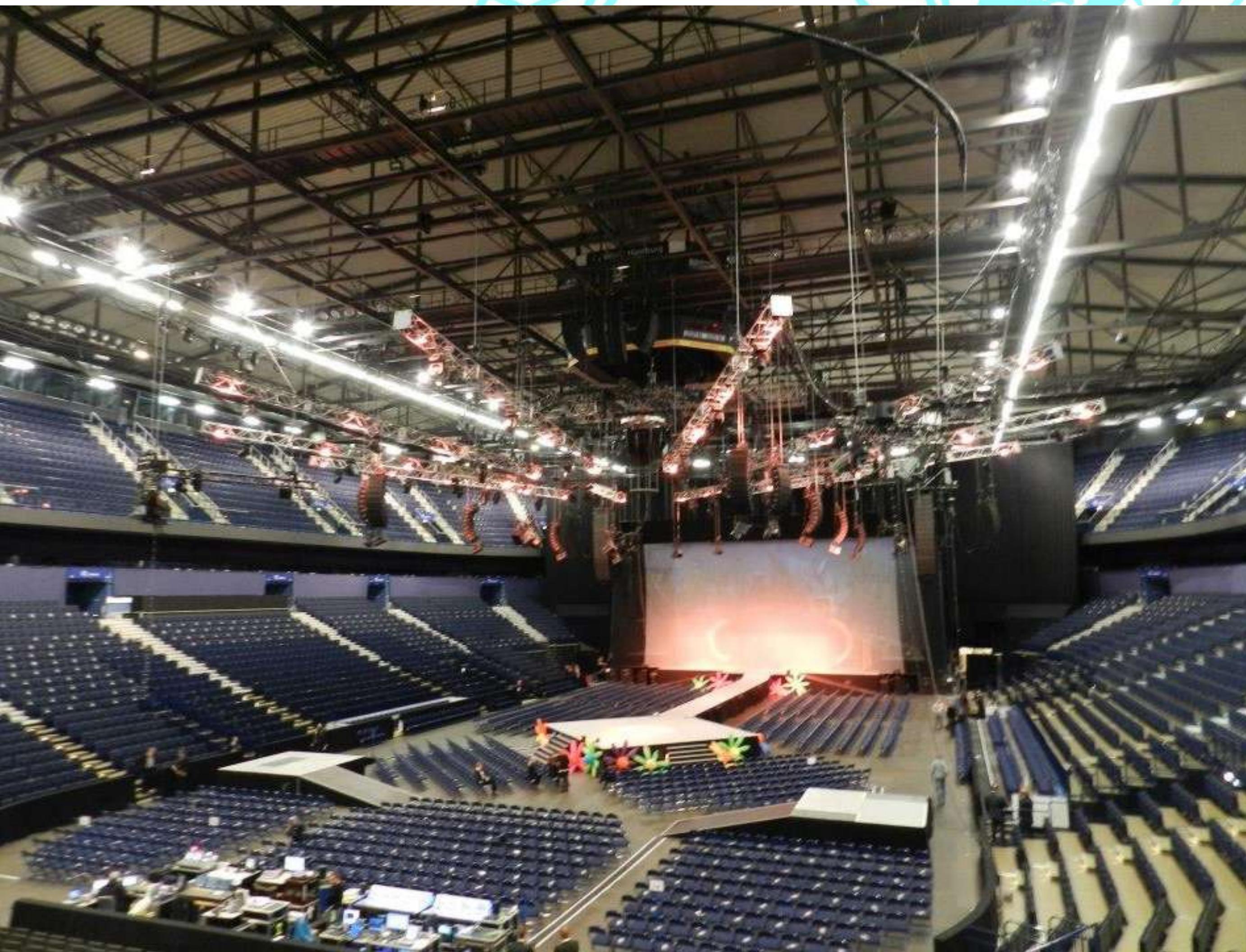
*Rigoletto, Magic Flute*

Oper Graz, St Margarethen, Austria

Vocal spatial localisation  
Performer tracking 60m stage  
Immersive spatial reverb



# Arena Tour - Peter Maffay's Tabaluga



QLab playback vocal localisation  
Live mic vocal localisation  
Live performer tracking

