

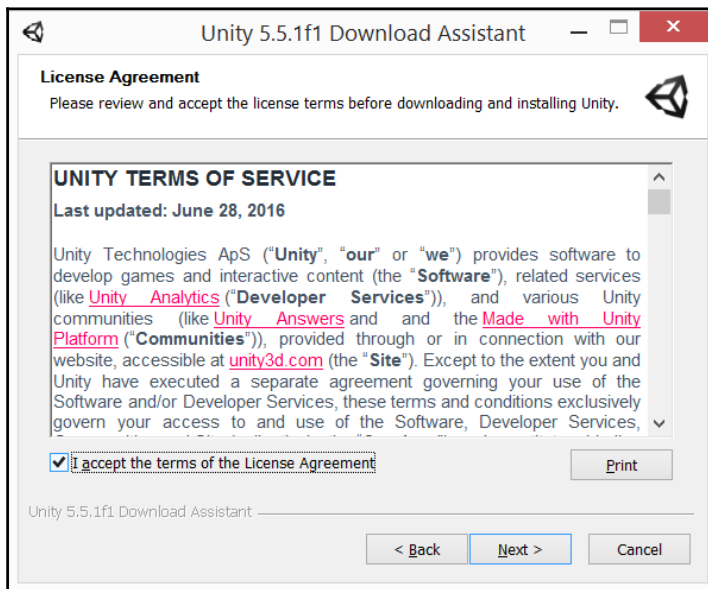
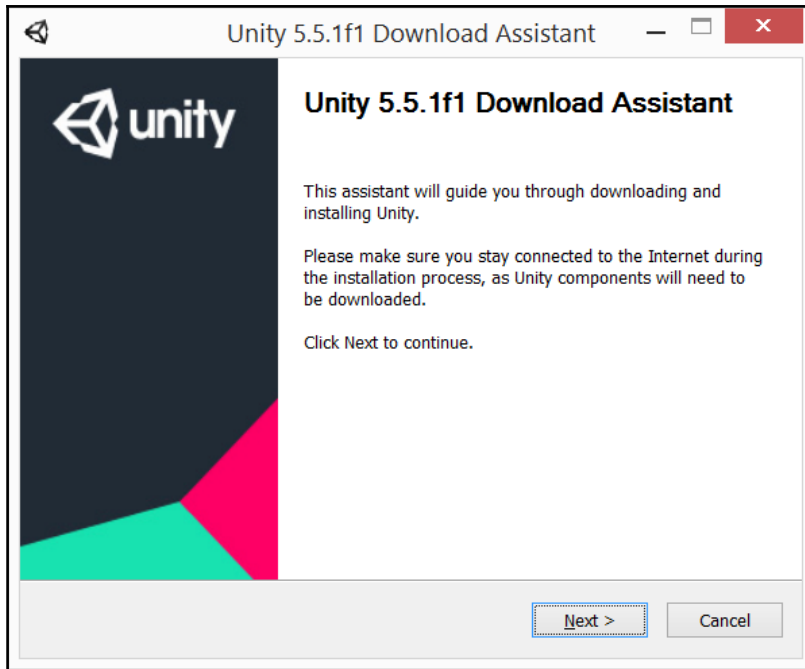
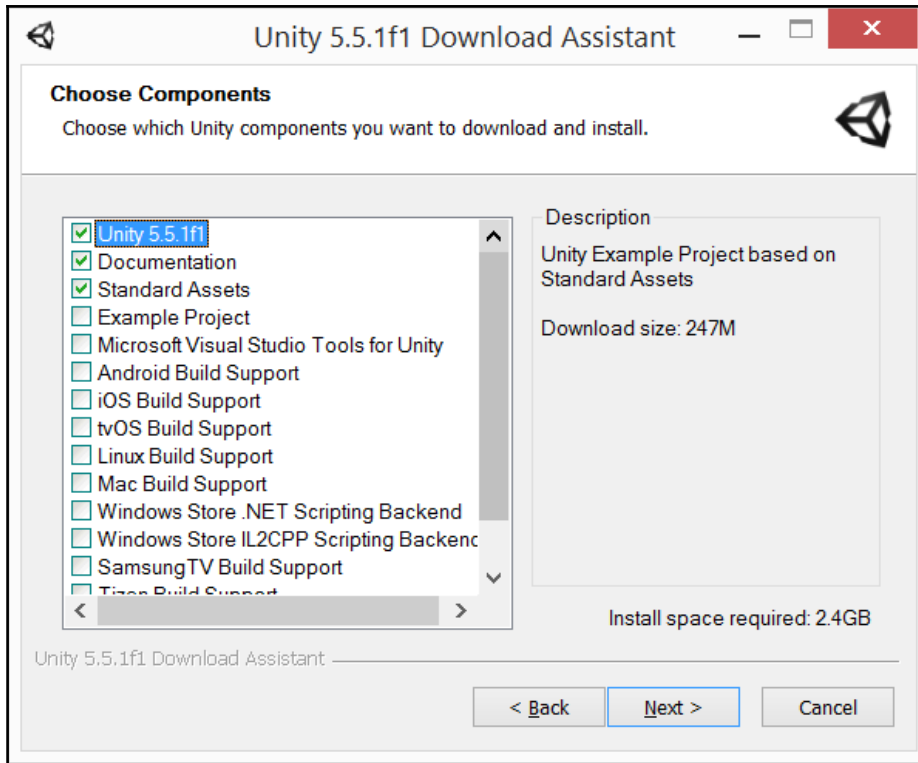
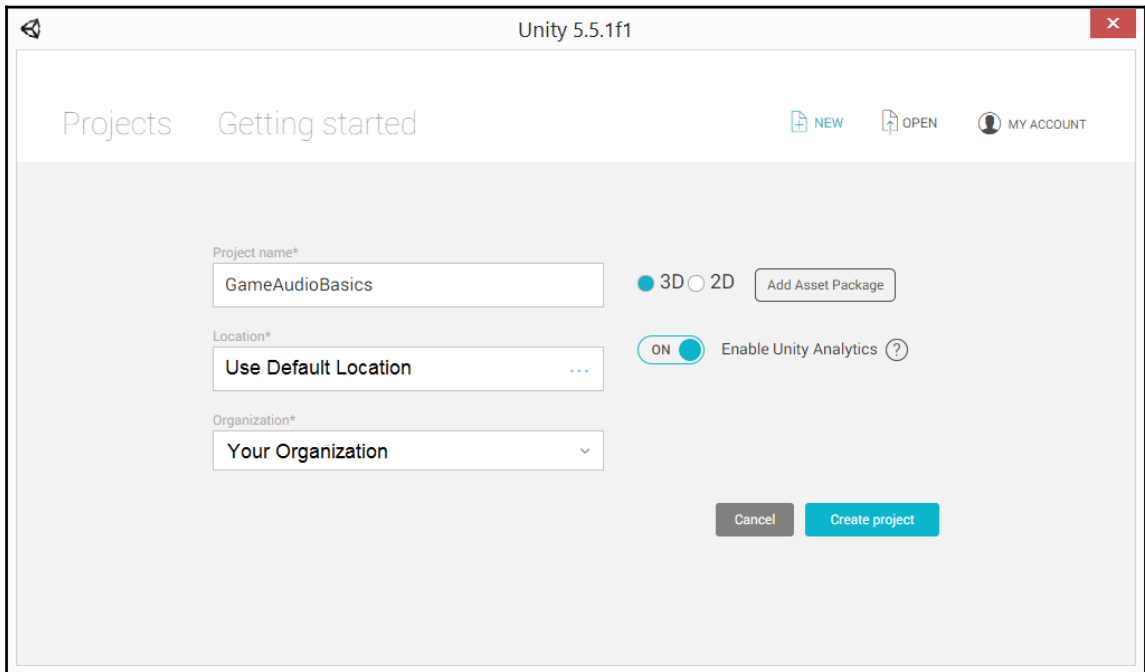
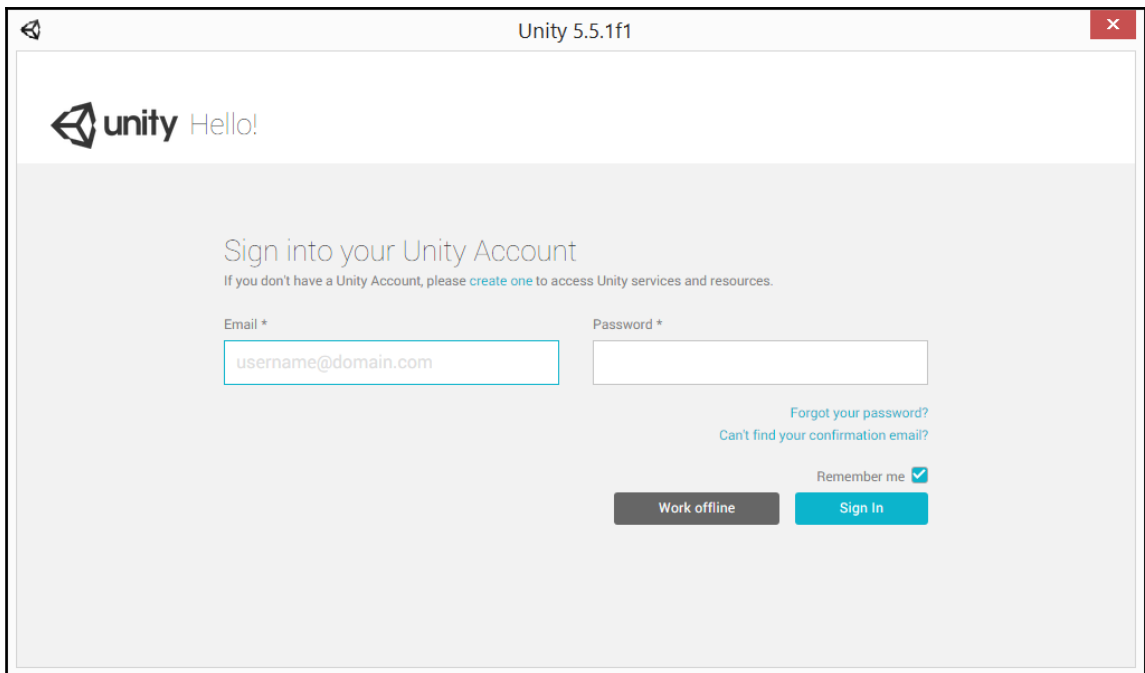


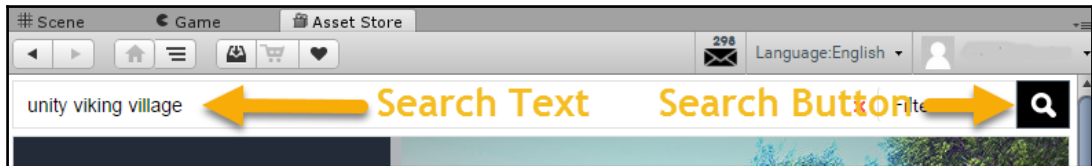
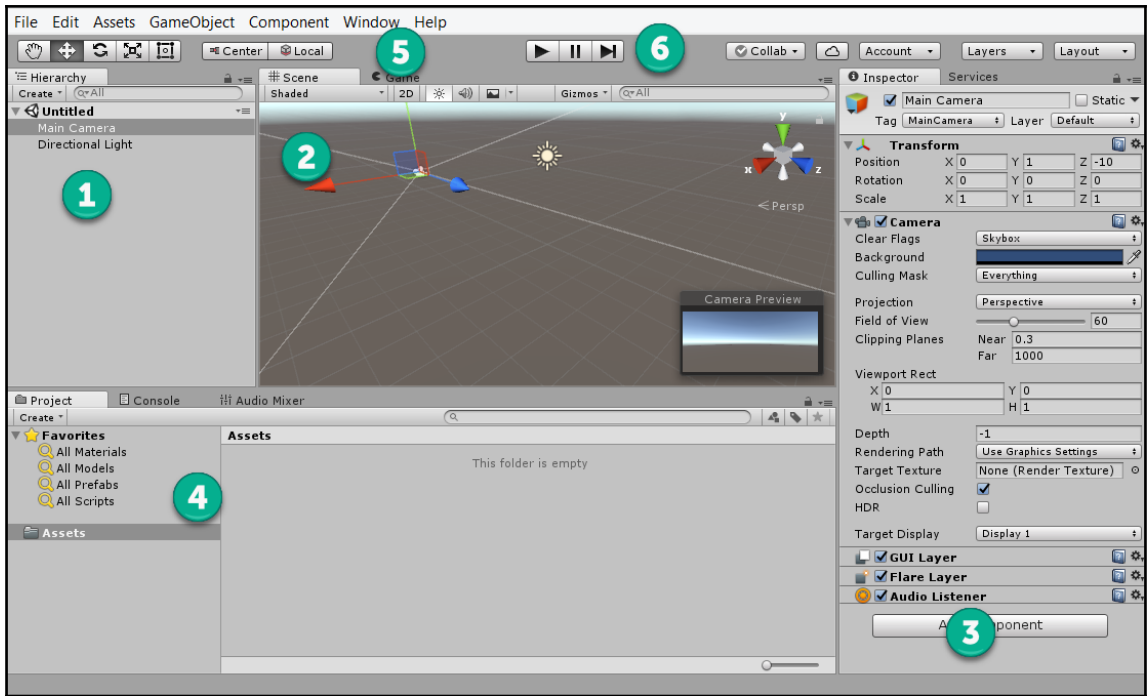
# Chapter 1: Introducing Game Audio with Unity

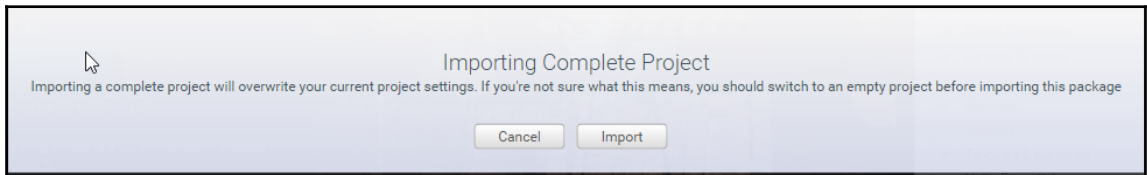
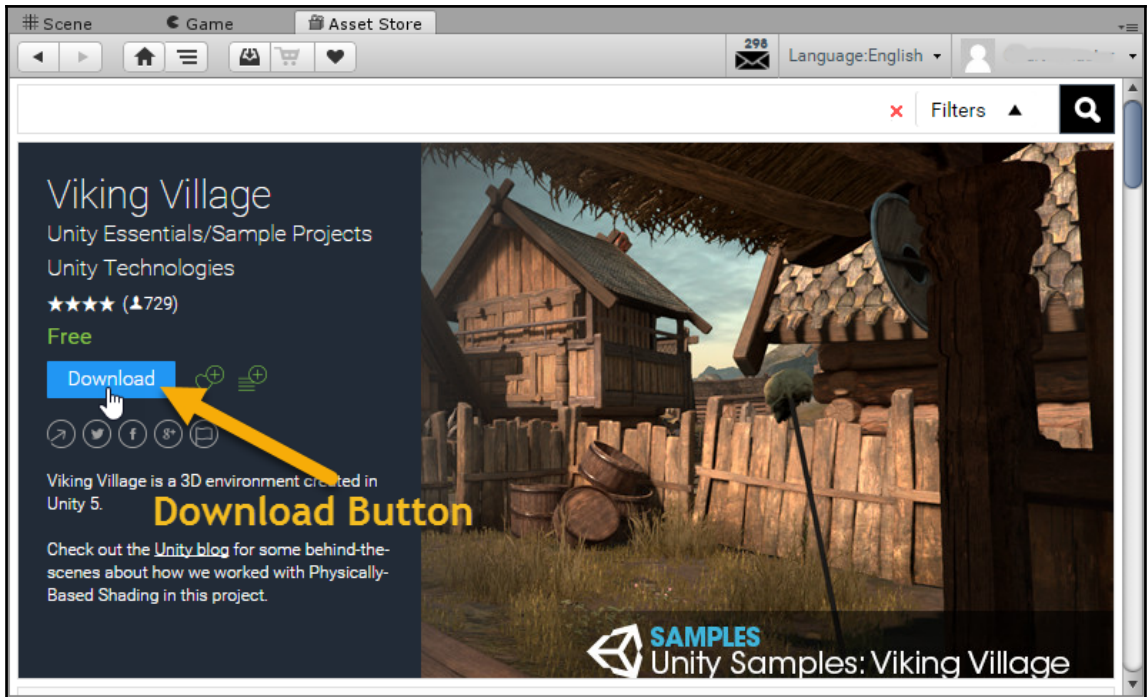
 <p>Much more than a game engine.</p> <p>Unity is a platform offering everything you need to create successful games and engaging experiences.</p>	 <h2>Personal</h2> <p>All the features for beginners &amp; hobbyists to get started.</p> <p><a href="#">Learn more</a></p> <h3>Free</h3> <p>No credit card required</p> <p><a href="#">Download now</a></p>
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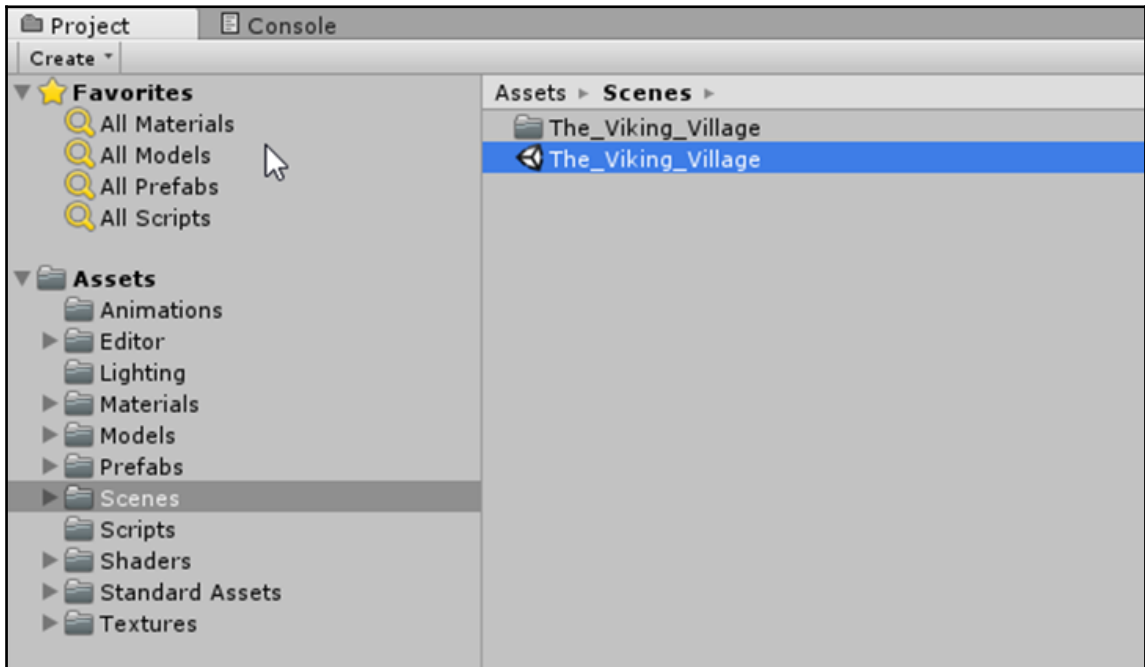
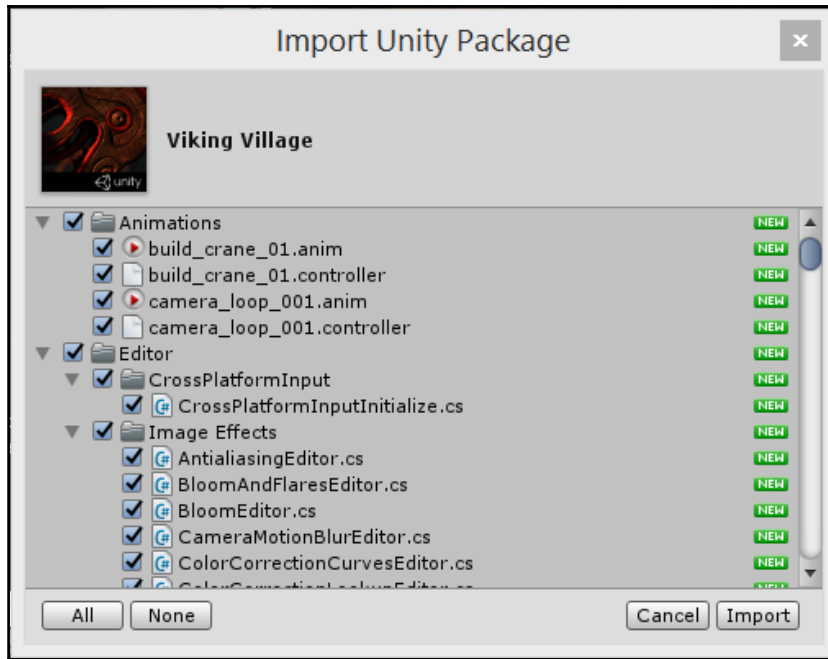


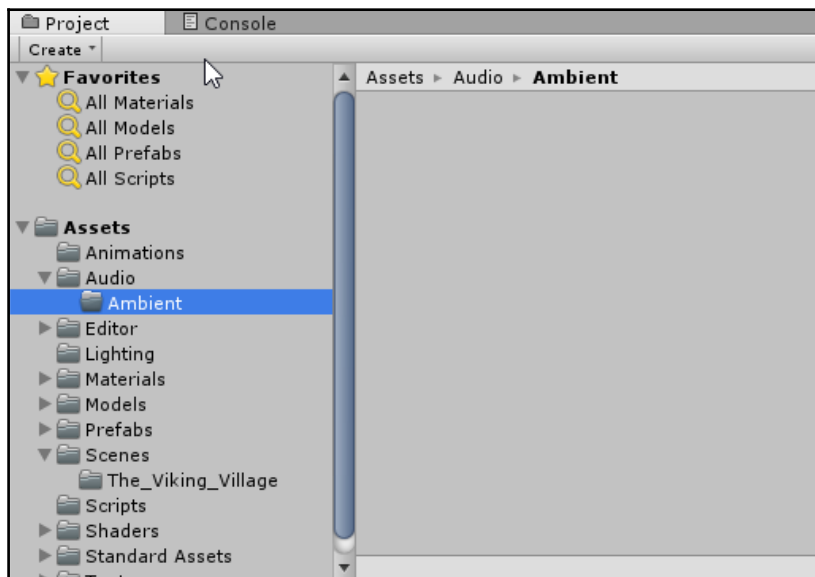
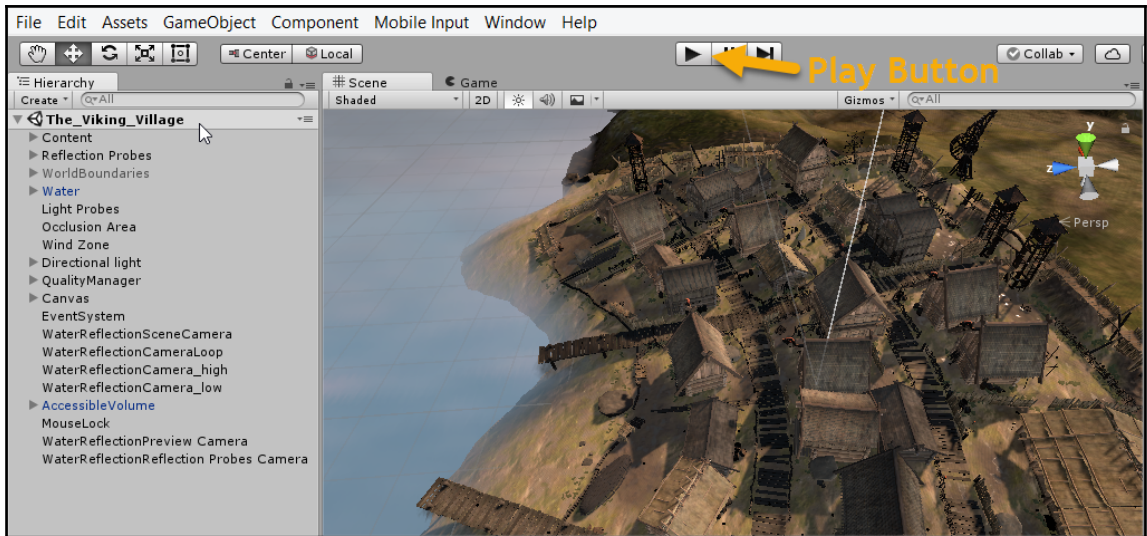




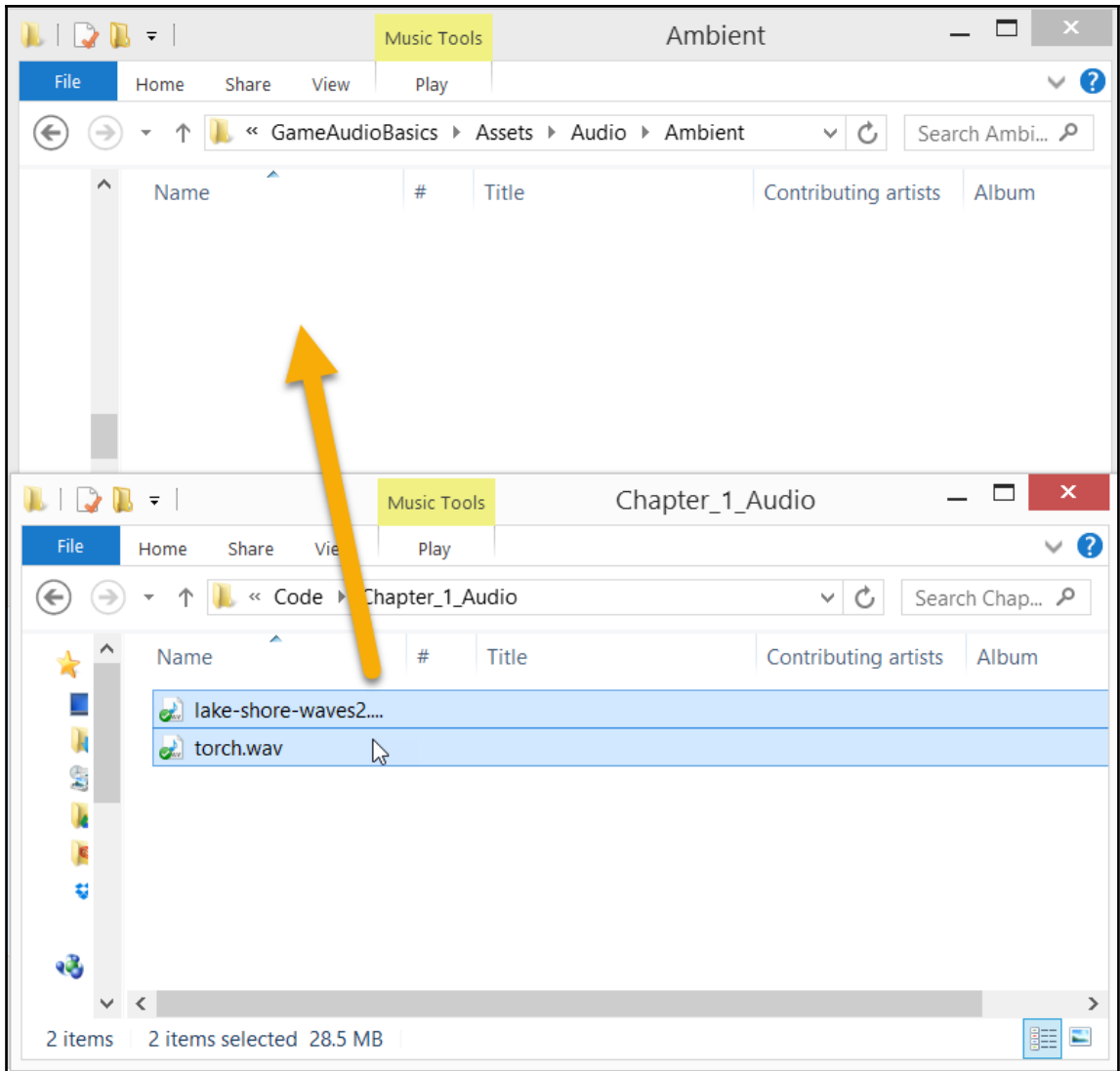


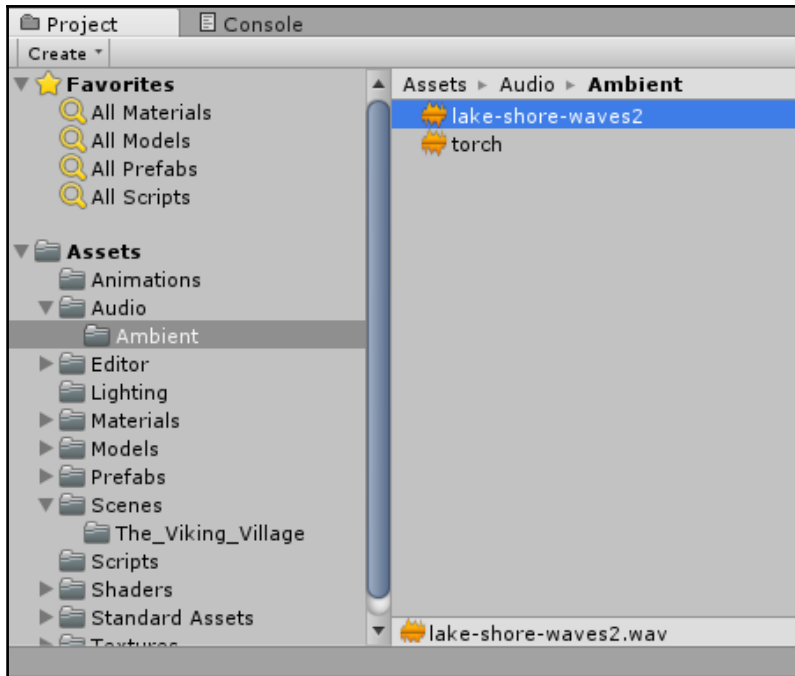


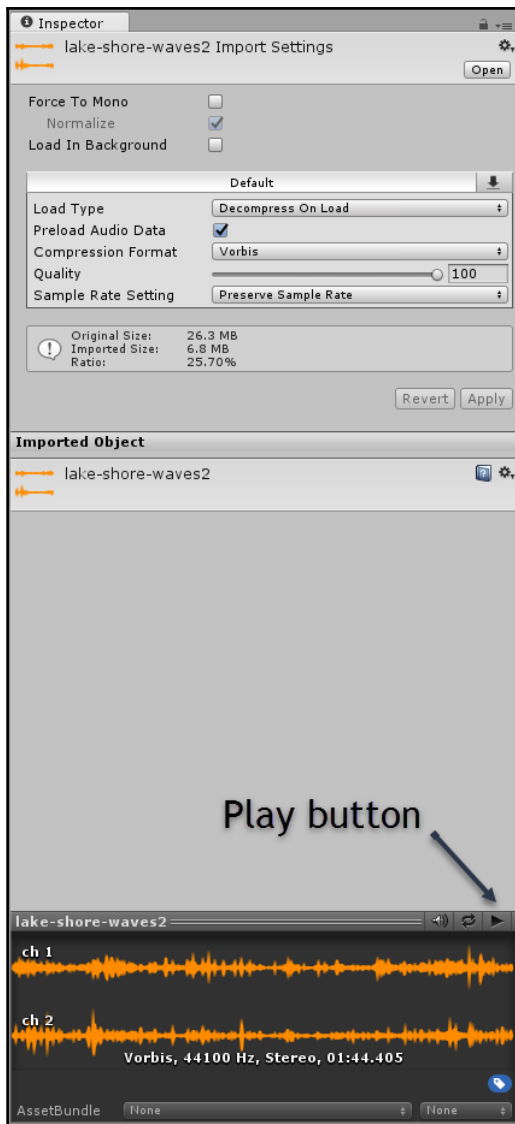


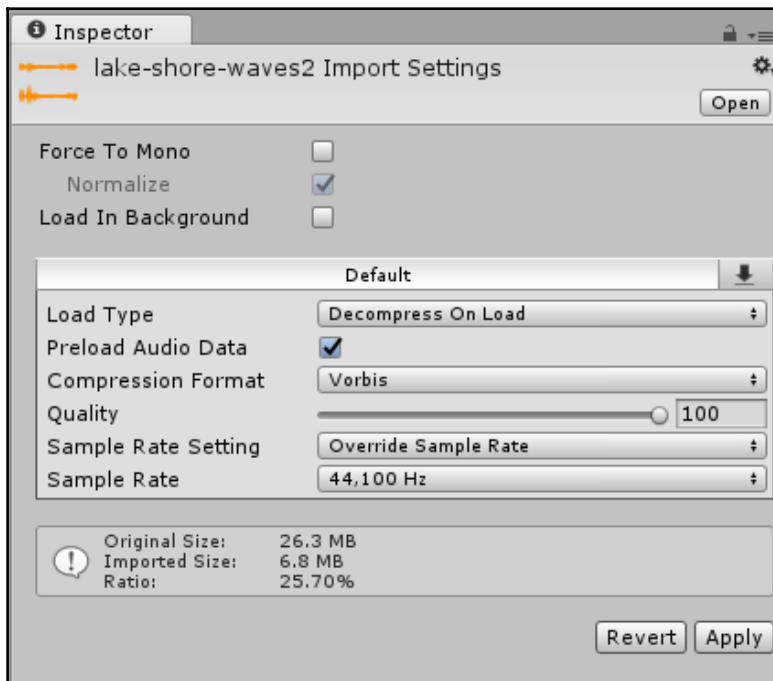
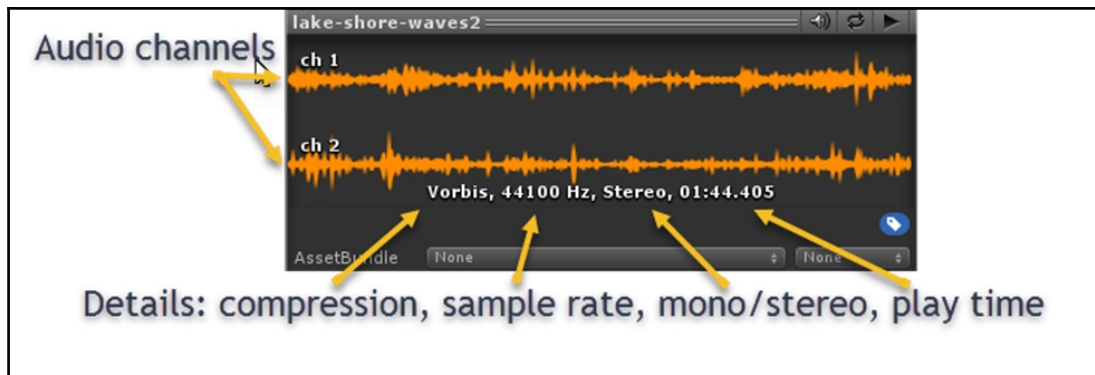


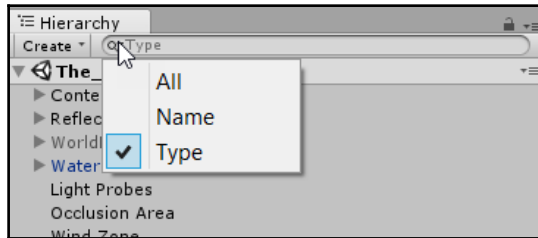


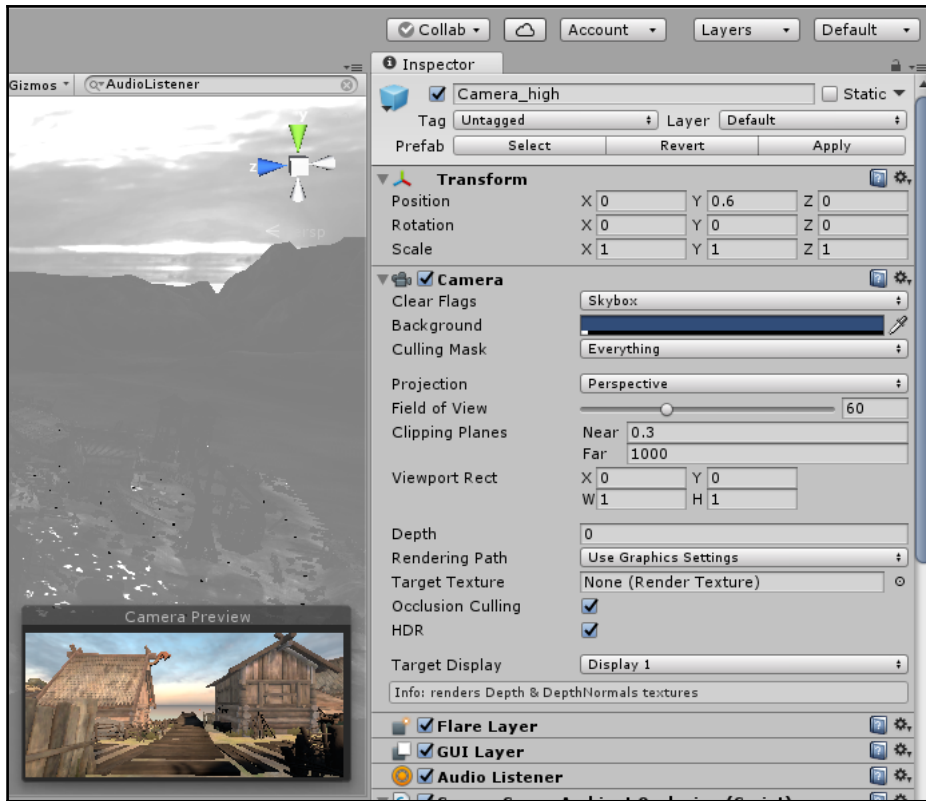


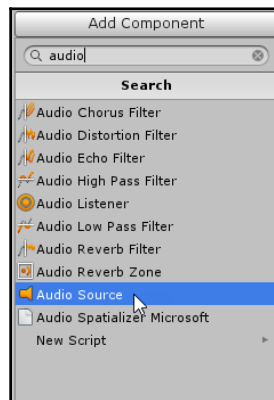
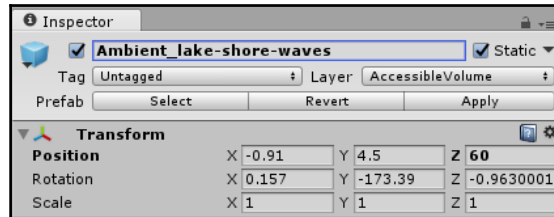
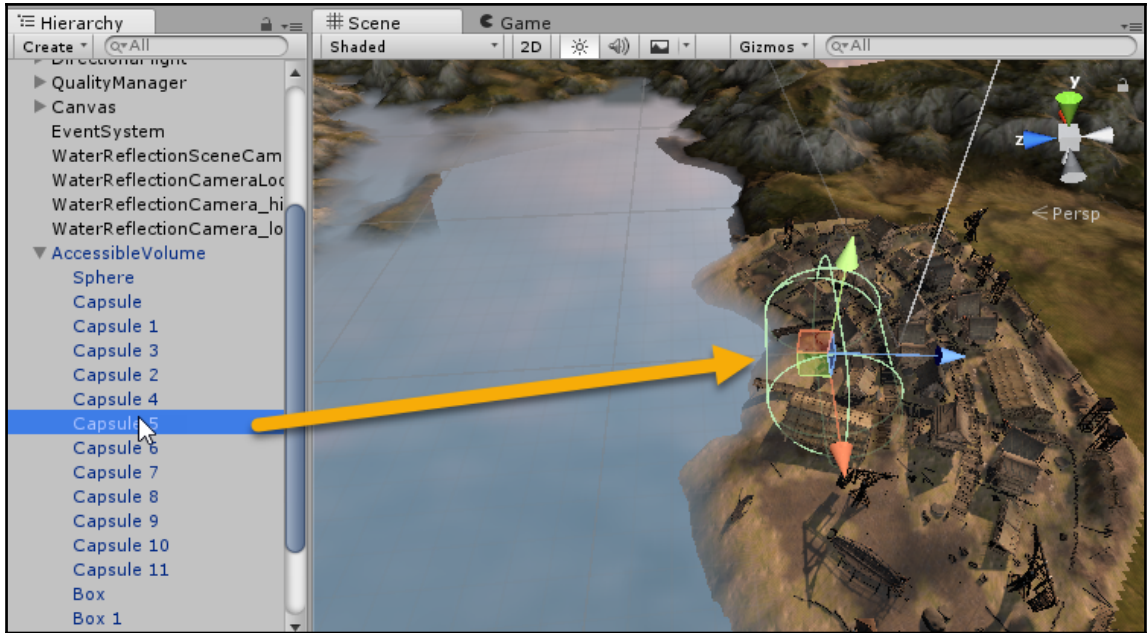


