



## X3D: THE REAL-TIME 3D SOLUTION FOR THE WORLD-WIDE WEB

### What is X3D?

**X3D** (Extensible 3D) is a royalty-free and openly published standard file format specification and run-time architecture to represent and communicate 4D objects, events and environments. The X3D suite of International Standards Organization (ISO) ratified standards provide a robust abstraction for the storage, retrieval and playback of real time 4D graphics content across platforms. The extensible scene graph model of X3D can be equivalently encoded in a number of valid, secure and efficient encodings. The extensible scene graph model of X3D can also be manipulated and accessed through a number of languages through a common API. The development has evolved from its beginnings as the Virtual Reality Modeling Language (VRML) and Humanoid Animation (H-Anim) ISO standards to the considerably more advanced and expressive X3D.

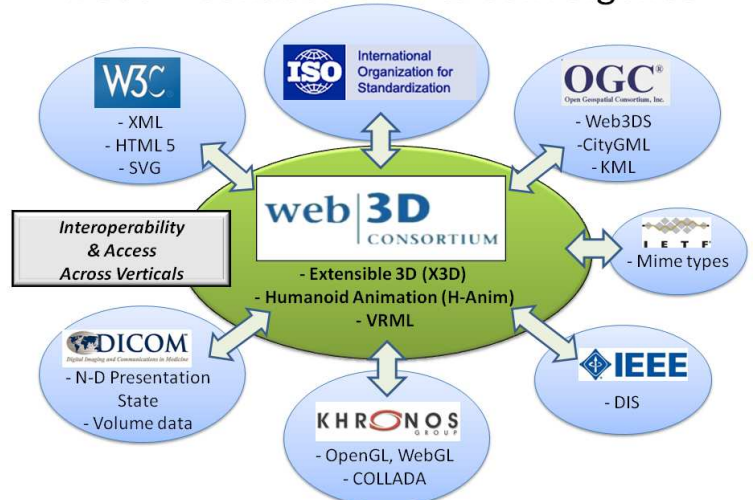
### Whose product is X3D?

Extensible 3D (X3D) ([www.web3d.org/x3d](http://www.web3d.org/x3d)) is a royalty-free open ISO standard of the **Web3D Consortium** ([www.web3d.org](http://www.web3d.org)). The X3D specifications are driven by members and available to the public. The Web3D Consortium continues to design, extend and promote X3D to meet new market and technology needs.

Through its Working Groups, Chapters and SIGs, the Web3D Consortium provides an international support network for groups looking to achieve interoperability and durability through standardization. X3D import, export or rendering is supported by numerous tools across industries and disciplines; a number of commercial and open-source importers, exporters and rendering engines exist.

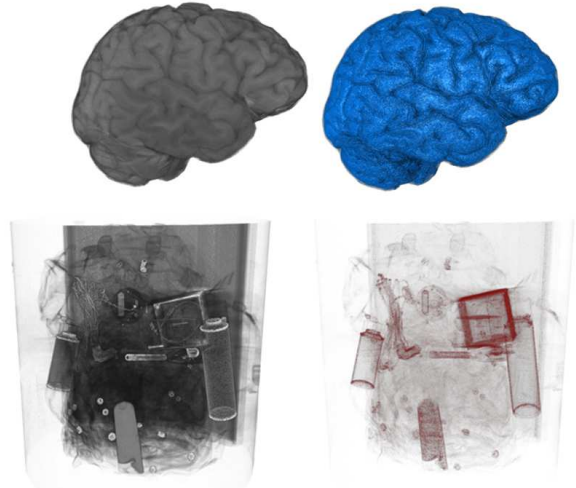


## Web3D Collaboration & Convergence



### Why is X3D important?

- It allows applications to communicate over the Web using an ISO-certified scene graph model, encoded in multiple formats (XML, Binary, VRML-Classic) and bind-able to multiple languages (e.g. ECMA, Java)
- It is modular and extensible, saving development time and money and providing value to vendor and consumer
- It is free for use – not relying on propriety formats and upgrades for a lifetime 4D content lifecycle
- It provides multiple generation and authoring pathways
- It enables content developers and tool makers to build on each other and a common fabric for cyberspace
- It is a project designed and developed through community involvement and industry and open source support



Through cooperative development and membership agreements, the Web3D Consortium works closely with the ISO, DICOM, OGC, Khronos, IMS and W3C standardization bodies to de-Babelize the information ecology and to harmonize diverse technologies for **Deep Media convergence**. Leveraging the extensible scene graph model of X3D unlocks the full value of virtual and mirror worlds across the web today and tomorrow.

