HTML Introduction

What is HTML?

HTML is the standard markup language for creating Web pages.

* HTML stands for Hyper Text Markup Language
* HTML describes the structure of Web pages using markup
* HTML elements are the building blocks of HTML pages
* HTML elements are represented by tags
* HTML tags label pieces of content such as "heading", "paragraph", "table", and so on
* Browsers do not display the HTML tags, but use them to render the content of the page

A Simple HTML Document

Example

<!DOCTYPE html>  
<html>  
<head>  
<title>Page Title</title>  
</head>  
<body>  
  
<h1>My First Heading</h1>  
<p>My first paragraph.</p>  
  
</body>  
</html>

Example Explained

* The <!DOCTYPE html> declaration defines this document to be HTML5
* The <html> element is the root element of an HTML page
* The <head> element contains meta information about the document
* The <title> element specifies a title for the document
* The <body> element contains the visible page content
* The <h1> element defines a large heading
* The <p> element defines a paragraph

HTML Tags

HTML tags are element names surrounded by angle brackets:

<tagname>content goes here...</tagname>

* HTML tags normally come **in pairs** like <p> and </p>
* The first tag in a pair is the **start tag,** the second tag is the **end tag**
* The end tag is written like the start tag, but with a **forward slash** inserted before the tag name

**Tip:** The start tag is also called the **opening tag**, and the end tag the **closing tag**.

Web Browsers

The purpose of a web browser (Chrome, IE, Firefox, Safari) is to read HTML documents and display them.

The browser does not display the HTML tags, but uses them to determine how to display the document:



HTML Page Structure

Below is a visualization of an HTML page structure:

<html>

<head>

<title>Page title</title>

</head>

<body>

<h1>This is a heading</h1>

<p>This is a paragraph.</p>

<p>This is another paragraph.</p>

</body>

</html>

**Note:** Only the content inside the <body> section (the white area above) is displayed in a browser.

The <!DOCTYPE> Declaration

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.

The <!DOCTYPE> declaration for HTML is:

<!DOCTYPE html>

HTML Versions

Since the early days of the web, there have been many versions of HTML:

|  |  |
| --- | --- |
| **Version** | **Year** |
| HTML | 1991 |
| HTML 2.0 | 1995 |
| HTML 3.2 | 1997 |
| HTML 4.01 | 1999 |
| XHTML | 2000 |
| HTML5 | 2014 |

# HTML Editor

## Write 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 using a simple text editor is a good way to learn HTML.

Follow the four steps below to create your first web page with Notepad or TextEdit.

## Step 1: Open Notepad (PC)

**Windows 8 or later:**

Open the **Start Screen** (the window symbol at the bottom left on your screen). Type **Notepad**.

**Windows 7 or earlier:**

Open **Start** >**Programs >** **Accessories >** **Notepad**

## Step 1: Open TextEdit (Mac)

Open **Finder > Applications > TextEdit**

Also change some preferences to get the application to save files correctly. In **Preferences > Format >**choose**"Plain Text"**

Then under "Open and Save", check the box that says "Ignore rich text commands in HTML files".

**Then open a new document to place the code.**

## Step 2: Write Some HTML

Write or copy some HTML into Notepad.

<!DOCTYPE html>  
<html>  
<body>  
  
<h1>My First Heading</h1>  
  
<p>My first paragraph.</p>  
  
</body>  
</html>



## Step 3: Save the HTML Page

Save the file on your computer. Select **File > Save as** in the Notepad menu.

Name the file **"index.htm"** and set the encoding to **UTF-8** (which is the preferred encoding for HTML files).



You can use either .htm or .html as file extension. There is no difference, it is up to you.

## Step 4: View the HTML Page in Your Browser

Open the saved HTML file in your favorite browser (double click on the file, or right-click - and choose "Open with").

The result will look much like this:



# HTML Basic Examples

Don't worry if these examples use tags you have not learned.

You will learn about them in the next chapters.

## HTML Documents

All HTML documents must start with a document type declaration: **<!DOCTYPE html>**.

The HTML document itself begins with **<html>** and ends with **</html>**.

The visible part of the HTML document is between **<body>** and **</body>**.

### Example

<!DOCTYPE html>  
<html>  
<body>  
  
<h1>My First Heading</h1>  
<p>My first paragraph.</p>  
  
</body>  
</html>

## HTML Headings

HTML headings are defined with the **<h1>** to **<h6>** tags.

<h1> defines the most important heading. <h6> defines the least important heading:

### Example

<h1>This is heading 1</h1>  
<h2>This is heading 2</h2>  
<h3>This is heading 3</h3>

## HTML Paragraphs

HTML paragraphs are defined with the **<p>** tag:

### Example

<p>This is a paragraph.</p>  
<p>This is another paragraph.</p>

## HTML Links

HTML links are defined with the **<a>** tag:

### Example

<a href="http://www.w3schools.com">This is a link</a>

The link's destination is specified in the **href attribute**.

Attributes are used to provide additional information about HTML elements.

## HTML Images

HTML images are defined with the **<img>** tag.

The source file (src), alternative text (alt), width, and height are provided as attributes:

### Example

<img src="w3schools.jpg" alt="W3Schools.com" width="104" height="142">

# HTML Elements

## HTML Elements

An HTML element usually consists of a **start** tag and **end** tag, with the content inserted in between:

<tagname>Content goes here...</tagname>

The HTML **element** is everything from the start tag to the end tag:

<p>My first paragraph.</p>

|  |  |  |
| --- | --- | --- |
| **Start tag** | **Element content** | **End tag** |
| <h1> | My First Heading | </h1> |
| <p> | My first paragraph. | </p> |
| <br> |  |  |

HTML elements with no content are called empty elements. Empty elements do not have an end tag, such as the <br> element (which indicates a line break).

## Nested HTML Elements

HTML elements can be nested (elements can contain elements).

All HTML documents consist of nested HTML elements.

This example contains four HTML elements:

### Example

<!DOCTYPE html>  
<html>  
<body>  
  
<h1>My First Heading</h1>  
<p>My first paragraph.</p>  
  
</body>  
</html>

### Example Explained

The **<html>** element defines the **whole document**.

It has a **start** tag <html> and an **end** tag </html>.

The element **content** is another HTML element (the <body> element).

<html>  
<body>  
  
<h1>My First Heading</h1>  
<p>My first paragraph.</p>  
  
</body>  
</html>

The **<body>** element defines the **document body**.

It has a **start** tag <body> and an **end** tag </body>.

The element **content** is two other HTML elements (<h1> and <p>).

<body>  
  
<h1>My First Heading</h1>  
<p>My first paragraph.</p>  
  
</body>

The **<h1>** element defines a **heading**.

It has a **start** tag <h1> and an **end** tag </h1>.

The element **content** is: My First Heading.

<h1>My First Heading</h1>

The **<p>** element defines a **paragraph**.

It has a **start** tag <p> and an **end** tag </p>.

The element **content** is: My first paragraph.

<p>My first paragraph.</p>

## Do Not Forget the End Tag

Some HTML elements will display correctly, even if you forget the end tag:

### Example

<html>  
<body>  
  
<p>This is a paragraph  
<p>This is a paragraph  
  
</body>  
</html>

The example above works in all browsers, because the closing tag is considered optional.

**Never rely on this. It might produce unexpected results and/or errors if you forget the end tag.**

## Empty HTML Elements

HTML elements with no content are called empty elements.

<br> is an empty element without a closing tag (the <br> tag defines a line break).

Empty elements can be "closed" in the opening tag like this: <br />.

HTML5 does not require empty elements to be closed. But if you want stricter validation, or if you need to make your document readable by XML parsers, you must close all HTML elements properly.

## Use Lowercase Tags

HTML tags are not case sensitive: <P> means the same as <p>.

The HTML5 standard does not require lowercase tags, but W3C **recommends** lowercase in HTML, and **demands**lowercase for stricter document types like XHTML.

At W3Schools we always use lowercase tags.

HTML Attributes

Attributes provide additional information about HTML elements.

HTML Attributes

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

The lang Attribute

The language of the document can be declared in the **<html>** tag.

The language is declared with the **lang** attribute.

Declaring a language is important for accessibility applications (screen readers) and search engines:

<!DOCTYPE html>  
<html lang="en-US">  
<body>  
  
...  
  
</body>  
</html>

The first two letters specify the language (en). If there is a dialect, use two more letters (US).

The title Attribute

Here, a **title** attribute is added to the **<p>** element. The value of the title attribute will be displayed as a tooltip when you mouse over the paragraph:

Example

<p title="I'm a tooltip">  
This is a paragraph.  
</p>

The href Attribute

HTML links are defined with the **<a>** tag. The link address is specified in the **href** attribute:

Example

<a href="http://www.w3schools.com">This is a link</a>

You will learn more about links and the <a> tag later in this tutorial.

Size Attributes

HTML images are defined with the **<img>** tag.

The filename of the source (**src**), and the size of the image (**width** and **height**) are all provided as **attributes**:

Example

<img src="w3schools.jpg" width="104" height="142">

The image size is specified in pixels: width="104" means 104 screen pixels wide.

You will learn more about images and the <img> tag later in this tutorial.

The alt Attribute

The **alt** attribute specifies an alternative text to be used, when an image cannot be displayed.

The value of the attribute can be read by screen readers. This way, someone "listening" to the webpage, e.g. a blind person, can "hear" the element.

Example

<img src="w3schools.jpg" alt="W3Schools.com" width="104" height="142">

We Suggest: Use Lowercase Attributes

The HTML5 standard does not require lowercase attribute names.

The title attribute can be written with uppercase or lowercase like **Title** and/or **TITLE**.

W3C **recommends** lowercase in HTML, and **demands** lowercase for stricter document types like XHTML.

At W3Schools we always use lowercase attribute names.

We Suggest: Quote Attribute Values

The HTML5 standard does not require quotes around attribute values.

The **href** attribute, demonstrated above, can be written as:

Example

<a href=http://www.w3schools.com>

W3C **recommends** quotes in HTML, and **demands** quotes for stricter document types like XHTML.

Sometimes it is **necessary** to use quotes. This example will not display the title attribute correctly, because it contains a space:

Example

<p title=About W3Schools>

Using quotes are the most common. Omitting quotes can produce errors.   
At W3Schools we always use quotes around attribute values.

Single or Double Quotes?

Double quotes around attribute values are the most common in HTML, but single quotes can also be used.

In some situations, when the attribute value itself contains double quotes, it is necessary to use single quotes:

<p title='John "ShotGun" Nelson'>

Or vice versa:

<p title="John 'ShotGun' Nelson">

Chapter Summary

* All HTML elements can have **attributes**
* The **title** attribute provides additional "tool-tip" information
* The **href** attribute provides address information for links
* The **width** and **height** attributes provide size information for images
* The **alt** attribute provides text for screen readers
* At W3Schools we always use **lowercase** attribute names
* At W3Schools we always **quote** attribute values with double quotes

## HTML Attributes

Below is an alphabetical list of some attributes often used in HTML:

|  |  |
| --- | --- |
| **Attribute** | **Description** |
| alt | Specifies an alternative text for an image, when the image cannot be displayed |
| disabled | Specifies that an input element should be disabled |
| href | Specifies the URL (web address) for a link |
| id | Specifies a unique id for an element |
| src | Specifies the URL (web address) for an image |
| style | Specifies an inline CSS style for an element |
| title | Specifies extra information about an element (displayed as a tool tip) |

A complete list of all attributes for each HTML element, is listed in our: [HTML Attribute Reference](http://www.w3schools.com/tags/ref_attributes.asp).

# HTML Headings

Headings are important in HTML documents.

## HTML Headings

Headings are defined with the <h1> to <h6> tags.

<h1> defines the most important heading. <h6> defines the least important heading.

### Example

<h1>This is heading 1</h1>  
<h2>This is heading 2</h2>  
<h3>This is heading 3</h3>  
<h4>This is heading 4</h4>  
<h5>This is heading 5</h5>  
<h6>This is heading 6</h6>

**Note:** Browsers automatically add some white space (a margin) before and after a heading.

## Headings Are Important

Search engines use the headings to index the structure and content of your web pages.

Users skim your pages by its headings. It is important to use headings to show the document structure.

<h1> headings should be used for main headings, followed by <h2> headings, then the less important <h3>, and so on.

**Note:** Use HTML headings for headings only. Don't use headings to make text **BIG** or **bold**.

## HTML Horizontal Rules

The <hr> tag defines a thematic break in an HTML page, and is most often displayed as a horizontal rule.

The <hr> element is used to separate content (or define a change) in an HTML page:

### Example

<h1>This is heading 1</h1>  
<p>This is some text.</p>  
<hr>  
<h2>This is heading 2</h2>  
<p>This is some other text.</p>  
<hr>

**The HTML <head> Element**

The HTML **<head>** element has nothing to do with HTML headings.

The <head> element is a container for metadata. HTML metadata is data about the HTML document. Metadata is not displayed.

The <head> element is placed between the <html> tag and the <body> tag:

### Example

<!DOCTYPE html>  
<html>  
  
<head>  
  <title>My First HTML</title>  
  <meta charset="UTF-8">  
</head>  
  
<body>  
.  
.  
.

**Note:** Metadata typically define the document title, character set, styles, links, scripts, and other meta information.

## HTML Tip - How to View HTML Source

Have you ever seen a Web page and wondered "Hey! How did they do that?"

To find out, right-click in the page and select "View Page Source" (in Chrome) or "View Source" (in IE), or similar in another browser. This will open a window containing the HTML code of the page.

**HTML Tag Reference**

W3Schools' tag reference contains additional information about these tags and their attributes.

You will learn more about HTML tags and attributes in the next chapters of this tutorial.

|  |  |
| --- | --- |
| **Tag** | **Description** |
| [<html>](http://www.w3schools.com/tags/tag_html.asp) | Defines the root of an HTML document |
| [<body>](http://www.w3schools.com/tags/tag_body.asp) | Defines the document's body |
| [<head>](http://www.w3schools.com/tags/tag_head.asp) | A container for all the head elements (title, scripts, styles, meta information, and more) |
| [<h1> to <h6>](http://www.w3schools.com/tags/tag_hn.asp) | Defines HTML headings |
| [<hr>](http://www.w3schools.com/tags/tag_hr.asp) | Defines a thematic change in the content |

# HTML Paragraphs

## HTML Paragraphs

The HTML **<p>** element defines a **paragraph**:

### Example

<p>This is a paragraph.</p>  
<p>This is another paragraph.</p>

**Note:** Browsers automatically add some white space (a margin) before and after a paragraph.

## HTML Display

You cannot be sure how HTML will be displayed.

Large or small screens, and resized windows will create different results.

With HTML, you cannot change the output by adding extra spaces or extra lines in your HTML code.

The browser will remove any extra spaces and extra lines when the page is displayed:

### Example

<p>  
This paragraph  
contains a lot of lines  
in the source code,  
but the browser   
ignores it.  
</p>  
  
<p>  
This paragraph  
contains         a lot of spaces  
in the source         code,  
but the        browser   
ignores it.  
</p>

**Don't Forget the End Tag**

Most browsers will display HTML correctly even if you forget the end tag:

### Example

<p>This is a paragraph.  
<p>This is another paragraph.

The example above will work in most browsers, but do not rely on it.

**Note:** Dropping the end tag can produce unexpected results or errors.

## HTML Line Breaks

The HTML **<br>** element defines a **line break**.

Use <br> if you want a line break (a new line) without starting a new paragraph:

### Example

<p>This is<br>a paragraph<br>with line breaks.</p>

The <br> tag is an empty tag, which means that it has no end tag.

## The Poem Problem

This poem will display on a single line:

### Example

<p>  
  My Bonnie lies over the ocean.  
  
  My Bonnie lies over the sea.  
  
  My Bonnie lies over the ocean.  
  
  Oh, bring back my Bonnie to me.  
</p>

## The HTML <pre> Element

The HTML <pre> element defines preformatted text.

The text inside a <pre> element is displayed in a fixed-width font (usually Courier), and it preserves both spaces and line breaks:

### Example

<pre>  
  My Bonnie lies over the ocean.  
  
  My Bonnie lies over the sea.  
  
  My Bonnie lies over the ocean.  
  
  Oh, bring back my Bonnie to me.  
</pre>

## HTML Tag Reference

W3Schools' tag reference contains additional information about HTML elements and their attributes.

|  |  |
| --- | --- |
| **Tag** | **Description** |
| [<p>](http://www.w3schools.com/tags/tag_p.asp) | Defines a paragraph |
| [<br>](http://www.w3schools.com/tags/tag_br.asp) | Inserts a single line break |
| [<pre>](http://www.w3schools.com/tags/tag_pre.asp) | Defines pre-formatted text |

HTML Styles

Example

I am Red

I am Blue

I am Big

The HTML Style Attribute

Setting the style of an HTML element, can be done with the **style attribute**.

The HTML style attribute has the following **syntax**:

<tagname style="*property*:*value;*">

The ***property*** is a CSS property. The ***value*** is a CSS value.

You will learn more about CSS later in this tutorial.

HTML Background Color

The **background-color** property defines the background color for an HTML element.

This example sets the background color for a page to powderblue:

Example

<body style="background-color:powderblue;">  
  
<h1>This is a heading</h1>  
<p>This is a paragraph.</p>  
  
</body>

HTML Text Color

The **color** property defines the text color for an HTML element:

Example

<h1 style="color:blue;">This is a heading</h1>  
<p style="color:red;">This is a paragraph.</p>

HTML Fonts

The **font-family** property defines the font to be used for an HTML element:

Example

<h1 style="font-family:verdana;">This is a heading</h1>  
<p style="font-family:courier;">This is a paragraph.</p>

HTML Text Size

The **font-size** property defines the text size for an HTML element:

Example

<h1 style="font-size:300%;">This is a heading</h1>  
<p style="font-size:160%;">This is a paragraph.</p>

HTML Text Alignment

The **text-align** property defines the horizontal text alignment for an HTML element:

Example

<h1 style="text-align:center;">Centered Heading</h1>  
<p style="text-align:center;">Centered paragraph.</p>

Chapter Summary

* Use the **style** attribute for styling HTML elements
* Use **background-color** for background color
* Use **color** for text colors
* Use **font-family** for text fonts
* Use **font-size** for text sizes
* Use **text-align** for text alignment

HTML Text Formatting

Text Formatting

**This text is bold**

*This text is italic*

This issubscript and superscript

HTML Formatting Elements

In the previous chapter, you learned about the HTML **style attribute**.

HTML also defines special **elements** for defining text with a special **meaning**.

HTML uses elements like <b> and <i> for formatting output, like **bold** or *italic* text.

Formatting elements were designed to display special types of text:

* <b> - Bold text
* <strong> - Important text
* <i> - Italic text
* <em> - Emphasized text
* <mark> - Marked text
* <small> - Small text
* <del> - Deleted text
* <ins> - Inserted text
* <sub> - Subscript text
* <sup> - Superscript text

HTML <b> and <strong> Elements

The HTML **<b>** element defines **bold** text, without any extra importance.

Example

<b>This text is bold</b>

The HTML **<strong>** element defines **strong** text, with added semantic "strong" importance.

Example

<strong>This text is strong</strong>

HTML <i> and <em> Elements

The HTML **<i>** element defines *italic* text, without any extra importance.

Example

<i>This text is italic</i>

The HTML **<em>** element defines *emphasized* text, with added semantic importance.

Example

<em>This text is emphasized</em>

**Note:** Browsers display <strong> as <b>, and <em> as <i>. However, there is a difference in the meaning of these tags: <b> and <i> defines bold and italic text, but <strong> and <em> means that the text is "important".

HTML <small> Element

The HTML **<small>** element defines smaller text:

Example

<h2>HTML <small>Small</small> Formatting</h2>

HTML <mark> Element

The HTML **<mark>** element defines marked or highlighted text:

Example

<h2>HTML <mark>Marked</mark> Formatting</h2>

HTML <del> Element

The HTML **<del>** element defines  (removed) text.

Example

<p>My favorite color is <del>blue</del> red.</p>

HTML <ins> Element

The HTML **<ins>** element defines inserted (added) text.

Example

<p>My favorite <ins>color</ins> is red.</p>

HTML <sub> Element

The HTML **<sub>** element defines subscripted text.

Example

<p>This is <sub>subscripted</sub> text.</p>

HTML <sup> Element

The HTML **<sup>** element defines superscripted text.

Example

<p>This is <sup>superscripted</sup> text.</p>

HTML Text Formatting Elements

|  |  |
| --- | --- |
| **Tag** | **Description** |
| [<b>](http://www.w3schools.com/tags/tag_b.asp) | Defines bold text |
| [<em>](http://www.w3schools.com/tags/tag_em.asp) | Defines emphasized text |
| [<i>](http://www.w3schools.com/tags/tag_i.asp) | Defines italic text |
| [<small>](http://www.w3schools.com/tags/tag_small.asp) | Defines smaller text |
| [<strong>](http://www.w3schools.com/tags/tag_strong.asp) | Defines important text |
| [<sub>](http://www.w3schools.com/tags/tag_sub.asp) | Defines subscripted text |
| [<sup>](http://www.w3schools.com/tags/tag_sup.asp) | Defines superscripted text |
| [<ins>](http://www.w3schools.com/tags/tag_ins.asp) | Defines inserted text |
| [<del>](http://www.w3schools.com/tags/tag_del.asp) | Defines deleted text |
| [<mark>](http://www.w3schools.com/tags/tag_mark.asp) | Defines marked/highlighted text |

# HTML Quotation and Citation Elements

### Quotation

Here is a quote from WWF's website:

For 50 years, WWF has been protecting the future of nature. The world's leading conservation organization, WWF works in 100 countries and is supported by 1.2 million members in the United States and close to 5 million globally.

## HTML <q> for Short Quotations

The HTML **<q>** element defines a short quotation.

Browsers usually insert quotation marks around the <q> element.

### Example

<p>WWF's goal is to: <q>Build a future where people live in harmony with nature.</q></p>

**HTML <blockquote> for Quotations**

The HTML **<blockquote>** element defines a section that is quoted from another source.

Browsers usually indent <blockquote> elements.

### Example

<p>Here is a quote from WWF's website:</p>  
<blockquote cite="http://www.worldwildlife.org/who/index.html">  
For 50 years, WWF has been protecting the future of nature.  
The world's leading conservation organization,  
WWF works in 100 countries and is supported by  
1.2 million members in the United States and  
close to 5 million globally.  
</blockquote>

## HTML <abbr> for Abbreviations

The HTML **<abbr>** element defines an abbreviation or an acronym.

Marking abbreviations can give useful information to browsers, translation systems and search-engines.

### Example

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

## HTML <address> for Contact Information

The HTML **<address>** element defines contact information (author/owner) of a document or an article.

The <address> element is usually displayed in italic. Most browsers will add a line break before and after the element.

### Example

<address>  
Written by John Doe.<br>   
Visit us at:<br>  
Example.com<br>  
Box 564, Disneyland<br>  
USA  
</address>

## HTML <cite> for Work Title

The HTML **<cite>** element defines the title of a work.

Browsers usually display <cite> elements in italic.

### Example

<p><cite>The Scream</cite> by Edvard Munch. Painted in 1893.</p>

## HTML <bdo> for Bi-Directional Override

The HTML **<bdo>** element defines bi-directional override.

The <bdo> element is used to override the current text direction:

### Example

<bdo dir="rtl">This text will be written from right to left</bdo>

**HTML Quotation and Citation Elements**

|  |  |
| --- | --- |
| **Tag** | **Description** |
| [<abbr>](http://www.w3schools.com/tags/tag_abbr.asp) | Defines an abbreviation or acronym |
| [<address>](http://www.w3schools.com/tags/tag_address.asp) | Defines contact information for the author/owner of a document |
| [<bdo>](http://www.w3schools.com/tags/tag_bdo.asp) | Defines the text direction |
| [<blockquote>](http://www.w3schools.com/tags/tag_blockquote.asp) | Defines a section that is quoted from another source |
| [<cite>](http://www.w3schools.com/tags/tag_cite.asp) | Defines the title of a work |
| [<q>](http://www.w3schools.com/tags/tag_q.asp) | Defines a short inline quotation |

# HTML Computer Code Elements

### Computer Code

<code>  
var x = 5;  
var y = 6;  
document.getElementById("demo").innerHTML = x + y;  
</code>

## HTML Computer Code Formatting

HTML normally uses variable letter size and spacing.

This is not what we want when displaying computer code.

The **<kbd>**, **<samp>**, and **<code>** elements are all displayed in fixed letter size and spacing.

## HTML <kbd> For Keyboard Input

The HTML **<kbd>** element defines keyboard input:

### Example

<kbd>File | Open...</kbd>

Result:

File | Open...

## HTML <samp> For Computer Output

The HTML **<samp>** element defines sample output from a computer program:

### Example

<samp>  
demo.example.com login: Apr 12 09:10:17  
Linux 2.6.10-grsec+gg3+e+fhs6b+nfs+gr0501+++p3+c4a+gr2b-reslog-v6.189  
</samp>

Result:

demo.example.com login: Apr 12 09:10:17 Linux 2.6.10-grsec+gg3+e+fhs6b+nfs+gr0501+++p3+c4a+gr2b-reslog-v6.189

## HTML <code> For Computer Code

The HTML **<code>** element defines a piece of programming code:

### Example

<code>  
var x = 5;  
var y = 6;  
document.getElementById("demo").innerHTML = x + y;  
</code>

Result:

var x = 5; var y = 6; document.getElementById("demo").innerHTML = x + y;

Notice that the <code> element does not preserve extra whitespace and line-breaks.

To fix this, you can put the <code> element inside a **<pre>** element:

### Example

<pre>  
<code>  
var x = 5;  
var y = 6;  
document.getElementById("demo").innerHTML = x + y;  
</code>  
</pre>

Result:

var x = 5;

var y = 6;

document.getElementById("demo").innerHTML = x + y;

## HTML <var> For Variables

The HTML **<var>** element defines a variable.

The variable could be a variable in a mathematical expression or a variable in programming context:

### Example

Einstein wrote: <var>E</var> = <var>m</var><var>c</var><sup>2</sup>.

Result:

Einstein wrote: E = mc2.

## HTML Computer Code Elements

|  |  |
| --- | --- |
| **Tag** | **Description** |
| [<code>](http://www.w3schools.com/tags/tag_code.asp) | Defines programming code |
| [<kbd>](http://www.w3schools.com/tags/tag_kbd.asp) | Defines keyboard input |
| [<samp>](http://www.w3schools.com/tags/tag_samp.asp) | Defines computer output |
| [<var>](http://www.w3schools.com/tags/tag_var.asp) | Defines a variable |
| [<pre>](http://www.w3schools.com/tags/tag_pre.asp) | Defines preformatted text |

# HTML Comments

# Comment tags are used to insert comments in the HTML source code.

## HTML Comment Tags

You can add comments to your HTML source by using the following syntax:

<!-- Write your comments here -->

Notice that there is an exclamation point (!) in the opening tag, but not in the closing tag.

**Note:** Comments are not displayed by the browser, but they can help document your HTML source code.

With comments you can place notifications and reminders in your HTML:

### Example

<!-- This is a comment -->  
  
<p>This is a paragraph.</p>  
  
<!-- Remember to add more information here -->

Comments are also great for debugging HTML, because you can comment out HTML lines of code, one at a time, to search for errors:

### Example

<!-- Do not display this at the moment  
<img border="0" src="pic\_mountain.jpg" alt="Mountain">  
-->

## Conditional Comments

You might stumble upon conditional comments in HTML:

<!--[if IE 9]>  
    .... some HTML here ....  
<![endif]-->

Conditional comments defines some HTML tags to be executed by Internet Explorer only.

# HTML Colors

In HTML, a color can be specified by using a color name, an RGB value, or a HEX value.

## Color Names

In HTML, a color can be specified by using a color name:

### Example

|  |  |
| --- | --- |
| **Color** | **Name** |
|  | Red |
|  | Orange |
|  | Yellow |
|  | Cyan |
|  | Blue |

HTML supports [140 standard color names](http://www.w3schools.com/colors/colors_names.asp).

## RGB Value

In HTML, a color can also be specified as an RGB value, using this formula: rgb(red, green, blue)

Each parameter (red, green, and blue) defines the intensity of the color between 0 and 255.

For example, rgb(255,0,0) is displayed as red, because red is set to its highest value (255) and the others are set to 0.

To display the color black, all color parameters must be set to 0, like this: rgb(0,0,0).

To display the color white, all color parameters must be set to 255, like this: rgb(255,255,255).

Experiment by mixing the RGB values below:

|  |  |  |
| --- | --- | --- |
| **Red** | **Green** | **Blue** |
| 255 | 0 | 0 |
|  |  |  |
|  |  |  |

rgb(255, 0, 0)

### Example

|  |  |
| --- | --- |
| **Color** | **RGB** |
|  | rgb(255,0,0) |
|  | rgb(255,255,0) |
|  | rgb(0,255,0) |
|  | rgb(0,255,255) |
|  | rgb(0,0,255) |

Shades of gray are often defined using equal values for all the 3 light sources:

### Example

|  |  |
| --- | --- |
| **Color** | **RGB** |
|  | rgb(0,0,0) |
|  | rgb(90,90,90) |
|  | rgb(128,128,128) |
|  | rgb(200,200,200) |
|  | rgb(255,255,255) |

## HEX Value

In HTML, a color can also be specified using a hexadecimal value in the form: #RRGGBB, where RR (red), GG (green) and BB (blue) are hexadecimal values between 00 and FF (same as decimal 0-255).

For example, #FF0000 is displayed as red, because red is set to its highest value (FF) and the others are set to the lowest value (00).

### Example

|  |  |
| --- | --- |
| **Color** | **HEX** |
|  | #FF0000 |
|  | #FFFF00 |
|  | #00FF00 |
|  | #00FFFF |
|  | #0000FF |

Shades of gray are often defined using equal values for all the 3 light sources:

### Example

|  |  |
| --- | --- |
| **Color** | **HEX** |
|  | #000000 |
|  | #404040 |
|  | #808080 |
|  | #CCCCCC |
|  | #FFFFFF |

HTML Styles - CSS

CSS = Styles and Colors

Manipulate Text

Colors,  Boxes

Styling HTML with CSS

**CSS** stands for **C**ascading **S**tyle **S**heets.

CSS describes **how HTML elements are to be displayed on screen, paper, or in other media**.

CSS **saves a lot of work**. It can control the layout of multiple web pages all at once.

CSS can be added to HTML elements in 3 ways:

* **Inline** - by using the style attribute in HTML elements
* **Internal** - by using a <style> element in the <head> section
* **External** - by using an external CSS file

The most common way to add CSS, is to keep the styles in separate CSS files. However, here we will use inline and internal styling, because this is easier to demonstrate, and easier for you to try it yourself.

**Tip:** You can learn much more about CSS in our [CSS Tutorial](http://www.w3schools.com/css/default.asp).

Inline CSS

An inline CSS is used to apply a unique style to a single HTML element.

An inline CSS uses the style attribute of an HTML element.

This example sets the text color of the <h1> element to blue:

Example

<h1 style="color:blue;">This is a Blue Heading</h1>

Internal CSS

An internal CSS is used to define a style for a single HTML page.

An internal CSS is defined in the <head> section of an HTML page, within a <style> element:

Example

<!DOCTYPE html>  
<html>  
<head>  
<style>  
body {background-color: powderblue;}  
h1   {color: blue;}  
p    {color: red;}  
</style>  
</head>  
<body>  
  
<h1>This is a heading</h1>  
<p>This is a paragraph.</p>  
  
</body>  
</html>

External CSS

An external style sheet is used to define the style for many HTML pages.

**With an external style sheet, you can change the look of an entire web site, by changing one file!**

To use an external style sheet, add a link to it in the <head> section of the HTML page:

Example

<!DOCTYPE html>  
<html>  
<head>  
  <link rel="stylesheet" href="styles.css">  
</head>  
<body>  
  
<h1>This is a heading</h1>  
<p>This is a paragraph.</p>  
  
</body>  
</html>

An external style sheet can be written in any text editor. The file must not contain any HTML code, and must be saved with a .css extension.

Here is how the "styles.css" looks:

body {  
    background-color: powderblue;  
}  
h1 {  
    color: blue;  
}  
p {  
    color: red;  
}

CSS Fonts

The CSS **color** property defines the text color to be used.

The CSS **font-family** property defines the font to be used.

The CSS **font-size**property defines the text size to be used.

Example

<!DOCTYPE html>  
<html>  
<head>  
<style>  
h1 {  
    color: blue;  
    font-family: verdana;  
    font-size: 300%;  
}  
p  {  
    color: red;  
    font-family: courier;  
    font-size: 160%;  
}  
</style>  
</head>  
<body>  
  
<h1>This is a heading</h1>  
<p>This is a paragraph.</p>  
  
</body>  
</html>

CSS Border

The CSS **border** property defines a border around an HTML element:

Example

p {  
    border: 1px solid powderblue;  
}

CSS Padding

The CSS **padding** property defines a padding (space) between the text and the border:

Example

p {  
    border: 1px solid powderblue;  
    padding: 30px;  
}

CSS Margin

The CSS **margin** property defines a margin (space) outside the border:

Example

p {  
    border: 1px solid powderblue;  
    margin: 50px;  
}

The id Attribute

To define a specific style for one special element, add an id attribute to the element:

<p id="p01">I am different</p>

then define a style for the element with the specific id:

Example

#p01 {  
    color: blue;  
}

**Note:** The id of an element should be unique within a page, so the id selector is used to select one unique element!

The class Attribute

To define a style for a special type of elements, add a class attribute to the element:

<p class="error">I am different</p>

then define a style for the elements with the specific class:

Example

p.error {  
    color: red;  
}

External References

External style sheets can be referenced with a full URL or with a path relative to the current web page.

This example uses a full URL to link to a style sheet:

Example

<link rel="stylesheet" href="http://www.w3schools.com/html/styles.css">

This example links to a style sheet located in the html folder on the current web site:

Example

<link rel="stylesheet" href="/html/styles.css">

This example links to a style sheet located in the same folder as the current page:

Example

<link rel="stylesheet" href="styles.css">

You can read more about file paths in the chapter [HTML File Paths](http://www.w3schools.com/html/html_filepaths.asp).

Chapter Summary

* Use the HTML **style** attribute for inline styling
* Use the HTML **<style>** element to define internal CSS
* Use the HTML **<link>** element to refer to an external CSS file
* Use the HTML **<head>** element to store <style> and <link> elements
* Use the CSS **color** property for text colors
* Use the CSS **font-family** property for text fonts
* Use the CSS **font-size** property for text sizes
* Use the CSS **border** property for borders
* Use the CSS **padding** property for space inside the border
* Use the CSS **margin** property for space outside the border

HTML Style Tags

|  |  |
| --- | --- |
| **Tag** | **Description** |
| [<style>](http://www.w3schools.com/tags/tag_style.asp) | Defines style information for an HTML document |
| [<link>](http://www.w3schools.com/tags/tag_link.asp) | Defines a link between a document and an external resource |

HTML Links

Links are found in nearly all web pages. Links allow users to click their way from page to page.

HTML Links - Hyperlinks

HTML links are hyperlinks.

You can click on a link and jump to another document.

When you move the mouse over a link, the mouse arrow will turn into a little hand.

**Note:** A link does not have to be text. It can be an image or any other HTML element.

HTML Links - Syntax

In HTML, links are defined with the **<a>** tag:

<a href="*url*">*link text*</a>

Example

<a href="http://www.w3schools.com/html/">Visit our HTML tutorial</a>

The **href** attribute specifies the destination address (http://www.w3schools.com/html/) of the link.

The **link text** is the visible part (Visit our HTML tutorial).

Clicking on the link text will send you to the specified address.

**Note:** Without a forward slash on subfolder addresses, you might generate two requests to the server. Many servers will automatically add a forward slash to the address, and then create a new request.

Local Links

The example above used an absolute URL (A full web address).

A local link (link to the same web site) is specified with a relative URL (without http://www....).

Example

<a href="html\_images.asp">HTML Images</a>

HTML Link Colors

By default, a link will appear like this (in all browsers):

* An unvisited link is underlined and blue
* A visited link is underlined and purple
* An active link is underlined and red

You can change the default colors, by using styles:

Example

<style>  
a:link    {color:green; background-color:transparent; text-decoration:none}  
a:visited {color:pink; background-color:transparent; text-decoration:none}  
a:hover   {color:red; background-color:transparent; text-decoration:underline}  
a:active  {color:yellow; background-color:transparent; text-decoration:underline}  
</style>

HTML Links - The target Attribute

The **target** attribute specifies where to open the linked document.

