



Add, Fix, and Mix

Audio for a Live Game (Killing Floor 2 and Rising Storm 2)

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GAME DEVELOPERS CONFERENCE

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KILLING FLOOR 2

RISINGSTORM 2
VIETNAM

A small, detailed illustration of a military helicopter is positioned to the right of the word 'VIETNAM'. The helicopter is depicted in a side profile, facing right, with its rotors visible. It appears to be a modern attack or transport helicopter, possibly an Apache or Black Hawk variant, rendered in a dark, tactical style that blends with the overall aesthetic of the title.

KF2 LIVE UPDATES

New Maps

New Characters

New Weapons

Event Based Character Reskins

New Features / Modes

CHALLENGES

Features Outside of Original System Design

Voice Count / Performance

Memory

Rapid Turnaround

Community

VOICE COUNTS

New Features That Use Old Assets Can Cause Serious Trouble

REFACTORING

It's Probably Going to Happen

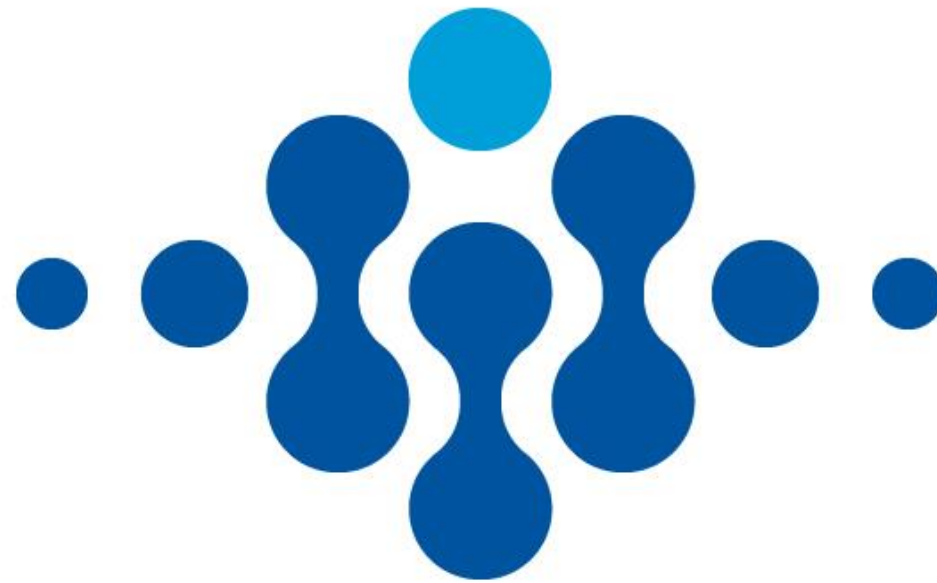
Improved Systems

Player Experience is the Same or Improves*

Memory / Performance

Scalability

LEVERAGE YOUR MIDDLEWARE



wwise

empowers the audio community

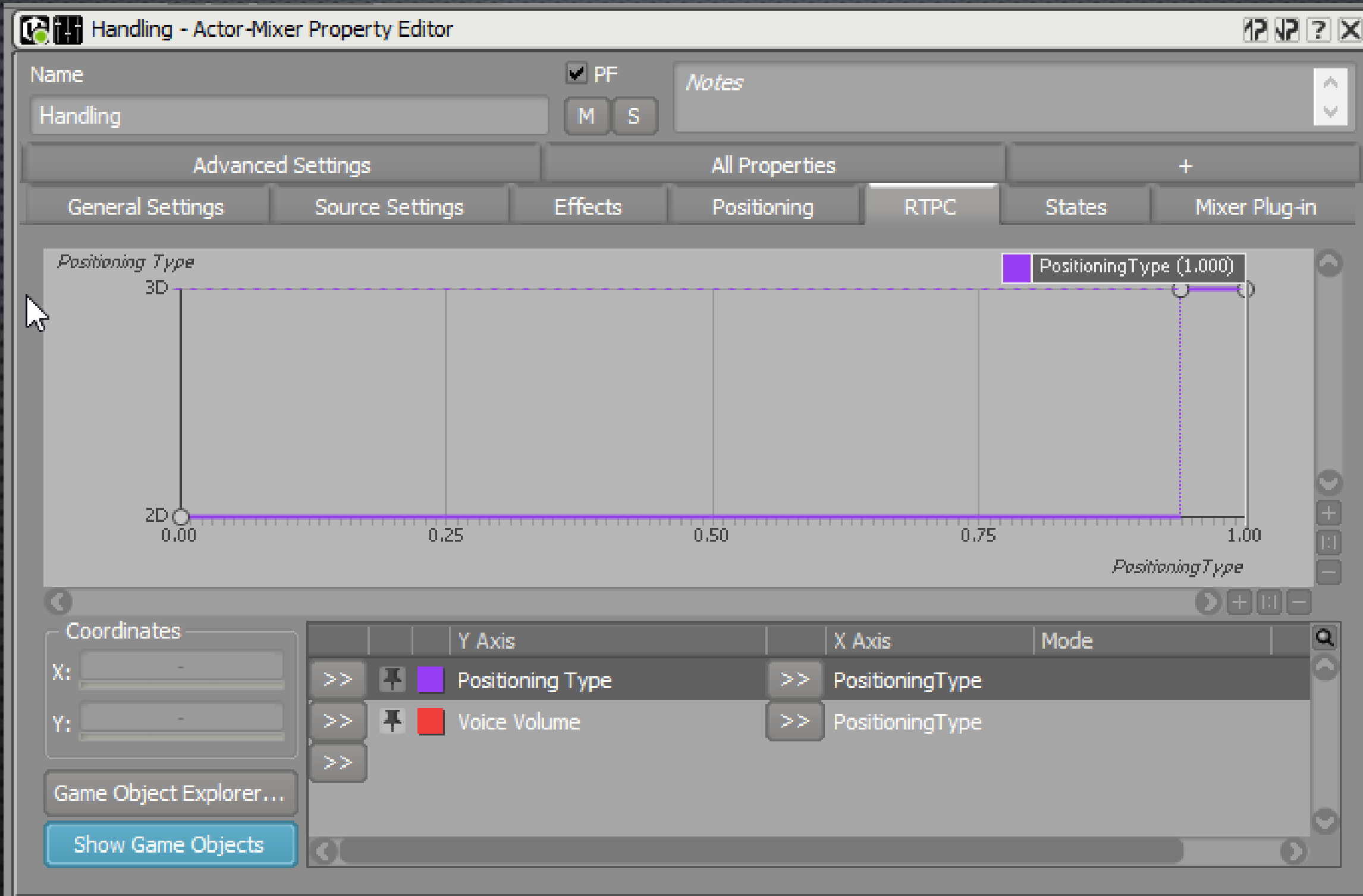
SHARING 1P AND 3P SOUNDS

Create One Sound

Create and Maintain One Animation Notify Set

Set Positioning Type with RTPC (Real Time Parameter Control)

Control Volume/Priority with RTPC



Handling - Actor-Mixer Property Editor

PF

Notes

Handling

M

S

Advanced Settings

All Properties

+

General Settings

Source Settings

Effects

Positioning

RTPC

States

Mixer Plug-in

Positioning Type, Voice Volume

PositioningType (1.000)

