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Class

ImagePresentationComponent.Spatial3DImage

A 3D spatial scene created from a 2D image.

visionOS 26.0+

```
class Spatial3DImage
```

Overview

Create and generate a `Spatial3DImage` to present a *spatial scene* in RealityKit. Spatial scenes are a 3D representation of a 2D image or photo which RealityKit renders with depth and motion parallax.

Spatial scene generation

To present a `Spatial3DImage` as a spatial scene, you must first *generate* it. Call the `generate()` method to generate an in-memory representation of a spatial scene from the original image. Generation can take a few seconds to complete.

Note

You can't generate a `Spatial3DImage` with the visionOS Simulator. You can create and work with `Spatial3DImage` instances in the Simulator, but calling the `generate()` method throws an error.

You can choose to pre-generate a spatial scene in advance of presentation, or post-generate it in response to an interaction such as someone pressing a button.

In either case, start by creating a new `Spatial3DImage` from a local file URL for an existing image, or from an existing `CGImageSource`.

To pre-generate and present the image as a spatial scene, call the `generate()` method on the `Spatial3DImage` to generate its in-memory spatial scene representation. Next, use the `init(spatial3DImage:)` initializer to create an `ImagePresentationComponent` from the generated `Spatial3DImage`. Set the component's `desiredViewingMode` to `spatial3D` or `spatial3DImmersive`, then add the component to an entity to present the spatial scene immediately.

To post-generate a spatial scene, create a new `ImagePresentationComponent` from the `Spatial3DImage` *before* generating it, and add the component to an entity. By default, the component displays the image with a monoscopic (`mono`) viewing mode. If you created the image from a spatial photo, you can choose to present the `Spatial3DImage` as a spatial photo instead by setting the component's `desiredViewingMode` to `spatialStereo` or `spatialStereoImmersive`.

In your app's UI, add a button or other trigger to convert the image to 3D. When someone presses the button, set the component's `desiredViewingMode` to `spatial3D` or `spatial3DImmersive`, to indicate that you want the component to present the spatial scene as soon as the app finishes generating it. Then, call the `generate()` method to begin the generation process. The component displays a generation animation, similar to the Photos app on visionOS, and transitions to presenting the spatial scene as soon as generation completes.

Note

Spatial scenes are created by an AI algorithm that leverages computational depth to create multiple perspectives of a 2D photo. In some cases, spatial scenes may contain visual artifacts. When you include a spatial scene in your app's UI, consider providing a button to switch to the original 2D photo instead, by setting the component's `desiredViewingMode` to `mono`.

Topics

Creating a spatial scene from a 2D image or spatial photo

```
convenience init(contentsOf: URL) async throws
```

Initializes a spatial 3D image from the contents of an image file.

```
init(imageSource: CGImageSource) async throws
```

Initializes a spatial 3D image from the contents of an image source.

Generating a spatial scene

```
func generate() async throws
```

Creates a 3D representation of the image if one does not already exist.

See Also

Images and spatial scenes

```
struct ImagePresentationComponent
```

A component that supports general image presentation.