The target attribute can have one of the following values:

* \_blank - Opens the linked document in a new window or tab
* \_self - Opens the linked document in the same window/tab as it was clicked (this is default)
* \_parent - Opens the linked document in the parent frame
* \_top - Opens the linked document in the full body of the window
* framename - Opens the linked document in a named frame

This example will open the linked document in a new browser window/tab:

Example

<a href="http://www.w3schools.com/" target="\_blank">Visit W3Schools!</a>

**Tip:** If your webpage is locked in a frame, you can use target="\_top" to break out of the frame:

Example

<a href="http://www.w3schools.com/html/" target="\_top">HTML5 tutorial!</a>

HTML Links - Image as Link

It is common to use images as links:

Example

<a href="default.asp">  
  <img src="smiley.gif" alt="HTML tutorial" style="width:42px;height:42px;border:0;">  
</a>

**Note:** border:0; is added to prevent IE9 (and earlier) from displaying a border around the image (when the image is a link).

HTML Links - Create a Bookmark

HTML bookmarks are used to allow readers to jump to specific parts of a Web page.

Bookmarks can be useful if your webpage is very long.

To make a bookmark, you must first create the bookmark, and then add a link to it.

When the link is clicked, the page will scroll to the location with the bookmark.

Example

First, create a bookmark with the id attribute:

<h2 id="tips">Useful Tips Section</h2>

Then, add a link to the bookmark ("Useful Tips Section"), from within the same page:

<a href="#tips">Visit the Useful Tips Section</a>

Or, add a link to the bookmark ("Useful Tips Section"), from another page:

Example

<a href="html\_tips.html#tips">Visit the Useful Tips Section</a>

External Paths

External pages can be referenced with a full URL or with a path relative to the current web page.

This example uses a full URL to link to a web page:

Example

<a href="http://www.w3schools.com/html/default.asp">HTML tutorial</a>

This example links to a page located in the html folder on the current web site:

Example

<a href="/html/default.asp">HTML tutorial</a>

This example links to a page located in the same folder as the current page:

Example

<a href="default.asp">HTML tutorial</a>

You can read more about file paths in the chapter [HTML File Paths](http://www.w3schools.com/html/html_filepaths.asp).

Chapter Summary

* Use the **<a>** element to define a link
* Use the **href** attribute to define the link address
* Use the **target** attribute to define where to open the linked document
* Use the **<img>** element (inside <a>) to use an image as a link
* Use the **id** attribute (id="*value*") to define bookmarks in a page
* Use the **href**attribute (href="#*value*") to link to the bookmark

## HTML Link Tags

|  |  |
| --- | --- |
| **Tag** | **Description** |
| [<a>](http://www.w3schools.com/tags/tag_a.asp) | Defines a hyperlink |

HTML Images

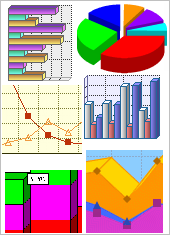
JPG Images



GIF Images



PNG Images



Example

<!DOCTYPE html>  
<html>  
<body>  
  
<h2>Spectacular Mountain</h2>  
<img src="pic\_mountain.jpg" alt="Mountain View" style="width:304px;height:228px;">  
  
</body>  
</html>

HTML Images Syntax

In HTML, images are defined with the **<img>** tag.

The <img> tag is empty, it contains attributes only, and does not have a closing tag.

The src attribute specifies the URL (web address) of the image:

<img src="*url*" alt="*some\_text*" style="width:*width*;height:*height*;">

The alt Attribute

The alt attribute provides an alternate text for an image, if the user for some reason cannot view it (because of slow connection, an error in the src attribute, or if the user uses a screen reader).

If a browser cannot find an image, it will display the value of the alt attribute:

Example

<img src="wrongname.gif" alt="HTML5 Icon" style="width:128px;height:128px;">

The alt attribute is required. A web page will not validate correctly without it.

HTML Screen Readers

A screen reader is a software program that reads the HTML code, converts the text, and allows the user to "listen" to the content. Screen readers are useful for people who are blind, visually impaired, or learning disabled.

Image Size - Width and Height

You can use the **style** attribute to specify the width and height of an image.

The values are specified in pixels (use px after the value):

Example

<img src="html5.gif" alt="HTML5 Icon" style="width:128px;height:128px;">

Alternatively, you can use the **width** and **height** attributes. Here, the values are specified in pixels by default:

Example

<img src="html5.gif" alt="HTML5 Icon" width="128" height="128">

**Note:** Always specify the width and height of an image. If width and height are not specified, the page will flicker while the image loads.

Width and Height, or Style?

Both the width, height, and style attributes are valid in HTML5.

However, we suggest using the style attribute. It prevents internal or external styles sheets from changing the original size of images:

Example

<!DOCTYPE html>  
<html>  
<head>  
<style>  
img {   
    width:100%;   
}  
</style>  
</head>  
<body>  
  
<img src="html5.gif" alt="HTML5 Icon" style="width:128px;height:128px;">  
<img src="html5.gif" alt="HTML5 Icon" width="128" height="128">  
  
</body>  
</html>

Images in Another Folder

If not specified, the browser expects to find the image in the same folder as the web page.

However, it is common to store images in a sub-folder. You must then include the folder name in the src attribute:

Example

<img src="/images/html5.gif" alt="HTML5 Icon" style="width:128px;height:128px;">

Images on Another Server

Some web sites store their images on image servers.

Actually, you can access images from any web address in the world:

Example

<img src="http://www.w3schools.com/images/w3schools\_green.jpg" alt="W3Schools.com">

You can read more about file paths in the chapter [HTML File Paths](http://www.w3schools.com/html/html_filepaths.asp).

Animated Images

The GIF standard allows animated images:

Example

<img src="programming.gif" alt="Computer Man" style="width:48px;height:48px;">

Note that the syntax of inserting animated images is no different from non-animated images.

Using an Image as a Link

 To use an image as a link, simply nest the <img> tag inside the <a> tag:

Example

<a href="default.asp">  
  <img src="smiley.gif" alt="HTML tutorial" style="width:42px;height:42px;border:0;">  
</a>

**Note:** border:0; is added to prevent IE9 (and earlier) from displaying a border around the image (when the image is a link).

Image Floating

Use the CSS **float** property to let the image float to the right or to the left of a text:

Example

<p><img src="smiley.gif" alt="Smiley face" style="float:right;width:42px;height:42px;">  
The image will float to the right of the text.</p>  
  
<p><img src="smiley.gif" alt="Smiley face" style="float:left;width:42px;height:42px;">  
The image will float to the left of the text.</p>

Image Maps

Use the <map> tag to define an image-map. An image-map is an image with clickable areas.

The name attribute of the <map> tag is associated with the <img>'s usemap attribute and creates a relationship between the image and the map.

The <map> tag contains a number of <area> tags, that defines the clickable areas in the image-map:

Example

<img src="planets.gif" alt="Planets" usemap="#planetmap" style="width:145px;height:126px;">  
  
<map name="planetmap">  
  <area shape="rect" coords="0,0,82,126" alt="Sun" href="sun.htm">  
  <area shape="circle" coords="90,58,3" alt="Mercury" href="mercur.htm">  
  <area shape="circle" coords="124,58,8" alt="Venus" href="venus.htm">  
</map>

Chapter Summary

* Use the HTML **<img>** element to define an image
* Use the HTML **src** attribute to define the URL of the image
* Use the HTML **alt** attribute to define an alternate text for an image, if it cannot be displayed
* Use the HTML **width** and **height** attributes to define the size of the image
* Use the CSS **width** and **height** properties to define the size of the image (alternatively)
* Use the CSS **float** property to let the image float
* Use the HTML **<map>** element to define an image-map
* Use the HTML **<area>** element to define the clickable areas in the image-map
* Use the HTML <img>'s element **usemap** attribute to point to an image-map

**Note:** Loading images takes time. Large images can slow down your page. Use images carefully.

HTML Image Tags

|  |  |
| --- | --- |
| **Tag** | **Description** |
| [<img>](http://www.w3schools.com/tags/tag_img.asp) | Defines an image |
| [<map>](http://www.w3schools.com/tags/tag_map.asp) | Defines an image-map |
| [<area>](http://www.w3schools.com/tags/tag_area.asp) | Defines a clickable area inside an image-map |

HTML Tables

HTML Table Example

|  |  |  |
| --- | --- | --- |
| **Company** | **Contact** | **Country** |
| Alfreds Futterkiste | Maria Anders | Germany |
| Centro comercial Moctezuma | Francisco Chang | Mexico |
| Ernst Handel | Roland Mendel | Austria |
| Island Trading | Helen Bennett | UK |
| Laughing Bacchus Winecellars | Yoshi Tannamuri | Canada |
| Magazzini Alimentari Riuniti | Giovanni Rovelli | Italy |

Defining an HTML Table

An HTML table is defined with the **<table>** tag.

Each table row is defined with the **<tr>** tag. A table header is defined with the **<th>** tag. By default, table headings are bold and centered. A table data/cell is defined with the **<td>** tag.

Example

<table style="width:100%">  
  <tr>  
    <th>Firstname</th>  
    <th>Lastname</th>   
    <th>Age</th>  
  </tr>  
  <tr>  
    <td>Jill</td>  
    <td>Smith</td>   
    <td>50</td>  
  </tr>  
  <tr>  
    <td>Eve</td>  
    <td>Jackson</td>   
    <td>94</td>  
  </tr>  
</table>

**Note:** The <td> elements are the data containers of the table.  
They can contain all sorts of HTML elements; text, images, lists, other tables, etc.

HTML Table - Adding a Border

If you do not specify a border for the table, it will be displayed without borders.

A border is set using the CSS **border** property:

Example

table, th, td {  
    border: 1px solid black;  
}

Remember to define borders for both the table and the table cells.

HTML Table - Collapsed Borders

If you want the borders to collapse into one border, add the CSS **border-collapse** property:

Example

table, th, td {  
    border: 1px solid black;  
    border-collapse: collapse;  
}

HTML Table - Adding Cell Padding

Cell padding specifies the space between the cell content and its borders.

If you do not specify a padding, the table cells will be displayed without padding.

To set the padding, use the CSS **padding** property:

Example

th, td {  
    padding: 15px;  
}

HTML Table - Left-align Headings

By default, table headings are bold and centered.

To left-align the table headings, use the CSS **text-align** property:

Example

th {  
    text-align: left;  
}

HTML Table - Adding Border Spacing

Border spacing specifies the space between the cells.

To set the border spacing for a table, use the CSS **border-spacing** property:

Example

table {  
    border-spacing: 5px;  
}

**Note:** If the table has collapsed borders, border-spacing has no effect.

HTML Table - Cells that Span Many Columns

To make a cell span more than one column, use the **colspan** attribute:

Example

<table style="width:100%">  
  <tr>  
    <th>Name</th>  
    <th colspan="2">Telephone</th>  
  </tr>  
  <tr>  
    <td>Bill Gates</td>  
    <td>55577854</td>  
    <td>55577855</td>  
  </tr>  
</table>

HTML Table - Cells that Span Many Rows

To make a cell span more than one row, use the **rowspan** attribute:

Example

<table style="width:100%">  
  <tr>  
    <th>Name:</th>  
    <td>Bill Gates</td>  
  </tr>  
  <tr>  
    <th rowspan="2">Telephone:</th>  
    <td>55577854</td>  
  </tr>  
  <tr>  
    <td>55577855</td>  
  </tr>  
</table>

HTML Table - Adding a Caption

To add a caption to a table, use the **<caption>** tag:

Example

<table style="width:100%">  
  <caption>Monthly savings</caption>  
  <tr>  
    <th>Month</th>  
    <th>Savings</th>  
  </tr>  
  <tr>  
    <td>January</td>  
    <td>$100</td>  
  </tr>  
  <tr>  
    <td>February</td>  
    <td>$50</td>  
  </tr>  
</table>

**Note:** The <caption> tag must be inserted immediately after the <table> tag.

A Special Style for One Table

To define a special style for a special table, add an **id** attribute to the table:

Example

<table id="t01">  
  <tr>  
    <th>Firstname</th>  
    <th>Lastname</th>   
    <th>Age</th>  
  </tr>  
  <tr>  
    <td>Eve</td>  
    <td>Jackson</td>   
    <td>94</td>  
  </tr>  
</table>

Now you can define a special style for this table:

table#t01 {  
    width: 100%;   
    background-color: #f1f1c1;  
}

And add more styles:

table#t01 tr:nth-child(even) {  
    background-color: #eee;  
}  
table#t01 tr:nth-child(odd) {  
    background-color: #fff;  
}  
table#t01 th {  
    color: white;  
    background-color: black;  
}

Chapter Summary

* Use the HTML **<table>** element to define a table
* Use the HTML **<tr>** element to define a table row
* Use the HTML **<td>** element to define a table data
* Use the HTML **<th>** element to define a table heading
* Use the HTML **<caption>** element to define a table caption
* Use the CSS **border** property to define a border
* Use the CSS **border-collapse** property to collapse cell borders
* Use the CSS **padding** property to add padding to cells
* Use the CSS **text-align** property to align cell text
* Use the CSS **border-spacing** property to set the spacing between cells
* Use the **colspan** attribute to make a cell span many columns
* Use the **rowspan** attribute to make a cell span many rows
* Use the **id** attribute to uniquely define one table

HTML Table Tags

|  |  |
| --- | --- |
| **Tag** | **Description** |
| [<table>](http://www.w3schools.com/tags/tag_table.asp) | Defines a table |
| [<th>](http://www.w3schools.com/tags/tag_th.asp) | Defines a header cell in a table |
| [<tr>](http://www.w3schools.com/tags/tag_tr.asp) | Defines a row in a table |
| [<td>](http://www.w3schools.com/tags/tag_td.asp) | Defines a cell in a table |
| [<caption>](http://www.w3schools.com/tags/tag_caption.asp) | Defines a table caption |
| [<colgroup>](http://www.w3schools.com/tags/tag_colgroup.asp) | Specifies a group of one or more columns in a table for formatting |
| [<col>](http://www.w3schools.com/tags/tag_col.asp) | Specifies column properties for each column within a <colgroup> element |
| [<thead>](http://www.w3schools.com/tags/tag_thead.asp) | Groups the header content in a table |
| [<tbody>](http://www.w3schools.com/tags/tag_tbody.asp) | Groups the body content in a table |
| [<tfoot>](http://www.w3schools.com/tags/tag_tfoot.asp) | Groups the footer content in a table |

HTML Lists

 HTML List Example

An Unordered List:

* Item
* Item
* Item
* Item

An Ordered List:

1. First item
2. Second item
3. Third item
4. Fourth item

Unordered HTML List

An unordered list starts with the **<ul>** tag. Each list item starts with the **<li>** tag.

The list items will be marked with bullets (small black circles) by default:

Example

<ul>  
  <li>Coffee</li>  
  <li>Tea</li>  
  <li>Milk</li>  
</ul>

Unordered HTML List - Choose List Item Marker

The CSS **list-style-type** property is used to define the style of the list item marker:

|  |  |
| --- | --- |
| **Value** | **Description** |
| disc | Sets the list item marker to a bullet (default) |
| circle | Sets the list item marker to a circle |
| square | Sets the list item marker to a square |
| none | The list items will not be marked |

Example - Disc

<ul style="list-style-type:disc">  
  <li>Coffee</li>  
  <li>Tea</li>  
  <li>Milk</li>  
</ul>

Example - Circle

<ul style="list-style-type:circle">  
  <li>Coffee</li>  
  <li>Tea</li>  
  <li>Milk</li>  
</ul>

Example - Square

<ul style="list-style-type:square">  
  <li>Coffee</li>  
  <li>Tea</li>  
  <li>Milk</li>  
</ul>

Example - None

<ul style="list-style-type:none">  
  <li>Coffee</li>  
  <li>Tea</li>  
  <li>Milk</li>  
</ul>

Ordered HTML List

An ordered list starts with the **<ol>** tag. Each list item starts with the **<li>** tag.

The list items will be marked with numbers by default:

Example

<ol>  
  <li>Coffee</li>  
  <li>Tea</li>  
  <li>Milk</li>  
</ol>

Ordered HTML List - The Type Attribute

The **type** attribute of the <ol> tag, defines the type of the list item marker:

|  |  |
| --- | --- |
| **Type** | **Description** |
| type="1" | The list items will be numbered with numbers (default) |
| type="A" | The list items will be numbered with uppercase letters |
| type="a" | The list items will be numbered with lowercase letters |
| type="I" | The list items will be numbered with uppercase roman numbers |
| type="i" | The list items will be numbered with lowercase roman numbers |

Numbers:

<ol type="1">  
  <li>Coffee</li>  
  <li>Tea</li>  
  <li>Milk</li>  
</ol>

Uppercase Letters:

<ol type="A">  
  <li>Coffee</li>  
  <li>Tea</li>  
  <li>Milk</li>  
</ol>

Lowercase Letters:

<ol type="a">  
  <li>Coffee</li>  
  <li>Tea</li>  
  <li>Milk</li>  
</ol>

Uppercase Roman Numbers:

<ol type="I">  
  <li>Coffee</li>  
  <li>Tea</li>  
  <li>Milk</li>  
</ol>

Lowercase Roman Numbers:

<ol type="i">  
  <li>Coffee</li>  
  <li>Tea</li>  
  <li>Milk</li>  
</ol>

HTML Description Lists

HTML also supports description lists.

A description list is a list of terms, with a description of each term.

The **<dl>** tag defines the description list, the **<dt>** tag defines the term (name), and the **<dd>** tag describes each term:

Example

<dl>  
  <dt>Coffee</dt>  
  <dd>- black hot drink</dd>  
  <dt>Milk</dt>  
  <dd>- white cold drink</dd>  
</dl>

Nested HTML Lists

List can be nested (lists inside lists):

Example

<ul>  
  <li>Coffee</li>  
  <li>Tea  
    <ul>  
      <li>Black tea</li>  
      <li>Green tea</li>  
    </ul>  
  </li>  
  <li>Milk</li>  
</ul>

**Note:** List items can contain new list, and other HTML elements, like images and links, etc.

Horizontal Lists

HTML lists can be styled in many different ways with CSS.

One popular way is to style a list horizontally, to create a menu:

Example

<!DOCTYPE html>  
<html>  
<head>  
<style>  
ul {  
    list-style-type: none;  
    margin: 0;  
    padding: 0;  
    overflow: hidden;  
    background-color: #333333;  
}  
  
li {  
    float: left;  
}  
  
li a {  
    display: block;  
    color: white;  
    text-align: center;  
    padding: 16px;  
    text-decoration: none;  
}  
  
li a:hover {  
    background-color: #111111;  
}  
</style>  
</head>  
<body>  
  
<ul>  
  <li><a href="#home">Home</a></li>  
  <li><a href="#news">News</a></li>  
  <li><a href="#contact">Contact</a></li>  
  <li><a href="#about">About</a></li>  
</ul>  
  
</body>  
</html>

Chapter Summary

* Use the HTML **<ul>** element to define an unordered list
* Use the CSS**list-style-type** property to define the list item marker
* Use the HTML **<ol>** element to define an ordered list
* Use the HTML **type** attribute to define the numbering type
* Use the HTML **<li>** element to define a list item
* Use the HTML **<dl>** element to define a description list
* Use the HTML **<dt>** element to define the description term
* Use the HTML **<dd>** element to describe term term in a description list
* Lists can be nested inside lists
* List items can contain other HTML elements
* Use the CSS property **float:left** or **display:inline**to display a list horizontally

HTML List Tags

|  |  |
| --- | --- |
| **Tag** | **Description** |
| [<ul>](http://www.w3schools.com/tags/tag_ul.asp) | Defines an unordered list |
| [<ol>](http://www.w3schools.com/tags/tag_ol.asp) | Defines an ordered list |
| [<li>](http://www.w3schools.com/tags/tag_li.asp) | Defines a list item |
| [<dl>](http://www.w3schools.com/tags/tag_dl.asp) | Defines a description list |
| [<dt>](http://www.w3schools.com/tags/tag_dt.asp) | Defines a term in a description list |
| [<dd>](http://www.w3schools.com/tags/tag_dd.asp) | Describes the term in a description list |

HTML Block and Inline Elements

Every HTML element has a default display value depending on what type of element it is. The default display value for most elements is block or inline.

Block-level Elements

A block-level element always starts on a new line and takes up the full width available (stretches out to the left and right as far as it can).

The <div> element is a block-level element.

Examples of block-level elements:

* <div>
* <h1> - <h6>
* <p>
* <form>

Inline Elements

An inline element does not start on a new line and only takes up as much width as necessary.

This is an inline <span> element inside a paragraph.

Examples of inline elements:

* <span>
* <a>
* <img>

The <div> Element

The <div> element is often used as a container for other HTML elements.

The <div> element has no required attributes, but both **style** and **class** are common.

When used together with CSS, the <div> element can be used to style blocks of content:

Example

<div style="background-color:black;color:white;padding:20px;">  
  <h2>London</h2>  
  <p>London is the capital city of England. It is the most populous city in the United Kingdom, with a metropolitan area of over 13 million inhabitants.</p>  
</div>

The <span> Element

The <span> element is often used as a container for some text.

The <span> element has no required attributes, but both **style** and **class** are common.

When used together with CSS, the <span> element can be used to style parts of the text:

Example

<h1>My <span style="color:red">Important</span> Heading</h1>

HTML Grouping Tags

|  |  |
| --- | --- |
| **Tag** | **Description** |
| [<div>](http://www.w3schools.com/tags/tag_div.asp) | Defines a section in a document (block-level) |
| [<span>](http://www.w3schools.com/tags/tag_span.asp) | Defines a section in a document (inline) |

# HTML The class Attribute

## Using The class Attribute

The HTML class attribute makes it possible to define equal styles for elements with the same class name.

Here we have three <div> elements that points to the same class name:

### Example

<!DOCTYPE html>  
<html>  
<head>  
<style>  
div.cities {  
    background-color: black;  
    color: white;  
    margin: 20px 0 20px 0;  
    padding: 20px;  
}   
</style>  
</head>  
<body>  
  
<div class="cities">  
<h2>London</h2>  
<p>London is the capital of England. It is the most populous city in the United Kingdom, with a metropolitan area of over 13 million inhabitants.</p>  
</div>  
  
<div class="cities">  
<h2>Paris</h2>  
<p>Paris is the capital and most populous city of France.</p>  
</div>  
  
<div class="cities">  
<h2>Tokyo</h2>  
<p>Tokyo is the capital of Japan, the center of the Greater Tokyo Area,  
and the most populous metropolitan area in the world.</p>  
</div>  
  
</body>  
</html>

## London

London is the capital of England. It is the most populous city in the United Kingdom, with a metropolitan area of over 13 million inhabitants.

Standing on the River Thames, London has been a major settlement for two millennia, its history going back to its founding by the Romans, who named it Londinium.

## Paris

Paris is the capital and most populous city of France.

Situated on the Seine River, it is at the heart of the Île-de-France region, also known as the région parisienne.

Within its metropolitan area is one of the largest population centers in Europe, with over 12 million inhabitants.

## Tokyo

Tokyo is the capital of Japan, the center of the Greater Tokyo Area, and the most populous metropolitan area in the world.

It is the seat of the Japanese government and the Imperial Palace, and the home of the Japanese Imperial Family.

The Tokyo prefecture is part of the world's most populous metropolitan area with 38 million people and the world's largest urban economy.

**Using The class Attribute on Inline Elements**

The HTML class attribute can also be used for inline elements:

### Example

<!DOCTYPE html>  
<html>  
<head>  
<style>  
span.note {  
    font-size: 120%;  
    color: red;  
}  
</style>  
</head>  
<body>  
  
<h1>My <span class="note">Important</span> Heading</h1>  
<p>This is some <span class="note">important</span> text.</p>  
  
</body>  
</html>

# HTML Iframes

An iframe is used to display a web page within a web page.

## Iframe Syntax

An HTML iframe is defined with the **<iframe>** tag:

<iframe src="URL"></iframe>

The **src** attribute specifies the URL (web address) of the inline frame page.

**Iframe - Set Height and Width**

Use the **height** and **width** attributes to specify the size of the iframe.

The attribute values are specified in pixels by default, but they can also be in percent (like "80%").

### Example

<iframe src="demo\_iframe.htm" height="200" width="300"></iframe>

## Iframe - Remove the Border

By default, an iframe has a border around it.

To remove the border, add the **style** attribute and use the CSS **border** property:

### Example

<iframe src="demo\_iframe.htm" style="border:none;"></iframe>

With CSS, you can also change the size, style and color of the iframe's border:

### Example

<iframe src="demo\_iframe.htm" style="border:2px solid grey;"></iframe>

## Iframe - Target for a Link

An iframe can be used as the target frame for a link.

The **target** attribute of the link must refer to the **name** attribute of the iframe:

### Example

<iframe src="demo\_iframe.htm" name="iframe\_a"></iframe>  
  
<p><a href="http://www.w3schools.com" target="iframe\_a">W3Schools.com</a></p>

## HTML iframe Tag

|  |  |
| --- | --- |
| **Tag** | **Description** |
| [<iframe>](http://www.w3schools.com/tags/tag_iframe.asp) | Defines an inline frame |

# HTML JavaScript

JavaScript makes HTML pages more dynamic and interactive.

### Example

## My First JavaScript

Click me to display Date and Time

## The HTML <script> Tag

The **<script>** tag is used to define a client-side script (JavaScript).

The <script> element either contains scripting statements, or it points to an external script file through the **src** attribute.

Common uses for JavaScript are image manipulation, form validation, and dynamic changes of content.

To select an HTML element, JavaScript very often use the document.getElementById(id) method.

This JavaScript example writes "Hello JavaScript!" into an HTML element with id="demo":

### Example

<script>  
document.getElementById("demo").innerHTML = "Hello JavaScript!";  
</script>

**Tip:** You can learn much more about JavaScript in our [JavaScript Tutorial](http://www.w3schools.com/js/default.asp).

**A Taste of JavaScript**

Here are some examples of what JavaScript can do:

### JavaScript can change HTML content

document.getElementById("demo").innerHTML = "Hello JavaScript!";

### JavaScript can change HTML styles

document.getElementById("demo").style.fontSize = "25px";  
document.getElementById("demo").style.color = "red";

### JavaScript can change HTML attributes

document.getElementById("image").src = "picture.gif";

**The HTML <noscript> Tag**

The **<noscript>** tag is used to provide an alternate content for users that have disabled scripts in their browser or have a browser that doesn't support client-side scripts:

### Example

<script>  
document.getElementById("demo").innerHTML = "Hello JavaScript!";  
</script>  
  
<noscript>Sorry, your browser does not support JavaScript!</noscript>

**HTML Script Tags**

|  |  |
| --- | --- |
| **Tag** | **Description** |
| [<script>](http://www.w3schools.com/tags/tag_script.asp) | Defines a client-side script |
| [<noscript>](http://www.w3schools.com/tags/tag_noscript.asp) | Defines an alternate content for users that do not support client-side scripts |

HTML File Paths

|  |  |
| --- | --- |
| **Path** | **Description** |
| <img src="picture.jpg"> | picture.jpg is located in the same folder as the current page |
| <img src="images/picture.jpg"> | picture.jpg is located in the images folder located in the current folder |
| <img src="/images/picture.jpg"> | picture.jpg is located in the images folder located in the current web |
| <img src="../picture.jpg"> | picture.jpg is located in the folder one level up from the current folder |

HTML File Paths

A file path describes the location of a file in a web site's folder structure.

File paths are used when linking to external files like:

* Web pages
* Images
* Style sheets
* JavaScripts

Absolute Paths

An absolute path is the full URL to an internet file:

Example

<img src="http://www.w3schools.com/images/picture.jpg" alt="Mountain">

Relative Paths

A relative path points to a file relative to the current page.

In this example the path points to a file in the images folder of the current web:

Example

<img src="/images/picture.jpg" alt="Mountain">

In this example the path points to a file in the images folder located in the current folder:

Example

<img src="images/picture.jpg" alt="Mountain">

In this example the path points to a file in the images folder located in the folder one level above the current folder:

Example

<img src="../images/picture.jpg" alt="Mountain">

Best Practice

It is a best practice to use relative paths (if possible).

When using relative paths, your web pages will not be bound to your current base URL. All links will work on your own computer (localhost) as well as on your current public domain and your future public domains.

HTML Head

The HTML <head> Element

The **<head>** element is a container for metadata (data about data) and is placed between the <html> tag and the <body> tag.

HTML metadata is data about the HTML document. Metadata is not displayed.

Metadata typically define the document title, character set, styles, links, scripts, and other meta information.

The following tags describe metadata: <title>, <style>, <meta>, <link>, <script>, and <base>.

The HTML <title> Element

The **<title>** element defines the title of the document, and is required in all HTML/XHTML documents.

The <title> element:

* defines a title in the browser tab
* provides a title for the page when it is added to favorites
* displays a title for the page in search engine results

A simple HTML document:

Example

<!DOCTYPE html>  
<html>  
  
<head>  
  <title>Page Title</title>  
</head>  
  
<body>  
The content of the document......  
</body>  
  
</html>

The HTML <style> Element

The **<style>** element is used to define style information for a single HTML page:

Example

<style>  
  body {background-color: powderblue;}  
  h1 {color: red;}  
  p {color: blue;}  
</style>

The HTML <link> Element

The **<link>** element is used to link to external style sheets:

Example

<link rel="stylesheet" href="mystyle.css">

**Tip:** To learn all about CSS, visit our [CSS Tutorial](http://www.w3schools.com/css/default.asp).

The HTML <meta> Element

The **<meta>** element is used to specify which character set is used, page description, keywords, author, and other metadata.

Metadata is used by browsers (how to display content), by search engines (keywords), and other web services.

Define the character set used:

<meta charset="UTF-8">

Define a description of your web page:

<meta name="description" content="Free Web tutorials">

Define keywords for search engines:

<meta name="keywords" content="HTML, CSS, XML, JavaScript">

Define the author of a page:

<meta name="author" content="Hege Refsnes">

Refresh document every 30 seconds:

<meta http-equiv="refresh" content="30">

Example of <meta> tags:

Example

<meta charset="UTF-8">  
<meta name="description" content="Free Web tutorials">  
<meta name="keywords" content="HTML,CSS,XML,JavaScript">  
<meta name="author" content="Hege Refsnes">

The HTML <script> Element

The <script> element is used to define client-side JavaScripts.

This JavaScript writes "Hello JavaScript!" into an HTML element with id="demo":

Example

<script>  
function myFunction {  
    document.getElementById("demo").innerHTML = "Hello JavaScript!";  
}  
</script>

**Tip:** To learn all about JavaScript, visit our [JavaScript Tutorial](http://www.w3schools.com/js/default.asp).

The HTML <base> Element

The <base> element specifies the base URL and base target for all relative URLs in a page:

Example

<base href="http://www.w3schools.com/images/" target="\_blank">

Omitting <html>, <head> and <body>?

According to the HTML5 standard; the <html>, the <body>, and the <head> tag can be omitted.

The following code will validate as HTML5:

Example

<!DOCTYPE html>  
<title>Page Title</title>  
  
<h1>This is a heading</h1>  
<p>This is a paragraph.</p>

**Note:**

W3Schools does not recommend omitting the <html> and <body> tags. Omitting these tags can crash DOM or XML software and produce errors in older browsers (IE9).

However, omitting the <head> tag has been a common practice for quite some time now.

HTML head Elements

|  |  |
| --- | --- |
| **Tag** | **Description** |
| [<head>](http://www.w3schools.com/tags/tag_head.asp) | Defines information about the document |
| [<title>](http://www.w3schools.com/tags/tag_title.asp) | Defines the title of a document |
| [<base>](http://www.w3schools.com/tags/tag_base.asp) | Defines a default address or a default target for all links on a page |
| [<link>](http://www.w3schools.com/tags/tag_link.asp) | Defines the relationship between a document and an external resource |
| [<meta>](http://www.w3schools.com/tags/tag_meta.asp) | Defines metadata about an HTML document |
| [<script>](http://www.w3schools.com/tags/tag_script.asp) | Defines a client-side script |
| [<style>](http://www.w3schools.com/tags/tag_style.asp) | Defines style information for a document |

HTML Layouts

HTML Layout Example

City Gallery

* [London](http://www.w3schools.com/html/html_layout.asp)
* [Paris](http://www.w3schools.com/html/html_layout.asp)
* [Tokyo](http://www.w3schools.com/html/html_layout.asp)

London

London is the capital city of England. It is the most populous city in the United Kingdom, with a metropolitan area of over 13 million inhabitants.

Standing on the River Thames, London has been a major settlement for two millennia, its history going back to its founding by the Romans, who named it Londinium.

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HTML Layout Elements

Websites often display content in multiple columns (like a magazine or newspaper).

HTML5 offers new semantic elements that define the different parts of a web page:

|  |  |
| --- | --- |
| HTML5 Semantic Elements | * <header> - Defines a header for a document or a section * <nav> - Defines a container for navigation links * <section> - Defines a section in a document * <article> - Defines an independent self-contained article * <aside> - Defines content aside from the content (like a sidebar) * <footer> - Defines a footer for a document or a section * <details> - Defines additional details * <summary> - Defines a heading for the <details> element |

HTML Layout Techniques

There are four different ways to create multicolumn layouts. Each way has its pros and cons:

* HTML tables
* CSS float property
* CSS framework
* CSS flexbox

Which One to Choose?

HTML Tables

The <table> element was not designed to be a layout tool! The purpose of the <table> element is to display tabular data. So, do not use tables for your page layout! They will bring a mess into your code. And imagine how hard it will be to redesign your site after a couple of months.

**Tip:** Do NOT use tables for your page layout!

CSS Frameworks

If you want to create your layout fast, you can use a framework, like [W3.CSS](http://www.w3schools.com/w3css/default.asp) or [Bootstrap](http://www.w3schools.com/bootstrap/default.asp).

CSS Floats

It is common to do entire web layouts using the CSS float property. Float is easy to learn - you just need to remember how the float and clear properties work. Disadvantages: Floating elements are tied to the document flow, which may harm the flexibility. Learn more about float in our [CSS Float and Clear](http://www.w3schools.com/css/css_float.asp) chapter.

Float Example

City Gallery

* [London](http://www.w3schools.com/html/html_layout.asp)
* [Paris](http://www.w3schools.com/html/html_layout.asp)
* [Tokyo](http://www.w3schools.com/html/html_layout.asp)

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CSS Flexbox

Flexbox is a new layout mode in CSS3.

Use of flexbox ensures that elements behave predictably when the page layout must accommodate different screen sizes and different display devices. Disadvantages: Does not work in IE10 and earlier.

Learn more about flexbox in our [CSS Flexbox](http://www.w3schools.com/css/css3_flexbox.asp) chapter.

Flexbox Example

City Gallery

* [London](http://www.w3schools.com/html/html_layout.asp)
* [Paris](http://www.w3schools.com/html/html_layout.asp)
* [Tokyo](http://www.w3schools.com/html/html_layout.asp)

London

London is the capital city of England. It is the most populous city in the United Kingdom, with a metropolitan area of over 13 million inhabitants.

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# HTML Responsive Web Design

## What is Responsive Web Design?

Responsive Web Design makes your web page look good on all devices (desktops, tablets, and phones).

Responsive Web Design is about using CSS and HTML to resize, hide, shrink, enlarge, or move the content to make it look good on any screen:

**Note:** A web page should look good, and be easy to use, regardless of the device!

**Create Your Own Responsive Design**

One way to create a responsive design, is to create it yourself:

### Example

<!DOCTYPE html>  
<html lang="en-us">  
<head>  
<style>  
.city {  
    float: left;  
    margin: 5px;  
    padding: 15px;  
    max-width: 300px;  
    height: 300px;  
    border: 1px solid black;  
}   
</style>  
</head>  
<body>  
  
<h1>Responsive Web Design Demo</h1>  
  
<div class="city">  
  <h2>London</h2>  
  <p>London is the capital city of England.</p>  
  <p>It is the most populous city in the United Kingdom, with a metropolitan area of over 13 million inhabitants.</p>  
</div>  
  
<div class="city">  
  <h2>Paris</h2>  
  <p>Paris is the capital of France.</p>   
  <p>The Paris area is one of the largest population centers in Europe, with more than 12 million inhabitants.</p>  
</div>  
  
<div class="city">  
  <h2>Tokyo</h2>  
  <p>Tokyo is the capital of Japan.</p>  
  <p>It is the center of the Greater Tokyo Area,  and the most populous metropolitan area in the world.</p>  
</div>  
  
<div class="city">  
  <h2>New York</h2>  
  <p>The City of New York is the most populous city in the United States.</p>  
  <p>New York is an important center for international diplomacy and has been described as the cultural and financial capital of the world.</p>  
</div>  
  
</body>  
</html>

## Using W3.CSS

Another way to create a responsive design, is to use a responsive style sheet, like [W3.CSS](http://www.w3schools.com/w3css/default.asp)

W3.CSS makes it easy to develop sites that look nice at any size; desktop, laptop, tablet, or phone:

# W3.CSS Demo

Resize this responsive page!

## London

London is the capital of England.

It is the most populous city in the United Kingdom, with a metropolitan area of over 13 million inhabitants.

## Paris

Paris is the capital of France.

The Paris area is one of the largest population centers in Europe, with more than 12 million inhabitants.

## Tokyo

Tokyo is the capital of Japan.

It is the center of the Greater Tokyo Area, and the most populous metropolitan area in the world.

