HTML 5 Tutorial

This is an automatically-generated printer-friendly PDF version of the HTML web page at **HTML 5 Tutorial** ← CLICK HERE to get the standard HTML version of this document.

Converting to HTML 5

We are working on converting to HTML 5. Please visit HTML Tutorials on the HTML 5 standard version of this site.

HTML 5 Document Structure

HTTP Headers for HTML

The HTTP headers which control how an HTML 5 document is displayed might look like this:

```
Content-Type: application/xhtml+xml; charset=UTF-8
Cache-Control: max-age=120
X-UA-Compatible: IE=8
```

It is highly recommended that the charset attribute specifying the character encoding of the HTML page be included in the Content-Type header for non-XML user agents in addition to the xml declaration.

Converting to HTML 5

We are working on converting to HTML 5. Please visit Basic HTML Structure on the HTML 5 standard version of this site.

How to set the Content-Type for the HTML 5 MIME Type

If the web documents are being created by a program, the programming language probably has an API to send the proper HTTP headers.

For static web pages, it may be necessary to add the MIME Type for HTML 5 Polyglot Documents to the HTTP web server configuration to send the appropriate Content-Type header. With the Apache HTTP Server, for example, the HTML 5 MIME Type can be added to the .htaccess file(s):

```
DirectoryIndex index.html
ErrorDocument 404 /error.html
AddType application/xhtml+xml;charset=UTF-8 html
```

The type of serialization of an HTML document refers to the syntax used when converting the HTML from an internal document model to a stream of bytes to be stored or transmitted. The XML style of serialization has a number of advantages, including:

- support for tags with non-HTML namespaces, such as rdf:RDF, and
- it's required for Polyglot Documents

HTML 5 has been designed to be relatively backward compatible with both the 1997-1999 HTML 4 standard and the 2000-2001 XHTML 1.x W3C recommendation of HTML. The XML serialization of HTML 5 merges these two standards, and is already understood by virtually all web browsers including XHTML-based mobile browsers. Polyglot HTML documents can be delivered either as text/html to traditional web browsers or as application/xhtml+xml to web browsers on computers as well as in cell phones and other handheld devices. If you start creating polyglot documents now your web pages will be well positioned for both current and future HTML browsers and mobile devices.

The typical code for a simple HTML version 5 page would look something like the following (this is the HTML equivalent of a "Hello World" program):

```
<?xml version="1.0" encoding="UTF-8"?>
<!DOCTYPE html>
<html xmlns="http://www.w3.org/1999/xhtml">
  <head>
    <title>Example Only</title>
  </head>
  <body>
    <p>This is only an example. For more information, see
      <a href="http://www.ExampleOnly.com/" alt="ExampleOnly.com"/>
    </p>
  </body>
</html>
```

HTML 5 Style Sheets

Style sheets can make HTML coding simpler and improve the performance of a web site. A style sheet can be applied to a web page by including a link tag with rel="stylesheet".

Various types of style sheets that can be used in HTML 5 documents. Two common ones are:

XSLT Style Sheets

XSLT style sheets can be used as a template for the "look and feel" of a web site. This provides a consistent look to all of the pages using the same template and makes it easy to change the way a site looks by simply changing the style sheet.

CSS Style Sheets

CSS style sheets can be used to separate the styles applied to various elements of web pages or templates from the layout of those elements or the content in general.

Different style sheets can applied to web pages based on the type of device, such as a monitor, cell phone or printer, that is being used to display the documents. They can be used regardless of whether the web pages are static or generated dynamically.

XSLT Style Sheets (AKA Templates) in HTML

An XSLT style sheet provides a template that can be reused for multiple pages of a site. Using XSLT style sheets for the common elements (the "look and feel") of a web site can improve web page load times, since the templates can be cached by most browsers.

An XSLT style sheet can be applied to a web page by including a link tag with a MIME type specification of "application/xslt+xml". For backward compatibility with older browsers, it's probably a good idea to include a reference to the primary style sheet in a stylesheet processing instruction with the MIME type text/xsl.

Here is an example of an HTML page using both an XSLT style sheet and CSS:

```
<?xml version="1.0" encoding="UTF-8"?>
<?xml-stylesheet type="text/xsl" href="/site-template.xsl"?>
<!DOCTYPE html>
<html xmlns="http://www.w3.org/1999/xhtml">
<head>
<link rel="stylesheet" type="application/xslt+xml" href="/styles/print.xsl" media="print"/>
<link rel="stylesheet" type="application/xslt+xml" href="/styles/handheld.xsl" media="handheld"/>
<link rel="stylesheet" type="application/xslt+xml" href="/styles/screen.xsl" media="screen"/>
<link rel="stylesheet" type="text/css" media="print" href="/styles/print.css"/>
<link rel="stylesheet" type="text/css" media="handheld" href="/styles/handheld.css"/>
<link rel="stylesheet" type="text/css" media="screen" href="/styles/screen.css"/>
<title>Example Only</title>
</head>
<body>
<h1>Sample HTML 5 Web Page with Style Sheets</h1>
<p>This is the content of the page. The appropriate CSS styles will be applied</p>
The styles from the appropriate .css file will be applied to various elements on the page and
the "look and feel" in the templates in the appropriate .xsl file will be wrapped around it.
</p>
</body>
</html>
```

The style sheets are ordered from lowest priority to highest (print, handheld, screen) just in case the browser ignores the media attribute of the link tag.