0.00 0.25 0.50 0.75 1.00

PositioningType

Coordinates

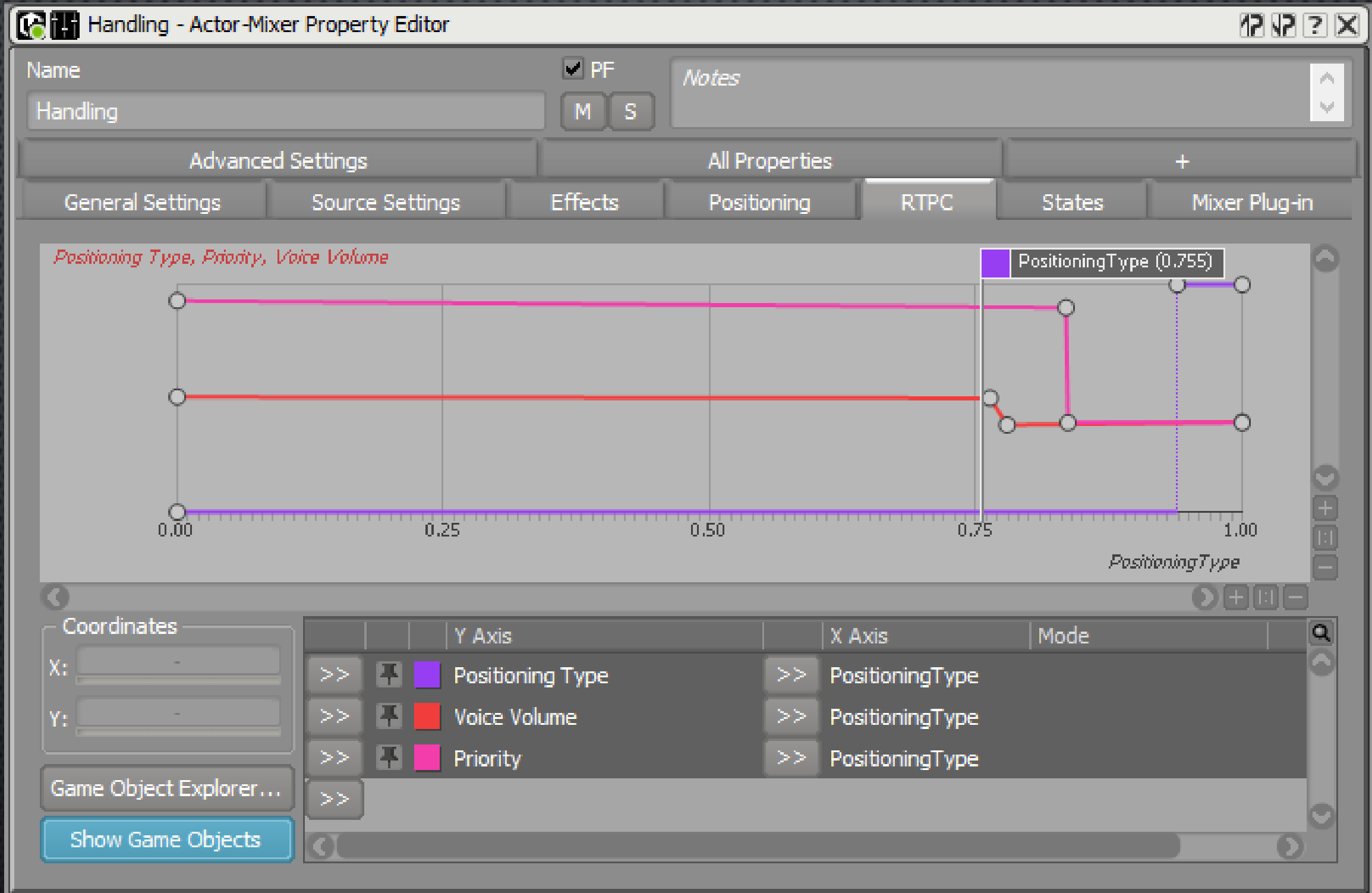
X:

Y:

Game Object Explorer...

Show Game Objects

	Y Axis	X Axis	Mode
>>	Positioning Type	>>	PositioningType
>>	Voice Volume	>>	PositioningType
>>			



RENDERING WEAPON REVERBS IN MIDDLEWARE

Manual management of originals vs processed files is negated

Adjustments to overall processing takes minutes instead of days or hours

Realtime tweaking (nonrendered) during design phase

Rendered effects have zero CPU cost

WIGHTING NEEDS TO BE REBUILT
PATHS NEED TO BE REBUILT
STATS DISABLED!!!

System: Small Room
System: Small Room
System: Small Room (Oblong)
System: Small Room (Oblong)

XP
0
0
+100

300

63/15

40
1080
2

CREATING A NEW REVERB SET

KF2.wproj* - [normal] - Wwise v2015.1.9 (64-bit)

Project Edit Views Layouts Audio Windows Help

WindowsEnglish (US) (Reference)

Project Explorer

AudioEventsSoundBanksGame SyncsShareSetsSessionsQueries

Effects

Default Work Unit

Factory Altverb - Outdoor and More

Factory Convolution Reverb Effects

Factory Effects

- Harmonizer
- Pitch Shifter
- Stereo Delay
- Tremolo
- Wwise Compressor
- Wwise Delay
- Wwise Expander
- Wwise Flanger
- Wwise Matrix Reverb
- Wwise Parametric EQ
- Wwise Peak Limiter
- Wwise RoomVerb
 - Cathedrals
 - Claustrophobia
 - Exteriors
 - Halls
 - Huge Spaces
 - KF2_Guns
 - KF2_City [Wwise RoomVerb]
 - KF2_Forest [Wwise RoomVerb]
 - KF2_Large_Room [Wwise RoomVerb]
 - KF2_Medium_Room [Wwise RoomVerb]
 - KF2_Mountain [Wwise RoomVerb]
 - KF2_Small_Room [Wwise RoomVerb]
- Plates
- Rooms
- FP [Wwise Harmonizer]

Factory iZotope Box Modeler

Factory iZotope Delay

Factory iZotope Dynamics

Factory iZotope Filters

Factory iZotope Hybrid Reverb Effects

Factory iZotope Multiband Distortion

Factory iZotope Singleband Distortion

Factory McDSP Effects

Attenuations

Conversion Settings

Modulators

Thompson_Master - Actor-Mixer Property Editor

NameThompson_MasterPFMS

General SettingsSource SettingsEffectsPositioningRTPCStatesMixer Plug-inAdvanced SettingsAll Properties+

