

Audio in Web3d

New nodes from web audio lineage

References

- <https://www.web3d.org/documents/specifications/19775-1/V4.0/Part01/components/sound.html> official Draft
- https://freewrl.sourceforge.io/sound/v4_Corrigenda_Draft_7.html
- https://freewrl.sourceforge.io/tests/16_Sound/
- <https://webaudio.github.io/web-audio-api/>
- https://developer.mozilla.org/en-US/docs/Web/API/Web_Audio_API

Connections –via scenegraph hierarchy

```
<AudioDestination channelInterpretation='speakers'>
  <Gain gain='.45'>
    <Delay delayTime='1.8'>
      <AudioClip DEF='AudioClip1' loop='true' url='"sound/Piano11.mp3"'
pauseTime='-1' resumeTime='-1' stopTime='-1' pitch='1' />
    </Delay>
  </Gain>
  <Gain gain='.75'>
    <AudioClip DEF='AudioClip2' loop='true' url='"sound/Piano11.mp3"'
pauseTime='-1' resumeTime='-1' stopTime='-1' pitch='1' />
  </Gain>
</AudioDestination>
```

Spatializing sound

- Doppler effect (deprecated in web audio, could be deprecated)
- Relative viewpoint pose – SpatialSound like web audio Panner node
- ListenerPoint – get sound from a location other than viewpoint pose

Quirks of web3d

- Switch node behavior
- Analyser output
 - MFFloat [out] timeDomainData
 - MFFloat [out] frequencyData
- ChannelSplitter, ChannelMerger, ChannelSelector
 - ChannelSelector
 - SFInt32 channelSource
 - SFInt32 channelDestination
 - SFInt32 stream

Examples

- https://freewrl.sourceforge.io/tests/16_Sound/SplitChannels6_proposal3_route.x3d
 - Click on the box to switch left and right channels
- https://freewrl.sourceforge.io/tests/16_Sound/switch_sounds.wrl
 - Click on the box to change Switch case whichChoice
- https://freewrl.sourceforge.io/tests/16_Sound/mix_sounds.wrl
 - Examine navigate to get different sound from different source
- https://freewrl.sourceforge.io/tests/16_Sound/mix_sounds_LP.wrl
 - ListenerPoint is the arrow on the sphere, sound comes from ListenerPoint
- https://freewrl.sourceforge.io/tests/16_Sound/spatial_direction.wrl
 - Shows sounds have a direction as well as a position
- https://freewrl.sourceforge.io/tests/16_Sound/doppler_spatial.wrl
 - Doppler effect
- https://freewrl.sourceforge.io/tests/16_Sound/oscillator_control.wrl
 - Example scene using oscillator