

# WEB3D<sup>®</sup> CONSORTIUM

**WEB3D.ORG**  
**WEBX3D.ORG**

## WHAT IS X3D<sup>®</sup>?

### X3D: THE INTERACTIVE 3D SOLUTION FOR THE WORLD WIDE WEB

**X3D (EXtensible 3D)** is a royalty-free and file format standard and runtime architecture to represent and communicate 3D objects, events and environments on the Web. The X3D suite of ISO-IEC (International Standards Organization) ratified standards provide a robust abstraction for the storage, retrieval and playback of 3D graphics content across platforms and players including desktop applications, mobile apps, immersive headsets and CAVEs and HTML5.

#### Whose product is X3D?

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

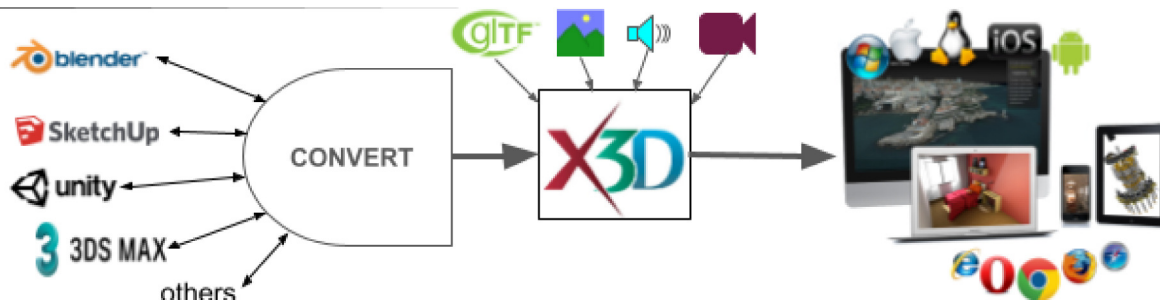
Through its Working Groups, Special Interest Groups, and Chapters, the Web3D Consortium provides an international support network for software developers and content authors who wish to achieve interoperability and durability through an open international standard. X3D is supported by a number of commercial and open source players, format conversion utilities, and authoring tools; and is available as an import and export option in several modeling and CAD packages.

### Why is X3D important?

1. It allows applications to communicate over the Web using an ISO-IEC certified scene graph model,
2. It is web ready and free for use – not relying on proprietary formats and upgrades – for the 3D content lifecycle.
3. Because it is an open and stable standard it encourages development of new tools to meet the changing needs of content authors.

The X3D object model and node set support the features needed by modern 3D interactive applications, from object interchange to animation and sensors to immersive environments. The standard is organized into functional components, which provide an extensive palette including multiple geometry types, material appearances, textures, lighting, shaders, animation, touch based user interaction, scripting, volume rendering methods, rigid body physics, CAD assembly structure, and metadata. Standardized Profile definitions allow authors and developers to coordinate supported functionality, allowing X3D to be used over the range of thin to immersive clients. Through scripting and a prototype mechanism, developers can extend the functionality of X3D nodes and components.

X3D provides a presentation layer (a scene graph) to display animated, interactive 3D models from multiple sources and domains into web applications. The presentation pipeline is supported by X3D4 to make native authoring and use of X3D models fully integrated with HTML5.



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## What is a X3D Application?

X3D is an open standard for 3D scene graph for any application that requires interactive and dynamic 3D content. JavaScript libraries allow X3D content to be rendered within a web page using HTML5 and WebGL. There are open source implementations of X3D rendering engines available under permissive licensing, easing the pathway for developers to incorporate X3D into their application. Standalone X3D players are also available for desktop, immersive, and mobile platforms.

The latest [X3D@version 4 \(X3D4\) Architecture Specification](#) is a major upgrade, provides close support for the HTML5 Recommendation, Khronos glTF Physically Based Rendering (PBR), and Web Audio API. [X3D4](#) is the basis of multiple file encodings and programming language binding.

### How can you start using X3D?

A list of tools and suggested workflows for preparing your 3D content for publication with X3D can be found at:

<https://www.web3d.org/develop-and-deploy-x3d>

Several 3D content authoring tools, including Blender, support [importing and exporting X3D](#) scene graphs. A variety of commercial and open source applications and libraries allow for the conversion of common 3D formats, X3D. VRML97 files can be easily converted into the Classic VRML encoding of X3D. VRML, XML and JSON text encodings may be directly edited in text editors, converters or transformation engines.

There are open source X3D editors that make it easy for a content author to modify geometry, lighting, and navigation; add animation and interactivity; and document the content with metadata.

## Who uses X3D?

X3D with its rich set of features can be tailored for use on many different platforms and applications. X3D is being used by governments such as the EU, US, and AU, agencies such as NIH, NASA, US Navy, NSF, top universities and research labs worldwide, and Fortune 500 companies - 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 collaborative platforms for Virtual Reality and 3D printing applications.

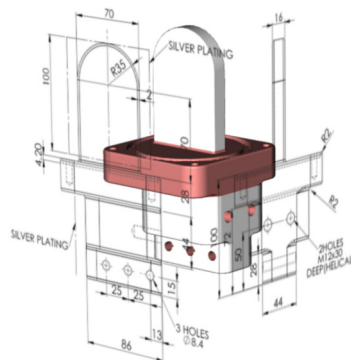
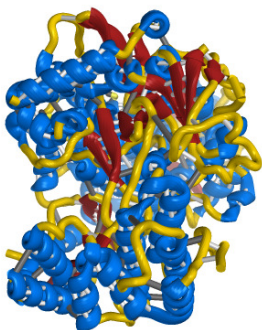
### Why should you use X3D?

With over a decade of innovation, X3D continues to grow and provide unprecedented value for the capability, longevity, and ownership of 3D content. By using the royalty-free ISO standard X3D, your company preserves its assets. 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 with minimal effort.

**X3D is open and royalty-free - protect your 3D content investment for a lifetime.**

[www.Web3D.org/join](http://www.Web3D.org/join)

Learn X3D: [www.webx3d.org](http://www.webx3d.org)



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