

Dynamic Birds Audio System



1346 Sound Files

242 Sound Cues

76 Bird Species

21 Insect Species

20 Biome Types

Spatial Audio Support



EPIC MegaGrants Recipient

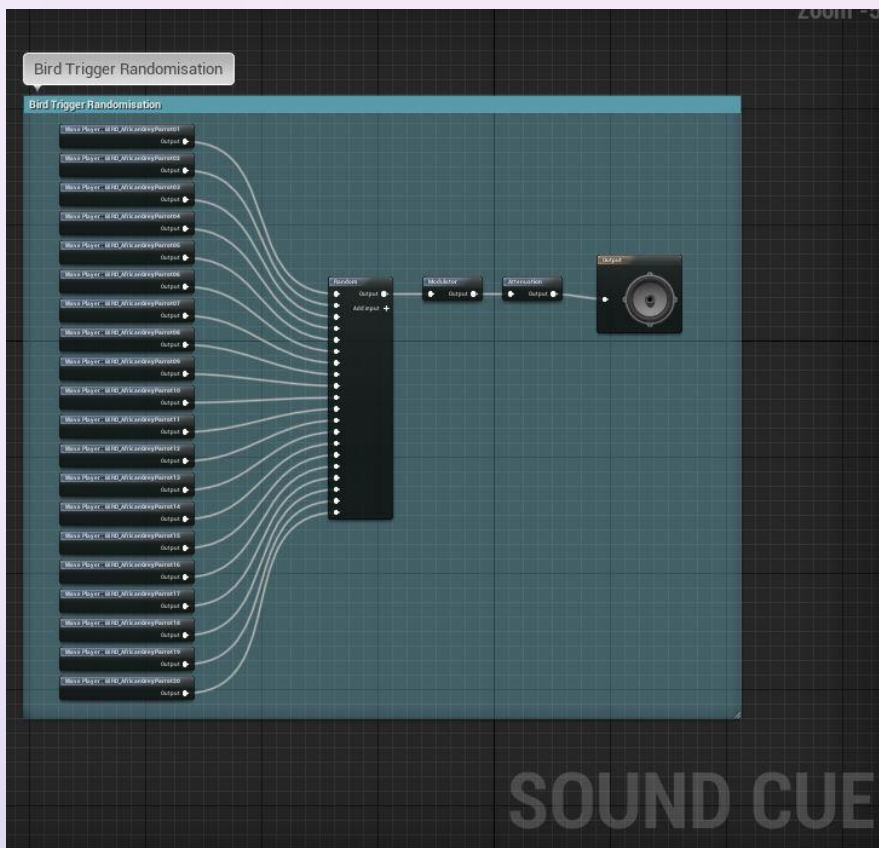
Dynamic Birds Audio System

Responsive Environmental Ambiences

Environmental ambiances that you can move through, that shift with the time of day and that even respond to a player's actions.

Seamless Motion

Many projects use looped stereo sounds to create a world ambience, which means they sound exactly the same as you move around. In the real world the birds and insects surround you, you can move through them and as you turn left and right, they shift relative to your movements. We create family groups of birds within the 3D world to more accurately represent what you experience in the real world.



All Sound Cues contain multiple sound files to remove repetition and create more realistic environments.

