

HTML



HTML5

History of HTML 5

W3C

(World Wide Web Consortium)

WHATWG

(Web Hypertext Application Technology Working Group)

	2014	2016	2018
HTML 5.0	recommendation		
HTML 5.1		recommendation	
HTML 5.2			recommendation
HTML 5.3			

HTML5's new features

- Video - HTML5 allows developers to embed video directly in to a web page without using a plugin. With HTML4 the best way to embed video was using Flash - however with HTML5 that's not necessary - this makes it very attractive for developers who want their users to be able to see their content on iPhones and iPads - as Apple has famously blocked Flash on all of its mobile devices.
- Geolocation - An important feature which will be used in many mobile web-apps, the geolocation feature enables the site to locate the user, either by GPS (in mobile phones etc...), by IP Address (for desktops) and also via Wi-Fi and Bluetooth
- Canvas - This new feature for images allows you to manipulate graphics and photos - it uses JavaScript to allow you to draw graphics on a web page.

Differences from HTML, XML, XHTML to HTML5

	HTML	XHTML	HTML 5	XML
编程语言	X	X	X	X
属于标记语言	√	√	√	√
用来修饰页面结构	√	√	√	X
仅用于传输数据	X	X	X	√
语法严谨	X	√	X	√
老HTML版本的替代	√	√	√	X
标签已被预定义	√	√	√	X
活跃年份	1993.6--至今	2000.1--至今	2014.10--至今	1998.2--至今

HTML Editors

Learn HTML Using Notepad or TextEdit

- Web pages can be created and modified by using professional HTML editors.
- However, for learning HTML we recommend a simple text editor like Notepad (PC) or TextEdit (Mac).
- We believe in that using a simple text editor is a good way to learn HTML.

Notepad (PC): Open **Start > Programs > Accessories > Notepad**

Open TextEdit (Mac): Open **Finder > Applications > TextEdit**

HTML Documents

- All HTML documents must start with a document type declaration: **<!DOCTYPE html>**.
- The <!DOCTYPE> declaration represents the document type, and helps browsers to display web pages correctly.
- It must only appear once, at the top of the page (before any HTML tags).
- The <!DOCTYPE> declaration is not case sensitive.

```
<!DOCTYPE html>
```

```
<html>
```

```
<body>
```

```
<p>My first paragraph.</p>
```

```
</body>
```

```
</html>
```

HTML Layout Elements

HTML has several semantic elements that define the different parts of a web page:



`<article>`
`<aside>`
`<details>`
`<figcaption>`
`<figure>`
`<footer>`
`<header>`
`<main>`
`<mark>`
`<nav>`
`<section>`
`<summary>`
`<time>`

HTML Canvas Graphics

- The HTML `<canvas>` element is used to draw graphics, on the fly, via JavaScript.
- The `<canvas>` element is only a container for graphics. You must use JavaScript to actually draw the graphics.
- Canvas has several methods for drawing paths, boxes, circles, text, and adding images.

```
<canvas id="myCanvas" width="200" height="100" style="border:1px solid #000000;">
```

Your browser does not support the HTML canvas tag.

```
</canvas>
```


Draw a Circle

```
<canvas id="myCanvas" width="200" height="100" style="border:1px solid #d3d3d3;">
```

Your browser does not support the HTML canvas tag.</canvas>

```
<script>
```

```
var c = document.getElementById("myCanvas");
```

```
var ctx = c.getContext("2d");
```

```
ctx.beginPath();
```

```
ctx.arc(95,50,40,0,2*Math.PI);
```

```
ctx.stroke();
```

```
</script>
```

SVG Graphics

- SVG defines vector-based graphics in XML format.
- SVG stands for Scalable Vector Graphics
- SVG is used to define graphics for the Web
- SVG is a W3C recommendation
- The HTML `<svg>` element is a container for SVG graphics.
- SVG has several methods for drawing paths, boxes, circles, text, and graphic images.

SVG Graphics

- SVG Circle

```
<svg width="100" height="100">  
  <circle cx="50" cy="50" r="40" stroke="green" stroke-  
width="4" fill="yellow" />  
</svg>
```

- SVG Rounded Rectangle

```
<svg width="400" height="180">  
  <rect x="50" y="20" rx="20" ry="20" width="150" height  
="150" style="fill:red;stroke:black;stroke-  
width:5;opacity:0.5" />  
</svg>
```

Differences Between SVG and Canvas

- SVG is a language for describing 2D graphics in XML. SVG is XML based, which means that every element is available within the SVG DOM. You can attach JavaScript event handlers for an element. In SVG, each drawn shape is remembered as an object. If attributes of an SVG object are changed, the browser can automatically re-render the shape.
- Canvas draws 2D graphics, on the fly (with a JavaScript). Canvas is rendered pixel by pixel. In canvas, once the graphic is drawn, it is forgotten by the browser. If its position should be changed, the entire scene needs to be redrawn, including any objects that might have been covered by the graphic.

