



All Style, All Substance: The Audio Journey of the Vanity and Traversal System for Sunset Overdrive

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GAME DEVELOPERS CONFERENCE®

MOSCONE CENTER · SAN FRANCISCO, CA

MARCH 2-6, 2015 · EXPO: MARCH 4-6, 2015



Full Audio Team

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What is Sunset?





Audio Pillars for the Project

- Unique, Iconic & Identifiable
- Amplifies Gameplay
- Excels in High Production Value
- Culturally Relevant



Systems MSFT Team Took On

- Base OS
- UI
- HDR
- Additional Cinematic Support
- Music Support



Systems MSFT Team Took On

- Hero Systems
 - LOA (Level of Awesome)
 - Vanity



Where We Were vs. Where We Are





Schedule

- LOA
 - 2 months
- Vanity & Footsteps
 - 6 months
 - 3 Full Hero Passes On All Animation Sets



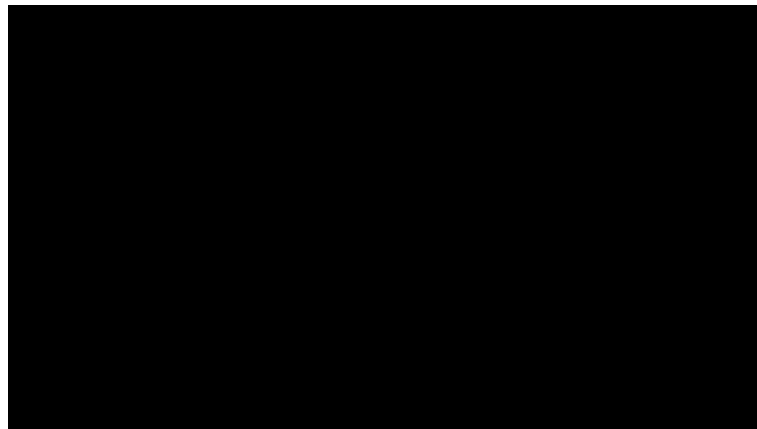
Shipped Assets

- 4528 Vanity assets and 5633 footstep assets.



Deep Dive Creative Process

- Concepting
- Design Documentation
- Execution
 - Design vs. Foley





LOA



Your Level of Awesome

- Audio changes based on dynamic in-game “Style Meter”
 - Progresses as you chain traversal and combat combos together in the world

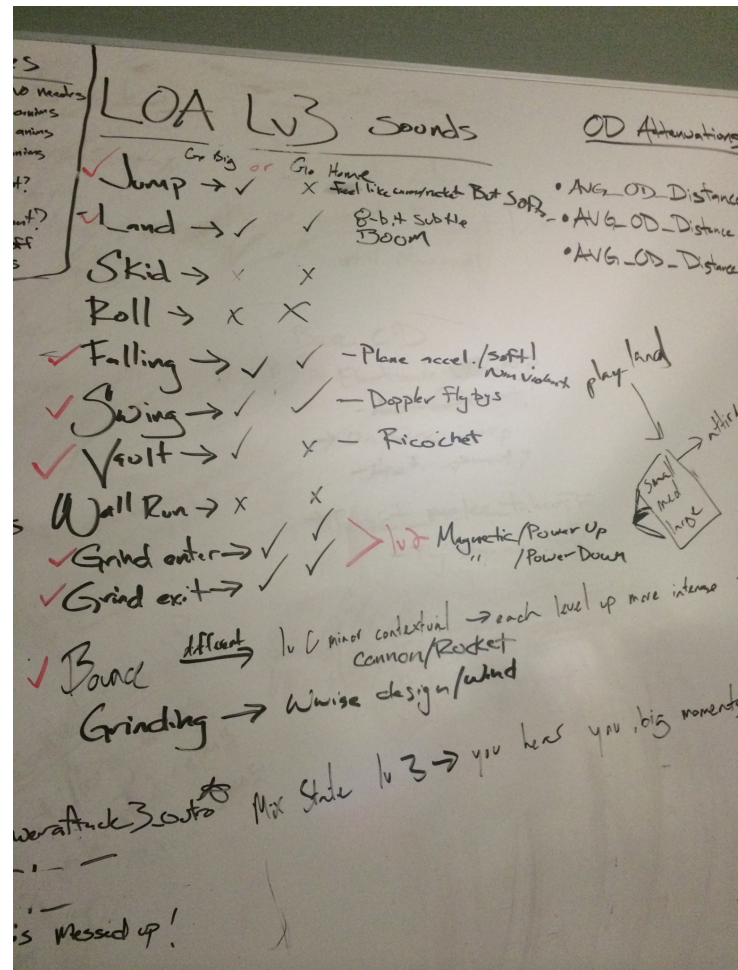


Audio Design Goals

- Stylized gameplay feedback as the player traversed and fought in the world
- Cinematic content
- Introducing irreverent fun through contextual non-literal content
- Keep it clean & don't clutter the experience