### Example

<!DOCTYPE html>  
<html>  
<meta name="viewport" content="width=device-width, initial-scale=1">  
<link rel="stylesheet" href="http://www.w3schools.com/lib/w3.css">  
<body>  
  
<div class="w3-container w3-orange">  
  <h1>W3.CSS Demo</h1>   
  <p>Resize this responsive page!</p>   
</div>  
  
<div class="w3-row-padding">  
  
<div class="w3-third">  
  <h2>London</h2>  
  <p>London is the capital of England.</p>  
  <p>It is the most populous city in the United Kingdom,  
  with a metropolitan area of over 13 million inhabitants.</p>  
</div>  
  
<div class="w3-third">  
  <h2>Paris</h2>  
  <p>Paris is the capital of France.</p>   
  <p>The Paris area is one of the largest population centers in Europe,  
  with more than 12 million inhabitants.</p>  
</div>  
  
<div class="w3-third">  
  <h2>Tokyo</h2>  
  <p>Tokyo is the capital of Japan.</p>  
  <p>It is the center of the Greater Tokyo Area,  
  and the most populous metropolitan area in the world.</p>  
</div>  
  
</div>  
  
</body>  
</html>

HTML Entities

Reserved characters in HTML must be replaced with character entities.

Characters that are not present on your keyboard can also be replaced by entities.

HTML Entities

Some characters are reserved in HTML.

If you use the less than (<) or greater than (>) signs in your text, the browser might mix them with tags.

Character entities are used to display reserved characters in HTML.

A character entity looks like this:

&*entity\_name*;

OR

&#*entity\_number*;

To display a less than sign (<) we must write: **&lt;** or **&#60;**

**Advantage of using an entity name:** An entity name is easy to remember.  
**Disadvantage of using an entity name:** Browsers may not support all entity names, but the support for numbers is good.

Non-breaking Space

A common character entity used in HTML is the non-breaking space: **&nbsp;**

A non-breaking space is a space that will not break into a new line.

Two words separated by a non-breaking space will stick together (not break into a new line). This is handy when breaking the words might be disruptive.

Examples:

* § 10
* 10 km/h
* 10 PM

Another common use of the non-breaking space is to prevent that browsers truncate spaces in HTML pages.

If you write 10 spaces in your text, the browser will remove 9 of them. To add real spaces to your text, you can use the **&nbsp;** character entity.

The non-breaking hyphen ([&#8209;](http://www.w3schools.com/charsets/ref_utf_punctuation.asp)) lets you use a hyphen character (‑) that won't break.

Some Other Useful HTML Character Entities

|  |  |  |  |
| --- | --- | --- | --- |
| **Result** | **Description** | **Entity Name** | **Entity Number** |
|  | non-breaking space | &nbsp; | &#160; |
| < | less than | &lt; | &#60; |
| > | greater than | &gt; | &#62; |
| & | Ampersand | &amp; | &#38; |
| " | double quotation mark | &quot; | &#34; |
| ' | single quotation mark (apostrophe) | &apos; | &#39; |
| ¢ | Cent | &cent; | &#162; |
| £ | Pound | &pound; | &#163; |
| ¥ | Yen | &yen; | &#165; |
| € | Euro | &euro; | &#8364; |
| © | Copyright | &copy; | &#169; |
| ® | registered trademark | &reg; | &#174; |

**Note:** Entity names are case sensitive.

Combining Diacritical Marks

A diacritical mark is a "glyph" added to a letter.

Some diacritical marks, like grave (  ̀) and acute (  ́) are called accents.

Diacritical marks can appear both above and below a letter, inside a letter, and between two letters.

Diacritical marks can be used in combination with alphanumeric characters, to produce a character that is not present in the character set (encoding) used in the page.

Here are some examples:

|  |  |  |  |
| --- | --- | --- | --- |
| **Mark** | **Character** | **Construct** | **Result** |
| ̀ | A | a&#768; | à |
| ́ | A | a&#769; | á |
| ̂ | A | a&#770; | â |
| ̃ | A | a&#771; | ã |
| ̀ | O | O&#768; | Ò |
| ́ | O | O&#769; | Ó |
| ̂ | O | O&#770; | Ô |
| ̃ | O | O&#771; | Õ |

# HTML Symbols

## HTML Symbol Entities

HTML entities were described in the previous chapter.

Many mathematical, technical, and currency symbols, are not present on a normal keyboard.

To add such symbols to an HTML page, you can use an HTML entity name.

If no entity name exists, you can use an entity number, a decimal, or hexadecimal reference.

### Example

<p>I will display &euro;</p>  
<p>I will display &#8364;</p>  
<p>I will display &#x20AC;</p>

### Will display as:

I will display €  
I will display €  
I will display €

## Some Mathematical Symbols Supported by HTML

|  |  |  |  |
| --- | --- | --- | --- |
| **Char** | **Number** | **Entity** | **Description** |
| ∀ | &#8704; | &forall; | FOR ALL |
| ∂ | &#8706; | &part; | PARTIAL DIFFERENTIAL |
| ∃ | &#8707; | &exist; | THERE EXISTS |
| ∅ | &#8709; | &empty; | EMPTY SETS |
| ∇ | &#8711; | &nabla; | NABLA |
| ∈ | &#8712; | &isin; | ELEMENT OF |
| ∉ | &#8713; | &notin; | NOT AN ELEMENT OF |
| ∋ | &#8715; | &ni; | CONTAINS AS MEMBER |
| ∏ | &#8719; | &prod; | N-ARY PRODUCT |
| ∑ | &#8721; | &sum; | N-ARY SUMMATION |

## Some Greek Letters Supported by HTML

|  |  |  |  |
| --- | --- | --- | --- |
| **Char** | **Number** | **Entity** | **Description** |
| Α | &#913; | &Alpha; | GREEK CAPITAL LETTER ALPHA |
| Β | &#914; | &Beta; | GREEK CAPITAL LETTER BETA |
| Γ | &#915; | &Gamma; | GREEK CAPITAL LETTER GAMMA |
| Δ | &#916; | &Delta; | GREEK CAPITAL LETTER DELTA |
| Ε | &#917; | &Epsilon; | GREEK CAPITAL LETTER EPSILON |
| Ζ | &#918; | &Zeta; | GREEK CAPITAL LETTER ZETA |

## Some Other Entities Supported by HTML

|  |  |  |  |
| --- | --- | --- | --- |
| **Char** | **Number** | **Entity** | **Description** |
| © | &#169; | &copy; | COPYRIGHT SIGN |
| ® | &#174; | &reg; | REGISTERED SIGN |
| € | &#8364; | &euro; | EURO SIGN |
| ™ | &#8482; | &trade; | TRADEMARK |
| ← | &#8592; | &larr; | LEFTWARDS ARROW |
| ↑ | &#8593; | &uarr; | UPWARDS ARROW |
| → | &#8594; | &rarr; | RIGHTWARDS ARROW |
| ↓ | &#8595; | &darr; | DOWNWARDS ARROW |
| ♠ | &#9824; | &spades; | BLACK SPADE SUIT |
| ♣ | &#9827; | &clubs; | BLACK CLUB SUIT |
| ♥ | &#9829; | &hearts; | BLACK HEART SUIT |
| ♦ | &#9830; | &diams; | BLACK DIAMOND SUIT |

# HTML Encoding (Character Sets)

To display an HTML page correctly, a web browser must know which character set (character encoding) to use.

## What is Character Encoding?

ASCII was the first **character encoding standard** (also called character set). ASCII defined 127 different alphanumeric characters that could be used on the internet: numbers (0-9), English letters (A-Z), and some special characters like ! $ + - ( ) @ < > .

ANSI (Windows-1252) was the original Windows character set, with support for 256 different character codes.

ISO-8859-1 was the default character set for HTML 4. This character set also supported 256 different character codes.

Because ANSI and ISO-8859-1 were so limited, the default character encoding was changed to UTF-8 in HTML5.

UTF-8 (Unicode) covers almost all of the characters and symbols in the world.

All HTML 4 processors also support UTF-8 encoding.

**The HTML charset Attribute**

To display an HTML page correctly, a web browser must know the character set used in the page.

This is specified in the <meta> tag:

### For HTML4:

<meta http-equiv="Content-Type" content="text/html;charset=ISO-8859-1">

### For HTML5:

<meta charset="UTF-8">

If a browser detects ISO-8859-1 in a web page, it defaults to ANSI, because ANSI is identical to ISO-8859-1 except that ANSI has 32 extra characters.

## Differences Between Character Sets

The following table displays the differences between the character sets described above:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Numb** | **ASCII** | **ANSI** | **8859** | **UTF-8** | **Description** |
| 32 |  |  |  |  | space |
| 33 | ! | ! | ! | ! | exclamation mark |
| 34 | " | " | " | " | quotation mark |
| 35 | # | # | # | # | number sign |
| 36 | $ | $ | $ | $ | dollar sign |
| 37 | % | % | % | % | percent sign |
| 38 | & | & | & | & | ampersand |
| 39 | ' | ' | ' | ' | apostrophe |
| 40 | ( | ( | ( | ( | left parenthesis |
| 41 | ) | ) | ) | ) | right parenthesis |
| 42 | \* | \* | \* | \* | asterisk |
| 43 | + | + | + | + | plus sign |
| 44 | , | , | , | , | comma |
| 45 | - | - | - | - | hyphen-minus |
| 46 | . | . | . | . | full stop |
| 47 | / | / | / | / | solidus |
| 48 | 0 | 0 | 0 | 0 | digit zero |
| 49 | 1 | 1 | 1 | 1 | digit one |
| 50 | 2 | 2 | 2 | 2 | digit two |
| 51 | 3 | 3 | 3 | 3 | digit three |
| 52 | 4 | 4 | 4 | 4 | digit four |
| 53 | 5 | 5 | 5 | 5 | digit five |
| 54 | 6 | 6 | 6 | 6 | digit six |
| 55 | 7 | 7 | 7 | 7 | digit seven |
| 56 | 8 | 8 | 8 | 8 | digit eight |
| 57 | 9 | 9 | 9 | 9 | digit nine |
| 58 | : | : | : | : | colon |
| 59 | ; | ; | ; | ; | semicolon |
| 60 | < | < | < | < | less-than sign |
| 61 | = | = | = | = | equals sign |
| 62 | > | > | > | > | greater-than sign |
| 63 | ? | ? | ? | ? | question mark |
| 64 | @ | @ | @ | @ | commercial at |
| 65 | A | A | A | A | Latin capital letter A |
| 66 | B | B | B | B | Latin capital letter B |
| 67 | C | C | C | C | Latin capital letter C |
| 68 | D | D | D | D | Latin capital letter D |
| 69 | E | E | E | E | Latin capital letter E |
| 70 | F | F | F | F | Latin capital letter F |
| 71 | G | G | G | G | Latin capital letter G |
| 72 | H | H | H | H | Latin capital letter H |
| 73 | I | I | I | I | Latin capital letter I |
| 74 | J | J | J | J | Latin capital letter J |
| 75 | K | K | K | K | Latin capital letter K |
| 76 | L | L | L | L | Latin capital letter L |
| 77 | M | M | M | M | Latin capital letter M |
| 78 | N | N | N | N | Latin capital letter N |
| 79 | O | O | O | O | Latin capital letter O |
| 80 | P | P | P | P | Latin capital letter P |
| 81 | Q | Q | Q | Q | Latin capital letter Q |
| 82 | R | R | R | R | Latin capital letter R |
| 83 | S | S | S | S | Latin capital letter S |
| 84 | T | T | T | T | Latin capital letter T |
| 85 | U | U | U | U | Latin capital letter U |
| 86 | V | V | V | V | Latin capital letter V |
| 87 | W | W | W | W | Latin capital letter W |
| 88 | X | X | X | X | Latin capital letter X |
| 89 | Y | Y | Y | Y | Latin capital letter Y |
| 90 | Z | Z | Z | Z | Latin capital letter Z |
| 91 | [ | [ | [ | [ | left square bracket |
| 92 | \ | \ | \ | \ | reverse solidus |
| 93 | ] | ] | ] | ] | right square bracket |
| 94 | ^ | ^ | ^ | ^ | circumflex accent |
| 95 | \_ | \_ | \_ | \_ | low line |
| 96 | ` | ` | ` | ` | grave accent |
| 97 | a | a | a | a | Latin small letter a |
| 98 | b | b | b | b | Latin small letter b |
| 99 | c | c | c | c | Latin small letter c |
| 100 | d | d | d | d | Latin small letter d |
| 101 | e | e | e | e | Latin small letter e |
| 102 | f | f | f | f | Latin small letter f |
| 103 | g | g | g | g | Latin small letter g |
| 104 | h | h | h | h | Latin small letter h |
| 105 | i | i | i | i | Latin small letter i |
| 106 | j | j | j | j | Latin small letter j |
| 107 | k | k | k | k | Latin small letter k |
| 108 | l | l | l | l | Latin small letter l |
| 109 | m | m | m | m | Latin small letter m |
| 110 | n | n | n | n | Latin small letter n |
| 111 | o | o | o | o | Latin small letter o |
| 112 | p | p | p | p | Latin small letter p |
| 113 | q | q | q | q | Latin small letter q |
| 114 | r | r | r | r | Latin small letter r |
| 115 | s | s | s | s | Latin small letter s |
| 116 | t | t | t | t | Latin small letter t |
| 117 | u | u | u | u | Latin small letter u |
| 118 | v | v | v | v | Latin small letter v |
| 119 | w | w | w | w | Latin small letter w |
| 120 | x | x | x | x | Latin small letter x |
| 121 | y | y | y | y | Latin small letter y |
| 122 | z | z | z | z | Latin small letter z |
| 123 | { | { | { | { | left curly bracket |
| 124 | | | | | | | | | vertical line |
| 125 | } | } | } | } | right curly bracket |
| 126 | ~ | ~ | ~ | ~ | tilde |
| 127 | DEL |  |  |  |  |
| 128 |  | € |  |  | euro sign |
| 129 |  |  |  |  | NOT USED |
| 130 |  | ‚ |  |  | single low-9 quotation mark |
| 131 |  | ƒ |  |  | Latin small letter f with hook |
| 132 |  | „ |  |  | double low-9 quotation mark |
| 133 |  | … |  |  | horizontal ellipsis |
| 134 |  | † |  |  | dagger |
| 135 |  | ‡ |  |  | double dagger |
| 136 |  | ˆ |  |  | modifier letter circumflex accent |
| 137 |  | ‰ |  |  | per mille sign |
| 138 |  | Š |  |  | Latin capital letter S with caron |
| 139 |  | ‹ |  |  | single left-pointing angle quotation mark |
| 140 |  | Œ |  |  | Latin capital ligature OE |
| 141 |  |  |  |  | NOT USED |
| 142 |  | Ž |  |  | Latin capital letter Z with caron |
| 143 |  |  |  |  | NOT USED |
| 144 |  |  |  |  | NOT USED |
| 145 |  | ‘ |  |  | left single quotation mark |
| 146 |  | ’ |  |  | right single quotation mark |
| 147 |  | “ |  |  | left double quotation mark |
| 148 |  | ” |  |  | right double quotation mark |
| 149 |  | • |  |  | bullet |
| 150 |  | – |  |  | en dash |
| 151 |  | — |  |  | em dash |
| 152 |  | ˜ |  |  | small tilde |
| 153 |  | ™ |  |  | trade mark sign |
| 154 |  | š |  |  | Latin small letter s with caron |
| 155 |  | › |  |  | single right-pointing angle quotation mark |
| 156 |  | œ |  |  | Latin small ligature oe |
| 157 |  |  |  |  | NOT USED |
| 158 |  | ž |  |  | Latin small letter z with caron |
| 159 |  | Ÿ |  |  | Latin capital letter Y with diaeresis |
| 160 |  |  |  |  | no-break space |
| 161 |  | ¡ | ¡ | ¡ | inverted exclamation mark |
| 162 |  | ¢ | ¢ | ¢ | cent sign |
| 163 |  | £ | £ | £ | pound sign |
| 164 |  | ¤ | ¤ | ¤ | currency sign |
| 165 |  | ¥ | ¥ | ¥ | yen sign |
| 166 |  | ¦ | ¦ | ¦ | broken bar |
| 167 |  | § | § | § | section sign |
| 168 |  | ¨ | ¨ | ¨ | diaeresis |
| 169 |  | © | © | © | copyright sign |
| 170 |  | ª | ª | ª | feminine ordinal indicator |
| 171 |  | « | « | « | left-pointing double angle quotation mark |
| 172 |  | ¬ | ¬ | ¬ | not sign |
| 173 |  |  |  |  | soft hyphen |
| 174 |  | ® | ® | ® | registered sign |
| 175 |  | ¯ | ¯ | ¯ | macron |
| 176 |  | ° | ° | ° | degree sign |
| 177 |  | ± | ± | ± | plus-minus sign |
| 178 |  | ² | ² | ² | superscript two |
| 179 |  | ³ | ³ | ³ | superscript three |
| 180 |  | ´ | ´ | ´ | acute accent |
| 181 |  | µ | µ | µ | micro sign |
| 182 |  | ¶ | ¶ | ¶ | pilcrow sign |
| 183 |  | · | · | · | middle dot |
| 184 |  | ¸ | ¸ | ¸ | cedilla |
| 185 |  | ¹ | ¹ | ¹ | superscript one |
| 186 |  | º | º | º | masculine ordinal indicator |
| 187 |  | » | » | » | right-pointing double angle quotation mark |
| 188 |  | ¼ | ¼ | ¼ | vulgar fraction one quarter |
| 189 |  | ½ | ½ | ½ | vulgar fraction one half |
| 190 |  | ¾ | ¾ | ¾ | vulgar fraction three quarters |
| 191 |  | ¿ | ¿ | ¿ | inverted question mark |
| 192 |  | À | À | À | Latin capital letter A with grave |
| 193 |  | Á | Á | Á | Latin capital letter A with acute |
| 194 |  | Â | Â | Â | Latin capital letter A with circumflex |
| 195 |  | Ã | Ã | Ã | Latin capital letter A with tilde |
| 196 |  | Ä | Ä | Ä | Latin capital letter A with diaeresis |
| 197 |  | Å | Å | Å | Latin capital letter A with ring above |
| 198 |  | Æ | Æ | Æ | Latin capital letter AE |
| 199 |  | Ç | Ç | Ç | Latin capital letter C with cedilla |
| 200 |  | È | È | È | Latin capital letter E with grave |
| 201 |  | É | É | É | Latin capital letter E with acute |
| 202 |  | Ê | Ê | Ê | Latin capital letter E with circumflex |
| 203 |  | Ë | Ë | Ë | Latin capital letter E with diaeresis |
| 204 |  | Ì | Ì | Ì | Latin capital letter I with grave |
| 205 |  | Í | Í | Í | Latin capital letter I with acute |
| 206 |  | Î | Î | Î | Latin capital letter I with circumflex |
| 207 |  | Ï | Ï | Ï | Latin capital letter I with diaeresis |
| 208 |  | Ð | Ð | Ð | Latin capital letter Eth |
| 209 |  | Ñ | Ñ | Ñ | Latin capital letter N with tilde |
| 210 |  | Ò | Ò | Ò | Latin capital letter O with grave |
| 211 |  | Ó | Ó | Ó | Latin capital letter O with acute |
| 212 |  | Ô | Ô | Ô | Latin capital letter O with circumflex |
| 213 |  | Õ | Õ | Õ | Latin capital letter O with tilde |
| 214 |  | Ö | Ö | Ö | Latin capital letter O with diaeresis |
| 215 |  | × | × | × | multiplication sign |
| 216 |  | Ø | Ø | Ø | Latin capital letter O with stroke |
| 217 |  | Ù | Ù | Ù | Latin capital letter U with grave |
| 218 |  | Ú | Ú | Ú | Latin capital letter U with acute |
| 219 |  | Û | Û | Û | Latin capital letter U with circumflex |
| 220 |  | Ü | Ü | Ü | Latin capital letter U with diaeresis |
| 221 |  | Ý | Ý | Ý | Latin capital letter Y with acute |
| 222 |  | Þ | Þ | Þ | Latin capital letter Thorn |
| 223 |  | ß | ß | ß | Latin small letter sharp s |
| 224 |  | à | à | à | Latin small letter a with grave |
| 225 |  | á | á | á | Latin small letter a with acute |
| 226 |  | â | â | â | Latin small letter a with circumflex |
| 227 |  | ã | ã | ã | Latin small letter a with tilde |
| 228 |  | ä | ä | ä | Latin small letter a with diaeresis |
| 229 |  | å | å | å | Latin small letter a with ring above |
| 230 |  | æ | æ | æ | Latin small letter ae |
| 231 |  | ç | ç | ç | Latin small letter c with cedilla |
| 232 |  | è | è | è | Latin small letter e with grave |
| 233 |  | é | é | é | Latin small letter e with acute |
| 234 |  | ê | ê | ê | Latin small letter e with circumflex |
| 235 |  | ë | ë | ë | Latin small letter e with diaeresis |
| 236 |  | ì | ì | ì | Latin small letter i with grave |
| 237 |  | í | í | í | Latin small letter i with acute |
| 238 |  | î | î | î | Latin small letter i with circumflex |
| 239 |  | ï | ï | ï | Latin small letter i with diaeresis |
| 240 |  | ð | ð | ð | Latin small letter eth |
| 241 |  | ñ | ñ | ñ | Latin small letter n with tilde |
| 242 |  | ò | ò | ò | Latin small letter o with grave |
| 243 |  | ó | ó | ó | Latin small letter o with acute |
| 244 |  | ô | ô | ô | Latin small letter o with circumflex |
| 245 |  | õ | õ | õ | Latin small letter o with tilde |
| 246 |  | ö | ö | ö | Latin small letter o with diaeresis |
| 247 |  | ÷ | ÷ | ÷ | division sign |
| 248 |  | ø | ø | ø | Latin small letter o with stroke |
| 249 |  | ù | ù | ù | Latin small letter u with grave |
| 250 |  | ú | ú | ú | Latin small letter u with acute |
| 251 |  | û | û | û | Latin small letter with circumflex |
| 252 |  | ü | ü | ü | Latin small letter u with diaeresis |
| 253 |  | ý | ý | ý | Latin small letter y with acute |
| 254 |  | þ | þ | þ | Latin small letter thorn |
| 255 |  | ÿ | ÿ | ÿ | Latin small letter y with diaeresis |

**The ASCII Character Set**

ASCII uses the values from 0 to 31 (and 127) for control characters.

ASCII uses the values from 32 to 126 for letters, digits, and symbols.

ASCII does not use the values from 128 to 255.

## The ANSI Character Set (Windows-1252)

ANSI is identical to ASCII for the values from 0 to 127.

ANSI has a proprietary set of characters for the values from 128 to 159.

ANSI is identical to UTF-8 for the values from 160 to 255.

## The ISO-8859-1 Character Set

8859-1 is identical to ASCII for the values from 0 to 127.

8859-1 does not use the values from 128 to 159.

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

## 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.

For a closer look, study our [Complete HTML Character Set Reference](http://www.w3schools.com/charsets/default.asp).

HTML Uniform Resource Locators

A URL is another word for a web address.

A URL can be composed of words (w3schools.com), or an Internet Protocol (IP) address (192.68.20.50).

Most people enter the name when surfing, because names are easier to remember than numbers.

URL - Uniform Resource Locator

Web browsers request pages from web servers by using a URL.

A Uniform Resource Locator (URL) is used to address a document (or other data) on the web.

A web address, like <http://www.w3schools.com/html/default.asp> follows these syntax rules:

scheme://prefix.domain:port/path/filename

Explanation:

* **scheme** - defines the **type** of Internet service (most common is **http or https**)
* **prefix** - defines a domain **prefix** (default for http is **www**)
* **domain** - defines the Internet **domain name**(like w3schools.com)
* **port** - defines the **port number**at the host (default for http is **80**)
* **path** - defines a **path** at the server (If omitted: the root directory of the site)
* **filename** - defines the name of a document or resource

Common URL Schemes

The table below lists some common schemes:

|  |  |  |
| --- | --- | --- |
| **Scheme** | **Short for** | **Used for** |
| http | HyperText Transfer Protocol | Common web pages. Not encrypted |
| https | Secure HyperText Transfer Protocol | Secure web pages. Encrypted |
| ftp | File Transfer Protocol | Downloading or uploading files |
| file |  | A file on your computer |

URL Encoding

URLs can only be sent over the Internet using the [ASCII character-set](http://www.w3schools.com/charsets/ref_html_ascii.asp). If a URL contains characters outside the ASCII set, the URL has to be converted.

URL encoding converts non-ASCII characters into a format that can be transmitted over the Internet.

URL encoding replaces non-ASCII characters with a "%" followed by hexadecimal digits.

URLs cannot contain spaces. URL encoding normally replaces a space with a plus (+) sign, or %20.

Top of Form

Bottom of Form

If you click "Submit", the browser will URL encode the input before it is sent to the server.

A page at the server will display the received input.

Try some other input and click Submit again.

ASCII Encoding Examples

Your browser will encode input, according to the character-set used in your page.

The default character-set in HTML5 is UTF-8.

|  |  |  |
| --- | --- | --- |
| **Character** | **From Windows-1252** | **From UTF-8** |
| € | %80 | %E2%82%AC |
| £ | %A3 | %C2%A3 |
| © | %A9 | %C2%A9 |
| ® | %AE | %C2%AE |
| À | %C0 | %C3%80 |
| Á | %C1 | %C3%81 |
| Â | %C2 | %C3%82 |
| Ã | %C3 | %C3%83 |
| Ä | %C4 | %C3%84 |
| Å | %C5 | %C3%85 |

For a complete reference of all URL encodings, visit our [URL Encoding Reference](http://www.w3schools.com/tags/ref_urlencode.asp).

HTML and XHTML

XHTML is HTML written as XML.

What Is XHTML?

* XHTML stands for E**X**tensible **H**yper**T**ext **M**arkup **L**anguage
* XHTML is almost identical to HTML
* XHTML is stricter than HTML
* XHTML is HTML defined as an XML application
* XHTML is supported by all major browsers

Why XHTML?

Many pages on the internet contain "bad" HTML.

This HTML code works fine in most browsers (even if it does not follow the HTML rules):

<html>  
<head>  
  <title>This is bad HTML</title>  
  
<body>  
  <h1>Bad HTML  
  <p>This is a paragraph  
</body>

Today's market consists of different browser technologies. Some browsers run on computers, and some browsers run on mobile phones or other small devices. Smaller devices often lack the resources or power to interpret "bad" markup.

XML is a markup language where documents must be marked up correctly (be "well-formed").

If you want to study XML, please read our [XML tutorial](http://www.w3schools.com/xml/default.asp).

By combining the strengths of HTML and XML, XHTML was developed.

XHTML is HTML redesigned as XML.

The Most Important Differences from HTML:

Document Structure

* XHTML DOCTYPE is **mandatory**
* The xmlns attribute in <html> is **mandatory**
* <html>, <head>, <title>, and <body> are **mandatory**

XHTML Elements

* XHTML elements must be **properly nested**
* XHTML elements must always be **closed**
* XHTML elements must be in **lowercase**
* XHTML documents must have **one root element**

XHTML Attributes

* Attribute names must be in **lower case**
* Attribute values must be **quoted**
* Attribute minimization is **forbidden**

<!DOCTYPE ....> Is Mandatory

An XHTML document must have an XHTML DOCTYPE declaration.

A complete list of all the [XHTML Doctypes](http://www.w3schools.com/tags/tag_doctype.asp) is found in our HTML Tags Reference.

The <html>, <head>, <title>, and <body> elements must also be present, and the xmlns attribute in <html> must specify the xml namespace for the document.

This example shows an XHTML document with a minimum of required tags:

<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN"  
"http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">  
  
<html xmlns="http://www.w3.org/1999/xhtml">  
  
<head>  
  <title>Title of document</title>  
</head>  
  
<body>  
  *some content*   
</body>  
  
</html>

XHTML Elements Must Be Properly Nested

In HTML, some elements can be improperly nested within each other, like this:

<b><i>This text is bold and italic</b></i>

In XHTML, all elements must be properly nested within each other, like this:

<b><i>This text is bold and italic</i></b>

XHTML Elements Must Always Be Closed

This is wrong:

<p>This is a paragraph  
<p>This is another paragraph

This is correct:

<p>This is a paragraph</p>  
<p>This is another paragraph</p>

Empty Elements Must Also Be Closed

This is wrong:

A break: <br>  
A horizontal rule: <hr>  
An image: <img src="happy.gif" alt="Happy face">

This is correct:

A break: <br />  
A horizontal rule: <hr />  
An image: <img src="happy.gif" alt="Happy face" />

XHTML Elements Must Be In Lower Case

This is wrong:

<BODY>  
<P>This is a paragraph</P>  
</BODY>

This is correct:

<body>  
<p>This is a paragraph</p>  
</body>

XHTML Attribute Names Must Be In Lower Case

This is wrong:

<table WIDTH="100%">

This is correct:

<table width="100%">

Attribute Values Must Be Quoted

This is wrong:

<table width=100%>

This is correct:

<table width="100%">

Attribute Minimization Is Forbidden

Wrong:

<input type="checkbox" name="vehicle" value="car" checked />

Correct:

<input type="checkbox" name="vehicle" value="car" checked="checked" />

Wrong:

<input type="text" name="lastname" disabled />

Correct:

<input type="text" name="lastname" disabled="disabled" />

How to Convert from HTML to XHTML

1. Add an XHTML <!DOCTYPE> to the first line of every page
2. Add an xmlns attribute to the html element of every page
3. Change all element names to lowercase
4. Close all empty elements
5. Change all attribute names to lowercase
6. Quote all attribute values

Validate HTML With The W3C Validator

Top of Form

Put your web address in the box below:





# HTML Forms

### HTML Form Example

Top of Form

First name:  
  
Last name:  
   
  


Bottom of Form

**The <form> Element**

The HTML **<form>** element defines a form that is used to collect user input:

<form>  
.  
*form elements*  
.  
</form>

An HTML form contains **form elements**.

Form elements are different types of input elements, like text fields, checkboxes, radio buttons, submit buttons, and more.

## The <input> Element

The **<input>** element is the most important form element.

The <input> element can be displayed in several ways, depending on the **type** attribute.

Here are some examples:

|  |  |
| --- | --- |
| **Type** | **Description** |
| <input type="text"> | Defines a one-line text input field |
| <input type="radio"> | Defines a radio button (for selecting one of many choices) |
| <input type="submit"> | Defines a submit button (for submitting the form) |

You will learn a lot more about input types later in this tutorial.

## Text Input

**<input type="text">** defines a one-line input field for **text input**:

### Example

<form>  
  First name:<br>  
  <input type="text" name="firstname"><br>  
  Last name:<br>  
  <input type="text" name="lastname">  
</form>

This is how it will look like in a browser:

First name:  
  
Last name:  


**Note:** The form itself is not visible. Also note that the default width of a text field is 20 characters.

**Radio Button Input**

**<input type="radio">** defines a **radio button**.

Radio buttons let a user select ONE of a limited number of choices:

### Example

<form>  
  <input type="radio" name="gender" value="male" checked> Male<br>  
  <input type="radio" name="gender" value="female"> Female<br>  
  <input type="radio" name="gender" value="other"> Other  
</form>

This is how the HTML code above will be displayed in a browser:

 Male  
 Female  
 Other

**The Submit Button**

**<input type="submit">** defines a button for **submitting** the form data to a **form-handler**.

The form-handler is typically a server page with a script for processing input data.

The form-handler is specified in the form's **action** attribute:

### Example

<form action="action\_page.php">  
  First name:<br>  
  <input type="text" name="firstname" value="Mickey"><br>  
  Last name:<br>  
  <input type="text" name="lastname" value="Mouse"><br><br>  
  <input type="submit" value="Submit">  
</form>

This is how the HTML code above will be displayed in a browser:

Top of Form

First name:  
   
Last name:  
   
  


Bottom of Form

**The Action Attribute**

The **action** attribute defines the action to be performed when the form is submitted.

Normally, the form data is sent to a web page on the server when the user clicks on the submit button.

In the example above, the form data is sent to a page on the server called "action\_page.php". This page contains a server-side script that handles the form data:

<form **action="action\_page.php**">

If the action attribute is omitted, the action is set to the current page.

## The Method Attribute

The **method** attribute specifies the HTTP method (**GET**or **POST**) to be used when submitting the form data:

<form action="action\_page.php" **method="get"**>

or:

<form action="action\_page.php" **method="post"**>

**When to Use GET?**

The default method when submitting form data is GET.

However, when GET is used, the submitted form data will be **visible in the page address field**:

action\_page.php?firstname=Mickey&lastname=Mouse

**Note:** GET must NOT be used when sending sensitive information! GET is best suited for short, non-sensitive, amounts of data, because it has size limitations too.

## When to Use POST?

Always use POST if the form data contains sensitive or personal information. The POST method does not display the submitted form data in the page address field.

POST has no size limitations, and can be used to send large amounts of data.

## The Name Attribute

Each input field must have a **name** attribute to be submitted.

If the name attribute is omitted, the data of that input field will not be sent at all.

This example will only submit the "Last name" input field:

### Example

<form action="action\_page.php">  
  First name:<br>  
  <input type="text" value="Mickey"><br>  
  Last name:<br>  
  <input type="text" name="lastname" value="Mouse"><br><br>  
  <input type="submit" value="Submit">  
</form>

## Grouping Form Data with <fieldset>

The **<fieldset>** element is used to group related data in a form.

The **<legend>** element defines a caption for the <fieldset> element.

### Example

<form action="action\_page.php">  
  <fieldset>  
    <legend>Personal information:</legend>  
    First name:<br>  
    <input type="text" name="firstname" value="Mickey"><br>  
    Last name:<br>  
    <input type="text" name="lastname" value="Mouse"><br><br>  
    <input type="submit" value="Submit">  
  </fieldset>  
</form>

This is how the HTML code above will be displayed in a browser:

Top of Form

Personal information:First name:  
   
Last name:  
   
  


Bottom of Form

Here is the list of <form> attributes:

|  |  |
| --- | --- |
| **Attribute** | **Description** |
| accept-charset | Specifies the charset used in the submitted form (default: the page charset). |
| action | Specifies an address (url) where to submit the form (default: the submitting page). |
| autocomplete | Specifies if the browser should autocomplete the form (default: on). |
| enctype | Specifies the encoding of the submitted data (default: is url-encoded). |
| method | Specifies the HTTP method used when submitting the form (default: GET). |
| name | Specifies a name used to identify the form (for DOM usage: document.forms.name). |
| novalidate | Specifies that the browser should not validate the form. |
| target | Specifies the target of the address in the action attribute (default: \_self). |

HTML Form Elements

This chapter describes all HTML form elements.

The <input> Element

The most important form element is the **<input>** element.

The <input> element can be displayed in several ways, depending on the **type** attribute.

All the different input types are covered in the next chapter.

The <select> Element

The **<select>** element defines a **drop-down list**:

Example

<select name="cars">  
  <option value="volvo">Volvo</option>  
  <option value="saab">Saab</option>  
  <option value="fiat">Fiat</option>  
  <option value="audi">Audi</option>  
</select>

The **<option>** elements defines an option that can be selected.

By default, the first item in the drop-down list is selected.

To define a pre-selected option, add the **selected** attribute to the option:

Example

<option value="fiat" selected>Fiat</option>

The <textarea> Element

The **<textarea>** element defines a multi-line input field (**a text area**):

Example

<textarea name="message" rows="10" cols="30">  
The cat was playing in the garden.  
</textarea>

The **rows** attribute specifies the visible number of lines in a text area.

The **cols** attribute specifies the visible width of a text area.

This is how the HTML code above will be displayed in a browser:



The <button> Element

The **<button>** element defines a clickable **button**:

Example

<button type="button" onclick="alert('Hello World!')">Click Me!</button>

This is how the HTML code above will be displayed in a browser:

Click Me!

HTML5 Form Elements

HTML5 added the following form elements:

* <datalist>
* <keygen>
* <output>

**Note:** Browsers do not display unknown elements. New elements that are not supported in older browsers will not "destroy" your web page.

HTML5 <datalist> Element

The **<datalist>** element specifies a list of pre-defined options for an <input> element.

Users will see a drop-down list of the pre-defined options as they input data.

The **list** attribute of the <input> element, must refer to the **id** attribute of the <datalist> element.

OperaSafariChromeFirefoxInternet Explorer

Example

<form action="action\_page.php">  
  <input list="browsers">  
  <datalist id="browsers">  
    <option value="Internet Explorer">  
    <option value="Firefox">  
    <option value="Chrome">  
    <option value="Opera">  
    <option value="Safari">  
  </datalist>   
</form>

HTML5 <keygen> Element

The purpose of the **<keygen>** element is to provide a secure way to authenticate users.

The <keygen> element specifies a key-pair generator field in a form.

When the form is submitted, two keys are generated, one private and one public.

The private key is stored locally, and the public key is sent to the server.

The public key could be used to generate a client certificate to authenticate the user in the future.