Cascading Style Sheets

In addition to providing different styles based on the type of device being used to display a web page, CSS style sheets can provide alternate user-selectable views of the page. For example, an alternative style sheet could be used to show the user what the web page would look like if it was to be printed:

```
<?xml version="1.0" encoding="UTF-8"?>
<?xml-stylesheet type="text/xsl" href="/site-template.xsl"?>
<!DOCTYPE html>
<html xmlns="http://www.w3.org/1999/xhtml">
<head>
<link rel="stylesheet" type="application/xslt+xml" href="/styles/print.xsl" media="print"/>
<link rel="stylesheet" type="application/xslt+xml" href="/styles/handheld.xsl" media="handheld"/>
<link rel="stylesheet" type="application/xslt+xml" href="/styles/screen.xsl" media="screen"/>
<link rel="alternate stylesheet" type="text/css" title="Printer-Friendly" href="/styles/print.css" media="print"/>
<link rel="stylesheet" type="text/css" href="/styles/print.css" media="print"/>
<link rel="stylesheet" type="text/css" href="/styles/handheld.css" media="handheld"/>
<link rel="stylesheet" type="text/css" href="/styles/screen.css" media="screen"/>
<title>Example Only</title>
</head>
<body>
<h1>Sample HTML 5 Web Page with Style Sheets</h1>
<p>This is the content of the page. The appropriate CSS styles will be applied</p>
```

```
The styles from the appropriate .css file will be applied to various elements on the page and
the "look and feel" in the templates in the appropriate .xsl file will be wrapped around it.
</p>
</body>
</html>
```

The user can select one the alternate style sheets from the menu bar of their browser, for example, with the options View, then Page Style and, in this case, Printer-Friendly in Firefox.

Namespaces in HTML 5

Converting to HTML 5

We are working on converting to HTML 5. Please visit http://www.w3.org/1999/xhtml and other HTML Namespaces on the HTML 5 standard version of this site.

Commonly used namespaces in HTML include:

http://www.w3.org/XML/1998/namespace

the XML namespace; implicitly declared

http://www.w3.org/2000/xmlns/

the namespace for XML namespaces; also implicitly declared

http://www.w3.org/1999/xhtml

the HTML namespace, the same one already being used for XHTML

http://www.w3.org/1998/Math/MathML

the MathML namespace

http://www.w3.org/2000/svg

the SVG namespace

http://www.w3.org/1999/xlink

the XLink namespace

http://www.w3.org/2001/XMLSchema-instance

the namespace for XML Schema instance documents, which can be used to specify whether the data for a field is binary (possibly encrypted) or plain text:

```
<span id="masked-credit-card-number" xsi:type="xsd:string">4321 **** **** 8765</span>
<span id="encrypted-credit-card-number"
xsi:type="xsd:base64Binary">BAM0NComFzC2TOsmRzW0NTueQU==</span>
```

http://www.w3.org/1999/XSL/Transform

the namespace for XSL style sheets, not used in HTML documents themselves, but used in the style sheet documents referenced by the xml-stylesheet instruction.

Namespace Declarations in <html> Tag

The easiest way to declare namespaces is by putting the xmlns attributes in the top element of the XML document, which in this case is the <html> tag:

```
<html xmlns="http://www.w3.org/1999/xhtml"
xmlns:mathml="http://www.w3.org/1998/Math/MathML"
xmlns:svg="http://www.w3.org/2000/svg"
xmlns:xlink="http://www.w3.org/1999/xlink"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
>
```

In HTML 5, all elements (tags) are automatically considered to be qualified with the HTML 5 namespace, which makes the declaration of the HTML namespace optional, but this only works when the HTML parser *supports* HTML 5 and is actually looking at the page as an HTML version 5 document. It's best to continue coding the xmlns="http://www.w3.org/1999/xhtml" explicitly to provide backward compatibility with non-HTML5-aware browsers and other types of programs that may be parsing the HTML, such as RSS feed readers - otherwise all of the HTML tags will appear to be in the unnamespaced partition.