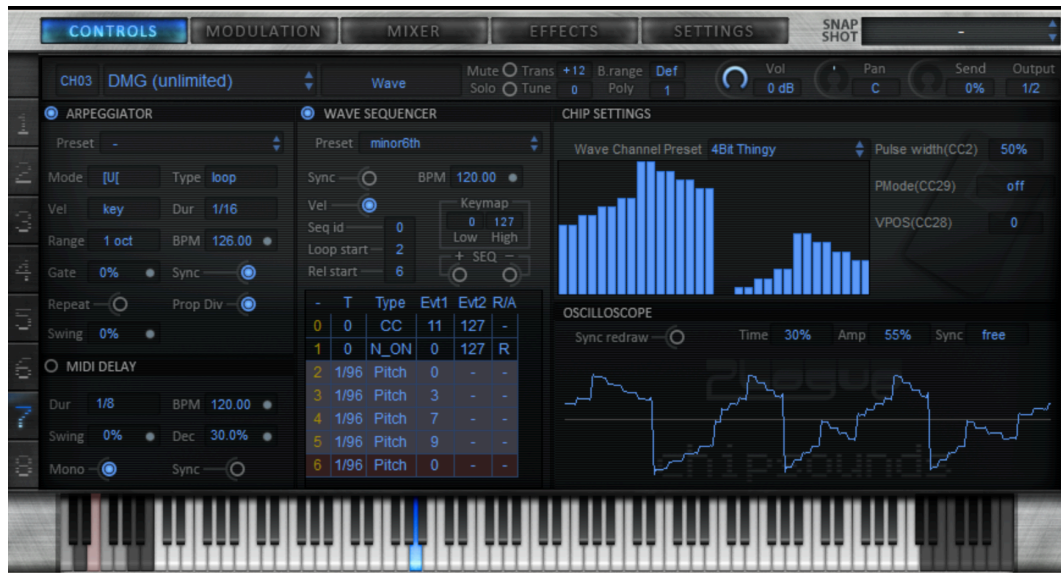
What the matrix looked like





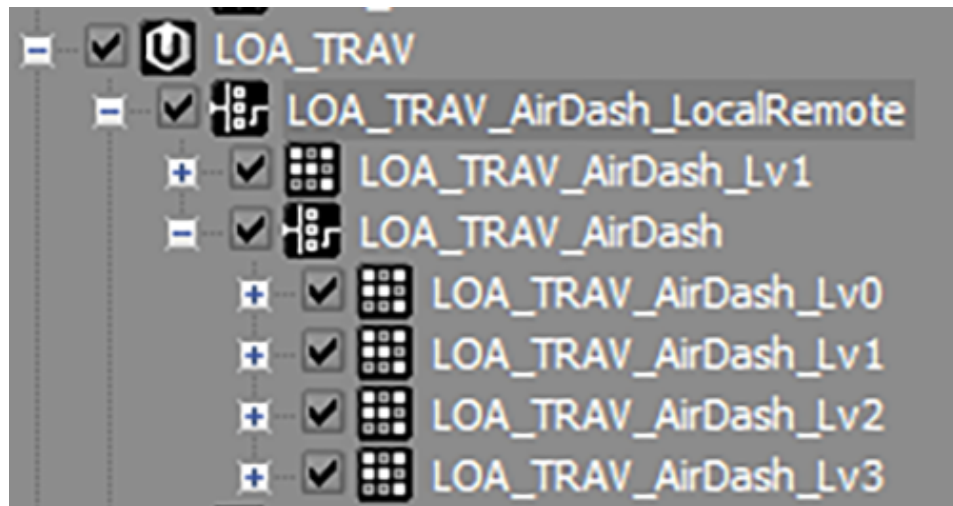
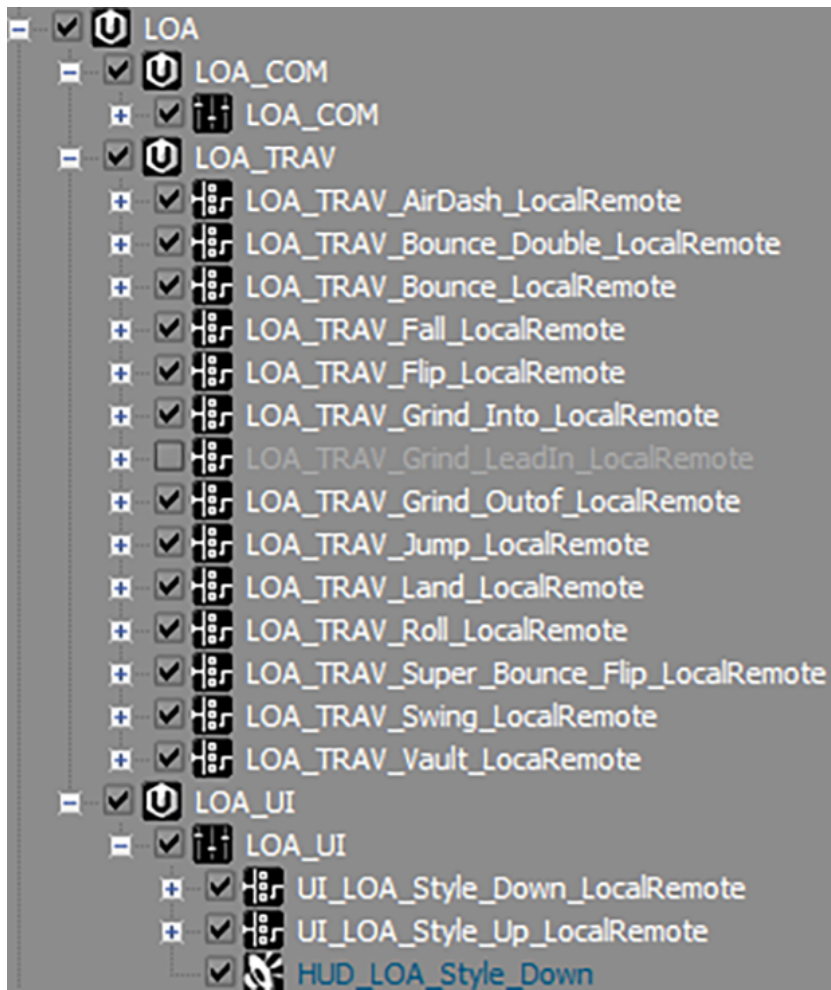
Tools used to nail the 8-bit style

- Chip Sounds
- OP-1
- Boom Library



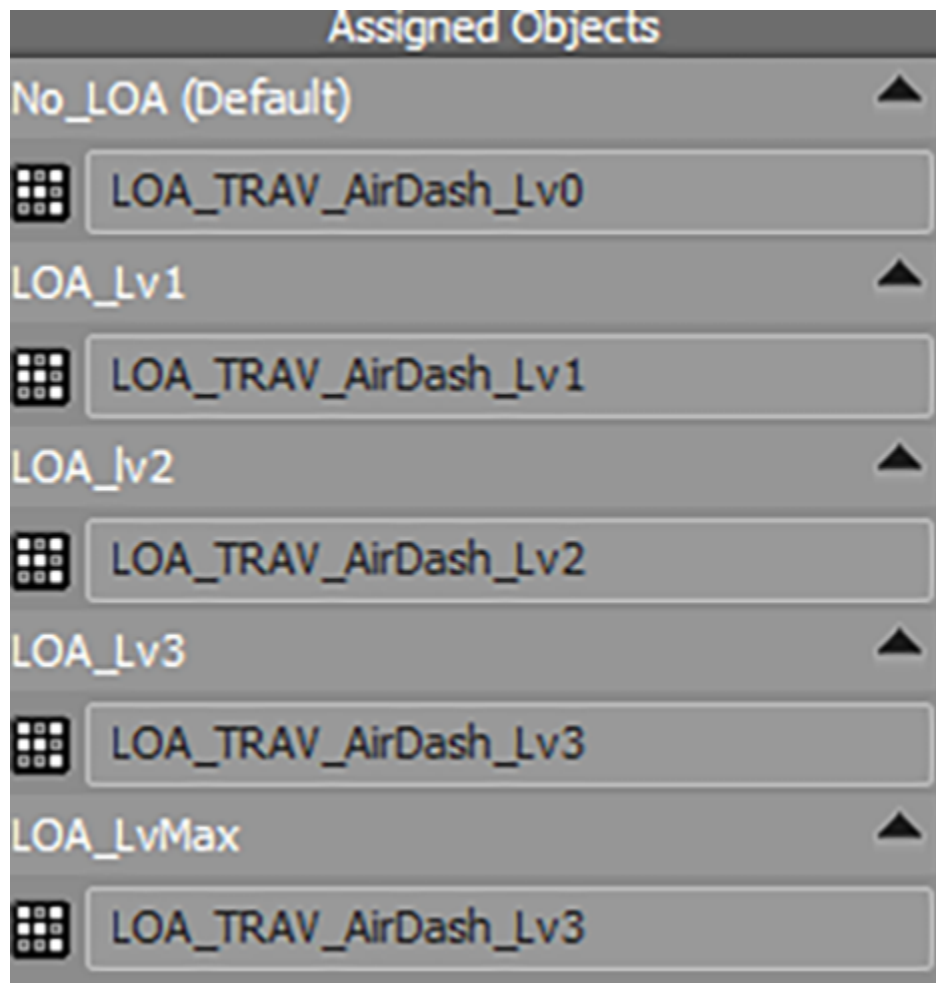
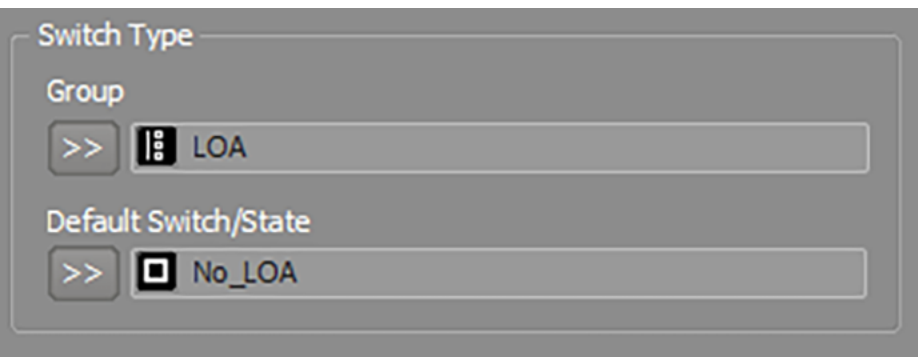


