W3C WORLD WIDE WEB *consortium* ®

Printing and the Web

With the ubiquity of formats such as HTML for online use, there has been long-standing interest in applying W3C technologies in printing environments. Starting with a workshop in 1996, the W3C has developed technologies with a focus on printing, such as XSL-FO, XHTML Print and SVG Print.

All the W3C print-related technologies are developed in a vendor-neutral way with the goal of being implementable on a royalty-free basis. The W3C Process contains strict interoperability and conformance criteria, ensuring the standards are usable across multiple platforms and devices.

SVG Print

Scalable Vector Graphics (SVG) is an XML-based language for two-dimensional graphics. SVG has been a W3C Recommendation since 2001 and SVG viewers are deployed to more than 100 million desktops and mobile devices worldwide.

SVG Print builds on the core SVG language to create a graphically rich page description format, similar to Postscript and PDF. It is mainly targeted at Enterprise printing solutions, but is also useful in smaller workflows, such as connecting a digital camera directly to a printer.

SVG Print is being developed at the W3C with primary input from Canon, HP and Adobe. The first Working Draft of SVG Print has been released. Feedback on requirements and technology direction is welcome.

Key benefits:

- rich two-dimensional graphics (shapes, text, images)
- multiple pages
- fills, strokes, patterns, gradients
- font embedding
- Porter-Duff compositing and blending
- raster effects such as blur, color modification and lighting
- color profiles and device colors
- broad industry support
- integrates into the XML publishing workflow

Where will it be used:

- as a page description language understood by printing hardware
- for XML-based final-form archiving
- online display and sharing of printable documents
- dynamic generation of print-ready documents

http://www.w3.org/TR/SVGPrint

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XHTML Print

HTML is the ubiquitous Web language. There are millions of content developers and many thousand HTML authoring tools and systems. The W3C's most recent work on HTML has been to develop an XML version called XHTML. Meanwhile, HTML is being adopted in many non-Web environments, such as embedded systems, mobile computing and, more recently, printing.

XHTML Print was developed by the IEEE PWG and brought to W3C for standardization by HP and Lexmark. It is targeted primarily at low-end printers – a typical device costing around 50 USD. The low overhead of XHTML processing means XHTML Print will be used in consumer applications, such as using a mobile phone to print a web page or digital photograph on an XHTML printer using Bluetooth.

XHTML Print is currently a W3C Candidate Recommendation. Implementation feedback is welcome.

Key benefits:

- text and raster graphics
- tables and CSS layout
- styling
- multiple pages
- simple to implement
- very well-known language
- integrates into the XML publishing workflow

Where will it be used:

- as a simple page description language understood by printing hardware
- dynamic document creation from small devices

http://www.w3.org/TR/XHTMLPrint

XSL Formatting Objects

XSL enables users to write rules to transform their XML documents into a format that will provide high-quality printouts.

The XSL Formatting Objects (FO) language contains elements specifically designed for professional-grade page layout, including controls for automatic page numbering, footnotes, hyphenation, complex mixing of text blocks with arbitrary writing directions, advanced page or line breaking methods, and many other features.

XSLFO has been a W3C Recommendation since 2001. Numerous implementations and extensive documentation exists, and many companies use it in production environments. The XSL Working Group are currently working on version 1.1 of XSLFO.

Key benefits:

- rich text support,
- complex layout abilities,
- XSLFO can embed other formats (such as SVG Print)
- convenient translation from any XML format
- integrates into the XML publishing workflow
- many Open Source implementations

Where it is used:

- Automatic generation of printed material in various formats (e.g. technical documentation, books or brochures) from a single XML source.
- XSL Transformations can be used to produce documents in formats other than XSL-FO, typically HTML for on-line documentation production.

http://www.w3.org/TR/XSL

Other W3C print technologies

The W3C also has technologies related to printing that are not document formats, including:

- CSS Print: a styling language that can be applied to any XML format to create a printable version. It was a submission from the IEEE PWG
- device characterization specifications for printers (part of CC/PP)
- XML font formats and font embedding

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