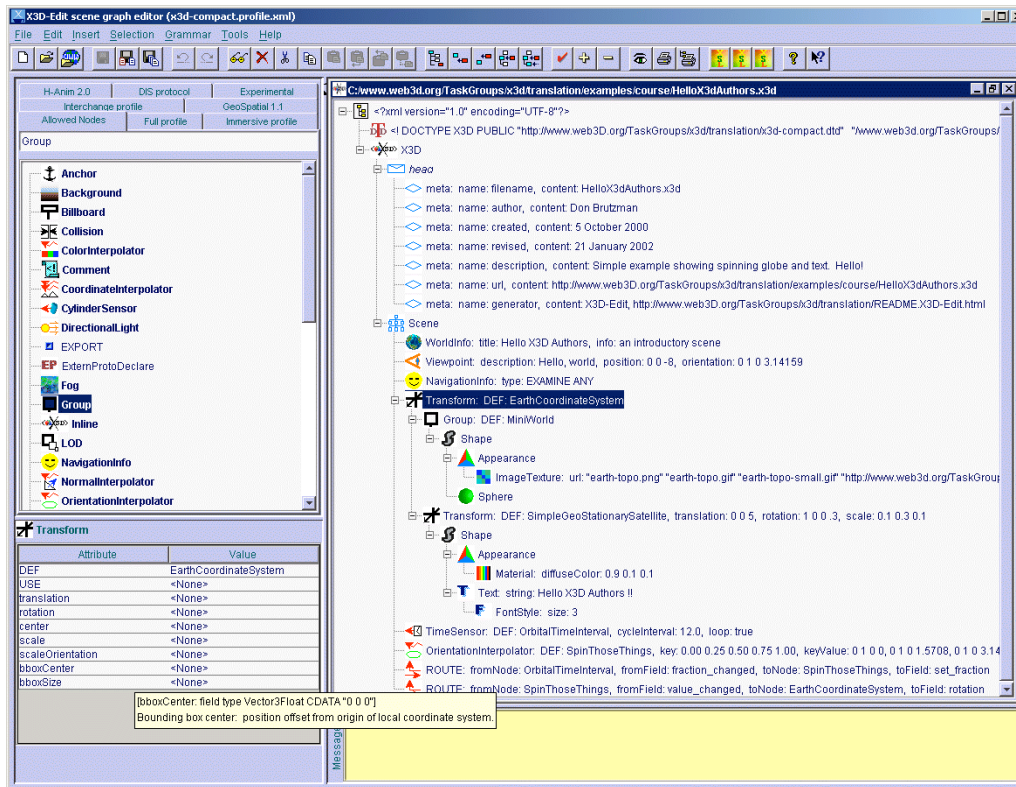# X3D-Edit Authoring for Extensible 3D (X3D) Graphics

Don Brutzman

Code UW/Br, Naval Postgraduate School, Monterey California 93943-5000 USA

voice 1.831.656.2149, fax 1.831.656.3679 *brutzman@nps.navy.mil*   *http://web.nps.navy.mil/~brutzman*

X3D-Edit screen layout for example scene, showing context-sensitive tooltip.

Abstract

A primary benefit of the Extensible 3D (X3D) Graphics Specification is the use of the Extensible Markup Language (XML) to encode 3D scenes compatibly with the next-generation Web. XML-based languages provide a wide variety of new capabilities for authoring, processing and validating graphics scenes. *X3D-Edit* is an authoring tool for X3D scenes developed using IBM's *Xeena*, an XML-based tool-building application. Context-sensitive editing prevents creation of incorrect scene-graph structures and detects invalid numeric values. Context-sensitive tooltips provide concise explanations and warnings of each X3D node and field. Tooltip encoding in XML and internationalization (I18N) in Chinese, English, French, German and Spanish greatly broadens the potential authoring pool for X3D. Extensible Stylesheet Language for Transformation (XSLT) stylesheets provide rapid translation of XML-based X3D scenes into Virtual Reality Modeling Language (VRML) UTF-8 syntax or pretty-print HTML pages. Use by several dozen students and development of numerous examples has allowed us to teach X3D to nonprogrammers, produced over one thousand publicly archived scenes, and demonstrated excellent effectiveness for beginners and experts alike. The use of XML both for scene design and tool construction provides numerous benefits, including improved author productivity and content stability. These assets are available for direct integration by other X3D authoring and viewing environments.

References

Extensible 3D (X3D) Graphics Working Group home page, http://www.web3D.org/x3d.html

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