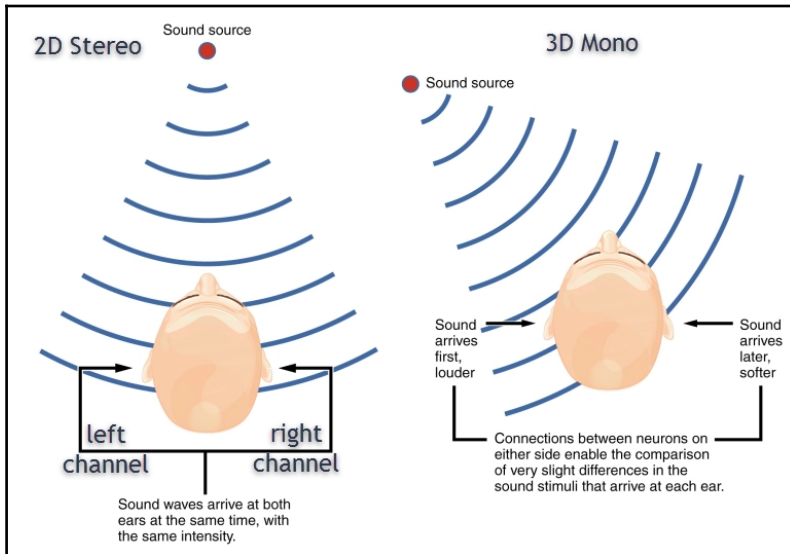
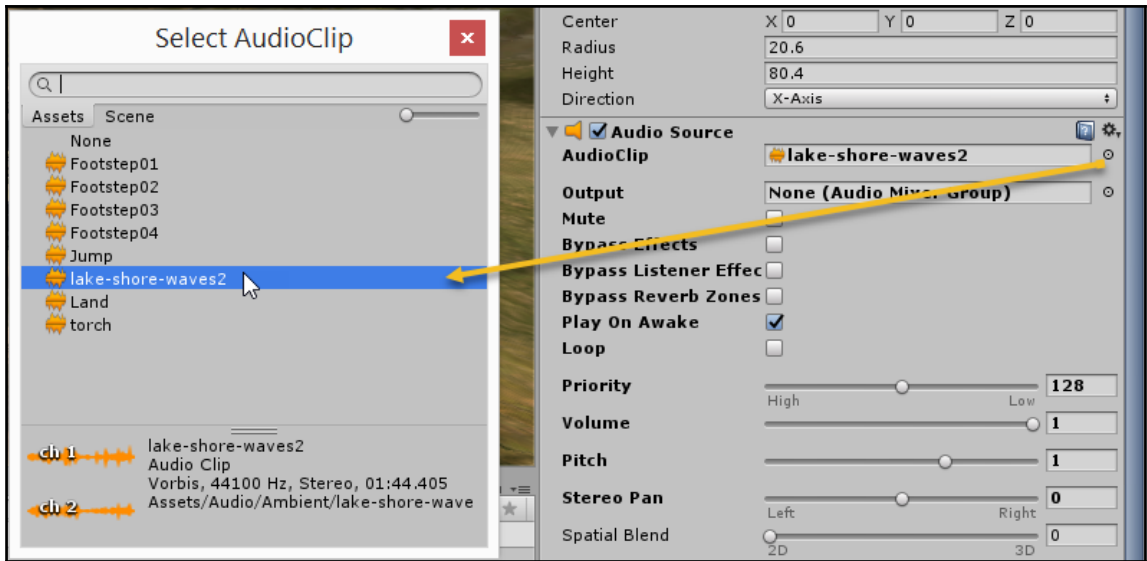




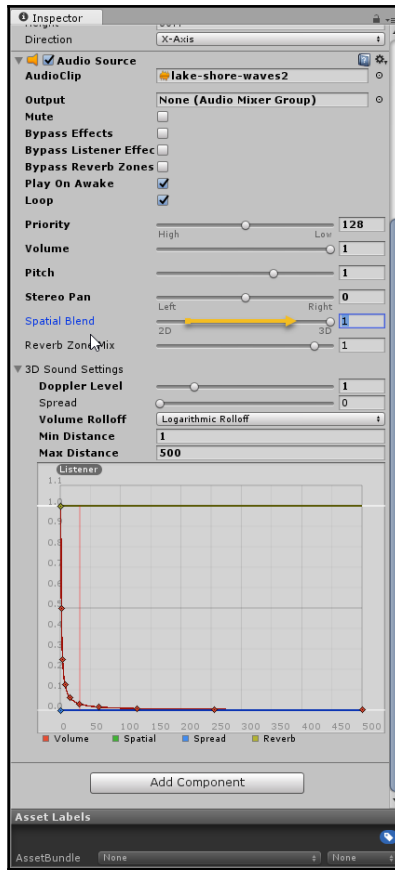














**Audio Source**

AudioClip torch

Output: None (Audio Mixer Group)

Mute:

Bypass Effects:

Bypass Listener Effects:

Bypass Reverb Zones:

Play On Awake:

Loop:

Priority: High ————— Low 1.28

Volume: ————— 0.4

Pitch: ————— 1

Stereo Pan: Left ————— Right 0

Spatial Blend: 2D ————— 3D 1

Reverb Zone Mix: ————— 1

**3D Sound Settings**

Doppler Level: ————— 1

Spread: ————— 0

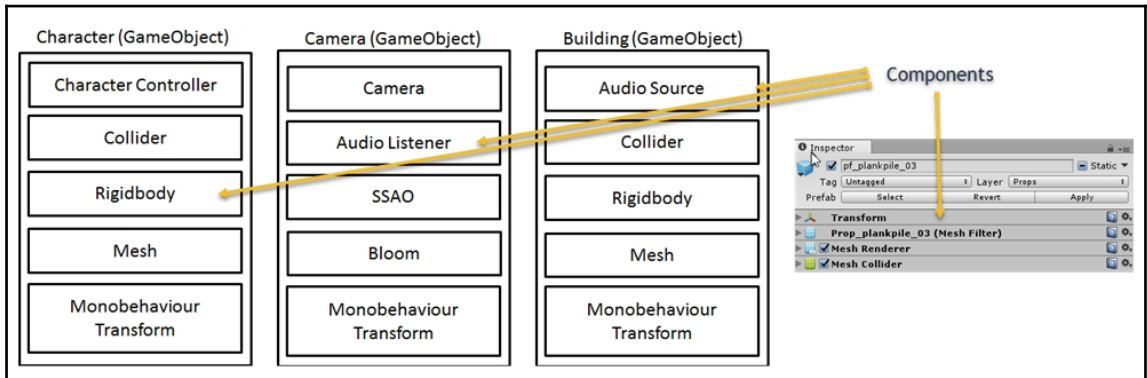
Volume Rolloff: Logarithmic Rolloff

Min Distance: 1

Max Distance: 25

Distance	Volume	Spatial	Spread	Reverb
0	1.0	1.0	0.0	1.0
1	0.5	1.0	0.0	1.0
2	0.3	1.0	0.0	1.0
5	0.15	1.0	0.0	1.0
10	0.08	1.0	0.0	1.0
15	0.06	1.0	0.0	1.0
20	0.05	1.0	0.0	1.0
25	0.05	1.0	0.0	1.0

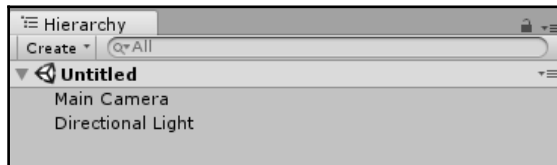
# Chapter 2: Scripting Audio

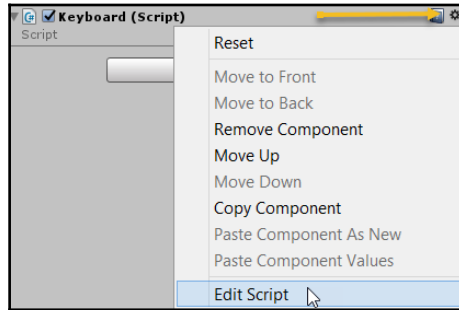
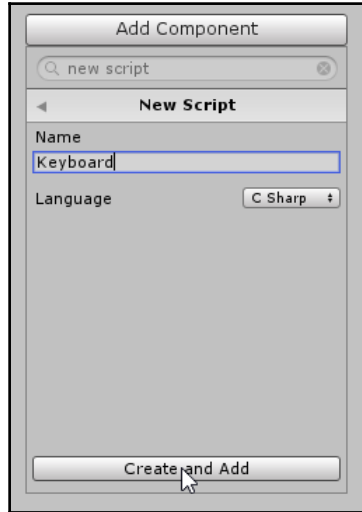
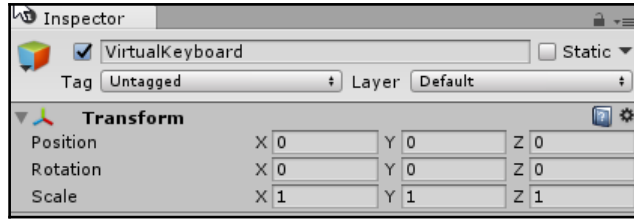


```
Example.cs
No selection
1 using UnityEngine;
2
3 public class Example : MonoBehaviour {
4
5     // Use this for initialization
6     void Start () {
7
8     }
9
10    // Update is called once per frame
11    void Update () {
12
13    }
14 }
15
```

Annotations for the code block:

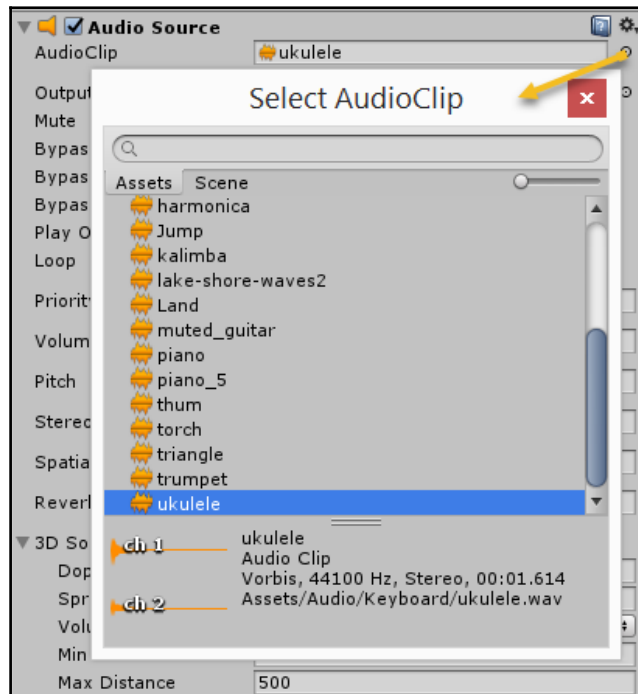
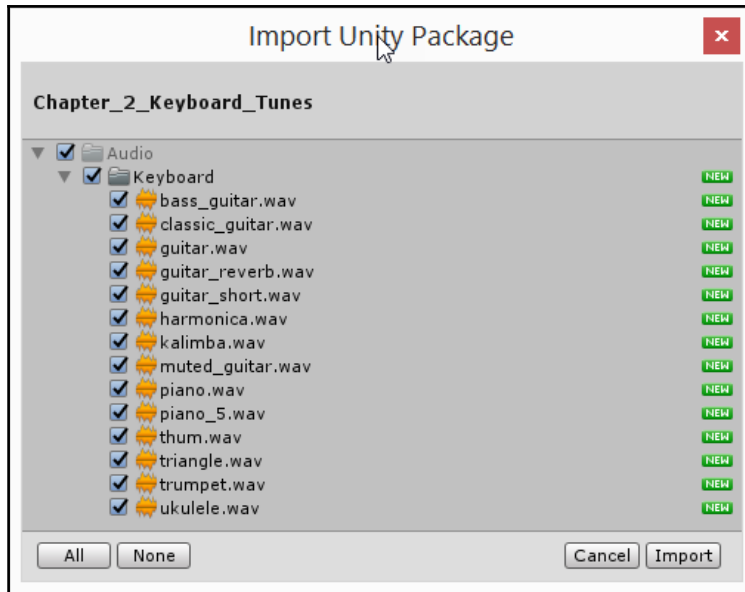
- Arrow from line 1 to `using UnityEngine;`: using library
- Arrow from line 3 to `public class Example : MonoBehaviour {`: class called Example derived from MonoBehaviour
- Arrow from line 6 to `void Start () {`: initialization code goes here
- Arrow from line 11 to `void Update () {`: game code goes here

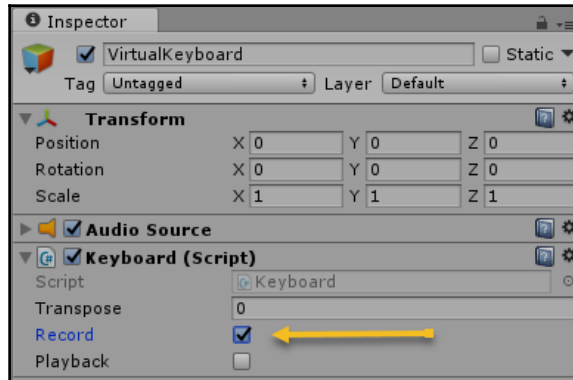
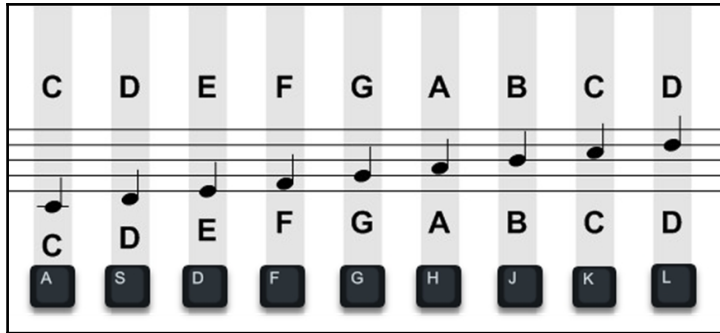




```
Keyboard ▶ No selection
1 using System.Collections;
2 using System.Collections.Generic;
3 using UnityEngine;
4
5 public class Keyboard : MonoBehaviour {
6     private AudioSource audioSource;
7     public int transpose = 0;
8
9     // Use this for initialization
10    void Start () {
11        audioSource = GetComponent<AudioSource>();
12    }
13
14    // Update is called once per frame
15    void Update () {
16        var note = -1; // invalid value to detect when note is pressed
17        if (Input.GetKeyDown ("a")) note = 0; // C
18        if (Input.GetKeyDown ("s")) note = 2; // D
19        if (Input.GetKeyDown ("d")) note = 4; // E
20        if (Input.GetKeyDown ("f")) note = 5; // F
21        if (Input.GetKeyDown ("g")) note = 7; // G
22        if (Input.GetKeyDown ("h")) note = 9; // A
23        if (Input.GetKeyDown ("j")) note = 11; // B
24        if (Input.GetKeyDown ("k")) note = 12; // C
25        if (Input.GetKeyDown ("l")) note = 14; // D
26
27        if (note >= 0 && audioSource != null)
28        { // if some key pressed...
29            audioSource.pitch = Mathf.Pow(2, (note+transpose) / 12.0f);
30            audioSource.Play();
31        }
32    }
33 }
```

```
Project Console
Clear Collapse Clear on Play Error Pause
! Assets/Keyboard.cs(17,19): error CS1525: Unexpected symbol 'Down'
! Assets/Keyboard.cs(17,29): error CS1525: Unexpected symbol ')', expecting ';' or `)`
```



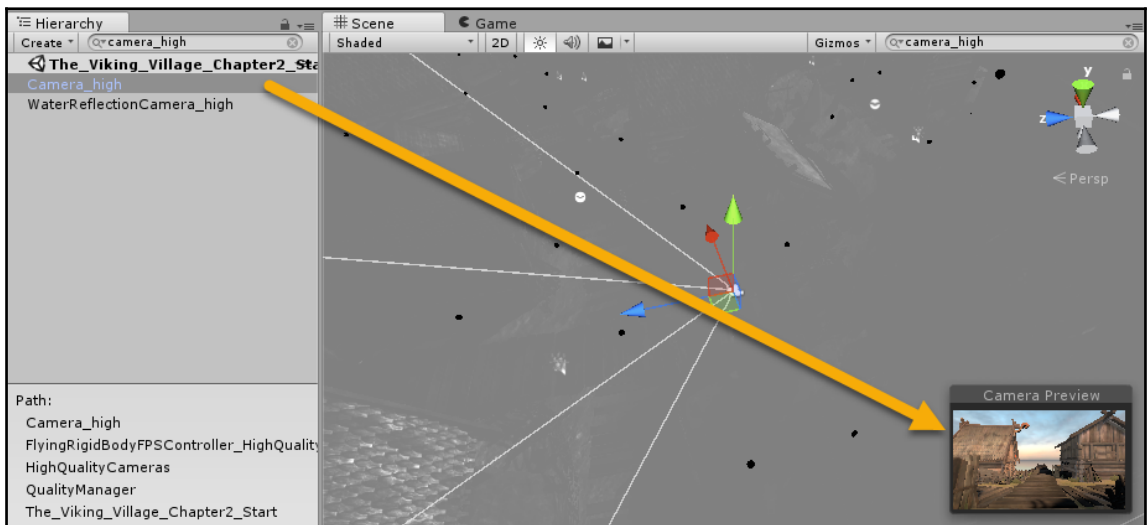
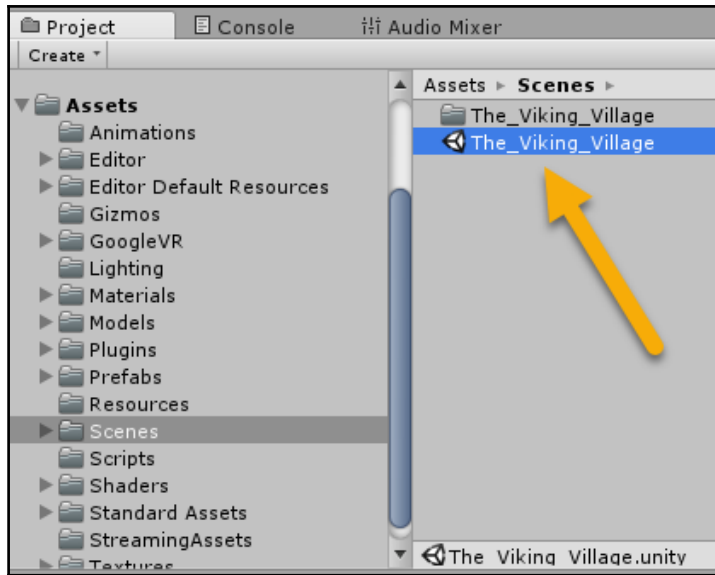


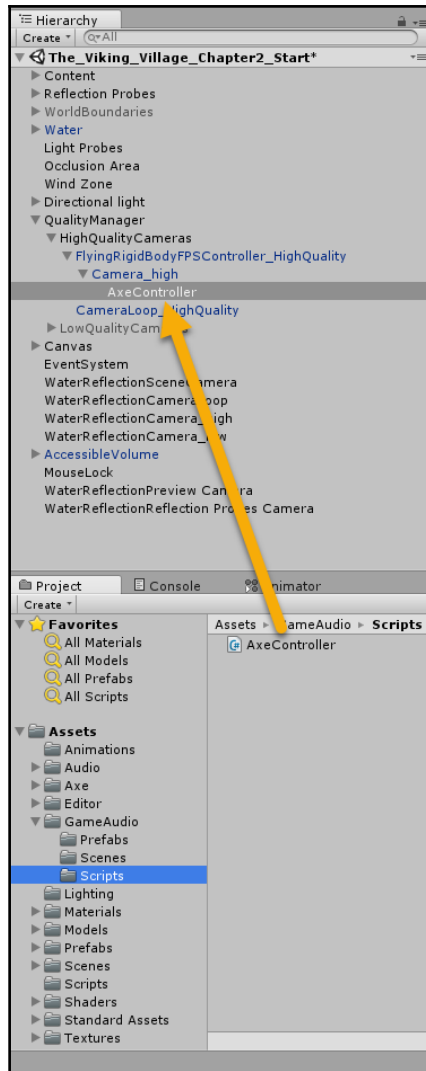
Twinkle, twinkle, little star, how I wonder what you are!

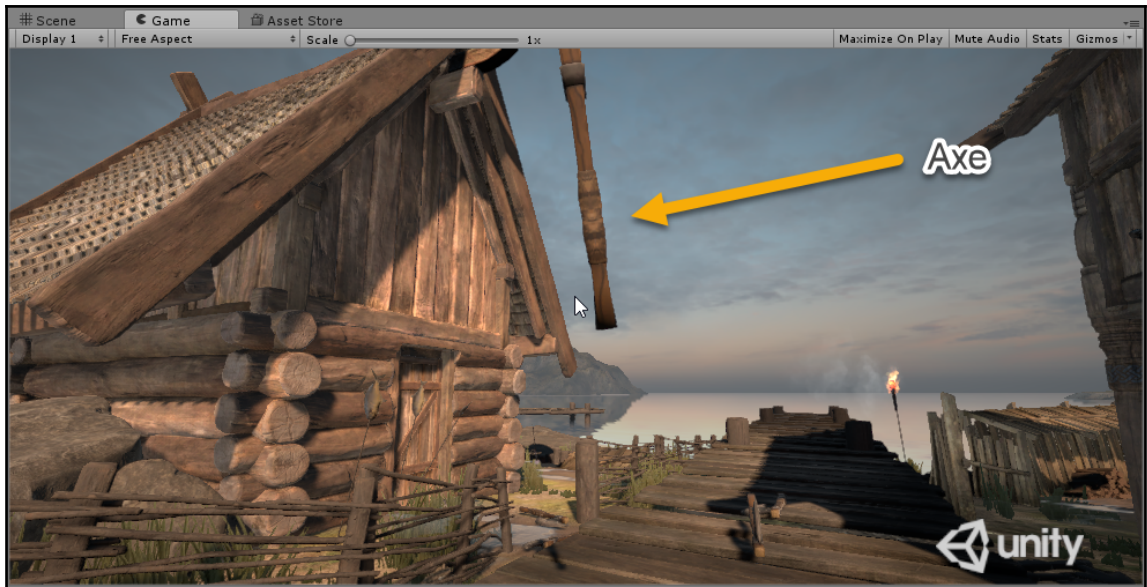
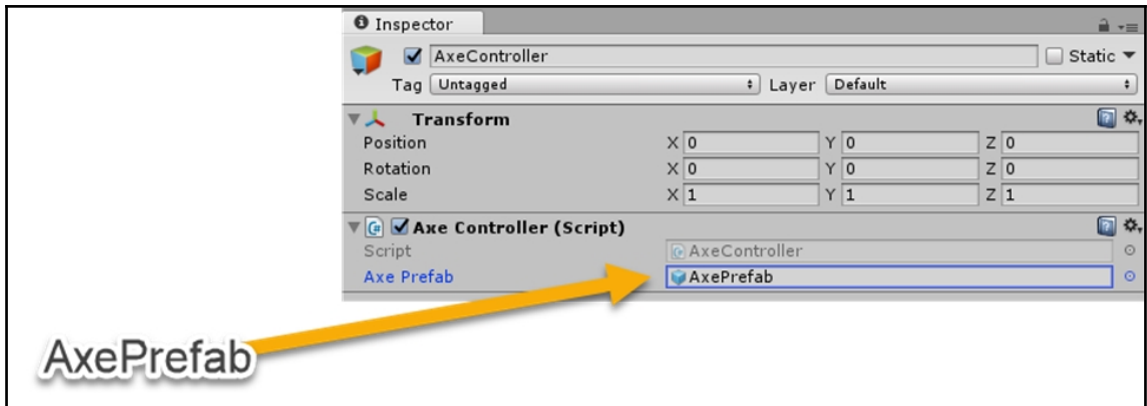
Up above the world so high, like a diamond in the sky.

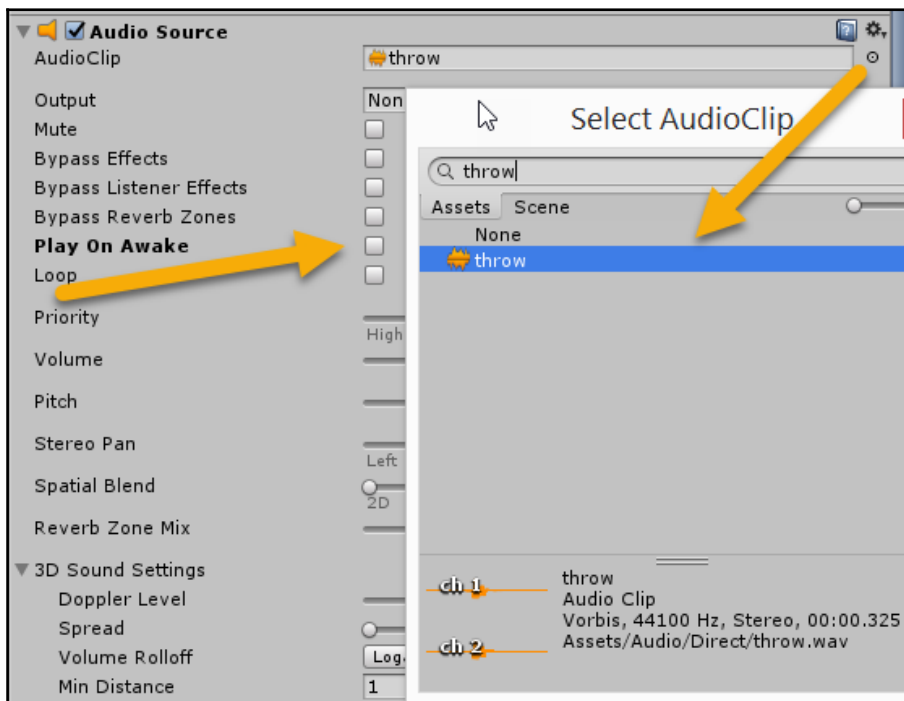
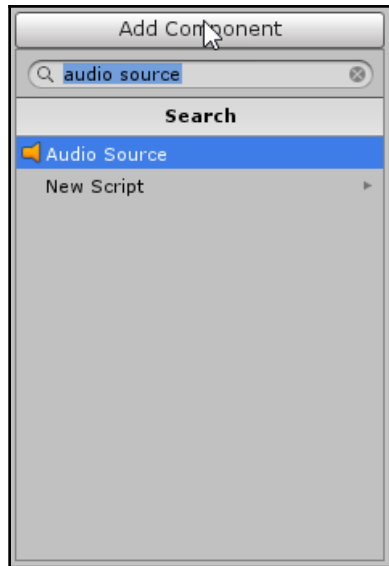
Twinkle, twinkle, little star, how I wonder what you are!

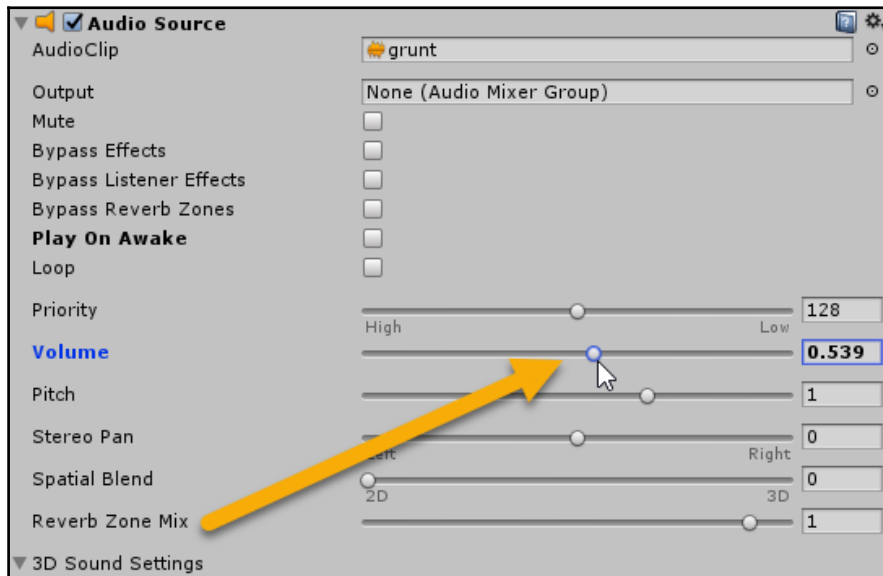
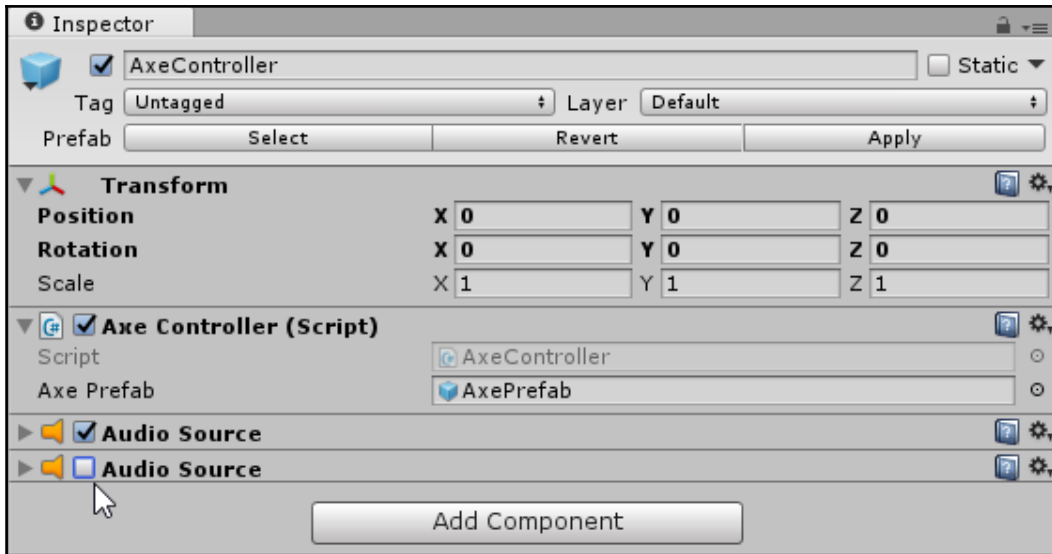


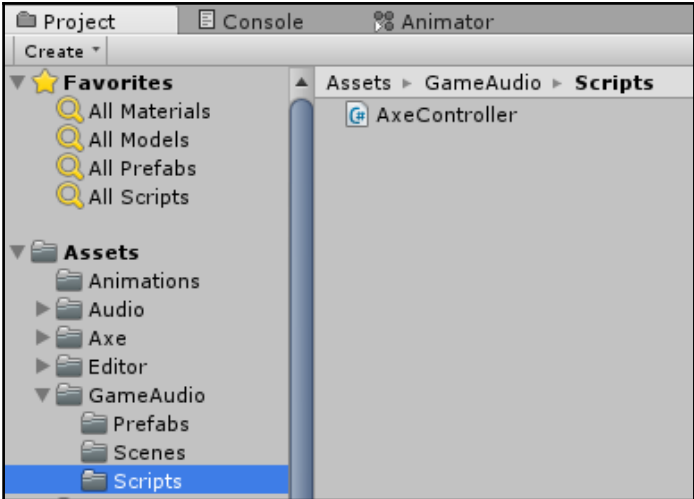


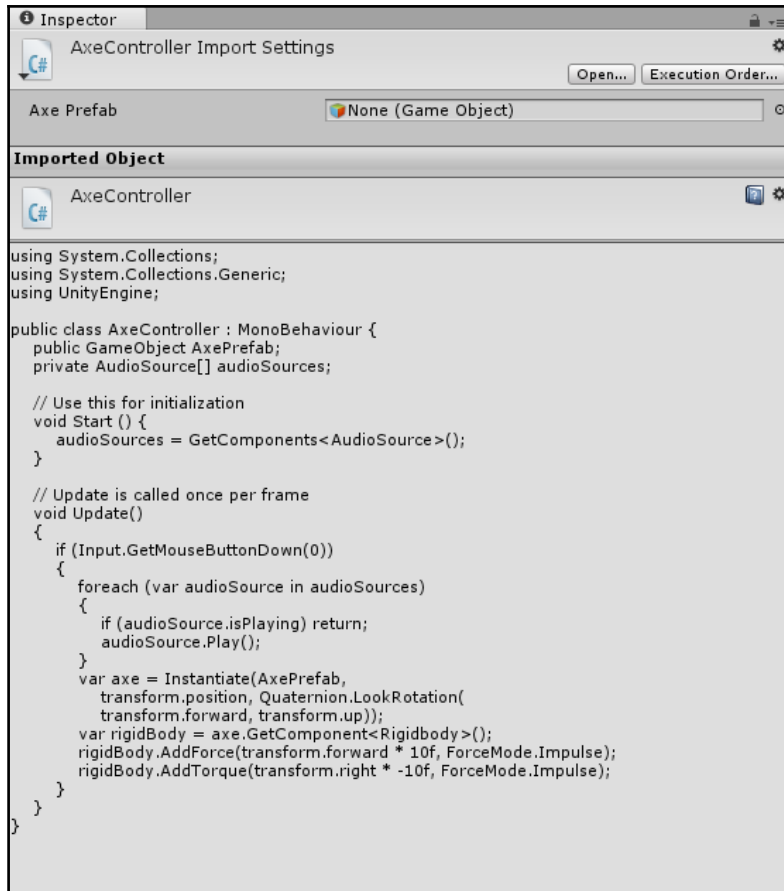












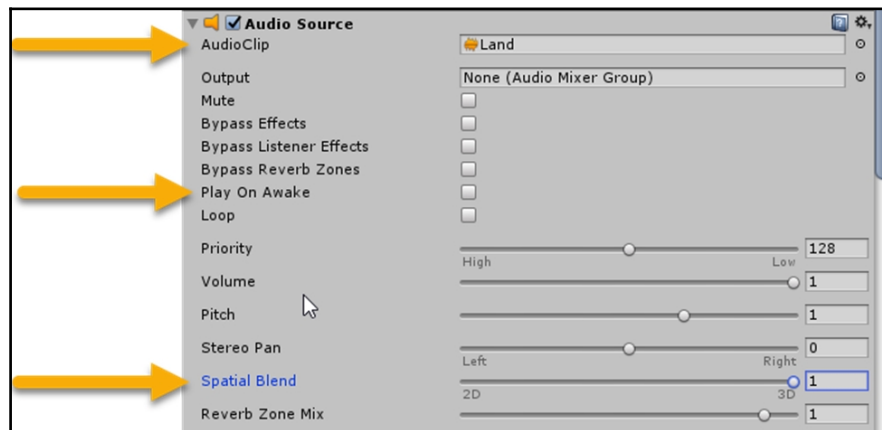
The image shows the Unity Inspector window for an 'Axecontroller' script. The title bar reads 'Inspector' and 'Axecontroller Import Settings'. Below the title bar, there are buttons for 'Open...' and 'Execution Order...'. The 'Axe Prefab' dropdown is set to 'None (Game Object)'. The 'Imported Object' section shows 'Axecontroller'. The main area contains the following C# code:

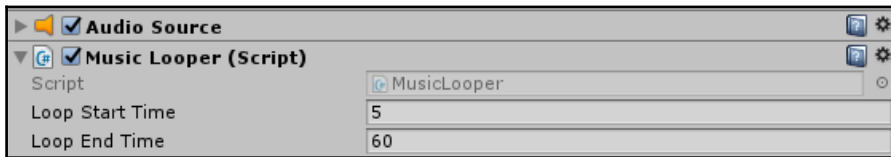
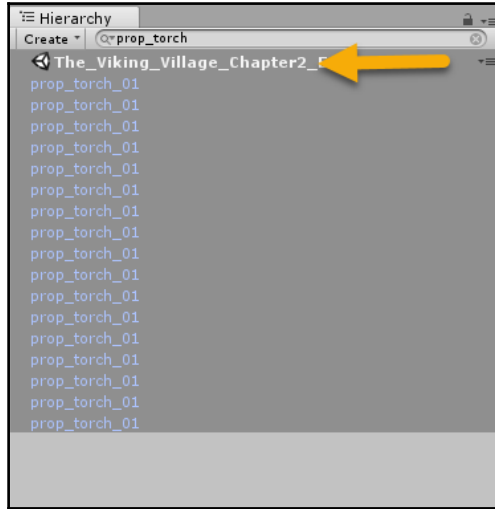
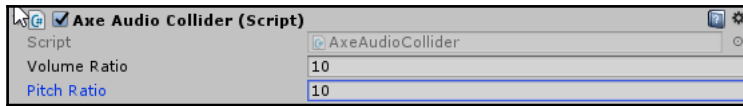
```
using System.Collections;
using System.Collections.Generic;
using UnityEngine;

public class Axecontroller : MonoBehaviour {
    public GameObject AxePrefab;
    private AudioSource[] audioSources;

    // Use this for initialization
    void Start () {
        audioSources = GetComponents<AudioSource>();
    }

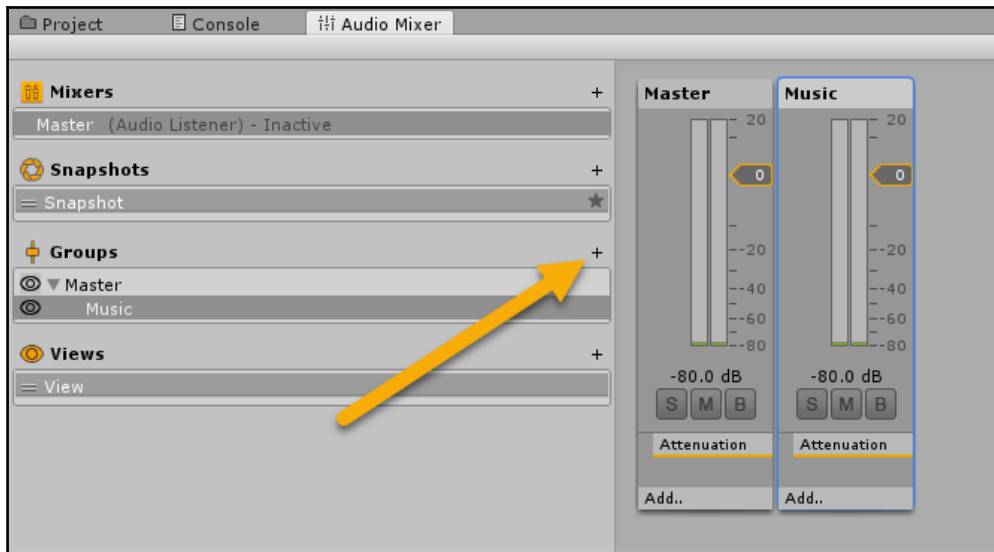
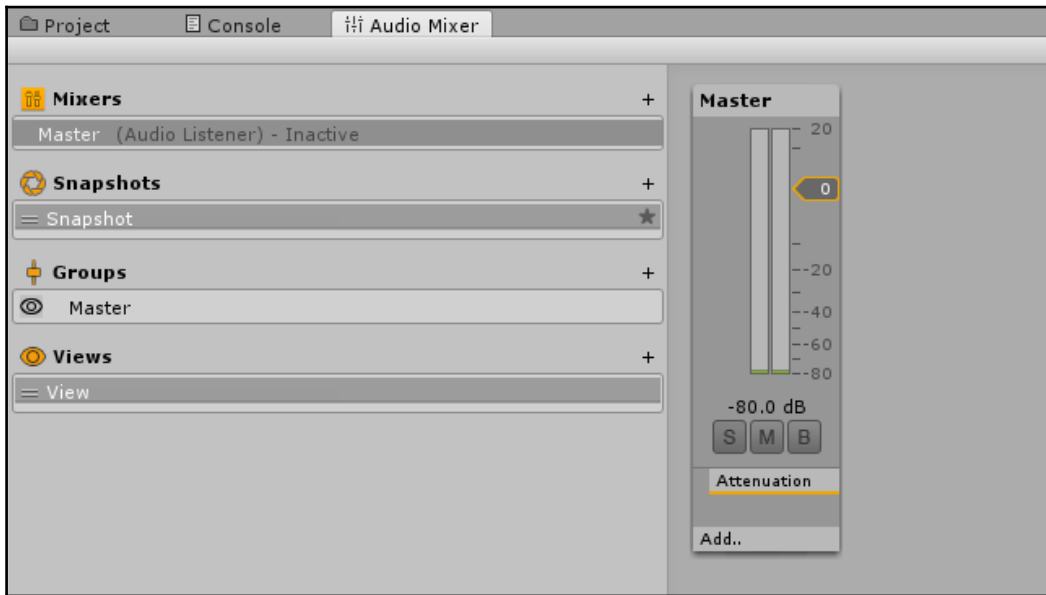
    // Update is called once per frame
    void Update()
    {
        if (Input.GetMouseButtonDown(0))
        {
            foreach (var audioSource in audioSources)
            {
                if (audioSource.isPlaying) return;
                audioSource.Play();
            }
            var axe = Instantiate(AxePrefab,
                transform.position, Quaternion.LookRotation(
                    transform.forward, transform.up));
            var rigidBody = axe.GetComponent<Rigidbody>();
            rigidBody.AddForce(transform.forward * 10f, ForceMode.Impulse);
            rigidBody.AddTorque(transform.right * -10f, ForceMode.Impulse);
        }
    }
}
```