Wwise Data for LOA





Wwise Data for LOA





Grinding





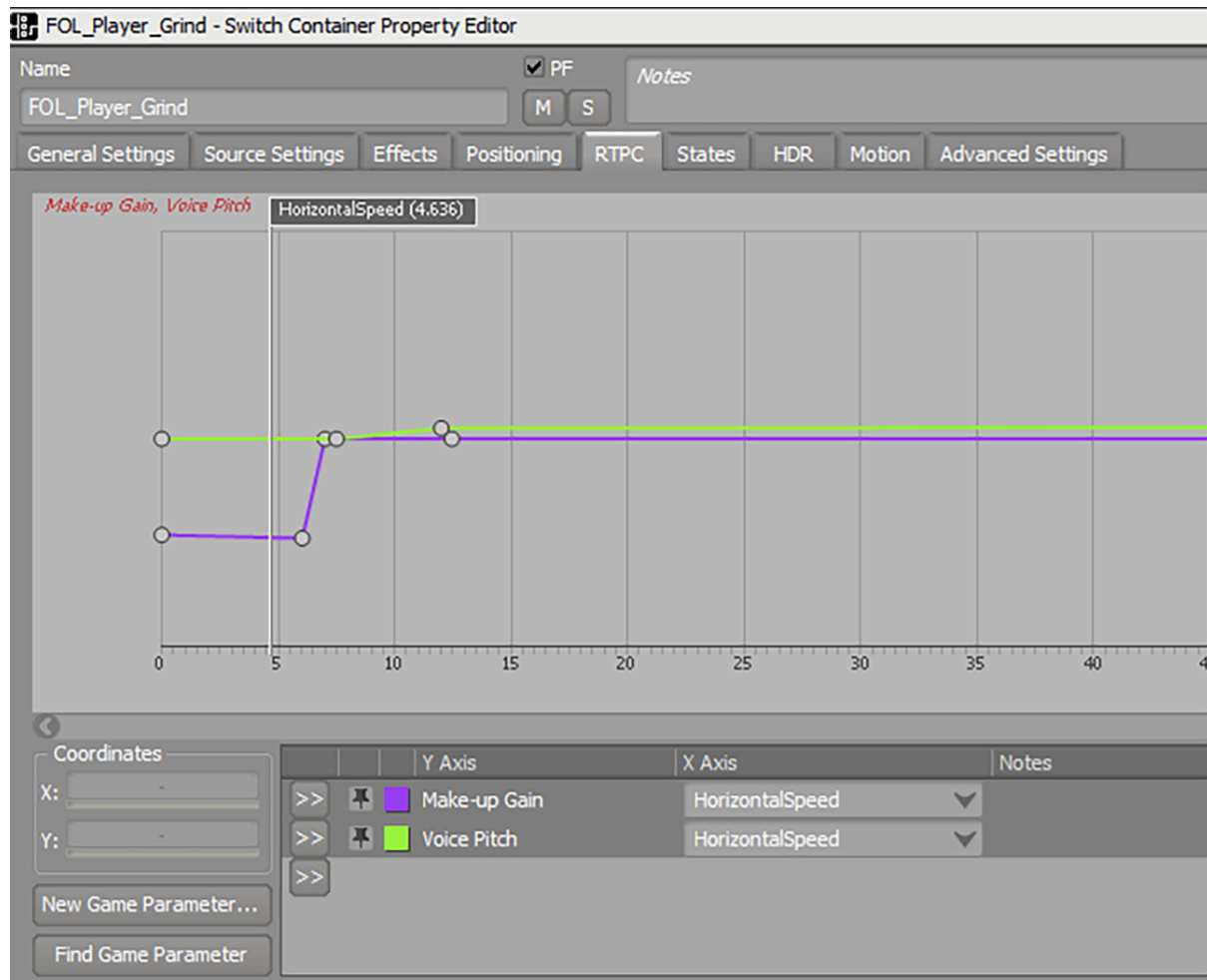
The Grinding System

- Set up events on the animations that would set the yaw rtpc value
- Yaw RTPC would drive EQ changes on a -90 to 90 degree value
- Pitch changes based on horizontal speed
- Gain changes between low and high grinding loops for each material would also change based on horizontal speed of the player



Grinding Updates





Name

☒ PF

Notes

FOL_Player_Grind

M

S

General Settings

Source Settings

Effects

Positioning

RTPC

States

HDR

Motion

Advanced Settings

☒ Override parent

Effects

	ID	Effect	Name
>>	0	Wwise Parametric EQ	Grind_Yaw_Parametric_EQ (Custom)
>>	1		
>>	2		
>>	3		

