



WebGL and glTF BOF SIGGRAPH 2016

WebGL Working Group
July 27, 2016

First, The Big News

100% of the WebGL 2.0
conformance suite is passing!*

*On the first configurations

Detailed conformance numbers

Configuration	Pass rate
Linux, NVIDIA GPU, 367.35 driver	100%
Windows, NVIDIA GPU, 368.81 driver	100%
Linux Intel, Mesa 12.0.1	99.98% (211052/211096)

New OpenGL ES 3.0 / WebGL 2.0 features

OpenGL Shading Language ES 3.00

2D array and 3D textures

Multisample renderbuffers

Transform feedback

Uniform buffer Objects

Vertex Array Objects

Sampler Objects

Pixel Buffer Objects

Buffer-to-Buffer Copies

Boolean occlusion queries

Instanced rendering

Multiple render targets

Texture storage specification

R and RG textures

Seamless cube maps

Non-power of two textures

Texture LOD clamps

Mipmap level base offset and max clamp

At least 32 textures, at least 16 ea. for vert/frag

16-bit and 32-bit floating-point textures

32-bit, 16-bit and 8-bit signed and unsigned integer format renderbuffers, textures and vertex attributes

8-bit sRGB textures and framebuffers

11/11/10 floating-point RGB textures

Shared exponent RGB 9/9/9/5 textures

10/10/10/2 unsigned normalized and unnormalized integer textures

10/10/10/2 signed and unsigned normalized vertex attributes

16-bit floating-point vertex attributes

8-bit-per-component signed normalized textures

ETC2/EAC compressed texture formats

Sized internal texture formats

WebGL 2.0 is almost here

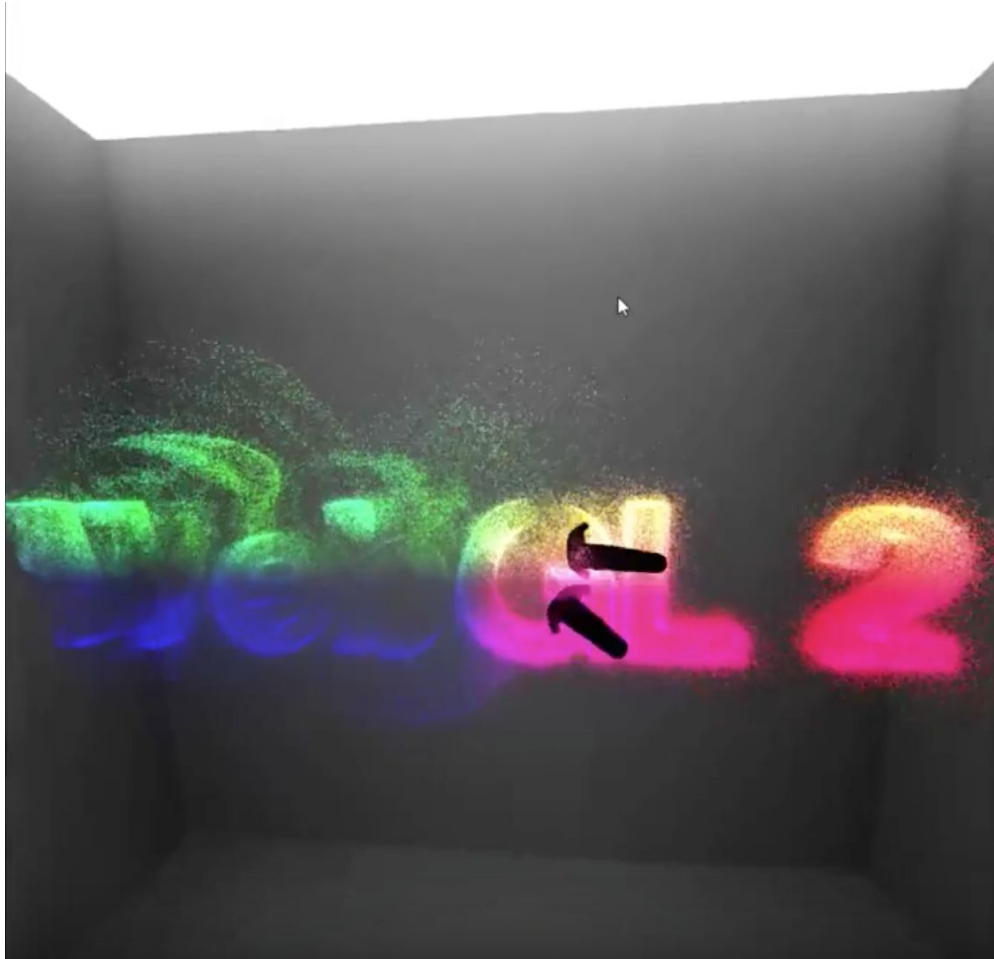
- Focusing on passing the remaining tests according to the [conformance rules](#)
- As soon as a browser is passing the tests, WebGL 2.0 will be enabled by default
- Firefox and Chrome are close to passing!
- Developers: try the nightly builds* and get your content ready!
- The [WebGL2Samples Pack](#) is a great tutorial on the new features!