Comparison of Canvas and SVG

Canvas	SVG
<ul style="list-style-type: none">•Resolution dependent•No support for event handlers•Poor text rendering capabilities•You can save the resulting image as .png or .jpg•Well suited for graphic-intensive games	<ul style="list-style-type: none">•Resolution independent•Support for event handlers•Best suited for applications with large rendering areas (Google Maps)•Slow rendering if complex (anything that uses the DOM a lot will be slow)•Not suited for game applications

HTML Multimedia

- Multimedia on the web is sound, music, videos, movies, and animations. Web pages often contain multimedia elements of different types and formats.
- The MP4, WebM, and Ogg formats are supported by HTML standard. The MP4 format is recommended by YouTube.
- MP3 is the best format for compressed recorded music. The term MP3 has become synonymous with digital music. Only MP3, WAV, and Ogg audio are supported by the HTML standard.

HTML Video

- The controls attribute adds video controls, like play, pause, and volume.
- It is a good idea to always include width and height attributes. The <source> element allows you to specify alternative video files which the browser may choose from. The browser will use the first recognized format.
- The text between the <video> and </video> tags will only be displayed in browsers that do not support the <video> element.
- The HTML DOM defines methods, properties, and events for the <video> element. This allows you to load, play, and pause videos, as well as setting duration and volume. There are also DOM events that can notify you when a video begins to play, is paused, etc.

HTML Video

Tag	Description
<code><video></code>	Defines a video or movie
<code><source></code>	Defines multiple media resources for media elements, such as <code><video></code> and <code><audio></code>
<code><track></code>	Defines text tracks in media players

```
<video width="320" height="240" controls>  
  <source src="movie.mp4" type="video/mp4">  
  <source src="movie.ogv" type="video/ogg">  
Your browser does not support the video tag.  
</video>
```


HTML Audio

- The controls attribute adds audio controls, like play, pause, and volume.
- The <source> element allows you to specify alternative audio files which the browser may choose from. The browser will use the first recognized format.
- The text between the <audio> and </audio> tags will only be displayed in browsers that do not support the <audio> element.
- The HTML DOM defines methods, properties, and events for the <audio> element. This allows you to load, play, and pause audios, as well as set duration and volume. There are also DOM events that can notify you when an audio begins to play, is paused, etc.

The HTML `<audio>` Element

Tag	Description
<code><audio></code>	Defines sound content
<code><source></code>	Defines multiple media resources for media elements, such as <code><video></code> and <code><audio></code>

`<audio controls>`

`<source src="horse.ogg" type="audio/ogg">`

`<source src="horse.mp3" type="audio/mpeg">`

Your browser does not support the audio element.

`</audio>`

HTML Plug-ins

- Plug-ins are computer programs that extend the standard functionality of the browser.

To run Java applets

To run Microsoft ActiveX controls

To display Flash movies

To display maps

To scan for viruses

To verify a bank id

Warning !

Most browsers no longer support Java Applets and Plug-ins.

ActiveX controls are no longer supported in any browsers.

The support for Shockwave Flash has also been turned off in modern browsers.

The <object> Element

- The <object> element defines an embedded object within an HTML document.
- It was designed to embed plug-ins (like Java applets, PDF readers, and Flash Players) in web pages, but can also be used to include HTML in HTML

```
<object width="100%" height="500px" data="snippet.html">  
</object>  
<object data="audi.jpeg"></object>
```

The <embed> Element

- The <embed> element also defines an embedded object within an HTML document.
- Web browsers have supported the <embed> element for a long time. However, it has not been a part of the HTML specification before HTML5.

```
<embed src="audi.jpeg">
```

```
<embed width="100%" height="500px" src="snippet.html">
```

HTML Geolocation API

- The HTML Geolocation API is used to locate a user's position.

```
<p>Click the button to get your coordinates.</p>
<button onclick="getLocation()">Try It</button>
<p id="demo"></p>
<script>
var x = document.getElementById("demo");
function getLocation() {
  if (navigator.geolocation) {
    navigator.geolocation.getCurrentPosition(showPosition);
  } else {
    x.innerHTML = "Geolocation is not supported by this browser.";
  }
}
function showPosition(position) {
  x.innerHTML = "Latitude: " + position.coords.latitude +
  "<br>Longitude: " + position.coords.longitude;
}
</script>
```