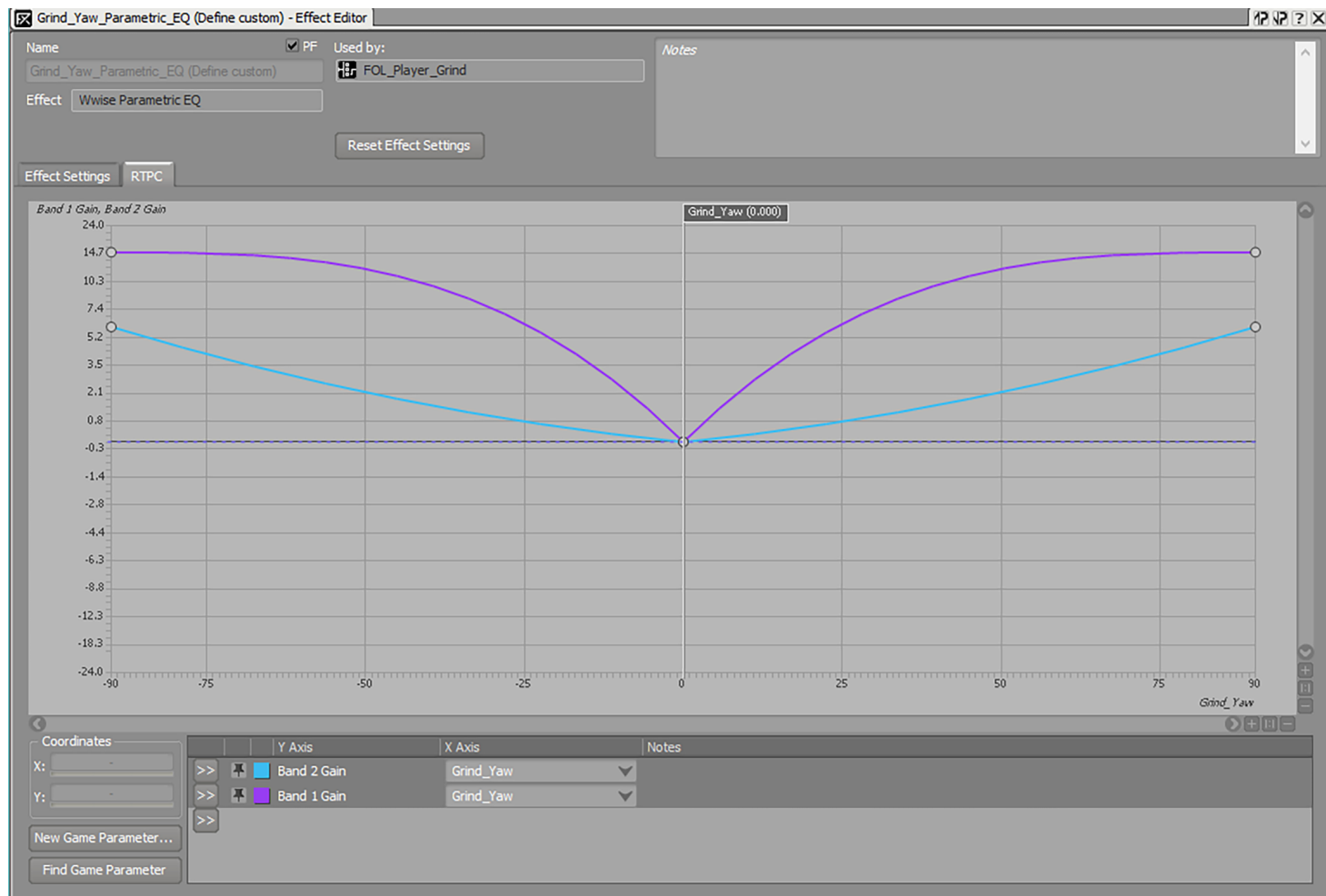
☐ Bypass All



Effect Settings

RTPC

☒ Band 1Curve Gain Freq. Q ☒ Band 2Curve Gain Freq. Q ☐ Band 3Curve Gain Freq. Q Output Gain ☐ Process LFE





LOA Wrap Up

- Are we happy?
- What would we do differently?





Vanity



The Vanity System

- Be Who You Are
- Heavy emphasis on the player's freedom to be who they are and wear what they want



What is the Vanity System

- Limb-Based Switching System
- Supported switchable content for torso, torso front, torso back, arms, waist, legs, and feet



Audio Design Goals

- Hero should sound unique based on outfit
- Audio should mirror vanity choices of player
- Support a high level of detail through hero actions
- Pipeline should be quick and efficient
- Audio should prioritize based on visibility



Your Audio Wardrobe



Sunset Overdrive: Asset List- Vanity Foley Recordings

Deliverable/Filename	Designer/Editor	Useable	Edited	Content Populated	Description / Why?
Items Used in Game					
VAN_Legs_Jean_Skinny	Jeff D	Y	Complete	Complete	We redid this and it's now useable
VAN_Legs_Jean_Baggy	Jeff D	Y	Complete	Complete	we re did walk / runs and all else will share generic baggy content
VAN_Legs_Leather	Jeff D	Y	Complete	Complete	The 8040 sounds useable when high-passed at 180 Hz
VAN_Legs_Leather_Skirt	Daniel	Y	Complete	Complete	Leather roman skirt with thick bands of leather hanging down. Will be made using repurposed Ryse recordings
VAN_Legs_Skirt	Pete	Y	Complete	Complete	Runs/walks/shifts are low, but all other movements can be useable with the right fades.
VAN_Legs_Cloth_MD	Kristen	Y	Complete	Complete	Will now regular cotton pants AND baggier pants. No longer supporting large cloth class.
VAN_Legs_Armor	Daniel	Y	Complete	Complete	Edit using a combination of existing leg armor assets and a heavy leather
VAN_Legs_Cloth_SM	Jeff D	Y	Complete	Complete	For dress pants
VAN_Legs_Spandex	Jeff D	Y	Complete	Complete	To be shared by spandex and leotard. Spandex flip will share skid
VAN_Torso_Jersey	Pete	Y	Complete	Complete	
VAN_Torso_Leather	Pete	Y	Complete	Complete	combine best takes with leather jacket / vest to create 1 leather material
VAN_Torso_Leather_Trench_Coat	Jeff D	Y	Complete	Complete	Some shared leather material did not feel right. Movements that weren't floppy enough (jumps, lands) re-recorded in May.
VAN_Torso_Cloth_SM	Jeff D	Y	Complete	Complete	Walks/runs/wallruns are finished.
VAN_Torso_Backpack_Cloth	Pete / Jeff D	Y	Complete	Complete	Small cloth for t-shirts, collared shirts, and any cotton undershirts
VAN_Torso_Dress_Shirt	Jeff D	Y	Complete	Complete	06/20/14 - Backpack is back(pack) in the game! Content needed some revisions due to noisy takes and missing deliveries
VAN_Torso_Denim	Jeff D	Y	Complete	Complete	To share with denim jacket and denim vest
VAN_Torso_Suit_Jacket	Jeff D	Y	Complete	Complete	
VAN_Torso_Chainmail	Pete	Y - rerecorded	Complete	Complete	noise issues, plus sounds like cloth + chainmail and not just taught chainmail - RE-RECORDED DURING PICKUP SESSION
VAN_Torso_Cloth_GEN	Jeff D	Y	Complete	Complete	Repurposed silk as general cloth
VAN_Torso_Vest_Tech	Jeff D	Y	Complete	Complete	Original material needs new timings
VAN_Torso_Waist_Chain	Jeff D	Y	Complete	Complete	
VAN_Torso_Necklace_Bone	Jeff D	Y	Complete	Complete	
VAN_Torso_Cloth_Cape	Jeff D	Y	Complete	Complete	Re-recorded on 6/10/14
VAN_Torso_Armor_Metal	Jeff D	Repurpose from Ascend	Complete	Complete	Added week of 4/21/14. Possibly repurpose Ascend metal armor sessions.
VAN_Torso_Rubber	Kristen	Y	Complete	Complete	6/9/14 - Torso rubber will be used for scuba wetsuit and any other rubber items
VAN_Torso_Plastic_SM	Jeff D	Y	Complete	Complete	Repurpose Legs_Padded for this - Cut left/right on walks/runs and edit 3 levels of Melee swipes
VAN_Torso_OD_Coveralls	Kristen	Y	Complete	Complete	Christmas lights layer recorded on 6/10/14. Will be added to our existing cloth assets in Wwise via switch association
VAN_Hand_Leather	Kristen	Y	Complete	Complete	Content/Banks completed in Wwise, but needs to be tested and tuned during traversal tagging pass.
VAN_Hand_Bare	BH	Y	Complete	Complete	Content/Banks completed in Wwise, but needs to be tested and tuned during traversal tagging pass.
Additional Coverage Needed					
Will Update as New Items Come Online					