EVOLUTIONARY  
SPATIAL AUDIO

TiMax



# National Gallery Soundscapes

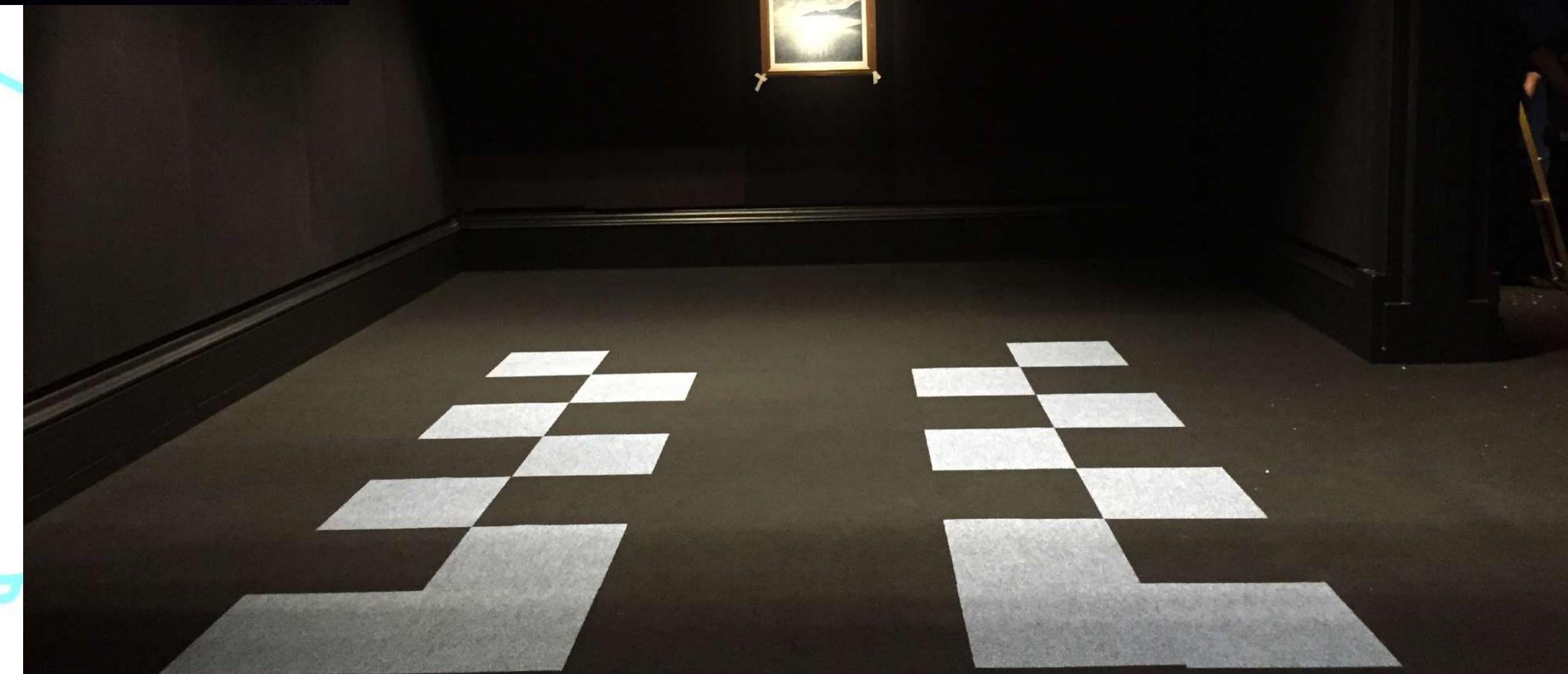
## Summer Exhibition London UK



Playback Server, Scheduler, iPad control

Five zones multi-speaker spatial mapping

Object-based Immersive 3D Spatial Audio





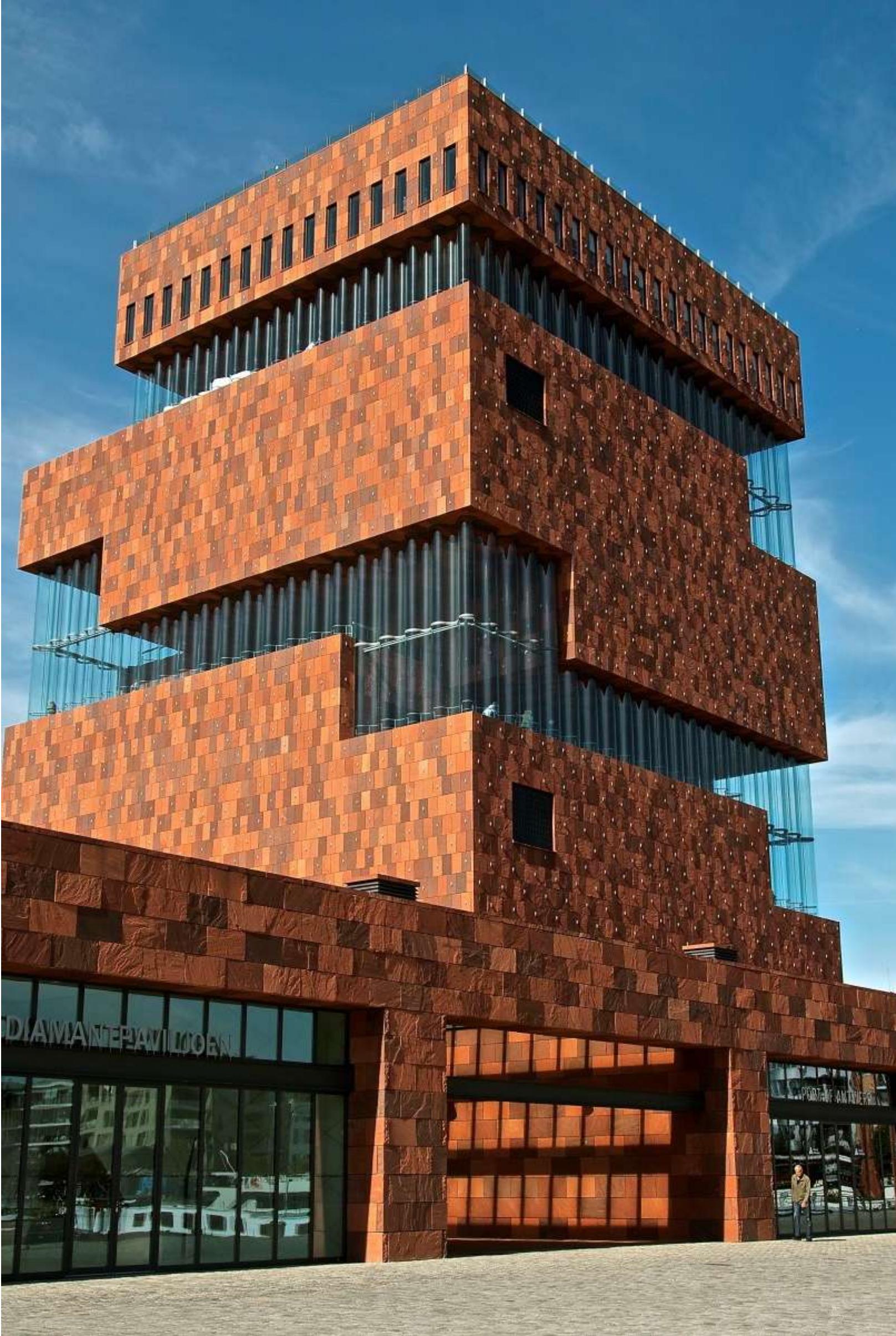
Object-based Immersive 3D Audio

Multi-speaker spatial mapping

Soundscapes audio synced to video

**TiMax** EVOLUTIONARY  
SPATIAL AUDIO





# Museum, Attraction, Experience

MAS Antwerp \* C-Mine Genk \* Moof Brussels \* Micropia Amsterdam  
Grottes Chauvet \* National Gallery \* Kennedy Atlantis Experience \*  
Kew & Milan Expo Hive \* Fremont Street Experience \* Efteling  
Dragon Roller Coaster \* Batman:Knight Flight Abu Dhabi

Immersive Audio

Soundscape Playback

Audio Event Scheduler

**MAS**  
MUSEUM  
AAN DE  
STROOM



**MICROPIA**  
shows the invisible

# LONDON Olympic Games Coca-Cola Pavilion



Experiential marketing  
Immersive audio playback  
iPad Show Control

EVOLUTIONARY  
SPATIAL AUDIO

TiMax

Custom touch-screen  
Dante network audio  
3D Audio Spatialisation



Las Vegas Fremont Street  
Experience

EVOLUTIONARY  
SPATIAL AUDIO

TiMax