Welcome to the COLLADA Meetup!

- COLLADA State of the Union
  - Neil Trevett - Khronos

- OpenCOLLADA project update
  - Uli Klumpp, Smith Micro and Steffen Lips, NetAllied

- OpenGL Transmission Format – glTF
  - Fabrice Robinet and Patrick Cozzi

- Fl4re Unity COLLADA Exporter
  - Remi Arnaud

- Discussion
  - Your feedback and suggestions!
A Year Since Last GDC...

• COLLADA working group agreed an action plan with the community...

Proposed Actions for Discussion

• 1. We need much closer Consortium/Community cooperation
  - Proposal – create discussion email list open to all

• 2. We need OpenCOLLADA to provide reliable import/export
  - Proposal – Khronos fund fixing all major known bugs fix in OpenCOLLADA

• 3. We need an easier way to measure and track conformance
  - Create easy reporting framework for the conformance tests

• 4. Most content creators do not use all of COLLADA
  - Agree on a common-used subset for easier and more reliable conformance

• 5. Build COLLADA synergy with WebGL authoring
  - COLLADA import into common WebGL frameworks such as three.js?

• 6. Lots of discussion needed around deployment formats
  - Compression, streaming, JSON?, COLLADA to JSON conversion?
COLLADA is Now an ISO Standard

• COLLADA is now an ISO Standard
  - COLLADA 1.5.0 has been published as ISO PAS 17506 by ISO SC4 TC184
  - “… to enable developers to create tools to process COLLADA resources to import to
    or export from digital content creation (DCC) applications, 3D interactive
    applications and tool chains, prototyping tools, real-time visualization applications”

• ISO Standardization is an important milestone
  - Key for confidence for industry investment and use as long-term asset archival
COLLADA Public Mailing List

• Joining instructions – please get involved!
  - Subscribe by sending an email to majordomo@khronos.org with the line 'subscribe public_collada' in the body of your message. You will receive an email with instructions asking you to confirm your email address. Once you are subscribed, you can send messages to list by emailing public_collada@khronos.org

• For those that have joined – is it starting to be a useful resource?
  - Anything we should be doing differently to encourage community engagement?

• More information
  - https://www.khronos.org/collada/public-mailing-list/
OpenCOLLADA Upgrade

• High-quality, full functionality COLLADA importer/exporter library
  - Released as open source on https://github.com/KhronosGroup/OpenCOLLADA
  - Available free-of-charge for developers and tools vendors to integrate

• NetAllied has completed engineering project to address known issues
  - Work complete just two weeks ago, commits in the last few days

• 3ds Max and Maya plugins now
  - Available for 2013 versions
  - Conformance tested with CTS
  - Binaries: https://github.com/KhronosGroup/OpenCOLLADA/wiki/OpenCOLLADA-Tools

• Great community involvement lately, but we want more!
COLLADA Conformance Tests

- COLLADA conformance test suite released on GitHub for free use
  - Enables tools vendors, and their users, to test for conformant COLLADA IO
  - https://github.com/KhronosGroup/COLLADA-CTS

- Conformance Test Tutorial

No excuses left for low quality COLLADA import/export! 😊
Significant 3D Ecosystem Announcements

Connecting the two with a new 3D run-time asset transmission format – glTF.
A standards-based content pipeline for rich native and Web 3D applications

Creating the Industry’s most portable and reliable 3D asset interchange format
Creating the Industry’s most portable and secure 3D execution platform
3D Needs a Transmission Format

- Compression and streaming of 3D assets becoming essential
  - Mobile and connected devices need access to increasingly large asset databases

- 3D is the last media type to define a compressed format
  - 3D is more complex – diverse asset types and use cases

- Need to handle sophisticated 3D assets and scenes
  - Scenegraph, geometry, textures, materials, animations...

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An effective and widely adopted codec ignites previously unimagined opportunities for a media type.
Authoring and Runtime 3D Formats

• COLLADA solves interchange problem, but is NOT a format for rendering
  - XML-text based, human readable but not optimized for size
  - Requires significant processing to render COLLADA models with GL APIs

• Developers typically use custom conditioning pipelines
  - To convert COLLADA to proprietary runtime formats
  - No standardized methods for asset streaming or compression

• Losing advantages of a cross vendor standardized run-time format
  - Optimized codec implementations in software or hardware
  - Portable, reusable content
  - Size-optimized asset stores, repositories and archives
glTF – OpenGL Transmission Format

- glTF is a final-stage asset format driven by OpenGL APIs
  - Bridges the gap between COLLADA and GL APIs
  - OpenGL, OpenGL ES and WebGL

- Uses JSON to describe node hierarchy
  - Platform neutral, many processing libraries available

- Node hierarchy refers to geometry, textures, materials, animations…
  - Separate binary blob for geometry/texture assets
  - Will enable parallel work on 3D asset streaming and compression
Building glTF

- Khronos COLLADA working group driving the glTF specification design
  - Draft specifications will be PUBLICLY available for industry review and feedback

- Prototype implementation: COLLADA2GLTF
  - Uses OpenCOLLADA to convert COLLADA assets to JSON for use in WebGL
  - Source uploaded on Github: https://github.com/KhronosGroup/glTF

- Format requirements driven by WebGL/OpenGL ES
  - Unique indices buffer, requires shaders, split meshes > 65536 indices...
  - Buffers description compliant with typed arrays
  - Incorporate requirements from MPEG, Web3D and others
Building a Complete Transmission Solution

- gkTF is first step of three for complete 3D codec solution
  - JSON Node Hierarchy encoding +
  - REST3D APIs for Server/Client Negotiation +
  - 3D Asset payload compression/streaming

1. Send JSON encoded Node Hierarchy
2. Use REST to negotiate asset selection, compression and streaming
3. Compress and Stream Assets
Next Steps?

- **Community outreach to all tools vendors for COLLADA conformance**
  - Maintain public scorecard on COLLADA.org for those that submit results?
  - Create positive marketing benefit for being conformant and reporting

- **Encourage involvement in OpenCOLLADA**
  - Report bugs, submit patches!

- **Provide feedback on glTF**
  - Specs and sample implementation in the open for community feedback

- **glTF outreach**
  - Threejs, Turbulenz, tquery etc. etc...

- **What else?**
Thank you!

- Questions?
- ntrevett@nvidia.com
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