AUDIO

Sunset Overdrive: Asset List- FOOT

Deliverable/Filename	Designer	Record Status	Edit Status	Mastered		Set
Asphalt	Jeff D	complete	complete	complete	partial	FULL
Concrete	Jeff D	complete	complete	complete	partial	FULL
Dirt	Jeff D	complete	complete	complete but missing Bare Feet	partial	PARTIAL (5)
Glass_Thin	Pete	complete	complete	complete	full	FULL
Glass_Unbreakable	Jeff D	complete	complete	complete	partial	FULL
Grass	Jon	complete	grass - look at walks feel hard and crunchy (focus on soft)	complete	full	PARTIAL (2)
Gravel	Jeff D	complete	Complete	complete	full	FULL
Metal_Cable	Jeff D	complete	Complete	complete	partial	PARTIAL RAILS
Metal_Pipe	Pete	complete	Complete	complete	full	PARTIAL RAILS
Metal_Grate	Jon	complete	complete	complete	partial	FULL
Metal_Hollow	Jon	complete	complete	complete	full	FULL
Metal_Thick	Pete	complete	complete - kristen doesn't love mat, lets try and use metal grate here	complete just in case	partial	FULL
Metal_Thin	Jon	complete	complete	complete but missing FLOP runs & scuffs	full	FULL
Plastic_Soft	Pete	complete	complete	complete	full	FULL
Stone_Brittle	Pete	complete	complete	complete	full	FULL
Stone_Medium		Hold - reuse				
Stone_Solid		Hold- reuse				
Water_Ankle_Hard	KQ	complete	in progress - not in content deliveries		partial	PARTIAL (1)
Water_Ankle_Soft	KQ	CUT use Anke Hard	partial- not in content deliveries		partial	PARTIAL (1)
Water_Puddle_Hard	Jon	complete	complete	complete	partial	FULL
Water_Puddle_Soft	Pete	partial	Complete - Revisited on 3/17/14	complete	partial	FULL
Wood_Creaky	Pete	complete	complete	complete	full	FULL
Wood_Hollow	Pete	complete	complete	complete	full	FULL
Wood_Thick	Pete	complete	complete	complete	full	FULL
Wood_Thin	Jon	complete	complete	complete but missing all Scuffs	full	PARTIAL RAILS
Carpet	Raimo	complete	complete - condense down to GEN shoe type (best of takes)	Complete and condensed	full	FULL
Foliage	Jon		Complete	complete	partial	PARTIAL 2 ACTIONS

Status

Asphalt

Concrete

Dirt

Glass_Thin

Glass Unbreakable

Grass

Gravel

Metal_Cable



Metal_Pipe

Metal_Grate

Metal_Hollow ...



Asset List

Deliverable/File Name	Status	Description
		
FOOT_SNKR_player_walk_asphalt		Sound of player's sneaker hitting asphalt as he is walking
FOOT_SNKR_player_run_asphalt		Sound of player's sneaker hitting asphalt as he is running
FOOT_SNKR_player_land_asphalt		Sound of player's sneaker coming down on asphalt surface as he lands
FOOT_SNKR_player_jump_asphalt		Sound of player's sneaker leaving the ground / launching as he leaps into the air
FOOT_SNKR_player_step_up_asphalt		Sound of player's sneaker on asphalt as he takes a step up on stairs
FOOT_SNKR_player_step_dn_asphalt		Sound of player's sneaker on asphalt as he takes a step down on stairs
FOOT_SNKR_player_scutt_asphalt		Sound of player's sneaker scuffing lightly on asphalt surface
FOOT_SNKR_player_skid_asphalt		Sound of player's sneaker scuffing asphalt surface when coming to a stop
FOOT_SNKR_player_pivot_asphalt		Sound of player's sneaker pivoting as he turns to face a new direction
FOOT_SNKR_player_pushoff_asphalt		Sound of player's sneaker pushing off from no movement to speed
FOOT_BARE_player_walk_asphalt		Sound of player's bare foot hitting asphalt as he is walking
FOOT_BARE_player_run_asphalt		Sound of player's bare foot hitting asphalt as he is running
FOOT_BARE_player_land_asphalt		Sound of player's bare foot coming down on asphalt surface as he lands
FOOT_BARE_player_jump_asphalt		Sound of player's bare foot leaving the ground / launching as he leaps into the air
FOOT_BARE_player_step_up_asphalt		Sound of player's bare foot on asphalt as he takes a step up on stairs
FOOT_BARE_player_step_dn_asphalt		Sound of player's bare foot on asphalt as he takes a step down on stairs
FOOT_BARE_player_scutt_asphalt		Sound of player's bare foot scuffing lightly on asphalt surface
FOOT_BARE_player_skid_asphalt		Sound of player's bare foot scuffing asphalt surface when coming to a stop
FOOT_BARE_player_pivot_asphalt		Sound of player's bare foot pivoting as he turns to face a new direction
FOOT_BARE_player_pushoff_asphalt		Sound of player's bare foot pushing off from no movement to speed
FOOT_HHEEL_player_walk_asphalt		Sound of player's high heel hitting asphalt as she is walking
<div> <div>◀ ▶</div> <div>Status Asphalt Concrete Dirt Glass_Thin Glass Unbreakable Grass Gravel Metal_Cable Metal_Pipe</div> </div>		







