DOM - A DOM-based HTML5/ X3D Integration Model

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We present a model that allows to directly integrate X3D nodes into HTML5 DOM content. This model tries to fulfill the promise of the HTML5 specification, which references X3D for declarative 3D scenes but does not define a specific integration mode. The goal of this model is to ease the integration of X3D in modern web applications by directly mapping and synchronizing live DOM elements to a X3D scene model. This is a very similar approach to the current SVG integration model for 2D graphics.

Furthermore, we propose a framework that includes a new X3D Profile for the DOM integration. This profile should make implementation simple, but in addition we show that the current X3D runtime model still scales well. A detailed discussion includes DOM integration issues like events, namespaces and scripting. We finally propose an implementation framework that should work with multiple browser frontends (e.g. Firefox and WebKit) and different X3D runtime backends.

We hope to connect the technologies and the X3D/ W3C communities with this proposal and outline a model, how an integration without plugins could work. Moreover, we hope to inspire further work, which could lead to a native X3D implementation in browsers similar to the SVG implementations today.