Sections in an HTML Document

For an HTML 5 processor to tell the difference between site-wide headings and page headings, the child elements of the body tag may include only a specific subset of the valid tags that a >body< can contain:

1. optional <h*n* > heading tags
2. an optional <nav> tag
3. a single <article> tag
4. an optional <aisde> tag

This is an example of the structure of a page with a site-wide heading:

```
<?xml version="1.0" encoding="UTF-8"?>
<!DOCTYPE html>
<html xmlns="http://www.w3.org/1999/xhtml">
<head>
<title>Page Title</title>
</head>
<body>
<h1>My Example Site</h1>
<nav>
...
</nav>
<article>
<header>
<h2>Page Heading</h2>
<nav>
...
</nav>
</header>
<p>This is the introduction to the article.
</p>
<section>
<hgroup>
<h3>Section Heading</h3>
<h4>Subheading for this section</h4>
</hgroup>
<p>This is the content of the section.
</p>
</section>
<footer>...</footer>
</article>
<aside>
...
</aside>
</body>
</html>
```

You can put the site-wide heading and navigation in a template to avoid having to code it on every page and to reduce page load times.

```
<?xml version="1.0" encoding="UTF-8"?>
<?xml-stylesheet type="text/xsl" href="/site-template.xsl"?>
<!DOCTYPE html>
<html xmlns="http://www.w3.org/1999/xhtml">
<head>
<title>Page Title</title>
</head>
<body>
<article>
<header>
<h2>Page Heading</h2>
<nav>
...
</nav>
</header>
<p>This is the introduction to the article.
</p>
<section>
<hgroup>
<h3>Section Heading</h3>
<h4>Subheading for this section</h4>
</hgroup>
<p>This is the content of the section.
</p>
</section>
<footer>...</footer>
</article>
```

```
<aside>
...
</aside>
</body>
</html>
```

HTML 5 Style Tags Tutorial

The text styling tags in HTML 5 include:

<b> for bold text
<bdo> for bidirectional text
<br/> for line breaks
<cite> for citations
<code> for program code
<del> for indicating deleted text
<em> for emphasized text
<i> for italicized text
<ins> for indicating inserted text
<kbd> for keyboard input instructions
<mark> for marking fragments of text
<q> for quoted text
<samp> for sample code
<small> for smaller text
<sub> for subscripts
<sup> for superscripts
<strong> for strong emphasis
<var> for a variable in an expression

HTML 5 List Tutorial

The tags for creating lists in HTML 5 include:

<ol> for ordered lists
<ul> for unordered lists
<li> for list items
<dl> for definition lists
<dt> for definition tags
<dd> for definition descriptions

Converting to HTML 5

We are working on converting to HTML 5. Please visit HTML List Tutorial on the HTML 5 standard version of this site.

HTML 5 <div> and <span> tags

The tags for grouping elements in HTML 5 include:

<div>
<span>

Using the <div> tag in HTML 5

Using the <span> tag in HTML 5

HTML 5 Abbreviation and Definition Tag Tutorial

The tags for including definitions, abbreviations and acronyms in HTML 5 include:

<abbr> for abbreviations and acronyms
<dfn> for definitions

Converting to HTML 5

We are working on converting to HTML 5. Please visit HTML Acronyms, Abbreviations and Definitions Tutorial on the HTML 5 standard version of this site. For the meanings of HTML vocabulary terms, see Definitions of HTML Terminology.

HTML 5 Date and Time Tutorial

The tags for creating dates and times in HTML 5 include:

<time>

HTML 5 Table Tutorial

The tags for creating tables in HTML 5 include:

<table>
<caption>
<colgroup>
<col>

<thead>
<tr>
<th>
<tbody>
<td>
<tfoot>

Converting to HTML 5

We are working on converting to HTML 5. Please visit HTML Table Tags on the HTML 5 standard version of this site.

HTML 5 Forms Tutorial

The tags for creating forms in HTML 5 include:

<form>
<fieldset>
<label>
<input>
<button>
<select>
<datalist>
<optgroup>
<option>
<textarea>
<output>

Converting to HTML 5

We are working on converting to HTML 5. Please visit HTML Forms Tutorial on the HTML 5 standard version of this site.

HTML 5 Meters and Progress Bars Tutorial

Gauges on a web page provide a visual indication of the current value of a measurement between some minimum value and a maximum value. A "meter", which is analogous to a needle gauge, shows the current value in relation to the minimum and maximum values. A progress bar shows how far a task has progressed between the start of the task and the estimated completion of it. The tags for creating gauges in HTML 5 include:

<meter>
<progress> for progress bars

Converting to HTML 5

We are working on converting to HTML 5. Please visit New Tags in HTML 5 on the HTML 5 standard version of this site.

This is an automatically-generated printer-friendly PDF version of the HTML web pages at **HTML 5 Tutorial** ← CLICK HERE to get the standard HTML version of this document.