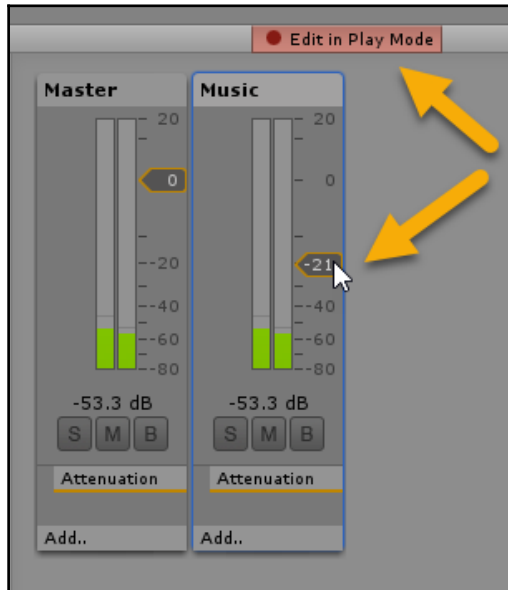
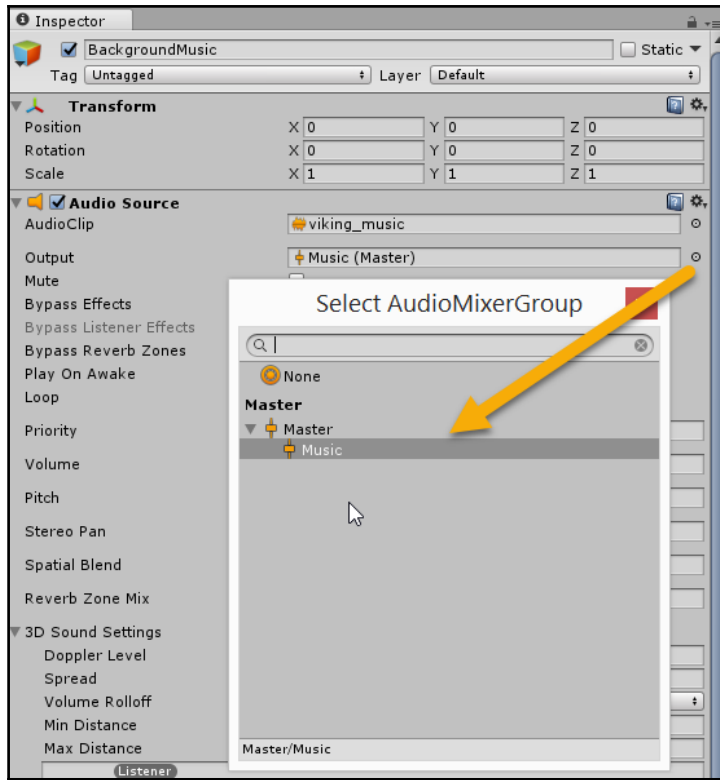


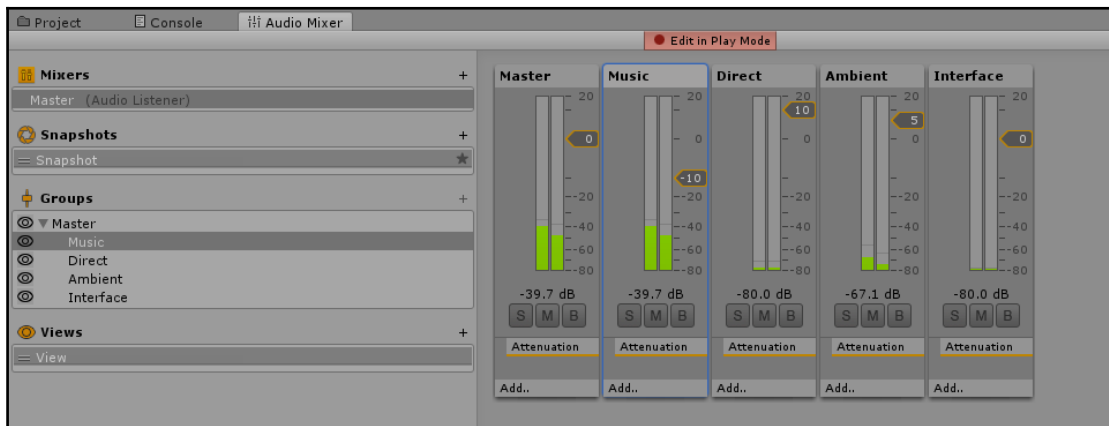
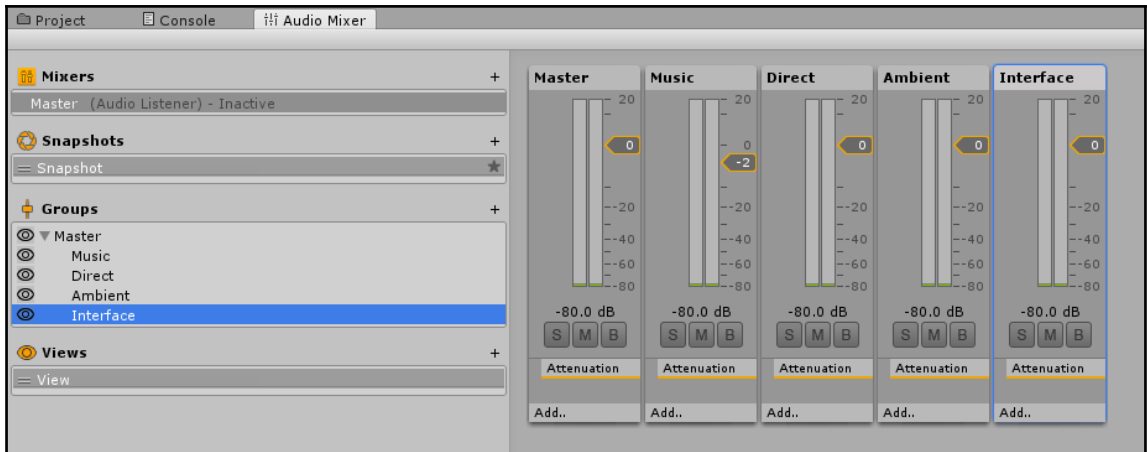


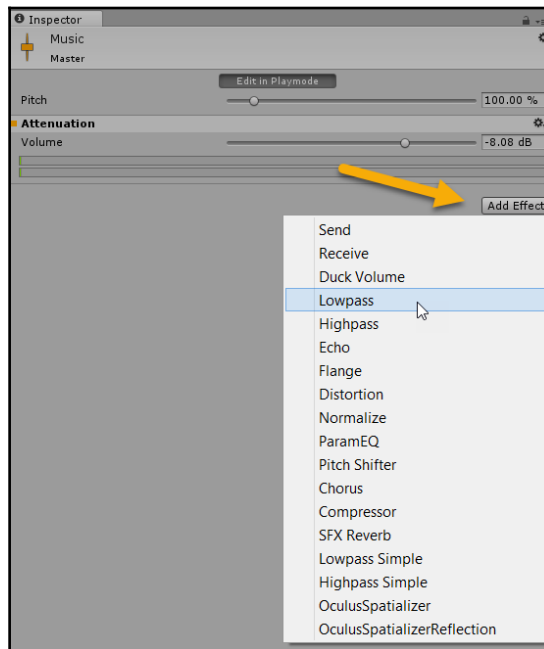
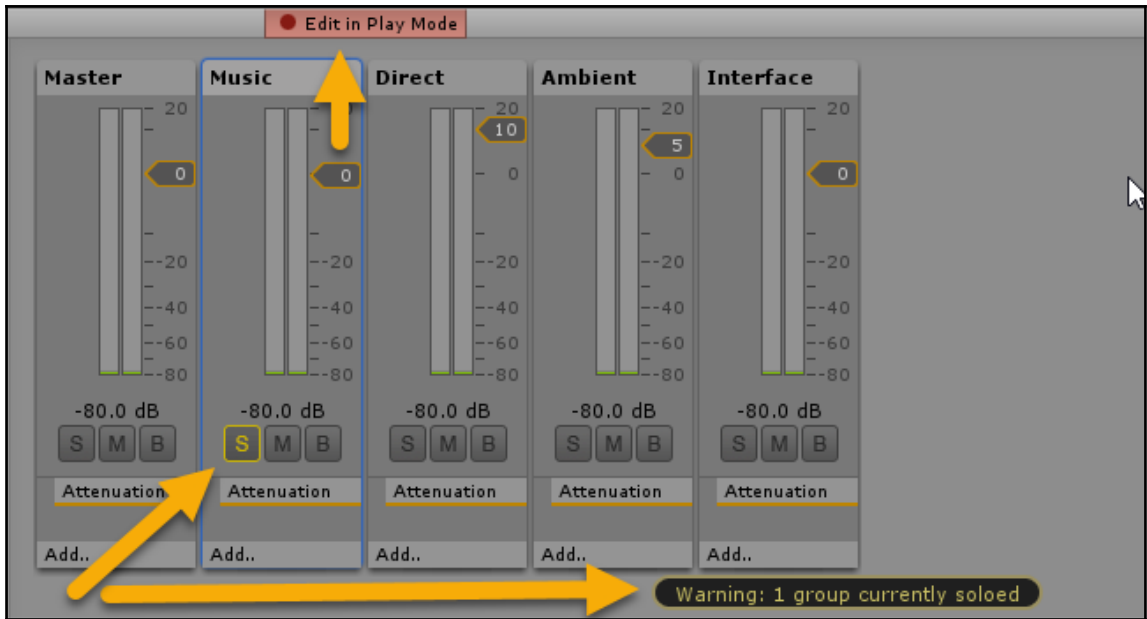


# Chapter 3: Introduction to the Audio Mixer









**Lowpass** [Settings]

Cutoff freq

Resonance

**Attenuation** [Settings]

Volume

**Lowpass** [Settings]


Cutoff freq

Resonance

**Highpass** [Settings]

Cutoff freq

Resonance



**Highpass** [Settings]

Cutoff freq

Resonance

**Lowpass** [Settings]

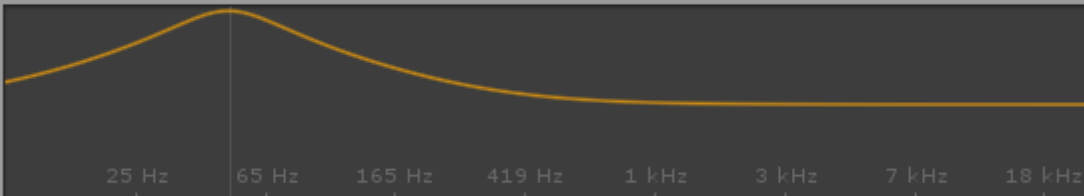
Cutoff freq

Resonance

**Attenuation** [Settings]

Volume

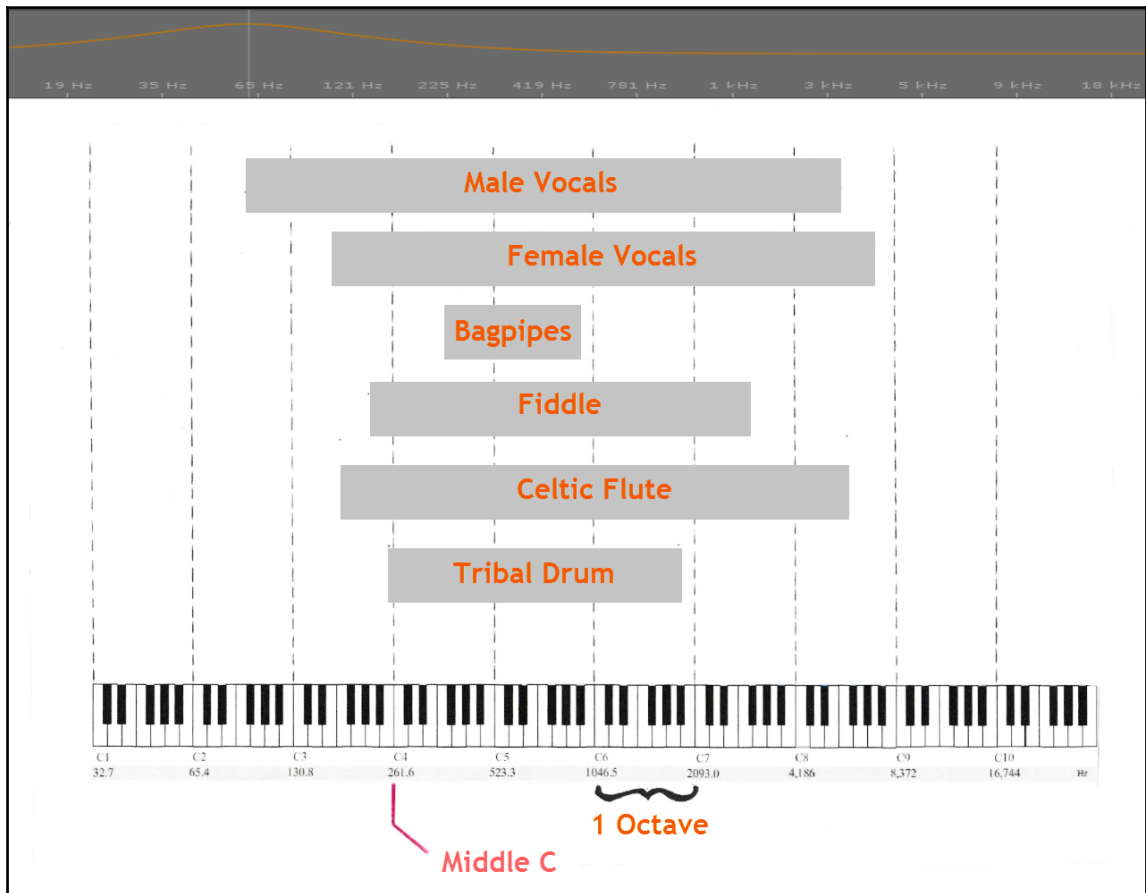
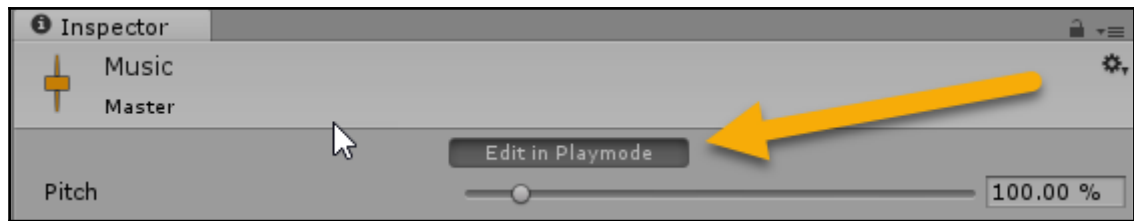
**ParamEQ** [Settings]

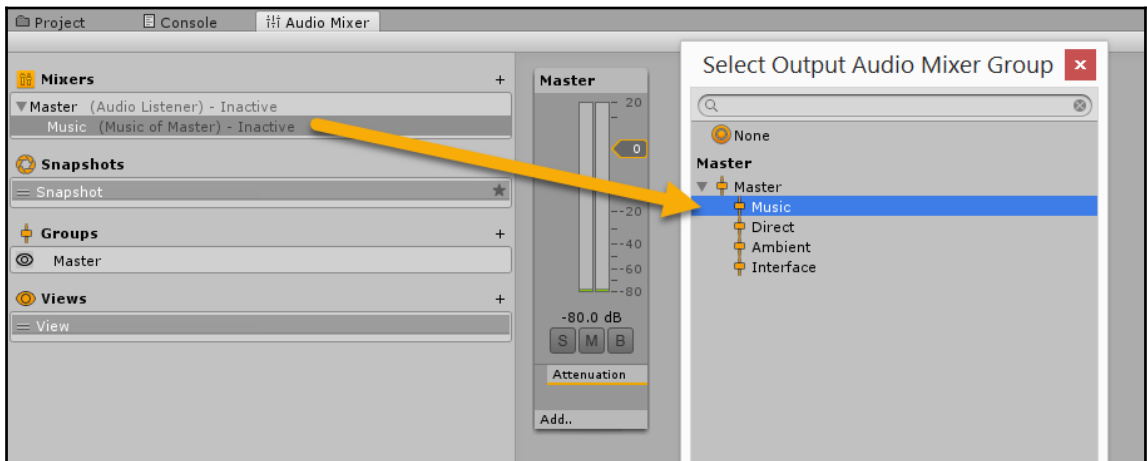
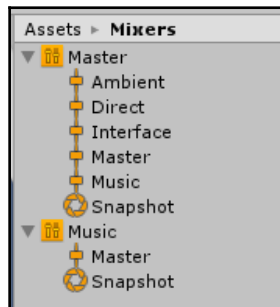
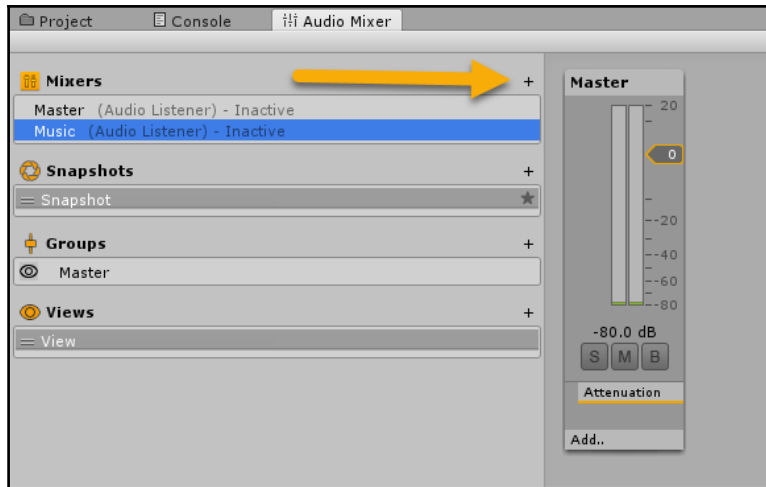


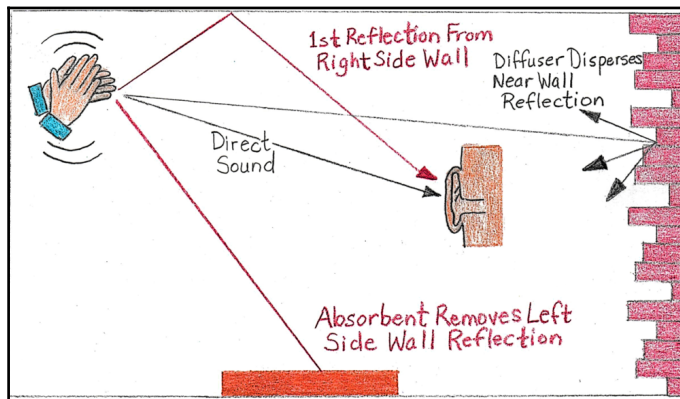
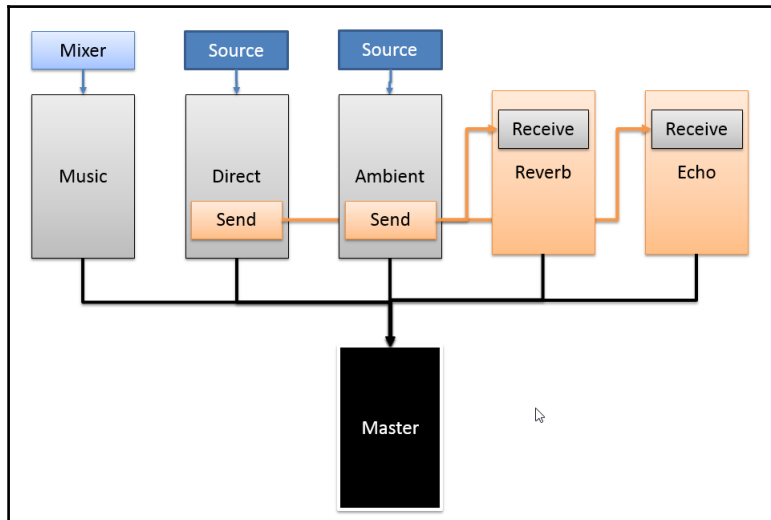
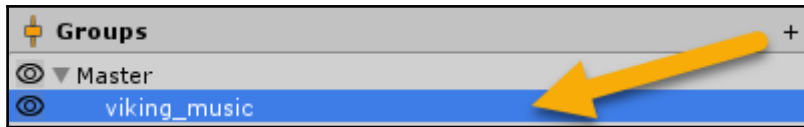
Center freq

Octave range

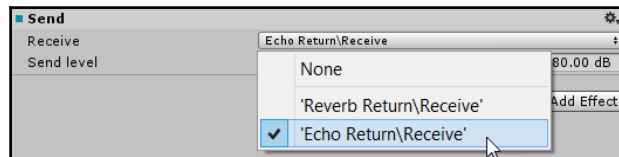
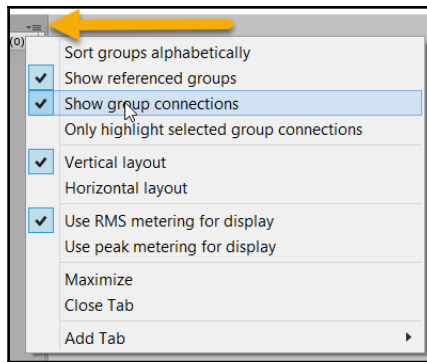
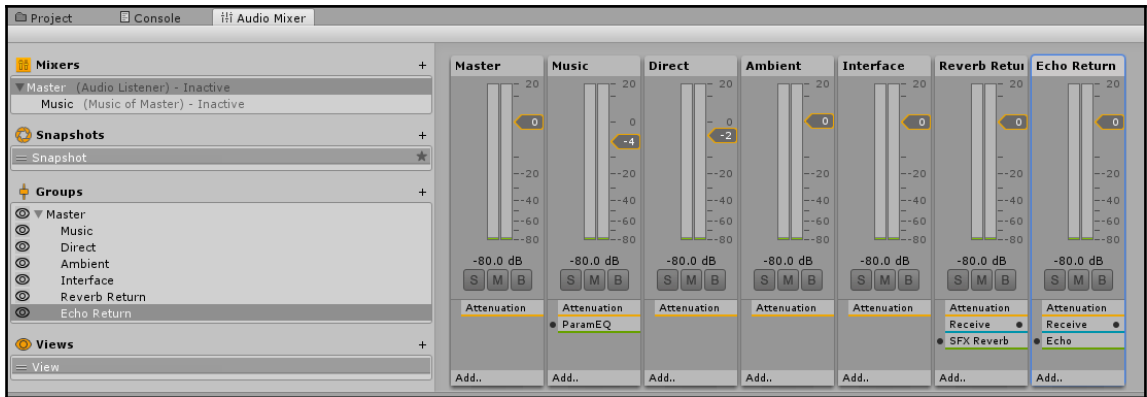
Frequency gain











The screenshot shows a mixer console with seven channels. Each channel has a fader and a gain knob set to 0. The channels are: Master, Music, Direct, Ambient, Interface, Reverb Return, and Echo Return. Below the faders are buttons for 'S', 'M', and 'B'. Underneath each channel is an 'Attenuation' section with a 'Receive' input. A yellow arrow points from the 'Reverb Return' channel's 'Receive' input to the 'SFX Reverb' module. Another yellow arrow points from the 'Echo Return' channel's 'Receive' input to the 'Echo' module.

**SFX Reverb**

Dry Level	<input type="text" value="0.00"/>	-10000.00	←
Room	<input type="text" value="0.00"/>	0.00 mB	←
Room HF	<input type="text" value="0.00"/>	0.00 mB	
Decay Time	<input type="text" value="1.00"/>	1.00 s	
Decay HF Ratio	<input type="text" value="0.50"/>	0.50	
Reflections	<input type="text" value="1000.00"/>	1000.00 mB	←
Reflect Delay	<input type="text" value="0.02"/>	0.02	
Reverb	<input type="text" value="0.00"/>	0.00 mB	
Reverb Delay	<input type="text" value="0.04"/>	0.04 s	
Diffusion	<input type="text" value="100.00"/>	100.00 %	
Density	<input type="text" value="100.00"/>	100.00 %	
HF Reference	<input type="text" value="5000.00"/>	5000.00 Hz	
Room LF	<input type="text" value="0.00"/>	0.00 mB	
LF Reference	<input type="text" value="250.00"/>	250.00 Hz	

**Echo**

Delay	<input type="text" value="500.00"/>	500.00 ms
Decay	<input type="text" value="0.00"/>	0.00 %
Max channels	<input type="text" value="0.00"/>	0.00 chann
Drymix	<input type="text" value="100.00"/>	100.00 %
Wetmix	<input type="text" value="100.00"/>	100.00 %

**SFX Reverb**

Dry Level	0.00 mB
Room	-10000.00
Room HF	0.00 mB
Decay Time	1.00 s
Decay HF Ratio	0.50
Reflections	-10000.00
Reflect Delay	0.02
Reverb	0.00 mB
Reverb Delay	0.04 s
Diffusion	100.00 %
Density	100.00 %
HF Reference	5000.00 Hz
Room LF	0.00 mB
LF Reference	250.00 Hz

**Inspector**

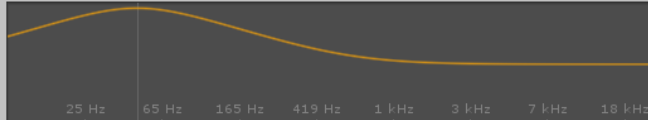
Music  
Master

Pitch: 100.00 %

**Attenuation**

Volume: -3.93 dB

**ParamEQ**

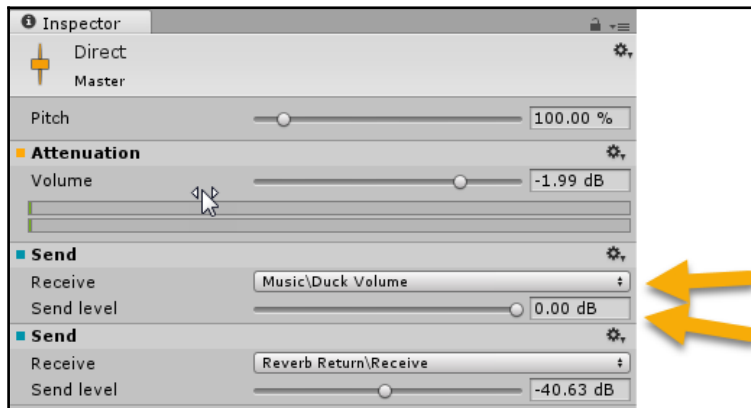


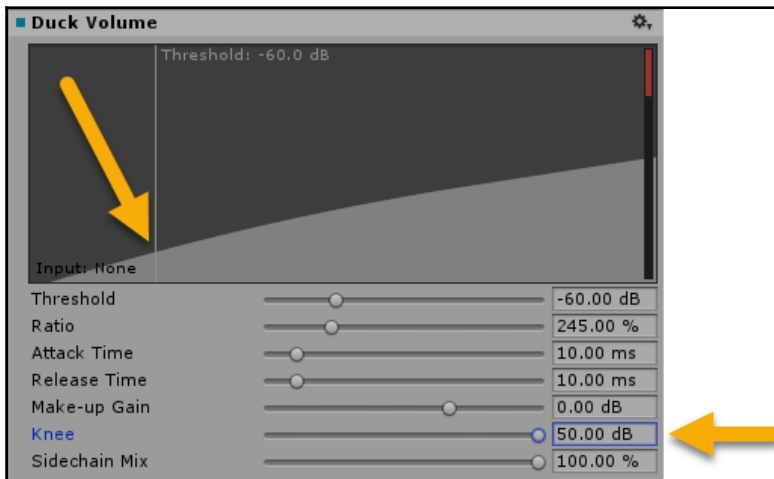
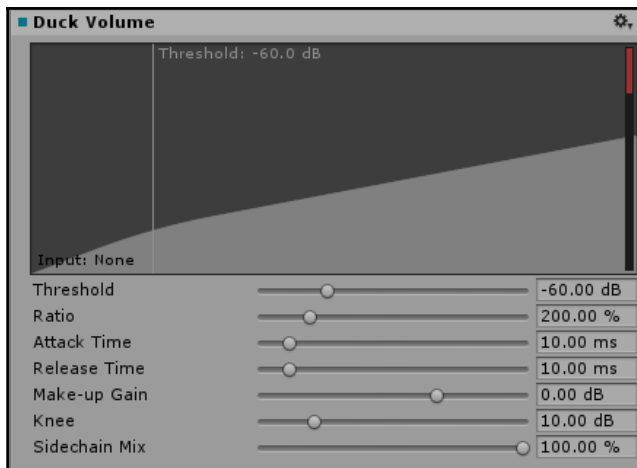
Center freq: 48.10 Hz  
Octave range: 4.55 octave  
Frequency gain: 2.86

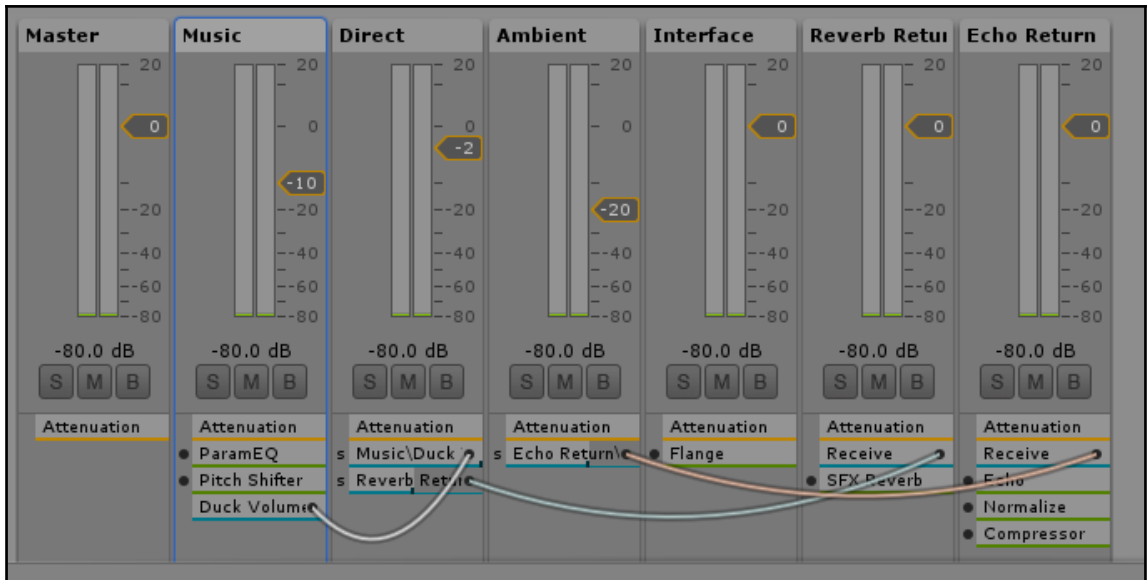
**Pitch Shifter**

Pitch: 1.25 x  
FFT size: 1024.00  
Overlap: 4.00  
Max channels: 0.00 chann

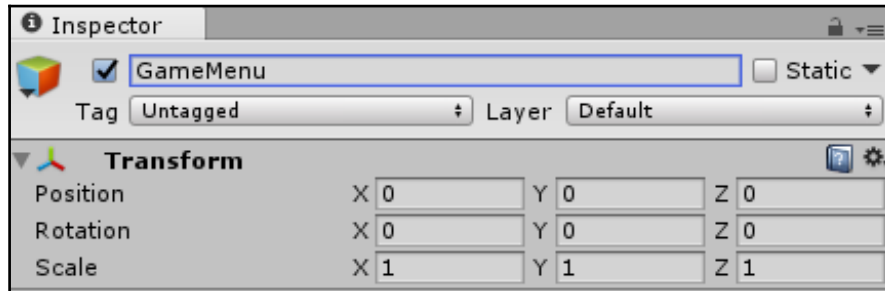
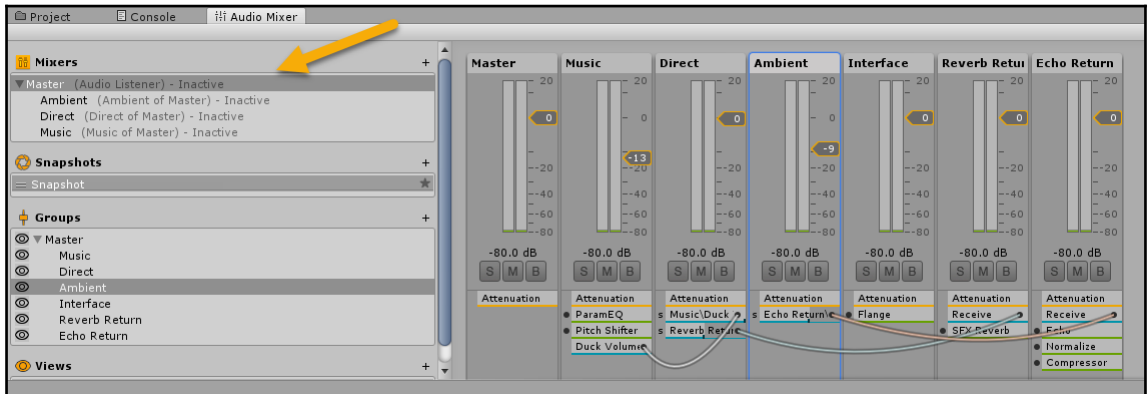
*(A yellow arrow points to the Pitch slider in the Pitch Shifter section.)*

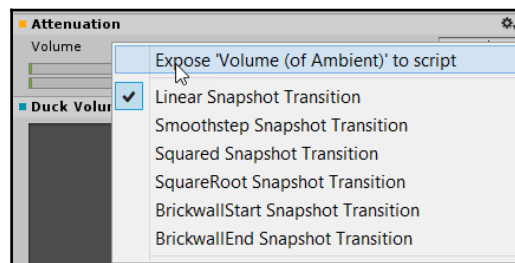
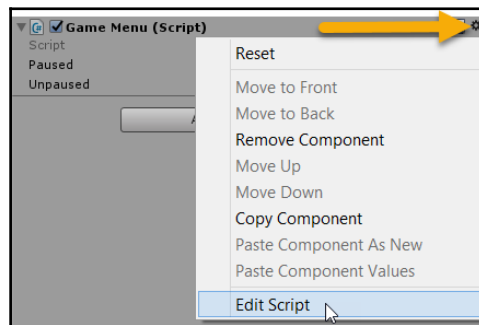
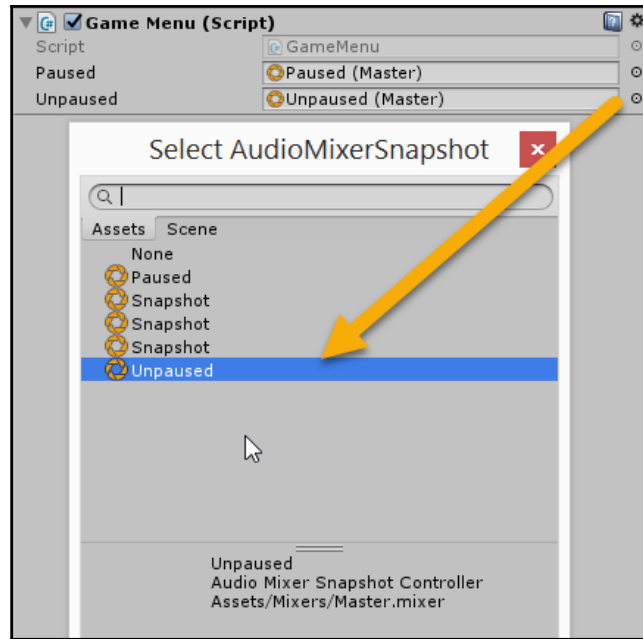




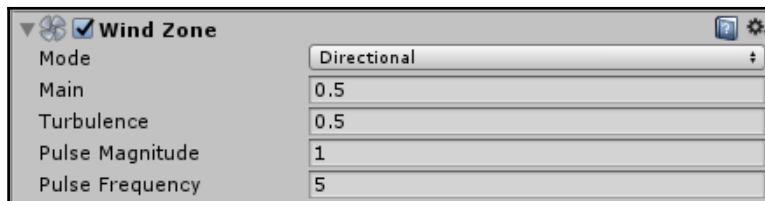
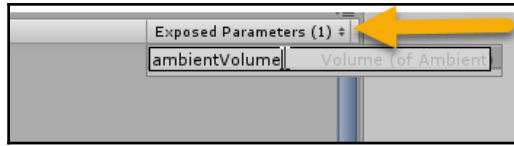


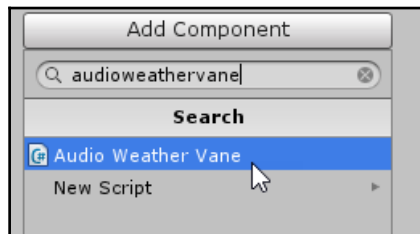
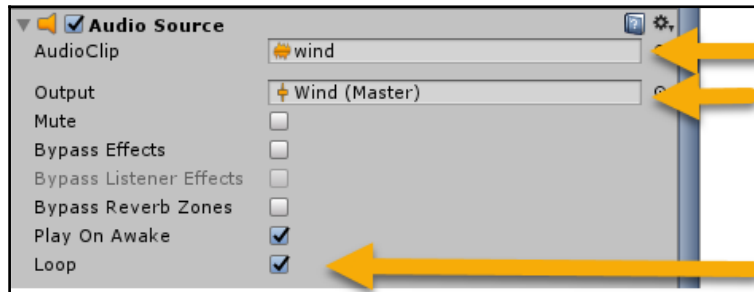
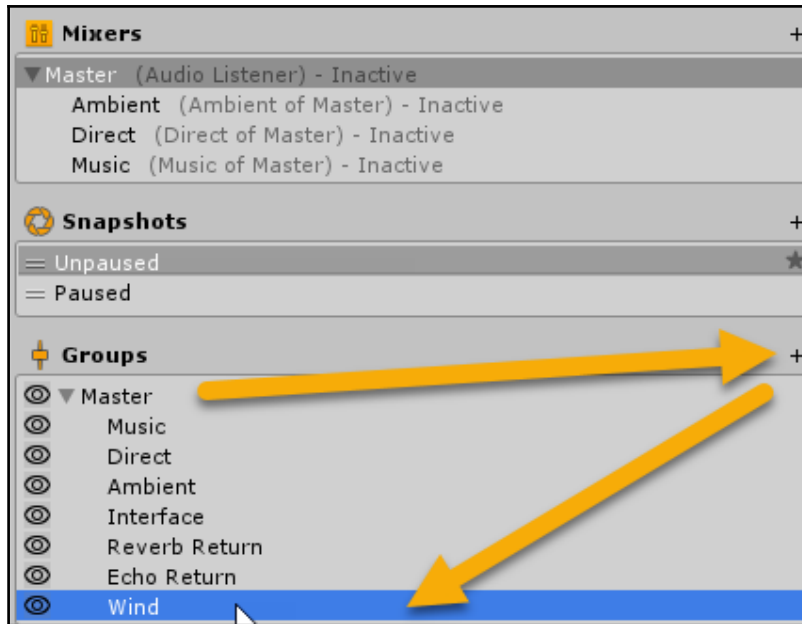
# Chapter 4: Advanced Audio Mixing

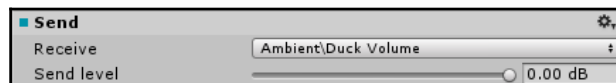
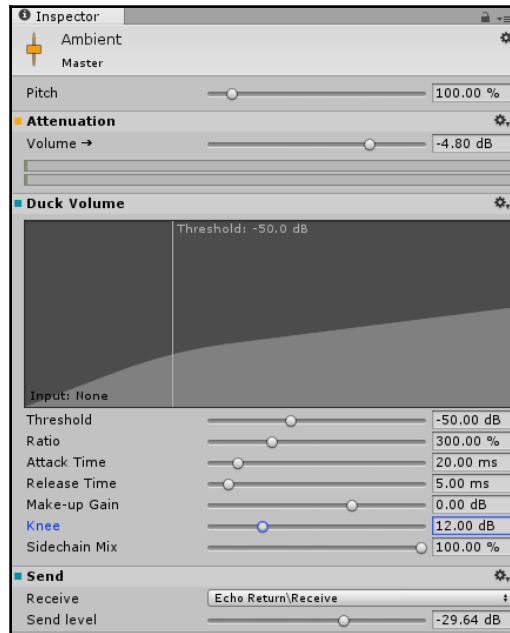
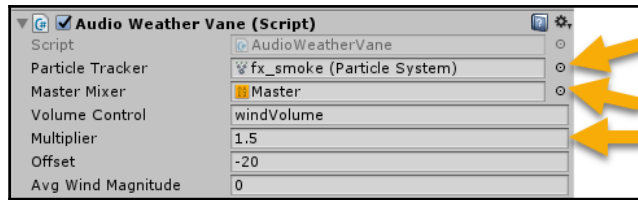


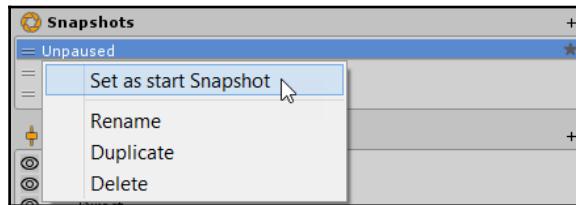
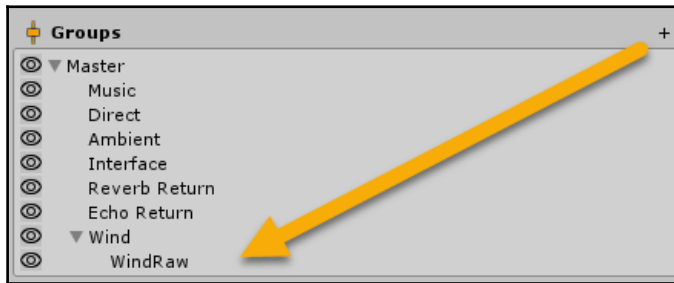


