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7 Things You Need to Know about HTML5

A white paper from Teaching and Learning with Technology at Penn State

At a Glance:

- HTML5 is HTML with additional tags
- Makes interactivity possible without third-party plug-ins
- Gives more structure to websites
- Provides added capabilities such as local data storage, geolocation, and offline caching.
- Supported by major vendors (Apple/Microsoft, etc.)

Who to Contact:

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Potential Applications:

Examples on the web

Apple HTML5 photo gallery: ***http://www.apple.com/html5/showcase/gallery***

Google Chrome experiments: ***http://www.chromeexperiments.com/***

HTML5 canvas animation: ***http://cs.helsinki.fi/u/ilmarihe/canvas_animation_demo/mozcampeu09.html***

TypeFolly: ***http://www.typefolly.com***

HTML5 Showcase: ***http://html5gallery.com/***

Related Sites:

Dive Into HTML5: ***http://diveintohtml5.org/***

HTML 5 Tag Reference: ***http://www.w3schools.com/html5/html5_reference.asp***

HTML: The Markup Language Reference: ***http://dev.w3.org/html5/markup/***

Building Web Pages with HTML 5: ***http://www.webmonkey.com/2010/02/building_web_pages_with_html_5/***

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1. What Is It?

HTML5 is the W3C's next major revision to HTML, which it started developing in 2004. HTML5 is not some new language or development tool. It is just HTML with an extended layer of standardized tags and attributes for graphic and visual effects that reduces the need for special plug-ins. Features such as animation and visual effects can be produced through the use of JavaScript and Scalable Vector Graphics (SVG). HTML5 also includes local data storage, which is similar to browser cookies, but a bit more sophisticated. Geolocation support is another interesting feature, which will access your location in the world and optionally share that information. New methods and attributes are attached to the HTML5 tags which will be giving JavaScript new capabilities.

A number of new tags were introduced for HTML5 and several tags that web developers often used will not be supported. Some new tags include:

<article>: Defines external content such as a news article, text from a blog, text from a forum, or any other type of external source

<canvas>: Provides a container into which you can program graphics using JavaScript and SVG

<command>: Defines a command button, such as a button, check box, or radio button. It must be used within a menu element or it will not be displayed.

<figure>: Used to group some media elements

<section>: Defines a section of the document

<time>: Defines the time, date, or both time and date

<video>: For easily embedding a movie clip

<header>,<footer>,<menu>: Semantic tags meant to replace common DIV classes

Some commonly used tags that will not be supported in HTML5 include:

<applet>: Used for embedded Java applets (use the <object> tag instead)

<basefont>: Used to define the font attributes for all the text in a document (use CSS instead)

<big>: Used to make text bigger (use CSS instead)

** **: Used to center align text and content (use CSS instead)

<font>: Used to define font attributes (use CSS instead)

<frame>, <frameset>, <noframes>: Used to define frames. They will not be supported due to their negative effect on the usability of a web page.

<s>, <strike>: Strikethrough text (use CSS instead)

<u>: Underlined text (use CSS instead)

2. Who's Using It?

Although HTML5 is far from being finished, some tags and attributes are being supported in varying degrees by the major browsers. Google Chrome and Safari seem to be leading the way, followed closely by Firefox and Opera. While not all features are supported yet, HTML5 is designed to degrade gracefully if a tag is not supported by the browser. Developers must remember, however, that the spec is still in development, unproven, and subject to change. That said, there are a number of stunning examples of web pages that use HTML5.

3. How Does It Work?

Just one line enables your document to speak HTML5–you just need to edit the document type declaration (or doctype) to: **<!DOCTYPE html>**

HTML5 tags are parsed by the browser to display the given page content in a Document Object Model (DOM), which is a hierarchy of objects within the document. Animations and other visual effects are accomplished through the use of the **<canvas>** tag, JavaScript, SVG, and CSS. There are a number of scripting libraries available for developers to include in their documents to provide functionality more easily. This is done simply by including the library in a script tag like this: **<script src="modernizr.min.js"></script>** in the head tags of your document.

HTML5 storage provides a way for websites to store information within your browser to retrieve it later. The idea is similar to browser cookies, but it is designed to hold a lot more information and can be accessed using JavaScript. HTML5 will use "same-origin restriction," which means that one website cannot access information from another website. Anyone who has access to your computer may be able to see or even change this information, however, so it is not entirely secure.

4. Why Is It Significant?

HTML5 was developed to give more structure to websites for designers and developers. New tags such as **<nav>** and **<footer>** will be semantic replacements for generic block tags such as ** ** and ****. Screen readers will have a better idea what content is inside each tag in the web page. For example, the screen reader will know that the **<nav>** tag contains all navigation elements. Another purpose is to provide interactivity without the use of third-party browser plug-ins.

5. What Are the Implications for Web Developers?

The implications of HTML5 for web developers will mean cleaner, simpler markup, although it will not support many tags that were widely used before. It will also provide a means of storing data on a user's computer that can be accessed at any given time via JavaScript. Microdata can also be used to mark up certain elements in a web page so that an About Me page, for instance, can be converted into a vCard for sharing contact information. It also adds a baker's dozen of new form input types, including some that are specifically created for telephone numbers, URLs, time stamps, and e-mail. Pages can also be marked so that the browser caches them for offline use. Developers will also have to contend with making their pages viewable on such devices as iPads, which do not support Adobe Flash content. Companies like Apple are pressuring developers to use HTML5 instead of more traditional means of displaying content.

6. Where Are the Downsides?

The current disadvantages to developing for HTML5 are that the spec itself is not done and it could be subject to change. Development of the spec is also slow and may not be complete for another ten years. People have misconceptions about HTML5 and think it is going to replace Flash, for instance. Flash should definitely still be around at least for the next few years, and much of the legacy web content uses Flash. Developers are going to have to find a different way to display content that was traditionally set up in frames.

Video captions are also not supported yet, nor is true video streaming. The **<video>** tag only supports a progressive download of video, which is cached on the user's computer. The real-time streaming protocol is not supported yet, so keeping video within the bounds of the TEACH Act may not be possible. There is also no support for full-screen video, and there are three different video formats with varying degrees of support between browsers (h.264, Ogg, and WebM).

HTML is not an XML standard and so may be incompatible with other XML formats including MathML, XSLT (used to convert XML data such as RSS to XHTML) and others. There is an XHTML 5 proposal, but it is not clear how widely this is supported in current browsers. However, there is a possiblity that XHTML may continue to coexist with HTML5.

7. Where Is It Going?

The HTML5 standard is far from being finished, but is the direction being taken by standards organizations such as the W3C and the Web Hypertext Application Technology Working Group. Earlier versions of HTML will still be supported as long as they have the appropriate DOCTYPE declaration. Whereas there is still uneven support among browsers, it is reasonable to assume that there will be more and more adoption of this standard as browsers are upgraded. As to what content to include in websites (such as Flash and Silverlight), it is anyone's best guess at this point.

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