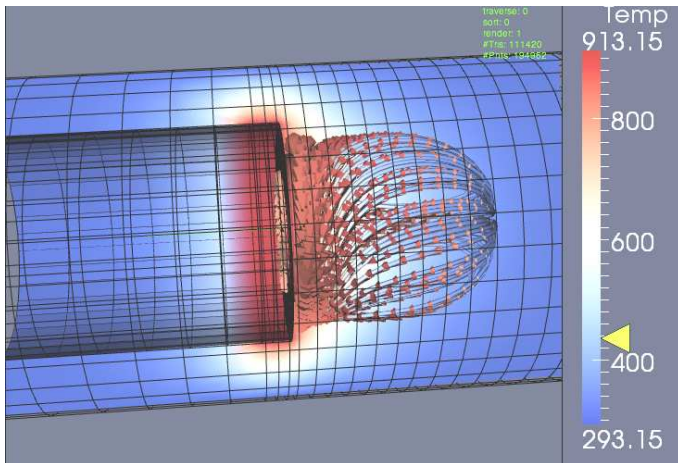
**web3D**  
CONSORTIUM



## **X3D: THE REAL-TIME 3D SOLUTION**

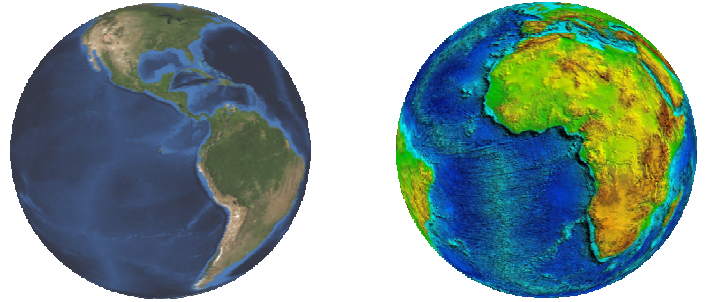
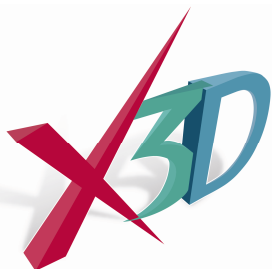
### **What features are in X3D?**

X3D specification is ultimately an extensible scene graph model for real-time interaction and rendering. The X3D abstraction is above specific rendering or multimedia libraries; its node set supports many features that modern 3D interactive applications need from object interchange to animation and sensors to immersive multi-modal environments. A formalized scene graph content model with a componentized and object-oriented node set provides a profiled and rich functionality from thin to immersive clients. X3D functionality includes multiple geometry types, appearances, lights, shaders animation, sensors, scripts, volume rendering, rigid body physics, BREPS, ... Developers can choose from several X3D Profiles and easily extend X3D nodes and components.



### **What is an X3D Application?**

Any of the many applications that support a node set of X3D content though import or export can be considered, but more interestingly is the healthy ecosystem of rendering engines from browser plug-ins to stand-alone applications. X3D has been used for cross-platform interactive deployment of virtual environments shared over with XMPP chat or connected by DIS. More recently, through cooperative work with W3C HTML5, Web3D Consortium members have fruited into amazing native browser environments including Ajax3D, Web3GL and X3DOM. Through the Web3D Consortium Conformance program, engines and tools can be officially certified as "X3D Conformant".



### **What tools support or use X3D?**

X3D scenes and objects can be generated programmatically or by hand: X3D is supported by several domain and DCC tools as well as XML and text editors. There are a number of mainstream and free tools available to convert to and from X3D with other file formats. Any XML-aware application can transform, style (or render) X3D. More information on X3D resources and support is available at: [www.web3d.org/x3d/resources](http://www.web3d.org/x3d/resources)

### **Who uses X3D?**

X3D with its rich set of componentized features can be tailored for use on many different platforms. X3D is being used by governments such as the EU, US, and AU, agencies such as NASA, US Navy, NSF, top universities and labs world-wide to and fortune 500 commercial enterprises- from manufacturing to energy to information systems. X3D is the greatest common denominator for describing and deploying Engineering, CAD and Architecture, Geospatial Visualization, Training and Simulation data and scenarios. Recently, we see significant momentum emerging in deploying X3D across Mobile and Multi-User applications.

### **Why should you use X3D?**

With over a decade of innovation, X3D continues to grow and provide unprecedented value for the capability, longevity, and ownership of 4D content. By supporting X3D, your company preserves its assets and expose new customer value. X3D acts as a unifying platform through which numerous products can be developed and the entire industry can grow. Supporting X3D instantly gives you access to more tools, content, and compatibility with other applications, all with minimal effort. X3D is open and royalty free hence you protect your 4D content investment for a lifetime. Join us!

#### ***Please contact:***

**Anita Havele, Executive Director,  
Web3D Consortium**

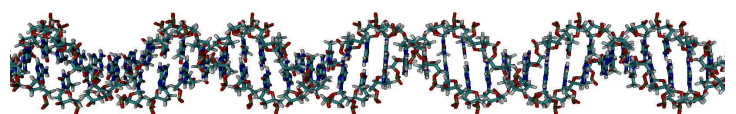
[anita.havele@web3d.org](mailto:anita.havele@web3d.org) or

**call +1 (248) 342-7662**

650 Castro Street, Suite #120-490, Mountain View, California 94041 USA

Phone: 248 342 7662 • Fax: 248 457 8018

**[WWW.WEB3D.ORG](http://WWW.WEB3D.ORG)**



*Images courtesy:*

*Naval Postgraduate School, Virginia Tech,  
Bitmanagement, Fraunhofer IGD*