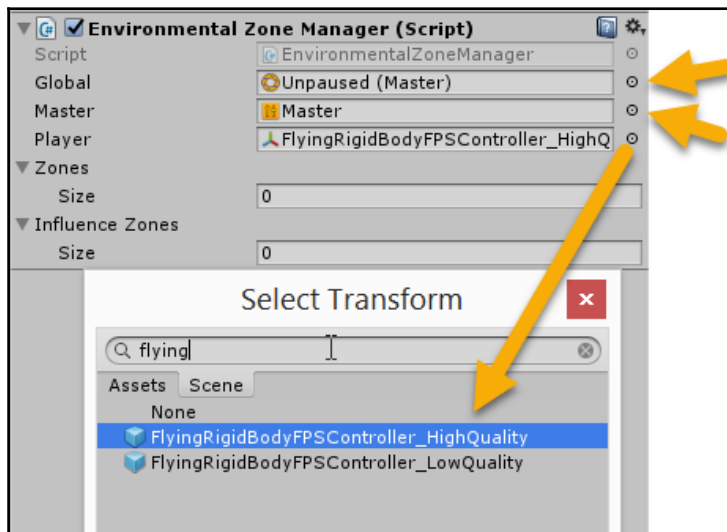
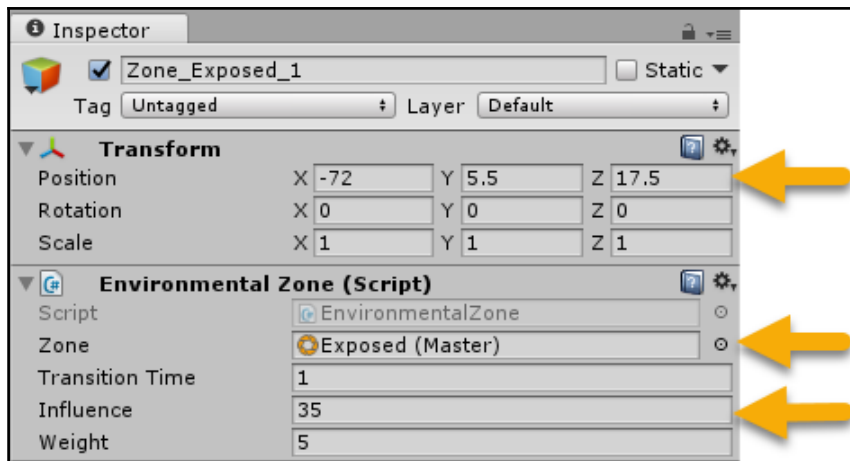


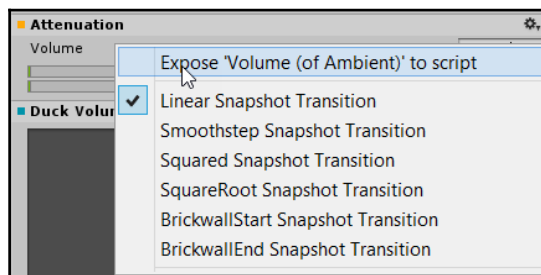
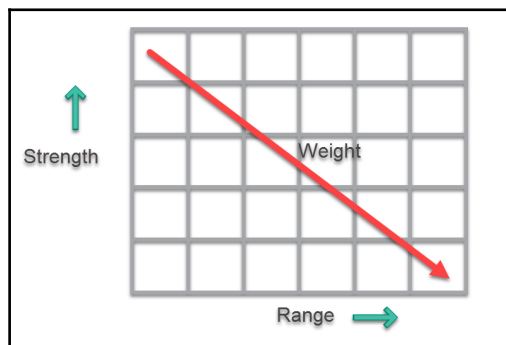
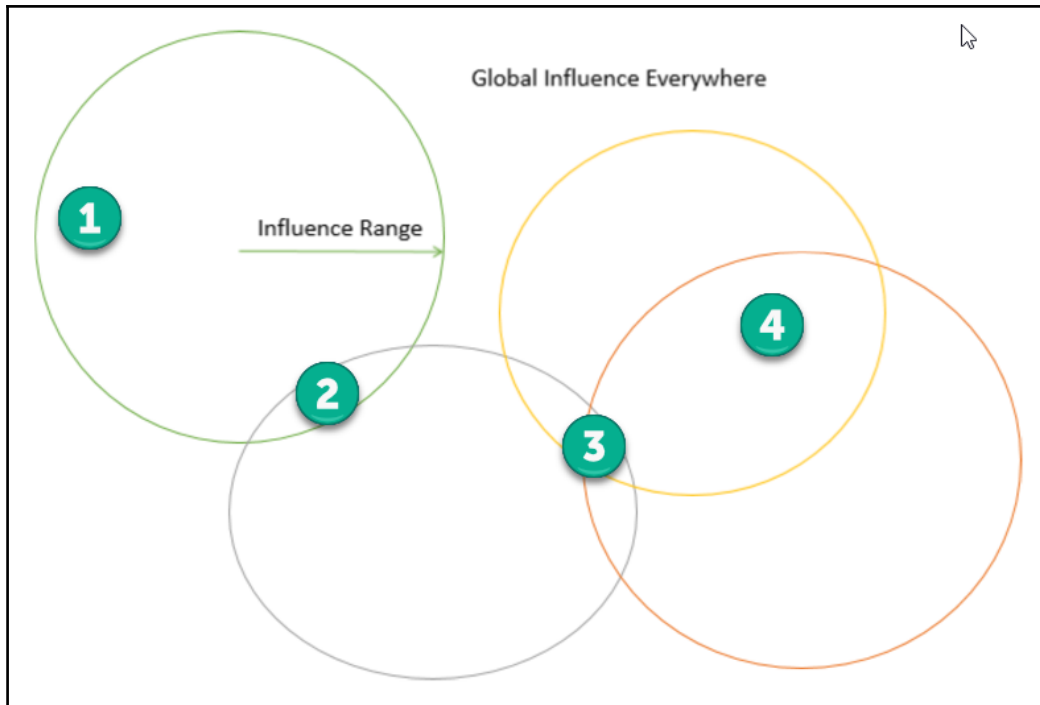


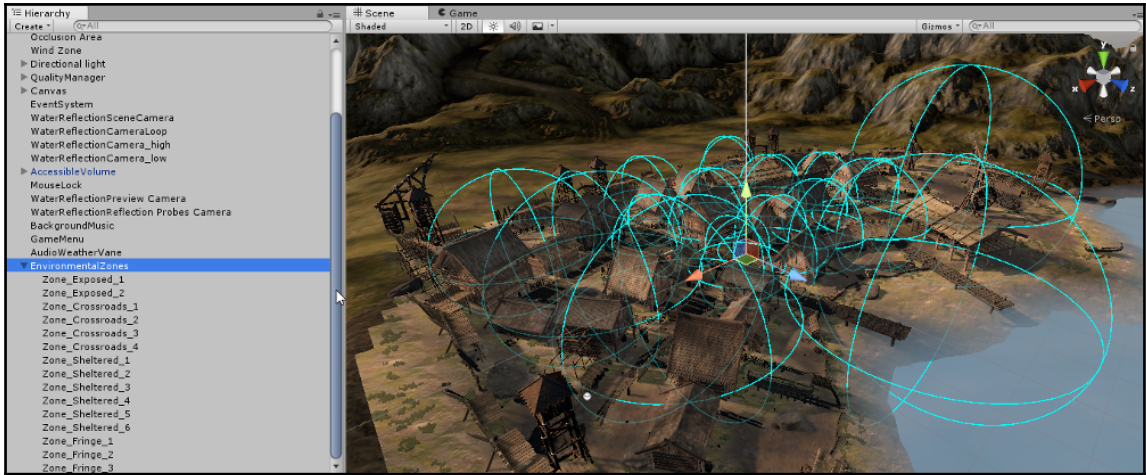


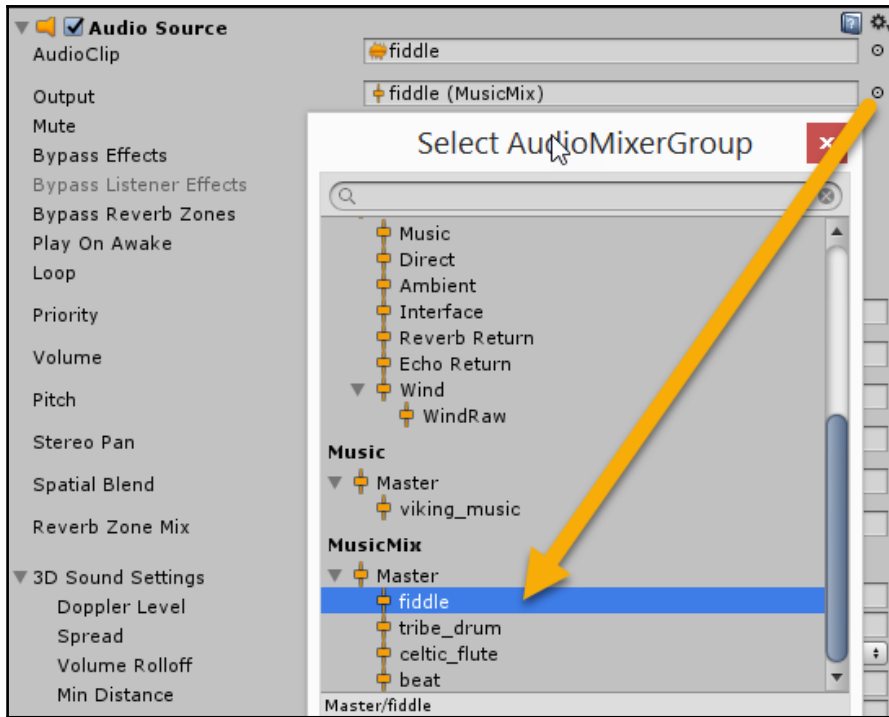












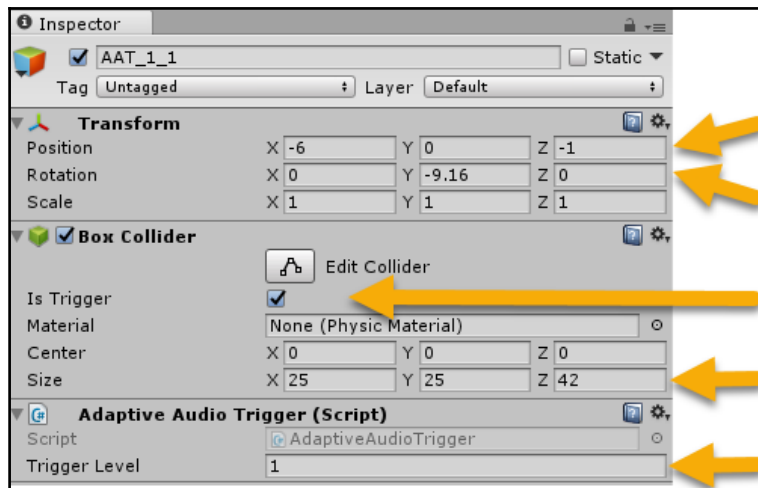
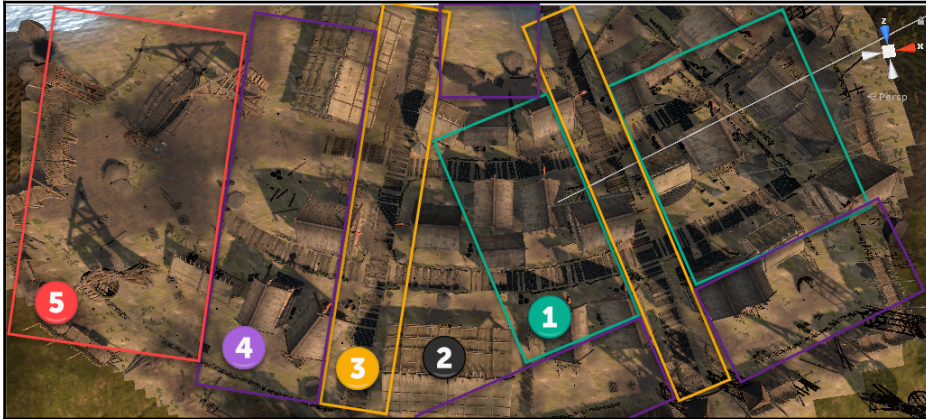


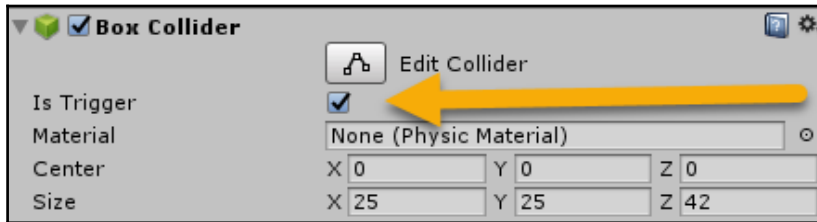
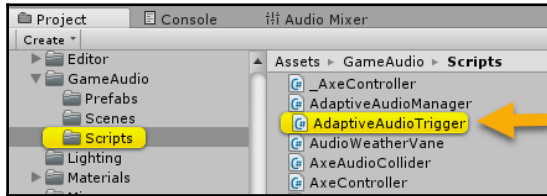
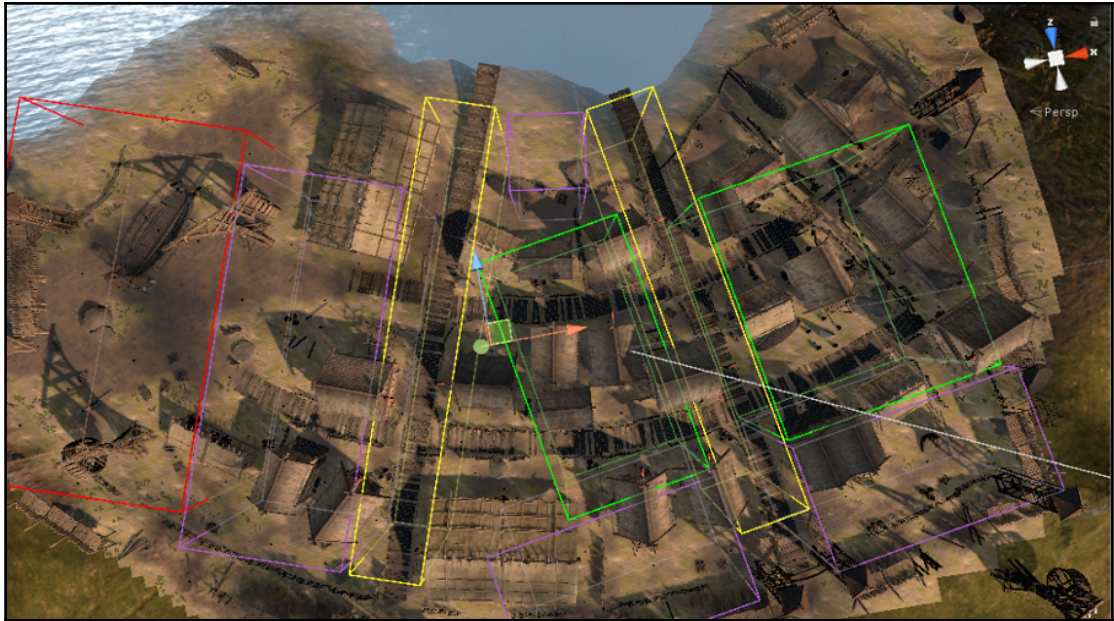
The image displays four screenshots of a digital audio workstation's Inspector panel, arranged in a 2x2 grid. Each screenshot shows the settings for a different track:

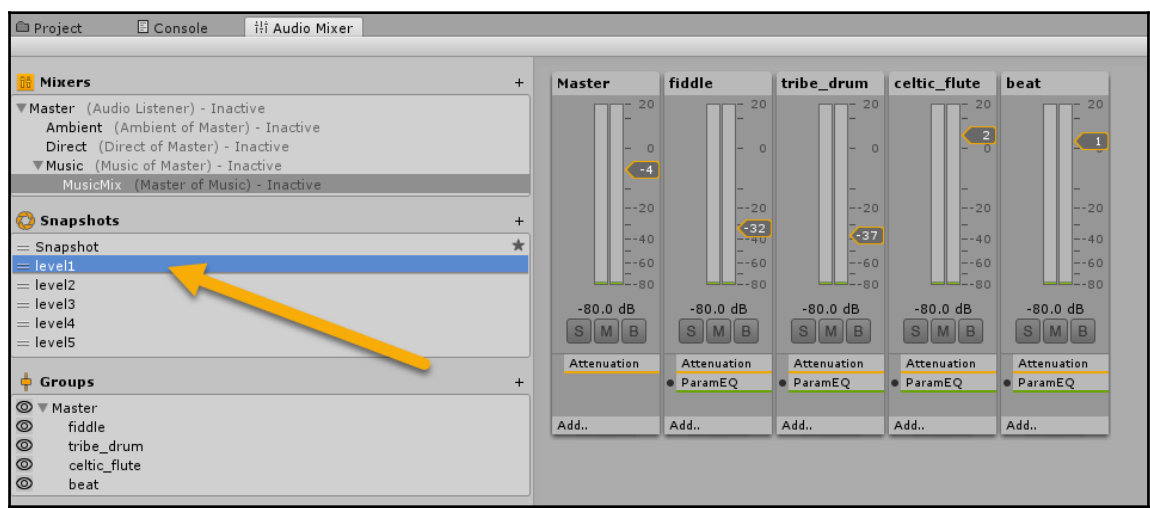
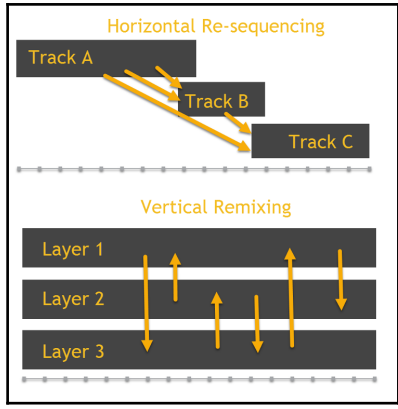
- Top Left: fiddle**
  - Pitch: 71.00 %
  - Attenuation: Volume 0.03 dB
  - ParamEQ: Center freq 1644.00 Hz, Octave range 2.26 octave, Frequency gain 1.51
- Top Right: tribe\_drum**
  - Pitch: 83.00 %
  - Attenuation: Volume -10.47 dB
  - ParamEQ: Center freq 341.00 Hz, Octave range 3.51 octave, Frequency gain 1.70
- Bottom Left: celtic\_flute**
  - Pitch: 73.00 %
  - Attenuation: Volume 13.34 dB
  - ParamEQ: Center freq 9848.00 Hz, Octave range 2.50 octave, Frequency gain 0.56
- Bottom Right: beat**
  - Pitch: 83.00 %
  - Attenuation: Volume -2.57 dB
  - ParamEQ: Center freq 4342.00 Hz, Octave range 3.23 octave, Frequency gain 0.75

Each panel includes an "Edit in Playmode" button, a volume meter, and a ParamEQ frequency response graph with markers at 32 Hz, 103 Hz, 332 Hz, 1 kHz, 3 kHz, and 11 kHz.

# Chapter 5: Using the Audio Mixer for Adaptive Audio



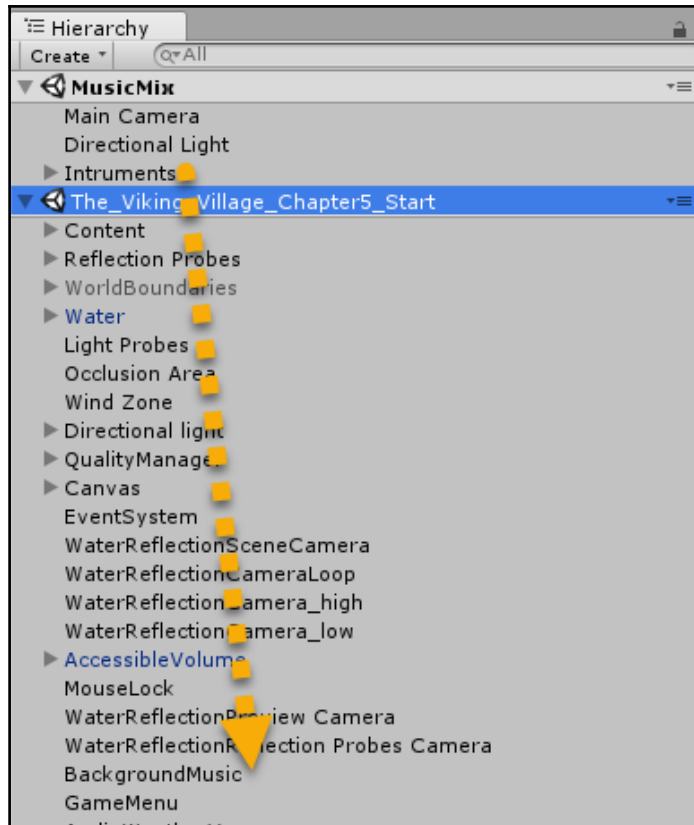


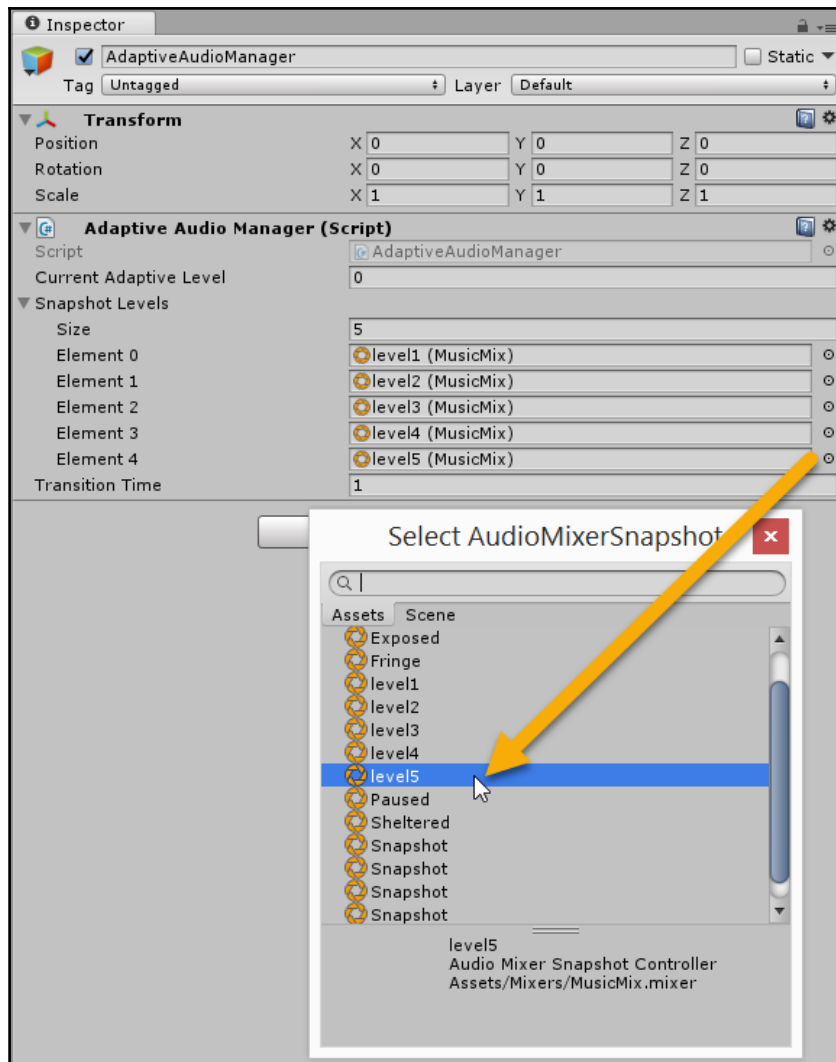


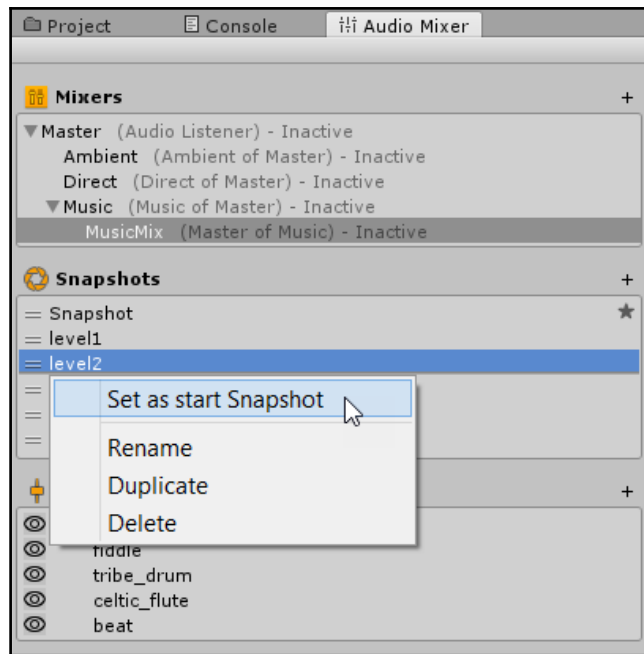
The image displays five vertically stacked audio inspector panels, labeled Level 1 through Level 5. Each panel contains the following information:

- Inspector:** beat MusicMix
- Level:** Level 1, Level 2, Level 3, Level 4, Level 5
- Pitch:** 83.00 %
- Attenuation:** Volume -28.73 dB (Level 1), -35.31 dB (Level 2), -13.64 dB (Level 3), -14.22 dB (Level 4), -10.35 dB (Level 5)
- ParamEQ:** Center freq, Octave range, Frequency gain

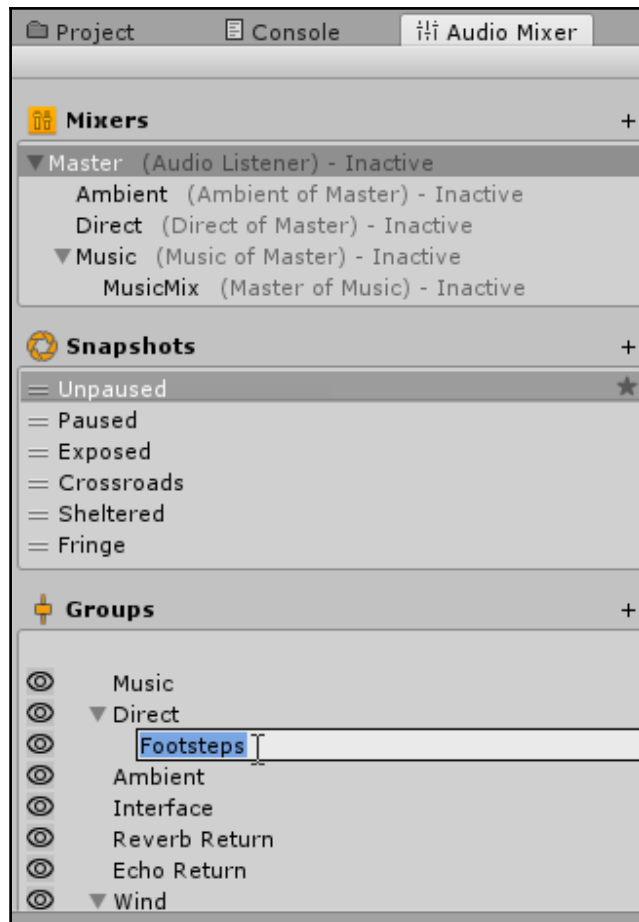
Level	Pitch	Volume (dB)	Center freq (Hz)	Octave range	Frequency gain
Level 1	83.00 %	-28.73 dB	9491.00 Hz	2.40 octave	1.68
Level 2	83.00 %	-35.31 dB	4342.00 Hz	3.23 octave	0.75
Level 3	100.00 %	-13.64 dB	4342.00 Hz	3.23 octave	0.83
Level 4	116.67 %	-14.22 dB	4342.00 Hz	3.23 octave	1.22
Level 5	133.33 %	-10.35 dB	1451.00 Hz	5.00 octave	1.92

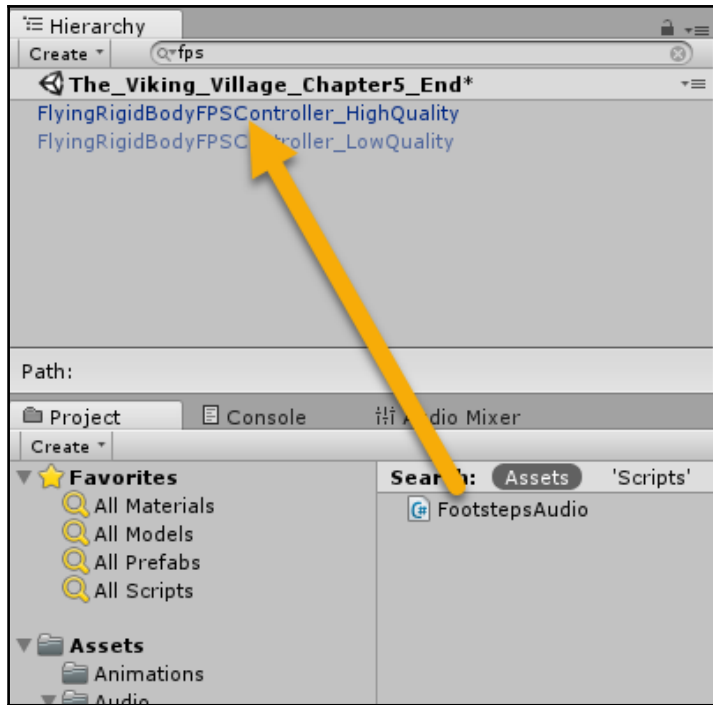








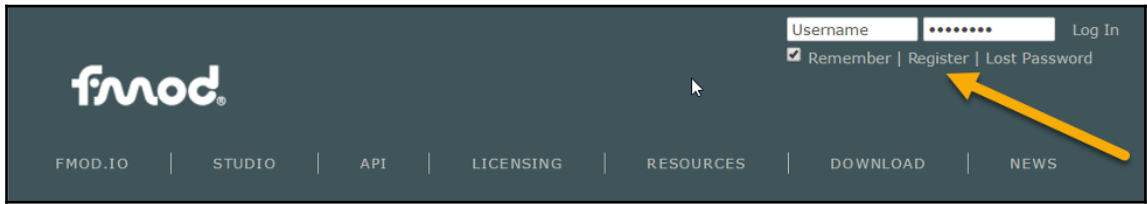





The screenshot displays two audio console panels. The top panel, titled 'Audio Source', has a dropdown menu set to 'None (Audio Clip)'. Below this, the 'Output' dropdown is set to 'Footsteps (Master)'. The 'Priority' slider is at 128, 'Volume' is at 1, and 'Pitch' is at 1. The 'Stereo Pan' is centered at 0. The bottom panel, titled 'Footsteps Audio (Script)', has a 'Script' dropdown set to 'FootstepsAudio'. Under 'Footstep Sounds', the 'Size' is set to 4, and the list contains four elements: 'Footstep01', 'Footstep02', 'Footstep03', and 'Footstep04'. The 'Runstep Lengthen' is at 0, 'Speed' is at 0.34, and 'Step Interval' is at 0. Three yellow arrows point to the 'Footsteps (Master)' output, the 'Footstep Sounds' list, and the 'Speed' parameter.

The 'Send' console panel shows the 'Receive' dropdown set to 'Music\Duck Volume'. The 'Send level' slider is positioned at -80.00 dB.







# Chapter 6: Introduction to FMOD



### FMOD Studio Authoring Tool

FMOD Studio is the professional audio content creation tool, for creating interactive sound and music for games and other types of applications. Changelogs – Click [here](#) for 1.09 changes.  Learn more about the new features in our [video update series](#).

FMOD Studio for Mac requires OSX 10.7 or above.



Platform	Version 1.09.02
 Windows (64 bit)	<a href="#">Download</a> 
 Windows (32 bit)	<a href="#">Download</a> 
 Macintosh	<a href="#">Download</a> 

To browse previous versions of FMOD Studio [click here](#)

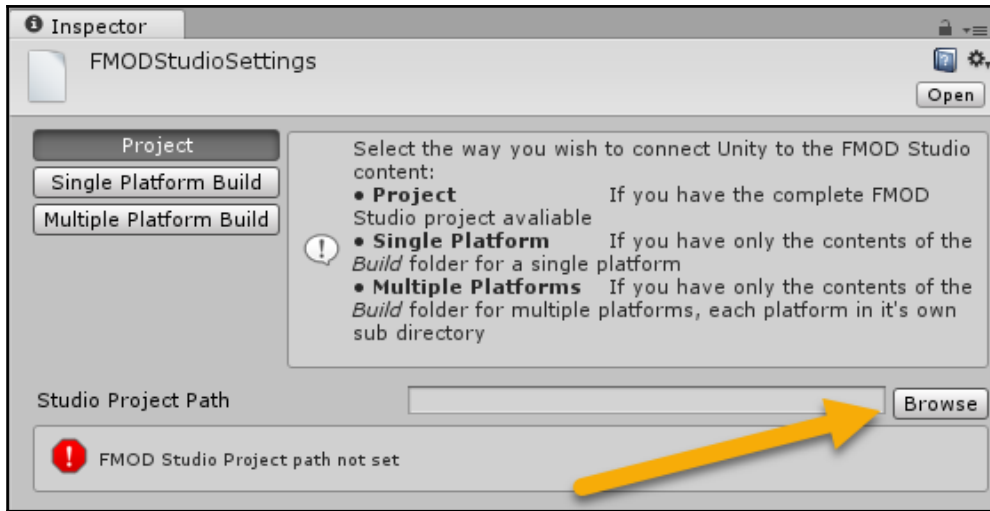
### FMOD Studio Unity Integration

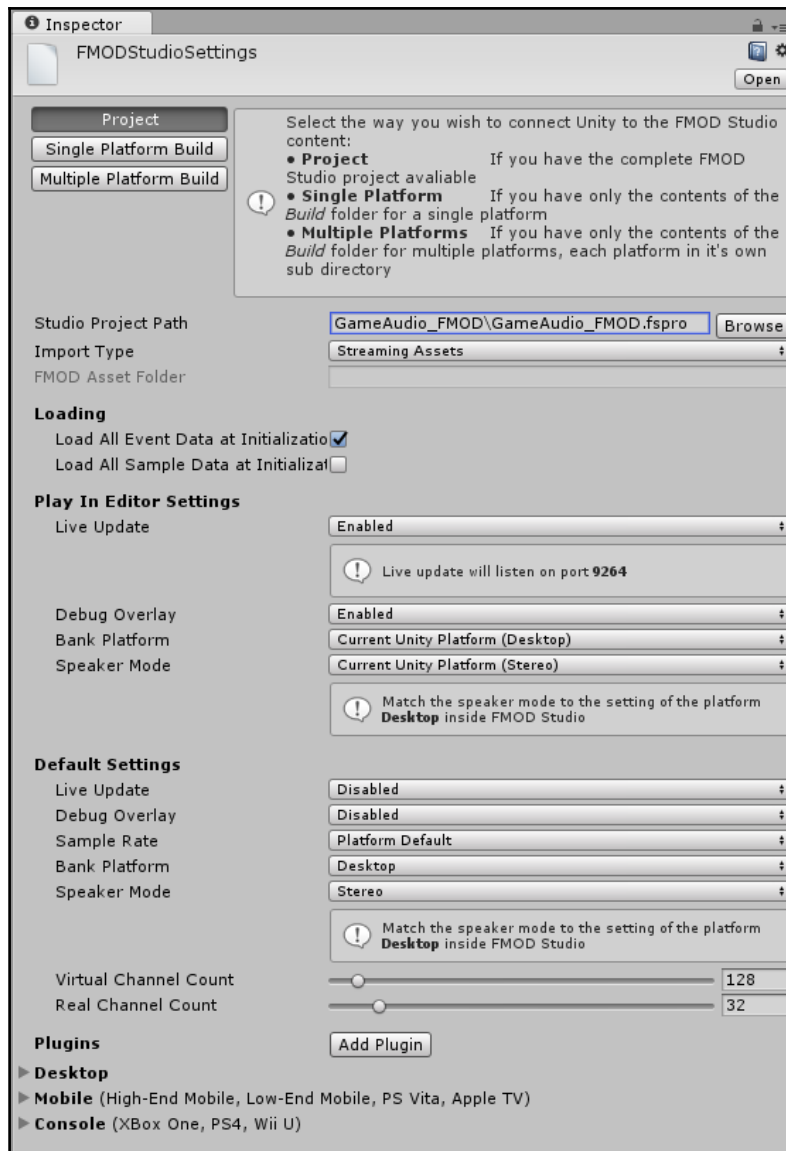
FMOD Studio Unity integrations. For console (Xbox One, PS4, Wii U, PSVita) integrations contact support  
Read usage guide [here](#).

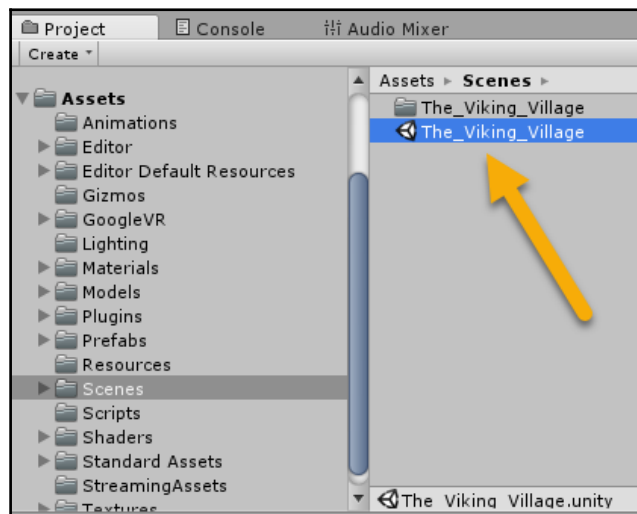
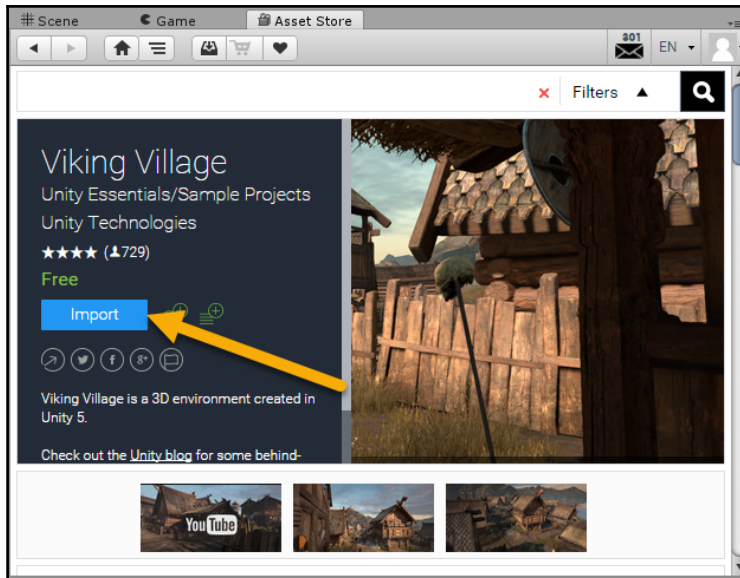
For a video tutorial series on how to use FMOD in Unity, visit YouTube for the [Viking Village tutorial](#).