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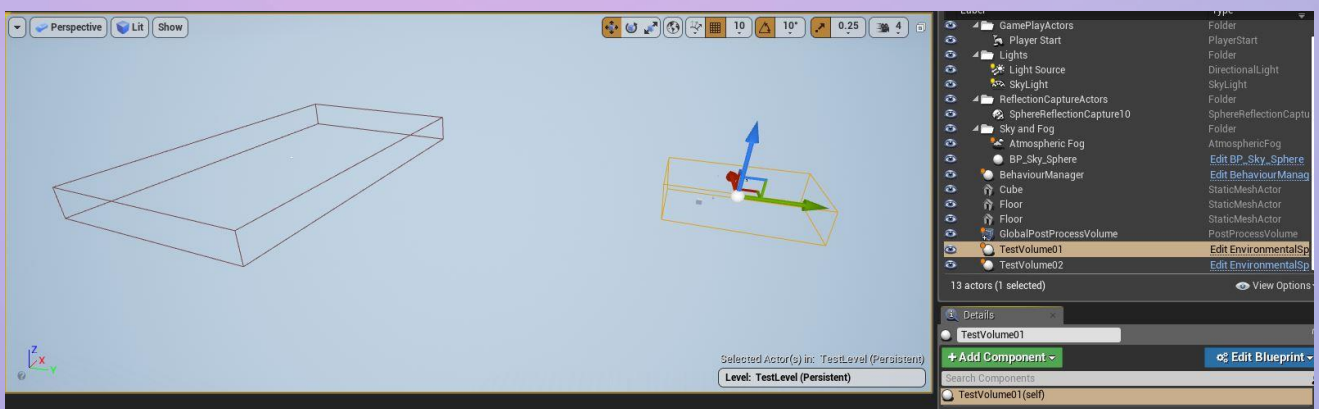
Installation

Unzip the contents of the .zip file into **[your project folder]/Plugins/Runtime/DynamicBirdsAudioSystem** and then start up the Unreal Editor with your project.

Setup

There are two things you'll need in your Unreal level: a single **DBAS_BehaviourManager** object, and one **DBAS_EnvironmentalSpawnVolume** for each area in your level where you want birds and insects to play. You can have just one and scale it to the size of the level if your needs are simple. For the most accurate audio, place one volume for each tree canopy or area where bird sounds will come from.

You create volumes across your level and size them appropriately to cover the required areas. The volumes are low cost and so you can create many different volumes across a level.

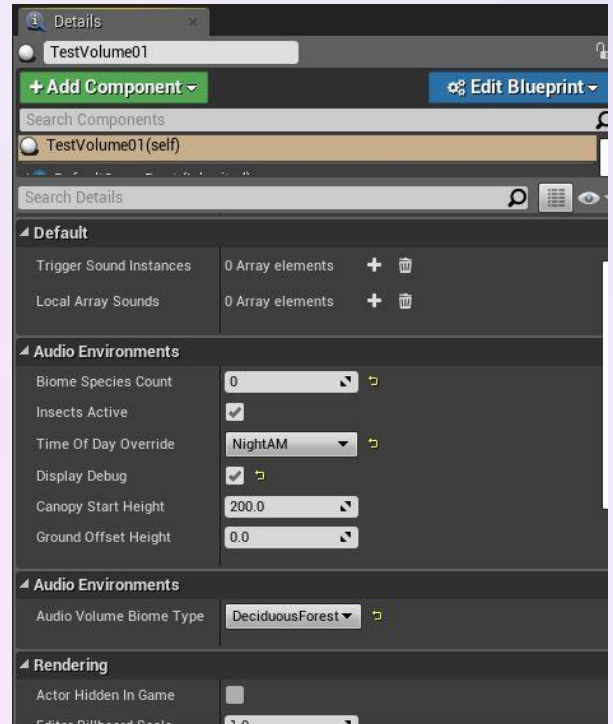


Two test volumes created in an empty level

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Volume Definitions

Each Environmental Volume has a series of values that define what birds you will hear and how they behave in that volume.



Volume Settings

Biome Species Count

This defines how many different species of birds you want within the selected volume. There are maximums for each biome type and so any number set beyond that maximum will apply the maximum value to that biome.

Insects Active

This will add insects sounds to the biome at appropriate times. Mostly this means insects will play at night time when the birds are inactive (asleep) sometimes it will add insects to the day cycle in appropriate biome types. For instance, a desert biome may have insects that trigger during the daytime.

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Time of Day Override

The plugin will respond automatically to a day night cycle if you have one within your game and have linked that information to the system. This function allows you to override that system and set a biome to always be in a specific time of day.

Display Debug

When selected the plugin will display wireframe spheres that indicate bird activity during runtime. This allows you to confirm where bird sounds are triggering and how often they trigger with a visual reference.

