X3D Specification Activities

... fasten your seat belts!

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Web3D Consortium
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First...

Many thanks to Korea Chapter of Web3D Consortium for
• Many sustained and stellar technical efforts
• Collegial and constructive efforts
• Organization and coordination
• Foresight and Vision
Standards progress and plans

• H-Anim 2 Architecture and Motion Capture
  • implementation efforts for X3D: schema is now published
  • Issue: rename to HAnim: simplify search, unify document/program representations
  • Issue: review, address ISO editor
• X3D Scene Access Interface (SAI)
  • Current status is up to date, small errata being encountered
  • Some changes may be desirable based on new language additions
• X3D C, C++, C#: NWIP approved, work in progress.
  • Sharable soon, we hope?
• X3D Java SAI: implementation mature, specification review/update
  • automatically updating X3DJSAIL codebase with X3D v4 changes
• X3D Python SAI: implementation in tandem with Java
  • ISO NWIP and initial-draft specification document by SIGGRAPH
Standards progress and plans

• **X3D JSON Encoding**: implementation mature, JSON schema evolution, first-draft specification, NWIP needed

• **X3D 4.0** for HTML5/DOM/CSS, *development in progress*
  • Many components proposed, increasing participation
  • Two open-source JavaScript implementations guarantee successful execution
  • Three additional open-source implementations (C++, Pascal, Java) also active
  • Will begin listing assets online

• **X3D 4.1** Mixed/AR/VR/XR, progressing in tandem
  • Will build on W3C WebXR Immersive Web working group (meeting next week)

• **Strategies to Improve X3D v4 Sound Component** renewed activity
  • Dependency, partnership on W3C Audio
Standards progress and plans

• Data-centric security: applying implementations
  • XML Encryption for privacy
  • XML Authentication for authentication

• Metadata and Annotations
  • Printing and Scanning
  • Medical
  • Computer Aided Design (CAD)
  • Cultural and Natural Heritage

• **X3D Unified Object Model (X3DUOM)** is mature – specify within X3D v4?
• **X3D Semantic Web Working Group** is now approved and has begun, building X3D Ontology, portions likely autogeneratable using X3DUOM
Projective Texture Mapping (PTM) Component

• Initial draft added to Github X3D Specifications
  • First edit to occur this week. Several iterations for continuous improvement.

• Next: add to XML Schema
  • Then X3DUOM, X3DJSAIL, DTD, X3D Tooltips
  • February X3D Working Group Review, confirm it is a separate component. Add as component.
  • X3D Schematron validation heuristics (if any) as diagnostics for X3D Validator.

• Implementations
  • Existing: FreeWrl has implemented, X3DOM (proposed)
  • Recommended: X3DOM, X_ITE (either means both) for broad deployability as X3Dv4
  • Suggested: Castle Game Engine

• Examples Provided, Need to be Published
  • X3D Basic Examples Archive (most likely)

• Review, finalize, submit paper. Take care to ensure that no legal problems occur.
Discussion: legal considerations useful

• All prose, content submitted for ISO Specifications must be under Web3D Consortium Intellectual Property Rights (IPR) Policy.
  • Members also have “safe haven” private review if desired, but with prior agreement that all accepted technology is royalty free (RF) for any use.

• Authors can also publish papers either before a specification (reporting on graphics advances and experimentation) or afterwards
  • ... and retain copyright ownership rights for such documents throughout

• Authors benefit from broad, rigorous implementation and evaluation

• Public and industry benefit from royalty-free standards that can last.

• Win-win-win situation with a proven track record of broad success.
Catalysts

- Coherent functionality among all file encodings, language bindings
- Github version control for Web3D member access to draft specifications
- Steadily increasing validation capabilities ensure high quality models
  - also facilitates rapid software development
- Increased availability of X3D codebases to support export and import
- Insistence on example scenes for all new components enables
  - better sharing and mutual testing
  - demonstrated adoption of other standards
- Events: Web3D and SIGGRAPH Conferences, regular ISO meetings, etc.
- Web3D process, community, archival mailing lists, and Mantis issue tracker
Gating factors and challenges

Giant understatement: A Lot of Work is Going On!

• Communication
• Coordinated efforts on design, documents and implementations
• Growth into many areas needing 3D portrayal on the Web
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