*https://www.khronos.org/webgl/wiki/Getting_a_WebGL_Implementation#WebGL_2.0

Many thanks to the many contributors

- **ANGLE team**
 - Geoff Lang, Jamie Madill, Corentin Wallez, Shannon Woods
- **NVIDIA Mobile Graphics Team**
 - Olli Etuaho, Kimmo Kinnunen, Amal Prabhu, Barthold Lichtenbelt
- **Intel Web GPU Team**
 - Yunchao He, Qiankun Miao, Yang Gu, Xinghua Cao, Jiawei Shao, Yizhou Jiang, Guanxian Li, Chenglei Ren
- **Mobica**
 - Janusz Sobczak and team
- **Firefox team**
 - Jeff Gilbert
- **Chrome team**
 - Zhenyao Mo, Brandon Jones
- **Unity**
 - Jonas Echterhoff, Christophe Riccio, Marco Trivellato
- **WebGL2Samples team**
 - Patrick Cozzi, Trung Le, Shuai Shao
- **WebGL working group members**
 - Mark Callow, Rafael Cintron, Dean Jackson
- **...and many more collaborators in the open-source community**
 - Alec Miller, Evgeny Demidov, ...

Eye candy: WebGL 2.0 and WebVR



([Github repository](#), [Live Demo](#))

Presentations

- Blend4Web Updates
 - Yuri Kovenov, Blend4Web
- ArcGIS JavaScript API with 3D support
 - Johannes Schmid, ESRI
- Sketchfab Updates
 - Alban Denoyel, Sketchfab
- Streaming Assets in the Biodigital Human
 - Tarek Sherif, BioDigital
- Three.js updates
 - Ricardo Cabello, Mr. doob
- Cesium and 3D Tiles
 - Sean Lilley, AGI
- Improved fidelity for architectural visualization
 - Nick Brancaccio, Floored
- Streaming glTF
 - Rémi Arnaud, Starbreeze
- glTF update and roadmap/call for proposals for 2.0
 - Tony Parisi, WEVR
- Oculus and glTF
 - Amanda Watson, Oculus
- Physically Based Materials in glTF
 - Max Limper, Johannes Behr, Timo Sturm, Fraunhofer

Absentee Demos from PlayCanvas

- [Sponza Lightmap Demo](#)
 - Showcases runtime lightmap generation. Diffuse-only lightmaps are baked before rendering the first frame. Particularly designed for mobile, this trades some up front rendering time (around 1s in this scene) with downloading all the lightmap textures required to light the scene.
- [Casino - Physically Based Rendering](#)
 - Created to showcase the physically based shader that comes as standard on all PlayCanvas materials. This scene also features: Volumetric fog, a specialized foliage shader, Mesh LODs and Reflection probes.
- [Orange Room VR](#)
 - Demonstrates room scale WebVR. Imagine all architectural rendering done in realtime sent via the browser and viewable on all platforms!

Come to the Khronos after-party
at 6 PM for free-format discussion!