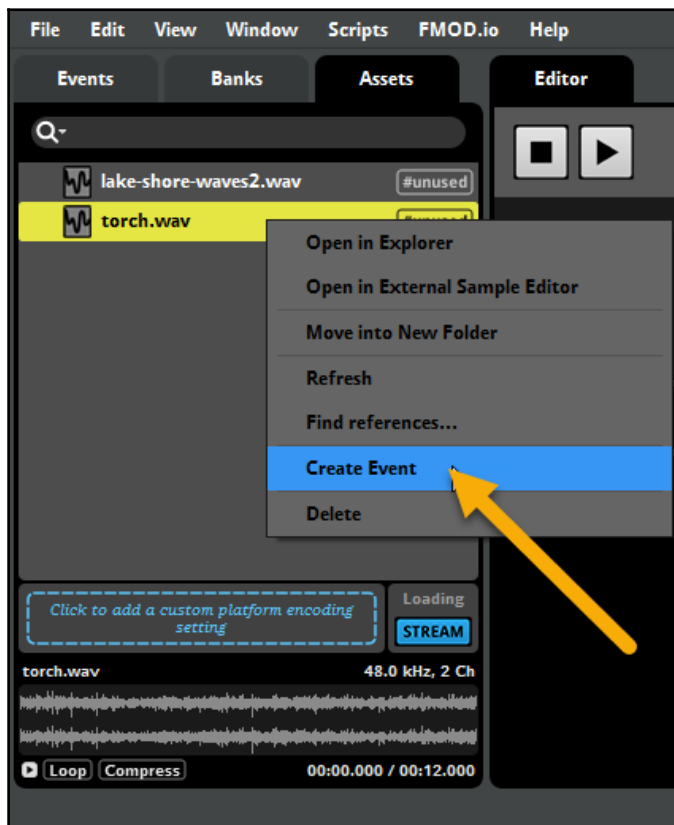
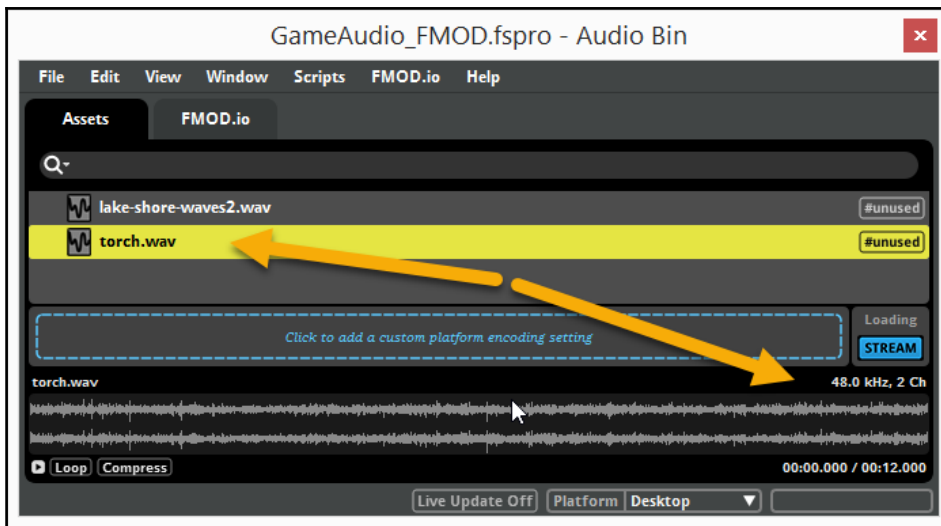
Platform	Version 1.09.01
 Unity Integration for Windows/Mac/Linux/iOS/Android/WinPhone	<a href="#">Download</a> 

To browse previous versions of FMOD Studio Unity Integration [click here](#)



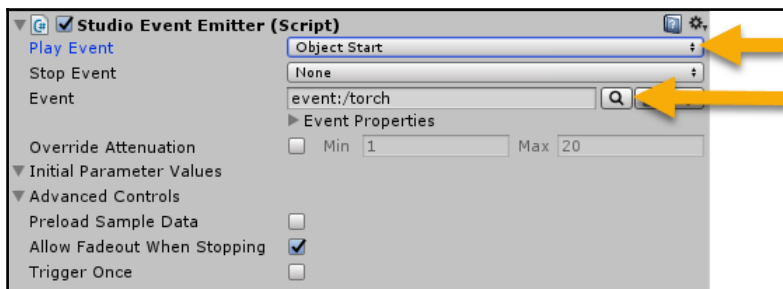
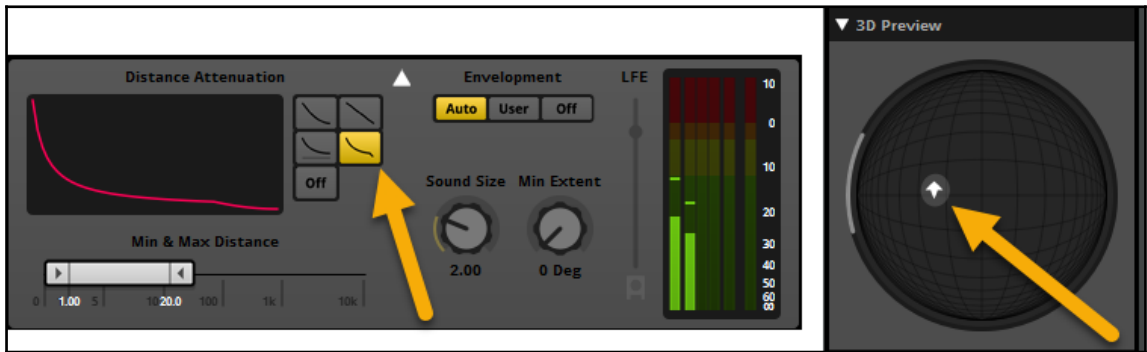
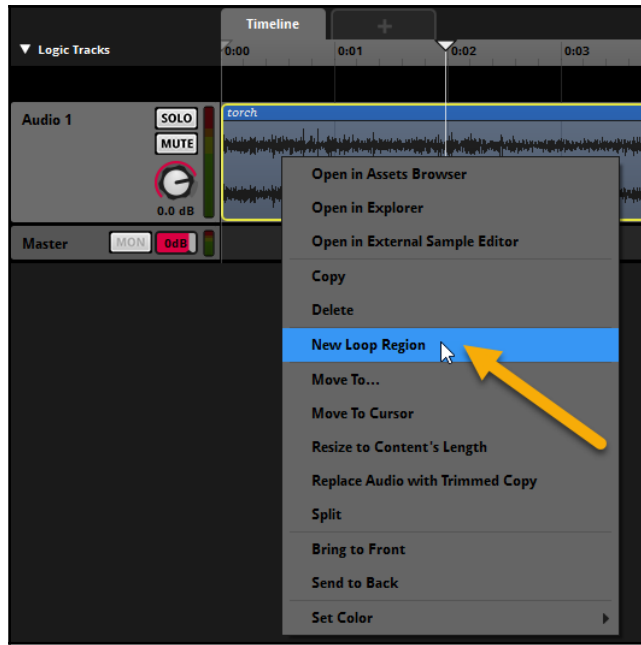


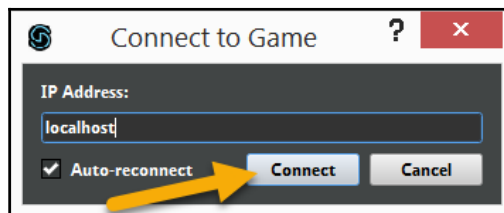
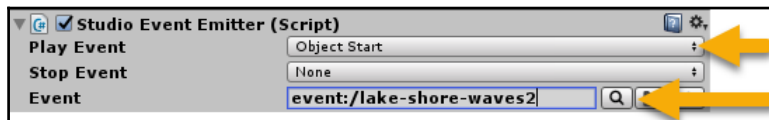
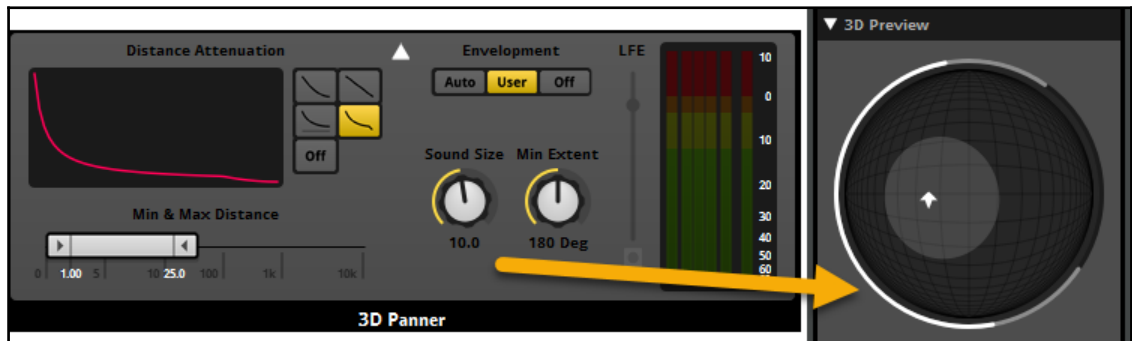
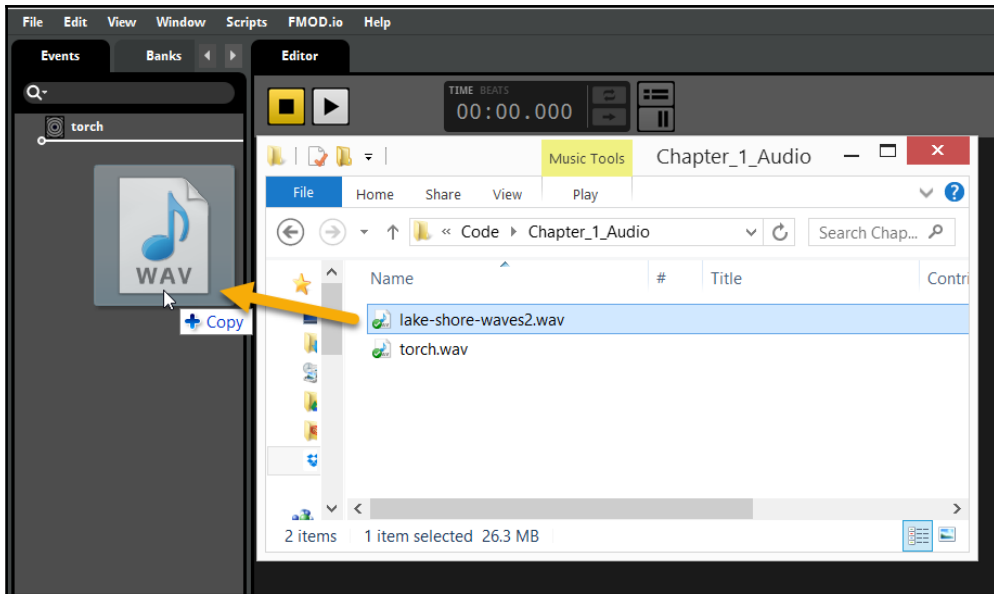


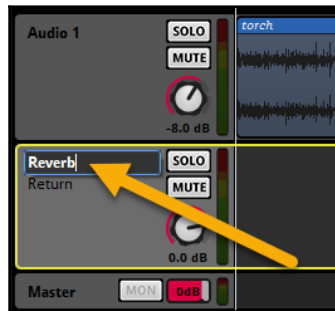
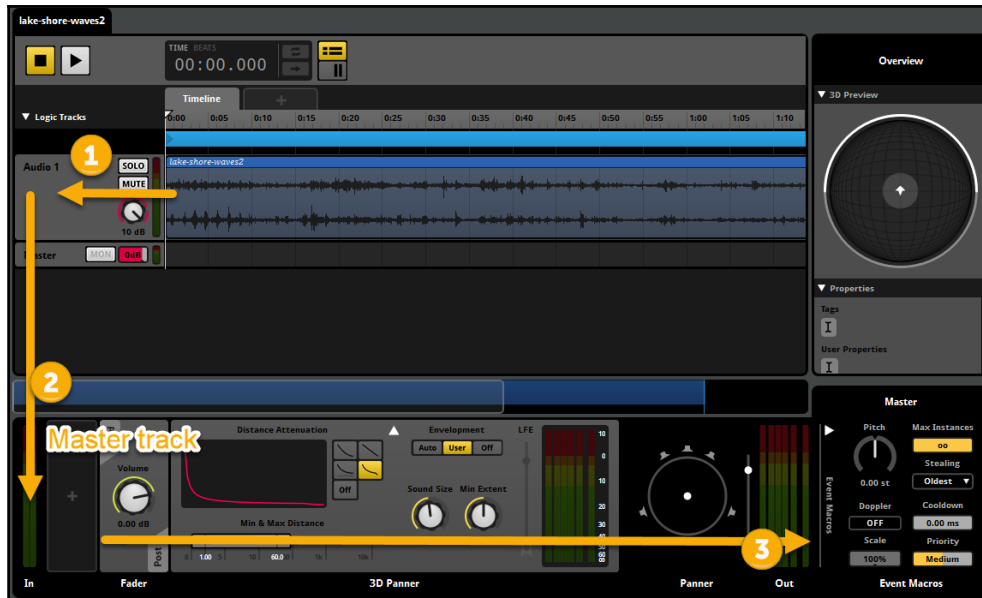


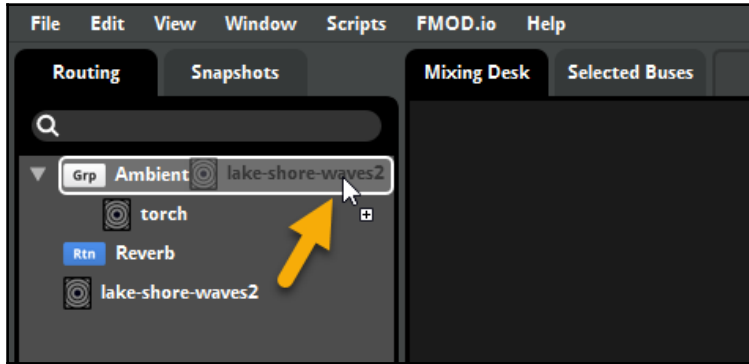


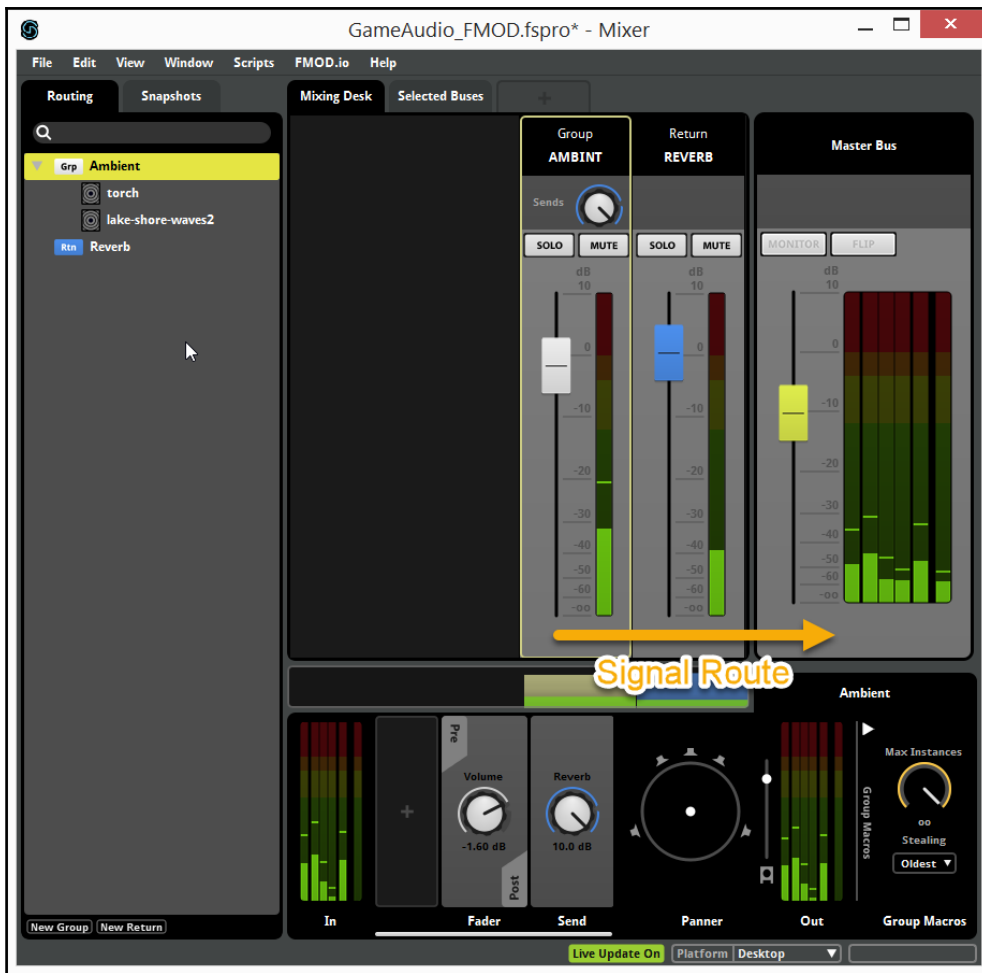




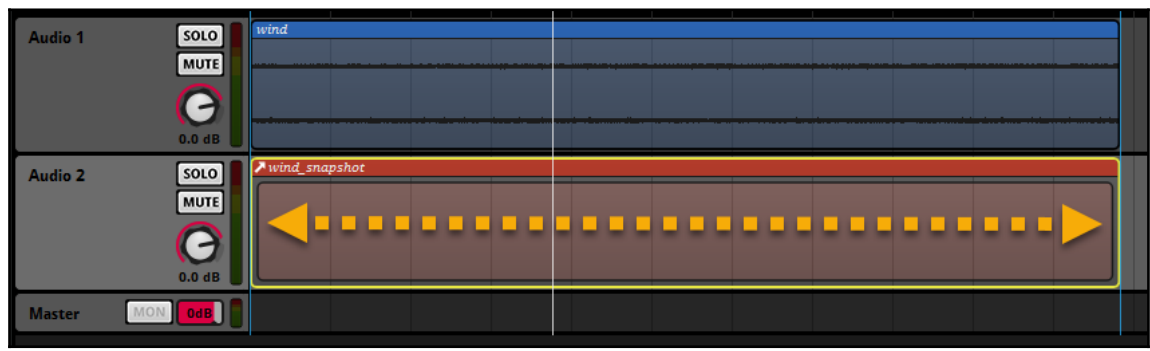
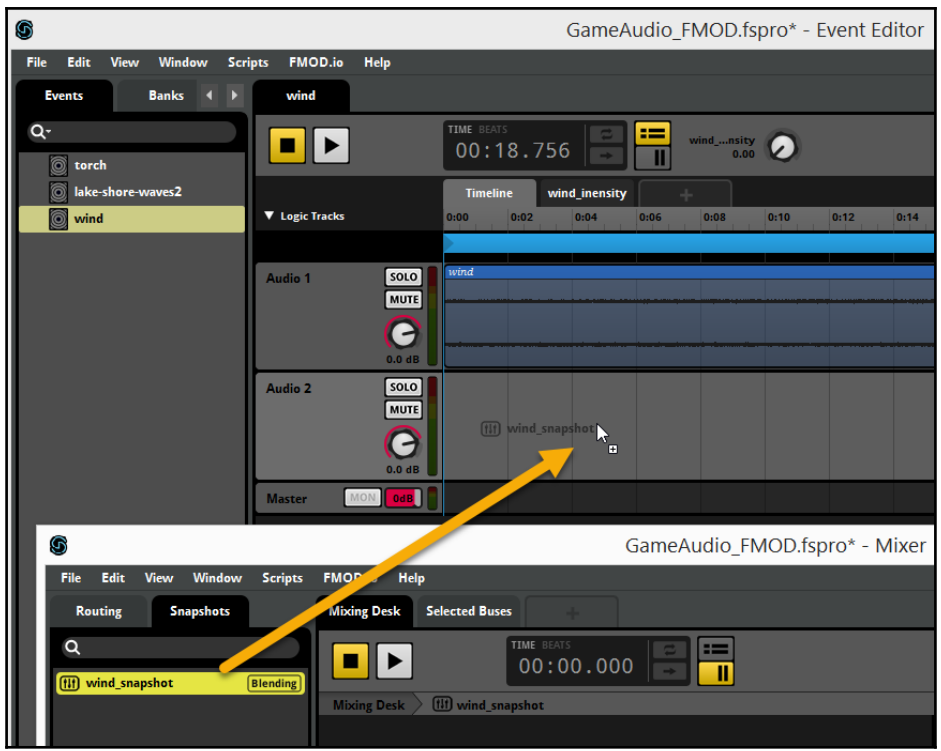




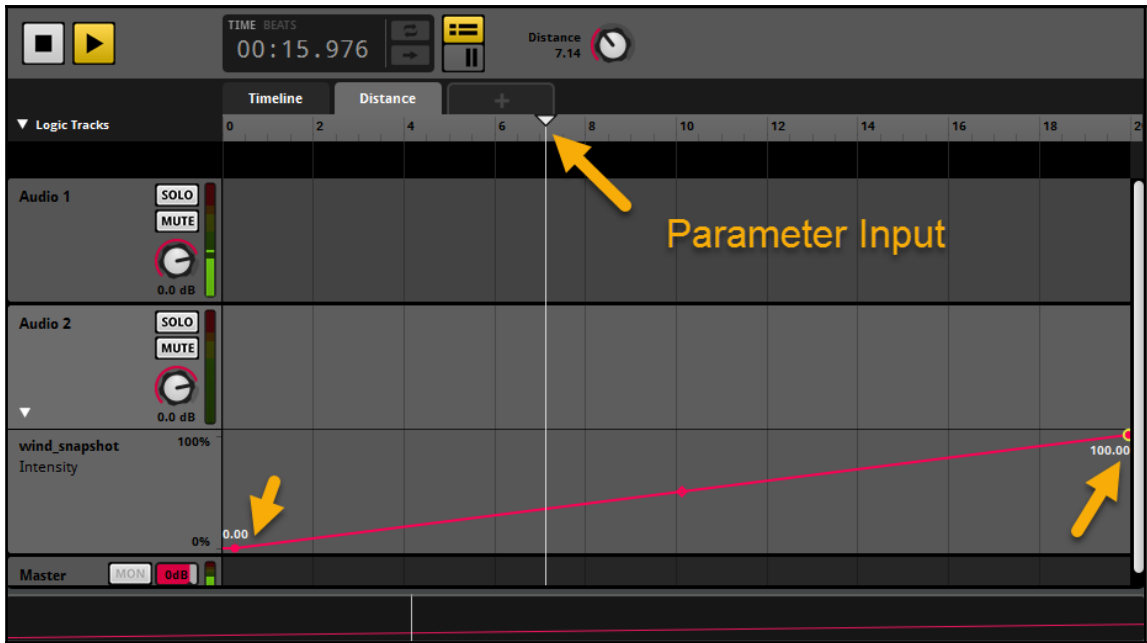


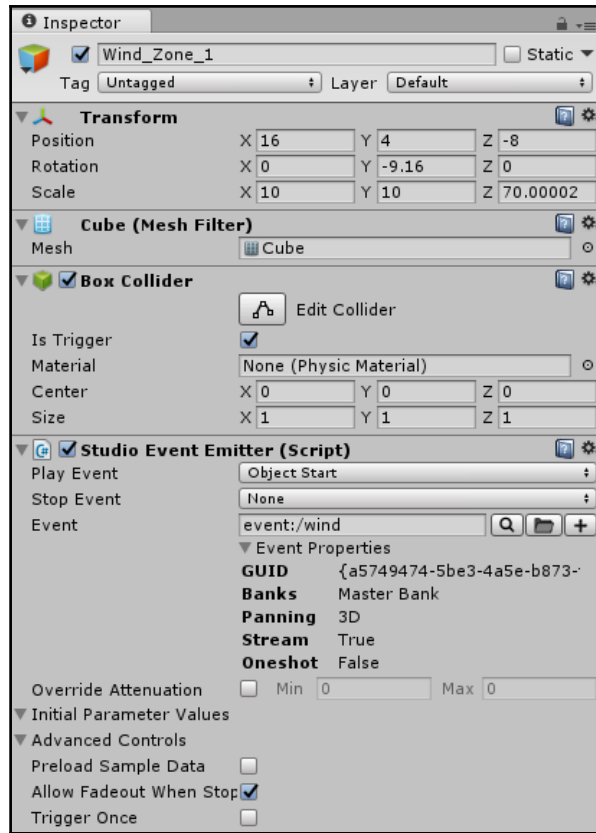




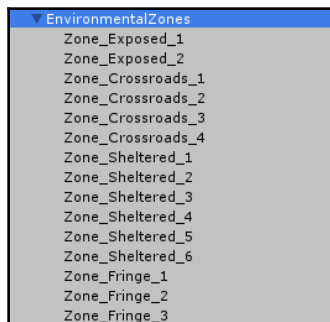
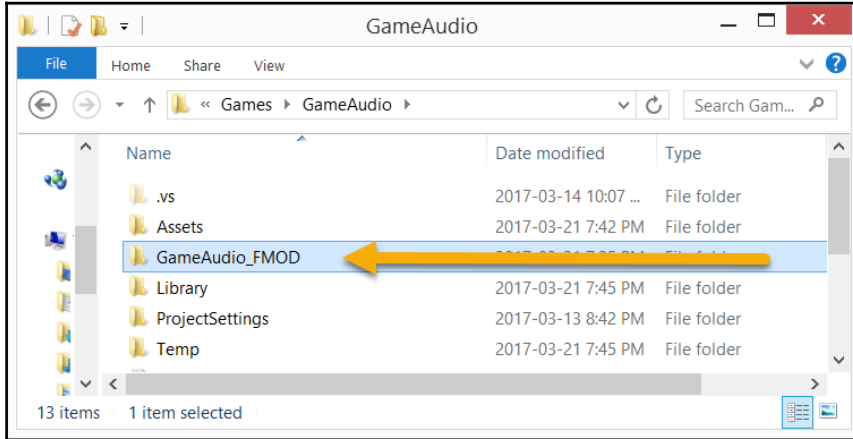


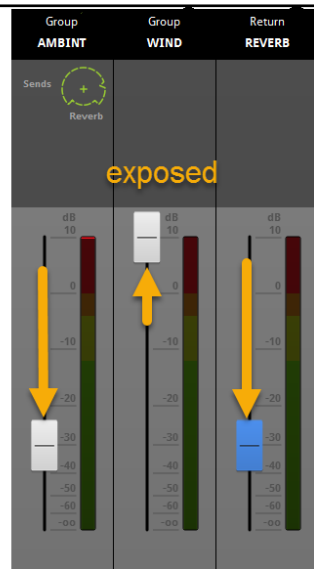
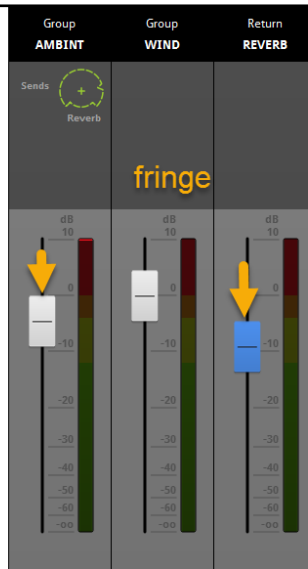
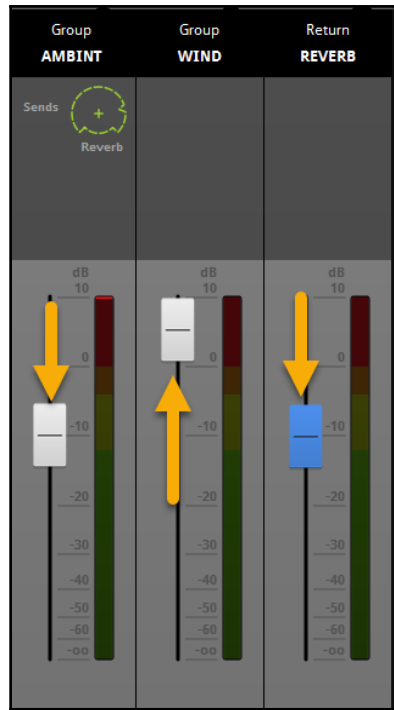


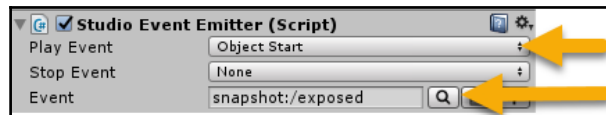
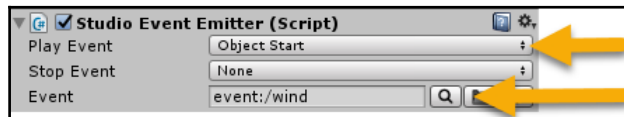
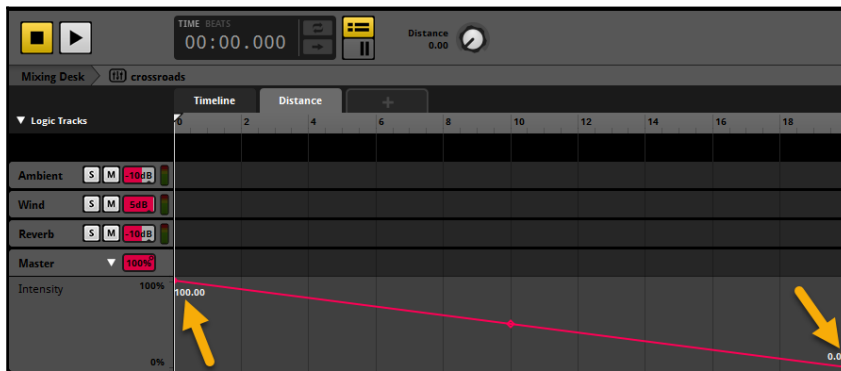
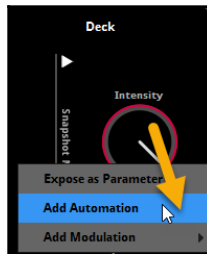
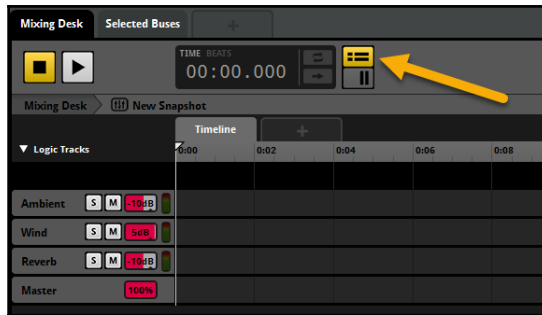


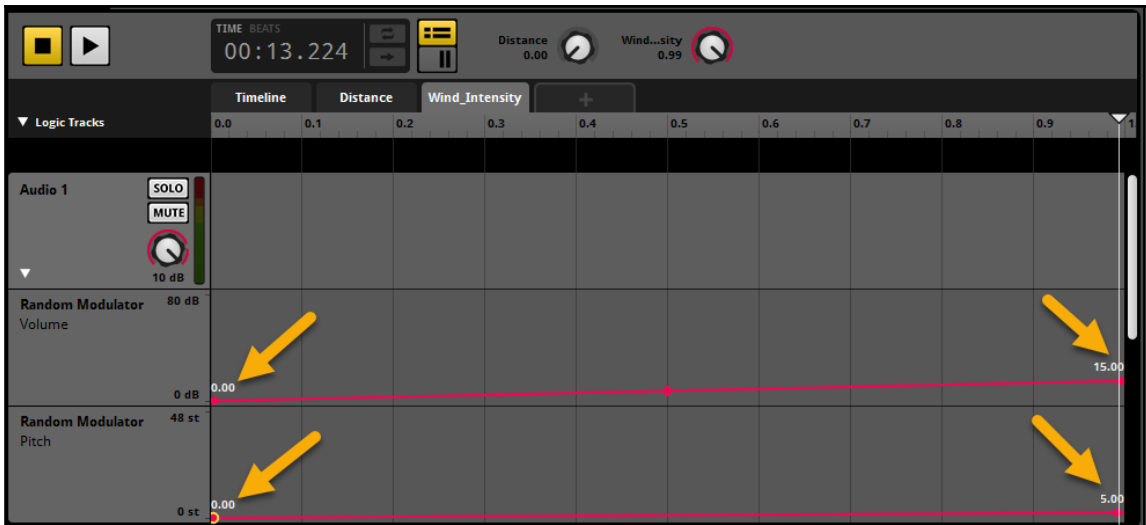
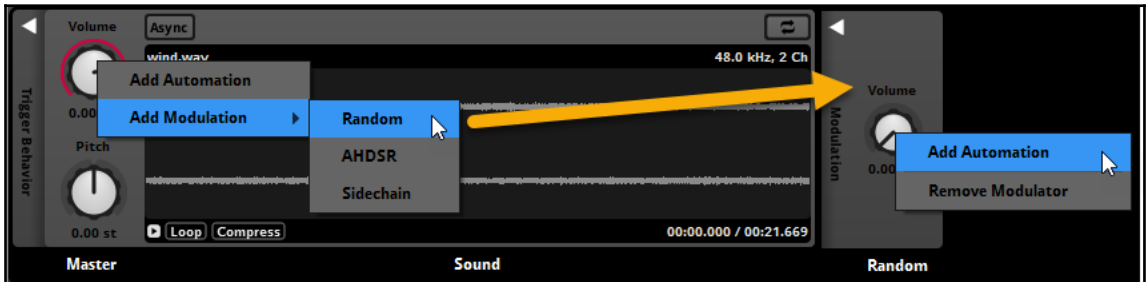
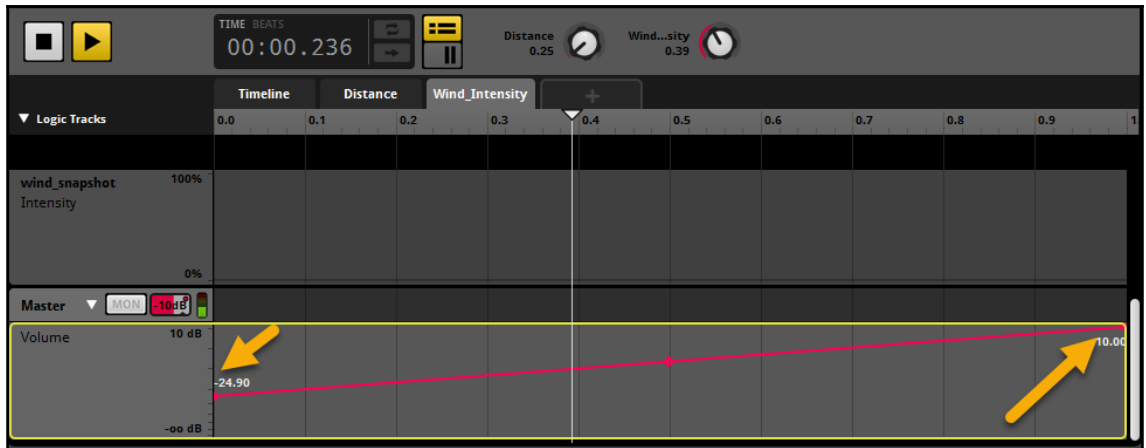


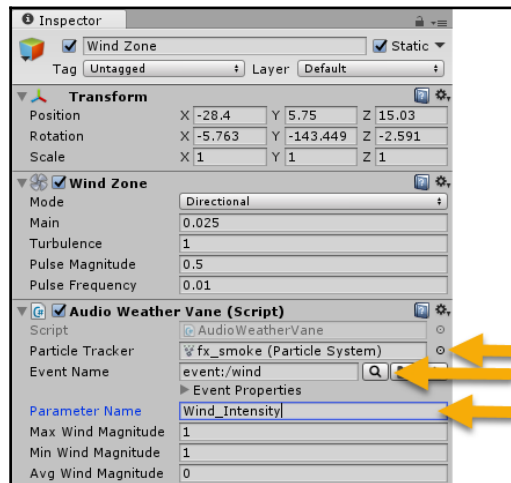
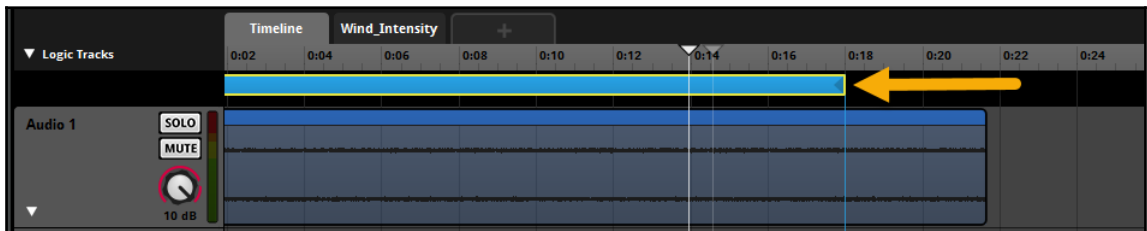
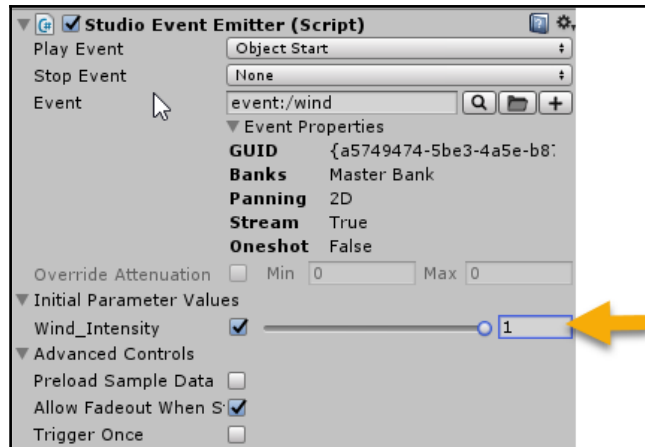
# Chapter 7: FMOD for Dyanmic and Adaptive Audio

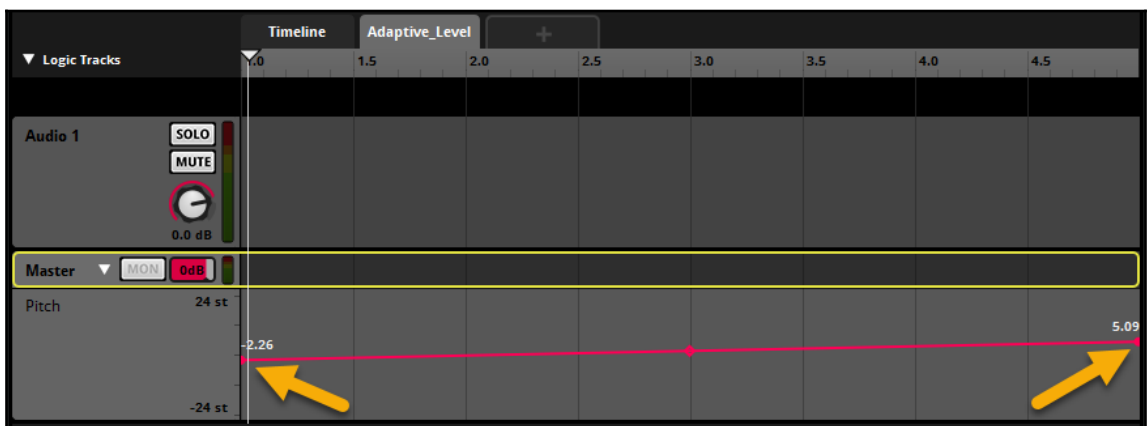




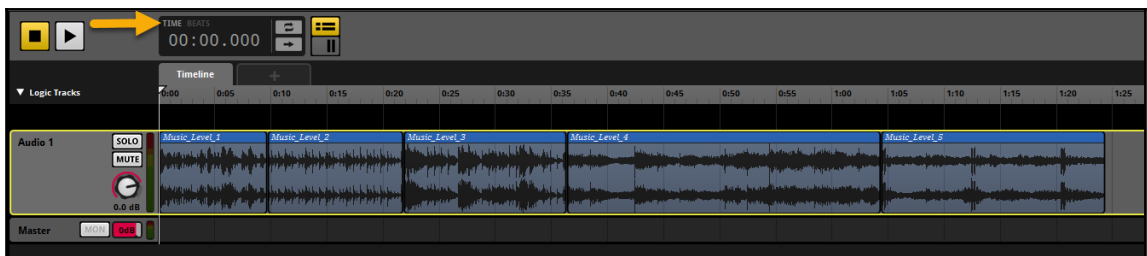
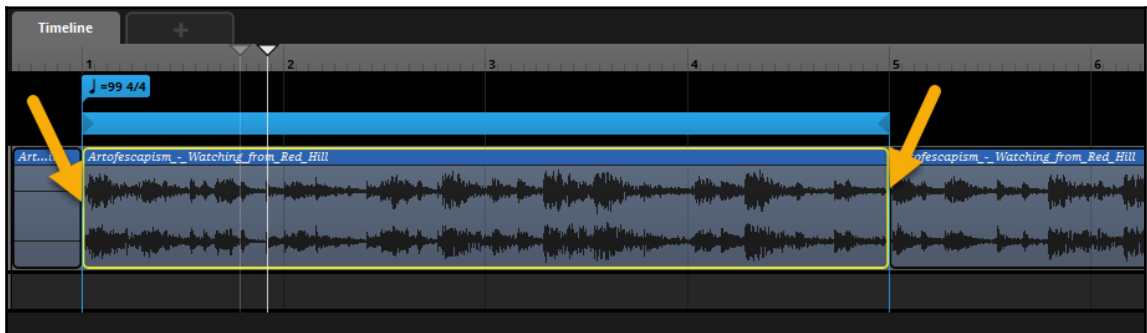
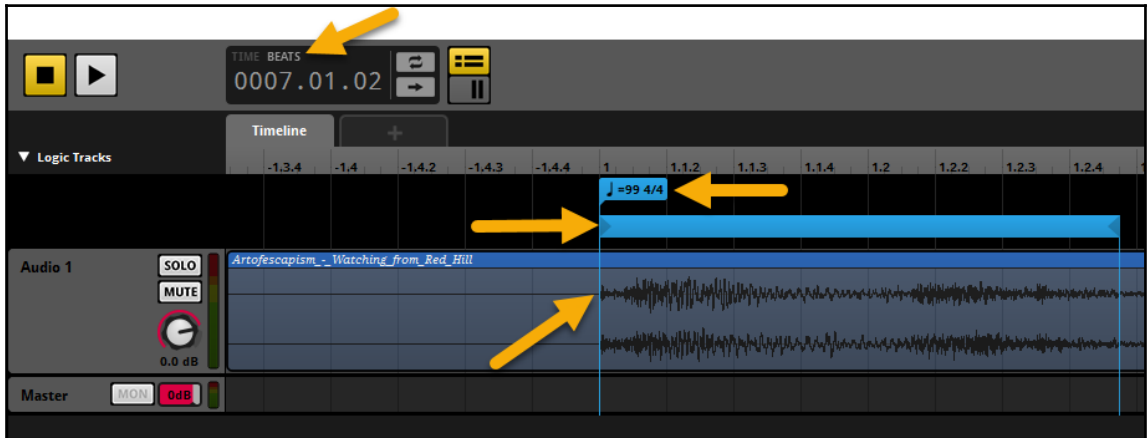
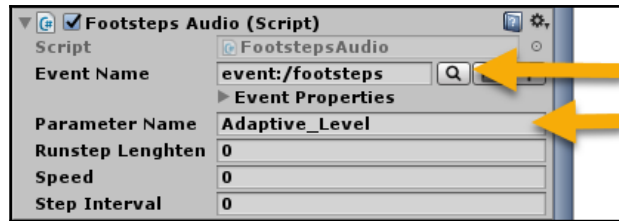