Canopy Start Height

The plugin will randomly create family groups of birds in clusters within the defined volume. Canopy Start Height allows you to define the minimum height of the flat plane that is consider the tree canopy. Bird sounds will trigger at or above that level. This lets you avoid having bird sounds occur at ground level or having bird sounds half way up a tree trunk where there is no foliage as this may sound strange.

Ground Offset Height

This setting allows you to adjust the ground level in a volume, so if there is geometry or other factors that would result in the trees being lifted above the ground plane (say a hill or raised garden bed) this setting passes that information to the plugin so that the position of the bird calls are adjusted accordingly.

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Audio Volume Biome Type

This defines which of the 20 biome types is applied to the current environmental volume.

Biomes

For the user, Biomes are a quick and easy way to define the type of bird sounds that will be triggered within an Environmental Volume. If you want an area that sounds like a Desert, then select the Desert Biome. The functionality within the Biomes is more complex than that and understanding this functionality may help you create more effective environments.

Each of the 76 bird species included in this pack inhabit specific biome types in the real world. We have tried to make this plugin as useful as possible in creating realistic environments and so each bird was researched and allocated to appropriate Biomes. Some species of birds may exist in more than one Biome and some will be limited to a single Biome.

Seasonal Cycles

To further support realism, many birds will alter their playback if you include a seasonal cycle within your project. So, bird species X may spend its summer months in a Tundra Biome, but during Autumn and Winter it 'migrates' to a Deciduous Forest environment. This would mean that during gameplay you would not hear this species' in the Tundra Biome but you may hear them in your Forests. This behaviour is only active if you sync up seasonal time tracking. To ensure a bird is always triggered in your biome don't sync seasonal time tracking.

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Biomes

Coastal Arctic

Coastal Temperate

Coastal Tropical

Deciduous Forest

Desert

Farmland

Grassland

Heathland

Hinterland

Jungle

Rainforest

Savana

Swamp

Taiga

Tropical

Tundra

Urban

Waterway

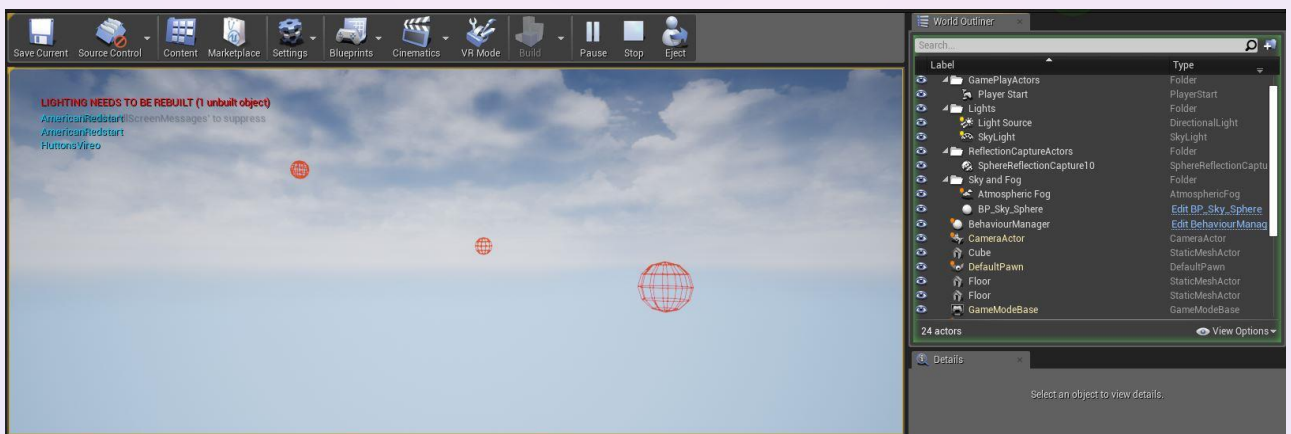
Wetland

Woodland

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Bird sounds are triggered in clusters that represent family groups. This is done by defining a specific location within the volume for a 'family' and then individual bird calls are triggered within a suitable proximity of that centre node. The rate of triggering depends on time of day and the specific species. A small bird like a sparrow chirps constantly and is more vocal than a crow, so the behaviour is initially setup to reflect each species as accurately as possible.

