Charter Revision, 5 JAN 2024

Original charter <https://www.web3d.org/working-groups/x3d>

**X3D Graphics Standards Working Group**

*Description*: The X3D Graphics **Standards** Working Group addresses all X3D specification issues and coordinates the technical development of future improvements to formal specifications.

The Extensible 3D (X3D) Graphics Standards Working Group provides the core technical foundation for the Web3D Consortium. It is responsible for coordinating the development of the X3D suite of specifications, building maximum interoperability with related technologies, and coordinating the broad deployment of interactive X3D models. The [X3D Graphics Standards: Specification Relationships](https://www.web3d.org/specifications/X3dGraphicsStandardsRelationships.png) diagram illustrates these many capabilities.

Interest in metaverse and augmented reality, improvements in high-quality audio and visual fidelity on any computer platform, and support for multiple file encodings and programming languages are driving the broad deployment of interactive X3D4 models across the Web into new domains of real-time 3D human interaction. This group ensures continuing technical excellence, based on implementation and evaluation, to confirm effective deployment of interoperable standards.

**X3D Graphics Standards Working Group [Subjects of Review / Activities / Topics of Interest]**

1. **X3D Specifications Synchronization**.  Update, review, implement and advance all corresponding X3D specifications for file encodings and language encodings, continuing rigorous attention to detail through Web3D Consortium, W3C, US INCITS H3, and ISO/IEC standards development organizations (SDOs).
2. **X3D Example Models**.  Demonstrate how X3D can make 3D Graphics part of the modern Web by integrating with key infrastructure such as Web3D Conference series, Wikipedia, and other major publication resources. Thousands of validated examples already work well. What other interactive 3D models are people working to publish and share? X3D can help.
3. **X3D Implementations**.  Provide a technical forum that encourages the greatest possible development for functionally complete X3D4 applications, authoring tools, and model converters such as Blender and MeshLab.  Pay special attention to implementations using Humanoid Animation (HAnim), glTF model import/export, Web Audio API and MIDI 2.0 capabilities for integrated spatial auralization, projective texture mapping, HTML5 integration, XML, JSON/JavaScript, Java, Python, C/C++/C#, compressed binary formats, and additional new X3D 4.0 features.
4. **X3D and Metaverse Standards Forum (MSF)**.  Support MSF innovations and developments, especially in the 3D Web Interoperability and Metaverse Standards Register working groups. Implementing widely shared use cases can offer helpful insight on capabilities, successes, and next-step goals.
5. **X3D as Innovation Foundation**.  3D models from many sources can now be published as part of the Open Web. Show how Extensibility mechanisms for X3D can implement new capabilities in a standards-compatible way.  Much is possible, model correctness is validatable, few barriers to exploration exist.

These shared goals are sensible next steps in a quarter century of stable evolution in interactive 3D models that use Virtual Reality Modeling Language (VRML) and X3D.

**X3D History**

* **Past as Prologue**.  The X3D Working Group carefully follows Web3D policies and procedures, integrating much public/private comment that is well documented in public X3D email archives and member-access Mantis issue tracker.  Both backwards compatibility and forwards extensibility have been carefully preserved throughout, enabling effective reuse of every VRML97 and X3D model for the past quarter century even as broadly available 3D graphics capabilities continue to evolve. Seventh in a specification series starting with VRML97, successful completion of the X3D 4.0 Architecture once again proves that this collaborative standardization process is effective.
* **Present, 2024**.  There is much capability in X3D 4.0 already that deserves broader implementation and exposure in high-capability models. Consequently we are deliberately **not** pursuing X3D 4.1 specification improvements with ISO/IEC in 2024.  Meanwhile we do encourage **Innovation** by emphasizing X3D extensibility mechanisms:  Inline, Script, Prototype, software libraries supporting source-code implementations that generate X3D, etc. etc.  New candidate nodes (such as *Image Atlas*) that offer broad usefulness can be formally considered as contributions to Web3D Recommended Practice.
* **Future, 2025+**.  Once all of the corresponding X3D specifications have been updated to match X3D 4.0 architecture, development of a future X3D 4.1 specification revision will be possible. Demonstrated progress and lessons learned through careful implementation of common use cases will continue to ensure stable and effective evolution of the X3D Graphics as part of the Open Web Platform.

Communication Mechanisms

* [x3d-public@web3d.org](mailto:x3d-public@web3d.org) open mailing list for broad discussions on topics of shared interest, including technical issues being considered by this working group.
* [x3d@web3d.org](mailto:x3d@web3d.org) Web3D Consortium members-only mailing list for issues including status reports to members, consideration of new technology submissions that are candidates for inclusion in the open standard, and specification review/endorsement prior to formal submission to ISO/IEC.
* [Web3D Consortium Mantis Issue Tracker](https://www.web3d.org/member-only/mantis) for archival members-only consideration of specific specification-related technical goals and issues, along with distilled design alternatives.
* [Web3D Consortium GitHub Projects](https://github.com/Web3dConsortium) for members-only standards document development and software projects.
* [Web3D Consortium X3D SourceForge Projects](https://sourceforge.net/p/x3d/code/HEAD/tree/www.web3d.org/) for open-source X3D example models and software projects.