Override parent

Effects

- IDEffectNamePrevNextModeRenderBypassEdit
- >>0
- >>1
- >>2
- >>3

Bypass All

Thompson_Master - Contents Editor - 4 children

Echo

3P

1P

Handling

PF

-12

0

0

PF

8

0

0

PF

1

0

0

PF

0

0

0

Master Audio Bus - Meter

Master Audio Bus

Peak

6

3

0

-3

-6

-9

-12

-15

-18

-21

-24

-27

-30

-33

-36

-39

-42

-45

-48

LRCSLRBLBR

No Object

OriginalPF Only

Reset All>>

StatesRTPCsSwitchesTriggers

SEASONAL EVENT RESKIN CHALLENGES

Complete Overhaul of Character Sounds

All Animations are Shared



SEASONAL EVENT RESKIN SOLUTION

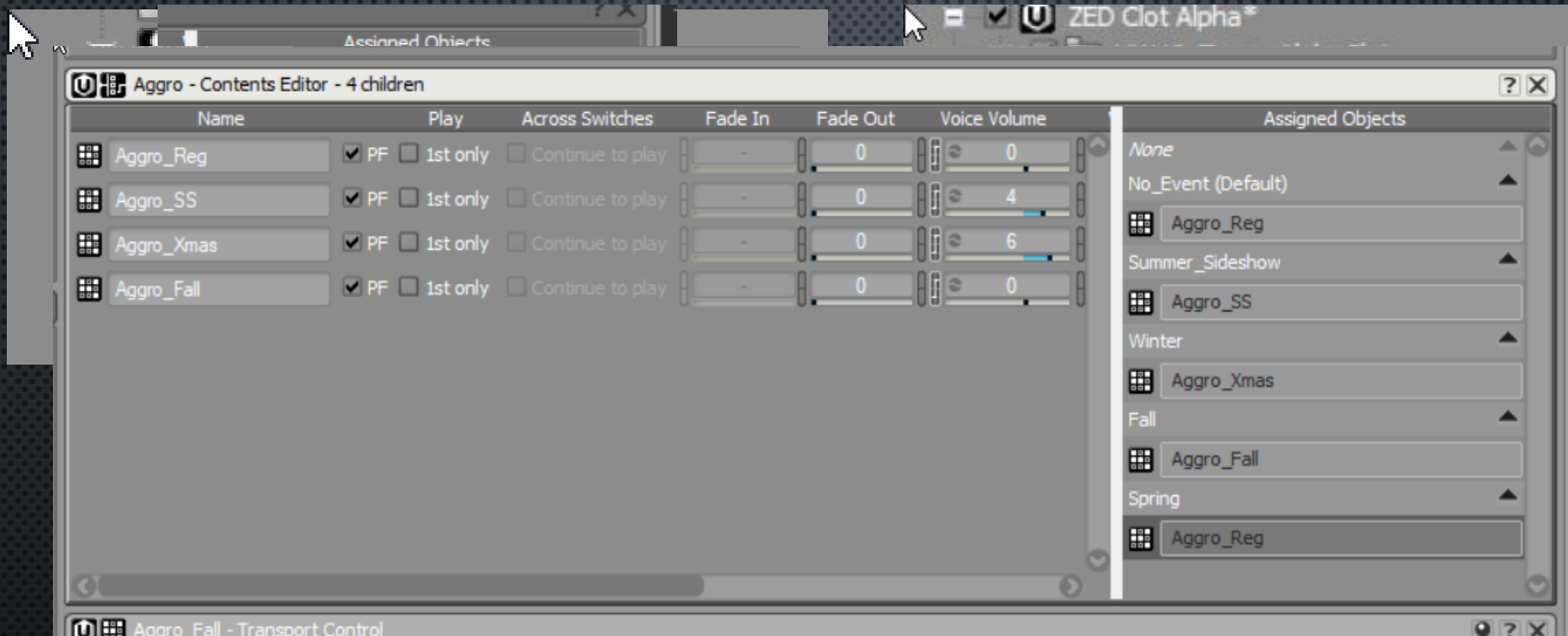
Minimal Code Requirements

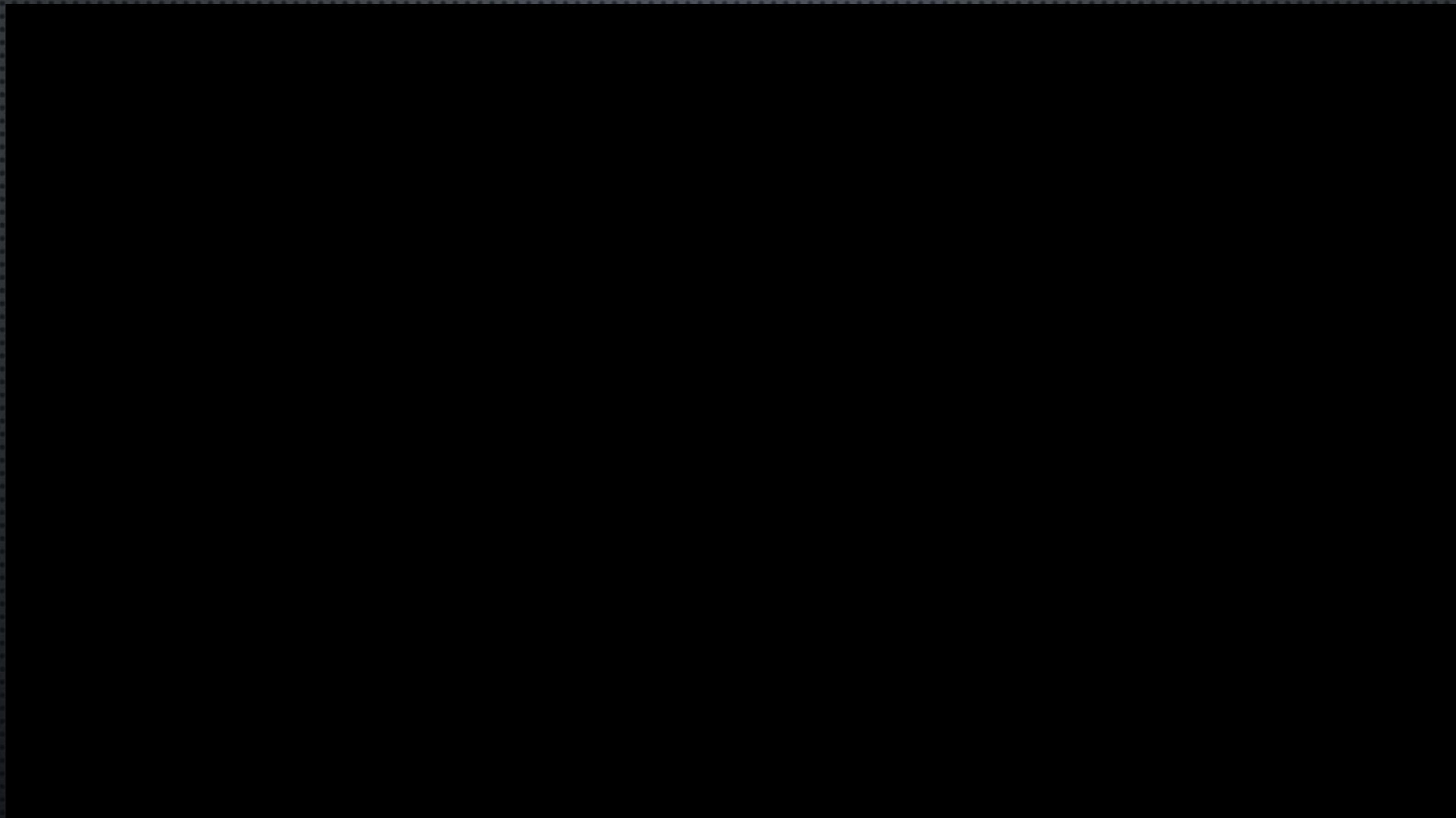
Driven by a Global Game State

Use Simple Switch Containers

Zero Dependencies

SEASONAL EVENT RESKIN SOLUTION





MIX EVALUATION IN REAL WORLD SITUATIONS

Updating the Mix on a 64 Player / Match Game is Ineffective without 64 Players

Getting 64 Players in House to QA a Mix is Impossible

MIX EVALUATION IN REAL WORLD SITUATIONS

Locally Replace the Audio Folder in the Live Steam Client in Order to Play Online in a Live Game While Hearing the Updated Mix

Allows Very Accurate Assessment of the New Mix in Completely Uncontrolled Situations

MEMORY MANAGEMENT

Compression Types (CPU vs size limitations)

Throwbacks to Early Console Techniques (sample rate assessment based on frequency response, silence hunting!)

Variation limiting (using multiple layer random containers to create large variation)

Latency choices when is pre-caching streaming files worth it?

COMMUNITY

The Best Source of Information

The Worst Source of Information

COMMUNITY

How to Assess Feedback

How to Action on Feedback

How to Ignore Feedback