Secondary to that is time of day behaviour. Most birds are very vocal at dawn and dusk and then less vocal in the middle of the day. If the day night cycle is active then bird calls will reflect this with the birds being most noisy at dawn and dusk. This further helps establish a more realistic environment for your project.



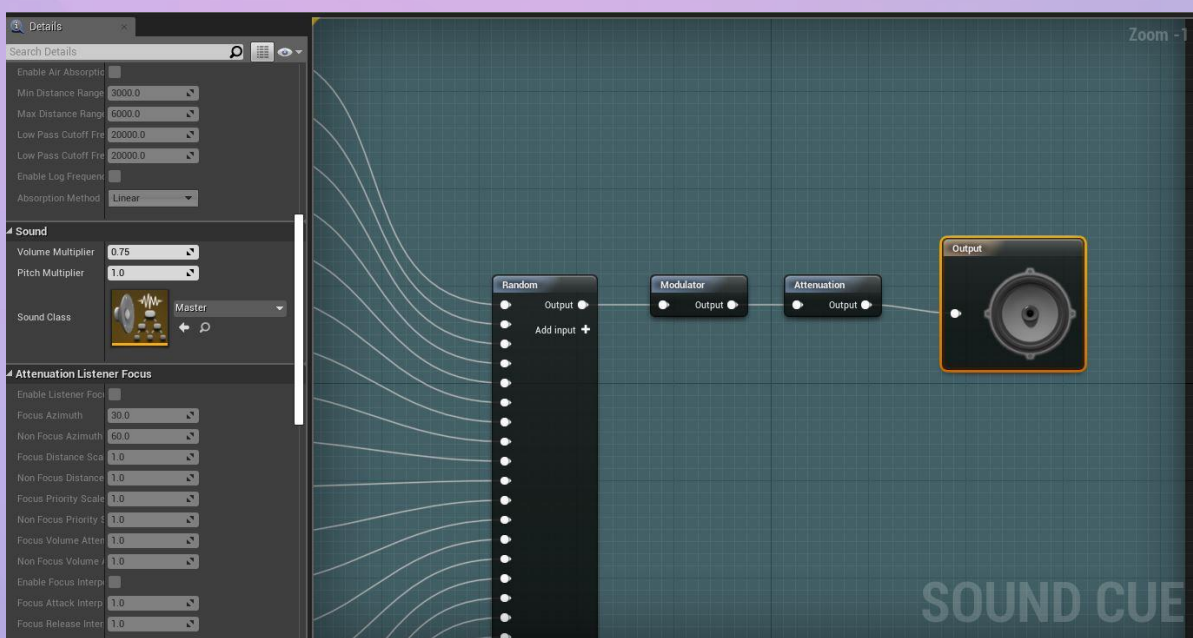
With Debug switched on each trigger of a birdcall is indicated by a wireframe sphere and the relevant species is printed on screen. The above image indicates 3 birds currently speaking, 2 instances of an American Redstart and one of a Hutton's Vireo.

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Insects are set up in a slightly different manner. Because many types of insects create a constant stream of sound, the insects are set up using spatial audio techniques. This means that when you enter a volume with insects you will be surrounded by the streams in four locations around you and above you. If you rotate the camera or a VR headset you still get the sensation of the insects moving around your head, but they are not individual point source sounds like the bird calls.

Tuning

As with any asset pack you will need to do some amount of tweaking and tuning to get each element to work its best for your project. This can be easily done within the Sound Cues for the various bird species. You can adjust the output volume and attenuation behaviour per species without having to alter other species.



Sound Cue Output settings

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The output volume can be adjusted by selecting the Output module and adjusting the volume multiplier values and new attenuation values can be set by selecting the Attenuation object and altering values there. We have tried to establish a good default baseline for all sounds that should work on most projects without the need to adjust too many elements, but it is easy to tune all elements of this plugin to best suit your project's needs.