



# DOUBLE SHOT AUDIO

brewing your **immersive** sound for games



# Game Audio Workflow



**Quality Materials**  
SFX



**Proper Equipment**  
Game Engine/Middleware



**Brewing Technique**  
Implementation

# Audio Import Settings



sfx\_AudioDemo\_VolcanoExplosion\_1 Import Settings

Force To Mono   
Normalize   
Load In Background   
Ambisonic

Load Type: Decompress On Load  
Preload Audio Data:   
Compression Format: Vorbis  
Quality: 100  
Sample Rate Setting: Preserve Sample Rate

Original Size: 7.4 MB  
Imported Size: 1.4 MB  
Ratio: 18.46%

Revert Apply

Imported Object: sfx\_AudioDemo\_VolcanoExplosion\_1

sfx\_AudioDemo\_VolcanoExplosion\_1

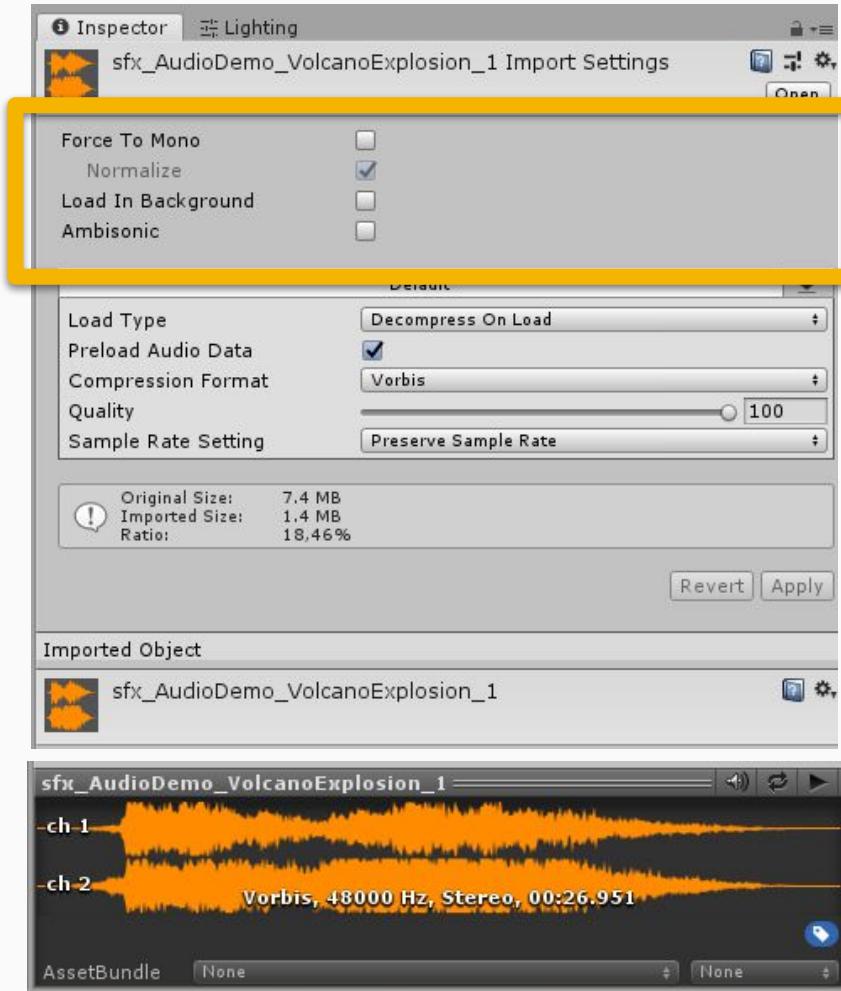
ch 1

ch 2

Vorbis, 48000 Hz, Stereo, 00:26.951

AssetBundle: None

3





Force To Mono  
+  
Normalize



# Force To Mono

- ❖ Not all stereo files have **Stereo Information**
- ❖ Not all stereo information is **Important**
- ❖ Stereo files are **worthless for 3D Sounds**
- ❖ Watch out for **Mono Compatibility**





# Load In Background

+

# Preload Audio Data



Ambisonic

# Audio Import Settings



Inspector   Lighting

sfx\_AudioDemo\_VolcanoExplosion\_1 Import Settings

Force To Mono   
Normalize   
Load In Background   
Ambisonic

Default

Load Type: Decompress On Load  
Preload Audio Data:   
Compression Format: Vorbis  
Quality: 100  
Sample Rate Setting: Preserve Sample Rate

