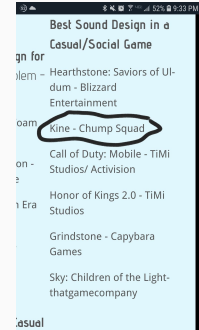# Audio Crash Course (For Devs)

Chel Wong | @ChelWongAudio | She/They

Who the heck is this nerd

- Award Winning and G.A.N.G. Nominated Composer
- Reluctant Sound Designer
- Live Recording Musician
- Game Audio Boston Organizer
- #TheCharityEPJam Founder & Producer
- BostonFIG's Head Audio Curator

Goals

Provide you with the understanding of

- Audio Roles
- Why does audio matter
- When to hire audio people
- How to work with audio people
- What does audio require
- How much does audio cost
- Post Launch Pitfalls

Audio Roles

(Almost) all games will have and need these 3 roles:

- Composer
- Sound Designer/Foley
- Implementation

Less common

- Audio Director
- Voice Director
- Audio Programmer/Engineer

?

Why do I *need* audio?

Why do I need to hire someone to do my audio?
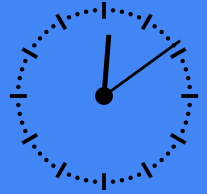Do I even have to?

I mean no, but...

But Why **?**

Don't underestimate the impact of good audio (as well as the impact of BAD audio)

Audio provides **feedback** and **information** on:

- Speed
- Weight
- Power
- Danger

- Location
- Distance
- Environment
- Quantity

- Resources
- Success/Failure
- Confirmation/Denial
- Fucking Everything

When do I get audio?

Different for Freelance vs Employee

Earlier is better

Ideally talk to them really early (discuss the needs of your game) but probably don't hire until you're at least in production.

Upfront Discussion

How much sound do you actually need? The answer is probably much more or much less than you think.

Big Factors: Gameplay type, camera angle, frequency of actions, pacing, environments, PVP, and more

And how the audio is going to be implemented...

Middleware

Middleware isn't *necessary* but it can be worth it.

Audio implementer vs programmer - huge time sink.

FMOD, Wwise, neither? What the heck is Master Audio?

Licensing for games

fmod®

A license gives the holder permission to distribute FMOD in a game. Refer to the licensing FAQ for details.

Choose the license that corresponds with the development budget of your project. Upgrade to a higher level to access options.

License Level	Indie	Basic	Premium
Development Budget	Under $500k	Between $500k and $1.5M	Over $1.5M
Fee (per game)	Free (see note)	$5,000	$15,000
Included			
Distribution rights	Lifetime	Lifetime	Lifetime
FMOD Features	All	All	All
Platforms	All	All	All
FMOD Logo	Required	Required	Required
Support (Forum)	Yes	Yes	Yes
Support (Email)	No	1 year	2 years
Optional			
Logo Waiver	No	$5,000	$10,000
Source Code	No	No	$15,000
Support (Email) Per additional year	$5,000	$5,000	$5,000

Note: Free Indie License may only be used 1 time each 12 months. Additional use in that period incurs a fee of $2,000 per game.

Wwise is the leading end-to-end interactive audio solution that gives you everything you need to create multi-platform immersive games. Choose the plan that is right for your needs.

Plan Description	Starter	Pro	Premium	Enterprise
	Full platform access, with up to 500 sounds. Get the full Wwise experience for small budget productions. For non-commercial projects or academic projects, click here.	Everything from the Starter Plan, plus unlimited sounds, and access to premium options such as plug-ins and direct engineering support.	Everything from the Pro Plan, plus direct support from our world-class audio engineering team.	Working on multiple large projects? We can customize a solution that is right for you.
	Free	Starting at $750 US	Starting at $18,000 US	Contact us
	Get started	Start free evaluation	Start free evaluation	Contact us
Production Budget	Less than $150K	Between $0 and $1.5M	Greater than $1.5M	Multiple Projects
Sound Files / Media Assets	500	Unlimited	Unlimited	Unlimited
Free Trial	✓	✓	✓	✓
All Engine Features	✓	✓	✓	✓
Continuous Updates	✓	✓	✓	✓
Community Q&A	✓	✓	✓	✓
Royalty Free (0%)	✓	Optional	✓	✓
Beta Access		✓	✓	✓
Support - Pay2Go	✓	✓	✓	✓
Support - Standard Plan		Optional	Included	Custom
Support - Plus Plan		Optional	Optional	Custom
Creative Services		Custom	Custom	Custom
Premium Plug-ins		Optional	Optional	Custom
Source Code Access (with support package)		✓		✓
See full price chart	Get started	Start free evaluation	Start free evaluation	Contact us

What does audio need?
What's the pipeline?

Direction: We like freedom but we need to know what you want first.