OperaSafariChromeFirefoxInternet Explorer

Example

A form with a keygen field:

<form action="action\_page.php">  
  Username: <input type="text" name="user">  
  Encryption: <keygen name="security">  
  <input type="submit">  
</form>

HTML5 <output> Element

The <output> element represents the result of a calculation (like one performed by a script).

OperaSafariChromeFirefoxInternet Explorer

Example

Perform a calculation and show the result in an <output> element:

<form action="action\_page.php"  
  oninput="x.value=parseInt(a.value)+parseInt(b.value)">  
  0  
  <input type="range"  id="a" name="a" value="50">  
  100 +  
  <input type="number" id="b" name="b" value="50">  
  =  
  <output name="x" for="a b"></output>  
  <br><br>  
  <input type="submit">  
</form>

HTML Form Elements

= new in HTML5.

|  |  |
| --- | --- |
| **Tag** | **Description** |
| [<form>](http://www.w3schools.com/tags/tag_form.asp) | Defines an HTML form for user input |
| [<input>](http://www.w3schools.com/tags/tag_input.asp) | Defines an input control |
| [<textarea>](http://www.w3schools.com/tags/tag_textarea.asp) | Defines a multiline input control (text area) |
| [<label>](http://www.w3schools.com/tags/tag_label.asp) | Defines a label for an <input> element |
| [<fieldset>](http://www.w3schools.com/tags/tag_fieldset.asp) | Groups related elements in a form |
| [<legend>](http://www.w3schools.com/tags/tag_legend.asp) | Defines a caption for a <fieldset> element |
| [<select>](http://www.w3schools.com/tags/tag_select.asp) | Defines a drop-down list |
| [<optgroup>](http://www.w3schools.com/tags/tag_optgroup.asp) | Defines a group of related options in a drop-down list |
| [<option>](http://www.w3schools.com/tags/tag_option.asp) | Defines an option in a drop-down list |
| [<button>](http://www.w3schools.com/tags/tag_button.asp) | Defines a clickable button |
| [<datalist>](http://www.w3schools.com/tags/tag_datalist.asp) | Specifies a list of pre-defined options for input controls |
| [<keygen>](http://www.w3schools.com/tags/tag_keygen.asp) | Defines a key-pair generator field (for forms) |
| [<output>](http://www.w3schools.com/tags/tag_output.asp) | Defines the result of a calculation |

HTML Input Types

This chapter describes the different input types for the <input> element.

Input Type Text

**<input type="text">** defines a **one-line text input field**:

Example

<form>  
  First name:<br>  
  <input type="text" name="firstname"><br>  
  Last name:<br>  
  <input type="text" name="lastname">  
</form>

This is how the HTML code above will be displayed in a browser:

First name:  
  
Last name:  


Input Type Password

**<input type="password">** defines a **password field**:

Example

<form>  
  User name:<br>  
  <input type="text" name="username"><br>  
  User password:<br>  
  <input type="password" name="psw">  
</form>

This is how the HTML code above will be displayed in a browser:

User name:  
  
User password:  


The characters in a password field are masked (shown as asterisks or circles).

Input Type Submit

**<input type="submit">** defines a button for **submitting** form data to a **form-handler**.

The form-handler is typically a server page with a script for processing input data.

The form-handler is specified in the form's **action** attribute:

Example

<form action="action\_page.php">  
  First name:<br>  
  <input type="text" name="firstname" value="Mickey"><br>  
  Last name:<br>  
  <input type="text" name="lastname" value="Mouse"><br><br>  
  <input type="submit" value="Submit">  
</form>

This is how the HTML code above will be displayed in a browser:

Top of Form

First name:  
  
Last name:  
   
  


Bottom of Form

If you omit the submit button's value attribute, the button will get a default text:

Example

<form action="action\_page.php">  
  First name:<br>  
  <input type="text" name="firstname" value="Mickey"><br>  
  Last name:<br>  
  <input type="text" name="lastname" value="Mouse"><br><br>  
  <input type="submit">  
</form>

Input Type Reset

**<input type="reset">** defines a **reset button** that will reset all form values to their default values:

Example

<form action="action\_page.php">  
  First name:<br>  
  <input type="text" name="firstname" value="Mickey"><br>  
  Last name:<br>  
  <input type="text" name="lastname" value="Mouse"><br><br>  
  <input type="submit" value="Submit">  
  <input type="reset">  
</form>

This is how the HTML code above will be displayed in a browser:

Top of Form

First name:  
  
Last name:  
   
  
 

Bottom of Form

If you change the input values and then click the "Reset" button, the form-data will be reset to the default values.

Input Type Radio

**<input type="radio">** defines a **radio button**.

Radio buttons let a user select ONLY ONE of a limited number of choices:

Example

<form>  
  <input type="radio" name="gender" value="male" checked> Male<br>  
  <input type="radio" name="gender" value="female"> Female<br>  
  <input type="radio" name="gender" value="other"> Other  
</form>

This is how the HTML code above will be displayed in a browser:

 Male  
 Female  
 Other

Input Type Checkbox

**<input type="checkbox">** defines a **checkbox**.

Checkboxes let a user select ZERO or MORE options of a limited number of choices.

Example

<form>  
  <input type="checkbox" name="vehicle1" value="Bike"> I have a bike<br>  
  <input type="checkbox" name="vehicle2" value="Car"> I have a car   
</form>

This is how the HTML code above will be displayed in a browser:

 I have a bike   
 I have a car

Input Type Button

**<input type="button">** defines a **button**:

Example

<input type="button" onclick="alert('Hello World!')" value="Click Me!">

This is how the HTML code above will be displayed in a browser:

HTML5 Input Types

HTML5 added several new input types:

* color
* date
* datetime
* datetime-local
* email
* month
* number
* range
* search
* tel
* time
* url
* week

New input types that are not supported by older web browsers will behave as <input type="text">.

Input Type Number

The **<input type="number">** defines a **numeric** input field.

You can also set restrictions on what numbers are accepted.

The following example displays a numeric input field, where you can enter a value from 1 to 5:

OperaSafariChromeFirefoxInternet Explorer

Example

<form>  
  Quantity (between 1 and 5):  
  <input type="number" name="quantity" min="1" max="5">  
</form>

Input Restrictions

Here is a list of some common input restrictions (some are new in HTML5):

|  |  |
| --- | --- |
| **Attribute** | **Description** |
| disabled | Specifies that an input field should be disabled |
| max | Specifies the maximum value for an input field |
| maxlength | Specifies the maximum number of character for an input field |
| min | Specifies the minimum value for an input field |
| pattern | Specifies a regular expression to check the input value against |
| readonly | Specifies that an input field is read only (cannot be changed) |
| required | Specifies that an input field is required (must be filled out) |
| size | Specifies the width (in characters) of an input field |
| step | Specifies the legal number intervals for an input field |
| value | Specifies the default value for an input field |

You will learn more about input restrictions in the next chapter.

The following example displays a numeric input field, where you can enter a value from 0 to 100, in steps of 10. The default value is 30:

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Example

<form>  
  Quantity:  
  <input type="number" name="points" min="0" max="100" step="10" value="30">  
</form>

Input Type Date

The **<input type="date">** is used for input fields that should contain a date.

Depending on browser support, a date picker can show up in the input field.

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Example

<form>  
  Birthday:  
  <input type="date" name="bday">  
</form>

You can also add restrictions to dates:

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Example

<form>  
  Enter a date before 1980-01-01:  
  <input type="date" name="bday" max="1979-12-31"><br>  
  Enter a date after 2000-01-01:  
  <input type="date" name="bday" min="2000-01-02"><br>  
</form>

Input Type Color

The **<input type="color">** is used for input fields that should contain a color.

Depending on browser support, a color picker can show up in the input field.

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Example

<form>  
  Select your favorite color:  
  <input type="color" name="favcolor">  
</form>

Input Type Range

The **<input type="range">** is used for input fields that should contain a value within a range.

Depending on browser support, the input field can be displayed as a slider control.

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Example

<form>  
  <input type="range" name="points" min="0" max="10">  
</form>

You can use the following attributes to specify restrictions: min, max, step, value.

Input Type Month

The **<input type="month">** allows the user to select a month and year.

Depending on browser support, a date picker can show up in the input field.

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Example

<form>  
  Birthday (month and year):  
  <input type="month" name="bdaymonth">  
</form>

Input Type Week

The **<input type="week">** allows the user to select a week and year.

Depending on browser support, a date picker can show up in the input field.

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Example

<form>  
  Select a week:  
  <input type="week" name="week\_year">  
</form>

Input Type Time

The **<input type="time">** allows the user to select a time (no time zone).

Depending on browser support, a time picker can show up in the input field.

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Example

<form>  
  Select a time:  
  <input type="time" name="usr\_time">  
</form>

Input Type Datetime-local

The **<input type="datetime-local">** specifies a date and time input field, with no time zone.

Depending on browser support, a date picker can show up in the input field.

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Example

<form>  
  Birthday (date and time):  
  <input type="datetime-local" name="bdaytime">  
</form>

Input Type Email

The **<input type="email">** is used for input fields that should contain an e-mail address.

Depending on browser support, the e-mail address can be automatically validated when submitted.

Some smartphones recognize the email type, and adds ".com" to the keyboard to match email input.

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Example

<form>  
  E-mail:  
  <input type="email" name="email">  
</form>

Input Type Search

The **<input type="search">** is used for search fields (a search field behaves like a regular text field).

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Example

<form>  
  Search Google:  
  <input type="search" name="googlesearch">  
</form>

Input Type Tel

The **<input type="tel">** is used for input fields that should contain a telephone number.

The tel type is currently supported only in Safari 8.

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Example

<form>  
  Telephone:  
  <input type="tel" name="usrtel">  
</form>

Input Type Url

The **<input type="url">** is used for input fields that should contain a URL address.

Depending on browser support, the url field can be automatically validated when submitted.

Some smartphones recognize the url type, and adds ".com" to the keyboard to match url input.

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Example

<form>  
  Add your homepage:  
  <input type="url" name="homepage">  
</form>

HTML Input Attributes

The value Attribute

The **value** attribute specifies the initial value for an input field:

Example

<form action="">  
First name:<br>  
<input type="text" name="firstname" value="John">  
</form>

The readonly Attribute

The **readonly** attribute specifies that the input field is read only (cannot be changed):

Example

<form action="">  
First name:<br>  
<input type="text" name="firstname" value="John" readonly>  
</form>

The disabled Attribute

The **disabled** attribute specifies that the input field is disabled.

A disabled input field is unusable and un-clickable, and its value will not be sent when submitting the form:

Example

<form action="">  
First name:<br>  
<input type="text" name="firstname" value="John" disabled>  
</form>

The size Attribute

The **size** attribute specifies the size (in characters) for the input field:

Example

<form action="">  
First name:<br>  
<input type="text" name="firstname" value="John" size="40">  
</form>

The maxlength Attribute

The **maxlength** attribute specifies the maximum allowed length for the input field:

Example

<form action="">  
First name:<br>  
<input type="text" name="firstname" maxlength="10">  
</form>

With a maxlength attribute, the input field will not accept more than the allowed number of characters.

The maxlength attribute does not provide any feedback. If you want to alert the user, you must write JavaScript code.

**Note:** Input restrictions are not foolproof, and JavaScript provides many ways to add illegal input. To safely restrict input, it must be checked by the receiver (the server) as well!

HTML5 Attributes

HTML5 added the following attributes for <input>:

* autocomplete
* autofocus
* form
* formaction
* formenctype
* formmethod
* formnovalidate
* formtarget
* height and width
* list
* min and max
* multiple
* pattern (regexp)
* placeholder
* required
* step

and the following attributes for <form>:

* autocomplete
* novalidate

The autocomplete Attribute

The **autocomplete** attribute specifies whether a form or input field should have autocomplete on or off.

When autocomplete is on, the browser automatically complete the input values based on values that the user has entered before.

**Tip:** It is possible to have autocomplete "on" for the form, and "off" for specific input fields, or vice versa.

The autocomplete attribute works with <form> and the following <input> types: text, search, url, tel, email, password, datepickers, range, and color.

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Example

An HTML form with autocomplete on (and off for one input field):

<form action="action\_page.php" autocomplete="on">  
  First name:<input type="text" name="fname"><br>  
  Last name: <input type="text" name="lname"><br>  
  E-mail: <input type="email" name="email" autocomplete="off"><br>  
  <input type="submit">  
</form>

**Tip:** In some browsers you may need to activate the autocomplete function for this to work.

The novalidate Attribute

The **novalidate** attribute is a <form> attribute.

When present, novalidate specifies that the form data should not be validated when submitted.

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Example

Indicates that the form is not to be validated on submit:

<form action="action\_page.php" novalidate>  
  E-mail: <input type="email" name="user\_email">  
  <input type="submit">  
</form>

The autofocus Attribute

The **autofocus** attribute specifies that the input field should automatically get focus when the page loads.

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Example

Let the "First name" input field automatically get focus when the page loads:

First name:<input type="text" name="fname" autofocus>

The form Attribute

The **form** attribute specifies one or more forms an <input> element belongs to.

**Tip:** To refer to more than one form, use a space-separated list of form ids.

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Example

An input field located outside the HTML form (but still a part of the form):

<form action="action\_page.php" id="form1">  
  First name: <input type="text" name="fname"><br>  
  <input type="submit" value="Submit">  
</form>  
  
Last name: <input type="text" name="lname" form="form1">

The formaction Attribute

The **formaction** attribute specifies the URL of a file that will process the input control when the form is submitted.

The formaction attribute overrides the action attribute of the <form> element.

The formaction attribute is used with type="submit" and type="image".

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Example

An HTML form with two submit buttons, with different actions:

<form action="action\_page.php">  
  First name: <input type="text" name="fname"><br>  
  Last name: <input type="text" name="lname"><br>  
  <input type="submit" value="Submit"><br>  
  <input type="submit" formaction="demo\_admin.asp"  
  value="Submit as admin">  
</form>

The formenctype Attribute

The **formenctype** attribute specifies how the form data should be encoded when submitted (only for forms with method="post").

The formenctype attribute overrides the enctype attribute of the <form> element.

The formenctype attribute is used with type="submit" and type="image".

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Example

Send form-data that is default encoded (the first submit button), and encoded as "multipart/form-data" (the second submit button):

<form action="demo\_post\_enctype.asp" method="post">  
  First name: <input type="text" name="fname"><br>  
  <input type="submit" value="Submit">  
  <input type="submit" formenctype="multipart/form-data"  
  value="Submit as Multipart/form-data">  
</form>

The formmethod Attribute

The **formmethod** attribute defines the HTTP method for sending form-data to the action URL.

The formmethod attribute overrides the method attribute of the <form> element.

The formmethod attribute can be used with type="submit" and type="image".

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Example

The second submit button overrides the HTTP method of the form:

<form action="action\_page.php" method="get">  
  First name: <input type="text" name="fname"><br>  
  Last name: <input type="text" name="lname"><br>  
  <input type="submit" value="Submit">  
  <input type="submit" formmethod="post" formaction="demo\_post.asp"  
  value="Submit using POST">  
</form>

The formnovalidate Attribute

The **formnovalidate** attribute overrides the novalidate attribute of the <form> element.

The formnovalidate attribute can be used with type="submit".

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Example

A form with two submit buttons (with and without validation):

<form action="action\_page.php">  
  E-mail: <input type="email" name="userid"><br>  
  <input type="submit" value="Submit"><br>  
  <input type="submit" formnovalidate value="Submit without validation">  
</form>

The formtarget Attribute

The **formtarget** attribute specifies a name or a keyword that indicates where to display the response that is received after submitting the form.

The formtarget attribute overrides the target attribute of the <form> element.

The formtarget attribute can be used with type="submit" and type="image".

OperaSafariChromeFirefoxInternet Explorer

Example

A form with two submit buttons, with different target windows:

<form action="action\_page.php">  
  First name: <input type="text" name="fname"><br>  
  Last name: <input type="text" name="lname"><br>  
  <input type="submit" value="Submit as normal">  
  <input type="submit" formtarget="\_blank"  
  value="Submit to a new window">  
</form>

The height and width Attributes

The **height** and **width** attributes specify the height and width of an <input type="image"> element.

Always specify the size of images. If the browser does not know the size, the page will flicker while images load.

OperaSafariChromeFirefoxInternet Explorer

Example

Define an image as the submit button, with height and width attributes:

<input type="image" src="img\_submit.gif" alt="Submit" width="48" height="48">

The list Attribute

The **list** attribute refers to a <datalist> element that contains pre-defined options for an <input> element.

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Example

An <input> element with pre-defined values in a <datalist>:

<input list="browsers">  
  
<datalist id="browsers">  
  <option value="Internet Explorer">  
  <option value="Firefox">  
  <option value="Chrome">  
  <option value="Opera">  
  <option value="Safari">  
</datalist>

The min and max Attributes

The **min** and **max** attributes specify the minimum and maximum values for an <input> element.

The min and max attributes work with the following input types: number, range, date, datetime-local, month, time and week.

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Example

<input> elements with min and max values:

Enter a date before 1980-01-01:  
<input type="date" name="bday" max="1979-12-31">  
  
Enter a date after 2000-01-01:  
<input type="date" name="bday" min="2000-01-02">  
  
Quantity (between 1 and 5):  
<input type="number" name="quantity" min="1" max="5">

The multiple Attribute

The **multiple** attribute specifies that the user is allowed to enter more than one value in the <input> element.

The multiple attribute works with the following input types: email, and file.

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Example

A file upload field that accepts multiple values:

Select images: <input type="file" name="img" multiple>

The pattern Attribute

The **pattern** attribute specifies a regular expression that the <input> element's value is checked against.

The pattern attribute works with the following input types: text, search, url, tel, email, and password.

**Tip:** Use the global [title](http://www.w3schools.com/tags/att_global_title.asp) attribute to describe the pattern to help the user.

**Tip:** Learn more about [regular expressions](http://www.w3schools.com/js/js_regexp.asp) in our JavaScript tutorial.

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Example

An input field that can contain only three letters (no numbers or special characters):

Country code: <input type="text" name="country\_code" pattern="[A-Za-z]{3}" title="Three letter country code">

The placeholder Attribute

The **placeholder** attribute specifies a hint that describes the expected value of an input field (a sample value or a short description of the format).

The hint is displayed in the input field before the user enters a value.

The placeholder attribute works with the following input types: text, search, url, tel, email, and password.

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Example

An input field with a placeholder text:

<input type="text" name="fname" placeholder="First name">

The required Attribute

The **required** attribute specifies that an input field must be filled out before submitting the form.

The required attribute works with the following input types: text, search, url, tel, email, password, date pickers, number, checkbox, radio, and file.

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Example

A required input field:

Username: <input type="text" name="usrname" required>

The step Attribute

The **step** attribute specifies the legal number intervals for an <input> element.

Example: if step="3", legal numbers could be -3, 0, 3, 6, etc.

**Tip:** The step attribute can be used together with the max and min attributes to create a range of legal values.

The step attribute works with the following input types: number, range, date, datetime-local, month, time and week.

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Example

An input field with a specified legal number intervals:

<input type="number" name="points" step="3">

HTML5 Introduction

What is New in HTML5?

The DOCTYPE declaration for HTML5 is very simple:

<!DOCTYPE html>

The character encoding (charset) declaration is also very simple:

<meta charset="UTF-8">

HTML5 Example:

<!DOCTYPE html>  
<html>  
<head>  
<meta charset="UTF-8">  
<title>*Title of the document*</title>  
</head>  
  
<body>  
*Content of the document......*  
</body>  
  
</html>

The default character encoding in HTML5 is UTF-8.

New HTML5 Elements

The most interesting new HTML5 elements are:

New **semantic elements** like <header>, <footer>, <article>, and <section>.

New **attributes of form elements** like number, date, time, calendar, and range.

New **graphic elements**: <svg> and <canvas>.

New **multimedia elements**: <audio> and <video>.

In the next chapter, [HTML5 Support](http://www.w3schools.com/html/html5_browsers.asp), you will learn how to "teach" older browsers to handle "unknown" (new) HTML elements.

New HTML5 API's (Application Programming Interfaces)

The most interesting new API's in HTML5 are:

* HTML Geolocation
* HTML Drag and Drop
* HTML Local Storage
* HTML Application Cache
* HTML Web Workers
* HTML SSE

**Tip:** HTML Local storage is a powerful replacement for cookies.

Removed Elements in HTML5

The following HTML4 elements have been removed in HTML5:

|  |  |
| --- | --- |
| **Removed Element** | **Use Instead** |
| <acronym> | <abbr> |
| <applet> | <object> |
| <basefont> | CSS |
| <big> | CSS |
| <center> | CSS |
| <dir> | <ul> |
| <font> | CSS |
| <frame> |  |
| <frameset> |  |
| <noframes> |  |
| <strike> | CSS, <s>, or <del> |
| <tt> | CSS |

In the chapter [HTML5 Migration](http://www.w3schools.com/html/html5_migration.asp), you will learn how to easily migrate from HTML4 to HTML5.

HTML History

Since the early days of the World Wide Web, there have been many versions of HTML:

|  |  |
| --- | --- |
| **Year** | **Version** |
| 1989 | Tim Berners-Lee invented www |
| 1991 | Tim Berners-Lee invented HTML |
| 1993 | Dave Raggett drafted HTML+ |
| 1995 | HTML Working Group defined HTML 2.0 |
| 1997 | W3C Recommendation: HTML 3.2 |
| 1999 | W3C Recommendation: HTML 4.01 |
| 2000 | W3C Recommendation: XHTML 1.0 |
| 2008 | WHATWG HTML5 First Public Draft |
| 2012 | WHATWG HTML5 Living Standard |
| 2014 | W3C Recommendation: HTML5 |
| 2016 | W3C Candidate Recommendation: HTML 5.1 |

From 1991 to 1999, HTML developed from version 1 to version 4.

In year 2000, the World Wide Web Consortium (W3C) recommended XHTML 1.0. The XHTML syntax was strict, and the developers were forced to write valid and "well-formed" code.

In 2004, W3C's decided to close down the development of HTML, in favor of XHTML.

In 2004, WHATWG (Web Hypertext Application Technology Working Group) was formed. The WHATWG wanted to develop HTML, consistent with how the web was used, while being backward compatible with older versions of HTML.

In 2004 - 2006, the WHATWG gained support by the major browser vendors.

In 2006, W3C announced that they would support WHATWG.

In 2008, the first HTML5 public draft was released.

In 2012, WHATWG and W3C decided on a separation:

**WHATWG wanted to develop HTML as a "Living Standard"**. A living standard is always updated and improved. New features can be added, but old functionality cannot be removed.

The [WHATWG HTML5 Living Standard](http://whatwg.org/html/) was published in 2012, and is continuously updated.

**W3C wanted to develop a definitive HTML5 and XHTML standard.**

The [W3C HTML5 recommendation](http://www.w3.org/TR/html5/) was released 28 October 2014.

W3C also published an [HTML 5.1 Candidate Recommendation](http://www.w3.org/TR/html51/) on 21 June 2016.

# HTML5 Browser Support

You can teach older browsers to handle HTML5 correctly.

## HTML5 Browser Support

HTML5 is supported in all modern browsers.

In addition, all browsers, old and new, automatically handle unrecognized elements as inline elements.

Because of this, you can "teach" older browsers to handle "unknown" HTML elements.

You can even teach IE6 (Windows XP 2001) how to handle unknown HTML elements.

**Define Semantic Elements as Block Elements**

HTML5 defines eight new **semantic** elements. All these are **block-level** elements.

To secure correct behavior in older browsers, you can set the CSS **display** property for these HTML elements to **block**:

header, section, footer, aside, nav, main, article, figure {  
    display: block;   
}

## Add New Elements to HTML

You can also add new elements to an HTML page with a browser trick.

This example adds a new element called **<myHero>** to an HTML page, and defines a style for it:

### Example

<!DOCTYPE html>  
<html>  
<head>  
  <script>document.createElement("myHero")</script>  
  <style>  
  myHero {  
      display: block;  
      background-color: #dddddd;  
      padding: 50px;  
      font-size: 30px;  
  }   
  </style>   
</head>  
<body>  
  
<h1>A Heading</h1>  
<myHero>My Hero Element</myHero>  
  
</body>  
</html>

The JavaScript statement **document.createElement("myHero")** is needed to create a new element in IE 9, and earlier.

## Problem With Internet Explorer 8

You could use the solution described above for all new HTML5 elements.

However, **IE8 (and earlier) does not allow styling of unknown elements!**

Thankfully, Sjoerd Visscher created the HTML5Shiv! The HTML5Shiv is a JavaScript workaround to enable styling of HTML5 elements in versions of Internet Explorer prior to version 9.

You will require the HTML5shiv to provide compatibility for IE Browsers older than IE 9.

## Syntax For HTML5Shiv

The HTML5Shiv is placed within the <head> tag.

The HTML5Shiv is a javascript file that is referenced in a <script> tag.

You should use the HTML5Shiv when you are using the new HTML5 elements such as: <article>, <section>, <aside>, <nav>, <footer>.

You can [download the latest version of HTML5shiv from github](https://github.com/aFarkas/html5shiv) or reference the CDN version at<https://oss.maxcdn.com/libs/html5shiv/3.7.0/html5shiv.js>

### Syntax

<head>  
  <!--[if lt IE 9]>  
    <script src="/js/html5shiv.js"></script>  
  <![endif]-->  
</head>

## HTML5Shiv Example

If you do not want to download and store the HTML5Shiv on your site, you could reference the version found on the CDN site.

The HTML5Shiv script must be placed in the <head> element, after any stylesheets:

### Example

<!DOCTYPE html>  
<html>  
<head>  
<meta charset="UTF-8">  
<!--[if lt IE 9]>  
  <script src="https://oss.maxcdn.com/libs/html5shiv/3.7.0/html5shiv.js"></script>  
<![endif]-->  
</head>  
<body>  
  
<section>  
  
<h1>Famous Cities</h1>  
  
<article>  
<h2>London</h2>  
<p>London is the capital city of England. It is the most populous city in the United Kingdom, with a metropolitan area of over 13 million inhabitants.</p>  
</article>  
  
<article>  
<h2>Paris</h2>  
<p>Paris is the capital and most populous city of France.</p>  
</article>  
  
<article>  
<h2>Tokyo</h2>  
<p>Tokyo is the capital of Japan, the center of the Greater Tokyo Area, and the most populous metropolitan area in the world.</p>  
</article>  
  
</section>  
  
</body>  
</html>

HTML5 New Elements

New Elements in HTML5

Below is a list of the new HTML5 elements, and a description of what they are used for.

New Semantic/Structural Elements

HTML5 offers new elements for better document structure:

|  |  |
| --- | --- |
| **Tag** | **Description** |
| <article> | Defines an article in the document |
| <aside> | Defines content aside from the page content |
| <bdi> | Defines a part of text that might be formatted in a different direction from other text |
| <details> | Defines additional details that the user can view or hide |
| <dialog> | Defines a dialog box or window |
| <figcaption> | Defines a caption for a <figure> element |
| <figure> | Defines self-contained content, like illustrations, diagrams, photos, code listings, etc. |
| <footer> | Defines a footer for the document or a section |
| <header> | Defines a header for the document or a section |
| <main> | Defines the main content of a document |
| <mark> | Defines marked or highlighted text |
| <menuitem> | Defines a command/menu item that the user can invoke from a popup menu |
| <meter> | Defines a scalar measurement within a known range (a gauge) |
| <nav> | Defines navigation links in the document |
| <progress> | Defines the progress of a task |
| <rp> | Defines what to show in browsers that do not support ruby annotations |
| <rt> | Defines an explanation/pronunciation of characters (for East Asian typography) |
| <ruby> | Defines a ruby annotation (for East Asian typography) |
| <section> | Defines a section in the document |
| <summary> | Defines a visible heading for a <details> element |
| <time> | Defines a date/time |
| <wbr> | Defines a possible line-break |

Read more about [HTML5 Semantics](http://www.w3schools.com/html/html5_semantic_elements.asp).

New Form Elements

|  |  |
| --- | --- |
| **Tag** | **Description** |
| <datalist> | Defines pre-defined options for input controls |
| <keygen> | Defines a key-pair generator field (for forms) |
| <output> | Defines the result of a calculation |

Read all about old and new form elements in [HTML Form Elements](http://www.w3schools.com/html/html_form_elements.asp).

New Input Types

|  |  |
| --- | --- |
| **New Input Types** | **New Input Attributes** |
| * color * date * datetime * datetime-local * email * month * number * range * search * tel * time * url * week | * autocomplete * autofocus * form * formaction * formenctype * formmethod * formnovalidate * formtarget * height and width * list * min and max * multiple * pattern (regexp) * placeholder * required * step |

Learn all about old and new input types in [HTML Input Types](http://www.w3schools.com/html/html_form_input_types.asp).

Learn all about input attributes in [HTML Input Attributes](http://www.w3schools.com/html/html_form_attributes.asp).

HTML5 - New Attribute Syntax

HTML5 allows four different syntaxes for attributes.

This example demonstrates the different syntaxes used in an <input> tag:

|  |  |
| --- | --- |
| **Type** | **Example** |
| Empty | <input type="text" value="John" **disabled**> |
| Unquoted | <input type="text" **value=John**> |
| Double-quoted | <input type="text" **value="John Doe"**> |
| Single-quoted | <input type="text" **value='John Doe'**> |

In HTML5, all four syntaxes may be used, depending on what is needed for the attribute.

HTML5 Graphics

|  |  |
| --- | --- |
| **Tag** | **Description** |
| <canvas> | Draw graphics, on the fly, via scripting (usually JavaScript) |
| <svg> | Draw scalable vector graphics |

Read more about [HTML5 Canvas](http://www.w3schools.com/html/html5_canvas.asp).

Read more about [HTML5 SVG](http://www.w3schools.com/html/html5_svg.asp).

New Media Elements

|  |  |
| --- | --- |
| **Tag** | **Description** |
| <audio> | Defines sound content |
| <embed> | Defines containers for external applications (like plug-ins) |
| <source> | Defines sources for <video> and <audio> |
| <track> | Defines tracks for <video> and <audio> |
| <video> | Defines video or movie content |

Read more about [HTML5 Video](http://www.w3schools.com/html/html5_video.asp).

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HTML5 New Elements

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|  |  |
| --- | --- |
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| --- | --- |
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|  |  |
| --- | --- |
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| <embed> | Defines containers for external applications (like plug-ins) |
| <source> | Defines sources for <video> and <audio> |
| <track> | Defines tracks for <video> and <audio> |
| <video> | Defines video or movie content |

Read more about [HTML5 Video](http://www.w3schools.com/html/html5_video.asp).

Read more about [HTML5 Audio](http://www.w3schools.com/html/html5_audio.asp).

HTML5 Semantic Elements

Semantics is the study of the meanings of words and phrases in a language.

Semantic elements = elements with a meaning.

What are Semantic Elements?

A semantic element clearly describes its meaning to both the browser and the developer.

Examples of **non-semantic** elements: <div> and <span> - Tells nothing about its content.

Examples of **semantic** elements: <form>, <table>, and <article> - Clearly defines its content.

Browser Support

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  |  |  |  |  |
| Yes | Yes | Yes | Yes | Yes |

HTML5 semantic elements are supported in all modern browsers.

In addition, you can "teach" older browsers how to handle "unknown elements".

Read about it in [HTML5 Browser Support](http://www.w3schools.com/html/html5_browsers.asp).

New Semantic Elements in HTML5

Many web sites contain HTML code like: <div id="nav"> <div class="header"> <div id="footer">  
to indicate navigation, header, and footer.

HTML5 offers new semantic elements to define different parts of a web page:

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



HTML5 <section> Element

The <section> element defines a section in a document.

According to W3C's HTML5 documentation: "A section is a thematic grouping of content, typically with a heading."

A home page could normally be split into sections for introduction, content, and contact information.

Example

<section>  
  <h1>WWF</h1>  
  <p>The World Wide Fund for Nature (WWF) is....</p>  
</section>

HTML5 <article> Element

The <article> element specifies independent, self-contained content.

An article should make sense on its own, and it should be possible to read it independently from the rest of the web site.

Examples of where an <article> element can be used:

* Forum post
* Blog post
* Newspaper article

Example

<article>  
  <h1>What Does WWF Do?</h1>  
  <p>WWF's mission is to stop the degradation of our planet's natural environment,  
  and build a future in which humans live in harmony with nature.</p>  
</article>

Nesting <article> in <section> or Vice Versa?

The <article> element specifies independent, self-contained content.

The <section> element defines section in a document.

Can we use the definitions to decide how to nest those elements? No, we cannot!

So, on the Internet, you will find HTML pages with <section> elements containing <article> elements, and <article> elements containing <sections> elements.

You will also find pages with <section> elements containing <section> elements, and <article> elements containing <article> elements.

Example for a newspaper: The sport **articles** in the sport **section**, may have a technical **section** in each **article**.

HTML5 <header> Element

The <header> element specifies a header for a document or section.

The <header> element should be used as a container for introductory content.

You can have several <header> elements in one document.

The following example defines a header for an article:

Example

<article>  
  <header>  
    <h1>What Does WWF Do?</h1>  
    <p>WWF's mission:</p>  
  </header>  
  <p>WWF's mission is to stop the degradation of our planet's natural environment,  
  and build a future in which humans live in harmony with nature.</p>  
</article>

HTML5 <footer> Element

The <footer> element specifies a footer for a document or section.

A <footer> element should contain information about its containing element.

A footer typically contains the author of the document, copyright information, links to terms of use, contact information, etc.

You may have several <footer> elements in one document.

Example

<footer>  
  <p>Posted by: Hege Refsnes</p>  
  <p>Contact information: <a href="mailto:someone@example.com">  
  someone@example.com</a>.</p>  
</footer>

HTML5 <nav> Element

The <nav> element defines a set of navigation links.

Notice that NOT all links of a document should be inside a <nav> element. The <nav> element is intended only for major block of navigation links.

Example

<nav>  
  <a href="/html/">HTML</a> |  
  <a href="/css/">CSS</a> |  
  <a href="/js/">JavaScript</a> |  
  <a href="/jquery/">jQuery</a>  
</nav>

HTML5 <aside> Element

The <aside> element defines some content aside from the content it is placed in (like a sidebar).

The aside content should be related to the surrounding content.

Example

<p>My family and I visited The Epcot center this summer.</p>  
  
<aside>  
  <h4>Epcot Center</h4>  
  <p>The Epcot Center is a theme park in Disney World, Florida.</p>  
</aside>

HTML5 <figure> and <figcaption> Elements

The purpose of a figure caption is to add a visual explanation to an image.

In HTML5, an image and a caption can be grouped together in a **<figure>** element:

Example

<figure>  
  <img src="pic\_mountain.jpg" alt="The Pulpit Rock" width="304" height="228">  
  <figcaption>Fig1. - The Pulpit Rock, Norway.</figcaption>  
</figure>

The **<img>** element defines the image, the **<figcaption>** element defines the caption.

Why Semantic Elements?

With HTML4, developers used their own id/class names to style elements: header, top, bottom, footer, menu, navigation, main, container, content, article, sidebar, topnav, etc.

This made it impossible for search engines to identify the correct web page content.

With the new HTML5 elements (<header> <footer> <nav> <section> <article>), this will become easier.

According to the W3C, a Semantic Web: "Allows data to be shared and reused across applications, enterprises, and communities."

Semantic Elements in HTML5

Below is an alphabetical list of the new semantic elements in HTML5.

The links go to our complete [HTML5 Reference](http://www.w3schools.com/tags/default.asp).

|  |  |
| --- | --- |
| **Tag** | **Description** |
| [<article>](http://www.w3schools.com/tags/tag_article.asp) | Defines an article |
| [<aside>](http://www.w3schools.com/tags/tag_aside.asp) | Defines content aside from the page content |
| [<details>](http://www.w3schools.com/tags/tag_details.asp) | Defines additional details that the user can view or hide |
| [<figcaption>](http://www.w3schools.com/tags/tag_figcaption.asp) | Defines a caption for a <figure> element |
| [<figure>](http://www.w3schools.com/tags/tag_figure.asp) | Specifies self-contained content, like illustrations, diagrams, photos, code listings, etc. |
| [<footer>](http://www.w3schools.com/tags/tag_footer.asp) | Defines a footer for a document or section |
| [<header>](http://www.w3schools.com/tags/tag_header.asp) | Specifies a header for a document or section |
| [<main>](http://www.w3schools.com/tags/tag_main.asp) | Specifies the main content of a document |
| [<mark>](http://www.w3schools.com/tags/tag_mark.asp) | Defines marked/highlighted text |
| [<nav>](http://www.w3schools.com/tags/tag_nav.asp) | Defines navigation links |
| [<section>](http://www.w3schools.com/tags/tag_section.asp) | Defines a section in a document |
| [<summary>](http://www.w3schools.com/tags/tag_summary.asp) | Defines a visible heading for a <details> element |
| [<time>](http://www.w3schools.com/tags/tag_time.asp) | Defines a date/time |

# HTML5 Migration

## Migration from HTML4 to HTML5

This chapter is entirely about how to **migrate** from **HTML4** to **HTML5**.