Original Size: 7.4 MB  
Imported Size: 1.4 MB  
Ratio: 18.46%

Revert Apply

Imported Object

sfx\_AudioDemo\_VolcanoExplosion\_1

sfx\_AudioDemo\_VolcanoExplosion\_1

ch 1

ch 2

Vorbis, 48000 Hz, Stereo, 00:26.951

AssetBundle None

9

The screenshot shows the Unity Editor's Inspector window for an audio asset named "sfx\_AudioDemo\_VolcanoExplosion\_1". The "Import Settings" tab is active. A yellow box highlights the "Default" import settings section, which includes options for "Load Type" (set to "Decompress On Load"), "Preload Audio Data" (checked), "Compression Format" (set to "Vorbis"), "Quality" (set to 100), and "Sample Rate Setting" (set to "Preserve Sample Rate"). Below this, a summary shows the "Original Size" as 7.4 MB, the "Imported Size" as 1.4 MB, and the "Ratio" as 18.46%. At the bottom of the window, the imported object is listed, followed by a waveform preview for "ch 1" and "ch 2", and text indicating the format as "Vorbis, 48000 Hz, Stereo, 00:26.951".



# Load Type



# Load Type

- ❖ **Decompress On Load**
  - ❖ **Compressed In Memory**
  - ❖ **Streaming**
-



# Compression Format



# Compression Format

## PCM

Uncompressed Audio



## ADPCM

Old Compression Format  
between PCM & Vorbis



## Vorbis (Ogg)

Variable Compression Format





# Vorbis

**70 - 100%**

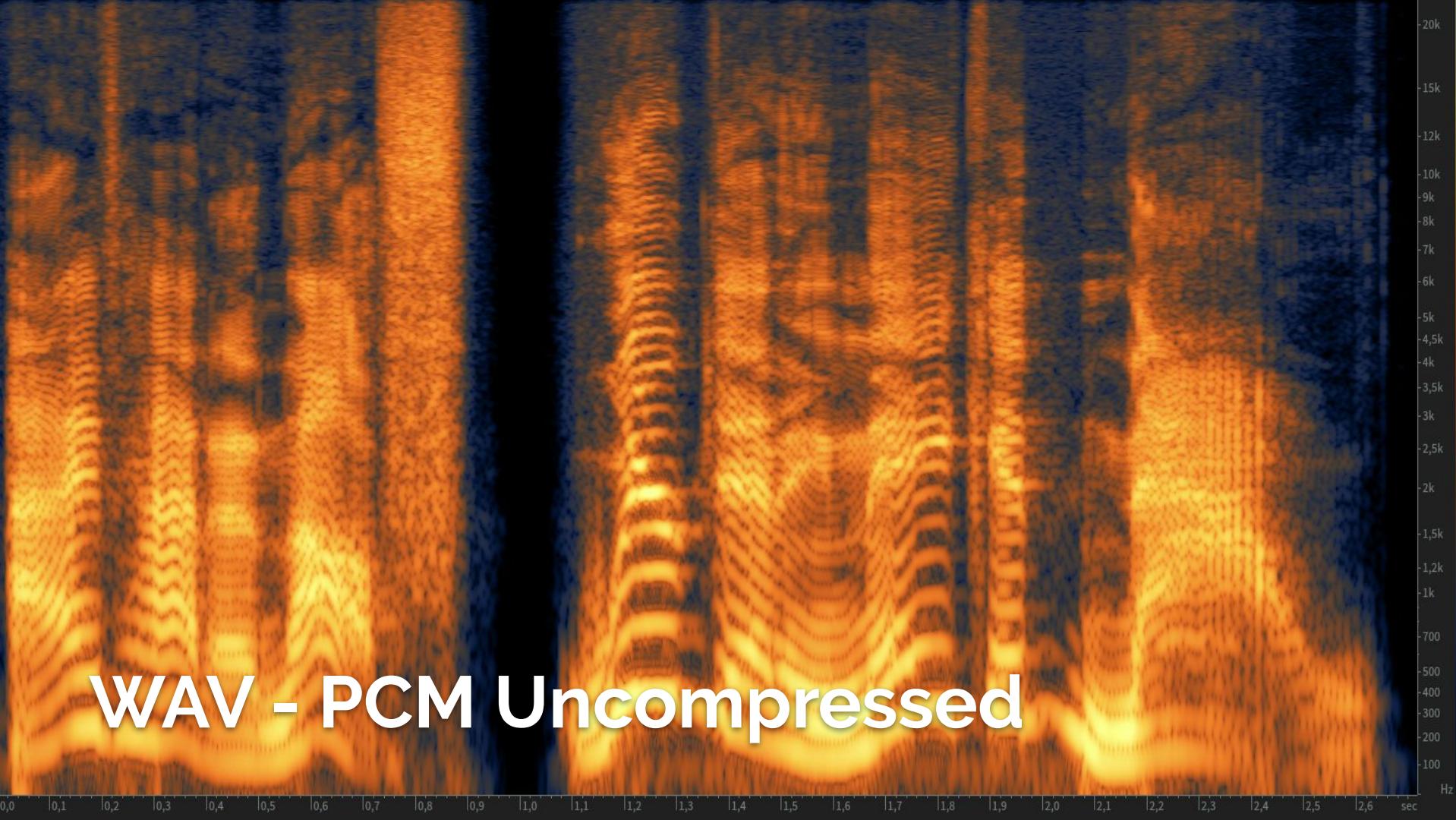
Safe settings without  
noticeable loss in quality.