A look at the details

- Vanity
 - In the beginning – 51 unique clothing types
 - When we shipped – 29 actual clothing items
- Footsteps
 - In the beginning – 30 unique surfaces, 6 shoe types
 - When we shipped – 13 unique surfaces, 6 shoe types

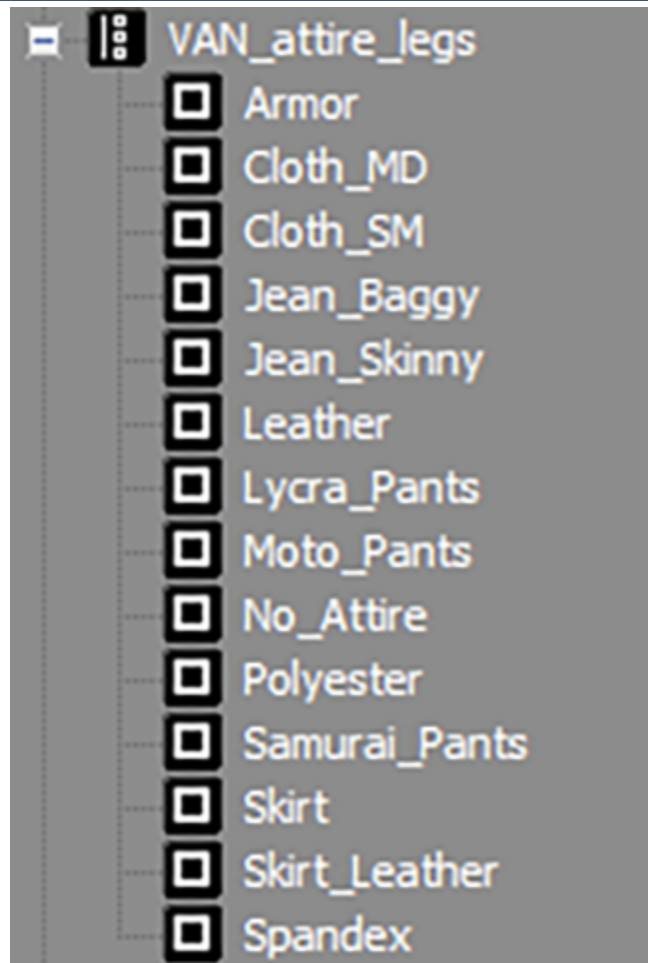
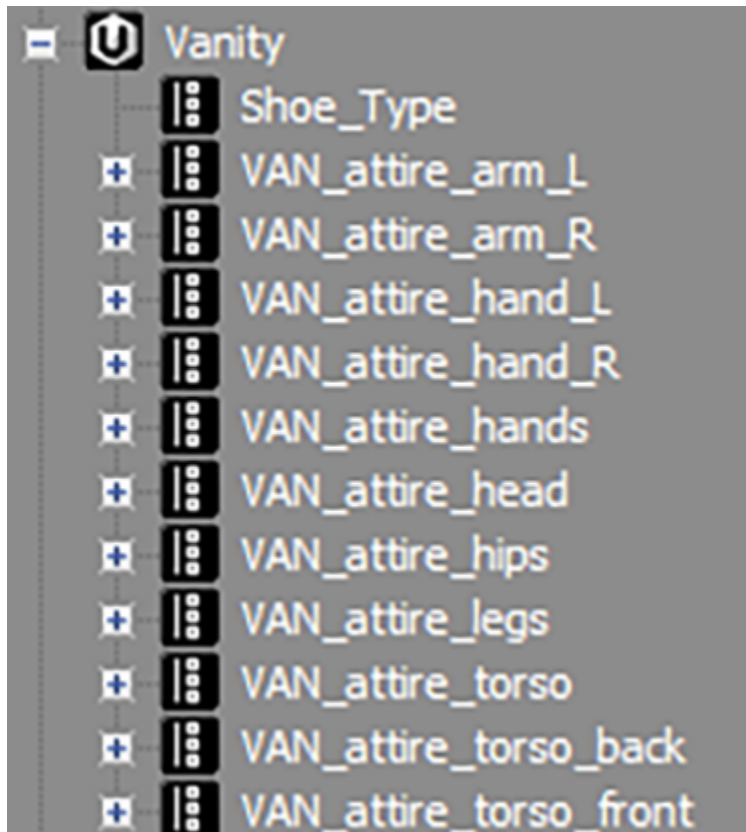