This chapter demonstrates how to convert an HTML4 page into an HTML5 page, without destroying anything of the original content or structure.

You can migrate from XHTML to HTML5, using the same recipe.

|  |  |
| --- | --- |
| **Typical HTML4** | **Typical HTML5** |
| <div id="header"> | <header> |
| <div id="menu"> | <nav> |
| <div id="content"> | <section> |
| <div class="article"> | <article> |
| <div id="footer"> | <footer> |

## A Typical HTML4 Page

### Example

<!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.01 Transitional//EN" "http://www.w3.org/TR/html4/loose.dtd">  
<html lang="en">  
<head>  
<meta http-equiv="Content-Type" content="text/html;charset=utf-8">  
<title>HTML4</title>  
<style>  
body {  
    font-family: Verdana,sans-serif;  
    font-size: 0.9em;  
}  
  
div#header, div#footer {  
    padding: 10px;  
    color: white;  
    background-color: black;  
}  
  
div#content {  
    margin: 5px;  
    padding: 10px;  
    background-color: lightgrey;  
}  
  
div.article {  
    margin: 5px;  
    padding: 10px;  
    background-color: white;  
}  
  
div#menu ul {  
    padding: 0;  
}  
  
div#menu ul li {  
    display: inline;  
    margin: 5px;  
}  
</style>  
</head>  
<body>  
  
<div id="header">  
  <h1>Monday Times</h1>  
</div>  
  
<div id="menu">  
  <ul>  
    <li>News</li>  
    <li>Sports</li>  
    <li>Weather</li>  
  </ul>  
</div>  
  
<div id="content">  
  <h2>News Section</h2>  
  <div class="article">  
    <h2>News Article</h2>  
    <p>Lorem ipsum dolor sit amet, consectetur adipiscing elit. Pellentesque in porta lorem. Morbi condimentum est nibh, et consectetur tortor feugiat at.</p>  
  </div>  
  <div class="article">  
    <h2>News Article</h2>  
    <p>Lorem ipsum dolor sit amet, consectetur adipiscing elit. Pellentesque in porta lorem. Morbi condimentum est nibh, et consectetur tortor feugiat at.</p>  
  </div>  
</div>  
  
<div id="footer">  
  <p>&amp;copy; 2016 Monday Times. All rights reserved.</p>  
</div>  
  
</body>  
</html>

## Change to HTML5 Doctype

Change the **doctype**:

<!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.01 Transitional//EN" "http://www.w3.org/TR/html4/loose.dtd">

to the HTML5 doctype:

### Example

<!DOCTYPE html>

## Change to HTML5 Encoding

Change the **encoding** information:

<meta http-equiv="Content-Type" content="text/html;charset=utf-8">

to HTML5 encoding:

### Example

<meta charset="utf-8">

## Add The HTML5Shiv

The new HTML5 semantic elements are supported in all modern browsers. In addition, you can "teach" older browsers how to handle "unknown elements".

However, IE8 and earlier, does not allow styling of unknown elements. So, the HTML5Shiv is a JavaScript workaround to enable styling of HTML5 elements in versions of Internet Explorer prior to version 9.

Add the HTML5Shiv:

### Example

<!--[if lt IE 9]>  
  <script src="https://oss.maxcdn.com/libs/html5shiv/3.7.0/html5shiv.js"></script>  
<![endif]-->

Read more about the**HTML5Shiv** in [HTML5 Browser Support](http://www.w3schools.com/html/html5_browsers.asp).

## Change to HTML5 Semantic Elements

The existing CSS contains id's and classes for styling the elements:

body {  
    font-family: Verdana,sans-serif;  
    font-size: 0.9em;  
}  
  
div#header, div#footer {  
    padding: 10px;  
    color: white;  
    background-color: black;  
}  
  
div#content {  
    margin: 5px;  
    padding: 10px;  
    background-color: lightgrey;  
}  
  
div.article {  
    margin: 5px;  
    padding: 10px;  
    background-color: white;  
}  
  
div#menu ul {  
    padding: 0;  
}  
  
div#menu ul li {  
    display: inline;  
    margin: 5px;  
}

Replace with equal CSS styles for HTML5 semantic elements:

body {  
    font-family: Verdana,sans-serif;  
    font-size: 0.9em;  
}  
  
header, footer {  
    padding: 10px;  
    color: white;  
    background-color: black;  
}  
  
section {  
    margin: 5px;  
    padding: 10px;  
    background-color: lightgrey;  
}  
  
article {  
    margin: 5px;  
    padding: 10px;  
    background-color: white;  
}  
  
nav ul {  
    padding: 0;  
}  
  
nav ul li {  
    display: inline;  
    margin: 5px;  
}

Finally, change the elements to HTML5 semantic elements:

### Example

<body>  
  
<header>  
<h1>Monday Times</h1>  
</header>  
  
<nav>  
<ul>  
<li>News</li>  
<li>Sports</li>  
<li>Weather</li>  
</ul>  
</nav>  
  
<section>  
<h2>News Section</h2>  
<article>  
<h2>News Article</h2>  
<p>Lorem ipsum dolor sit amet, consectetur adipiscing elit. Pellentesque in porta lorem. Morbi condimentum est nibh, et consectetur tortor feugiat at.</p>  
</article>  
<article>  
<h2>News Article</h2>  
<p>Lorem ipsum dolor sit amet, consectetur adipiscing elit. Pellentesque in porta lorem. Morbi condimentum est nibh, et consectetur tortor feugiat at.</p>  
</article>  
</section>  
  
<footer>  
<p>&copy; 2014 Monday Times. All rights reserved.</p>  
</footer>  
  
</body>

## The Difference Between <article> <section> and <div>

There is a confusing (lack of) difference in the HTML5 standard, between <article> <section> and <div>.

In the HTML5 standard, the <section> element is defined as a block of related elements.

The <article> element is defined as a complete, self-contained block of related elements.

The <div> element is defined as a block of children elements.

How to interpret that?

In the example above, we have used <section> as a container for related <articles>.

But, we could have used <article> as a container for articles as well.

Here are some different examples:

### <article> in <article>:

<article>  
  
<h2>Famous Cities</h2>  
  
<article>  
<h2>London</h2>  
<p>London is the capital city of England. It is the most populous city in the United Kingdom,  
with a metropolitan area of over 13 million inhabitants.</p>  
</article>  
  
<article>  
<h2>Paris</h2>  
<p>Paris is the capital and most populous city of France.</p>  
</article>  
  
<article>  
<h2>Tokyo</h2>  
<p>Tokyo is the capital of Japan, the center of the Greater Tokyo Area,  
and the most populous metropolitan area in the world.</p>  
</article>  
  
</article>

### <div> in <article>:

<article>  
  
<h2>Famous Cities</h2>  
  
<div class="city">  
<h2>London</h2>  
<p>London is the capital city of England. It is the most populous city in the United Kingdom,  
with a metropolitan area of over 13 million inhabitants.</p>  
</div>  
  
<div class="city">  
<h2>Paris</h2>  
<p>Paris is the capital and most populous city of France.</p>  
</div>  
  
<div class="city">  
<h2>Tokyo</h2>  
<p>Tokyo is the capital of Japan, the center of the Greater Tokyo Area,  
and the most populous metropolitan area in the world.</p>  
</div>  
  
</article>

### <div> in <section> in <article>:

<article>  
  
<section>  
<h2>Famous Cities</h2>  
  
<div class="city">  
<h2>London</h2>  
<p>London is the capital city of England. It is the most populous city in the United Kingdom,  
with a metropolitan area of over 13 million inhabitants.</p>  
</div>  
  
<div class="city">  
<h2>Paris</h2>  
<p>Paris is the capital and most populous city of France.</p>  
</div>  
  
<div class="city">  
<h2>Tokyo</h2>  
<p>Tokyo is the capital of Japan, the center of the Greater Tokyo Area,  
and the most populous metropolitan area in the world.</p>  
</div>  
</section>  
  
<section>  
<h2>Famous Countries</h2>  
  
<div class="country">  
<h2>England</h2>  
<p>London is the capital city of England. It is the most populous city in the United Kingdom,  
with a metropolitan area of over 13 million inhabitants.</p>  
</div>  
  
<div class="country">  
<h2>France</h2>  
<p>Paris is the capital and most populous city of France.</p>  
</div>  
  
<div class="country">  
<h2>Japan</h2>  
<p>Tokyo is the capital of Japan, the center of the Greater Tokyo Area,  
and the most populous metropolitan area in the world.</p>  
</div>  
</section>  
  
</article>

HTML5 Style Guide and Coding Conventions

HTML Coding Conventions

Web developers are often uncertain about the coding style and syntax to use in HTML.

Between 2000 and 2010, many web developers converted from HTML to XHTML.

With XHTML, developers were forced to write valid and "well-formed" code.

HTML5 is a bit more sloppy when it comes to code validation.

Be Smart and Future Proof

A consistent use of style, makes it easier for others to understand your HTML.

In the future, programs like XML readers, may want to read your HTML.

Using a well-formed-"close to XHTML" syntax, can be smart.

Always keep your code tidy, clean, and well-formed.

Use Correct Document Type

Always declare the document type as the first line in your document:

<!DOCTYPE html>

If you want consistency with lower case tags, you can use:

<!doctype html>

Use Lower Case Element Names

HTML5 allows mixing uppercase and lowercase letters in element names.

We recommend using lowercase element names because:

* Mixing uppercase and lowercase names is bad
* Developers normally use lowercase names (as in XHTML)
* Lowercase look cleaner
* Lowercase are easier to write

Bad:

<SECTION>   
  <p>This is a paragraph.</p>  
</SECTION>

Very Bad:

<Section>   
  <p>This is a paragraph.</p>  
</SECTION>

Good:

<section>   
  <p>This is a paragraph.</p>  
</section>

Close All HTML Elements

In HTML5, you don't have to close all elements (for example the <p> element).

We recommend closing all HTML elements.

Bad:

<section>  
  <p>This is a paragraph.  
  <p>This is a paragraph.  
</section>

Good:

<section>  
  <p>This is a paragraph.</p>  
  <p>This is a paragraph.</p>  
</section>

Close Empty HTML Elements

In HTML5, it is optional to close empty elements.

Allowed:

<meta charset="utf-8">

Also Allowed:

<meta charset="utf-8" />

However, the closing slash (/) is REQUIRED in XHTML and XML.

If you expect XML software to access your page, it is a good idea to keep the closing slash!

Use Lower Case Attribute Names

HTML5 allows mixing uppercase and lowercase letters in attribute names.

We recommend using lowercase attribute names because:

* Mixing uppercase and lowercase names is bad
* Developers normally use lowercase names (as in XHTML)
* Lowercase look cleaner
* Lowercase are easier to write

Bad:

<div CLASS="menu">

Good:

<div class="menu">

Quote Attribute Values

HTML5 allows attribute values without quotes.

We recommend quoting attribute values because:

* Mixing uppercase and lowercase values is bad
* Quoted values are easier to read
* You MUST use quotes if the value contains spaces

Very bad:

This will not work, because the value contains spaces:

<table class=table striped>

Bad:

<table class=striped>

Good:

<table class="striped">

Image Attributes

Always add the "alt" attribute to images. This attribute is important when the image for some reason cannot be displayed. Also, always define image width and height. It reduces flickering because the browser can reserve space for the image before loading.

Bad:

<img src="html5.gif">

Good:

<img src="html5.gif" alt="HTML5" style="width:128px;height:128px">

Spaces and Equal Signs

HTML5 allows spaces around equal signs. But space-less is easier to read, and groups entities better together.

Bad:

<link rel = "stylesheet" href = "styles.css">

Good:

<link rel="stylesheet" href="styles.css">

Avoid Long Code Lines

When using an HTML editor, it is inconvenient to scroll right and left to read the HTML code.

Try to avoid code lines longer than 80 characters.

Blank Lines and Indentation

Do not add blank lines without a reason.

For readability, add blank lines to separate large or logical code blocks.

For readability, add two spaces of indentation. Do not use the tab key.

Do not use unnecessary blank lines and indentation. It is not necessary to indent every element:

Unnecessary:

<body>  
  
  <h1>Famous Cities</h1>  
  
  <h2>Tokyo</h2>  
  
  <p>  
    Tokyo is the capital of Japan, the center of the Greater Tokyo Area,  
    and the most populous metropolitan area in the world.  
    It is the seat of the Japanese government and the Imperial Palace,  
    and the home of the Japanese Imperial Family.  
  </p>  
  
</body>

Better:

<body>  
  
<h1>Famous Cities</h1>  
  
<h2>Tokyo</h2>  
<p>Tokyo is the capital of Japan, the center of the Greater Tokyo Area,  
and the most populous metropolitan area in the world.  
It is the seat of the Japanese government and the Imperial Palace,  
and the home of the Japanese Imperial Family.</p>  
  
</body>

Table Example:

<table>  
  <tr>  
    <th>Name</th>  
    <th>Description</th>  
  </tr>  
  <tr>  
    <td>A</td>  
    <td>Description of A</td>  
  </tr>  
  <tr>  
    <td>B</td>  
    <td>Description of B</td>  
  </tr>  
</table>

List Example:

<ol>  
  <li>London</li>  
  <li>Paris</li>  
  <li>Tokyo</li>  
</ol>

Omitting <html> and <body>?

In the HTML5 standard, the <html> tag and the <body> tag can be omitted.

The following code will validate as HTML5:

Example

<!DOCTYPE html>  
<head>  
  <title>Page Title</title>  
</head>  
  
<h1>This is a heading</h1>  
<p>This is a paragraph.</p>

**We do not recommend omitting the <html> and <body> tags.**

The <html> element is the document root. It is the recommended place for specifying the page language:

<!DOCTYPE html>  
<html lang="en-US">

Declaring a language is important for accessibility applications (screen readers) and search engines.

Omitting <html> or <body> can crash DOM and XML software.

Omitting <body> can produce errors in older browsers (IE9).

Omitting <head>?

In the HTML5 standard, the <head> tag can also be omitted.

By default, browsers will add all elements before <body>, to a default <head> element.

You can reduce the complexity of HTML, by omitting the <head> tag:

Example

<!DOCTYPE html>  
<html>  
<title>Page Title</title>  
  
<body>  
  <h1>This is a heading</h1>  
  <p>This is a paragraph.</p>  
</body>  
  
</html>

**We do not recommend omitting the <head> tag.**

Omitting tags is unfamiliar to web developers. It needs time to be established as a guideline.

Meta Data

The <title> element is required in HTML5. Make the title as meaningful as possible:

<title>HTML5 Syntax and Coding Style</title>

To ensure proper interpretation, and correct search engine indexing, both the language and the character encoding should be defined as early as possible in a document:

<!DOCTYPE html>  
<html lang="en-US">  
<head>  
  <meta charset="UTF-8">  
  <title>HTML5 Syntax and Coding Style</title>  
</head>

HTML Comments

Short comments should be written on one line, like this:

<!-- This is a comment -->

Comments that spans more than one line, should be written like this:

<!--   
  This is a long comment example. This is a long comment example.  
  This is a long comment example. This is a long comment example.  
-->

Long comments are easier to observe if they are indented two spaces.

Style Sheets

Use simple syntax for linking to style sheets (the type attribute is not necessary):

<link rel="stylesheet" href="styles.css">

Short rules can be written compressed, on one line, like this:

p.intro {font-family: Verdana; font-size: 16em;}

Long rules should be written over multiple lines:

body {  
  background-color: lightgrey;  
  font-family: "Arial Black", Helvetica, sans-serif;  
  font-size: 16em;  
  color: black;  
}

* Place the opening bracket on the same line as the selector
* Use one space before the opening bracket
* Use two spaces of indentation
* Use semicolon after each property-value pair, including the last
* Only use quotes around values if the value contains spaces
* Place the closing bracket on a new line, without leading spaces
* Avoid lines over 80 characters

Loading JavaScript in HTML

Use simple syntax for loading external scripts (the type attribute is not necessary):

<script src="myscript.js">

Accessing HTML Elements with JavaScript

A consequence of using "untidy" HTML styles, might result in JavaScript errors.

These two JavaScript statements will produce different results:

Example

var obj = getElementById("Demo")  
  
var obj = getElementById("demo")

[Visit the JavaScript Style Guide](http://www.w3schools.com/js/js_conventions.asp).

Use Lower Case File Names

Some web servers (Apache, Unix) are case sensitive about file names: "london.jpg" cannot be accessed as "London.jpg".

Other web servers (Microsoft, IIS) are not case sensitive: "london.jpg" can be accessed as "London.jpg" or "london.jpg".

If you use a mix of upper and lower case, you have to be extremely consistent.

If you move from a case insensitive to a case sensitive server, even small errors will break your web!

To avoid these problems, always use lower case file names.

File Extensions

HTML files should have a **.html** or **.htm** extension.

CSS files should have a **.css** extension.

JavaScript files should have a **.js** extension.

Differences Between .htm and .html

There is no difference between the .htm and .html extensions. Both will be treated as HTML by any web browser or web server.

The differences are cultural:

.htm "smells" of early DOS systems where the system limited the extensions to 3 characters.

.html "smells" of Unix operating systems that did not have this limitation.

Technical Differences

When a URL does not specify a filename (like http://www.w3schools.com/css/), the server returns a default filename. Common default filenames are index.html, index.htm, default.html, and default.htm.

If your server is configured only with "index.html" as default filename, your file must be named "index.html", not "index.htm."

However, servers can be configured with more than one default filename, and normally you can set up as many default filenames as needed.

Anyway, the full extension for HTML files is .html, and there's no reason it should not be used.

# HTML5 Canvas

The HTML <canvas> element is used to draw graphics on a web page.

The graphic to the left is created with <canvas>. It shows four elements: a red rectangle, a gradient rectangle, a multicolor rectangle, and a multicolor text.

## What is HTML Canvas?

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.

## Browser Support

The numbers in the table specify the first browser version that fully supports the <canvas> element.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Element |  |  |  |  |  |
| <canvas> | 4.0 | 9.0 | 2.0 | 3.1 | 9.0 |

## Canvas Examples

A canvas is a rectangular area on an HTML page. By default, a canvas has no border and no content.

The markup looks like this:

<canvas id="myCanvas" width="200" height="100"></canvas>

**Note:** Always specify an id attribute (to be referred to in a script), and a width and height attribute to define the size of the canvas. To add a border, use the style attribute.

Here is an example of a basic, empty canvas:

### Example

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

### Draw a Line

### Example

var c = document.getElementById("myCanvas");  
var ctx = c.getContext("2d");  
ctx.moveTo(0,0);  
ctx.lineTo(200,100);  
ctx.stroke();

### Draw a Circle

### Example

var c = document.getElementById("myCanvas");  
var ctx = c.getContext("2d");  
ctx.beginPath();  
ctx.arc(95,50,40,0,2\*Math.PI);  
ctx.stroke();

### Draw a Text

### Example

var c = document.getElementById("myCanvas");  
var ctx = c.getContext("2d");  
ctx.font = "30px Arial";  
ctx.fillText("Hello World",10,50);

### Stroke Text

### Example

var c = document.getElementById("myCanvas");  
var ctx = c.getContext("2d");  
ctx.font = "30px Arial";  
ctx.strokeText("Hello World",10,50);

### Draw Linear Gradient

### Example

var c = document.getElementById("myCanvas");  
var ctx = c.getContext("2d");  
  
// Create gradient  
var grd = ctx.createLinearGradient(0,0,200,0);  
grd.addColorStop(0,"red");  
grd.addColorStop(1,"white");  
  
// Fill with gradient  
ctx.fillStyle = grd;  
ctx.fillRect(10,10,150,80);

### Draw Circular Gradient

### Example

var c = document.getElementById("myCanvas");  
var ctx = c.getContext("2d");  
  
// Create gradient  
var grd = ctx.createRadialGradient(75,50,5,90,60,100);  
grd.addColorStop(0,"red");  
grd.addColorStop(1,"white");  
  
// Fill with gradient  
ctx.fillStyle = grd;  
ctx.fillRect(10,10,150,80);

### Draw Image

var c = document.getElementById("myCanvas");  
var ctx = c.getContext("2d");  
var img = document.getElementById("scream");  
ctx.drawImage(img,10,10);

## HTML Canvas Tutorial

To learn all about HTML <canvas>, [Visit our full HTML Canvas Tutorial](http://www.w3schools.com/graphics/canvas_intro.asp).

HTML5 SVG

What is SVG?

* SVG stands for Scalable Vector Graphics
* SVG is used to define graphics for the Web
* SVG is a W3C recommendation

The HTML <svg> Element

The HTML <svg> element is a container for SVG graphics.

SVG has several methods for drawing paths, boxes, circles, text, and graphic images.

Browser Support

The numbers in the table specify the first browser version that fully supports the <svg> element.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Element |  |  |  |  |  |
| <svg> | 4.0 | 9.0 | 3.0 | 3.2 | 10.1 |

SVG Circle

Example

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

SVG Rectangle

Example

<svg width="400" height="100">  
  <rect width="400" height="100" style="fill:rgb(0,0,255);stroke-width:10;stroke:rgb(0,0,0)" />  
</svg>

SVG Rounded Rectangle

Example

<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>

SVG Star

Example

<svg width="300" height="200">  
  <polygon points="100,10 40,198 190,78 10,78 160,198"  
  style="fill:lime;stroke:purple;stroke-width:5;fill-rule:evenodd;" />  
</svg>

SVG Logo

SVG

Example

<svg height="130" width="500">  
  <defs>  
    <linearGradient id="grad1" x1="0%" y1="0%" x2="100%" y2="0%">  
      <stop offset="0%" style="stop-color:rgb(255,255,0);stop-opacity:1" />  
      <stop offset="100%" style="stop-color:rgb(255,0,0);stop-opacity:1" />  
    </linearGradient>  
  </defs>  
  <ellipse cx="100" cy="70" rx="85" ry="55" fill="url(#grad1)" />  
  <text fill="#ffffff" font-size="45" font-family="Verdana" x="50" y="86">SVG</text>  
  Sorry, your browser does not support inline SVG.  
</svg>

Differences Between SVG and Canvas

SVG is a language for describing 2D graphics in XML.

Canvas draws 2D graphics, on the fly (with a JavaScript).

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 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

The table below shows some important differences between Canvas and SVG:

|  |  |
| --- | --- |
| **Canvas** | **SVG** |
| * 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 | * 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 |

To learn more about SVG, please read our [SVG Tutorial](http://www.w3schools.com/graphics/svg_intro.asp).

# HTML Google Maps

Google Maps allows you to display maps on your web page:



















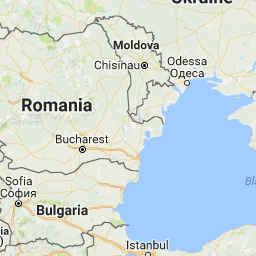
















[[https://maps.gstatic.com/mapfiles/transparent.png](https://maps.google.com/maps?ll=51.508742,-0.12085&z=5&t=m&hl=en-US&gl=US&mapclient=apiv3)](https://maps.google.com/maps?ll=51.508742,-0.12085&z=5&t=m&hl=en-US&gl=US&mapclient=apiv3" \o "Click to see this area on Google Maps" \t "_blank)

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[Terms of Use](https://www.google.com/intl/en-US_US/help/terms_maps.html)

https://maps.gstatic.com/mapfiles/transparent.png

https://maps.gstatic.com/mapfiles/transparent.png

https://maps.gstatic.com/mapfiles/transparent.png

https://maps.gstatic.com/mapfiles/transparent.png

https://maps.gstatic.com/mapfiles/transparent.png

Map

Satellite

## A Basic Web Page

To demonstrate how to add a Google Map to a web page, we will use a basic HTML page:

### Example

<!DOCTYPE html>  
<html>  
<body>  
  
<h1>My First Google Map</h1>  
  
<div id="map">My map will go here</div>  
  
</body>  
<html>

## Set the Map Size

Set the size of the map:

### Example

<div id="map" style="width:400px;height:400px">

## Create a Function to Set The Map Properties

This example defines a Google Map centered in London, England:

### Example

function myMap() {  
    var mapOptions = {  
        center: new google.maps.LatLng(51.5, -0.12),  
        zoom: 10,  
        mapTypeId: google.maps.MapTypeId.HYBRID  
    }  
var map = new google.maps.Map(document.getElementById("map"), mapOptions);  
}

### Example Explained

The **mapOptions** variable defines the properties for the map.

The **center** property specifies where to center the map (using latitude and longitude coordinates).

The **zoom** property specifies the zoom level for the map (try to experiment with the zoom level).

The **mapTypeId** property specifies the map type to display. The following map types are supported: ROADMAP, SATELLITE, HYBRID, and TERRAIN.

The line: **var map=new google.maps.Map(document.getElementById("map"), mapOptions);**creates a new map inside the <div> element with id="map", using the parameters that are passed (mapOptions).

## Add the Google Maps API

Finally, show the map on the page!

The functionality of the map is provided by a JavaScript library located at Google. Add a script to refer to the Google Maps API with a callback to the myMap function:

### Example

<script src="https://maps.googleapis.com/maps/api/js?callback=myMap"></script>

Go to our [Google Maps Tutorial](http://www.w3schools.com/graphics/google_maps_intro.asp) to learn more about Google Maps.

# HTML Multimedia

Multimedia on the web is sound, music, videos, movies, and animations.

## What is Multimedia?

Multimedia comes in many different formats. It can be almost anything you can hear or see.

Examples: Images, music, sound, videos, records, films, animations, and more.

Web pages often contain multimedia elements of different types and formats.

In this chapter you will learn about the different multimedia formats.

## Browser Support

The first web browsers had support for text only, limited to a single font in a single color.

Later came browsers with support for colors and fonts, and images!

Audio, video, and animation have been handled differently by the major browsers. Different formats have been supported, and some formats require extra helper programs (plug-ins) to work.

Hopefully this will become history. HTML5 multimedia promises an easier future for multimedia.

## Multimedia Formats

Multimedia elements (like audio or video) are stored in media files.

The most common way to discover the type of a file, is to look at the file extension.

Multimedia files have formats and different extensions like: .swf, .wav, .mp3, .mp4, .mpg, .wmv, and .avi.

## Common Video Formats

|  |  |
| --- | --- |
| Videoformats | MP4 is the new and upcoming format for internet video.  MP4 is recommended by YouTube.  MP4 is supported by Flash Players.  MP4 is supported by HTML5. |

|  |  |  |
| --- | --- | --- |
| **Format** | **File** | **Description** |
| MPEG | .mpg .mpeg | MPEG. Developed by the Moving Pictures Expert Group. The first popular video format on the web. Used to be supported by all browsers, but it is not supported in HTML5 (See MP4). |
| AVI | .avi | AVI (Audio Video Interleave). Developed by Microsoft. Commonly used in video cameras and TV hardware. Plays well on Windows computers, but not in web browsers. |
| WMV | .wmv | WMV (Windows Media Video). Developed by Microsoft. Commonly used in video cameras and TV hardware. Plays well on Windows computers, but not in web browsers. |
| QuickTime | .mov | QuickTime. Developed by Apple. Commonly used in video cameras and TV hardware. Plays well on Apple computers, but not in web browsers. (See MP4) |
| RealVideo | .rm .ram | RealVideo. Developed by Real Media to allow video streaming with low bandwidths. It is still used for online video and Internet TV, but does not play in web browsers. |
| Flash | .swf .flv | Flash. Developed by Macromedia. Often requires an extra component (plug-in) to play in web browsers. |
| Ogg | .ogg | Theora Ogg. Developed by the Xiph.Org Foundation. Supported by HTML5. |
| WebM | .webm | WebM. Developed by the web giants, Mozilla, Opera, Adobe, and Google. Supported by HTML5. |
| MPEG-4 or MP4 | .mp4 | MP4. Developed by the Moving Pictures Expert Group. Based on QuickTime. Commonly used in newer video cameras and TV hardware. Supported by all HTML5 browsers. Recommended by YouTube. |

Only MP4, WebM, and Ogg video are supported by the HTML5 standard.

## Audio Formats

MP3 is the newest format for compressed recorded music. The term MP3 has become synonymous with digital music.

If your website is about recorded music, MP3 is the choice.

|  |  |  |
| --- | --- | --- |
| **Format** | **File** | **Description** |
| MIDI | .mid .midi | MIDI (Musical Instrument Digital Interface). Main format for all electronic music devices like synthesizers and PC sound cards. MIDI files do not contain sound, but digital notes that can be played by electronics. Plays well on all computers and music hardware, but not in web browsers. |
| RealAudio | .rm .ram | RealAudio. Developed by Real Media to allow streaming of audio with low bandwidths. Does not play in web browsers. |
| WMA | .wma | WMA (Windows Media Audio). Developed by Microsoft. Commonly used in music players. Plays well on Windows computers, but not in web browsers. |
| AAC | .aac | AAC (Advanced Audio Coding). Developed by Apple as the default format for iTunes. Plays well on Apple computers, but not in web browsers. |
| WAV | .wav | WAV. Developed by IBM and Microsoft. Plays well on Windows, Macintosh, and Linux operating systems. Supported by HTML5. |
| Ogg | .ogg | Ogg. Developed by the Xiph.Org Foundation. Supported by HTML5. |
| MP3 | .mp3 | MP3 files are actually the sound part of MPEG files. MP3 is the most popular format for music players. Combines good compression (small files) with high quality. Supported by all browsers. |
| MP4 | .mp4 | MP4 is a video format, but can also be used for audio. MP4 video is the upcoming video format on the internet. This leads to automatic support for MP4 audio by all browsers. |

Only MP3, WAV, and Ogg audio are supported by the HTML5 standard.

# HTML5 Video

### HTML Video Example. Courtesy of [Big Buck Bunny](http://www.bigbuckbunny.org/).

## Playing Videos in HTML

Before HTML5, a video could only be played in a browser with a plug-in (like flash).

The HTML5 <video> element specifies a standard way to embed a video in a web page.

## Browser Support

The numbers in the table specify the first browser version that fully supports the <video> element.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Element |  |  |  |  |  |
| <video> | 4.0 | 9.0 | 3.5 | 4.0 | 10.5 |

## The HTML <video> Element

To show a video in HTML, use the**<video>** element:

### Example

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

## How it Works

The **controls** attribute adds video controls, like play, pause, and volume.

It is a good idea to always include **width** and **height** attributes. If height and width are not set, the page might flicker while the video loads.

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.

## HTML <video> Autoplay

To start a video automatically use the **autoplay** attribute:

### Example

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

The autoplay attribute does not work in mobile devices like iPad and iPhone.

## HTML Video - Browser Support

In HTML5, there are 3 supported video formats: MP4, WebM, and Ogg.

The browser support for the different formats is:

|  |  |  |  |
| --- | --- | --- | --- |
| **Browser** | **MP4** | **WebM** | **Ogg** |
| Internet Explorer | YES | NO | NO |
| Chrome | YES | YES | YES |
| Firefox | YES | YES | YES |
| Safari | YES | NO | NO |
| Opera | YES (from Opera 25) | YES | YES |

## HTML Video - Media Types

|  |  |
| --- | --- |
| **File Format** | **Media Type** |
| MP4 | video/mp4 |
| WebM | video/webm |
| Ogg | video/ogg |

## HTML Video - Methods, Properties, and Events

HTML5 defines DOM 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.

### Example: Using JavaScript

Play/Pause Big Small Normal 

Video courtesy of [Big Buck Bunny](http://www.bigbuckbunny.org/).

For a full DOM reference, go to our [HTML5 Audio/Video DOM Reference](http://www.w3schools.com/tags/ref_av_dom.asp).

## HTML5 Video Tags

|  |  |
| --- | --- |
| **Tag** | **Description** |
| [<video>](http://www.w3schools.com/tags/tag_video.asp) | Defines a video or movie |
| [<source>](http://www.w3schools.com/tags/tag_source.asp) | Defines multiple media resources for media elements, such as <video> and <audio> |
| [<track>](http://www.w3schools.com/tags/tag_track.asp) | Defines text tracks in media players |

# HTML5 Audio

## Audio on the Web

Before HTML5, audio files could only be played in a browser with a plug-in (like flash).

The HTML5 <audio> element specifies a standard way to embed audio in a web page.

## Browser Support

The numbers in the table specify the first browser version that fully supports the <audio> element.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Element |  |  |  |  |  |
| <audio> | 4.0 | 9.0 | 3.5 | 4.0 | 10.5 |

## The HTML <audio> Element

To play an audio file in HTML, use the **<audio>** element:

### Example

<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 Audio - How It Works

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.

## HTML Audio - Browser Support

In HTML5, there are 3 supported audio formats: MP3, Wav, and Ogg.

The browser support for the different formats is:

|  |  |  |  |
| --- | --- | --- | --- |
| **Browser** | **MP3** | **Wav** | **Ogg** |
| Internet Explorer | YES | NO | NO |
| Chrome | YES | YES | YES |
| Firefox | YES | YES | YES |
| Safari | YES | YES | NO |
| Opera | YES | YES | YES |

## HTML Audio - Media Types

|  |  |
| --- | --- |
| **File Format** | **Media Type** |
| MP3 | audio/mpeg |
| Ogg | audio/ogg |
| Wav | audio/wav |

## HTML Audio - Methods, Properties, and Events

HTML5 defines DOM 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.

For a full DOM reference, go to our [HTML5 Audio/Video DOM Reference](http://www.w3schools.com/tags/ref_av_dom.asp).

## HTML5 Audio Tags

|  |  |
| --- | --- |
| **Tag** | **Description** |
| [<audio>](http://www.w3schools.com/tags/tag_audio.asp) | Defines sound content |
| [<source>](http://www.w3schools.com/tags/tag_source.asp) | Defines multiple media resources for media elements, such as <video> and <audio> |

# HTML Plug-ins

The purpose of a plug-in is to extend the functionality of a web browser.

## HTML Helpers (Plug-ins)

Helper applications (plug-ins) are computer programs that extend the standard functionality of a web browser.

Examples of well-known plug-ins are Java applets.

Plug-ins can be added to web pages with the <object> tag or the <embed> tag.

Plug-ins can be used for many purposes: display maps, scan for viruses, verify your bank id, etc.

To display video and audio: Use the <video> and <audio> tags.

## The <object> Element

The <object> element is supported by all browsers.

The <object> element defines an embedded object within an HTML document.

It is used to embed plug-ins (like Java applets, PDF readers, Flash Players) in web pages.

### Example

<object width="400" height="50" data="bookmark.swf"></object>

The <object> element can also be used to include HTML in HTML:

### Example

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

Or images if you like:

### Example

<object data="audi.jpeg"></object>

## The <embed> Element

The <embed> element is supported in all major browsers.

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.

### Example

<embed width="400" height="50" src="bookmark.swf">

Note that the <embed> element does not have a closing tag. It can not contain alternative text.

The <embed> element can also be used to include HTML in HTML:

### Example

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

Or images if you like:

### Example

<embed src="audi.jpeg">

HTML YouTube Videos

The easiest way to play videos in HTML, is to use YouTube.

Struggling with Video Formats?

Earlier in this tutorial, you have seen that you might have to convert your videos to different formats to make them play in all browsers.

Converting videos to different formats can be difficult and time-consuming.

An easier solution is to let YouTube play the videos in your web page.

YouTube Video Id

YouTube will display an id (like XGSy3\_Czz8k), when you save (or play) a video.

You can use this id, and refer to your video in the HTML code.

Playing a YouTube Video in HTML

To play your video on a web page, do the following:

* Upload the video to YouTube
* Take a note of the video id
* Define an <iframe> element in your web page
* Let the src attribute point to the video URL
* Use the width and height attributes to specify the dimension of the player
* Add any other parameters to the URL (see below)

Example - Using iFrame (recommended)

<iframe width="420" height="315"  
src="https://www.youtube.com/embed/XGSy3\_Czz8k">  
</iframe>

YouTube Autoplay

You can have your video start playing automatically when a user visits that page by adding a simple parameter to your YouTube URL.

**Note:** Take careful consideration when deciding to autoplay your videos. Automatically starting a video can annoy your visitor and end up causing more harm than good.

Value 0 (default): The video will not play automatically when the player loads.

Value 1: The video will play automatically when the player loads.

YouTube - Autoplay

<iframe width="420" height="315"  
src="https://www.youtube.com/embed/XGSy3\_Czz8k?autoplay=1">  
</iframe>

YouTube Playlist

A comma separated list of videos to play (in addition to the original URL).

YouTube Loop

Value 0 (default): The video will play only once.

Value 1: The video will loop (forever).

YouTube - Loop

<iframe width="420" height="315"  
src="https://www.youtube.com/embed/XGSy3\_Czz8k?playlist=XGSy3\_Czz8k&loop=1">  
</iframe>

YouTube Controls

Value 0: Player controls does not display.

Value 1 (default): Player controls display.

YouTube - Controls

<iframe width="420" height="315"  
src="https://www.youtube.com/embed/XGSy3\_Czz8k?controls=0">  
</iframe>

YouTube - Using <object> or <embed>

**Note:** YouTube <object> and <embed> were deprecated from January 2015. You should migrate your videos to use <iframe> instead.

