

Implementation Documentation Station								
Audio implementation document by Augustin Carroll								
<p>General notes: Continuous SFX (Ambience, Engine) and Music will duck to make room for transient SFX (Projectile, Gun, Powerup, JuggernautGun, Impact, Death, SuperdashCharge, Superdash.) Announcements (MatchStart, MatchEnd, PlayerDefeated) will trigger a more intense ducking. (All of this is handled in FMOD, this is just FYI.) This document assumes that the FMOD Listener will be attached to the Camera object. If this is not the case, please substitute "Listener" for "Camera" in the chart below.</p>								
Name of Event	Description	Number of instances	Who should hear	Condition for event play	Condition for event stop	Game Object to attach to	Parameters	Notes
Ambience	Hum of cockpit interior, as well as periodic randomly-located sound such as steam hisses, mechanical foley, and radio vocalizations.	Per player	One player	Game load – should play during menu as well	Player death	Camera	n/a	After a player's ship has been destroyed, they should no longer hear the ambience. It should return when the next match starts or when the player returns to a menu, whichever comes first. It might be easiest to just make separate instances for the menu and gameplay. No problem if it stops for a bit between the two.
Gun	Sound of gun being fired. Contains rattling recoil that can only be heard within 1 meter (inside the cockpit)	Per player	Everyone	Gun is fired	stops by itself	Camera	n/a	Can be heard within ~10 meters
Projectile	Looping sound which functions as a fly-by whizz	Per projectile	Everyone	Projectile is created (gun is fired)	Projectile is destroyed	Projectile	n/a	Audible within ~15 meters (far distance because it's going to move really fast)
Powerup	Energetic riser to indicate player has become the juggernaut	One (only the juggernaut)	One player – just the juggernaut	Player becomes juggernaut	stops by itself	Doesn't matter, sound is not spatialized	n/a	
SuperdashCharge	2.4 second riser as the superdash powers up	One (only the juggernaut)	One player – just the juggernaut	Juggernaut charges superdash	stops by itself	Doesn't matter, sound is not spatialized	n/a	
Superdash	Extra-oomph engine fire	One (only the juggernaut)	One player – just the juggernaut	Juggernaut superdashes	stops by itself	Doesn't matter, sound is not spatialized	n/a	
JuggernautGun	Includes the regular gun sound with a laser-like topper	One (only the juggernaut)	Everyone	Juggernaut gun is fired	stops by itself	Camera	n/a	Should REPLACE regular gun when player becomes the juggernaut, not be added on top of it.
Engine	Short burst at the start, followed by a looping sound of the engine running. Also contains water rushing sub-event that can only be heard from the outside.	Per player	Everyone*	Thrusters are activated	Thrusters are deactivated	Camera	Speed (0 to 100) – modified by player speed	Can be heard within ~8 meters. Speed is set to 50 by default, so if it is never touched by the code, it will still sound fine, just a little less dynamic.
Impact	Crash of projectile hitting ship. Contains interior crashing and ship malfunctions that can only be heard within 1 meter (inside)	Per player	Everyone	Player is hit	stops by itself	Camera	n/a	Can be heard within ~15 meters
Death	DO NOT USE. Contains a hit sound both for inside and outside the cockpit upon player's death.	Per player	Everyone	Player death	stops by itself	Camera	n/a	DO NOT USE. Honestly, I found that this sound didn't really add anything meaningful and just muddled the mix. The Impact event is super super juicy, and I think that will be enough.
MatchStart	Announcer saying "Match start!"	One (universal)	Everyone	Match begins	stops by itself	Doesn't matter, sound is not spatialized	n/a	May want to trigger after a countdown
MatchEnd	Announcer saying "Match end!"	One (universal)	Everyone	Match ends	stops by itself	Doesn't matter, sound is not spatialized	n/a	Careful not to trigger these two at the same time. MatchEnd could replace the final PlayerDefeated, or come after it.
PlayerDefeated	Announcer saying "Target Destroyed!" (previous version said "Player Defeated!")	One (universal)	Everyone	Any player is killed	stops by itself	Doesn't matter, sound is not spatialized	n/a	
GameMusic	Looping music for gameplay	Per player	One player	Match start	Player death	Doesn't matter, sound is not spatialized	Action (0 to 1) – modified by player engaged in combat	Can be simply set to 0 or 1. It automatically rolls up quickly and rolls down slowly, so if it's wobbling between 0 and 1 it will stay at high energy until it is consistently at 0. No need for "if xyz happened in the last 10 seconds" or anything like that. It takes approximately 10 seconds to fully wind down and 2 seconds to get back to full intensity.
GameMusicBaked	Looping music for gameplay with energy changes baked in, not adaptive.	Per player	One player	Match start	Player death	Doesn't matter, sound is not spatialized	n/a	Substitute for GameMusic if absolutely necessary, but please don't, the adaptive element is going to feel so cool in gameplay.
MenuMusic	Low-energy gameplay music, filtered to sound like it's coming out of the ship's radio	Per player	One player	Game launched	Player load into arena	Doesn't matter, sound is not spatialized	n/a	Panned slightly right to give the illusion of spatialization
UI_Close	Heavy UI interaction sound	Per button	One player	Button is clicked	stops by itself	Doesn't matter, sound is not spatialized	n/a	Suggested for buttons that navigate between or exit submenus such as "settings" or "close"
UI_Confirm	Heavy UI interaction sound	Per button	One player	Button is clicked	stops by itself	Doesn't matter, sound is not spatialized	n/a	Very similar to UI_Close. Suggested for buttons that confirm something such as "Start game" or "Accept"
UI_Click	Basic UI interaction sound	Per button	One player	Button is clicked	stops by itself	Doesn't matter, sound is not spatialized	n/a	Smaller metal click sound. Suggested for buttons that do not navigate between or exit submenus.

* This is where I'm a little concerned about how the ducking works. If player A is in between players B and C, and player C fires their gun, player A's engine sound will duck to accommodate that, but player B, who is far enough away from player C that they don't hear the gun, shouldn't hear the engine duck. I'm not exactly sure whether it will duck for player C or not, but it's not a catastrophe if it does. Engine sounds are not super prominent in the mix, and every player has their own music.