Displaying the Result in a Map

```
function showPosition(position) {  
    var latlon = position.coords.latitude + "," +  
    position.coords.longitude;  
  
    var img_url  
= "https://maps.googleapis.com/maps/api/staticmap?center=  
"+latlon+"&zoom=14&size=400x300&sensor=false&key=Y  
OUR_KEY";  
  
    document.getElementById("mapholder").innerHTML = "<im  
g src='"+img_url+"'>";  
}
```

HTML Encoding (Character Sets)

- To display an HTML page correctly, a web browser must know which character set to use.
- The default character set for HTML5 is UTF-8, which covers almost all of the characters and symbols in the world.

```
<meta charset="UTF-8">
```

The UTF-8 Character Set

UTF-8 is identical to ASCII for the values from 0 to 127.

UTF-8 does not use the values from 128 to 159.

UTF-8 is identical to both ANSI and 8859-1 for the values from 160 to 255.

UTF-8 continues from the value 256 with more than 10 000 different characters.

HTML Elements

- An HTML element is defined by a start tag, some content, and an end tag.
- Nested HTML Elements
- Never Skip the End Tag
- Empty HTML Elements: `
`
- HTML is Not Case Sensitive: `<P>` means the same as `<p>`.

Tip: The HTML standard does not require lowercase tags, but W3C **recommends** lowercase in HTML, and **demands** lowercase for stricter document types like XHTML.

HTML Attributes

- All HTML elements can have **attributes**
- Attributes provide **additional information** about elements
- Attributes are always specified in **the start tag**
- Attributes usually come in name/value pairs like: **name="value"**

We Suggest:

Always Use Lowercase Attributes;

Always Quote Attribute Values

HTML Quotation

- HTML `<q>` for Short Quotations: The HTML `<q>` tag defines a short quotation. Browsers normally insert quotation marks around the quotation.
- HTML `<abbr>` for Abbreviations: The HTML `<abbr>` tag defines an abbreviation or an acronym, like "HTML", "CSS", "Mr.", "Dr.", "ASAP", "ATM". Marking abbreviations can give useful information to browsers, translation systems and search-engines.

```
<p>The <abbr title="World Health  
Organization">WHO</abbr> was founded in  
1948.</p>
```

Tip: Use the global title attribute to show the description for the abbreviation/acronym when you mouse over the element.

HTML Quotation and Citation Elements

Tag	Description
<code><abbr></code>	Defines an abbreviation or acronym
<code><address></code>	Defines contact information for the author/owner of a document
<code><bdo></code>	Defines the text direction. Bi-Directional Override
<code><blockquote></code>	Defines a section that is quoted from another source
<code><cite></code>	Defines the title of a creative work
<code><q></code>	Defines a short inline quotation

HTML Responsive Web Design

- Responsive web design is about creating web pages that look good on all devices!
- A responsive web design will automatically adjust for different screen sizes and viewports.



XHTML vs. HTML5

XHTML



vs



HTML5

- Has a more extensive doctype compared to HTML5.
- All elements should have their corresponding closing tag.
- There are no tags for header, footer, section, article, nav, and divs with classes; instead, ids have to be used.
- Case-sensitive.
- Contains no GeoLocation API.
- Not supported by some browsers (e.g., Internet Explorer 8)

- Has a much simpler doctype than XHTML.
- Some elements can omit the ending tag.
- There are tags for header, footer, section, article, and nav. This makes it easier to write and read code.
- Case-insensitive.
- Incorporates an API that enables users to share their location.
- Compatible with all browsers.

Difference between HTML vs XHTML vs HTML5

- **HTML vs HTML5**
- A group known as **WHATWG** developed **HTML5** and was designed to improve upon the previous HTML versions and solve some cross-browser compatibility issues. We'll use 'HTML' to refer to the pre-HTML5 versions of HTML.
- In short, HTML5 is just a better version of HTML with added features and functionalities.

Difference between HTML vs XHTML vs HTML5

- **HTML vs XHTML**

- XHTML was developed as an extension to HTML. There aren't many differences between HTML4 and XHTML, and XHTML is a stricter version of HTML4.
- While the above are the more significant differences, there are also some very subtle differences, but they are really rare to run into. You can always check out the documentation of XHTML for more information. The takeaway is that XHTML was designed to solve some problems in HTML, by incorporating some features of XML.

Difference between HTML vs XHTML vs HTML5

- **HTML5 vs XHTML**
- Since XHTML and HTML are largely the same, the differences between XHTML and HTML5 are the same as the ones between HTML4 and HTML5.



The End