Example - Using <object> (deprecated)

<object width="420" height="315"  
data="http://www.youtube.com/embed/XGSy3\_Czz8k">  
</object>

Example - Using <embed> (deprecated)

<embed width="420" height="315"  
src="http://www.youtube.com/embed/XGSy3\_Czz8k">

HTML5 Geolocation

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

Try It

Locate the User's Position

The HTML Geolocation API is used to get the geographical position of a user.

Since this can compromise privacy, the position is not available unless the user approves it.

**Note:**Geolocation is most accurate for devices with GPS, like iPhone.

Browser Support

The numbers in the table specify the first browser version that fully supports Geolocation.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| API |  |  |  |  |  |
| Geolocation | 5.0 - 49.0 (http) 50.0 (https) | 9.0 | 3.5 | 5.0 | 16.0 |

**Note:** As of Chrome 50, the Geolocation API will only work on secure contexts such as HTTPS. If your site is hosted on an non-secure origin (such as HTTP) the requests to get the users location will no longer function.

Using HTML Geolocation

The getCurrentPosition() method is used to return the user's position.

The example below returns the latitude and longitude of the user's position:

Example

<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>

Example explained:

* Check if Geolocation is supported
* If supported, run the getCurrentPosition() method. If not, display a message to the user
* If the getCurrentPosition() method is successful, it returns a coordinates object to the function specified in the parameter (showPosition)
* The showPosition() function outputs the Latitude and Longitude

The example above is a very basic Geolocation script, with no error handling.

Handling Errors and Rejections

The second parameter of the getCurrentPosition() method is used to handle errors. It specifies a function to run if it fails to get the user's location:

Example

function showError(error) {  
    switch(error.code) {  
        case error.PERMISSION\_DENIED:  
            x.innerHTML = "User denied the request for Geolocation."  
            break;  
        case error.POSITION\_UNAVAILABLE:  
            x.innerHTML = "Location information is unavailable."  
            break;  
        case error.TIMEOUT:  
            x.innerHTML = "The request to get user location timed out."  
            break;  
        case error.UNKNOWN\_ERROR:  
            x.innerHTML = "An unknown error occurred."  
            break;  
    }  
}

Displaying the Result in a Map

To display the result in a map, you need access to a map service, like Google Maps.

In the example below, the returned latitude and longitude is used to show the location in a Google Map (using a static image):

Example

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";  
  
    document.getElementById("mapholder").innerHTML = "<img src='"+img\_url+"'>";  
}

Location-specific Information

This page has demonstrated how to show a user's position on a map.

Geolocation is also very useful for location-specific information, like:

* Up-to-date local information
* Showing Points-of-interest near the user
* Turn-by-turn navigation (GPS)

The getCurrentPosition() Method - Return Data

The getCurrentPosition() method returns an object on success. The latitude, longitude and accuracy properties are always returned. The other properties are returned if available:

|  |  |
| --- | --- |
| **Property** | **Returns** |
| coords.latitude | The latitude as a decimal number (always returned) |
| coords.longitude | The longitude as a decimal number (always returned) |
| coords.accuracy | The accuracy of position (always returned) |
| coords.altitude | The altitude in meters above the mean sea level (returned if available) |
| coords.altitudeAccuracy | The altitude accuracy of position (returned if available) |
| coords.heading | The heading as degrees clockwise from North (returned if available) |
| coords.speed | The speed in meters per second (returned if available) |
| timestamp | The date/time of the response (returned if available) |

Geolocation Object - Other interesting Methods

The Geolocation object also has other interesting methods:

* watchPosition() - Returns the current position of the user and continues to return updated position as the user moves (like the GPS in a car).
* clearWatch() - Stops the watchPosition() method.

The example below shows the watchPosition() method. You need an accurate GPS device to test this (like iPhone):

Example

<script>  
var x = document.getElementById("demo");  
function getLocation() {  
    if (navigator.geolocation) {  
        navigator.geolocation.watchPosition(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>

HTML5 Drag and Drop

W3Schools

Drag the W3Schools image into the rectangle.

Drag and Drop

Drag and drop is a very common feature. It is when you "grab" an object and drag it to a different location.

In HTML5, drag and drop is part of the standard: Any element can be draggable.

Browser Support

The numbers in the table specify the first browser version that fully supports Drag and Drop.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| API |  |  |  |  |  |
| Drag and Drop | 4.0 | 9.0 | 3.5 | 6.0 | 12.0 |

HTML Drag and Drop Example

The example below is a simple drag and drop example:

Example

<!DOCTYPE HTML>  
<html>  
<head>  
<script>  
function allowDrop(ev) {  
    ev.preventDefault();  
}  
  
function drag(ev) {  
    ev.dataTransfer.setData("text", ev.target.id);  
}  
  
function drop(ev) {  
    ev.preventDefault();  
    var data = ev.dataTransfer.getData("text");  
    ev.target.appendChild(document.getElementById(data));  
}  
</script>  
</head>  
<body>  
  
<div id="div1" ondrop="drop(event)" ondragover="allowDrop(event)"></div>  
  
<img id="drag1" src="img\_logo.gif" draggable="true"  
ondragstart="drag(event)" width="336" height="69">  
  
</body>  
</html>

It might seem complicated, but lets go through all the different parts of a drag and drop event.

Make an Element Draggable

First of all: To make an element draggable, set the draggable attribute to true:

<img draggable="true">

What to Drag - ondragstart and setData()

Then, specify what should happen when the element is dragged.

In the example above, the ondragstart attribute calls a function, drag(event), that specifies what data to be dragged.

The dataTransfer.setData() method sets the data type and the value of the dragged data:

function drag(ev) {  
    ev.dataTransfer.setData("text", ev.target.id);  
}

In this case, the data type is "text" and the value is the id of the draggable element ("drag1").

Where to Drop - ondragover

The ondragover event specifies where the dragged data can be dropped.

By default, data/elements cannot be dropped in other elements. To allow a drop, we must prevent the default handling of the element.

This is done by calling the event.preventDefault() method for the ondragover event:

*event*.preventDefault()

Do the Drop - ondrop

When the dragged data is dropped, a drop event occurs.

In the example above, the ondrop attribute calls a function, drop(event):

function drop(ev) {  
    ev.preventDefault();  
    var data = ev.dataTransfer.getData("text");  
    ev.target.appendChild(document.getElementById(data));  
}

Code explained:

* Call preventDefault() to prevent the browser default handling of the data (default is open as link on drop)
* Get the dragged data with the dataTransfer.getData() method. This method will return any data that was set to the same type in the setData() method
* The dragged data is the id of the dragged element ("drag1")
* Append the dragged element into the drop element

More Examples

Drag image back and forth

How to drag (and drop) an image back and forth between two <div> elements:

# HTML5 Local Storage

HTML local storage; better than cookies.

## What is HTML Local Storage?

With local storage, web applications can store data locally within the user's browser.

Before HTML5, application data had to be stored in cookies, included in every server request. Local storage is more secure, and large amounts of data can be stored locally, without affecting website performance.

Unlike cookies, the storage limit is far larger (at least 5MB) and information is never transferred to the server.

Local storage is per origin (per domain and protocol). All pages, from one origin, can store and access the same data.

## Browser Support

The numbers in the table specify the first browser version that fully supports Local Storage.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| API |  |  |  |  |  |
| Web Storage | 4.0 | 8.0 | 3.5 | 4.0 | 11.5 |

## HTML Local Storage Objects

HTML local storage provides two objects for storing data on the client:

* window.localStorage - stores data with no expiration date
* window.sessionStorage - stores data for one session (data is lost when the browser tab is closed)

Before using local storage, check browser support for localStorage and sessionStorage:

if (typeof(Storage) !== "undefined") {  
    // *Code for localStorage/sessionStorage.*  
} else {  
    // Sorry! No Web Storage support..  
}

## The localStorage Object

The localStorage object stores the data with no expiration date. The data will not be deleted when the browser is closed, and will be available the next day, week, or year.

### Example

// Store  
localStorage.setItem("lastname", "Smith");  
// Retrieve  
document.getElementById("result").innerHTML = localStorage.getItem("lastname");

Example explained:

* Create a localStorage name/value pair with name="lastname" and value="Smith"
* Retrieve the value of "lastname" and insert it into the element with id="result"

The example above could also be written like this:

// Store  
localStorage.lastname = "Smith";  
// Retrieve  
document.getElementById("result").innerHTML = localStorage.lastname;

The syntax for removing the "lastname" localStorage item is as follows:

localStorage.removeItem("lastname");

**Note:** Name/value pairs are always stored as strings. Remember to convert them to another format when needed!

The following example counts the number of times a user has clicked a button. In this code the value string is converted to a number to be able to increase the counter:

### Example

if (localStorage.clickcount) {  
    localStorage.clickcount = Number(localStorage.clickcount) + 1;  
} else {  
    localStorage.clickcount = 1;  
}  
document.getElementById("result").innerHTML = "You have clicked the button " +  
localStorage.clickcount + " time(s).";

## The sessionStorage Object

The sessionStorage object is equal to the localStorage object, **except** that it stores the data for only one session. The data is deleted when the user closes the specific browser tab.

The following example counts the number of times a user has clicked a button, in the current session:

### Example

if (sessionStorage.clickcount) {  
    sessionStorage.clickcount = Number(sessionStorage.clickcount) + 1;  
} else {  
    sessionStorage.clickcount = 1;  
}  
document.getElementById("result").innerHTML = "You have clicked the button " +  
sessionStorage.clickcount + " time(s) in this session.";

# HTML5 Application Cache

With application cache it is easy to make an offline version of a web application, by creating a cache manifest file.

## What is Application Cache?

HTML5 introduces application cache, which means that a web application is cached, and accessible without an internet connection.

Application cache gives an application three advantages:

1. Offline browsing - users can use the application when they're offline
2. Speed - cached resources load faster
3. Reduced server load - the browser will only download updated/changed resources from the server

## Browser Support

The numbers in the table specify the first browser version that fully supports Application Cache.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| API |  |  |  |  |  |
| Application Cache | 4.0 | 10.0 | 3.5 | 4.0 | 11.5 |

## HTML Cache Manifest Example

The example below shows an HTML document with a cache manifest (for offline browsing):

### Example

<!DOCTYPE HTML>  
<html manifest="demo.appcache">  
  
<body>  
The content of the document......  
</body>  
  
</html>

## Cache Manifest Basics

To enable application cache, include the manifest attribute in the document's <html> tag:

<!DOCTYPE HTML>  
<html manifest="demo.appcache">  
...  
</html>

Every page with the manifest attribute specified will be cached when the user visits it. If the manifest attribute is not specified, the page will not be cached (unless the page is specified directly in the manifest file).

The recommended file extension for manifest files is: ".appcache"

A manifest file needs to be served with the **correct media type**, which is "text/cache-manifest". Must be configured on the web server.

## The Manifest File

The manifest file is a simple text file, which tells the browser what to cache (and what to never cache).

The manifest file has three sections:

* **CACHE MANIFEST** - Files listed under this header will be cached after they are downloaded for the first time
* **NETWORK** - Files listed under this header require a connection to the server, and will never be cached
* **FALLBACK** - Files listed under this header specifies fallback pages if a page is inaccessible

### CACHE MANIFEST

The first line, CACHE MANIFEST, is required:

CACHE MANIFEST  
/theme.css  
/logo.gif  
/main.js

The manifest file above lists three resources: a CSS file, a GIF image, and a JavaScript file. When the manifest file is loaded, the browser will download the three files from the root directory of the web site. Then, whenever the user is not connected to the internet, the resources will still be available.

### NETWORK

The NETWORK section below specifies that the file "login.asp" should never be cached, and will not be available offline:

NETWORK:  
login.asp

An asterisk can be used to indicate that all other resources/files require an internet connection:

NETWORK:  
\*

### FALLBACK

The FALLBACK section below specifies that "offline.html" will be served in place of all files in the /html/ catalog, in case an internet connection cannot be established:

FALLBACK:  
/html/ /offline.html

**Note:** The first URI is the resource, the second is the fallback.

## Updating the Cache

Once an application is cached, it remains cached until one of the following happens:

* The user clears the browser's cache
* The manifest file is modified (see tip below)
* The application cache is programmatically updated

## Example - Complete Cache Manifest File

CACHE MANIFEST  
# 2012-02-21 v1.0.0  
/theme.css  
/logo.gif  
/main.js  
  
NETWORK:  
login.asp  
  
FALLBACK:  
/html/ /offline.html

**Tip:** Lines starting with a "#" are comment lines, but can also serve another purpose. An application's cache is only updated when its manifest file changes. If you edit an image or change a JavaScript function, those changes will not be re-cached. Updating the date and version in a comment line is one way to make the browser re-cache your files.

## Notes on Application Cache

Be careful with what you cache.

Once a file is cached, the browser will continue to show the cached version, even if you change the file on the server. To ensure the browser updates the cache, you need to change the manifest file.

**Note:** Browsers may have different size limits for cached data (some browsers have a 5MB limit per site).

# HTML5 Web Workers

A web worker is a JavaScript running in the background, without affecting the performance of the page.

## What is a Web Worker?

When executing scripts in an HTML page, the page becomes unresponsive until the script is finished.

A web worker is a JavaScript that runs in the background, independently of other scripts, without affecting the performance of the page. You can continue to do whatever you want: clicking, selecting things, etc., while the web worker runs in the background.

## Browser Support

The numbers in the table specify the first browser version that fully support Web Workers.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| API |  |  |  |  |  |
| Web Workers | 4.0 | 10.0 | 3.5 | 4.0 | 11.5 |

## HTML Web Workers Example

The example below creates a simple web worker that count numbers in the background:

### Example

Count numbers:

Start Worker Stop Worker

## Check Web Worker Support

Before creating a web worker, check whether the user's browser supports it:

if (typeof(Worker) !== "undefined") {  
    // Yes! Web worker support!  
    // *Some code.....*  
} else {  
    // Sorry! No Web Worker support..  
}

## Create a Web Worker File

Now, let's create our web worker in an external JavaScript.

Here, we create a script that counts. The script is stored in the "demo\_workers.js" file:

var i = 0;  
  
function timedCount() {  
    i = i + 1;  
    postMessage(i);  
    setTimeout("timedCount()",500);  
}  
  
timedCount();

The important part of the code above is the **postMessage()** method - which is used to post a message back to the HTML page.

**Note:** Normally web workers are not used for such simple scripts, but for more CPU intensive tasks.

## Create a Web Worker Object

Now that we have the web worker file, we need to call it from an HTML page.

The following lines checks if the worker already exists, if not - it creates a new web worker object and runs the code in "demo\_workers.js":

if (typeof(w) == "undefined") {  
    w = new Worker("demo\_workers.js");  
}

Then we can send and receive messages from the web worker.

Add an "onmessage" event listener to the web worker.

w.onmessage = function(event){  
    document.getElementById("result").innerHTML = event.data;  
};

When the web worker posts a message, the code within the event listener is executed. The data from the web worker is stored in event.data.

## Terminate a Web Worker

When a web worker object is created, it will continue to listen for messages (even after the external script is finished) until it is terminated.

To terminate a web worker, and free browser/computer resources, use the terminate() method:

w.terminate();

## Reuse the Web Worker

If you set the worker variable to undefined, after it has been terminated, you can reuse the code:

w = undefined;

## Full Web Worker Example Code

We have already seen the Worker code in the .js file. Below is the code for the HTML page:

### Example

<!DOCTYPE html>  
<html>  
<body>  
  
<p>Count numbers: <output id="result"></output></p>  
<button onclick="startWorker()">Start Worker</button>   
<button onclick="stopWorker()">Stop Worker</button>  
<br><br>  
  
<script>  
var w;  
  
function startWorker() {  
    if(typeof(Worker) !== "undefined") {  
        if(typeof(w) == "undefined") {  
            w = new Worker("demo\_workers.js");  
        }  
        w.onmessage = function(event) {  
            document.getElementById("result").innerHTML = event.data;  
        };  
    } else {  
        document.getElementById("result").innerHTML = "Sorry! No Web Worker support.";  
    }  
}  
  
function stopWorker() {   
    w.terminate();  
    w = undefined;  
}  
</script>  
  
</body>  
</html>

## Web Workers and the DOM

Since web workers are in external files, they do not have access to the following JavaScript objects:

* The window object
* The document object
* The parent object

# HTML5 Server-Sent Events

Server-Sent Events allow a web page to get updates from a server.

## Server-Sent Events - One Way Messaging

A server-sent event is when a web page automatically gets updates from a server.

This was also possible before, but the web page would have to ask if any updates were available. With server-sent events, the updates come automatically.

Examples: Facebook/Twitter updates, stock price updates, news feeds, sport results, etc.

**Browser Support**

The numbers in the table specify the first browser version that fully support server-sent events.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| API |  |  |  |  |  |
| SSE | 6.0 | Not supported | 6.0 | 5.0 | 11.5 |

## Receive Server-Sent Event Notifications

The EventSource object is used to receive server-sent event notifications:

### Example

var source = new EventSource("demo\_sse.php");  
source.onmessage = function(event) {  
    document.getElementById("result").innerHTML += event.data + "<br>";  
};

Example explained:

* Create a new EventSource object, and specify the URL of the page sending the updates (in this example "demo\_sse.php")
* Each time an update is received, the onmessage event occurs
* When an onmessage event occurs, put the received data into the element with id="result"

## Check Server-Sent Events Support

In the tryit example above there were some extra lines of code to check browser support for server-sent events:

if(typeof(EventSource) !== "undefined") {  
    // Yes! Server-sent events support!  
    // *Some code.....*  
} else {  
    // Sorry! No server-sent events support..  
}

## Server-Side Code Example

For the example above to work, you need a server capable of sending data updates (like PHP or ASP).

The server-side event stream syntax is simple. Set the "Content-Type" header to "text/event-stream". Now you can start sending event streams.

Code in PHP (demo\_sse.php):

<?php  
header('Content-Type: text/event-stream');  
header('Cache-Control: no-cache');  
  
$time = date('r');  
echo "data: The server time is: {$time}\n\n";  
flush();  
?>

Code in ASP (VB) (demo\_sse.asp):

<%  
Response.ContentType = "text/event-stream"  
Response.Expires = -1  
Response.Write("data: The server time is: " & now())  
Response.Flush()  
%>

Code explained:

* Set the "Content-Type" header to "text/event-stream"
* Specify that the page should not cache
* Output the data to send (**Always** start with "data: ")
* Flush the output data back to the web page

## The EventSource Object

In the examples above we used the onmessage event to get messages. But other events are also available:

|  |  |
| --- | --- |
| **Events** | **Description** |
| onopen | When a connection to the server is opened |
| onmessage | When a message is received |
| onerror | When an error occurs |

# HTML Examples

### HTML Basic

[HTML document](http://www.w3schools.com/html/tryit.asp?filename=tryhtml_basic_document)

<!DOCTYPE html>

<html>

<body>

<h1>My First Heading</h1>

<p>My first paragraph.</p>

</body>

</html>

# My First Heading

My first paragraph.

[HTML headings](http://www.w3schools.com/html/tryit.asp?filename=tryhtml_basic_headings)

<!DOCTYPE html>

<html>

<body>

<h1>This is heading 1</h1>

<h2>This is heading 2</h2>

<h3>This is heading 3</h3>

<h4>This is heading 4</h4>

<h5>This is heading 5</h5>

<h6>This is heading 6</h6>

</body>

</html>

# This is heading 1

## This is heading 2

### This is heading 3

#### This is heading 4

##### This is heading 5

###### This is heading 6

[HTML paragraphs](http://www.w3schools.com/html/tryit.asp?filename=tryhtml_basic_paragraphs)

<!DOCTYPE html>

<html>

<body>

<p>This is a paragraph.</p>

<p>This is a paragraph.</p>

<p>This is a paragraph.</p>

</body>

</html>

This is a paragraph.

This is a paragraph.

This is a paragraph.

[HTML links](http://www.w3schools.com/html/tryit.asp?filename=tryhtml_basic_link)

<!DOCTYPE html>

<html>

<body>

<a href="http://www.w3schools.com">This is a link</a>

</body>

</html>

[This is a link](http://www.w3schools.com/)

[HTML images](http://www.w3schools.com/html/tryit.asp?filename=tryhtml_basic_img)

<!DOCTYPE html>

<html>

<body>

<img src="w3schools.jpg" alt="W3Schools.com" width="104" height="142">

</body>

</html>



### HTML Attributes

[The title attribute](http://www.w3schools.com/html/tryit.asp?filename=tryhtml_attributes_title)

<!DOCTYPE html>

<html>

<body>

<h2>The title attribute</h2>

<p title="I'm a tooltip">

Mouse over this paragraph, to display the title attribute as a tooltip.

</p>

</body>

</html>

## The title attribute

Mouse over this paragraph, to display the title attribute as a tooltip.

[The href attribute](http://www.w3schools.com/html/tryit.asp?filename=tryhtml_attributes_link)

<!DOCTYPE html>

<html>

<body>

<a href="http://www.w3schools.com">This is a link</a>

</body>

</html>

[This is a link](http://www.w3schools.com/)

[The width and height attributes](http://www.w3schools.com/html/tryit.asp?filename=tryhtml_attributes_img)

<!DOCTYPE html>

<html>

<body>

<img src="w3schools.jpg" width="104" height="142">

</body>

</html>

  
[The alt attribute](http://www.w3schools.com/html/tryit.asp?filename=tryhtml_attributes_alt)

<!DOCTYPE html>

<html>

<body>

<img src="w3schools.jpg" alt="W3Schools.com" width="104" height="142">

</body>

</html>

  
[Attribute without quotes](http://www.w3schools.com/html/tryit.asp?filename=tryhtml_attributes_noquotes)

<!DOCTYPE html>

<html>

<body>

<a href=http://www.w3schools.com>This is a link</a>

</body>

</html>

[This is a link](http://www.w3schools.com/)

[Attribute without quotes does not work](http://www.w3schools.com/html/tryit.asp?filename=tryhtml_attributes_error)

<!DOCTYPE html>

<html>

<body>

<h1>About W3Schools</h1>

<p title=About W3Schools>

You cannot omit quotes around an attribute value

if the value contains spaces.

</p>

<p><b>

If you move the mouse over the paragraph above,

your browser will only display the first word from the title.

</b></p>

</body>

</html>

### HTML Headings

[HTML headings](http://www.w3schools.com/html/tryit.asp?filename=tryhtml_headings)

<!DOCTYPE html>

<html>

<body>

<h1>This is heading 1</h1>

<h2>This is heading 2</h2>

<h3>This is heading 3</h3>

<h4>This is heading 4</h4>

<h5>This is heading 5</h5>

<h6>This is heading 6</h6>

</body>

</html>

# This is heading 1

## This is heading 2

### This is heading 3

#### This is heading 4

##### This is heading 5

###### This is heading 6

[HTML horizontal rules](http://www.w3schools.com/html/tryit.asp?filename=tryhtml_headings_hr)

<!DOCTYPE html>

<html>

<body>

<h1>This is heading 1</h1>

<p>This is some text.</p>

<hr>

<h2>This is heading 2</h2>

<p>This is some other text.</p>

<hr>

<h2>This is heading 2</h2>

<p>This is some other text.</p>

</body>

</html>

# This is heading 1

This is some text.

## This is heading 2

This is some other text.

## This is heading 2

This is some other text.

[HTML head](http://www.w3schools.com/html/tryit.asp?filename=tryhtml_headings_head)

<!DOCTYPE html>

<html>

<head>

<title>My First HTML</title>

<meta charset="UTF-8">

</head>

<body>

<p>The HTML head element contains meta data.</p>

<p>Meta data is data about the HTML document.</p>

</body>

</html>

The HTML head element contains meta data.

Meta data is data about the HTML document.

### HTML Paragraphs

[HTML paragraphs](http://www.w3schools.com/html/tryit.asp?filename=tryhtml_paragraphs1)

<!DOCTYPE html>

<html>

<body>

<p>This is a paragraph.</p>

<p>This is a paragraph.</p>

<p>This is a paragraph.</p>

</body>

</html>

This is a paragraph.

This is a paragraph.

This is a paragraph.

[More HTML paragraphs](http://www.w3schools.com/html/tryit.asp?filename=tryhtml_paragraphs2)

<!DOCTYPE html>

<html>

<body>

<p>

This paragraph

contains a lot of lines

in the source code,

but the browser

ignores it.

</p>

<p>

This paragraph

contains a lot of spaces

in the source code,

but the browser

ignores it.

</p>

<p>

The number of lines in a paragraph depends on the size of the browser window. If you resize the browser window, the number of lines in this paragraph will change.

</p>

</body>

</html>

This paragraph contains a lot of lines in the source code, but the browser ignores it.

This paragraph contains a lot of spaces in the source code, but the browser ignores it.

The number of lines in a paragraph depends on the size of the browser window. If you resize the browser window, the number of lines in this paragraph will change.

[The use of line breaks in HTML](http://www.w3schools.com/html/tryit.asp?filename=tryhtml_paragraphs)

<!DOCTYPE html>

<html>

<body>

<p>This is<br>a paragraph<br>with line breaks</p>

</body>

</html>

This is  
a paragraph  
with line breaks

[Poem problems (some problems with HTML formatting)](http://www.w3schools.com/html/tryit.asp?filename=tryhtml_poem)

<!DOCTYPE html>

<html>

<body>

<p>In HTML, spaces and new lines are ignored:</p>

<p>

My Bonnie lies over the ocean.

My Bonnie lies over the sea.

My Bonnie lies over the ocean.

Oh, bring back my Bonnie to me.

</p>

</body>

</html>

In HTML, spaces and new lines are ignored:

My Bonnie lies over the ocean. My Bonnie lies over the sea. My Bonnie lies over the ocean. Oh, bring back my Bonnie to me.

[How to control the line breaks and spaces with the <pre> tag](http://www.w3schools.com/html/tryit.asp?filename=tryhtml_pre)

<!DOCTYPE html>

<html>

<body>

<p>The pre tag preserves both spaces and line breaks:</p>

<pre>

My Bonnie lies over the ocean.

My Bonnie lies over the sea.

My Bonnie lies over the ocean.

Oh, bring back my Bonnie to me.

</pre>

</body>

</html>

The pre tag preserves both spaces and line breaks:

My Bonnie lies over the ocean.

My Bonnie lies over the sea.

My Bonnie lies over the ocean.

Oh, bring back my Bonnie to me.

### HTML Styles

[HTML styles](http://www.w3schools.com/html/tryit.asp?filename=tryhtml_styles_intro)  
<!DOCTYPE html>

<html>

<body>

<p>I am normal</p>

<p style="color:red;">I am red</p>

<p style="color:blue;">I am blue</p>

<p style="font-size:36px;">I am big</p>

</body>

</html>

I am normal

I am red

I am blue

I am big

[HTML background color](http://www.w3schools.com/html/tryit.asp?filename=tryhtml_styles_background-color)  
<!DOCTYPE html>

<html>

<body style="background-color:powderblue;">

<h1>This is a heading</h1>

<p>This is a paragraph.</p>

</body>

</html>

# This is a heading

This is a paragraph.

[HTML text color](http://www.w3schools.com/html/tryit.asp?filename=tryhtml_styles_color)

<!DOCTYPE html>

<html>

<body>

<h1 style="color:blue;">This is a heading</h1>

<p style="color:red;">This is a paragraph.</p>

</body>

</html>

# This is a heading

This is a paragraph.

[HTML text font](http://www.w3schools.com/html/tryit.asp?filename=tryhtml_styles_font-family)

<!DOCTYPE html>

<html>

<body>

<h1 style="font-family:verdana;">This is a heading</h1>

<p style="font-family:courier;">This is a paragraph.</p>

</body>

</html>

# This is a heading

This is a paragraph.

[HTML text size](http://www.w3schools.com/html/tryit.asp?filename=tryhtml_styles_font-size)  
<!DOCTYPE html>

<html>

<body>

<h1 style="font-size:300%;">This is a heading</h1>

<p style="font-size:160%;">This is a paragraph.</p>

</body>

</html>

# This is a heading

This is a paragraph.

[HTML text alignment](http://www.w3schools.com/html/tryit.asp?filename=tryhtml_styles_text-align)

<!DOCTYPE html>

<html>

<body>

<h1 style="text-align:center;">Centered Heading</h1>

<p style="text-align:center;">Centered paragraph.</p>

</body>

</html>

# Centered Heading

Centered paragraph.

### HTML Text Formatting

[Bold formatting using the <b> element](http://www.w3schools.com/html/tryit.asp?filename=tryhtml_formatting_b)  
<!DOCTYPE html>

<html>

<body>

<p>This text is normal.</p>

<p><b>This text is bold.</b></p>

</body>

</html>

This text is normal.

**This text is bold.**

[Strong formatting using the <strong> element](http://www.w3schools.com/html/tryit.asp?filename=tryhtml_formatting_strong)  
<!DOCTYPE html>

<html>

<body>

<p>This text is normal.</p>

<p><strong>This text is strong.</strong></p>

</body>

</html>

This text is normal.

**This text is strong.**

[Italic formatting using the <i> element](http://www.w3schools.com/html/tryit.asp?filename=tryhtml_formatting_i)

[Emphasized formatting using the <em> element](http://www.w3schools.com/html/tryit.asp?filename=tryhtml_formatting_em)

[Small formatting using the <small> element](http://www.w3schools.com/html/tryit.asp?filename=tryhtml_formatting_small)

[Marked formatting using the <mark> element](http://www.w3schools.com/html/tryit.asp?filename=tryhtml_formatting_mark)

[Marked deleted using the <del> element](http://www.w3schools.com/html/tryit.asp?filename=tryhtml_formatting_del)

[Marked inserted using the <ins> element](http://www.w3schools.com/html/tryit.asp?filename=tryhtml_formatting_ins)

[Marked deleted and inserted using <del> and <ins>](http://www.w3schools.com/html/tryit.asp?filename=tryhtml_formatting_del_ins)

[Subscript formatting using the <sub> element](http://www.w3schools.com/html/tryit.asp?filename=tryhtml_formatting_sub)

[Superscript formatting using the <sup> element](http://www.w3schools.com/html/tryit.asp?filename=tryhtml_formatting_sup)

### HTML Quotations and Citations

[Formatting short quotations with the <q> element.](http://www.w3schools.com/html/tryit.asp?filename=tryhtml_formatting_q)  
[Formatting quoted sections with the <blockquote> element.](http://www.w3schools.com/html/tryit.asp?filename=tryhtml_formatting_blockquote)  
[Formatting document author/owner information with the <address> element](http://www.w3schools.com/html/tryit.asp?filename=tryhtml_formatting_address)  
[Formatting abbreviations and acronyms the <abbr> element](http://www.w3schools.com/html/tryit.asp?filename=tryhtml_formatting_abbr)  
[Formatting work title with the <cite> element](http://www.w3schools.com/html/tryit.asp?filename=tryhtml_formatting_cite)  
[Formatting text direction with the <bdo> element](http://www.w3schools.com/html/tryit.asp?filename=tryhtml_formatting_bdo)

### HTML Computercode Elements

[Keyboard input formatting using the <kbd> element](http://www.w3schools.com/html/tryit.asp?filename=tryhtml_formatting_kbd)  
[Computer output formatting using the <samp> element](http://www.w3schools.com/html/tryit.asp?filename=tryhtml_formatting_samp)  
[Programming code formatting using the <code> element](http://www.w3schools.com/html/tryit.asp?filename=tryhtml_formatting_code)  
[Programming code formatting preserving whitespace and line-breaks](http://www.w3schools.com/html/tryit.asp?filename=tryhtml_formatting_codepre)  
[Variable formatting using the <var> element](http://www.w3schools.com/html/tryit.asp?filename=tryhtml_formatting_var)

### HTML Comments

[Hidden comments](http://www.w3schools.com/html/tryit.asp?filename=tryhtml_comment)  
[Conditional comments](http://www.w3schools.com/html/tryit.asp?filename=tryhtml_ie_conditional)  
[Comments for debugging](http://www.w3schools.com/html/tryit.asp?filename=tryhtml_comment_out)

### HTML CSS

[HTML with inline CSS](http://www.w3schools.com/html/tryit.asp?filename=tryhtml_css_inline)  
[HTML with internal CSS](http://www.w3schools.com/html/tryit.asp?filename=tryhtml_css_internal)  
[HTML with external CSS](http://www.w3schools.com/html/tryit.asp?filename=tryhtml_css_external)  
[HTML with CSS fonts](http://www.w3schools.com/html/tryit.asp?filename=tryhtml_css_fonts)  
[HTML with CSS using the id attribute](http://www.w3schools.com/html/tryit.asp?filename=tryhtml_css_id)  
[HTML with CSS using the class attribute](http://www.w3schools.com/html/tryit.asp?filename=tryhtml_css_class)  
[HTML and CSS borders](http://www.w3schools.com/html/tryit.asp?filename=tryhtml_css_borders)  
[HTML and CSS padding](http://www.w3schools.com/html/tryit.asp?filename=tryhtml_css_padding)  
[HTML and CSS margin](http://www.w3schools.com/html/tryit.asp?filename=tryhtml_css_margin)  
[HTML and CSS full demo](http://www.w3schools.com/html/tryit.asp?filename=tryhtml_css_full)

### HTML Links

[Linking, using an absolute URL](http://www.w3schools.com/html/tryit.asp?filename=tryhtml_links_w3schools)  
[Linking, using a relative URL](http://www.w3schools.com/html/tryit.asp?filename=tryhtml_links)  
[Changing the color of links](http://www.w3schools.com/html/tryit.asp?filename=tryhtml_links_colors)  
[Removing the underline from links](http://www.w3schools.com/html/tryit.asp?filename=tryhtml_links_noline)  
[Changing the target of a link](http://www.w3schools.com/html/tryit.asp?filename=tryhtml_links_target)  
[An image as a link](http://www.w3schools.com/html/tryit.asp?filename=tryhtml_links_image)  
[Creating a bookmark link](http://www.w3schools.com/html/tryit.asp?filename=tryhtml_links_bookmark)  
[A link that breaks out of a frame](http://www.w3schools.com/html/tryit.asp?filename=tryhtml_links_target_top)  
[A mailto link](http://www.w3schools.com/html/tryit.asp?filename=tryhtml_links_mailto)  
[A mailto link with subject](http://www.w3schools.com/html/tryit.asp?filename=tryhtml_links_mailto_subject)

### HTML Images

[The Mountain](http://www.w3schools.com/html/tryit.asp?filename=tryhtml_images_mountain)  
[An image height and width using attributes](http://www.w3schools.com/html/tryit.asp?filename=tryhtml_images_attributes)  
[An image height and width using CSS](http://www.w3schools.com/html/tryit.asp?filename=tryhtml_images_size)  
[An image height and width using both](http://www.w3schools.com/html/tryit.asp?filename=tryhtml_images_style)  
[An image in another folder](http://www.w3schools.com/html/tryit.asp?filename=tryhtml_images_folder)  
[An image with a broken link](http://www.w3schools.com/html/tryit.asp?filename=tryhtml_images_wrong)  
[An image on another server](http://www.w3schools.com/html/tryit.asp?filename=tryhtml_images_w3schools)  
[Using an image as a link](http://www.w3schools.com/html/tryit.asp?filename=tryhtml_images_link)  
[A moving image](http://www.w3schools.com/html/tryit.asp?filename=tryhtml_images_hackman)  
[An image map with clickable regions](http://www.w3schools.com/html/tryit.asp?filename=tryhtml_images_map)  
[A floating image](http://www.w3schools.com/html/tryit.asp?filename=tryhtml_images_float)

### HTML Tables

[Basic HTML tables](http://www.w3schools.com/html/tryit.asp?filename=tryhtml_table_basic)  
[A table with borders](http://www.w3schools.com/html/tryit.asp?filename=tryhtml_table_border)  
[A table with collapsed borders](http://www.w3schools.com/html/tryit.asp?filename=tryhtml_table_collapse)  
[A table with cell padding](http://www.w3schools.com/html/tryit.asp?filename=tryhtml_table_cellpadding)  
[A table with headings](http://www.w3schools.com/html/tryit.asp?filename=tryhtml_table_headings)  
[A table with left-aligned headings](http://www.w3schools.com/html/tryit.asp?filename=tryhtml_table_headings_left)  
[Horizontal/Vertical table headings](http://www.w3schools.com/html/tryit.asp?filename=tryhtml_table_headers)  
[A table with a caption](http://www.w3schools.com/html/tryit.asp?filename=tryhtml_tables2)  
[Table cells that span more than one column](http://www.w3schools.com/html/tryit.asp?filename=tryhtml_table_colspan)  
[Table cells that span more than one row](http://www.w3schools.com/html/tryit.asp?filename=tryhtml_table_rowspan)  
[A table with cell spacing](http://www.w3schools.com/html/tryit.asp?filename=tryhtml_table_cellspacing)  
[A table with HTML tags inside](http://www.w3schools.com/html/tryit.asp?filename=tryhtml_table_elements)  
[Tables with different style using id I](http://www.w3schools.com/html/tryit.asp?filename=tryhtml_table_id1)  
[Tables with different style using id II](http://www.w3schools.com/html/tryit.asp?filename=tryhtml_table_id2)  
[Tables with different style using class I](http://www.w3schools.com/html/tryit.asp?filename=tryhtml_table_class1)  
[Tables with different style using class II](http://www.w3schools.com/html/tryit.asp?filename=tryhtml_table_class2)