Pipeline Iterations

- Proof of Concept in Game
 - 1st pass implementation
 - 2nd pass implementation



Vanity Data Structures





Project Explorer

Audio Events SoundBanks Game Syncs ShareSets Sessions Que

☒ Vanity

☒ VAN_Hands

☒ VAN_Mvmt_Grind

☒ VAN_Mvmt_Fall_Fall_arm

☒ VAN_Mvmt_Fall_Loop_hips

☒ VAN_Mvmt_Fall_Loop_legs

☒ VAN_Mvmt_Fall_Loop_torso

☒ VAN_Mvmt_Fall_Loop_torso_back

☒ VAN_Mvmt_Fall_Loop_torso_front

☒ VAN_Mvmt_FallDown_hips

☒ VAN_Mvmt_FallDown_legs

☒ VAN_Mvmt_FallDown_torso

☒ VAN_Mvmt_FallDown_torso_back

☒ VAN_Mvmt_FallDown_torso_front

☒ VAN_Mvmt_Flip_Hips

☒ VAN_Mvmt_Flip_Legs

☒ VAN_Mvmt_Flip_torso

☒ VAN_Mvmt_Flip_torso_back

☒ VAN_Mvmt_Flip_torso_front

☒ VAN_Mvmt_Idle_Melee_Swing_SM_hips

☒ VAN_Mvmt_Idle_Melee_Swing_SM_torso

☒ VAN_Mvmt_Idle_Melee_Swing_SM_torso_back

☒ VAN_Mvmt_Idle_Melee_Swing_SM_torso_front

☒ VAN_Mvmt_Impact_LG_hips

☒ VAN_Mvmt_Impact_LG_legs

☒ VAN_Mvmt_Impact_LG_torso

☒ VAN_Mvmt_Impact_LG_torso_back

☒ VAN_Mvmt_Impact_LG_torso_front

☒ VAN_Mvmt_Jump_hips

☒ VAN_Mvmt_Jump_legs

☒ VAN_Mvmt_Jump_torso

☒ VAN_Mvmt_Jump_torso_back

☒ VAN_Mvmt_Jump_torso_front

☒ VAN_Mvmt_Land

☒ VAN_Mvmt_Melee_Shift_hips

☒ VAN_Mvmt_Melee_Shift_legs

☒ VAN_Mvmt_Melee_Shift_torso

☒ VAN_Mvmt_Melee_Shift_torso_back

☒ VAN_Mvmt_Melee_Shift_torso_front

☒ VAN_Mvmt_Melee_Swing_LG_hips

☒ VAN_Mvmt_Melee_Swing_LG_torso

☒ VAN_Mvmt_Melee_Swing_LG_torso_back

☒ VAN_Mvmt_Melee_Swing_LG_torso_front

☒ VAN_Mvmt_Melee_Swing_MD_hips

☒ VAN_Mvmt_Melee_Swing_MD_torso

☒ VAN_Mvmt_Melee_Swing_MD_torso_back

☒ VAN_Mvmt_Melee_Swing_MD_torso_front

☒ VAN_Mvmt_Melee_Swing_SM_hips

☒ VAN_Mvmt_Melee_Swing_SM_torso

☒ VAN_Mvmt_Melee_Swing_SM_torso_back

☒ VAN_Mvmt_Melee_Swing_SM_torso_front

☒ VAN_Mvmt_Roll_hips

☒ VAN_Mvmt_Roll_legs

☒ VAN_Mvmt_Roll_torso

☒ VAN_Mvmt_Roll_torso_back

☒ VAN_Mvmt_Roll_torso_front

☒ VAN_Mvmt_Run_hips

☒ VAN_Mvmt_Run_legs

☒ VAN_Mvmt_Run_torso

☒ VAN_Mvmt_Run_torso_back

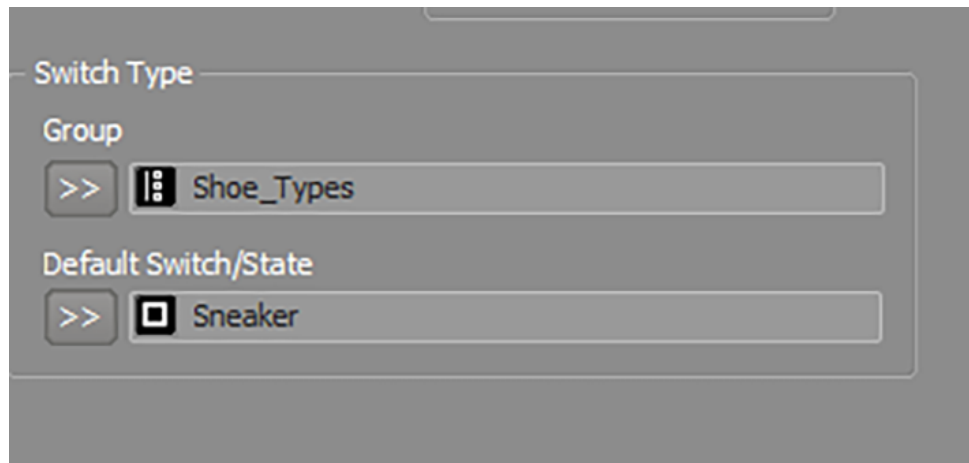
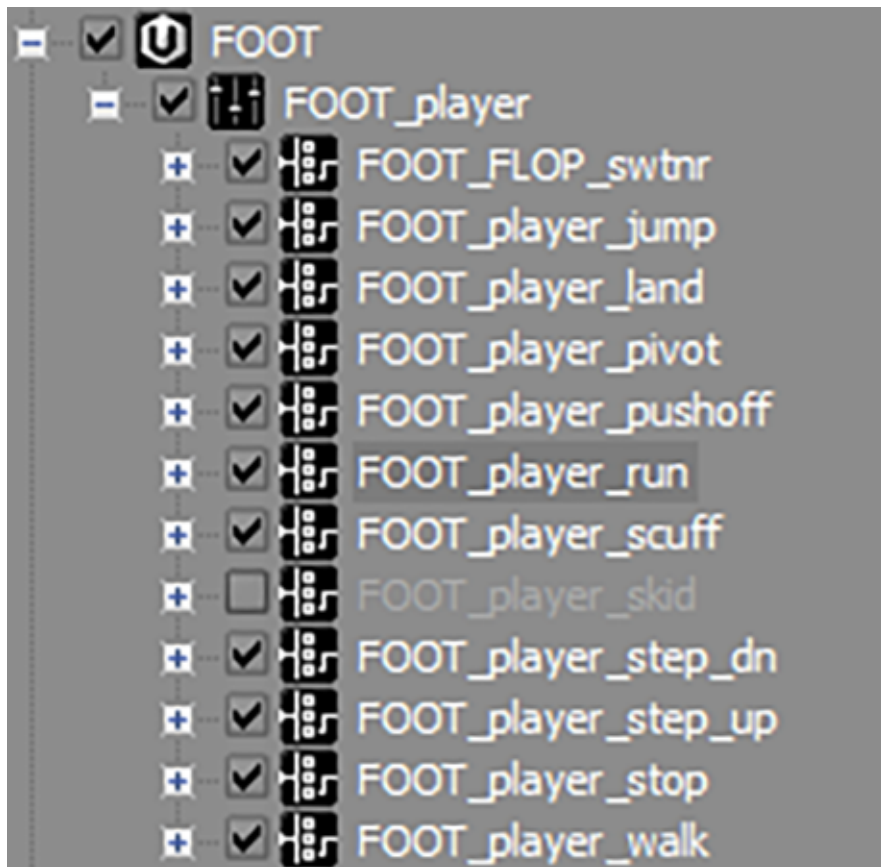
☒ ☒ VAN_Mvmt_jump_hips
☒ ☒ VAN_Mvmt_jump_legs
☒ ☒ VAN_Mvmt_jump_torso
☒ ☒ VAN_Mvmt_Jump_torso_back
☒ ☒ VAN_Mvmt_Jump_torso_front

☒ ☒ VAN_Mvmt_jump_legs
☒ ☒ VAN_Legs_Armor_Jump
☒ ☒ VAN_Legs_Cloth_MD_Jump
☒ ☒ VAN_Legs_Cloth_SM_Jump
☒ ☒ VAN_Legs_Jean_Skinny_Jump
☒ ☒ VAN_Legs_Leather_Jump
☒ ☒ VAN_Legs_Polyester_Jump
☒ ☒ VAN_Legs_Skirt_Jump
☒ ☒ VAN_Legs_Skirt_Leather_Jump
☒ ☒ VAN_Legs_Spandex_Jump






