Ecosystem Update

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GTC, March 2018
### glTF - Cross-Platform 3D Asset Transmission

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- **glTF 1.0** - Primarily for WebGL
  - Uses GLSL for materials
  - Released December 2015

- **glTF 2.0** - Physically Based Rendering!
  - Metallic-Roughness and Specular-Glossiness Materials
  - Rendering API independence
  - Released June 2017

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All glTF spec development on open GitHub:
https://github.com/KhronosGroup/glTF

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OpenGL Transmission Format
- Efficient transmission of 3D scenes and assets
- Compact to Transmit ✓
- Fast to Load ✓
- Describes Full Scenes ✓
- Runtime Neutral ✓
- Open and Extensible ✓

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WebGL
- Open Source
- Vulkan

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Diagram showing
- Napster
- YouTube
- Facebook
- New market opportunities for 3D content creation and deployment!
glTF Highlights at GDC

- Facebook now supports glTF - drag and drop models to your feed
  - Driving exporter/tool demand: FBX2glTF, Modo, ...

- Sketchfab has over 150K glTF models
  - Under Creative Commons license

- Adobe Dimension is adopting glTF
  - glTF publishing service for interactive marketing materials

- Unity helping open source glTF importer/exporter
  - Plans to have a Unity package before the end of year

- Unreal 4.19 has experimental glTF import

- Focus on ecosystem robustness
  - gltf-vscode & glTF-Validator
  - glTF-Asset-Generator
  - glTF-Sample-Models

- Vibrant open-source community

- Not just for the web
Adobe Dimension & g|TF
GDC 2018
STEP 1: RISING DISK
Services for Adobe’s 3D Ecosystem

Cloud first solutions that meet customer demands

3D Modeling
Materials/Texturing
Scene Staging
Lighting
Export

Cloud Rendering Service (beta)
Draco 3D Compression Extension to glTF 2.0
Mesh Compression Ratio

- BoomBox
- Duck
- SciFiHelmet
- Suzanne
Creating Draco Compressed glTF

- AMD Compressonator
- FBX2glTF
- glTF pipeline
- Insimo
Rendering Draco Compressed glTF

- Three.js
- Babylon.js
- PlayCanvas
- Cesium
- UX3D Engine
- Hilo3D
Upcoming Work

- Animation
- Point clouds
- Better Compression

Accessing Draco

- [https://github.com/google/draco/tree/gltf_2.0_draco_extension](https://github.com/google/draco/tree/gltf_2.0_draco_extension)
- C++ encoder and decoder
- JavaScript and WebAssembly decoders
glTF in Unreal Engine

- Static Meshes, Materials, Textures
- "Experimental" in UE 4.19 — Try it now!
- Help us prioritize features of the next release
Materials

- Metal + Roughness PBR
  - Closest to Unreal Mats
- Normal Maps
- Transparency
- Emissive
- Occlusion

- Editable Node Graph
- Can have multiple per Mesh
- Can keep material slots & swap in full Unreal materials
Why use glTF when making games?

Isn't glTF a web thing?
More like the PNG of 3D

- Predictable import / export saves artists time
  - Not sideways
  - Not 100x too small / too large

- Material model is rich enough for most uses

- Open format!
  - Public spec
  - Sample models
  - Validator
  - Anyone can implement
glTF@Microsoft

Products

Office
Minecraft
Simplygon
Mixed Reality Portal
Paint 3D
Remix 3D
Microsoft Photos
Mixed Reality Viewer
3D Builder

Open Source Contributions

babylon.js
3ds Max exporter plugin
Maya exporter plugin
gltf-vscode
UnityGLTF
gltf-WebGL-PBR
gltf-Sample-Models
gltf-Asset-Generator
gltf-Toolkit
Microsoft.glTF.CPP
Microsoft.glTF.macOS.CPP
gltf-Shell-Extensions
makeglb
Consistent Rendering Across Multiple Engines

https://github.com/KhronosGroup/gltf-sample-models/pull/154
glTF Roadmap Discussions

• Careful balance: building ecosystem vs. moving the spec forward
  - Draco filled a key missing component for mesh compression - what is next?

• Texture Transmission Extension
  - Optimized transmission format with efficient local expansion to any GPU format

• Submitted to Ratification
  - Unlit (#1163)

• Last call for feedback
  - Lights (#1223)
  - Texture Transforms (#1015)
Industry Calls to Action

- Adopt glTF in your runtime and content pipeline - don’t be left out!
  - But - keep the ecosystem robust: use validation tools and provide spec feedback

- Join the spec and extension discussions on GitHub!
  - [https://github.com/KhronosGroup/glTF/issues/456](https://github.com/KhronosGroup/glTF/issues/456)

- Contribute to the open-source ecosystem and let us help you spread the word!
  - Tutorials, sample models, answering questions, etc.

- Share your roadmap priorities with us!
  - [https://github.com/KhronosGroup/glTF/issues/1051](https://github.com/KhronosGroup/glTF/issues/1051)

- Join Khronos!
  - Get directly involved in the glTF Working Group

Sketchfab User: theblueturtle
[https://sketchfab.com/models/b81008d513954189a063ff901f7abfe4](https://sketchfab.com/models/b81008d513954189a063ff901f7abfe4)