### HTML Lists

[An unordered list (default)](http://www.w3schools.com/html/tryit.asp?filename=tryhtml_lists_unordered)  
[An unordered list with disc bullets](http://www.w3schools.com/html/tryit.asp?filename=tryhtml_lists_unordered_disc)  
[An unordered list with circle bullets](http://www.w3schools.com/html/tryit.asp?filename=tryhtml_lists_unordered_circle)  
[An unordered list with square bullets](http://www.w3schools.com/html/tryit.asp?filename=tryhtml_lists_unordered_square)  
[An unordered list without bullets](http://www.w3schools.com/html/tryit.asp?filename=tryhtml_lists_unordered_none)  
[An ordered list (default)](http://www.w3schools.com/html/tryit.asp?filename=tryhtml_lists_ordered)  
[An ordered list with numbers](http://www.w3schools.com/html/tryit.asp?filename=tryhtml_lists_ordered_numbers)  
[An ordered list with letters](http://www.w3schools.com/html/tryit.asp?filename=tryhtml_lists_ordered_ucase)  
[An ordered list with lowercase letters](http://www.w3schools.com/html/tryit.asp?filename=tryhtml_lists_ordered_lcase)  
[An ordered list with roman numbers](http://www.w3schools.com/html/tryit.asp?filename=tryhtml_lists_ordered_roman_ucase)  
[An ordered list with lowercase roman numbers](http://www.w3schools.com/html/tryit.asp?filename=tryhtml_lists_ordered_roman_lcase)  
[A description list](http://www.w3schools.com/html/tryit.asp?filename=tryhtml_lists_description)  
[A nested list I](http://www.w3schools.com/html/tryit.asp?filename=tryhtml_lists_nested)  
[A nested list II](http://www.w3schools.com/html/tryit.asp?filename=tryhtml_lists_nested2)  
[A horizontal list](http://www.w3schools.com/html/tryit.asp?filename=tryhtml_lists_horizontal)  
[A horizontal list menu](http://www.w3schools.com/html/tryit.asp?filename=tryhtml_lists_menu)

### HTML Block and inline elements

[Styling <div> elements](http://www.w3schools.com/html/tryit.asp?filename=tryhtml_div_capitals)  
[Styling <span> elements](http://www.w3schools.com/html/tryit.asp?filename=tryhtml_span_red)

### HTML Classes

[Classing <div> elements I](http://www.w3schools.com/html/tryit.asp?filename=tryhtml_classes_london)  
[Classing <div> elements II](http://www.w3schools.com/html/tryit.asp?filename=tryhtml_classes_capitals)  
[Classing <span> elements](http://www.w3schools.com/html/tryit.asp?filename=tryhtml_classes_span)

### HTML Layout

[Layout using float](http://www.w3schools.com/html/tryit.asp?filename=tryhtml_layout_float)  
[Layout using flexbox](http://www.w3schools.com/html/tryit.asp?filename=tryhtml_layout_flexbox)  
[Layout using flexbox 2](http://www.w3schools.com/html/tryit.asp?filename=tryhtml_layout_flexbox2)  
[Layout using flexbox 3](http://www.w3schools.com/html/tryit.asp?filename=tryhtml_layout_flexbox3)

### HTML IFrame

[Inline frame (a frame inside an HTML page)](http://www.w3schools.com/html/tryit.asp?filename=tryhtml_iframe)

### HTML head Elements

[A valid HTML document with no <html> <body, and <head>](http://www.w3schools.com/html/tryit.asp?filename=tryhtml_head_none)  
[A valid HTML document with no <head> element](http://www.w3schools.com/html/tryit.asp?filename=tryhtml_head_no_head)  
[The <title> element defines the document title](http://www.w3schools.com/html/tryit.asp?filename=tryhtml_head_title)  
[The <style> element contains style information](http://www.w3schools.com/html/tryit.asp?filename=tryhtml_head_style)  
[The <link> element defines a relationship to an external resource](http://www.w3schools.com/html/tryit.asp?filename=tryhtml_head_link)  
[The <meta> element defines special meta information](http://www.w3schools.com/html/tryit.asp?filename=tryhtml_head_meta)  
[The <script> element defines client-side JavaScripts](http://www.w3schools.com/html/tryit.asp?filename=tryhtml_head_script)  
[The <base> element defines the base URL for all URLs](http://www.w3schools.com/html/tryit.asp?filename=tryhtml_head_base)

### HTML Scripts

[Insert a script](http://www.w3schools.com/html/tryit.asp?filename=tryhtml_script)  
[Use of the <noscript> tag](http://www.w3schools.com/html/tryit.asp?filename=tryhtml_noscript)

### HTML Forms

[Form with text input](http://www.w3schools.com/html/tryit.asp?filename=tryhtml_form_text)  
[Form with radio button input](http://www.w3schools.com/html/tryit.asp?filename=tryhtml_form_radio)  
[Form with text fields and a submit button](http://www.w3schools.com/html/tryit.asp?filename=tryhtml_form_submit)  
[Form with a text fields without a name attribute](http://www.w3schools.com/html/tryit.asp?filename=tryhtml_form_submit_id)  
[Grouping Form Data](http://www.w3schools.com/html/tryit.asp?filename=tryhtml_form_legend)  
[Send e-mail from a form](http://www.w3schools.com/html/tryit.asp?filename=tryhtml_form_mail)

### HTML Form Elements

[A simple drop-down list](http://www.w3schools.com/html/tryit.asp?filename=tryhtml_elem_select)  
[A drop-down list with a pre-selected value](http://www.w3schools.com/html/tryit.asp?filename=tryhtml_elem_select_pre)  
[A textarea (a multi-line text input field)](http://www.w3schools.com/html/tryit.asp?filename=tryhtml_elem_textarea)  
[An input button](http://www.w3schools.com/html/tryit.asp?filename=tryhtml_elem_button)  
[Using the <datalist> Element](http://www.w3schools.com/html/tryit.asp?filename=tryhtml_elem_datalist)  
[Using the <keygen> Element](http://www.w3schools.com/html/tryit.asp?filename=tryhtml_elem_keygen)  
[Using the <output> Element](http://www.w3schools.com/html/tryit.asp?filename=tryhtml_elem_output)

### HTML Input Types

[Input type text](http://www.w3schools.com/html/tryit.asp?filename=tryhtml_input_text)  
[Input type password](http://www.w3schools.com/html/tryit.asp?filename=tryhtml_input_password)  
[Input type radio](http://www.w3schools.com/html/tryit.asp?filename=tryhtml_input_radio)  
[Input type checkbox](http://www.w3schools.com/html/tryit.asp?filename=tryhtml_input_checkbox)  
[Input type button](http://www.w3schools.com/html/tryit.asp?filename=tryhtml_input_button)  
[Input type number - with restrictions](http://www.w3schools.com/html/tryit.asp?filename=tryhtml_input_number)  
[Input type number - with steps](http://www.w3schools.com/html/tryit.asp?filename=tryhtml_input_number_step)  
[Input type date - with date picker](http://www.w3schools.com/html/tryit.asp?filename=tryhtml_input_date)  
[Input type date - with restrictions](http://www.w3schools.com/html/tryit.asp?filename=tryhtml_input_date_max_min)  
[Input type color - with color picker](http://www.w3schools.com/html/tryit.asp?filename=tryhtml_input_color)  
[Input type range](http://www.w3schools.com/html/tryit.asp?filename=tryhtml_input_range)  
[Input type month](http://www.w3schools.com/html/tryit.asp?filename=tryhtml_input_month)  
[Input type week](http://www.w3schools.com/html/tryit.asp?filename=tryhtml_input_week)  
[Input type time](http://www.w3schools.com/html/tryit.asp?filename=tryhtml_input_time)  
[Input type datetime](http://www.w3schools.com/html/tryit.asp?filename=tryhtml_input_datetime)  
[Input type datetime-local](http://www.w3schools.com/html/tryit.asp?filename=tryhtml_input_datetime-local)  
[Input type email](http://www.w3schools.com/html/tryit.asp?filename=tryhtml_input_email)  
[Input type search](http://www.w3schools.com/html/tryit.asp?filename=tryhtml_input_search)  
[Input type tel](http://www.w3schools.com/html/tryit.asp?filename=tryhtml_input_tel)  
[Input type url](http://www.w3schools.com/html/tryit.asp?filename=tryhtml_input_url)

### HTML Input Attributes

[The autocomplete attribute](http://www.w3schools.com/html/tryit.asp?filename=tryhtml5_input_autocomplete)  
[The novalidate attribute](http://www.w3schools.com/html/tryit.asp?filename=tryhtml5_form_novalidate)  
[The autofocus\_attribute](http://www.w3schools.com/html/tryit.asp?filename=tryhtml5_input_autofocus)  
[The form attribute](http://www.w3schools.com/html/tryit.asp?filename=tryhtml5_input_form)  
[The formaction attribute](http://www.w3schools.com/html/tryit.asp?filename=tryhtml5_input_formaction)  
[The formenctype attribute](http://www.w3schools.com/html/tryit.asp?filename=tryhtml5_input_formenctype)  
[The formmethod attribute](http://www.w3schools.com/html/tryit.asp?filename=tryhtml5_input_formmethod)  
[The formnovalidate attribute](http://www.w3schools.com/html/tryit.asp?filename=tryhtml5_input_formnovalidate)  
[The formtarget attribute](http://www.w3schools.com/html/tryit.asp?filename=tryhtml5_input_formtarget)  
[The height and width attributes](http://www.w3schools.com/html/tryit.asp?filename=tryhtml5_input_height_width)  
[The list attribute](http://www.w3schools.com/html/tryit.asp?filename=tryhtml5_input_list)  
[The min and max attributes](http://www.w3schools.com/html/tryit.asp?filename=tryhtml5_input_max_min)  
[The multiple attribute](http://www.w3schools.com/html/tryit.asp?filename=tryhtml5_input_multiple)  
[The pattern attribute](http://www.w3schools.com/html/tryit.asp?filename=tryhtml5_input_pattern)  
[The placeholder attribute](http://www.w3schools.com/html/tryit.asp?filename=tryhtml5_input_placeholder)  
[The required attribute](http://www.w3schools.com/html/tryit.asp?filename=tryhtml5_input_required)  
[The step attribute](http://www.w3schools.com/html/tryit.asp?filename=tryhtml5_input_step)

### HTML5 Canvas

[Draw on the canvas with JavaScript](http://www.w3schools.com/html/tryit.asp?filename=tryhtml5_canvas_first)  
[Draw a line with lineTo()](http://www.w3schools.com/html/tryit.asp?filename=tryhtml5_canvas_tut_path)  
[Draw a circle with arc()](http://www.w3schools.com/html/tryit.asp?filename=tryhtml5_canvas_tut_path2)  
[Draw a text with fillText()](http://www.w3schools.com/html/tryit.asp?filename=tryhtml5_canvas_tut_text)  
[Draw a text with strokeText()](http://www.w3schools.com/html/tryit.asp?filename=tryhtml5_canvas_tut_text2)  
[Draw a linear gradient](http://www.w3schools.com/html/tryit.asp?filename=tryhtml5_canvas_tut_grad)  
[Draw a circular gradient](http://www.w3schools.com/html/tryit.asp?filename=tryhtml5_canvas_tut_grad2)  
[Draw an image with drawImage()](http://www.w3schools.com/html/tryit.asp?filename=tryhtml5_canvas_tut_img)

### HTML5 SVG

[SVG Circle](http://www.w3schools.com/html/tryit.asp?filename=tryhtml_svg_circle)  
[SVG Rectangle](http://www.w3schools.com/html/tryit.asp?filename=tryhtml_svg_rect)  
[SVG Rounded Rectangle](http://www.w3schools.com/html/tryit.asp?filename=tryhtml_svg_rect_round)  
[SVG Star](http://www.w3schools.com/html/tryit.asp?filename=tryhtml_svg_star)  
[SVG Logo](http://www.w3schools.com/html/tryit.asp?filename=tryhtml_svg_logo)

### HTML5 Media

[Play Bunny](http://www.w3schools.com/html/tryit.asp?filename=tryhtml5_video)  
[Play bear video with controls](http://www.w3schools.com/html/tryit.asp?filename=tryhtml5_video_all)  
[Play bear video with autoplay](http://www.w3schools.com/html/tryit.asp?filename=tryhtml5_video_autoplay)  
[Play Horse sound with controls](http://www.w3schools.com/html/tryit.asp?filename=tryhtml5_audio_all)

### HTML5 Geolocation

[Get geolocation coordinates](http://www.w3schools.com/html/tryit.asp?filename=tryhtml5_geolocation)  
[Handle geolocation errors](http://www.w3schools.com/html/tryit.asp?filename=tryhtml5_geolocation_error)  
[Get geolocation with a map](http://www.w3schools.com/html/tryit.asp?filename=tryhtml5_geolocation_map)  
[Get geolocation with Google map script](http://www.w3schools.com/html/tryit.asp?filename=tryhtml5_geolocation_map_script)  
[Get geolocation and watch the position](http://www.w3schools.com/html/tryit.asp?filename=tryhtml5_geolocation_watchposition)

### HTML5 Local Storage

[Store a name permanently](http://www.w3schools.com/html/tryit.asp?filename=tryhtml5_webstorage_local)  
[Store a counter permanently](http://www.w3schools.com/html/tryit.asp?filename=tryhtml5_webstorage_local_clickcount)  
[Store a counter for one session](http://www.w3schools.com/html/tryit.asp?filename=tryhtml5_webstorage_session)

### More HTML5 Examples

[HTML5 drag and drop](http://www.w3schools.com/html/tryit.asp?filename=tryhtml5_draganddrop)  
[HTML5 application cache](http://www.w3schools.com/html/tryit.asp?filename=tryhtml5_html_manifest)  
[HTML5 web workers](http://www.w3schools.com/html/tryit.asp?filename=tryhtml5_webworker)  
[HTML5 server sent events](http://www.w3schools.com/html/tryit.asp?filename=tryhtml5_sse)

# HTML Element Reference

## HTML Tags Ordered Alphabetically

= New in HTML5.

|  |  |
| --- | --- |
| **Tag** | **Description** |
| [<!--...-->](http://www.w3schools.com/tags/tag_comment.asp) | Defines a comment |
| [<!DOCTYPE>](http://www.w3schools.com/tags/tag_doctype.asp) | Defines the document type |
| [<a>](http://www.w3schools.com/tags/tag_a.asp) | Defines a hyperlink |
| [<abbr>](http://www.w3schools.com/tags/tag_abbr.asp) | Defines an abbreviation or an acronym |
| [<acronym>](http://www.w3schools.com/tags/tag_acronym.asp) | Not supported in HTML5. Use <abbr> instead. Defines an acronym |
| [<address>](http://www.w3schools.com/tags/tag_address.asp) | Defines contact information for the author/owner of a document |
| [<applet>](http://www.w3schools.com/tags/tag_applet.asp) | Not supported in HTML5. Use <embed> or <object> instead. Defines an embedded applet |
| [<area>](http://www.w3schools.com/tags/tag_area.asp) | Defines an area inside an image-map |
| [<article>](http://www.w3schools.com/tags/tag_article.asp) | Defines an article |
| [<aside>](http://www.w3schools.com/tags/tag_aside.asp) | Defines content aside from the page content |
| [<audio>](http://www.w3schools.com/tags/tag_audio.asp) | Defines sound content |
| [<b>](http://www.w3schools.com/tags/tag_b.asp) | Defines bold text |
| [<base>](http://www.w3schools.com/tags/tag_base.asp) | Specifies the base URL/target for all relative URLs in a document |
| [<basefont>](http://www.w3schools.com/tags/tag_basefont.asp) | Not supported in HTML5. Use CSS instead. Specifies a default color, size, and font for all text in a document |
| [<bdi>](http://www.w3schools.com/tags/tag_bdi.asp) | Isolates a part of text that might be formatted in a different direction from other text outside it |
| [<bdo>](http://www.w3schools.com/tags/tag_bdo.asp) | Overrides the current text direction |
| [<big>](http://www.w3schools.com/tags/tag_big.asp) | Not supported in HTML5. Use CSS instead. Defines big text |
| [<blockquote>](http://www.w3schools.com/tags/tag_blockquote.asp) | Defines a section that is quoted from another source |
| [<body>](http://www.w3schools.com/tags/tag_body.asp) | Defines the document's body |
| [<br>](http://www.w3schools.com/tags/tag_br.asp) | Defines a single line break |
| [<button>](http://www.w3schools.com/tags/tag_button.asp) | Defines a clickable button |
| [<canvas>](http://www.w3schools.com/tags/tag_canvas.asp) | Used to draw graphics, on the fly, via scripting (usually JavaScript) |
| [<caption>](http://www.w3schools.com/tags/tag_caption.asp) | Defines a table caption |
| [<center>](http://www.w3schools.com/tags/tag_center.asp) | Not supported in HTML5. Use CSS instead. Defines centered text |
| [<cite>](http://www.w3schools.com/tags/tag_cite.asp) | Defines the title of a work |
| [<code>](http://www.w3schools.com/tags/tag_code.asp) | Defines a piece of computer code |
| [<col>](http://www.w3schools.com/tags/tag_col.asp) | Specifies column properties for each column within a <colgroup> element |
| [<colgroup>](http://www.w3schools.com/tags/tag_colgroup.asp) | Specifies a group of one or more columns in a table for formatting |
| [<datalist>](http://www.w3schools.com/tags/tag_datalist.asp) | Specifies a list of pre-defined options for input controls |
| [<dd>](http://www.w3schools.com/tags/tag_dd.asp) | Defines a description/value of a term in a description list |
| [<del>](http://www.w3schools.com/tags/tag_del.asp) | Defines text that has been deleted from a document |
| [<details>](http://www.w3schools.com/tags/tag_details.asp) | Defines additional details that the user can view or hide |
| [<dfn>](http://www.w3schools.com/tags/tag_dfn.asp) | Represents the defining instance of a term |
| [<dialog>](http://www.w3schools.com/tags/tag_dialog.asp) | Defines a dialog box or window |
| [<dir>](http://www.w3schools.com/tags/tag_dir.asp) | Not supported in HTML5. Use <ul> instead. Defines a directory list |
| [<div>](http://www.w3schools.com/tags/tag_div.asp) | Defines a section in a document |
| [<dl>](http://www.w3schools.com/tags/tag_dl.asp) | Defines a description list |
| [<dt>](http://www.w3schools.com/tags/tag_dt.asp) | Defines a term/name in a description list |
| [<em>](http://www.w3schools.com/tags/tag_em.asp) | Defines emphasized text |
| [<embed>](http://www.w3schools.com/tags/tag_embed.asp) | Defines a container for an external (non-HTML) application |
| [<fieldset>](http://www.w3schools.com/tags/tag_fieldset.asp) | Groups related elements in a form |
| [<figcaption>](http://www.w3schools.com/tags/tag_figcaption.asp) | Defines a caption for a <figure> element |
| [<figure>](http://www.w3schools.com/tags/tag_figure.asp) | Specifies self-contained content |
| [<font>](http://www.w3schools.com/tags/tag_font.asp) | Not supported in HTML5. Use CSS instead. Defines font, color, and size for text |
| [<footer>](http://www.w3schools.com/tags/tag_footer.asp) | Defines a footer for a document or section |
| [<form>](http://www.w3schools.com/tags/tag_form.asp) | Defines an HTML form for user input |
| [<frame>](http://www.w3schools.com/tags/tag_frame.asp) | Not supported in HTML5. Defines a window (a frame) in a frameset |
| [<frameset>](http://www.w3schools.com/tags/tag_frameset.asp) | Not supported in HTML5. Defines a set of frames |
| [<h1> to <h6>](http://www.w3schools.com/tags/tag_hn.asp) | Defines HTML headings |
| [<head>](http://www.w3schools.com/tags/tag_head.asp) | Defines information about the document |
| [<header>](http://www.w3schools.com/tags/tag_header.asp) | Defines a header for a document or section |
| [<hr>](http://www.w3schools.com/tags/tag_hr.asp) | Defines a thematic change in the content |
| [<html>](http://www.w3schools.com/tags/tag_html.asp) | Defines the root of an HTML document |
| [<i>](http://www.w3schools.com/tags/tag_i.asp) | Defines a part of text in an alternate voice or mood |
| [<iframe>](http://www.w3schools.com/tags/tag_iframe.asp) | Defines an inline frame |
| [<img>](http://www.w3schools.com/tags/tag_img.asp) | Defines an image |
| [<input>](http://www.w3schools.com/tags/tag_input.asp) | Defines an input control |
| [<ins>](http://www.w3schools.com/tags/tag_ins.asp) | Defines a text that has been inserted into a document |
| [<kbd>](http://www.w3schools.com/tags/tag_kbd.asp) | Defines keyboard input |
| [<keygen>](http://www.w3schools.com/tags/tag_keygen.asp) | Defines a key-pair generator field (for forms) |
| [<label>](http://www.w3schools.com/tags/tag_label.asp) | Defines a label for an <input> element |
| [<legend>](http://www.w3schools.com/tags/tag_legend.asp) | Defines a caption for a <fieldset> element |
| [<li>](http://www.w3schools.com/tags/tag_li.asp) | Defines a list item |
| [<link>](http://www.w3schools.com/tags/tag_link.asp) | Defines the relationship between a document and an external resource (most used to link to style sheets) |
| [<main>](http://www.w3schools.com/tags/tag_main.asp) | Specifies the main content of a document |
| [<map>](http://www.w3schools.com/tags/tag_map.asp) | Defines a client-side image-map |
| [<mark>](http://www.w3schools.com/tags/tag_mark.asp) | Defines marked/highlighted text |
| [<menu>](http://www.w3schools.com/tags/tag_menu.asp) | Defines a list/menu of commands |
| [<menuitem>](http://www.w3schools.com/tags/tag_menuitem.asp) | Defines a command/menu item that the user can invoke from a popup menu |
| [<meta>](http://www.w3schools.com/tags/tag_meta.asp) | Defines metadata about an HTML document |
| [<meter>](http://www.w3schools.com/tags/tag_meter.asp) | Defines a scalar measurement within a known range (a gauge) |
| [<nav>](http://www.w3schools.com/tags/tag_nav.asp) | Defines navigation links |
| [<noframes>](http://www.w3schools.com/tags/tag_noframes.asp) | Not supported in HTML5. Defines an alternate content for users that do not support frames |
| [<noscript>](http://www.w3schools.com/tags/tag_noscript.asp) | Defines an alternate content for users that do not support client-side scripts |
| [<object>](http://www.w3schools.com/tags/tag_object.asp) | Defines an embedded object |
| [<ol>](http://www.w3schools.com/tags/tag_ol.asp) | Defines an ordered list |
| [<optgroup>](http://www.w3schools.com/tags/tag_optgroup.asp) | Defines a group of related options in a drop-down list |
| [<option>](http://www.w3schools.com/tags/tag_option.asp) | Defines an option in a drop-down list |
| [<output>](http://www.w3schools.com/tags/tag_output.asp) | Defines the result of a calculation |
| [<p>](http://www.w3schools.com/tags/tag_p.asp) | Defines a paragraph |
| [<param>](http://www.w3schools.com/tags/tag_param.asp) | Defines a parameter for an object |
| [<pre>](http://www.w3schools.com/tags/tag_pre.asp) | Defines preformatted text |
| [<progress>](http://www.w3schools.com/tags/tag_progress.asp) | Represents the progress of a task |
| [<q>](http://www.w3schools.com/tags/tag_q.asp) | Defines a short quotation |
| [<rp>](http://www.w3schools.com/tags/tag_rp.asp) | Defines what to show in browsers that do not support ruby annotations |
| [<rt>](http://www.w3schools.com/tags/tag_rt.asp) | Defines an explanation/pronunciation of characters (for East Asian typography) |
| [<ruby>](http://www.w3schools.com/tags/tag_ruby.asp) | Defines a ruby annotation (for East Asian typography) |
| [<s>](http://www.w3schools.com/tags/tag_s.asp) | Defines text that is no longer correct |
| [<samp>](http://www.w3schools.com/tags/tag_samp.asp) | Defines sample output from a computer program |
| [<script>](http://www.w3schools.com/tags/tag_script.asp) | Defines a client-side script |
| [<section>](http://www.w3schools.com/tags/tag_section.asp) | Defines a section in a document |
| [<select>](http://www.w3schools.com/tags/tag_select.asp) | Defines a drop-down list |
| [<small>](http://www.w3schools.com/tags/tag_small.asp) | Defines smaller text |
| [<source>](http://www.w3schools.com/tags/tag_source.asp) | Defines multiple media resources for media elements (<video> and <audio>) |
| [<span>](http://www.w3schools.com/tags/tag_span.asp) | Defines a section in a document |
| [<strike>](http://www.w3schools.com/tags/tag_strike.asp) | Not supported in HTML5. Use <del> or <s> instead. Defines strikethrough text |
| [<strong>](http://www.w3schools.com/tags/tag_strong.asp) | Defines important text |
| [<style>](http://www.w3schools.com/tags/tag_style.asp) | Defines style information for a document |
| [<sub>](http://www.w3schools.com/tags/tag_sub.asp) | Defines subscripted text |
| [<summary>](http://www.w3schools.com/tags/tag_summary.asp) | Defines a visible heading for a <details> element |
| [<sup>](http://www.w3schools.com/tags/tag_sup.asp) | Defines superscripted text |
| [<table>](http://www.w3schools.com/tags/tag_table.asp) | Defines a table |
| [<tbody>](http://www.w3schools.com/tags/tag_tbody.asp) | Groups the body content in a table |
| [<td>](http://www.w3schools.com/tags/tag_td.asp) | Defines a cell in a table |
| [<textarea>](http://www.w3schools.com/tags/tag_textarea.asp) | Defines a multiline input control (text area) |
| [<tfoot>](http://www.w3schools.com/tags/tag_tfoot.asp) | Groups the footer content in a table |
| [<th>](http://www.w3schools.com/tags/tag_th.asp) | Defines a header cell in a table |
| [<thead>](http://www.w3schools.com/tags/tag_thead.asp) | Groups the header content in a table |
| [<time>](http://www.w3schools.com/tags/tag_time.asp) | Defines a date/time |
| [<title>](http://www.w3schools.com/tags/tag_title.asp) | Defines a title for the document |
| [<tr>](http://www.w3schools.com/tags/tag_tr.asp) | Defines a row in a table |
| [<track>](http://www.w3schools.com/tags/tag_track.asp) | Defines text tracks for media elements (<video> and <audio>) |
| [<tt>](http://www.w3schools.com/tags/tag_tt.asp) | Not supported in HTML5. Use CSS instead. Defines teletype text |
| [<u>](http://www.w3schools.com/tags/tag_u.asp) | Defines text that should be stylistically different from normal text |
| [<ul>](http://www.w3schools.com/tags/tag_ul.asp) | Defines an unordered list |
| [<var>](http://www.w3schools.com/tags/tag_var.asp) | Defines a variable |
| [<video>](http://www.w3schools.com/tags/tag_video.asp) | Defines a video or movie |
| [<wbr>](http://www.w3schools.com/tags/tag_wbr.asp) | Defines a possible line-break |

# HTML Element Reference

## HTML Tags Ordered by Category

= New in HTML5.

## Basic HTML

|  |  |
| --- | --- |
| **Tag** | **Description** |
| [<!DOCTYPE>](http://www.w3schools.com/tags/tag_doctype.asp) | Defines the document type |
| [<html>](http://www.w3schools.com/tags/tag_html.asp) | Defines an HTML document |
| [<title>](http://www.w3schools.com/tags/tag_title.asp) | Defines a title for the document |
| [<body>](http://www.w3schools.com/tags/tag_body.asp) | Defines the document's body |
| [<h1> to <h6>](http://www.w3schools.com/tags/tag_hn.asp) | Defines HTML headings |
| [<p>](http://www.w3schools.com/tags/tag_p.asp) | Defines a paragraph |
| [<br>](http://www.w3schools.com/tags/tag_br.asp) | Inserts a single line break |
| [<hr>](http://www.w3schools.com/tags/tag_hr.asp) | Defines a thematic change in the content |
| [<!--...-->](http://www.w3schools.com/tags/tag_comment.asp) | Defines a comment |

## Formatting

|  |  |
| --- | --- |
| **Tag** | **Description** |
| [<acronym>](http://www.w3schools.com/tags/tag_acronym.asp) | Not supported in HTML5. Use <abbr> instead. Defines an acronym |
| [<abbr>](http://www.w3schools.com/tags/tag_abbr.asp) | Defines an abbreviation or an acronym |
| [<address>](http://www.w3schools.com/tags/tag_address.asp) | Defines contact information for the author/owner of a document/article |
| [<b>](http://www.w3schools.com/tags/tag_b.asp) | Defines bold text |
| [<bdi>](http://www.w3schools.com/tags/tag_bdi.asp) | Isolates a part of text that might be formatted in a different direction from other text outside it |
| [<bdo>](http://www.w3schools.com/tags/tag_bdo.asp) | Overrides the current text direction |
| [<big>](http://www.w3schools.com/tags/tag_big.asp) | Not supported in HTML5. Use CSS instead. Defines big text |
| [<blockquote>](http://www.w3schools.com/tags/tag_blockquote.asp) | Defines a section that is quoted from another source |
| [<center>](http://www.w3schools.com/tags/tag_center.asp) | Not supported in HTML5. Use CSS instead. Defines centered text |
| [<cite>](http://www.w3schools.com/tags/tag_cite.asp) | Defines the title of a work |
| [<code>](http://www.w3schools.com/tags/tag_code.asp) | Defines a piece of computer code |
| [<del>](http://www.w3schools.com/tags/tag_del.asp) | Defines text that has been deleted from a document |
| [<dfn>](http://www.w3schools.com/tags/tag_dfn.asp) | Represents the defining instance of a term |
| [<em>](http://www.w3schools.com/tags/tag_em.asp) | Defines emphasized text |
| [<font>](http://www.w3schools.com/tags/tag_font.asp) | Not supported in HTML5. Use CSS instead. Defines font, color, and size for text |
| [<i>](http://www.w3schools.com/tags/tag_i.asp) | Defines a part of text in an alternate voice or mood |
| [<ins>](http://www.w3schools.com/tags/tag_ins.asp) | Defines a text that has been inserted into a document |
| [<kbd>](http://www.w3schools.com/tags/tag_kbd.asp) | Defines keyboard input |
| [<mark>](http://www.w3schools.com/tags/tag_mark.asp) | Defines marked/highlighted text |
| [<meter>](http://www.w3schools.com/tags/tag_meter.asp) | Defines a scalar measurement within a known range (a gauge) |
| [<pre>](http://www.w3schools.com/tags/tag_pre.asp) | Defines preformatted text |
| [<progress>](http://www.w3schools.com/tags/tag_progress.asp) | Represents the progress of a task |
| [<q>](http://www.w3schools.com/tags/tag_q.asp) | Defines a short quotation |
| [<rp>](http://www.w3schools.com/tags/tag_rp.asp) | Defines what to show in browsers that do not support ruby annotations |
| [<rt>](http://www.w3schools.com/tags/tag_rt.asp) | Defines an explanation/pronunciation of characters (for East Asian typography) |
| [<ruby>](http://www.w3schools.com/tags/tag_ruby.asp) | Defines a ruby annotation (for East Asian typography) |
| [<s>](http://www.w3schools.com/tags/tag_s.asp) | Defines text that is no longer correct |
| [<samp>](http://www.w3schools.com/tags/tag_samp.asp) | Defines sample output from a computer program |
| [<small>](http://www.w3schools.com/tags/tag_small.asp) | Defines smaller text |
| [<strike>](http://www.w3schools.com/tags/tag_strike.asp) | Not supported in HTML5. Use <del> or <s> instead. Defines strikethrough text |
| [<strong>](http://www.w3schools.com/tags/tag_strong.asp) | Defines important text |
| [<sub>](http://www.w3schools.com/tags/tag_sub.asp) | Defines subscripted text |
| [<sup>](http://www.w3schools.com/tags/tag_sup.asp) | Defines superscripted text |
| [<time>](http://www.w3schools.com/tags/tag_time.asp) | Defines a date/time |
| [<tt>](http://www.w3schools.com/tags/tag_tt.asp) | Not supported in HTML5. Use CSS instead. Defines teletype text |
| [<u>](http://www.w3schools.com/tags/tag_u.asp) | Defines text that should be stylistically different from normal text |
| [<var>](http://www.w3schools.com/tags/tag_var.asp) | Defines a variable |
| [<wbr>](http://www.w3schools.com/tags/tag_wbr.asp) | Defines a possible line-break |

## Forms and Input

|  |  |
| --- | --- |
| **Tag** | **Description** |
| [<form>](http://www.w3schools.com/tags/tag_form.asp) | Defines an HTML form for user input |
| [<input>](http://www.w3schools.com/tags/tag_input.asp) | Defines an input control |
| [<textarea>](http://www.w3schools.com/tags/tag_textarea.asp) | Defines a multiline input control (text area) |
| [<button>](http://www.w3schools.com/tags/tag_button.asp) | Defines a clickable button |
| [<select>](http://www.w3schools.com/tags/tag_select.asp) | Defines a drop-down list |
| [<optgroup>](http://www.w3schools.com/tags/tag_optgroup.asp) | Defines a group of related options in a drop-down list |
| [<option>](http://www.w3schools.com/tags/tag_option.asp) | Defines an option in a drop-down list |
| [<label>](http://www.w3schools.com/tags/tag_label.asp) | Defines a label for an <input> element |
| [<fieldset>](http://www.w3schools.com/tags/tag_fieldset.asp) | Groups related elements in a form |
| [<legend>](http://www.w3schools.com/tags/tag_legend.asp) | Defines a caption for a <fieldset> element |
| [<datalist>](http://www.w3schools.com/tags/tag_datalist.asp) | Specifies a list of pre-defined options for input controls |
| [<keygen>](http://www.w3schools.com/tags/tag_keygen.asp) | Defines a key-pair generator field (for forms) |
| [<output>](http://www.w3schools.com/tags/tag_output.asp) | Defines the result of a calculation |

## Frames

|  |  |
| --- | --- |
| **Tag** | **Description** |
| [<frame>](http://www.w3schools.com/tags/tag_frame.asp) | Not supported in HTML5. Defines a window (a frame) in a frameset |
| [<frameset>](http://www.w3schools.com/tags/tag_frameset.asp) | Not supported in HTML5. Defines a set of frames |
| [<noframes>](http://www.w3schools.com/tags/tag_noframes.asp) | Not supported in HTML5. Defines an alternate content for users that do not support frames |
| [<iframe>](http://www.w3schools.com/tags/tag_iframe.asp) | Defines an inline frame |

## Images

|  |  |
| --- | --- |
| **Tag** | **Description** |
| [<img>](http://www.w3schools.com/tags/tag_img.asp) | Defines an image |
| [<map>](http://www.w3schools.com/tags/tag_map.asp) | Defines a client-side image-map |
| [<area>](http://www.w3schools.com/tags/tag_area.asp) | Defines an area inside an image-map |
| [<canvas>](http://www.w3schools.com/tags/tag_canvas.asp) | Used to draw graphics, on the fly, via scripting (usually JavaScript) |
| [<figcaption>](http://www.w3schools.com/tags/tag_figcaption.asp) | Defines a caption for a <figure> element |
| [<figure>](http://www.w3schools.com/tags/tag_figure.asp) | Specifies self-contained content |

## Audio / Video

|  |  |
| --- | --- |
| **Tag** | **Description** |
| [<audio>](http://www.w3schools.com/tags/tag_audio.asp) | Defines sound content |
| [<source>](http://www.w3schools.com/tags/tag_source.asp) | Defines multiple media resources for media elements (<video> and <audio>) |
| [<track>](http://www.w3schools.com/tags/tag_track.asp) | Defines text tracks for media elements (<video> and <audio>) |
| [<video>](http://www.w3schools.com/tags/tag_video.asp) | Defines a video or movie |

## Links

|  |  |
| --- | --- |
| **Tag** | **Description** |
| [<a>](http://www.w3schools.com/tags/tag_a.asp) | Defines a hyperlink |
| [<link>](http://www.w3schools.com/tags/tag_link.asp) | Defines the relationship between a document and an external resource (most used to link to style sheets) |
| [<nav>](http://www.w3schools.com/tags/tag_nav.asp) | Defines navigation links |