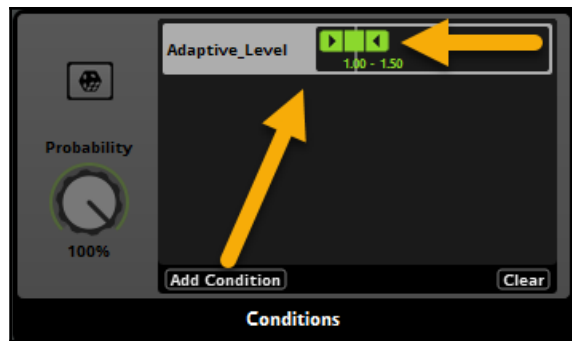
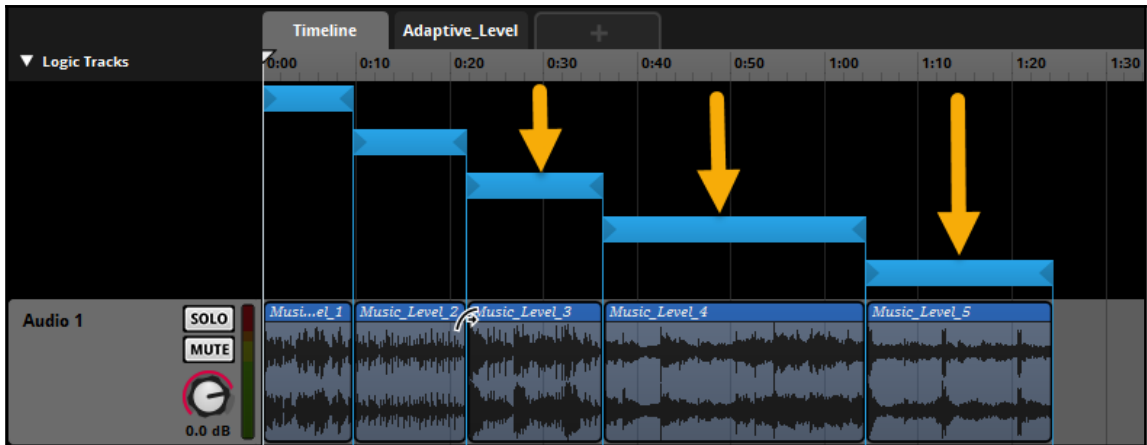


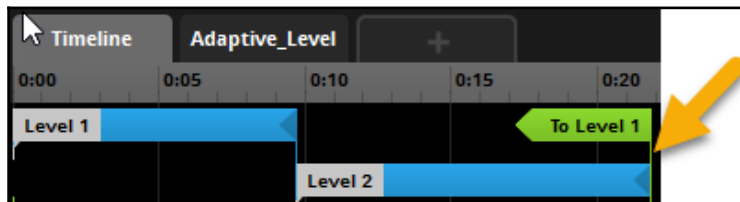
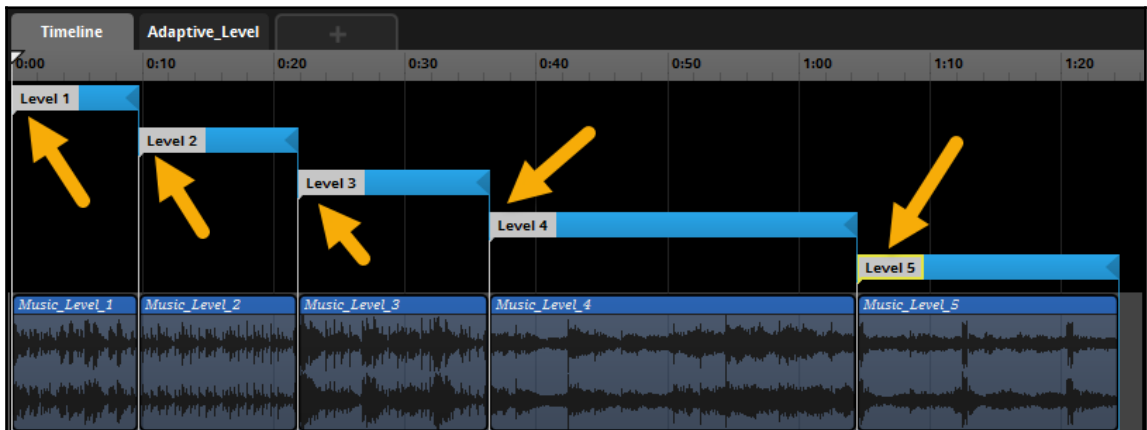
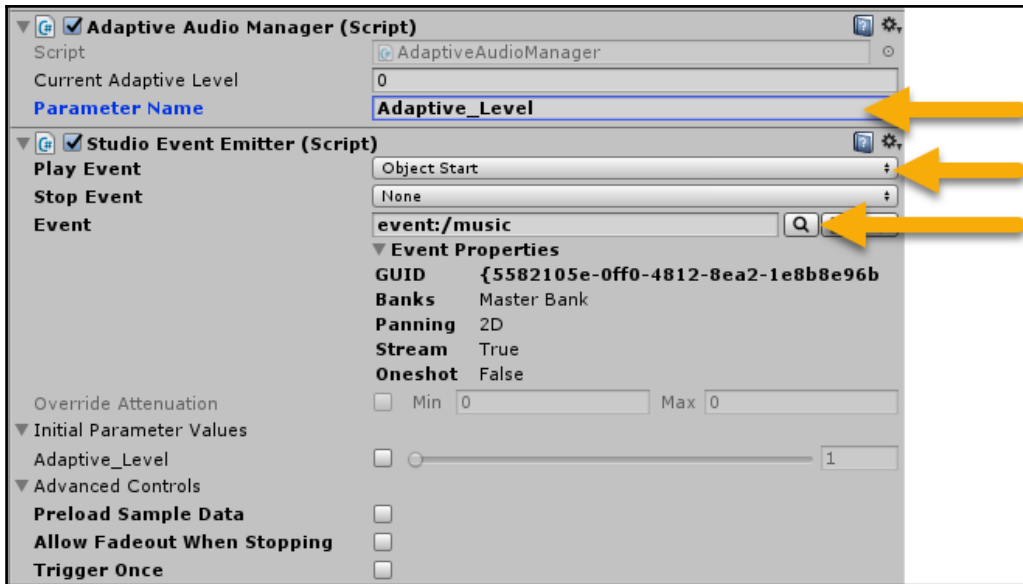








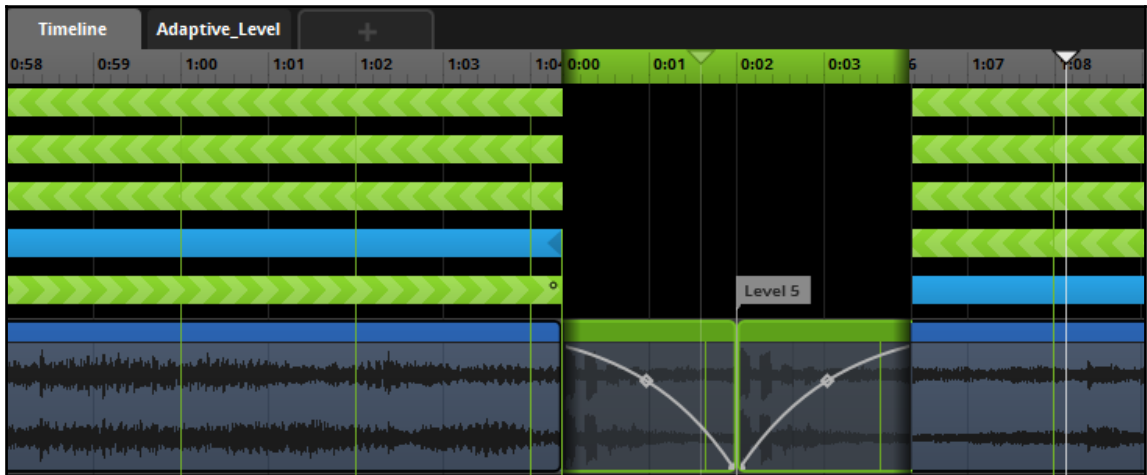
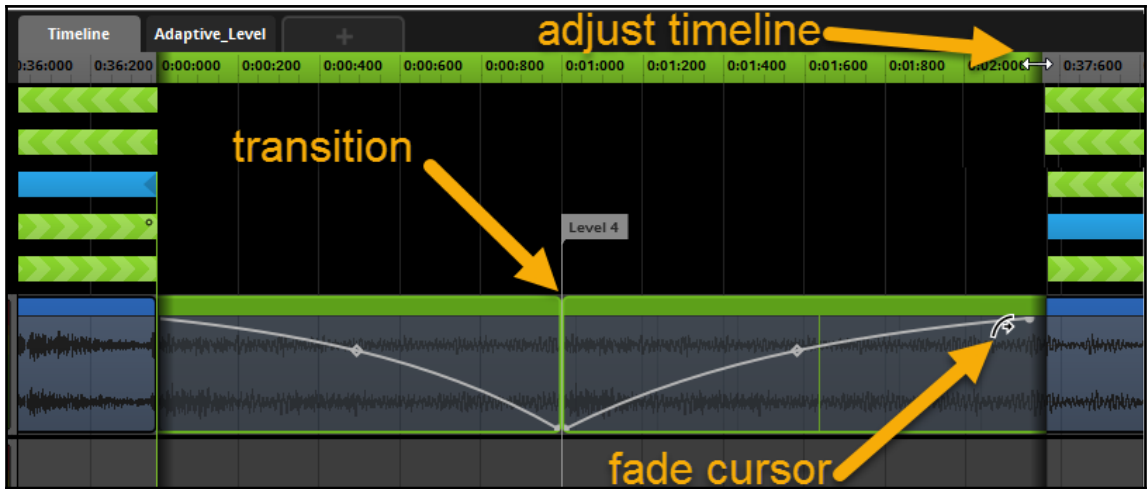


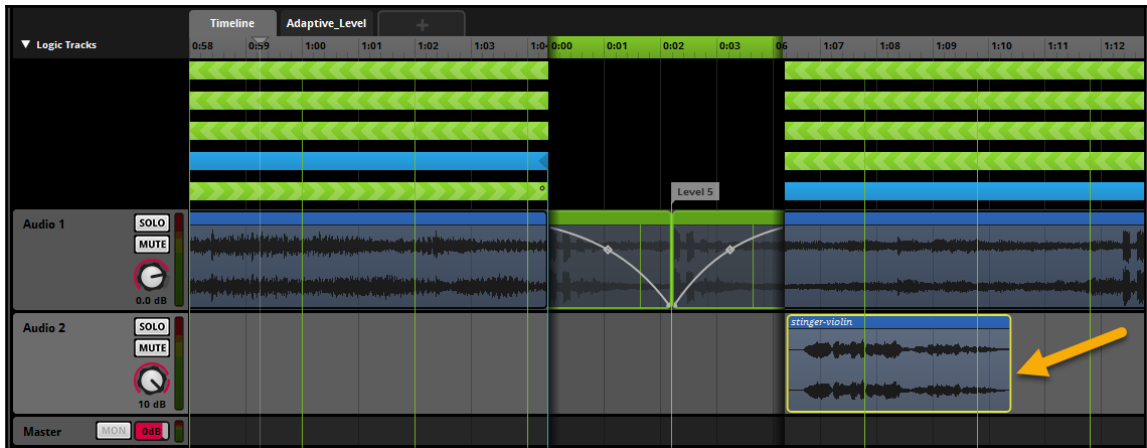


This screenshot shows the Adaptive Level timeline in Logic Pro. The top section displays five levels (Level 1 to Level 5) with green arrows indicating transitions between them. Below the timeline, the Audio 1 track is visible, showing five audio waveforms labeled Music\_Level\_1 through Music\_Level\_5. The timeline markers range from 0:00 to 1:20.

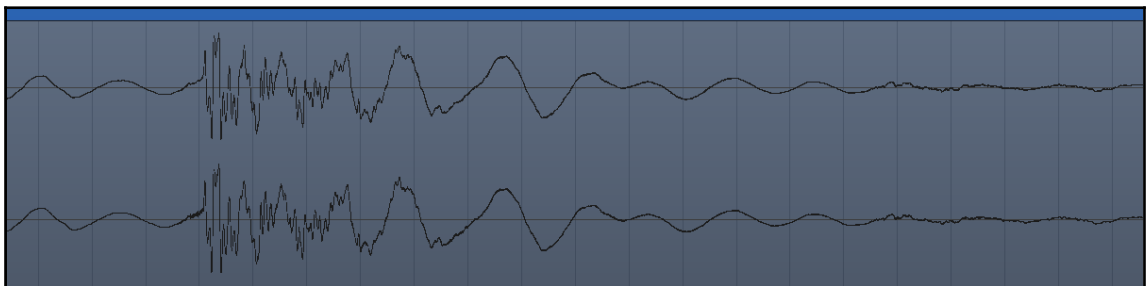
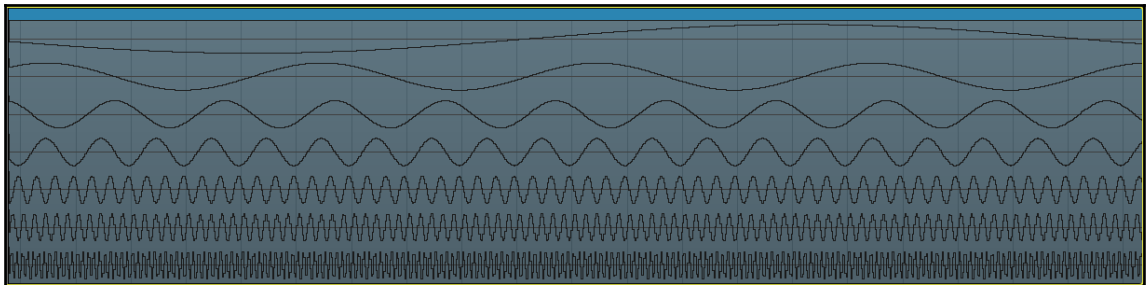
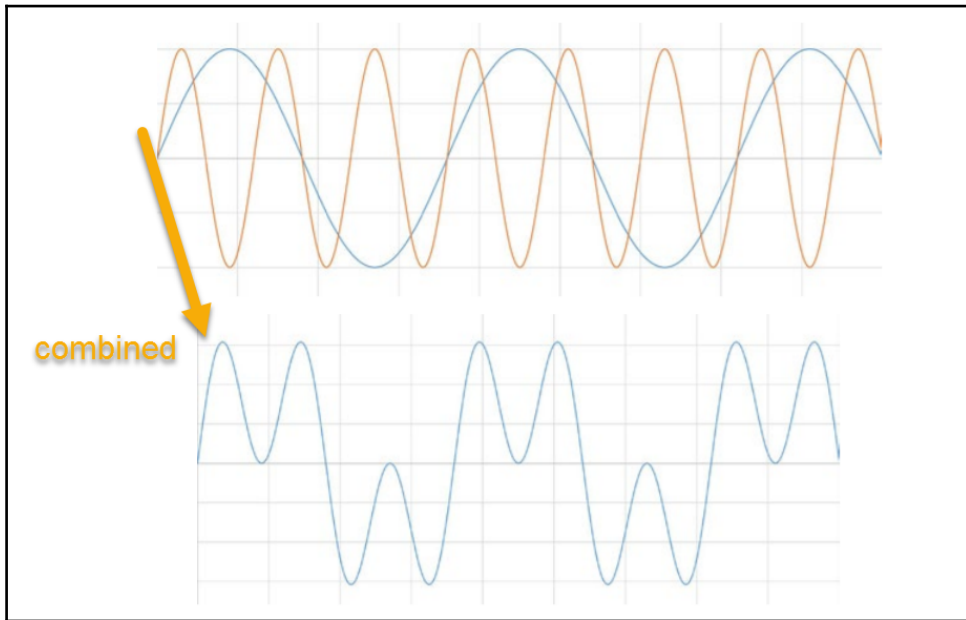
This close-up view shows the Adaptive Level control panel. On the left, the 'Conditions' section includes a 'Probability' knob set to 100% and an 'Add Condition' button. The 'Adaptive\_Level' parameter is set to 1.00, with a range of -1.50. On the right, the 'Quantization Interval' section has a grid of buttons for 'Bars' (8, 7, 6, 5, 4, 3, 2, 1) and 'Notes' (quarter, eighth, sixteenth). The '1' button under 'Bars' is highlighted with a yellow arrow.

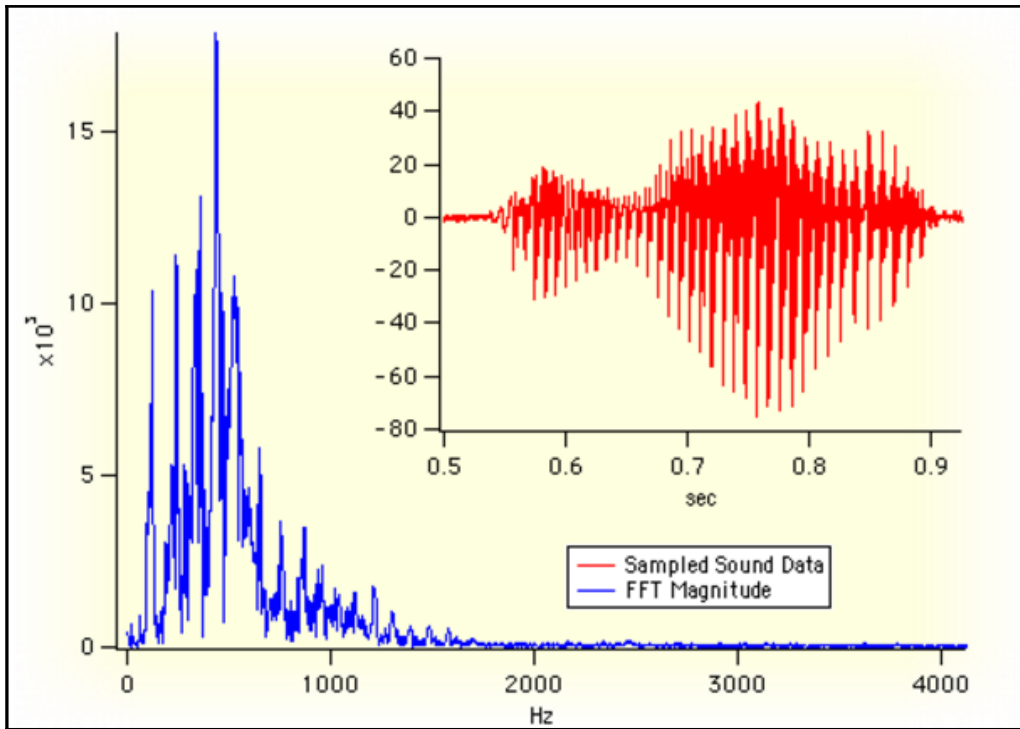
This screenshot shows the Adaptive Level timeline with a zoomed-in view of the level transitions. The green arrows are more prominent, showing the sequence of levels and transitions. The audio tracks below are also visible, showing the waveform for each level. The timeline markers range from 0:00 to 1:20.



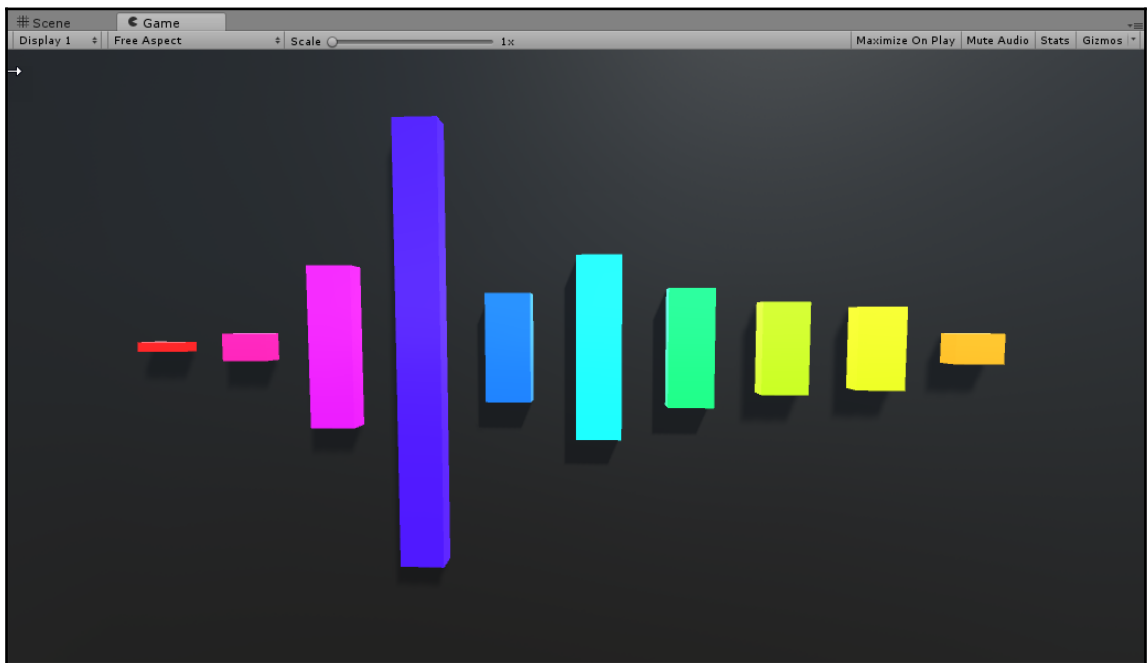
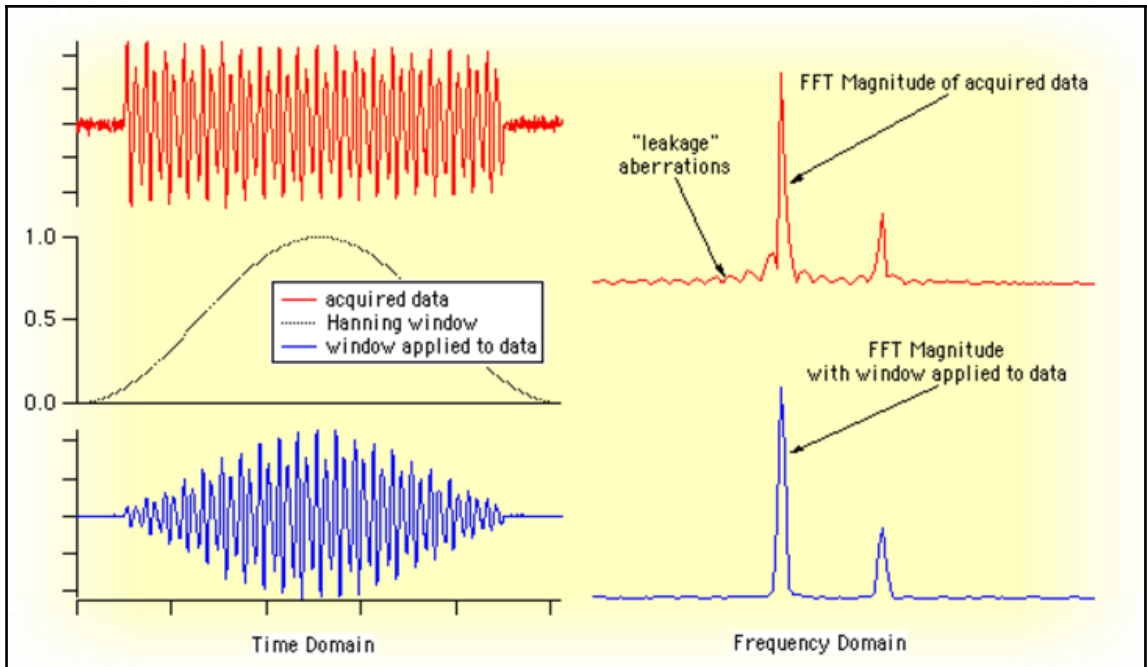


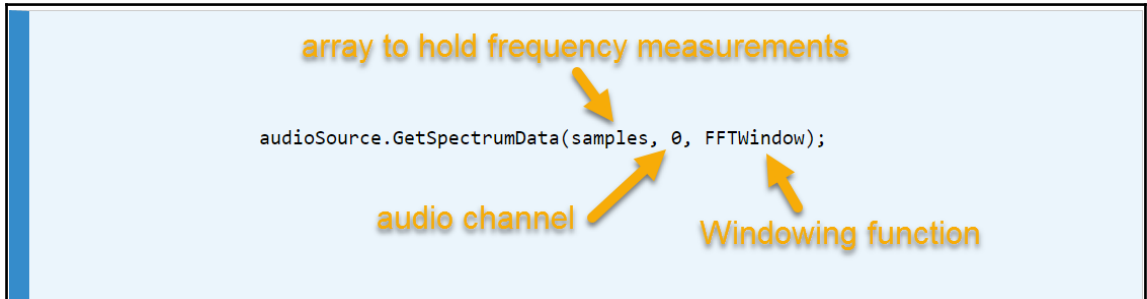
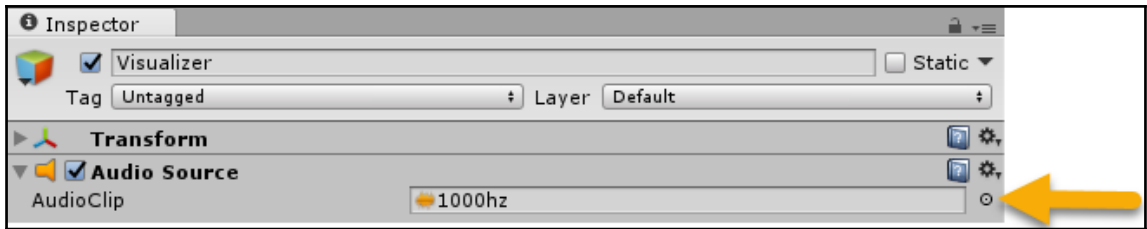
## Chapter 8: Visualizing Audio in Games









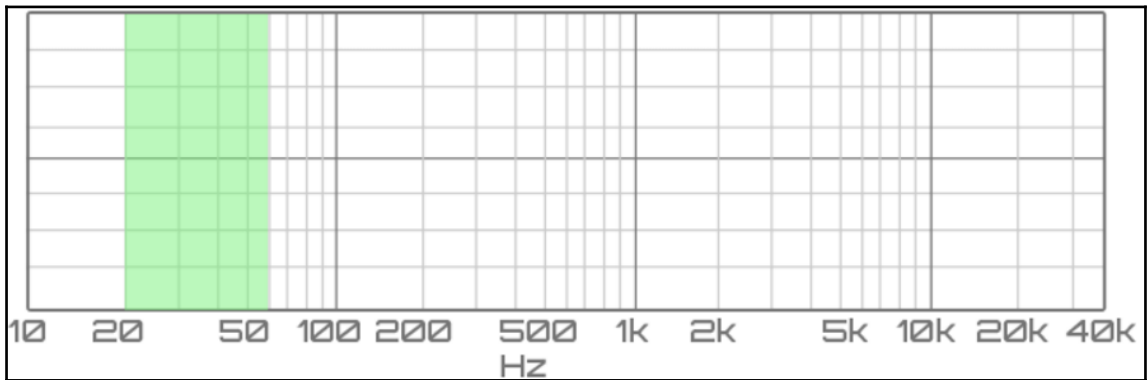
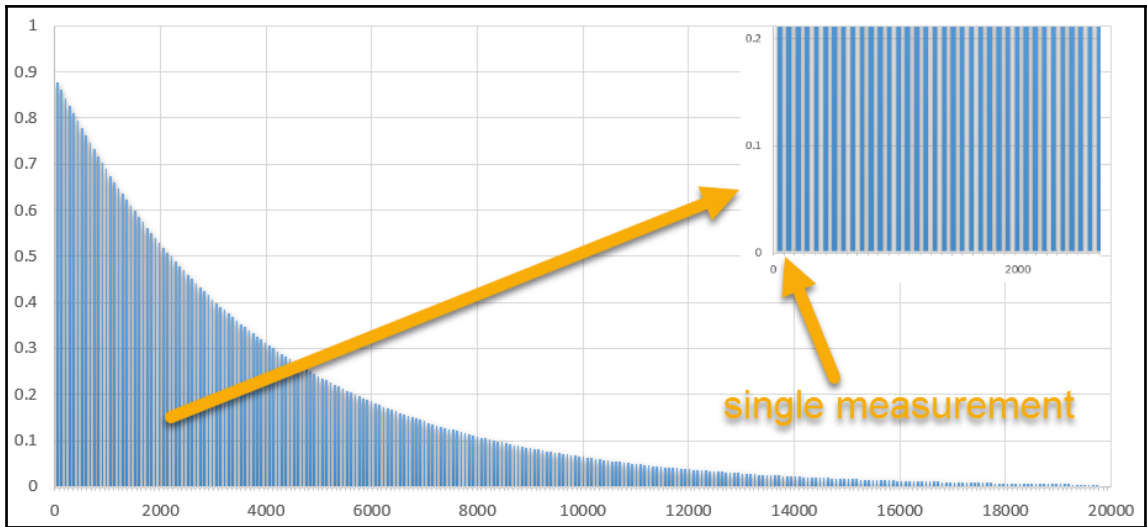


**Bin Range**  
(frequency range)

**Bins**  
(amplitude of bin)

**Samples**  
(windowed samples)

Visualize Sound Manager (Script)	
Script	VisualizeSoundManager
Bin No	10
Sample No	512
FFT Window	Blackman Harris
Bin Range	
Size	10
Element 0	42.96875
Element 1	85.9375
Element 2	171.875
Element 3	343.75
Element 4	687.5
Element 5	1375
Element 6	2750
Element 7	5500
Element 8	11000
Element 9	22000
Bins	
Size	10
Element 0	0.0006942298
Element 1	0.000523665
Element 2	0.0004499285
Element 3	0.002629896
Element 4	0.006568857
Element 5	0.009889632
Element 6	0.02221777
Element 7	0.03295228
Element 8	0.06047088
Element 9	0.07975015
Samples	
Size	512
Element 0	0.0001554239
Element 1	8.858385e-05
Element 2	3.752545e-05
Element 3	0.0001104206
Element 4	0.0001003948
Element 5	8.376897e-05
Element 6	9.175407e-05
Element 7	0.0003863606



**Visualize Sound Manager (Script)**

Script	VisualizeSoundManager
Bin No	10
Sample No	64
FFT Window	Blackman Harris
▼ Bin Range	
Size	10
Element 0	375
Element 1	595.2754
Element 2	944.9408
Element 3	1500
Element 4	2381.102
Element 5	3779.764
Element 6	6000
Element 7	9524.407
Element 8	15119.05
Element 9	24000

**Inspector**

Lights  Static

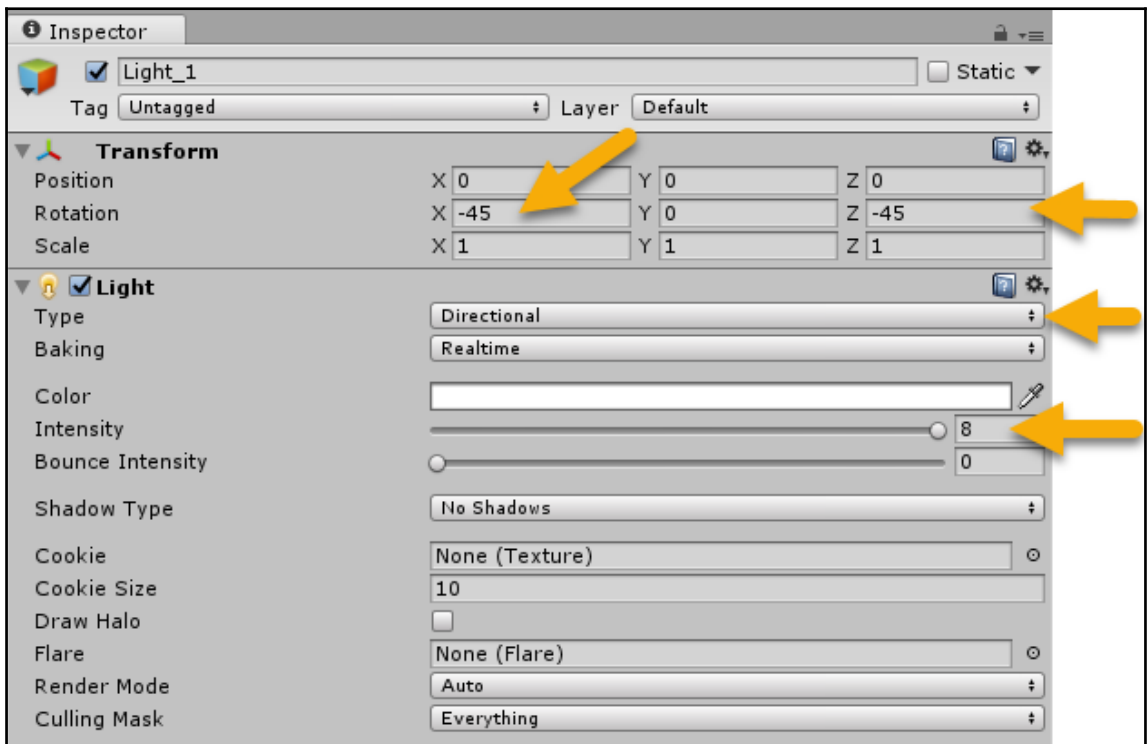
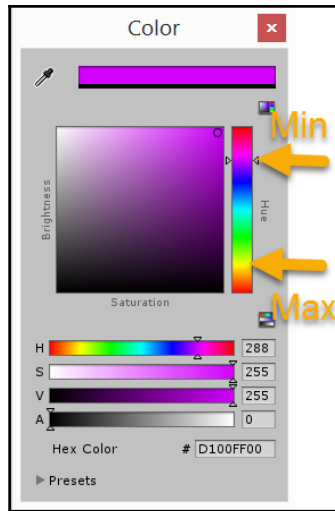
Tag: Untagged Layer: Default

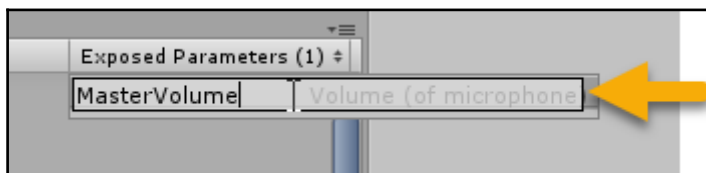
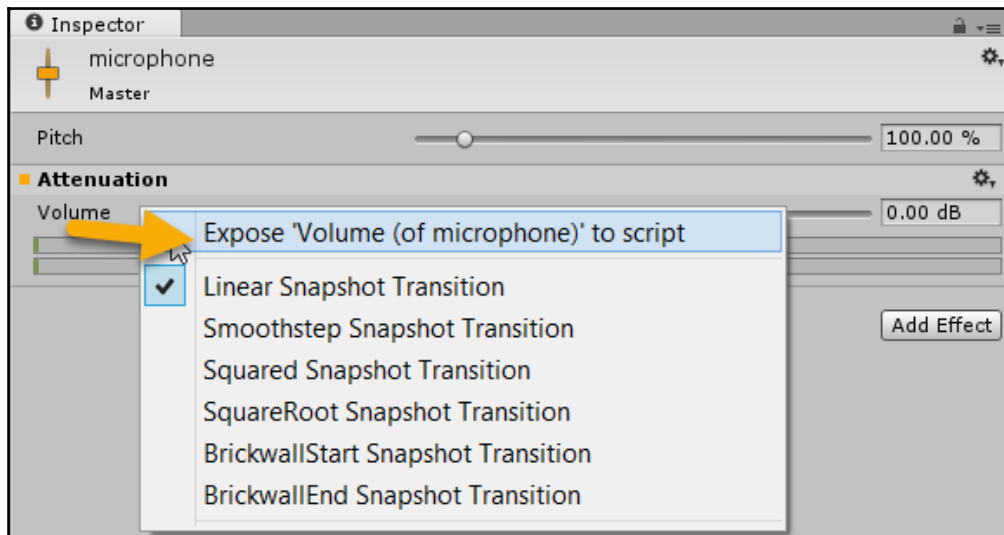
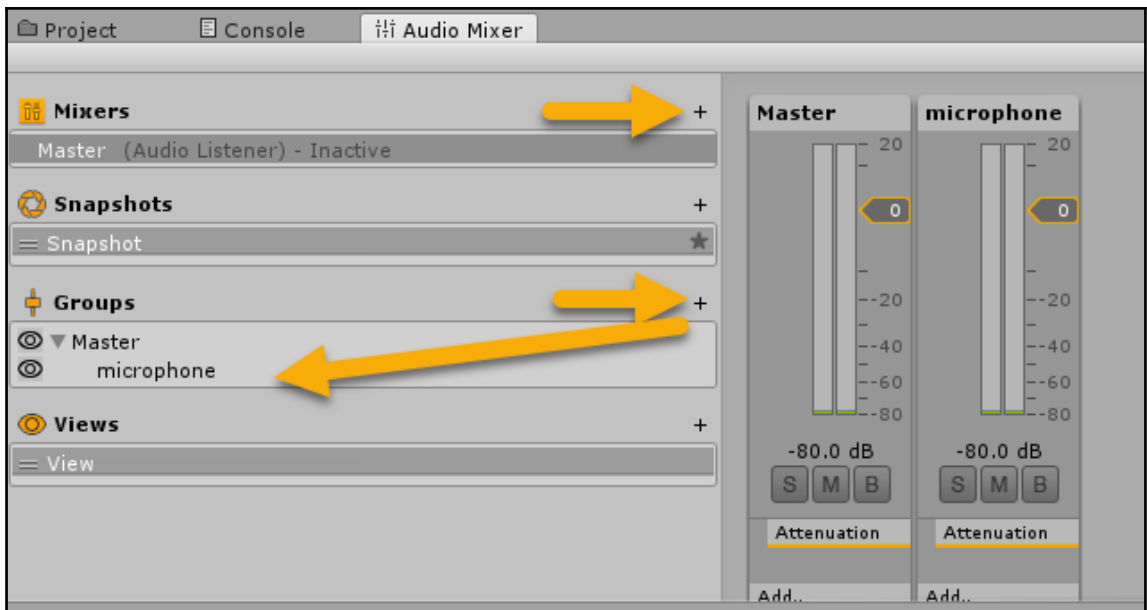
▼ **Transform**

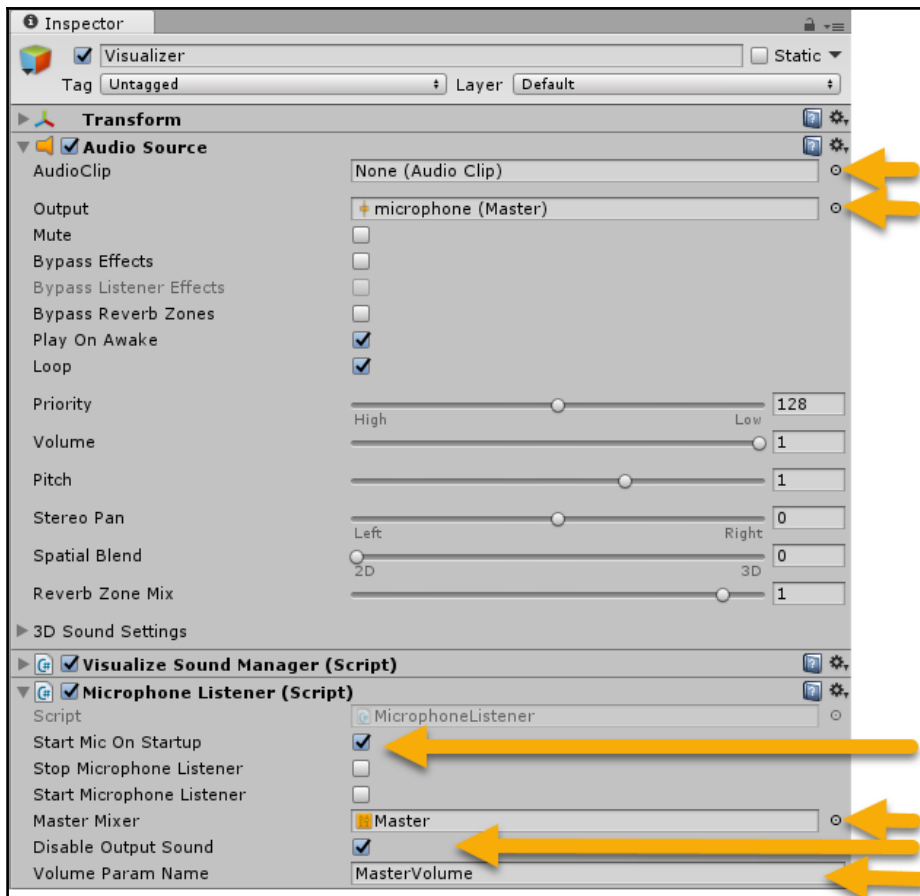
Position	X: 10	Y: 0	Z: -1
Rotation	X: 0	Y: 0	Z: 0
Scale	X: 1	Y: 1	Z: 1

