



Audio Listener

Definition: The Audio Listener is essentially a microphone for the game--all audio that occurs in the game/world will be interpreted from the perspective of whatever object is appointed as the listener.

For instance, first person shooter games normally have the audio listener attached to the game's main camera so that all sound will be interpreted by what is essentially the perspective of the play.

In fact, most games have the audio listener set to the main camera.



Audio Source

Definition: The Audio Source is any object in the game/world that plays a sound file.

Unlike the Audio Listener, the audio source does have a hefty sum of properties and settings.



Settings for an Audio Source

Mute - Checking this will mute the sound--simple as that.

Bypass Effects - Checking this will have the sound play without any of Unity's audio effects--if you applied any beforehand.

Play on awake - Checking this box will cause the sound to play as soon as the game/world begins--this is good for ambience or any sound that will be playing constantly throughout the scene. Note: Unchecking this box means that the sound will play conditionally according to the game's script.



Settings for an Audio Source

Loop - Checking this will loop the file from start to finish--also pretty straightforward.

Priority - As it sounds, the slider determines which sounds will be eliminated if all of the game's sound channels are in use. The values go from 0 to 255--with 0 being the highest priority and 255 being the lowest.

Volume - Self explanatory.



Settings for an Audio Source

Pitch - Also self explanatory except affecting the pitch will also affect the speed of the clip. It's a good idea to control pitch in a digital audio workstation of choice, as you will have control of the pitch of the audio file without affecting the speed. If affecting both speed and pitch is your thing, though, by all means use this feature.

Pan 2D - This is located under the 3D Sound tab. This will control how a 2D sound is panned between the left and right channels.



3D Sound

Pan - This slider controls how much the 3D sound feature will affect the panning of the sound. 1 meaning that the 3D sound feature will take full advantage of its panning capabilities (i.e. if the audio listener is facing away from the object, the sound will distribute itself accordingly, attenuate when the listener moves away, etc.) whereas 0 will cause the feature to ignore panning altogether.



3D Sound

Spread - This slider controls how much the sound is distributed among the speakers at any given time. If the value of the sound's spread is at zero, then the sound will only play from the assigned speaker and will remain to be very directional as 3D sound affects it.

If the spread is increased to 90, then the sound will affect a full 90 degree angle and will take up more space in the surround sound system. As the audio listener turns and 3D sound kicks in, the sound will only move around the listener while consistently covering 90 degrees of space in the surround sound system.



3D Sound

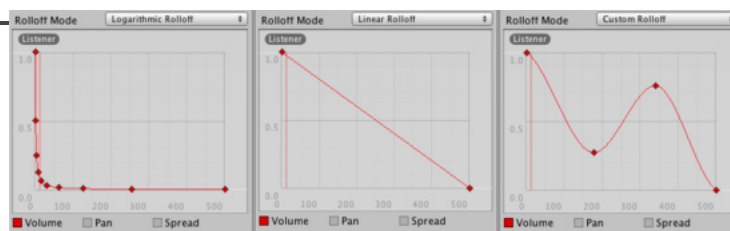
Doppler Level - This slider controls the doppler effect on a 3D sound. Turning it up to its maximum setting of 5 will mean that the drop and rise in pitch will be noticeably more dramatic than a setting of 0.5, where the change in pitch will be more gradual.

Min Distance - The minimum distance the audio listener has to be from the audio source to have the sound play at its fullest volume (the fullest volume being determined by the volume slider above the 3D Sound Settings tab). Once the audio listener begins moving away from the source, the sound will begin to get softer.


3D Sound

Max Distance - The maximum distance the audio listener can be from the source and still be able to hear the sound. If the audio listener is beyond this point then the sound will either not be playing or it will be playing at its lowest possible volume--depending on the sound's rolloff settings. At the same time, the max distance will most likely be the point at which the sound will be at its softest, depending on the sound's Rolloff Mode.

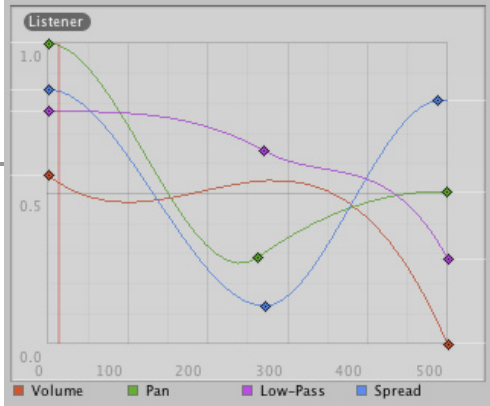
3D Sound




Rolloff Mode - This contains a subset of modes that determine how sounds will be affected (i.e. volume, spread, pan, etc.) based on how far the audio listener is from the audio source. There are three different flavors of rolloff that come with Unity: Logarithmic, Linear, and Custom. Each rolloff mode is also represented in a graph with the intensity of a given parameter vs. distance.



Custom Rolloff Mode



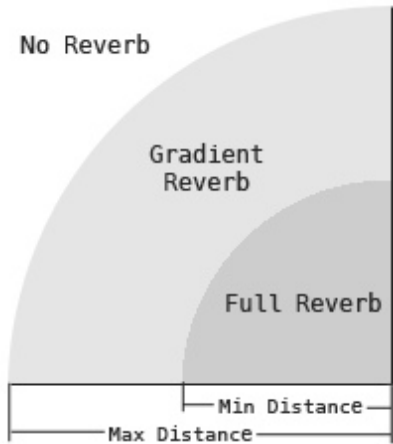
You can determine your own style of rolloff here by utilizing the graph located just below Rolloff Mode. To add more nodes to a parameter, double click anywhere on the parameter's line and a new node will appear. Drag these nodes to determine your own rolloff for a given parameter.



Reverb Spheres

Definition: **Reverb Zones** are spherical predetermined areas in a scene that give a specific kind of reverb to all sounds in the area.

You can add reverb zones to an audio source by selecting it in the Hierarchy window and selecting Component -> Audio -> Audio Reverb Zone





Reverb Spheres

Room - Room effect level at low frequencies

Room HF - Room effect high-frequency level re. low frequency level

Room LF - Room effect low-frequency level

Decay Time - Reverberation decay time at low-frequencies in seconds

Decay HFRatio - Decay HF Ratio : High-frequency to low-frequency decay time ratio

Reflections - Early reflections level relative to room

Reflections Delay - Late reverberation level relative to room



Reverb Spheres

Reverb - Late reverberation level relative to room effect

Reverb Delay - Late reverberation delay time relative to first reflection in seconds

HFRference - Reference high frequency in Hz

LF Reference - Reference low-frequency in Hz.

Room Rolloff - Determines how the reverb effect will attenuate as the player moves farther away from the reverb zone.

Diffusion - Reverberation diffusion (echo density) in percent.

Density - Reverberation density (modal density) in percent.



Post Processing/Effects

In Unity Pro only

- Low Pass Filters
- High Pass Filters
- Echo Filters
- Distortion Filters
- Reverb Filters
- Chorus Filters