

Presenter	Sam Moore
Title	Number Representations and Precision in Vector Graphics
Abstract	<p>Early document formats such as PostScript were motivated by a desire to print text and visual information onto a static paper medium. Although documents are increasingly viewed digitally, modern standards including PDF and SVG are still largely based upon this model.</p> <p>Digital document viewers are able to scale a subregion of the document to fit the display. However, coordinates of graphics primitives are typically represented with IEEE-754 floating point numbers. This places limits on the precision with which primitives in the document can be specified and rendered.</p> <p>We have implemented a minimal SVG viewer, with which we have compared a number of approaches to achieving arbitrary precision document formats. We demonstrate the trade off between performance and precision with alternative number representations including arbitrary precision floats, rationals, and IEEE-754 fixed precision floats. We also consider approaches to increasing the precision that can be attained with IEEE-754 floats.</p>
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