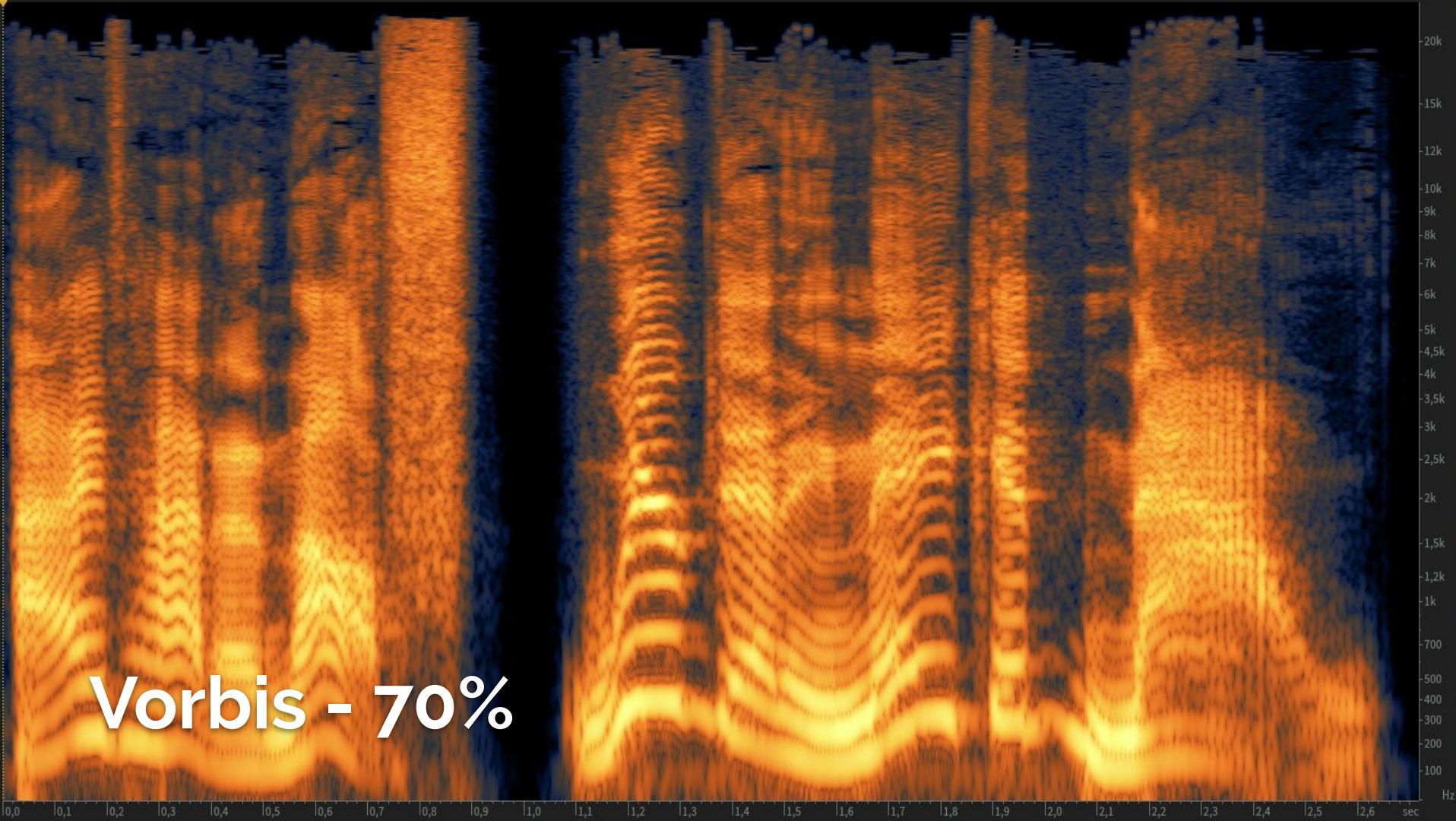
**50 - 69%**

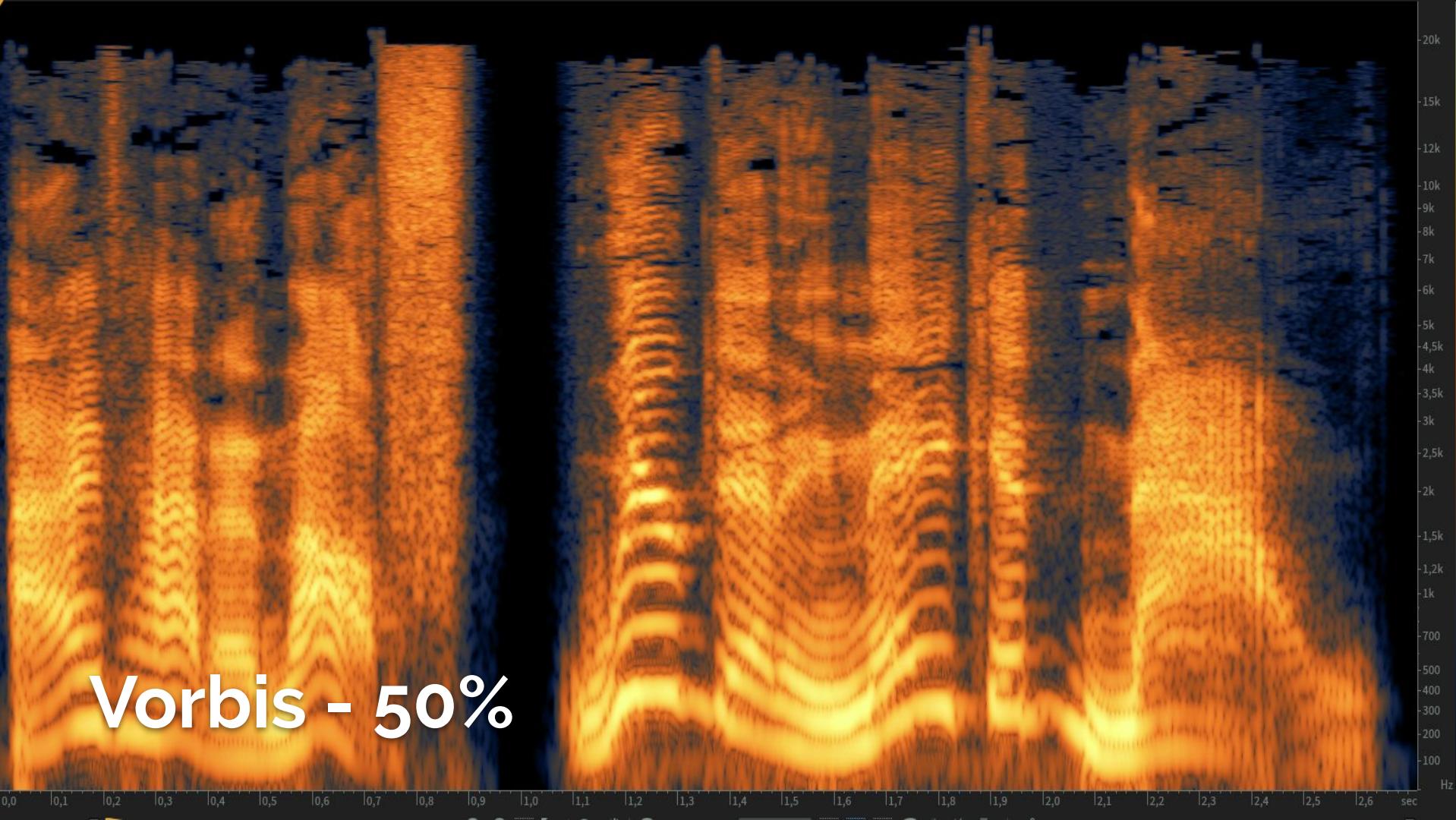
Noticeable loss of very high  
and very low frequencies.  
Adds “grainy-ness”.