Footstep Data Structures






Assigned Objects


Boot ▲

 FOOT_BOOT_player_run


Sneaker (Default) ▲

 FOOT_SNKR_player_run


BareFoot ▲

 FOOT_BARE_player_run


Loaf ▲

 FOOT_LOAF_player_run

Flop ▲
























 FOOT_FLOP_player_run

HHeel ▲

 FOOT_HHEEL_player_run

- [x] FOOT_player_run

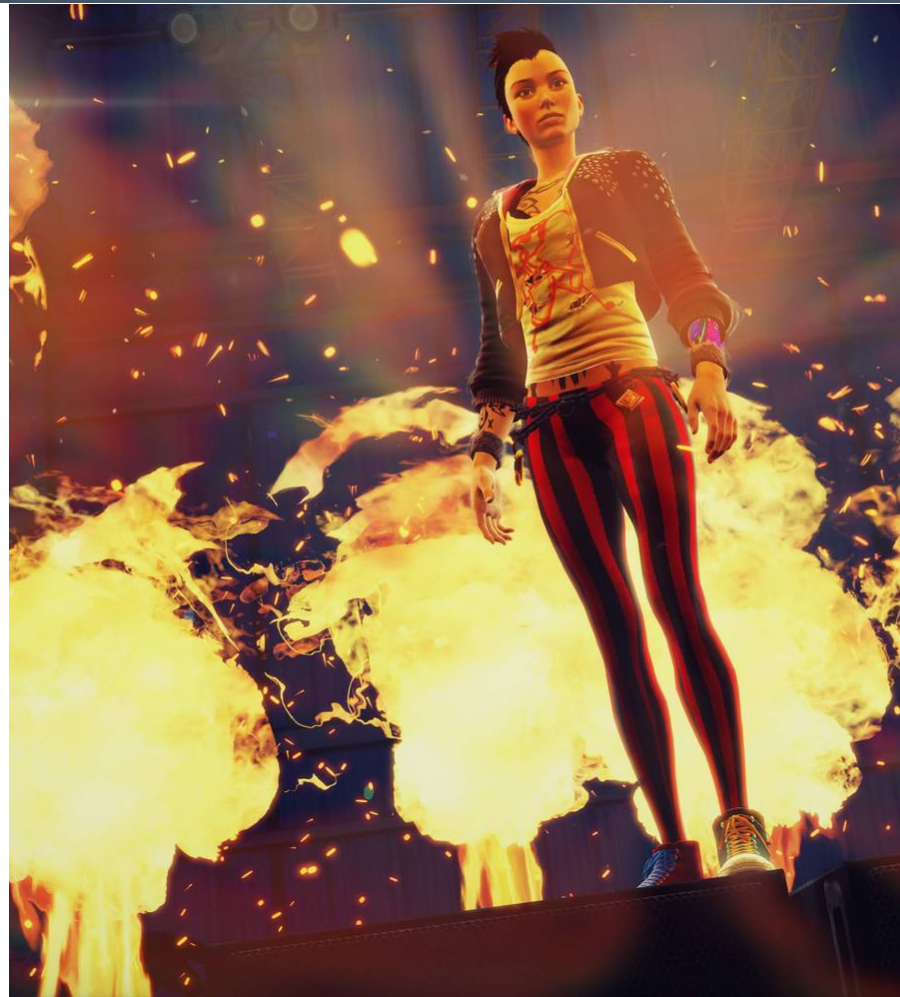
- [x] FOOT_BARE_player_run

[x]  FOOT_BARE_player_run_asphalt[x] ☒  FOOT_BARE_player_run_carpet[x] ☒  FOOT_BARE_player_run_concrete[x] ☒  FOOT_BARE_player_run_dirt[x] ☐  FOOT_BARE_player_run_foliage[x] ☐  FOOT_BARE_player_run_glass_thin[x] ☒  FOOT_BARE_player_run_glass_unbreakable[x] ☒  FOOT_BARE_player_run_grass[x] ☒  FOOT_BARE_player_run_gravel[x] ☐  FOOT_BARE_player_run_metal_cable[x] ☒  FOOT_BARE_player_run_metal_grate[x] ☐  FOOT_BARE_player_run_metal_pipe[x] ☒  FOOT_BARE_player_run_metal_thick[x] ☒  FOOT_BARE_player_run_metal_thin[x] ☒  FOOT_BARE_player_run_plastic_soft[x] ☒  FOOT_BARE_player_run_rubber[x] ☒  FOOT_BARE_player_run_sand[x] ☐  FOOT_BARE_player_run_snow[x] ☒  FOOT_BARE_player_run_stone_brittle[x] ☒  FOOT_BARE_player_run_water_ankle[x] ☐  FOOT_BARE_player_run_water_puddle_hard[x] ☒  FOOT_BARE_player_run_water_puddle_soft[x] ☐  FOOT_BARE_player_run_wood_creaky[x] ☒  FOOT_BARE_player_run_wood_thick



Vanity Wrap Up

- Are we happy?
- What would we do differently?





Memory Specs

- Structure Memory
 - LOA and Vanity Structure Memory = 1.2MB
 - Footstep Structure Memory = 1.6MB
 - Total Structure Data 2.8MB default pool usage



Memory Specs

- Media Memory
 - One Shoe type across all surfaces = 2MB
 - Worst Case in MP with all 6 shoes & shared content 14MB
 - Vanity = 2.85MB for full outfit



Memory Specs

- Broken out per limb
 - Bone Necklack = .68MB
 - Jeans Skinny = .33MB
 - Backpack = .57MB
 - T-Shirt = .53MB
 - Metal Chain Belt = .74MB
 - TOTAL= 2.85MB



HDR



HDR

- This system was new to us in Wwise
- Ended up going with a category based system
 - Voice Volume
 - Reverb Sends



<u>PRI</u>	<u>Category Name</u>	<u>Example Content</u>
+15	Loudest	Explosions / Destruction
+12	Louder	Bosses / Scripted /
+ 10		Large Enemy Vocals Critical, Large Enemy Foley Critical
+9	Loud	Guns / Amps / Traps / Damage / LOA / <u>Respawns</u> / Large Enemy Vocals Non <u>Crit</u> / Large Enemy Foley Non Critical
+6	Not Loud Yet	Grinding
+4	Getting There	Enemy Guns / Vehicles
0	Baseline	Voices / Animated Objects / UI / Traversal / Physics/ Blimp /Projectiles / Ambiences / Foley / Reloads

Attenuations for Reverb Sends based on HDR

Loudest -3

Louder -6

Loud -9

Not Loud Yet -10

Getting There -12

Baseline -12



Challenges Along the Way

- Keeping it all cohesive
- Changing Style and Goals through development
- Working with tools off-site



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Questions?