▼ **Light Controller (Script)**

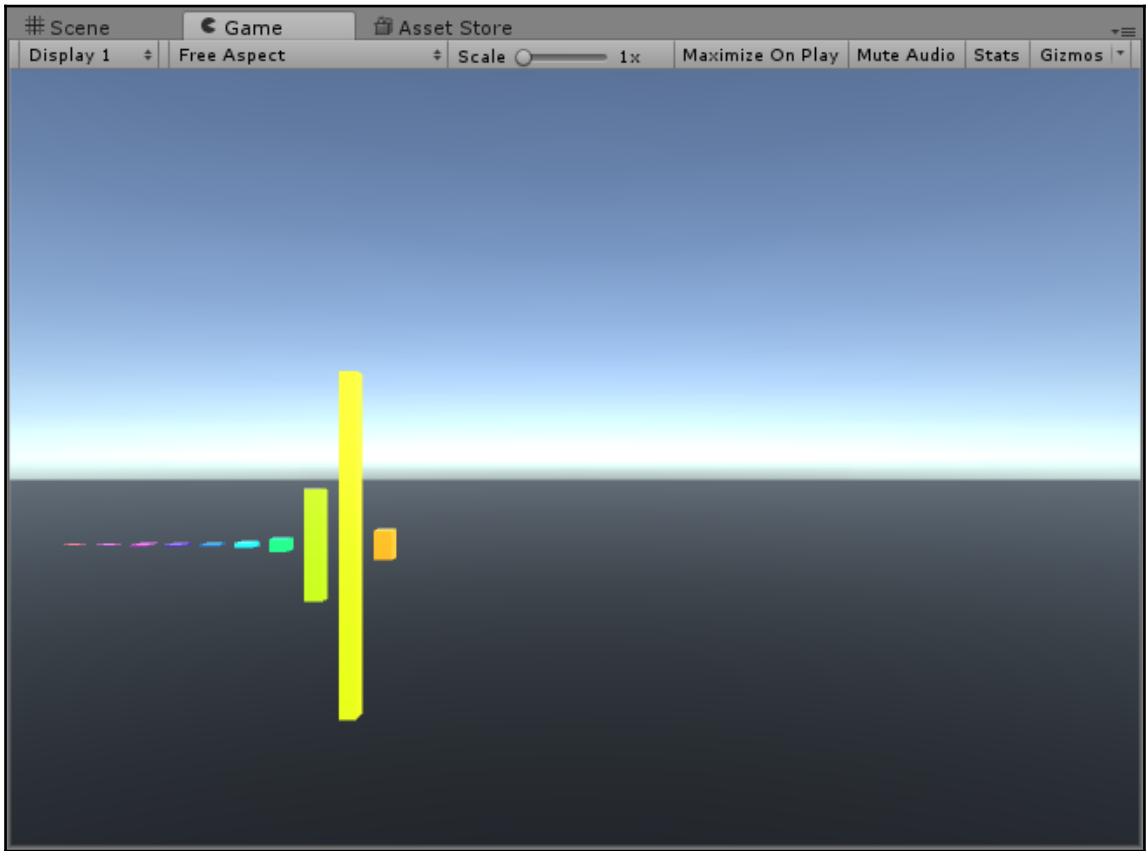
Script	LightController
Max Intensity	8
Min Color	[Purple bar]
Max Color	[Yellow bar]



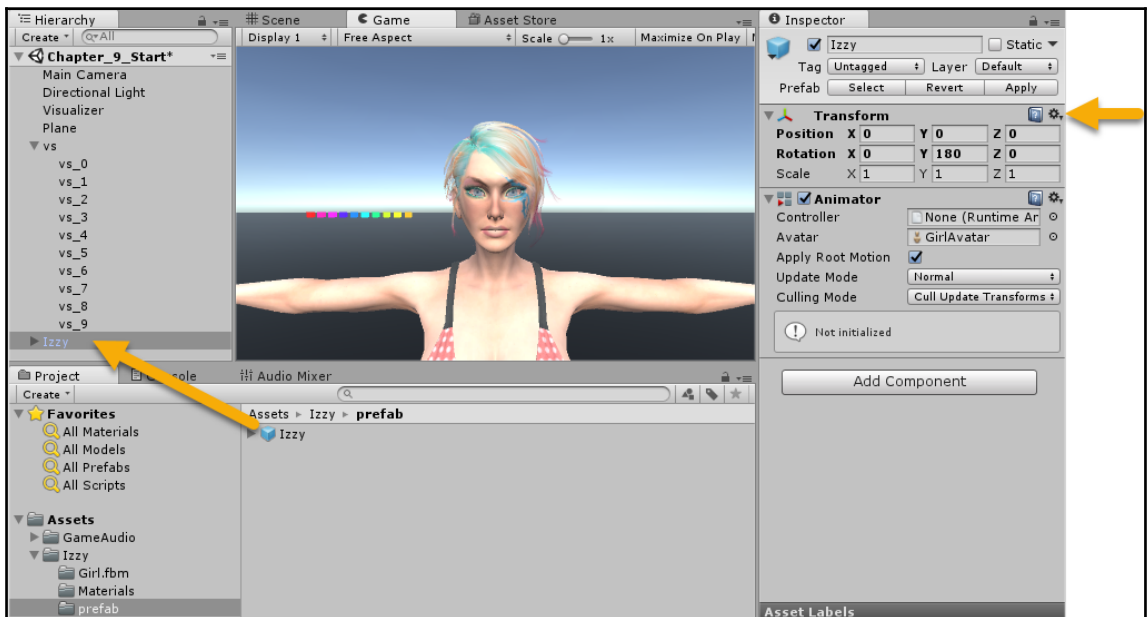
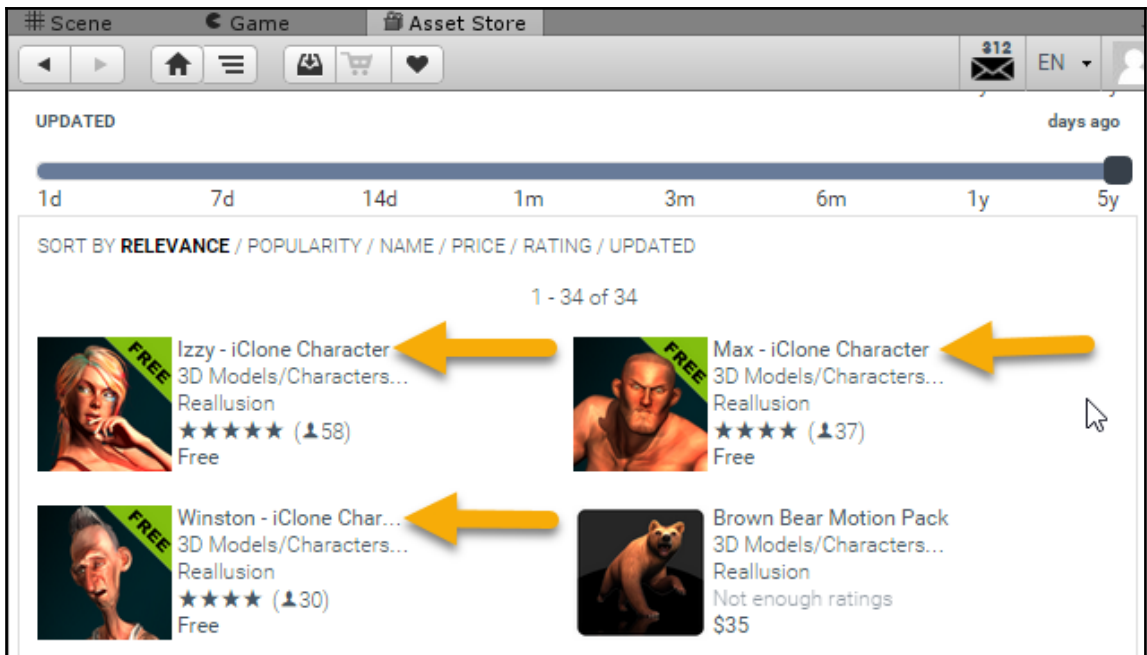


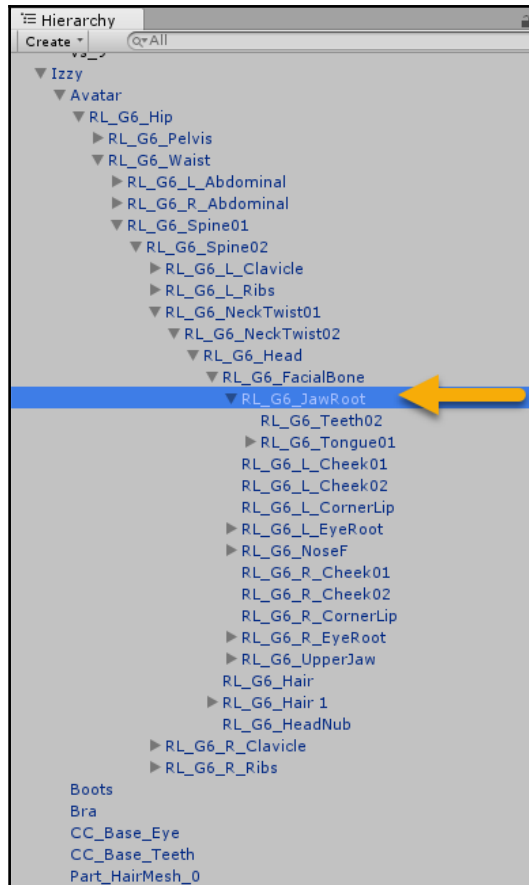


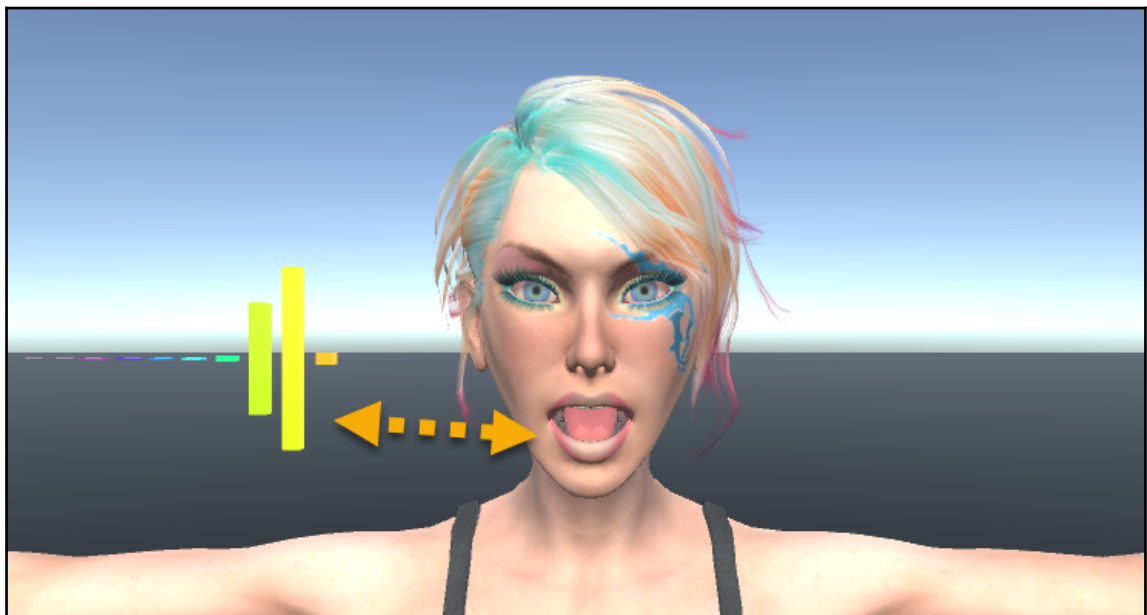
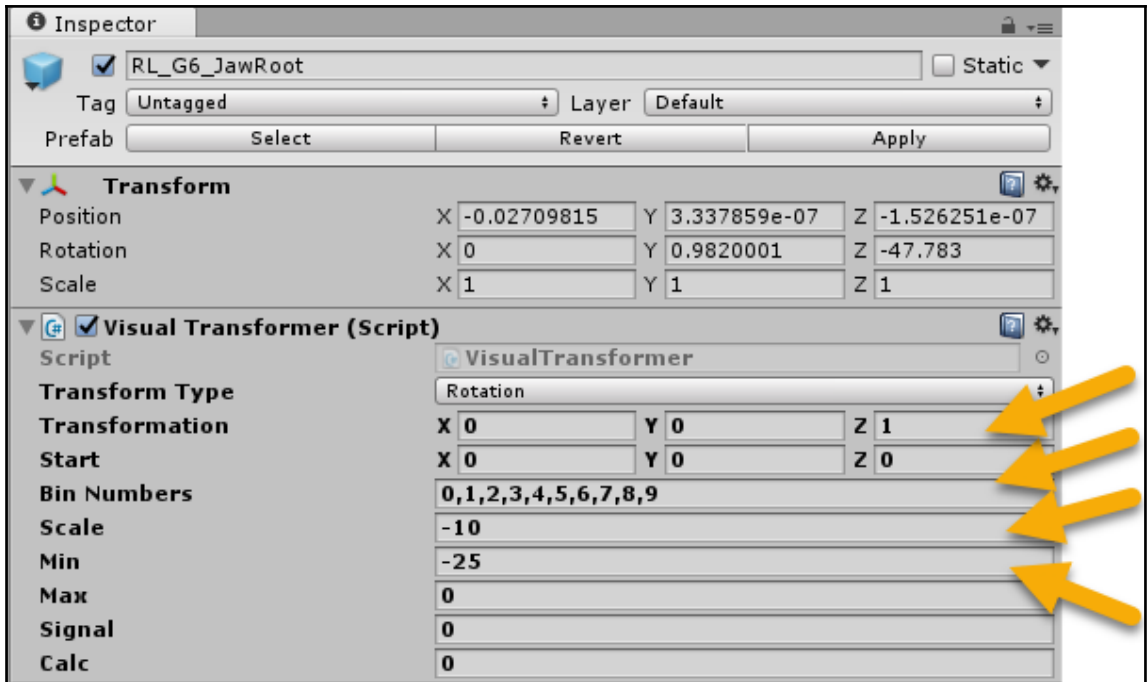
# Chapter 9: Character Lip Syncing and Vocals









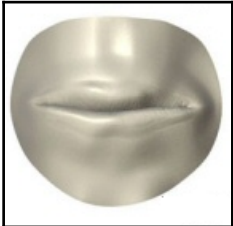
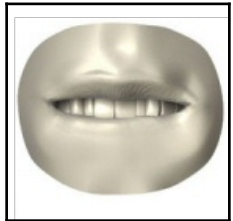


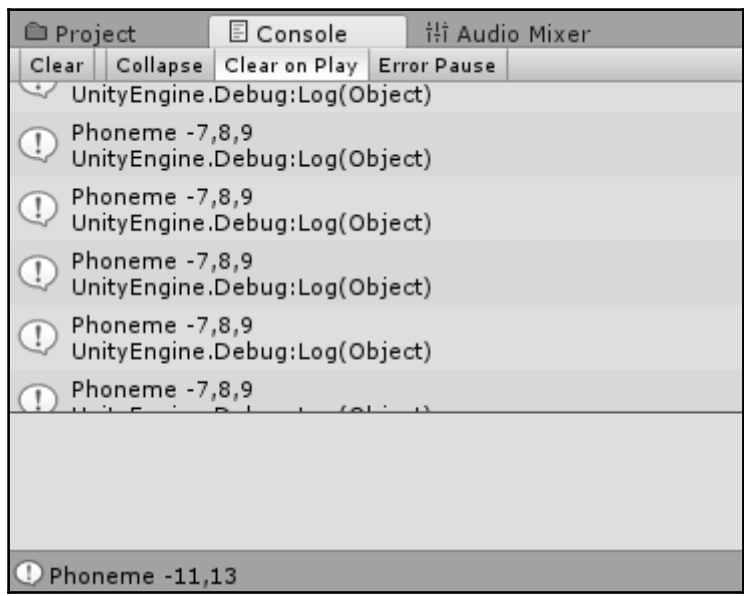
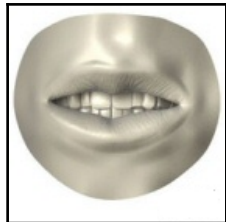
# PHONEME MOUTH CHART

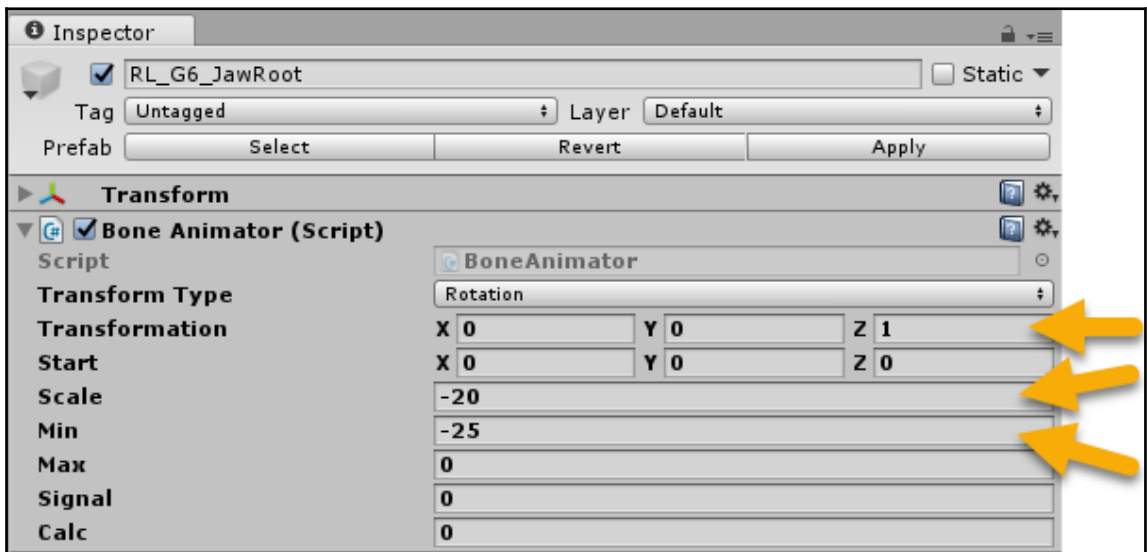
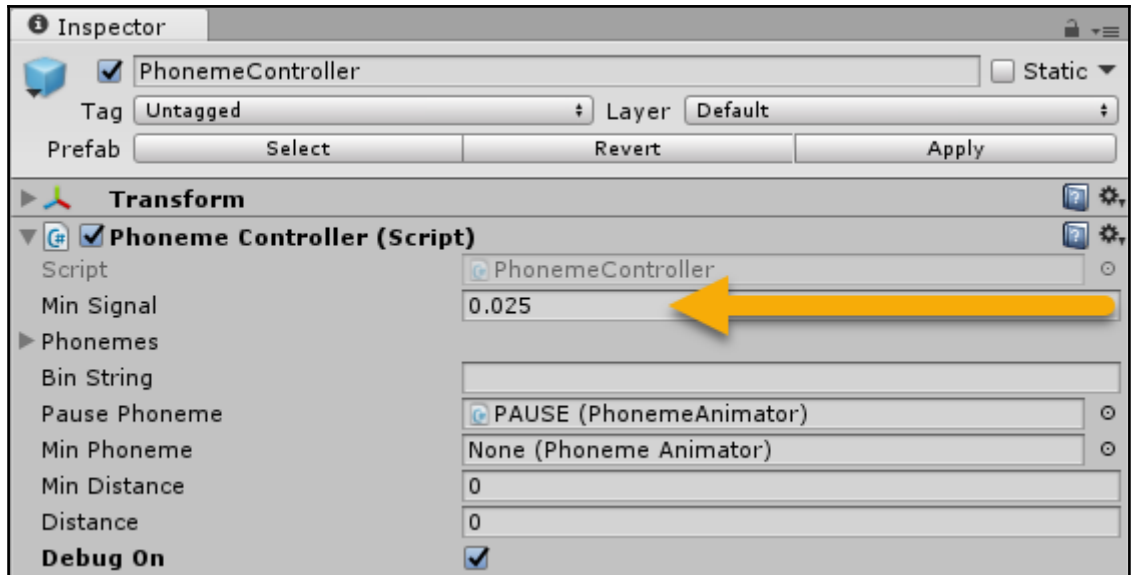
Animation Chart by Will Boyer, as taught by John Kelly

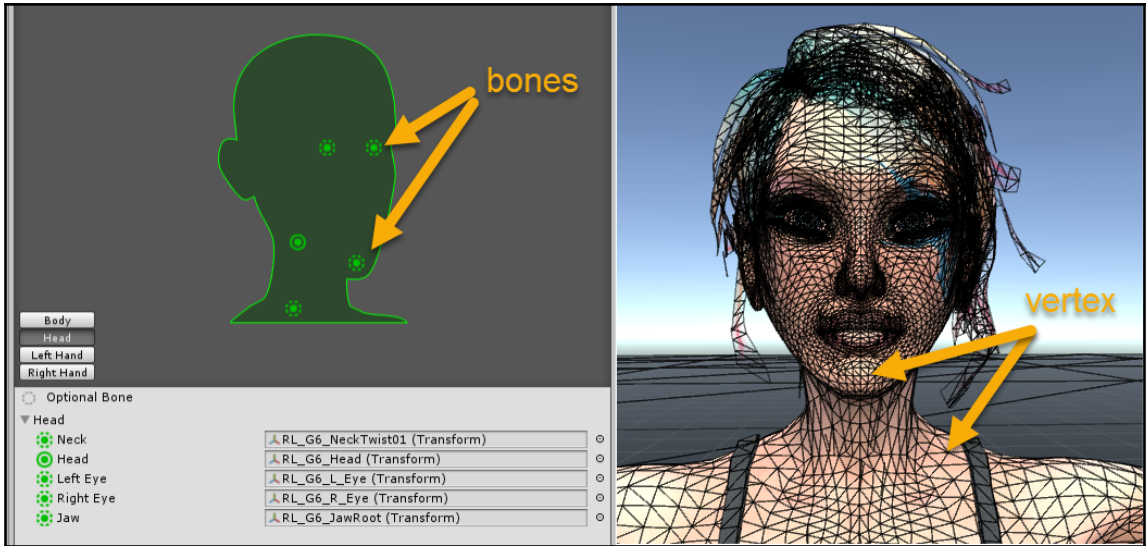
AAAH, A	EE	I	OH	OOH (U AND W)
UH, VUH	MAMA, PEE, BEE	LUM, LAA	EED, EOOD, EAUH, DEE, GEE, EYAAH, EEEH, EOOH BEHOLD CONSONANTS	



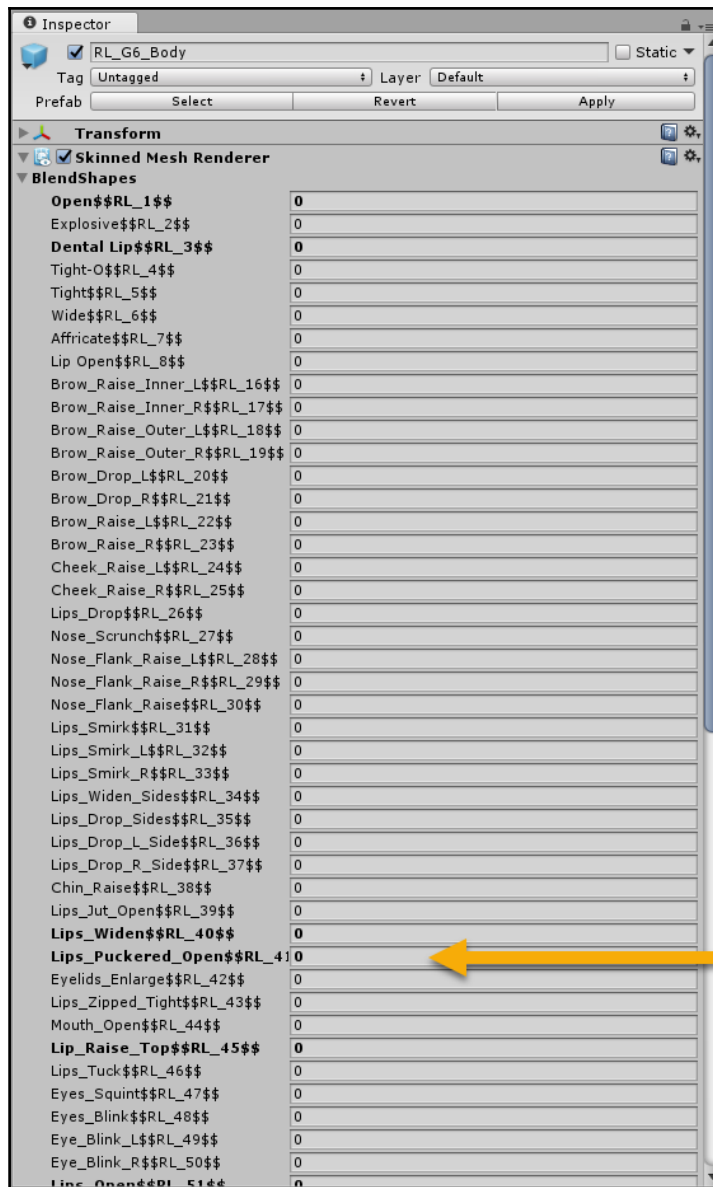


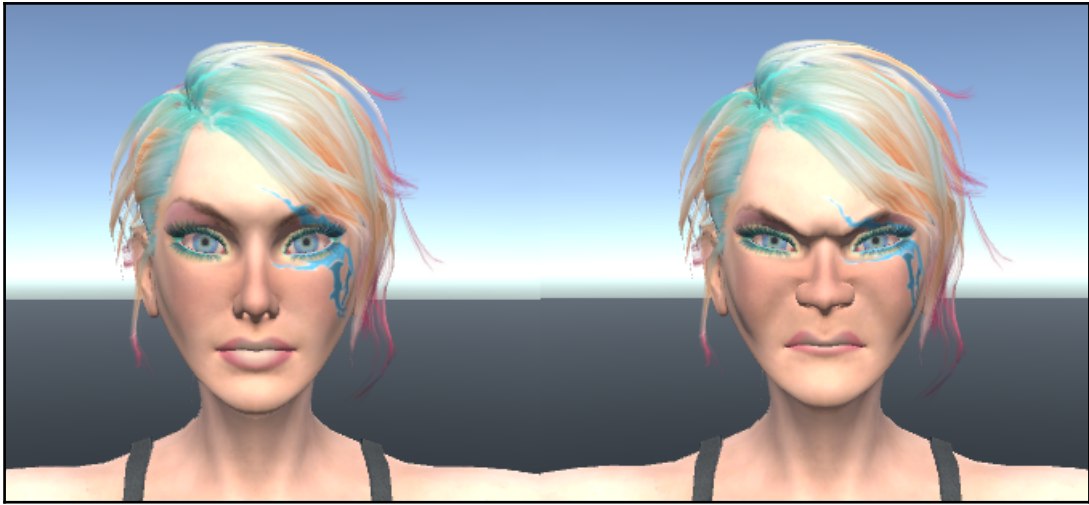


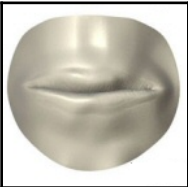
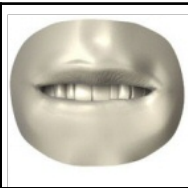


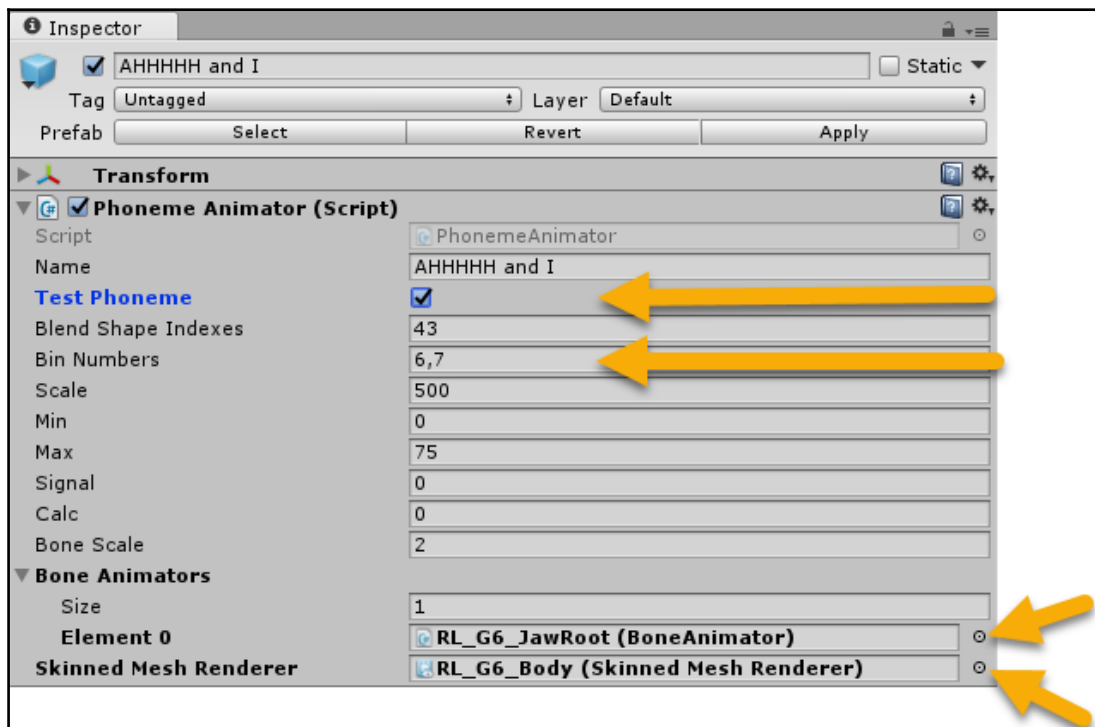
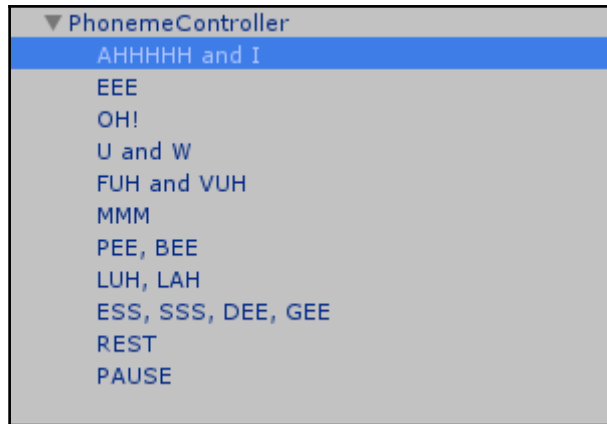


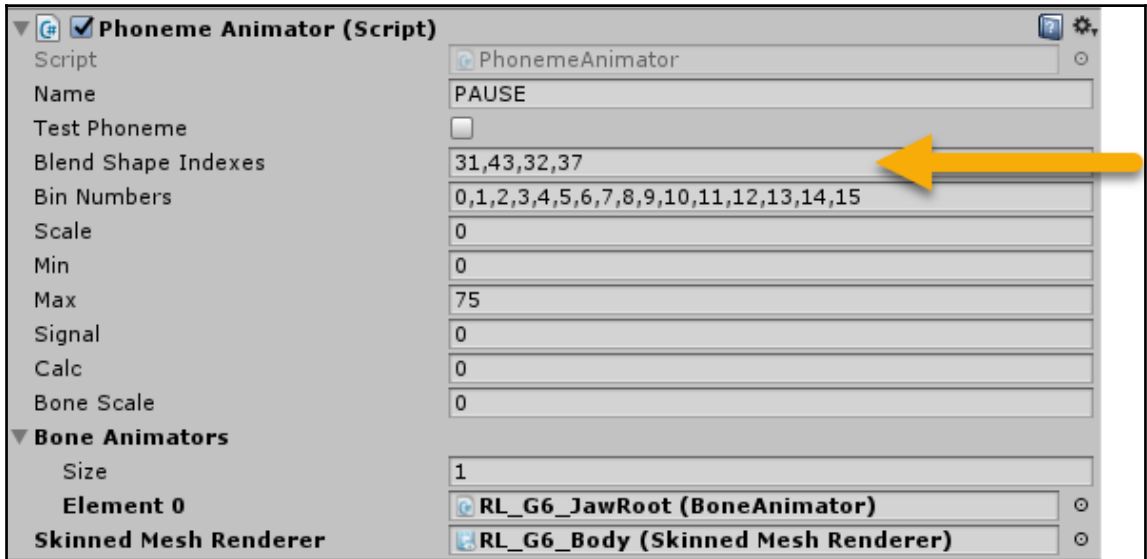
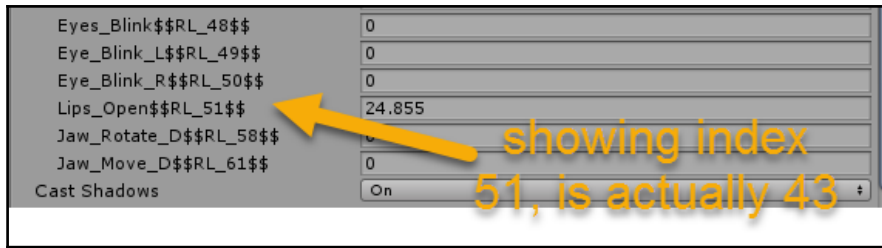


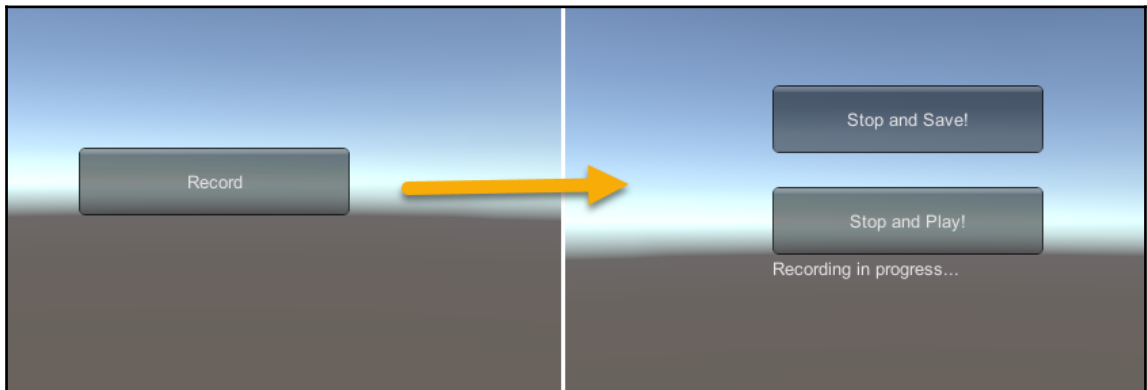
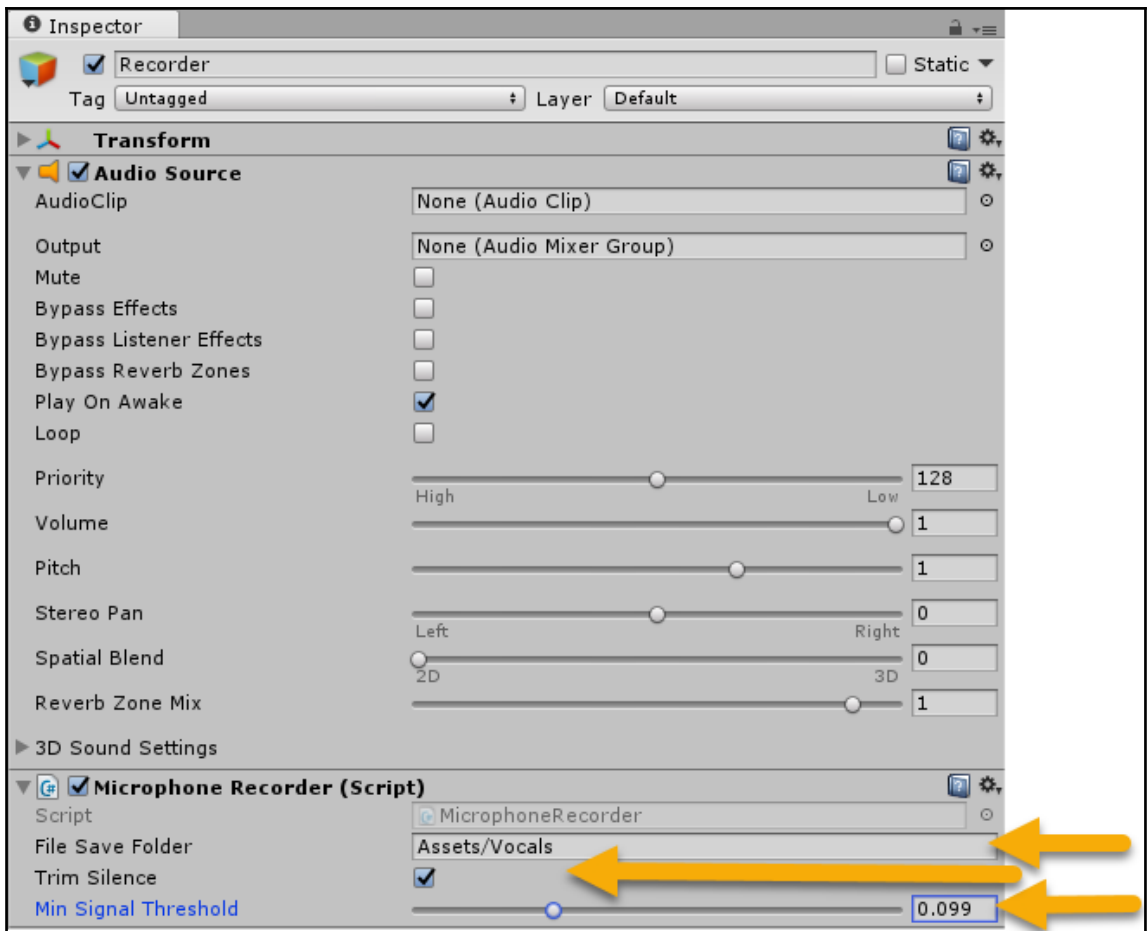




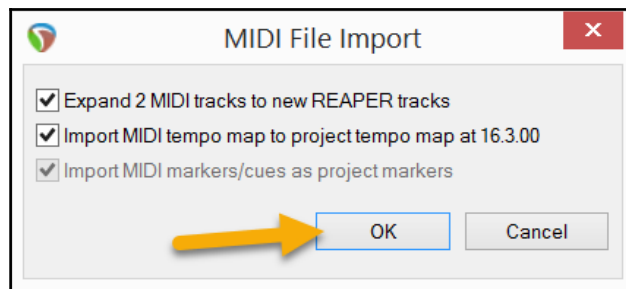
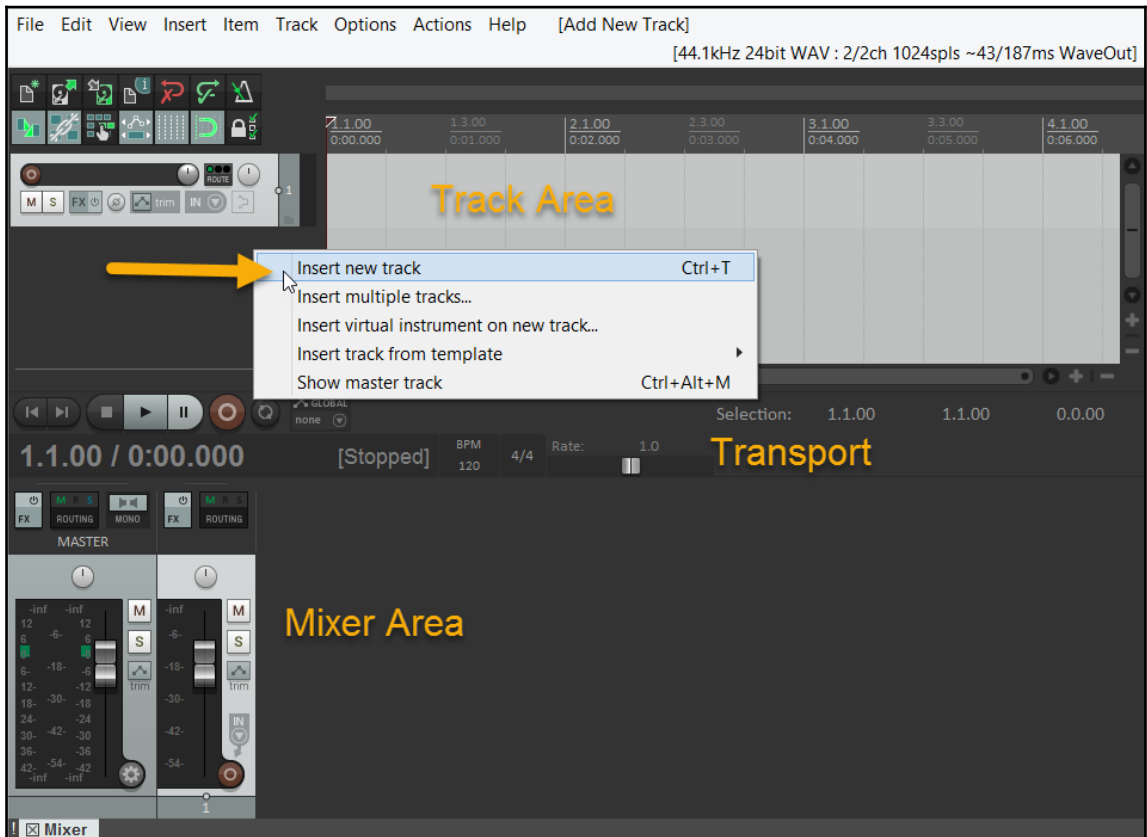


