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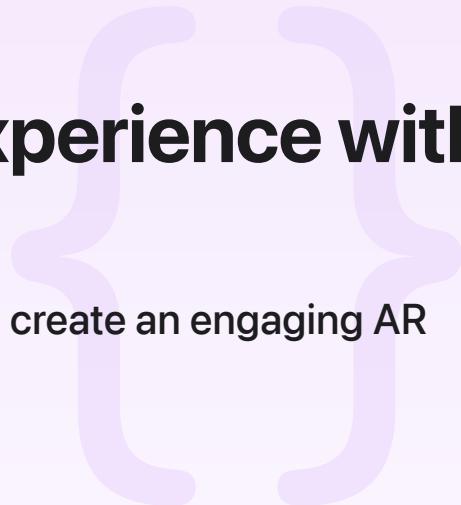
Sample Code

# Creating an immersive ar experience with audio

Use sound effects and environmental sound layers to create an engaging AR experience.

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iOS 13.0+ | iPadOS 13.0+ | Xcode 16.0+



## Overview

This sample app uses SceneKit's node-based audio API to associate environmental sounds with a virtual object that's placed in the real world. Because audio is 3D positional in SceneKit by default, volume is automatically mixed based on the user's distance from a node.

## Getting started

- This sample code supports Relocalization and therefore, it requires ARKit 1.5 (iOS 11.3) or greater
- ARKit is not available in the iOS Simulator
- Building the sample requires Xcode 9.3 or later

## Run an AR session and place virtual content

Before you can use audio, you need to set up a session and place the object from which to play sound. For simplicity, this sample runs a world tracking configuration and places a virtual object on the first horizontal plane that it detects. For more detail about this kind of session setup, see

[Tracking and visualizing planes](#). The object placement approach in this sample is similar to the one demonstrated in [Placing objects and handling 3D interaction](#)

## Add 3D audio to the scene

To play audio from a given position in 3D space, create an [SCNAudioSource](#) from an audio file. This sample loads the file from the bundle in `viewDidLoad`:

```
// As an environmental sound layer, audio should play indefinitely
audioSource.loops = true
// Decode the audio from disk ahead of time to prevent a delay in playback
audioSource.load()
```

Then, the audio source is configured and prepared:

```
// As an environmental sound layer, audio should play indefinitely
audioSource.loops = true
// Decode the audio from disk ahead of time to prevent a delay in playback
audioSource.load()
```

When you're ready to play the sound, create an [SCNAudioPlayer](#), passing it the audio source:

```
// Create a player from the source and add it to `objectNode`
objectNode.addAudioPlayer(SCNAudioPlayer(source: audioSource))
```

### Note

For best results, use mono audio files. SceneKit's audio engine uses panning to create 3D positional effects, so stereo audio sources produce less recognizable 3D audio effects.