**< 50%**

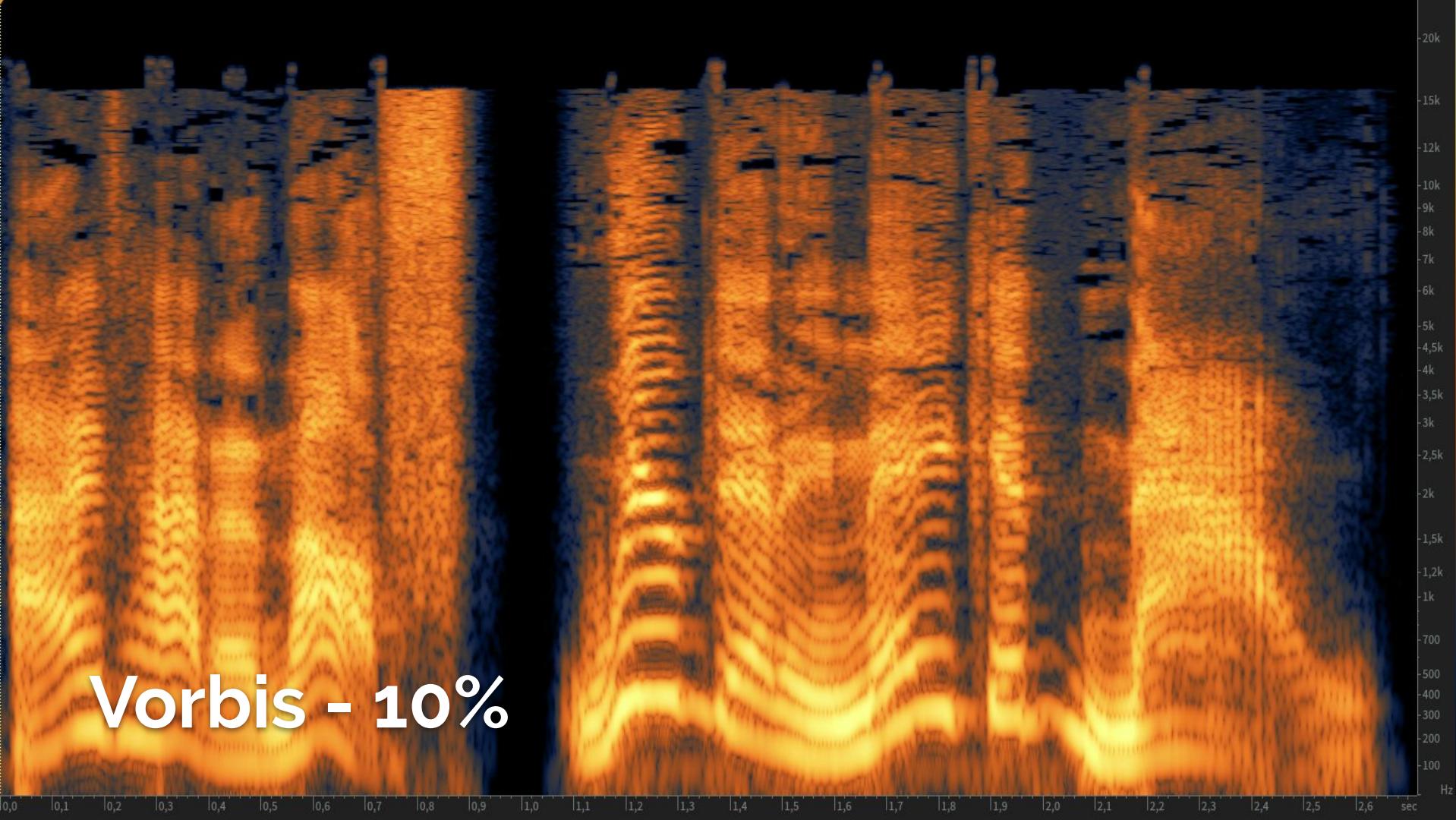
Most likely will result in a  
noticeable loss in quality.  
Robot SFX.