## Lists

|  |  |
| --- | --- |
| **Tag** | **Description** |
| [<ul>](http://www.w3schools.com/tags/tag_ul.asp) | Defines an unordered list |
| [<ol>](http://www.w3schools.com/tags/tag_ol.asp) | Defines an ordered list |
| [<li>](http://www.w3schools.com/tags/tag_li.asp) | Defines a list item |
| [<dir>](http://www.w3schools.com/tags/tag_dir.asp) | Not supported in HTML5. Use <ul> instead. Defines a directory list |
| [<dl>](http://www.w3schools.com/tags/tag_dl.asp) | Defines a description list |
| [<dt>](http://www.w3schools.com/tags/tag_dt.asp) | Defines a term/name in a description list |
| [<dd>](http://www.w3schools.com/tags/tag_dd.asp) | Defines a description of a term/name in a description list |
| [<menu>](http://www.w3schools.com/tags/tag_menu.asp) | Defines a list/menu of commands |
| [<menuitem>](http://www.w3schools.com/tags/tag_menuitem.asp) | Defines a command/menu item that the user can invoke from a popup menu |

## Tables

|  |  |
| --- | --- |
| **Tag** | **Description** |
| [<table>](http://www.w3schools.com/tags/tag_table.asp) | Defines a table |
| [<caption>](http://www.w3schools.com/tags/tag_caption.asp) | Defines a table caption |
| [<th>](http://www.w3schools.com/tags/tag_th.asp) | Defines a header cell in a table |
| [<tr>](http://www.w3schools.com/tags/tag_tr.asp) | Defines a row in a table |
| [<td>](http://www.w3schools.com/tags/tag_td.asp) | Defines a cell in a table |
| [<thead>](http://www.w3schools.com/tags/tag_thead.asp) | Groups the header content in a table |
| [<tbody>](http://www.w3schools.com/tags/tag_tbody.asp) | Groups the body content in a table |
| [<tfoot>](http://www.w3schools.com/tags/tag_tfoot.asp) | Groups the footer content in a table |
| [<col>](http://www.w3schools.com/tags/tag_col.asp) | Specifies column properties for each column within a <colgroup> element |
| [<colgroup>](http://www.w3schools.com/tags/tag_colgroup.asp) | Specifies a group of one or more columns in a table for formatting |

## Styles and Semantics

|  |  |
| --- | --- |
| **Tag** | **Description** |
| [<style>](http://www.w3schools.com/tags/tag_style.asp) | Defines style information for a document |
| [<div>](http://www.w3schools.com/tags/tag_div.asp) | Defines a section in a document |
| [<span>](http://www.w3schools.com/tags/tag_span.asp) | Defines a section in a document |
| [<header>](http://www.w3schools.com/tags/tag_header.asp) | Defines a header for a document or section |
| [<footer>](http://www.w3schools.com/tags/tag_footer.asp) | Defines a footer for a document or section |
| [<main>](http://www.w3schools.com/tags/tag_main.asp) | Specifies the main content of a document |
| [<section>](http://www.w3schools.com/tags/tag_section.asp) | Defines a section in a document |
| [<article>](http://www.w3schools.com/tags/tag_article.asp) | Defines an article |
| [<aside>](http://www.w3schools.com/tags/tag_aside.asp) | Defines content aside from the page content |
| [<details>](http://www.w3schools.com/tags/tag_details.asp) | Defines additional details that the user can view or hide |
| [<dialog>](http://www.w3schools.com/tags/tag_dialog.asp) | Defines a dialog box or window |
| [<summary>](http://www.w3schools.com/tags/tag_summary.asp) | Defines a visible heading for a <details> element |

## Meta Info

|  |  |
| --- | --- |
| **Tag** | **Description** |
| [<head>](http://www.w3schools.com/tags/tag_head.asp) | Defines information about the document |
| [<meta>](http://www.w3schools.com/tags/tag_meta.asp) | Defines metadata about an HTML document |
| [<base>](http://www.w3schools.com/tags/tag_base.asp) | Specifies the base URL/target for all relative URLs in a document |
| [<basefont>](http://www.w3schools.com/tags/tag_basefont.asp) | Not supported in HTML5. Use CSS instead. Specifies a default color, size, and font for all text in a document |

## Programming

|  |  |
| --- | --- |
| **Tag** | **Description** |
| [<script>](http://www.w3schools.com/tags/tag_script.asp) | Defines a client-side script |
| [<noscript>](http://www.w3schools.com/tags/tag_noscript.asp) | Defines an alternate content for users that do not support client-side scripts |
| [<applet>](http://www.w3schools.com/tags/tag_applet.asp) | Not supported in HTML5. Use <embed> or <object> instead. Defines an embedded applet |
| [<embed>](http://www.w3schools.com/tags/tag_embed.asp) | Defines a container for an external (non-HTML) application |
| [<object>](http://www.w3schools.com/tags/tag_object.asp) | Defines an embedded object |
| [<param>](http://www.w3schools.com/tags/tag_param.asp) | Defines a parameter for an object |

# HTML Attribute Reference

## All HTML Attributes

|  |  |  |
| --- | --- | --- |
| **Attribute** | **Belongs to** | **Description** |
| [accept](http://www.w3schools.com/tags/att_accept.asp) | [<input>](http://www.w3schools.com/tags/tag_input.asp) | Specifies the types of files that the server accepts (only for type="file") |
| [accept-charset](http://www.w3schools.com/tags/att_accept-charset.asp) | [<form>](http://www.w3schools.com/tags/tag_form.asp) | Specifies the character encodings that are to be used for the form submission |
| [accesskey](http://www.w3schools.com/tags/att_accesskey.asp) | [Global Attributes](http://www.w3schools.com/tags/ref_standardattributes.asp) | Specifies a shortcut key to activate/focus an element |
| [action](http://www.w3schools.com/tags/att_action.asp) | [<form>](http://www.w3schools.com/tags/tag_form.asp) | Specifies where to send the form-data when a form is submitted |
| align | Not supported in HTML 5. | Specifies the alignment according to surrounding elements. Use CSS instead |
| [alt](http://www.w3schools.com/tags/att_alt.asp) | [<area>](http://www.w3schools.com/tags/tag_area.asp), [<img>](http://www.w3schools.com/tags/tag_img.asp), [<input>](http://www.w3schools.com/tags/tag_input.asp) | Specifies an alternate text when the original element fails to display |
| [async](http://www.w3schools.com/tags/att_async.asp) | [<script>](http://www.w3schools.com/tags/tag_script.asp) | Specifies that the script is executed asynchronously (only for external scripts) |
| [autocomplete](http://www.w3schools.com/tags/att_autocomplete.asp) | [<form>](http://www.w3schools.com/tags/tag_form.asp), [<input>](http://www.w3schools.com/tags/tag_input.asp) | Specifies whether the <form> or the <input> element should have autocomplete enabled |
| [autofocus](http://www.w3schools.com/tags/att_autofocus.asp) | [<button>](http://www.w3schools.com/tags/tag_button.asp), [<input>](http://www.w3schools.com/tags/tag_input.asp), [<keygen>](http://www.w3schools.com/tags/tag_keygen.asp), [<select>](http://www.w3schools.com/tags/tag_select.asp), [<textarea>](http://www.w3schools.com/tags/tag_textarea.asp) | Specifies that the element should automatically get focus when the page loads |
| [autoplay](http://www.w3schools.com/tags/att_autoplay.asp) | [<audio>](http://www.w3schools.com/tags/tag_audio.asp), [<video>](http://www.w3schools.com/tags/tag_video.asp) | Specifies that the audio/video will start playing as soon as it is ready |
| bgcolor | Not supported in HTML 5. | Specifies the background color of an element. Use CSS instead |
| border | Not supported in HTML 5. | Specifies the width of the border of an element. Use CSS instead |
| [challenge](http://www.w3schools.com/tags/att_challenge.asp) | [<keygen>](http://www.w3schools.com/tags/tag_keygen.asp) | Specifies that the value of the <keygen> element should be challenged when submitted |
| [charset](http://www.w3schools.com/tags/att_charset.asp) | [<meta>](http://www.w3schools.com/tags/tag_meta.asp), [<script>](http://www.w3schools.com/tags/tag_script.asp) | Specifies the character encoding |
| [checked](http://www.w3schools.com/tags/att_checked.asp) | [<input>](http://www.w3schools.com/tags/tag_input.asp) | Specifies that an <input> element should be pre-selected when the page loads (for type="checkbox" or type="radio") |
| [cite](http://www.w3schools.com/tags/att_cite.asp) | <blockquote>, [<del>](http://www.w3schools.com/tags/tag_del.asp), [<ins>](http://www.w3schools.com/tags/tag_ins.asp), <q> | Specifies a URL which explains the quote/deleted/inserted text |
| [class](http://www.w3schools.com/tags/att_class.asp) | [Global Attributes](http://www.w3schools.com/tags/ref_standardattributes.asp) | Specifies one or more classnames for an element (refers to a class in a style sheet) |
| color | Not supported in HTML 5. | Specifies the text color of an element. Use CSS instead |
| [cols](http://www.w3schools.com/tags/att_cols.asp) | [<textarea>](http://www.w3schools.com/tags/tag_textarea.asp) | Specifies the visible width of a text area |
| [colspan](http://www.w3schools.com/tags/att_colspan.asp) | [<td>](http://www.w3schools.com/tags/tag_td.asp), [<th>](http://www.w3schools.com/tags/tag_th.asp) | Specifies the number of columns a table cell should span |
| [content](http://www.w3schools.com/tags/att_content.asp) | [<meta>](http://www.w3schools.com/tags/tag_meta.asp) | Gives the value associated with the http-equiv or name attribute |
| [contenteditable](http://www.w3schools.com/tags/att_contenteditable.asp) | [Global Attributes](http://www.w3schools.com/tags/ref_standardattributes.asp) | Specifies whether the content of an element is editable or not |
| [contextmenu](http://www.w3schools.com/tags/att_contextmenu.asp) | [Global Attributes](http://www.w3schools.com/tags/ref_standardattributes.asp) | Specifies a context menu for an element. The context menu appears when a user right-clicks on the element |
| [controls](http://www.w3schools.com/tags/att_controls.asp) | [<audio>](http://www.w3schools.com/tags/tag_audio.asp), [<video>](http://www.w3schools.com/tags/tag_video.asp) | Specifies that audio/video controls should be displayed (such as a play/pause button etc) |
| [coords](http://www.w3schools.com/tags/att_coords.asp) | [<area>](http://www.w3schools.com/tags/tag_area.asp) | Specifies the coordinates of the area |
| [data](http://www.w3schools.com/tags/att_data.asp) | [<object>](http://www.w3schools.com/tags/tag_object.asp) | Specifies the URL of the resource to be used by the object |
| [data-\*](http://www.w3schools.com/tags/att_data-.asp) | [Global Attributes](http://www.w3schools.com/tags/ref_standardattributes.asp) | Used to store custom data private to the page or application |
| [datetime](http://www.w3schools.com/tags/att_datetime.asp) | [<del>](http://www.w3schools.com/tags/tag_del.asp), [<ins>](http://www.w3schools.com/tags/tag_ins.asp), [<time>](http://www.w3schools.com/tags/tag_time.asp) | Specifies the date and time |
| [default](http://www.w3schools.com/tags/att_default.asp) | [<track>](http://www.w3schools.com/tags/tag_track.asp) | Specifies that the track is to be enabled if the user's preferences do not indicate that another track would be more appropriate |
| [defer](http://www.w3schools.com/tags/att_defer.asp) | [<script>](http://www.w3schools.com/tags/tag_script.asp) | Specifies that the script is executed when the page has finished parsing (only for external scripts) |
| [dir](http://www.w3schools.com/tags/att_dir.asp) | [Global Attributes](http://www.w3schools.com/tags/ref_standardattributes.asp) | Specifies the text direction for the content in an element |
| [dirname](http://www.w3schools.com/tags/att_dirname.asp) | [<input>](http://www.w3schools.com/tags/tag_input.asp), [<textarea>](http://www.w3schools.com/tags/tag_textarea.asp) | Specifies that the text direction will be submitted |
| [disabled](http://www.w3schools.com/tags/att_disabled.asp) | [<button>](http://www.w3schools.com/tags/tag_button.asp), [<fieldset>](http://www.w3schools.com/tags/tag_fieldset.asp), [<input>](http://www.w3schools.com/tags/tag_input.asp), [<keygen>](http://www.w3schools.com/tags/tag_keygen.asp), <optgroup>, [<option>](http://www.w3schools.com/tags/tag_option.asp), [<select>](http://www.w3schools.com/tags/tag_select.asp), [<textarea>](http://www.w3schools.com/tags/tag_textarea.asp) | Specifies that the specified element/group of elements should be disabled |
| [download](http://www.w3schools.com/tags/att_download.asp) | [<a>](http://www.w3schools.com/tags/tag_a.asp), [<area>](http://www.w3schools.com/tags/tag_area.asp) | Specifies that the target will be downloaded when a user clicks on the hyperlink |
| [draggable](http://www.w3schools.com/tags/att_draggable.asp) | [Global Attributes](http://www.w3schools.com/tags/ref_standardattributes.asp) | Specifies whether an element is draggable or not |
| [dropzone](http://www.w3schools.com/tags/att_dropzone.asp) | [Global Attributes](http://www.w3schools.com/tags/ref_standardattributes.asp) | Specifies whether the dragged data is copied, moved, or linked, when dropped |
| [enctype](http://www.w3schools.com/tags/att_enctype.asp) | [<form>](http://www.w3schools.com/tags/tag_form.asp) | Specifies how the form-data should be encoded when submitting it to the server (only for method="post") |
| [for](http://www.w3schools.com/tags/att_for.asp) | <label>, [<output>](http://www.w3schools.com/tags/tag_output.asp) | Specifies which form element(s) a label/calculation is bound to |
| [form](http://www.w3schools.com/tags/att_form.asp) | [<button>](http://www.w3schools.com/tags/tag_button.asp), [<fieldset>](http://www.w3schools.com/tags/tag_fieldset.asp), [<input>](http://www.w3schools.com/tags/tag_input.asp), [<keygen>](http://www.w3schools.com/tags/tag_keygen.asp), <label>, [<meter>](http://www.w3schools.com/tags/tag_meter.asp), [<object>](http://www.w3schools.com/tags/tag_object.asp), [<output>](http://www.w3schools.com/tags/tag_output.asp), [<select>](http://www.w3schools.com/tags/tag_select.asp), [<textarea>](http://www.w3schools.com/tags/tag_textarea.asp) | Specifies the name of the form the element belongs to |
| [formaction](http://www.w3schools.com/tags/att_formaction.asp) | [<button>](http://www.w3schools.com/tags/tag_button.asp), [<input>](http://www.w3schools.com/tags/tag_input.asp) | Specifies where to send the form-data when a form is submitted. Only for type="submit" |
| [headers](http://www.w3schools.com/tags/att_headers.asp) | [<td>](http://www.w3schools.com/tags/tag_td.asp), [<th>](http://www.w3schools.com/tags/tag_th.asp) | Specifies one or more headers cells a cell is related to |
| [height](http://www.w3schools.com/tags/att_height.asp) | <canvas>, [<embed>](http://www.w3schools.com/tags/tag_embed.asp), [<iframe>](http://www.w3schools.com/tags/tag_iframe.asp), [<img>](http://www.w3schools.com/tags/tag_img.asp), [<input>](http://www.w3schools.com/tags/tag_input.asp), [<object>](http://www.w3schools.com/tags/tag_object.asp), [<video>](http://www.w3schools.com/tags/tag_video.asp) | Specifies the height of the element |
| [hidden](http://www.w3schools.com/tags/att_hidden.asp) | [Global Attributes](http://www.w3schools.com/tags/ref_standardattributes.asp) | Specifies that an element is not yet, or is no longer, relevant |
| [high](http://www.w3schools.com/tags/att_high.asp) | [<meter>](http://www.w3schools.com/tags/tag_meter.asp) | Specifies the range that is considered to be a high value |
| [href](http://www.w3schools.com/tags/att_href.asp) | [<a>](http://www.w3schools.com/tags/tag_a.asp), [<area>](http://www.w3schools.com/tags/tag_area.asp), [<base>](http://www.w3schools.com/tags/tag_base.asp), [<link>](http://www.w3schools.com/tags/tag_link.asp) | Specifies the URL of the page the link goes to |
| [hreflang](http://www.w3schools.com/tags/att_hreflang.asp) | [<a>](http://www.w3schools.com/tags/tag_a.asp), [<area>](http://www.w3schools.com/tags/tag_area.asp), [<link>](http://www.w3schools.com/tags/tag_link.asp) | Specifies the language of the linked document |
| [http-equiv](http://www.w3schools.com/tags/att_http-equiv.asp) | [<meta>](http://www.w3schools.com/tags/tag_meta.asp) | Provides an HTTP header for the information/value of the content attribute |
| [id](http://www.w3schools.com/tags/att_id.asp) | [Global Attributes](http://www.w3schools.com/tags/ref_standardattributes.asp) | Specifies a unique id for an element |
| [ismap](http://www.w3schools.com/tags/att_ismap.asp) | [<img>](http://www.w3schools.com/tags/tag_img.asp) | Specifies an image as a server-side image-map |
| [keytype](http://www.w3schools.com/tags/att_keytype.asp) | [<keygen>](http://www.w3schools.com/tags/tag_keygen.asp) | Specifies the security algorithm of the key |
| [kind](http://www.w3schools.com/tags/att_kind.asp) | [<track>](http://www.w3schools.com/tags/tag_track.asp) | Specifies the kind of text track |
| [label](http://www.w3schools.com/tags/att_label.asp) | [<track>](http://www.w3schools.com/tags/tag_track.asp), [<option>](http://www.w3schools.com/tags/tag_option.asp), [<optgroup>](http://www.w3schools.com/tags/tag_optgroup.asp) | Specifies the title of the text track |
| [lang](http://www.w3schools.com/tags/att_lang.asp) | [Global Attributes](http://www.w3schools.com/tags/ref_standardattributes.asp) | Specifies the language of the element's content |
| [list](http://www.w3schools.com/tags/att_list.asp) | [<input>](http://www.w3schools.com/tags/tag_input.asp) | Refers to a <datalist> element that contains pre-defined options for an <input> element |
| [loop](http://www.w3schools.com/tags/att_loop.asp) | [<audio>](http://www.w3schools.com/tags/tag_audio.asp), [<video>](http://www.w3schools.com/tags/tag_video.asp) | Specifies that the audio/video will start over again, every time it is finished |
| [low](http://www.w3schools.com/tags/att_low.asp) | [<meter>](http://www.w3schools.com/tags/tag_meter.asp) | Specifies the range that is considered to be a low value |
| [manifest](http://www.w3schools.com/tags/att_manifest.asp) | [<html>](http://www.w3schools.com/tags/tag_html.asp) | Specifies the address of the document's cache manifest (for offline browsing) |
| [max](http://www.w3schools.com/tags/att_max.asp) | [<input>](http://www.w3schools.com/tags/tag_input.asp), [<meter>](http://www.w3schools.com/tags/tag_meter.asp), [<progress>](http://www.w3schools.com/tags/tag_progress.asp) | Specifies the maximum value |
| [maxlength](http://www.w3schools.com/tags/att_maxlength.asp) | [<input>](http://www.w3schools.com/tags/tag_input.asp), [<textarea>](http://www.w3schools.com/tags/tag_textarea.asp) | Specifies the maximum number of characters allowed in an element |
| [media](http://www.w3schools.com/tags/att_media.asp) | [<a>](http://www.w3schools.com/tags/tag_a.asp), [<area>](http://www.w3schools.com/tags/tag_area.asp), [<link>](http://www.w3schools.com/tags/tag_link.asp), [<source>](http://www.w3schools.com/tags/tag_source.asp), [<style>](http://www.w3schools.com/tags/tag_style.asp) | Specifies what media/device the linked document is optimized for |
| [method](http://www.w3schools.com/tags/att_method.asp) | [<form>](http://www.w3schools.com/tags/tag_form.asp) | Specifies the HTTP method to use when sending form-data |
| [min](http://www.w3schools.com/tags/att_min.asp) | [<input>](http://www.w3schools.com/tags/tag_input.asp), [<meter>](http://www.w3schools.com/tags/tag_meter.asp) | Specifies a minimum value |
| [multiple](http://www.w3schools.com/tags/att_multiple.asp) | [<input>](http://www.w3schools.com/tags/tag_input.asp), [<select>](http://www.w3schools.com/tags/tag_select.asp) | Specifies that a user can enter more than one value |
| [muted](http://www.w3schools.com/tags/att_muted.asp) | [<video>](http://www.w3schools.com/tags/tag_video.asp), [<audio>](http://www.w3schools.com/tags/tag_audio.asp) | Specifies that the audio output of the video should be muted |
| [name](http://www.w3schools.com/tags/att_name.asp) | [<button>](http://www.w3schools.com/tags/tag_button.asp), [<fieldset>](http://www.w3schools.com/tags/tag_fieldset.asp), [<form>](http://www.w3schools.com/tags/tag_form.asp), [<iframe>](http://www.w3schools.com/tags/tag_iframe.asp), [<input>](http://www.w3schools.com/tags/tag_input.asp), [<keygen>](http://www.w3schools.com/tags/tag_keygen.asp), [<map>](http://www.w3schools.com/tags/tag_map.asp), [<meta>](http://www.w3schools.com/tags/tag_meta.asp), [<object>](http://www.w3schools.com/tags/tag_object.asp), [<output>](http://www.w3schools.com/tags/tag_output.asp), [<param>](http://www.w3schools.com/tags/tag_param.asp), [<select>](http://www.w3schools.com/tags/tag_select.asp), [<textarea>](http://www.w3schools.com/tags/tag_textarea.asp) | Specifies the name of the element |
| [novalidate](http://www.w3schools.com/tags/att_novalidate.asp) | [<form>](http://www.w3schools.com/tags/tag_form.asp) | Specifies that the form should not be validated when submitted |
| [onabort](http://www.w3schools.com/tags/att_onabort.asp) | [<audio>](http://www.w3schools.com/tags/tag_audio.asp), [<embed>](http://www.w3schools.com/tags/tag_embed.asp), [<img>](http://www.w3schools.com/tags/tag_img.asp), [<object>](http://www.w3schools.com/tags/tag_object.asp), [<video>](http://www.w3schools.com/tags/tag_video.asp) | Script to be run on abort |
| [onafterprint](http://www.w3schools.com/tags/att_onafterprint.asp) | [<body>](http://www.w3schools.com/tags/tag_body.asp) | Script to be run after the document is printed |
| [onbeforeprint](http://www.w3schools.com/tags/att_onbeforeprint.asp) | [<body>](http://www.w3schools.com/tags/tag_body.asp) | Script to be run before the document is printed |
| [onbeforeunload](http://www.w3schools.com/tags/att_onbeforeunload.asp) | [<body>](http://www.w3schools.com/tags/tag_body.asp) | Script to be run when the document is about to be unloaded |
| [onblur](http://www.w3schools.com/tags/att_onblur.asp) | All visible elements. | Script to be run when the element loses focus |
| [oncanplay](http://www.w3schools.com/tags/att_oncanplay.asp) | [<audio>](http://www.w3schools.com/tags/tag_audio.asp), [<embed>](http://www.w3schools.com/tags/tag_embed.asp), [<object>](http://www.w3schools.com/tags/tag_object.asp), [<video>](http://www.w3schools.com/tags/tag_video.asp) | Script to be run when a file is ready to start playing (when it has buffered enough to begin) |
| [oncanplaythrough](http://www.w3schools.com/tags/att_oncanplaythrough.asp) | [<audio>](http://www.w3schools.com/tags/tag_audio.asp), [<video>](http://www.w3schools.com/tags/tag_video.asp) | Script to be run when a file can be played all the way to the end without pausing for buffering |
| [onchange](http://www.w3schools.com/tags/att_onchange.asp) | All visible elements. | Script to be run when the value of the element is changed |
| [onclick](http://www.w3schools.com/tags/att_onclick.asp) | All visible elements. | Script to be run when the element is being clicked |
| [oncontextmenu](http://www.w3schools.com/tags/att_oncontextmenu.asp) | All visible elements. | Script to be run when a context menu is triggered |
| [oncopy](http://www.w3schools.com/tags/att_oncopy.asp) | All visible elements. | Script to be run when the content of the element is being copied |
| [oncuechange](http://www.w3schools.com/tags/att_oncuechange.asp) | [<track>](http://www.w3schools.com/tags/tag_track.asp) | Script to be run when the cue changes in a [<track>](http://www.w3schools.com/tags/tag_track.asp) element |
| [oncut](http://www.w3schools.com/tags/att_oncut.asp) | All visible elements. | Script to be run when the content of the element is being cut |
| [ondblclick](http://www.w3schools.com/tags/att_ondblclick.asp) | All visible elements. | Script to be run when the element is being double-clicked |
| [ondrag](http://www.w3schools.com/tags/att_ondrag.asp) | All visible elements. | Script to be run at the end of a drag operation |
| [ondragend](http://www.w3schools.com/tags/att_ondragend.asp) | All visible elements. | Script to be run at the end of a drag operation |
| [ondragenter](http://www.w3schools.com/tags/att_ondragenter.asp) | All visible elements. | Script to be run when an element has been dragged to a valid drop target |
| [ondragleave](http://www.w3schools.com/tags/att_ondragleave.asp) | All visible elements. | Script to be run when an element leaves a valid drop target |
| [ondragover](http://www.w3schools.com/tags/att_ondragover.asp) | All visible elements. | Script to be run when an element is being dragged over a valid drop target |
| [ondragstart](http://www.w3schools.com/tags/att_ondragstart.asp) | All visible elements. | Script to be run at the start of a drag operation |
| [ondrop](http://www.w3schools.com/tags/att_ondrop.asp) | All visible elements. | Script to be run when dragged element is being dropped |
| [ondurationchange](http://www.w3schools.com/tags/att_ondurationchange.asp) | [<audio>](http://www.w3schools.com/tags/tag_audio.asp), [<video>](http://www.w3schools.com/tags/tag_video.asp) | Script to be run when the length of the media changes |
| [onemptied](http://www.w3schools.com/tags/att_onemptied.asp) | [<audio>](http://www.w3schools.com/tags/tag_audio.asp), [<video>](http://www.w3schools.com/tags/tag_video.asp) | Script to be run when something bad happens and the file is suddenly unavailable (like unexpectedly disconnects) |
| [onended](http://www.w3schools.com/tags/att_onended.asp) | [<audio>](http://www.w3schools.com/tags/tag_audio.asp), [<video>](http://www.w3schools.com/tags/tag_video.asp) | Script to be run when the media has reach the end (a useful event for messages like "thanks for listening") |
| [onerror](http://www.w3schools.com/tags/att_onerror.asp) | [<audio>](http://www.w3schools.com/tags/tag_audio.asp), [<body>](http://www.w3schools.com/tags/tag_body.asp), [<embed>](http://www.w3schools.com/tags/tag_embed.asp), [<img>](http://www.w3schools.com/tags/tag_img.asp), [<object>](http://www.w3schools.com/tags/tag_object.asp), [<script>](http://www.w3schools.com/tags/tag_script.asp), [<style>](http://www.w3schools.com/tags/tag_style.asp), [<video>](http://www.w3schools.com/tags/tag_video.asp) | Script to be run when an error occurs |
| [onfocus](http://www.w3schools.com/tags/att_onfocus.asp) | All visible elements. | Script to be run when the element gets focus |
| [onhashchange](http://www.w3schools.com/tags/att_onhashchange.asp) | [<body>](http://www.w3schools.com/tags/tag_body.asp) | Script to be run when there has been changes to the anchor part of the a URL |
| [oninput](http://www.w3schools.com/tags/att_oninput.asp) | All visible elements. | Script to be run when the element gets user input |
| [oninvalid](http://www.w3schools.com/tags/att_oninvalid.asp) | All visible elements. | Script to be run when the element is invalid |
| [onkeydown](http://www.w3schools.com/tags/att_onkeydown.asp) | All visible elements. | Script to be run when a user is pressing a key |
| [onkeypress](http://www.w3schools.com/tags/att_onkeypress.asp) | All visible elements. | Script to be run when a user presses a key |
| [onkeyup](http://www.w3schools.com/tags/att_onkeyup.asp) | All visible elements. | Script to be run when a user releases a key |
| [onload](http://www.w3schools.com/tags/att_onload.asp) | [<body>](http://www.w3schools.com/tags/tag_body.asp), [<iframe>](http://www.w3schools.com/tags/tag_iframe.asp), [<img>](http://www.w3schools.com/tags/tag_img.asp), [<input>](http://www.w3schools.com/tags/tag_input.asp), [<link>](http://www.w3schools.com/tags/tag_link.asp), [<script>](http://www.w3schools.com/tags/tag_script.asp), [<style>](http://www.w3schools.com/tags/tag_style.asp) | Script to be run when the element is finished loading |
| [onloadeddata](http://www.w3schools.com/tags/att_onloadeddata.asp) | [<audio>](http://www.w3schools.com/tags/tag_audio.asp), [<video>](http://www.w3schools.com/tags/tag_video.asp) | Script to be run when media data is loaded |
| [onloadedmetadata](http://www.w3schools.com/tags/att_onloadedmetadata.asp) | [<audio>](http://www.w3schools.com/tags/tag_audio.asp), [<video>](http://www.w3schools.com/tags/tag_video.asp) | Script to be run when meta data (like dimensions and duration) are loaded |
| [onloadstart](http://www.w3schools.com/tags/att_onloadstart.asp) | [<audio>](http://www.w3schools.com/tags/tag_audio.asp), [<video>](http://www.w3schools.com/tags/tag_video.asp) | Script to be run just as the file begins to load before anything is actually loaded |
| [onmousedown](http://www.w3schools.com/tags/att_onmousedown.asp) | All visible elements. | Script to be run when a mouse button is pressed down on an element |
| [onmousemove](http://www.w3schools.com/tags/att_onmousemove.asp) | All visible elements. | Script to be run as long as the  mouse pointer is moving over an element |
| [onmouseout](http://www.w3schools.com/tags/att_onmouseout.asp) | All visible elements. | Script to be run when a mouse pointer moves ot of an element |
| [onmouseover](http://www.w3schools.com/tags/att_onmouseover.asp) | All visible elements. | Script to be run when a mouse pointer moves over an element |
| [onmouseup](http://www.w3schools.com/tags/att_onmouseup.asp) | All visible elements. | Script to be run when a mouse button is released over an element |
| [onmousewheel](http://www.w3schools.com/tags/att_onmousewheel.asp) | All visible elements. | Script to be run when a mouse wheel is being scrolled over an element |
| [onoffline](http://www.w3schools.com/tags/att_onoffline.asp) | [<body>](http://www.w3schools.com/tags/tag_body.asp) | Script to be run when the browser starts to work offline |
| [ononline](http://www.w3schools.com/tags/att_ononline.asp) | [<body>](http://www.w3schools.com/tags/tag_body.asp) | Script to be run when the browser starts to work online |
| onpagehide | [<body>](http://www.w3schools.com/tags/tag_body.asp) | Script to be run when a user navigates away from a page |
| [onpageshow](http://www.w3schools.com/tags/att_onpageshow.asp) | [<body>](http://www.w3schools.com/tags/tag_body.asp) | Script to be run when a user navigates to a page |
| [onpaste](http://www.w3schools.com/tags/att_onpaste.asp) | All visible elements. | Script to be run when the user pastes some content in an element |
| [onpause](http://www.w3schools.com/tags/att_onpause.asp) | [<audio>](http://www.w3schools.com/tags/tag_audio.asp), [<video>](http://www.w3schools.com/tags/tag_video.asp) | Script to be run when the media is paused either by the user or programmatically |
| [onplay](http://www.w3schools.com/tags/att_onplay.asp) | [<audio>](http://www.w3schools.com/tags/tag_audio.asp), [<video>](http://www.w3schools.com/tags/tag_video.asp) | Script to be run when the media is ready to start playing |
| [onplaying](http://www.w3schools.com/tags/att_onplaying.asp) | [<audio>](http://www.w3schools.com/tags/tag_audio.asp), [<video>](http://www.w3schools.com/tags/tag_video.asp) | Script to be run when the media actually has started playing. |
| onpopstate | [<body>](http://www.w3schools.com/tags/tag_body.asp) | Script to be run when the window's history changes. |
| [onprogress](http://www.w3schools.com/tags/att_onprogress.asp) | [<audio>](http://www.w3schools.com/tags/tag_audio.asp), [<video>](http://www.w3schools.com/tags/tag_video.asp) | Script to be run when the browser is in the process of getting the media data |
| [onratechange](http://www.w3schools.com/tags/att_onratechange.asp) | [<audio>](http://www.w3schools.com/tags/tag_audio.asp), [<video>](http://www.w3schools.com/tags/tag_video.asp) | Script to be run each time the playback rate changes (like when a user switches to a slow motion or fast forward mode). |
| [onreset](http://www.w3schools.com/tags/att_onreset.asp) | [<form>](http://www.w3schools.com/tags/tag_form.asp) | Script to be run when a reset button in a form is clicked. |
| [onresize](http://www.w3schools.com/tags/att_onresize.asp) | [<body>](http://www.w3schools.com/tags/tag_body.asp) | Script to be run when the browser window is being resized. |
| [onscroll](http://www.w3schools.com/tags/att_onscroll.asp) | All visible elements. | Script to be run when an element's scrollbar is being scrolled |
| [onsearch](http://www.w3schools.com/tags/att_onsearch.asp) | [<input>](http://www.w3schools.com/tags/tag_input.asp) | Script to be run when the user writes something in a search field (for <input="search">) |
| [onseeked](http://www.w3schools.com/tags/att_onseeked.asp) | [<audio>](http://www.w3schools.com/tags/tag_audio.asp), [<video>](http://www.w3schools.com/tags/tag_video.asp) | Script to be run when the seeking attribute is set to false indicating that seeking has ended |
| [onseeking](http://www.w3schools.com/tags/att_onseeking.asp) | [<audio>](http://www.w3schools.com/tags/tag_audio.asp), [<video>](http://www.w3schools.com/tags/tag_video.asp) | Script to be run when the seeking attribute is set to true indicating that seeking is active |
| [onselect](http://www.w3schools.com/tags/att_onselect.asp) | All visible elements. | Script to be run when the element gets selected |
| [onshow](http://www.w3schools.com/tags/att_onshow.asp) | [<menu>](http://www.w3schools.com/tags/tag_menu.asp) | Script to be run when a <menu> element is shown as a context menu |
| [onstalled](http://www.w3schools.com/tags/att_onstalled.asp) | [<audio>](http://www.w3schools.com/tags/tag_audio.asp), [<video>](http://www.w3schools.com/tags/tag_video.asp) | Script to be run when the browser is unable to fetch the media data for whatever reason |
| onstorage | [<body>](http://www.w3schools.com/tags/tag_body.asp) | Script to be run when a Web Storage area is updated |
| [onsubmit](http://www.w3schools.com/tags/att_onsubmit.asp) | [<form>](http://www.w3schools.com/tags/tag_form.asp) | Script to be run when a form is submitted |
| [onsuspend](http://www.w3schools.com/tags/att_onsuspend.asp) | [<audio>](http://www.w3schools.com/tags/tag_audio.asp), [<video>](http://www.w3schools.com/tags/tag_video.asp) | Script to be run when fetching the media data is stopped before it is completely loaded for whatever reason |
| [ontimeupdate](http://www.w3schools.com/tags/att_ontimeupdate.asp) | [<audio>](http://www.w3schools.com/tags/tag_audio.asp), [<video>](http://www.w3schools.com/tags/tag_video.asp) | Script to be run when the playing position has changed (like when the user fast forwards to a different point in the media) |
| [ontoggle](http://www.w3schools.com/tags/att_ontoggle.asp) | [<details>](http://www.w3schools.com/tags/tag_details.asp) | Script to be run when the user opens or closes the <details> element |
| [onunload](http://www.w3schools.com/tags/att_onunload.asp) | [<body>](http://www.w3schools.com/tags/tag_body.asp) | Script to be run when a page has unloaded (or the browser window has been closed) |
| [onvolumechange](http://www.w3schools.com/tags/att_onvolumechange.asp) | [<audio>](http://www.w3schools.com/tags/tag_audio.asp), [<video>](http://www.w3schools.com/tags/tag_video.asp) | Script to be run each time the volume is changed which (includes setting the volume to "mute") |
| [onwaiting](http://www.w3schools.com/tags/att_onwaiting.asp) | [<audio>](http://www.w3schools.com/tags/tag_audio.asp), [<video>](http://www.w3schools.com/tags/tag_video.asp) | Script to be run when the media has paused but is expected to resume (like when the media pauses to buffer more data) |
| [onwheel](http://www.w3schools.com/tags/att_onwheel.asp) | All visible elements. | Script to be run when the mouse wheel rolls up or down over an element |
| [open](http://www.w3schools.com/tags/att_open.asp) | [<details>](http://www.w3schools.com/tags/tag_details.asp) | Specifies that the details should be visible (open) to the user |
| [optimum](http://www.w3schools.com/tags/att_optimum.asp) | [<meter>](http://www.w3schools.com/tags/tag_meter.asp) | