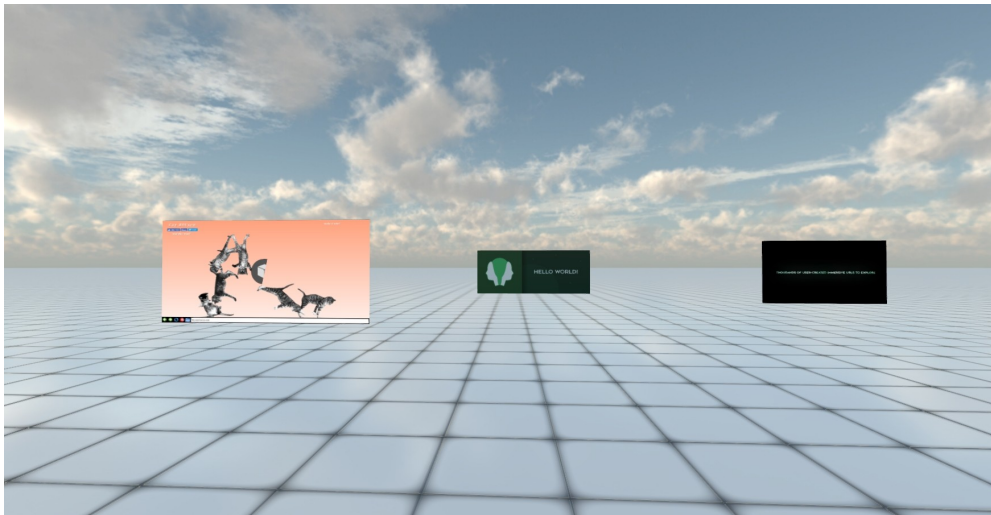




Introduction to JanusVR Lesson 7

HOW TO ADD A SOUND TO A ROOM



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This instructional guide is designed to teach some of the fundamental skills needed to create virtual reality spaces using JanusVR.

This seventh lesson will continue on with the room made in previous lessons, and explains how to add sound.

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1. Defining the Asset name and location

In this example we have added a 'Sound' as the 'Asset', set the 'id' attribute for our 'Sound' as 'drums', and the 'src' as the URL attribute for a music .mp3 (sound files supported include .mp3, .wav and .ogg)

```
<html>
<head>
<title>Hello World!</title>
</head>
<body>
<FireBoxRoom>
<Assets>
<AssetImage id="hello_world" src="http://i.imgur.com/yLxgtkE.png" />
<AssetWebSurface id="cats" src="http://cat-bounce.com/" width="1280"
height="720" />
<AssetVideo id="vid"
src="http://janusvr.com.s3.amazonaws.com/janus_vid.mp4" />
<AssetObject id="lamp"
src="http://janusvr.com.s3.amazonaws.com/lamp.dae" />
<AssetSound id="drums"
src="http://janusvr.com.s3.amazonaws.com/drums.mp3" />
</Assets>
<Room use_local_asset="room_plane" >
<Text pos="0 2 4" xdir="-1 0 0" ydir="0 1 0" zdir="0 0 -1" col="red" scale="2 2
2" >Hello World!</Text>
<Image id="hello_world" pos="0 1.5 8" xdir="-1 0 0" ydir="0 1 0" zdir="0 0 -1"
/>
<Object id="plane" pos="7 1.5 0" xdir="0 0 1" ydir="0 1 0" zdir="-1 0 0"
scale="4 2 1" collision_id="plane" lighting="false" websurface_id="cats" />
</Room>
</FireBoxRoom>
</body>
</html>
```

2. Adding the Sound to the Room

A 'Sound' is played when the player enters a rectangle defined on the XZ plane, which is used to "trigger" the sound. You can also specify whether the sound should loop, or only play back once.

3D spatial audio is also supported, however files must be uncompressed WAV format, PCM, mono, 16 bit samples, 44100Hz. We will learn more about 3D spatial audio in future lessons, this example is fa 'ambient' sound, which plays the sound at the same volume everywhere in room.

