Open Standards for Real-Time 3D Communication

X3D Profiles

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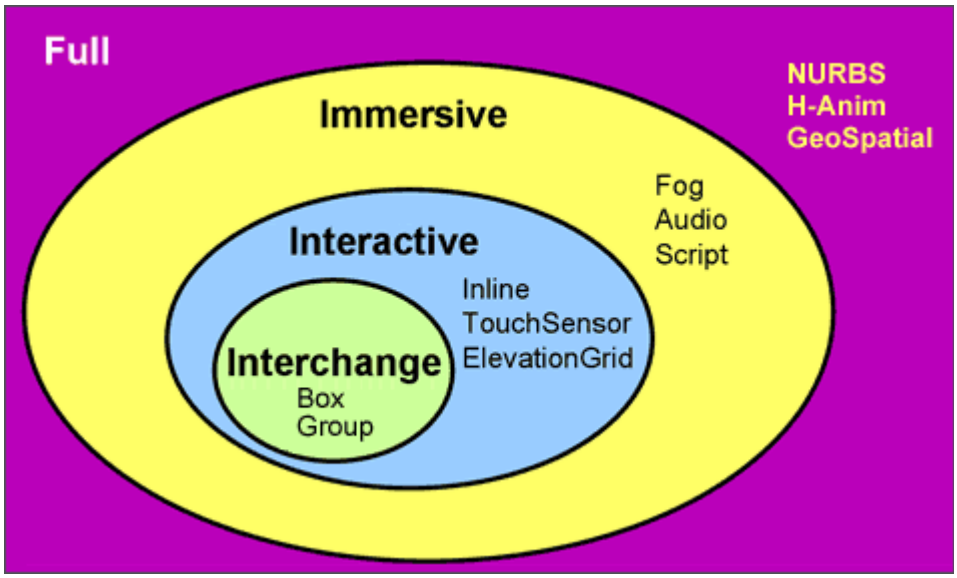
The modular architecture of X3D allows for layered "profiles" that can provide 1) increased functionality for immersive environments and enhanced interactivity or 2) focused data interchange formats for vertical market applications within a small downloadable footprint composed of modular blocks of functionality ("Components"), that can be easily understood and implemented by application and content developers.

A component-based architecture supports creation of different "profiles" which can be individually supported. Components can be individually extended or modified through adding new "levels", or new components can be added to introduce new features, such as streaming. Through this mechanism, advancements of the specification can move quickly because development in one area doesn't slow the specification as a whole. Importantly, the conformance requirements for a particular piece of content are unambiguously defined by indicating the profiles, components and levels required by that content.

X3D Baseline Profiles

- **Interchange** is the basic profile for communicating between applications. It support geometry, texturing, basic lighting, and animation. There is no run time model for rendering, making it very easy to use and integrate into any application.
- **Interactive** enables basic interaction with a 3D environment by adding various sensor nodes for user navigation and interaction (e.g., PlanseSensor, TouchSensor, etc.), enhanced timing, and additional lighting (Spotlight, PointLight).

- **Immersive** enables full 3D graphics and interaction, including audio support, collision, fog, and scripting.
- **Full** includes all defined nodes including NURBS, H-Anim and GeoSpatial components.



A graphical depiction of the four main X3D profiles showing the nesting of these profiles. X3D does not require profiles to be nested.

Additional X3D Profiles

- **Core** is the base profile and is the minimum required for all X3D environmenmts.
- **MPEG-4 Interactive** is a small footprint version of the Interactive profile designed for broadcast, handheld devices and mobile phones
- **CDF (CAD Distillation Format)** enables the translation of CAD data to an open format for publishing and interactive media.
- **MedicalInterchange** provides an open format to exchange polygonal geometry, volumetric data and accompanying documentation between medical imaging systems. It is currently undergoing ISO processing.

Case Studies

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The Most Widely Used Formats

3D in HTML

X3DOM... 3D Without Plugins

Web3D Videos

X3D and VRML

Web3D is nonprofit organization that develops and maintains the X3D, VRML, and H-Anim international standards. These are 3D graphics file formats and run-time specifications for the delivery and integration of interactive 3D data over networks.

Web3D Consortium members work together to produce open, royalty-free and ISO-ratified capabilities for the Web.