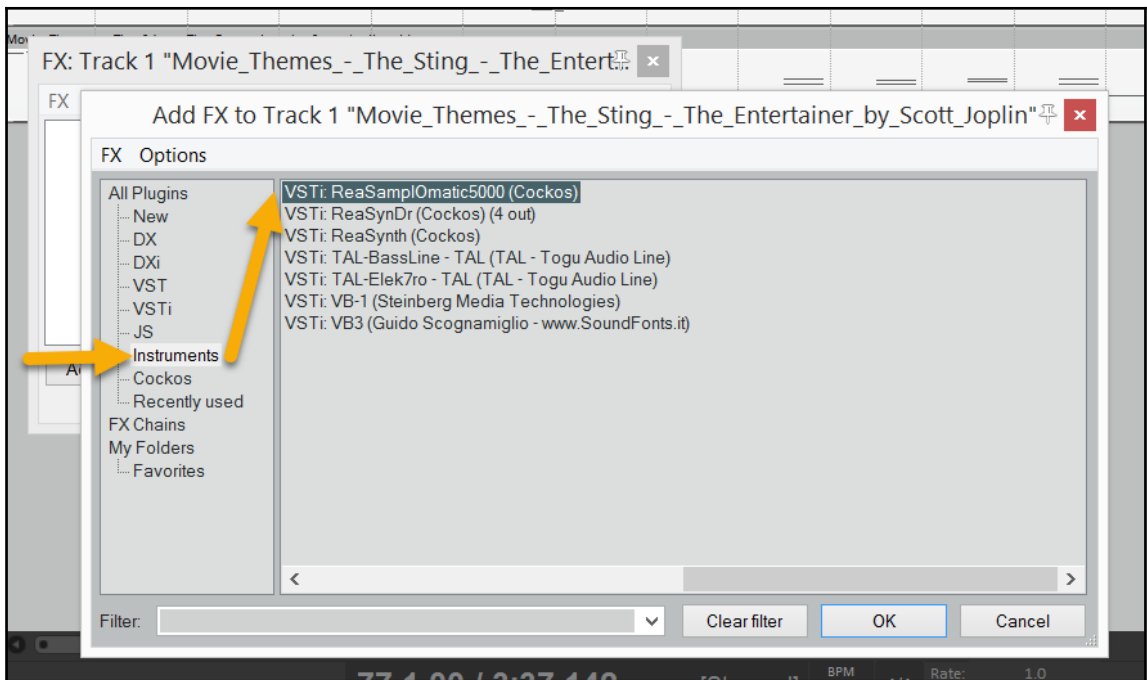
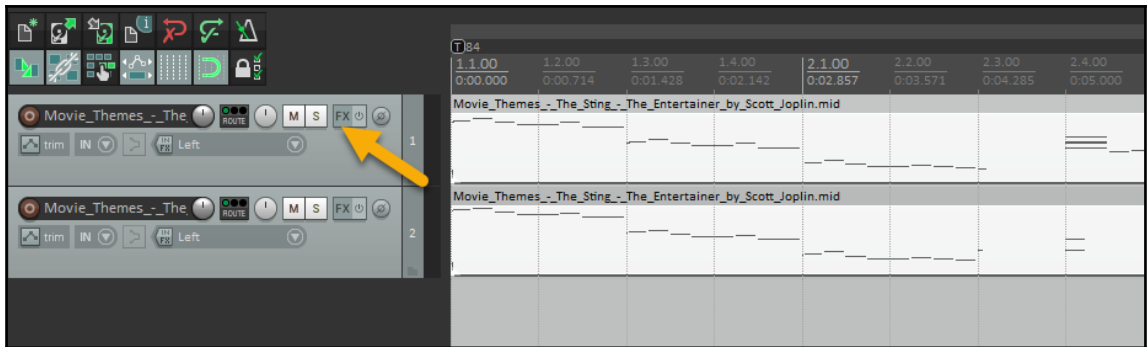






# Chapter 10: Composing Music







FX: Track 1 "Movie\_Themes\_-\_The\_Sting\_-\_The\_Entertainer\_by\_Scott\_Joplin"

FX Edit Options

- sting\_piano\_c6 (RS5K)

No preset [v] + Param 2 out UI [x]

ReaSampleOmatic5000

44100Hz 2ch 3.23s

View start: 0.00s, size: 3.23s, 223.3 sps/pix Start: 0.00s, Length: 3.23s

sting\_piano\_c6.wav

Mode: **Freely configurable shifted** [v] Import item from arrange Browse... [list]

Volume: [0] +0.0 dB Velocity maximum: [0] 127 Pan: [0] 50

Min vol: [0] +0.0 dB Velocity minimum: [0] 0

Note start: [0] 0 C-1 Pitch@start: [0] -69 semitones

Note end: [0] 127 G9 Pitch@end: [0] 59 semitones

Pitch offset: [0] 0.00 semitones Pitch bend: [0] 2.0 semitones (maximum)

Attack: [0] 1.00 ms Sustain: [0] +0.0 dB Decay: [0] 250 ms

Release: [0] 1 ms  Note-off release override: [0] 1 ms

MIDI Chan: [0] 0 (0=all) Max voices: [0] 4 0 active

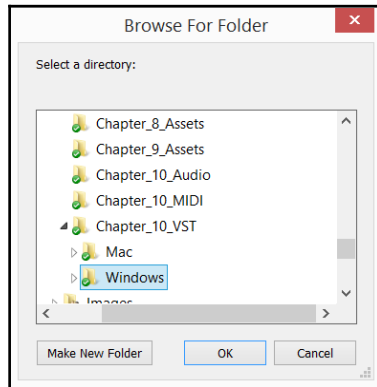
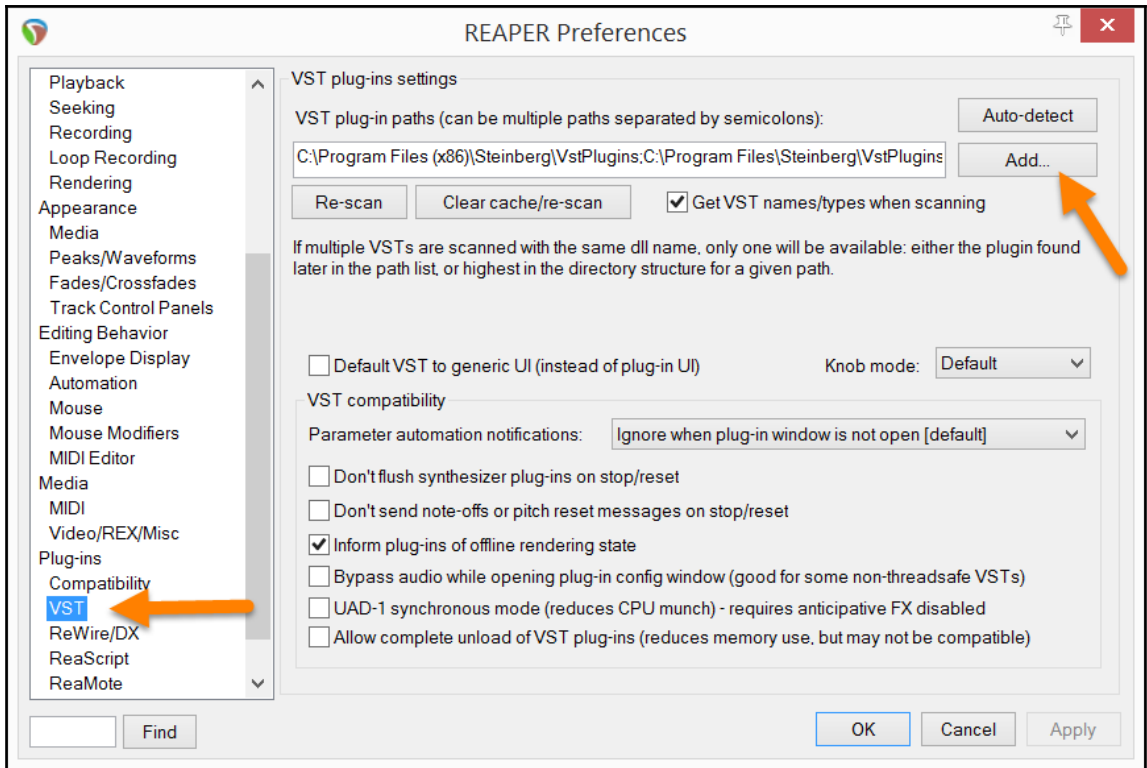
Probability: [0] 100  Round-robin  Remove played notes from FX chain MIDI stream

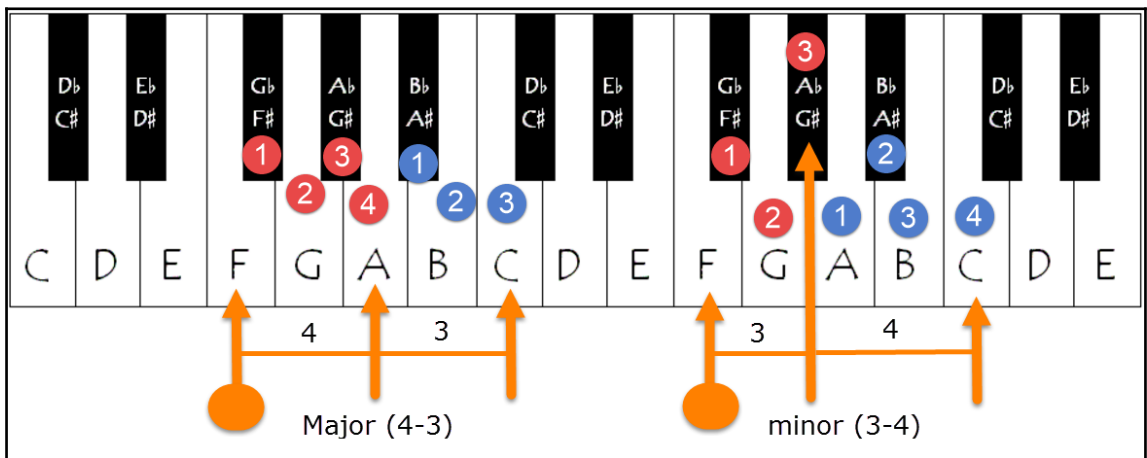
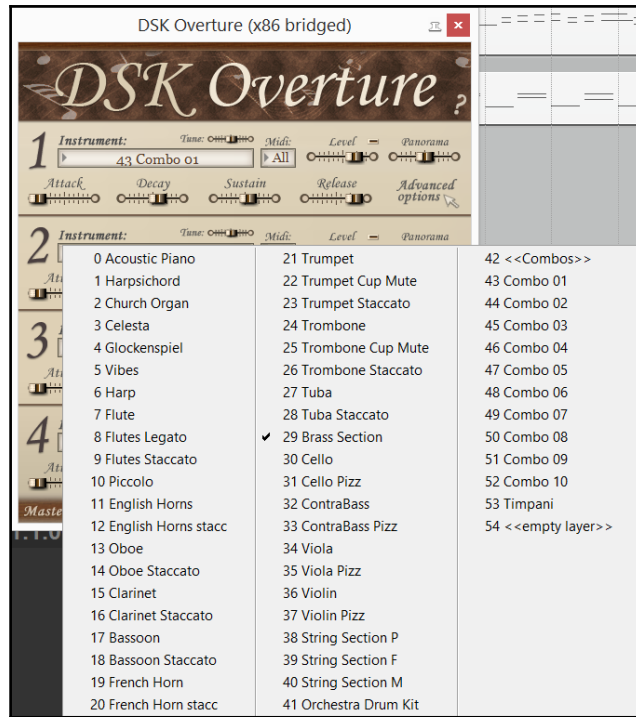
Obey note-offs  Loop Xfade: [0] 0.00 ms Loop start offset: [0] 0.00 ms

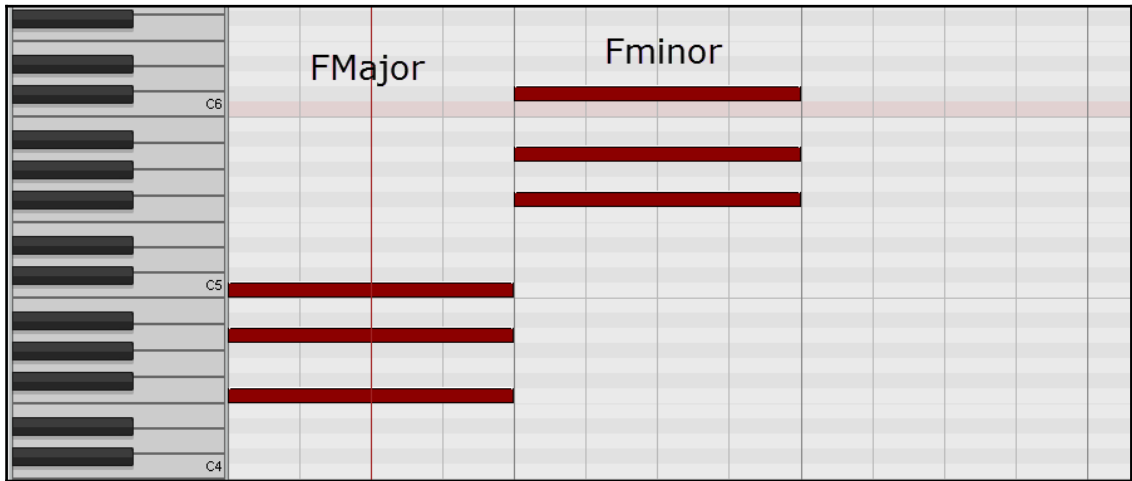
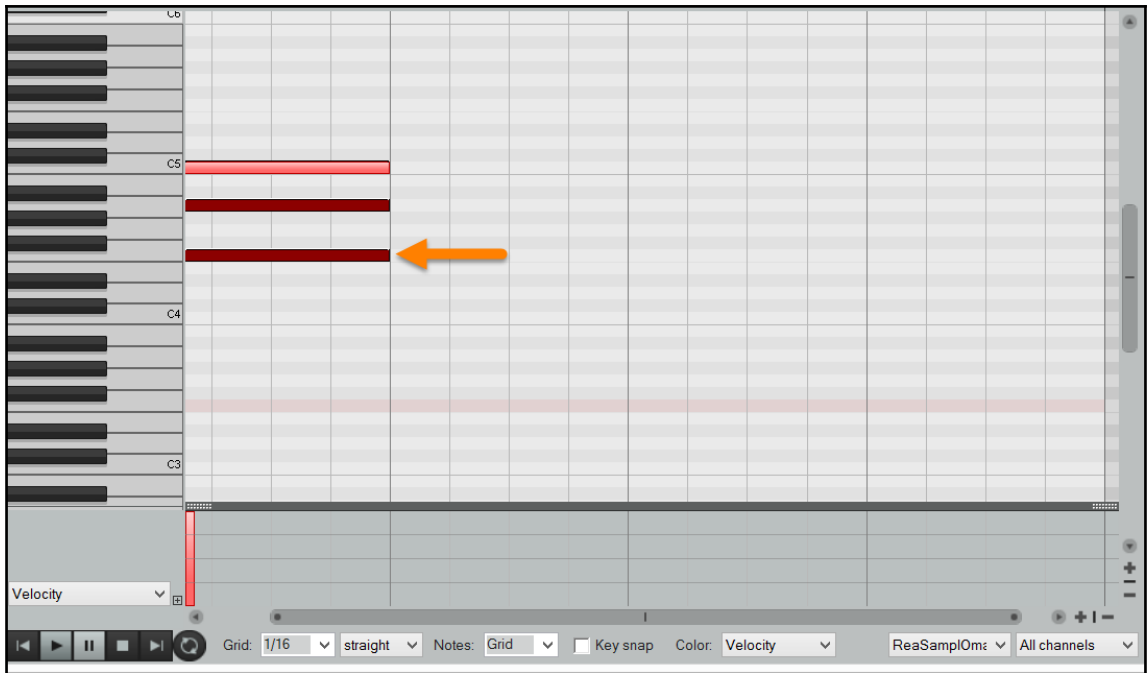
Resample mode: (project default) Cache samples smaller than: [0] 64 MB

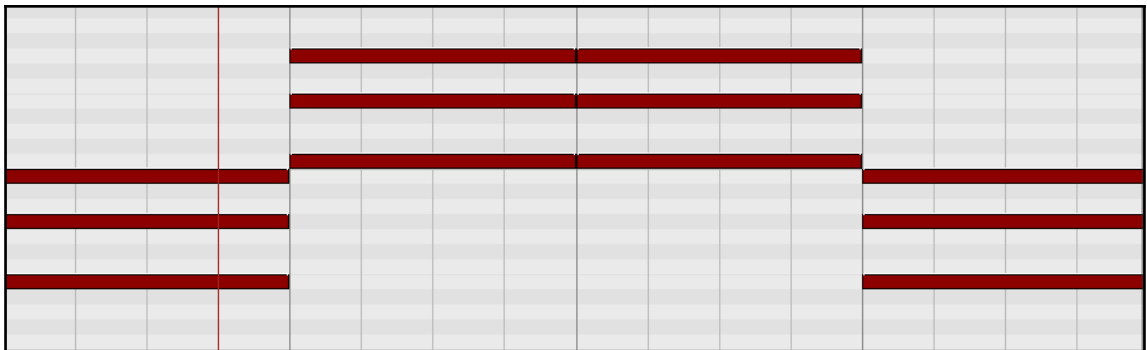
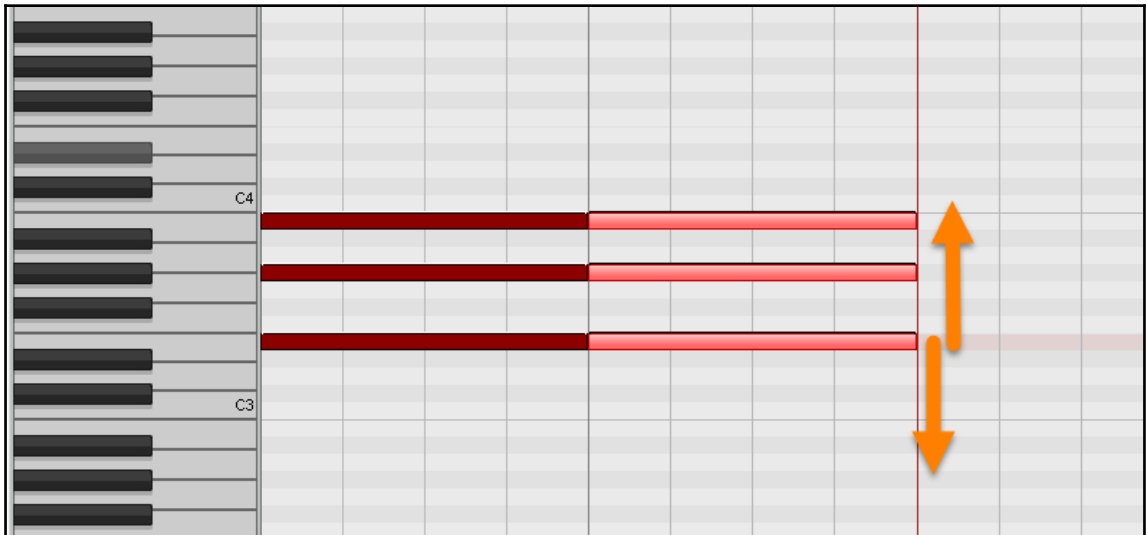
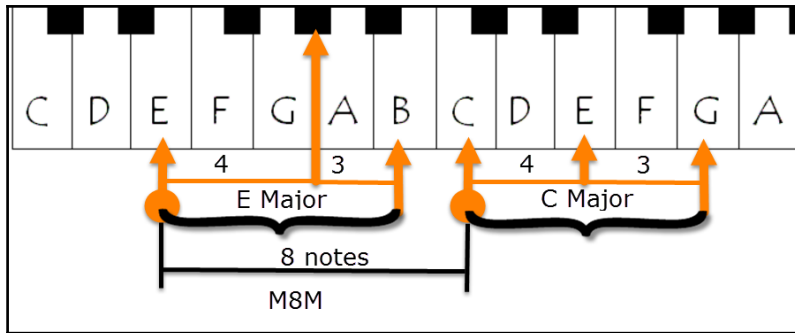
0.0%/0.0% CPU 0/0 sps

The image shows a music software interface with a piano roll. The top menu bar includes 'File', 'Edit', 'Navigate', 'Options', 'View', 'Contents', and 'Actions'. Below the menu is a toolbar with various icons. The main area displays a piano roll with a keyboard on the left and a piano roll grid on the right. The time display at the top left shows '0.4.88' and 'F#7 102'. The piano roll shows several notes with a red vertical line indicating the current time. The velocity control bar at the bottom shows several vertical bars representing note velocities. Two orange arrows point to the '0.4.88' time display and the velocity control bar. The bottom control bar includes playback controls, 'Grid: 1/4', 'straight', 'Notes: Grid', 'Key snap', 'Movie\_Theme:', and 'All channels'.



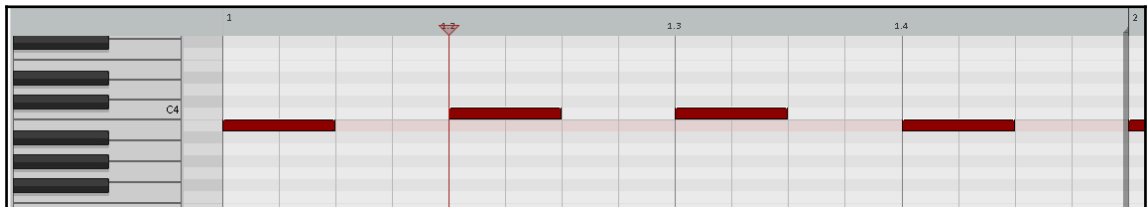
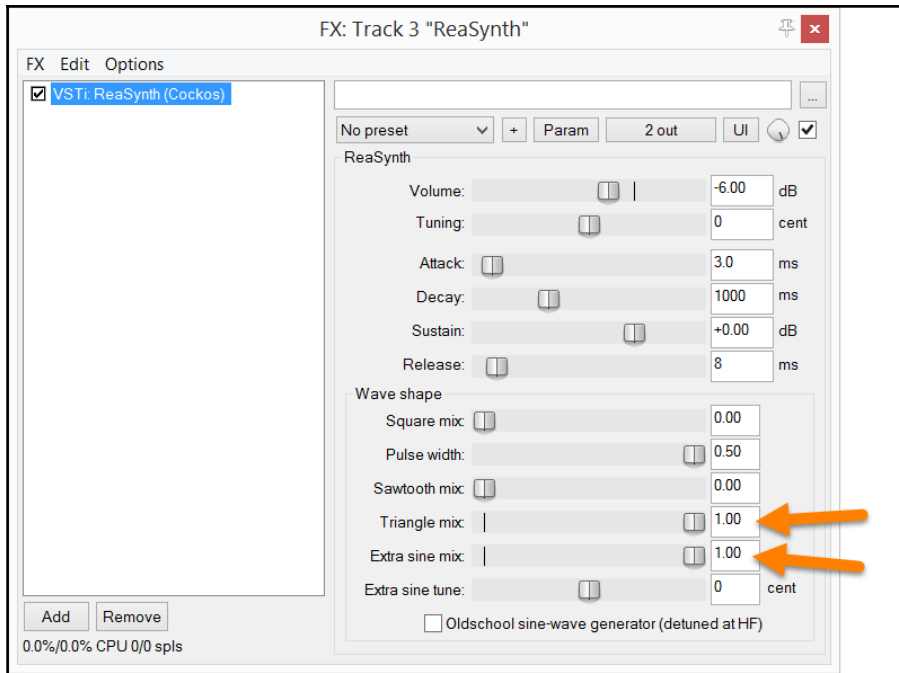




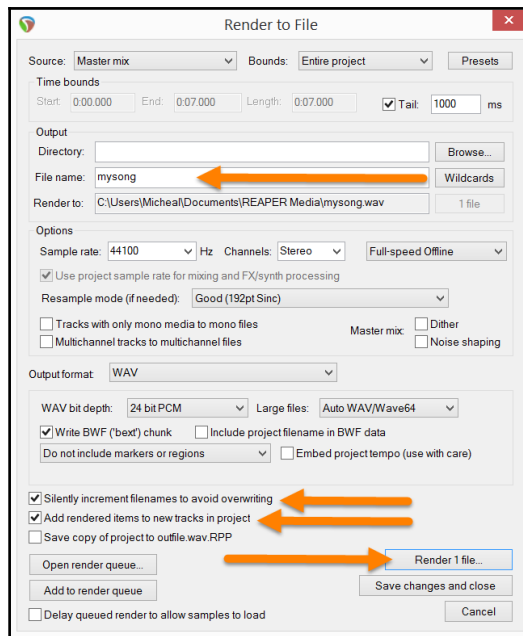
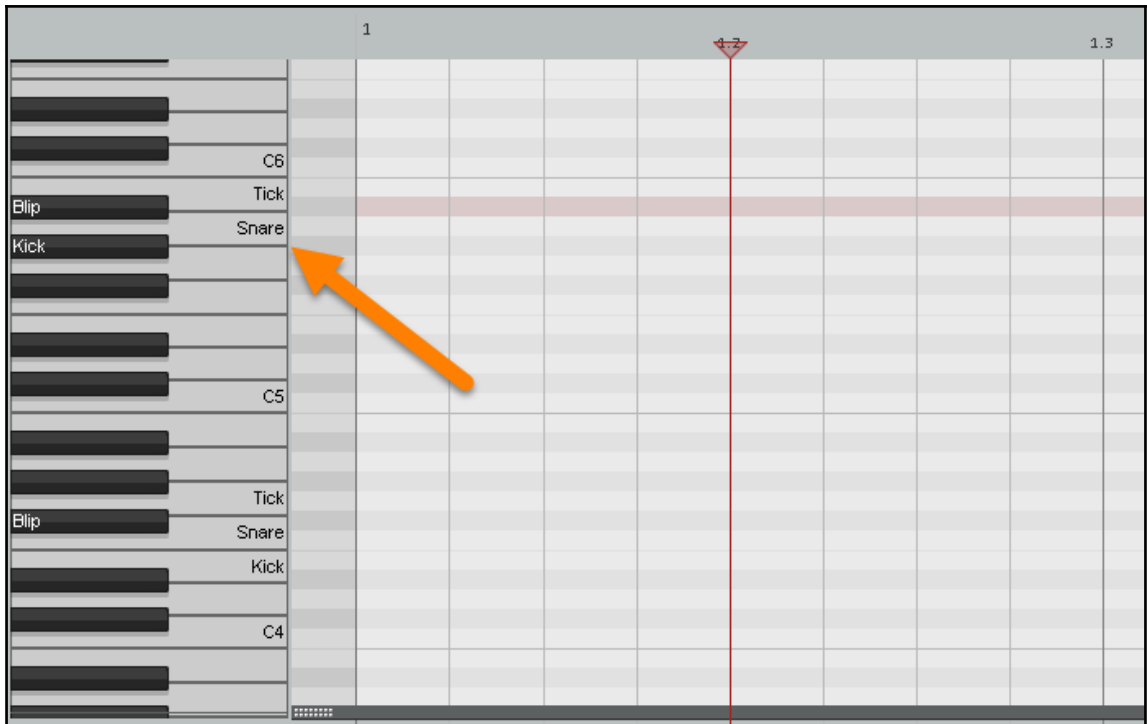


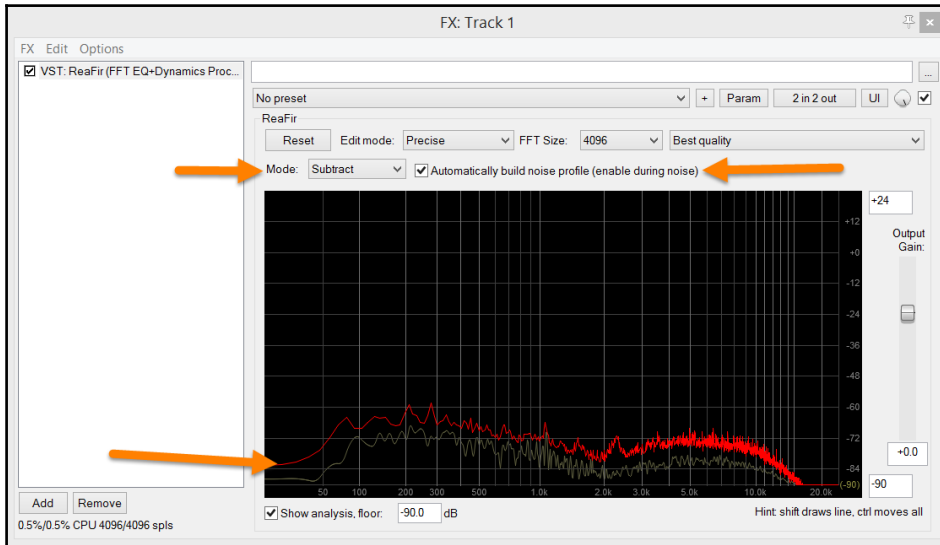
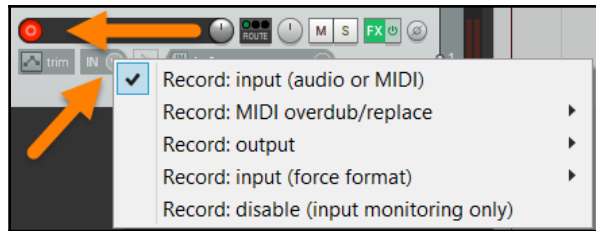
### C Major Scale

W = Whole step  
H = Half step

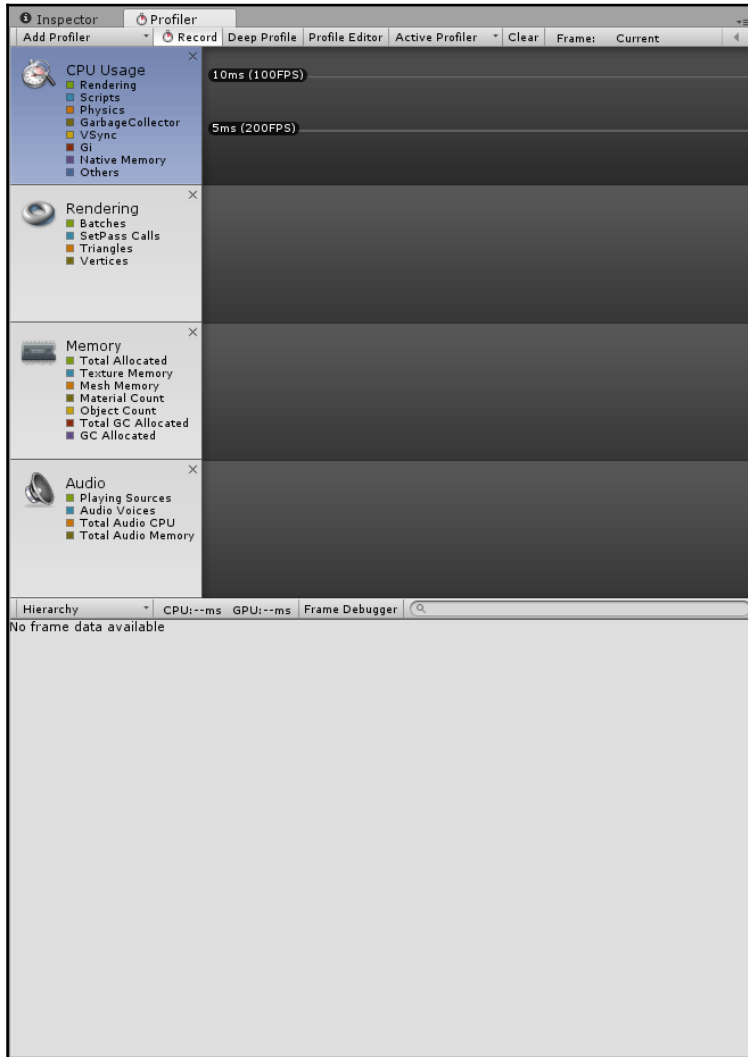


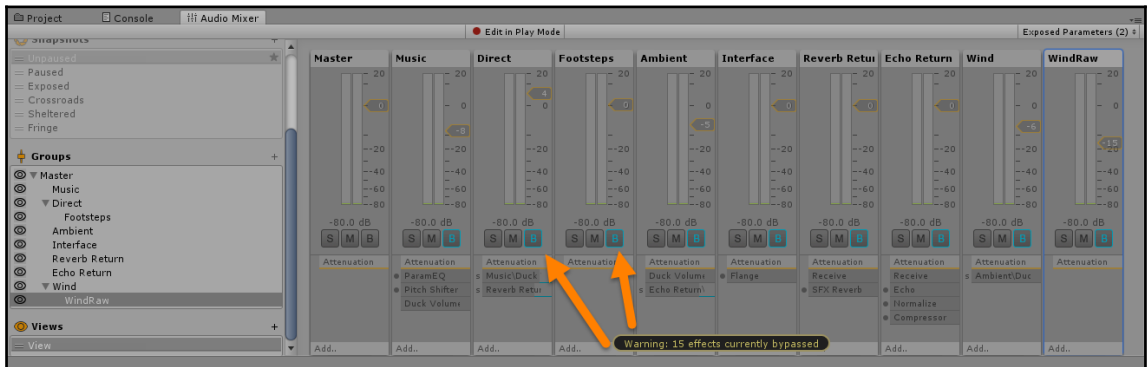
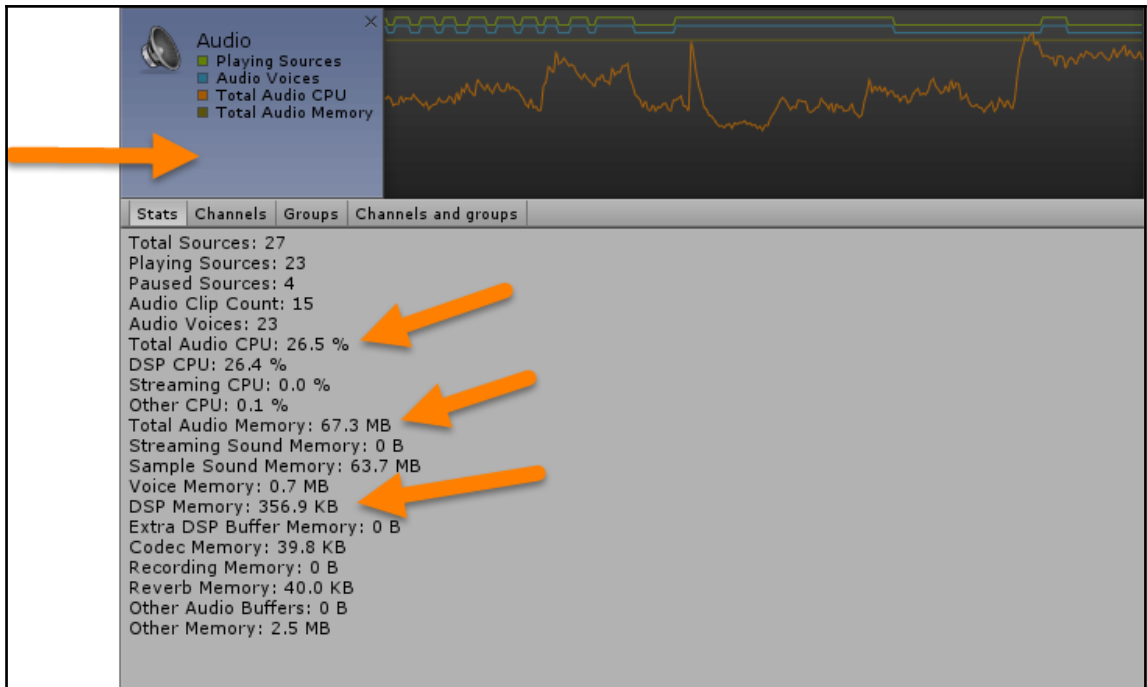


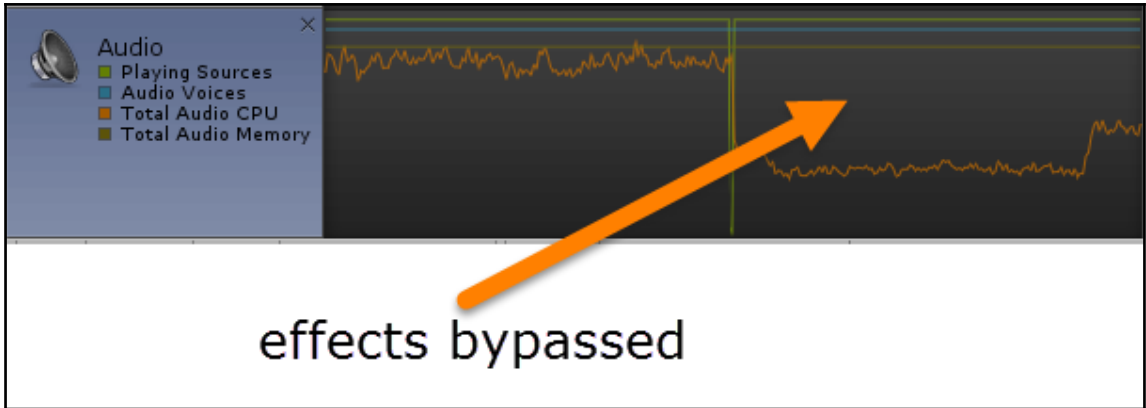




# Chapter 11: Audio Performance and Troubleshooting

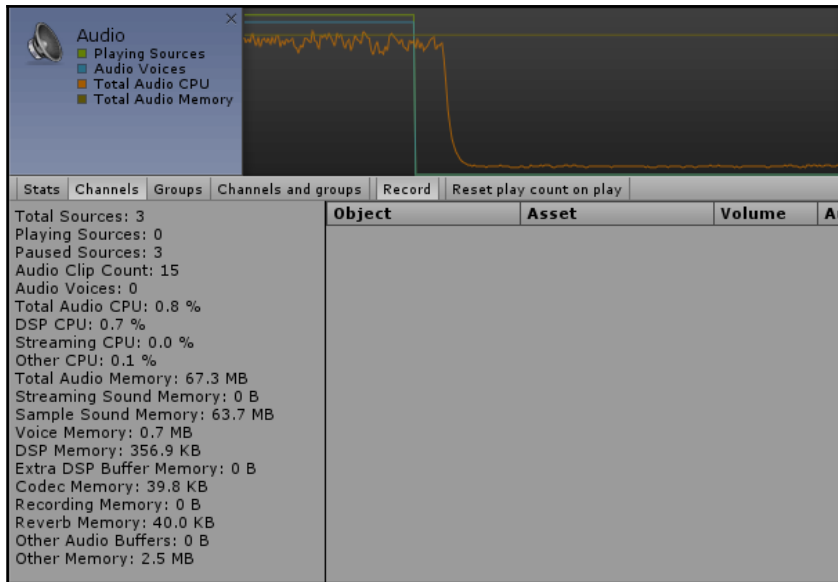






The image shows a software interface with a "Hierarchy" panel on the left and a table of audio assets on the right. The "Hierarchy" panel shows a tree structure with "Tribe\_Drum" highlighted in yellow. The table has columns for "Object", "Asset", "Volume", and "Attenuation".

Object	Asset	Volume	Attenuation
Tribe_Drum	tribe_drum	0.00 dB	
Celtic_Flute	celticflute	0.00 dB	
Fiddle	fiddle	0.00 dB	
Beat	beat	0.00 dB	
Ambient_lake-shor	lake-shore-waves2	0.00 dB	
prop_torch_01	torch	-1.20 dB	
prop_torch_01	torch	-0.45 dB	
prop_torch_01	torch	-2.30 dB	
prop_torch_01	torch	-0.20 dB	
prop_torch_01	torch	-1.43 dB	
prop_torch_01	torch	-2.41 dB	
prop_torch_01	torch	-0.40 dB	
prop_torch_01	torch	-2.08 dB	
prop_torch_01	torch	-2.04 dB	
prop_torch_01	torch	-1.69 dB	
prop_torch_01	torch	-0.92 dB	
prop_torch_01	torch	-0.71 dB	
prop_torch_01	torch	-1.46 dB	
prop_torch_01	torch	-0.34 dB	
prop_torch_01	torch	-1.56 dB	
prop_torch_01	torch	-0.84 dB	
prop_torch_01	torch	-2.49 dB	



The screenshot shows the Unity Inspector window for the asset 'lake-shore-waves2 Import Settings'. The settings are as follows:

- Force To Mono:
- Normalize:
- Load In Background:
- Load Type: **Streaming** (indicated by an orange arrow)
- Preload Audio Data:
- Compression Format: **Vorbis**
- Quality: **100**
- Sample Rate Setting: **Preserve Sample Rate**

At the bottom, a summary box shows:

- Original Size: 26.3 MB
- Imported Size: 6.8 MB
- Ratio: 25.70%

Buttons for **Revert** and **Apply** are at the bottom right, with an orange arrow pointing to the **Apply** button.

Stats	Channels	Groups	Channels and groups
Total Sources:	26		
Playing Sources:	23		
Paused Sources:	3		
Audio Clip Count:	15		
Audio Voices:	23		
Total Audio CPU:	32.9 %		
DSP CPU:	30.3 %		
Streaming CPU:	2.5 %		
Other CPU:	0.1 %		
Total Audio Memory:	25.5 MB		
Streaming Sound Memory:	192.1 KB		
Sample Sound Memory:	21.6 MB		
Voice Memory:	0.7 MB		
DSP Memory:	356.9 KB		
Extra DSP Buffer Memory:	0 B		
Codec Memory:	34.6 KB		
Recording Memory:	0 B		
Reverb Memory:	40.0 KB		
Other Audio Buffers:	0 B		
Other Memory:	2.6 MB		

Inspector Profiler

lake-shore-waves2 Import Settings

Open

Force To Mono

Normalize

Load In Background

Default

Load Type: Decompress On Load

Preload Audio Data

Compression Format: ADPCM

Sample Rate Setting: Override Sample Rate

Sample Rate: 8,000 Hz

Original Size: 26.3 MB

Imported Size: 0.9 MB

Ratio: 3.40%

Revert Apply

