State of the Art 2024

- 4 Ratified extensions
  - Specular anisotropy, WebP, GPU instancing, and meshopt compression
- 6 Tools
  - Including Compression, iOS, Sample Viewer, Asset Validator, Blender
- 4 TSGs
  - PBR, Tooling, Interactivity, Physics
Roadmap

Public Comment Period for Draft Specifications

- Interactivity
- External References
- Audio
- Physics
- Procedural Textures
- Animation+ (Blender interface)
- PBR Subsurface
- Multi-track animation

- 4Q23
- 1Q24
- 2Q24
- 3Q24
glTF on iOS
Interactivity

**glTF Object Model:**
*Defines what properties can be read and/or written in runtime by animation or interactivity*

**Interactivity:**
*Defines node-graph based interactivity. Events/triggers -> Flow & Calculations -> Actions*

**Animation Pointer:**
*Defines how animation data can be bound to any writable runtime property*
Physics

- https://github.com/eoineoineoin/glTF_Physics
  - Collision shapes (KHR_collision_shapes)
  - Rigid bodies (KHR_rigid_bodies)
- 3 implementations
  - Blender importer/exporter
  - Babylon.js importer
  - Godot importer
- Validator
glTF<->USD interoperability

- **MSF 3D Asset Interoperability:**
  [https://metaverse-standards.org/domain-groups/introduction-to-3d-asset-interoperability-working-group/](https://metaverse-standards.org/domain-groups/introduction-to-3d-asset-interoperability-working-group/)

- **Goals**
  - glTF -> USD -> glTF “lossless” round trip
  - Building synergistic use of glTF within USD composition framework

- **Mission**
  - Identify features preventing “lossless” round trip between glTF and USD
  - Generate useful data and recommendations for glTF and USD communities

- **Create and distribute mutually agreed test assets**
  - For ongoing experimentation and testing

- **Encourage availability and testing of importers/exporters and other tooling**
KTX

Universal GPU Compressed Textures

encode and supercompress

Basis Universal supercompressed textures in KTX 2.0 container

Transcode **ON THE FLY** to GPU formats

Open-source **Basis Universal** encoder with supercompression produces compact textures for transmission

Open-source tools pack supercompressed textures into **KTX 2.0** container and then pack **KTX textures into glTF** assets

Open-source **C++** and **WebAssembly** transcoding to GPU compressed formats

Use GPU compressed textures native to platform
Desktop: BC*
Mobile: ETC1/2, PVRTC1, ASTC
What’s Next

2024 Plans

- ISO Specification update
  - Functionality to be included is in discussion

- Major feature releases
  - Interactivity, External Referencing, Physics

- External referencing new file format
  - Expected final extension is .gltfx

- Profiles
  - E.g., Geospatial & Commerce jointly with 3D Commerce
A recording of this presentation will be available at
https://www.khronos.org/events

For more information on WebGL, please visit
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