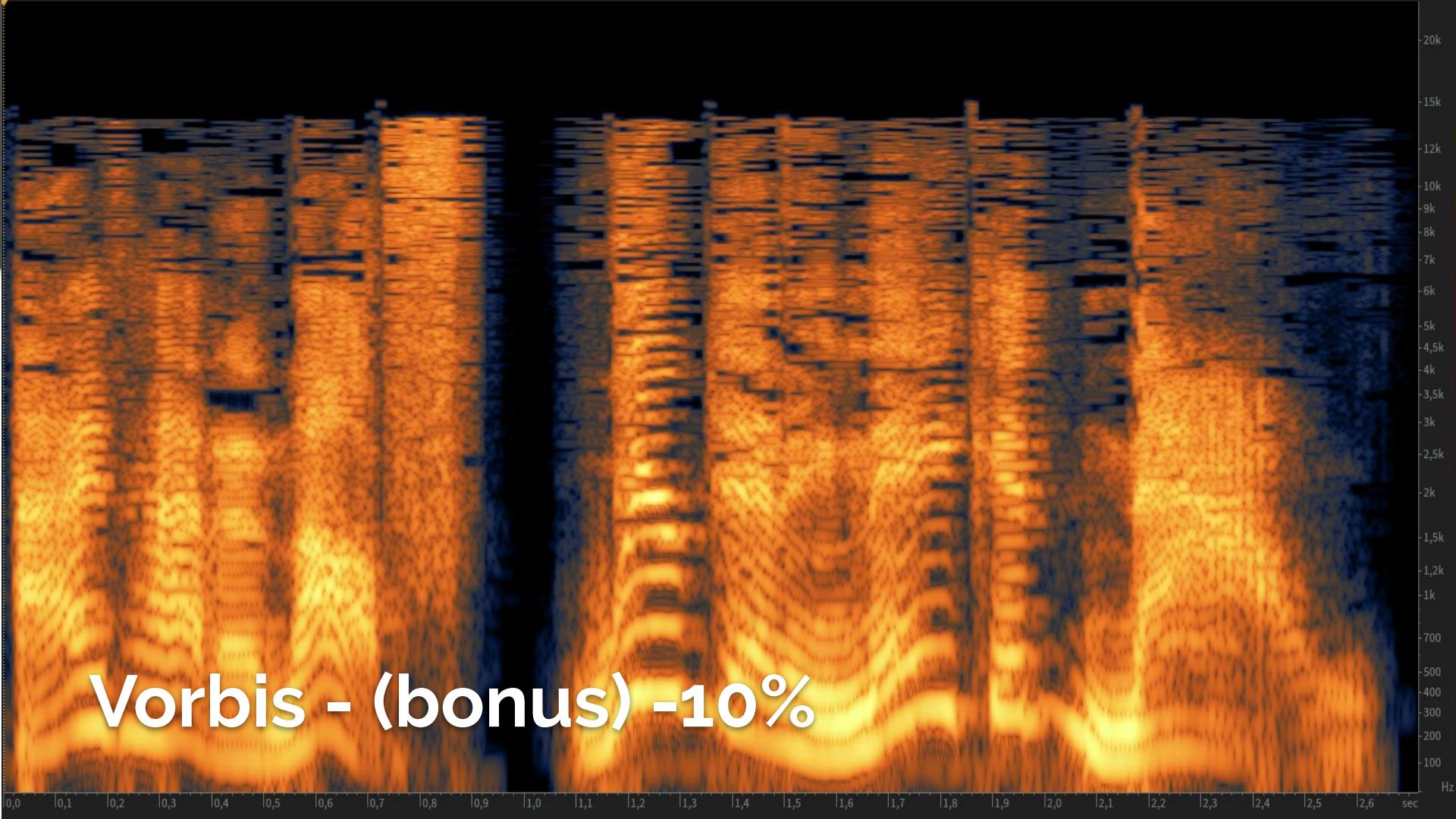




Vorbis - 50%



**Vorbis - 10%**



**Vorbis - (bonus) -10%**





# A Warning About Vorbis

- ◆ Compression slightly **increases peak level**
- ◆ If your SFX peaks at 0dB, **distortion will be introduced** after compression



# Sample Rate



# Sample Rate

- ◆ **Preserve**
  - ◆ **Optimize**
  - ◆ **Override**
-



# Now What?



# General Recommendations

- ◆ Music & Ambience - **Streaming / Vorbis**
- ◆ Short SFX - **Decompress on Load / PCM**
- ◆ Long SFX - **Compressed in Memory / Vorbis**
- ◆ Dialogue - **Compressed in Memory / Vorbis**



# General Recommendations

- ❖ Pay attention to **Mono/Stereo**
- ❖ Be careful with **Compression**
- ❖ When in doubt, **use your ears :)**



DOUBLE  
SHOT  
AUDIO

» Thank you! «

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