The 'id' of the sound is 'drums', and the trigger rectangle is 100 metres on the left to 100 metres on the right, and from 50 metres to 50 metres to the back.

```
<html>
<head>
<title>Hello World!</title>
</head>
<body>
<FireBoxRoom>
<Assets>
<AssetImage id="hello_world" src="http://i.imgur.com/yLxgtkE.png" />
<AssetWebSurface id="cats" src="http://cat-bounce.com/" width="1280"
height="720" />
<AssetVideo id="vid"
src="http://janusvr.com.s3.amazonaws.com/janus_vid.mp4" />
<AssetObject id="lamp"
src="http://janusvr.com.s3.amazonaws.com/lamp.dae" />
<AssetSound id="drums"
src="http://janusvr.com.s3.amazonaws.com/drums.mp3" />
</Assets>
<Room use_local_asset="room_plane" >
<Text pos="0 2 4" xdir="-1 0 0" ydir="0 1 0" zdir="0 0 -1" col="red" scale="2 2
2" >Hello World!</Text>
<Image id="hello_world" pos="0 1.5 8" xdir="-1 0 0" ydir="0 1 0" zdir="0 0
-1" />
```

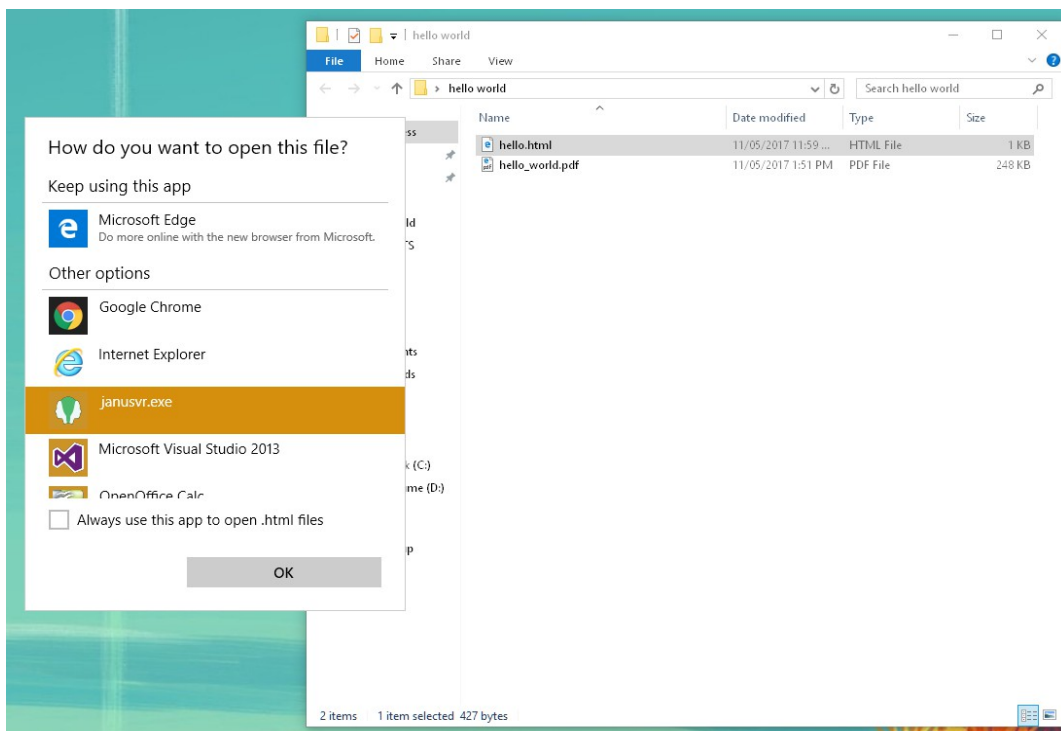
```
<Object id="plane" pos="5 1.5 8" xdir="-1 0 0" ydir="0 1 0" zdir="0 0 -1"
scale="4 2 1" collision_id="plane" lighting="false" websurface_id="cats" />
<Video id="vid" pos="-5 1.5 8" xdir="-1 0 0" ydir="0 1 0" zdir="0 0 -1"
scale="1 1 1" lighting="false" />
<Object id="lamp" pos="0 0 3" />
<Sound id="drums" rect="-100 -50 100 50" />
</Room>
</FireBoxRoom>
</body>
</html>
```

3. Viewing your Room

Save the file on your local drive as a .html.