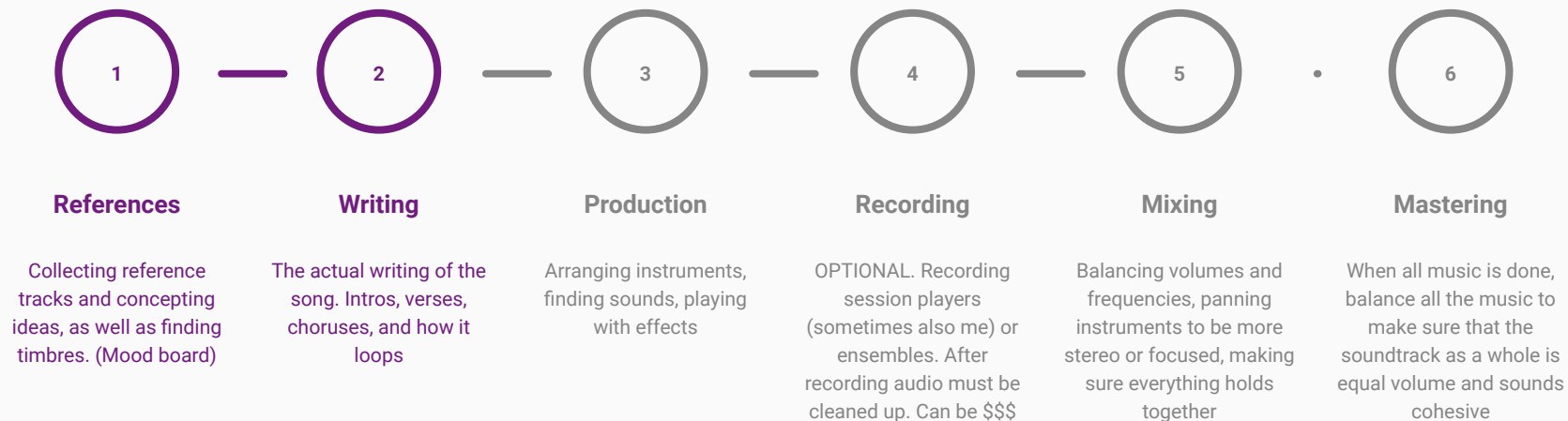Provide lots of details up front, we become more independent over time.

Music can be very iterative, Sound Design prefers final animations

COMMUNICATION! Audio needs to know if any of these changes:

- Story
- Mechanics
- Art/Animations
- Basically any major gamewide change or mechanical tangible things

Process

Music

1 — 2 · · · 3 · · · 4 · · · 5 · 6

References

Collecting reference tracks and concepting ideas, as well as finding timbres. (Mood board)

Writing

The actual writing of the song. Intros, verses, choruses, and how it loops

Production

Arranging instruments, finding sounds, playing with effects

Recording

OPTIONAL. Recording session players (sometimes also me) or ensembles. After recording audio must be cleaned up. Can be $$$

Mixing

Balancing volumes and frequencies, panning instruments to be more stereo or focused, making sure everything holds together

Mastering

When all music is done, balance all the music to make sure that the soundtrack as a whole is equal volume and sounds cohesive

Process

Sound Design + Implementation

1	2	3	4	5
References	**Recording**	**Production**	**Implementation**	**Sound Mixing**
Collecting references and concepting ideas, as well as finding timbres. (Mood board)	Recording literally anything and everything.	Arranging recordings into layers, mixing them together	Hooking sound effects into the engine, often times with middleware. Checking if sounds play well. Effects like randomizing, pitch bending, localized reverb.	Balancing volumes and frequencies within the game. Managing a hierarchy of sounds, voice lines, and music and how audible everything is.

Costs

EXTREMELY VARIED. THERE IS NO STANDARD.

Variables: Project Size, Timeline, Complexity of Audio Needs

Charging: Flat Rate, Per Minute of Music, Hour/Day Rate, Per Asset (Garbage)

- my starting rate: $300/minute of music
- more standard rate: $1500-1000/minute of music / $50/hour
- (really anything in between and above, again, no standard)

Backend, Music Rights, Distribution & Streaming

Other Technical Shit

DAWs (Digital Audio Workstation) are not universal. Plugins even moreso.

WAV or Ogg Vorbis. NEVER MP3s.

Test on hardware (especially Switch, Mobile, VR, Stadia??)

Oh fuck what about streaming

Aw fuck

Streaming Platforms

Streaming and music rights are fucked. No one wants a DMCA.

Composers will sign up with PROs but they basically can't earn money through YouTube or worse, Twitch. And as much as we *want* to, we shouldn't.

If things get DMCA'd the game's publicity suffers, and it's worse overall.

Ideal Music Rights

Devs own the rights to the music BUT

Composers own the rights to self distribute our OSTs

(as well as obvious rights like credits and the right to share on our portfolio)

Takeaway

- Communicate
- COMMUNICATE
- Hire audio earlier rather than later
- Every audio person (especially composers) may work incredibly differently.
- Middleware may or may not be worth it depending on engine and weight
- Careful for legal stuff with streaming, we all want what's best

Thanks!
Questions?

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COMPOSER FOR GAMES

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