There are 2 ways to see the room you have just made:

- i. Right click on the file and select 'open with' (Windows), select 'Choose another app' – scroll down and find JanusVR.
- ii. Start JanusVR and press 'Tab' – type or copy/paste the local file path for the .html file (c:\helloworld\hello.html for example). To paste a link in JanusVR desktop mode press 'Tab', click on input box and press Control-V



You now know how to add sound to a room, the next section has some exercises to help you get more familiar with sounds, including adding 3D spatial audio.

At the end of this document is a list of all the options for sounds - have fun!

Exercises:

Make it the audio loop to play continuously.

To:

```
<Sound id="drums" rect="-100 -50 100 50" />
```

Add:

```
<Sound id="drums" rect="-100 -50 100 50" loop="true" />
```

Change the src="" to hear a different sound file.

Swap:

```
<AssetSound id="drums"  
src="http://janusvr.com.s3.amazonaws.com/drums.mp3" />
```

To:

```
<AssetSound id="drums"  
src="http://janusvr.com.s3.amazonaws.com/rain.mp3" />
```

Defining a Sound as an Asset:

These are sounds which can be used within the FireBoxRoom. Here is the complete list of attributes:

- **id** - id of the AssetSound
- **src** - location of the sound file
-

Supported formats are dependent upon the multimedia capabilities of the underlying platform (e.g. DirectShow on Windows, gstreamer on Linux). Uncompressed WAV will work universally, but is not bandwidth friendly. MP2 or MP3 are compressed formats which seem to work universally and offer great compression.

The OGG format, while also great, does not seem to be supported on a default Windows installation, so I would discourage its use (unless you don't care about those Windows users not capable of OGG format playback).

3D spatial audio is supported, however files must be uncompressed WAV format, PCM, mono, 16 bit samples, 44100Hz.

<http://www.janusvr.com/guide/markuplanguage/index.html#assetsound>

Adding Sound in a Room:

A Sound plays a specific AssetSound when the player enters a rectangle defined on the XZ plane, which is used to "trigger" the sound. One can also specify whether the sound should loop once triggered, or only play back once.

To get ambient sound or music to play for the room upon entry, use a very large rectangle to trigger the sound (or at least contains the room's entrance portal), and set the sound to loop.

- **id** - set to the id of an AssetSound
- **rect** (default "0 0 0 0") - presently, defines two opposite 2D corners of a rectangle which triggers the sound to play, the format is "X1 Z1 X2 Z2" (note that since the rectangle is 2D, the player's Y-position does not matter for triggering the sound, note also pressing "C" will toggle showing coordinates for your position and direction which is useful to determine the rectangle's bounds)
- **loop** (default "false") - normally the sound plays only one time, but when this attribute is set to true, the sound will play indefinitely until the player leaves the room
- **play_once** (default "false") - when set to true, the given Sound will only play one time for the duration of the visit. If set to "false" (the default), the sound will play once each time the player enters the room.
- **pos** (default "0 0 0") - when set to any other value than the default, the Sound is 3D spatialized (requires version 45+)
- **dist** (default "1.0") - distance attenuation setting for 3D spatialized sound (requires version 45+)
- **gain** (default "1.0") - gain setting for 3D spatialized sound (requires version 45+)
- **pitch** (default "1.0") - pitch setting for 3D spatialized sound (requires version 45+)

<http://www.janusvr.com/guide/markuplanguage/index.html#sound>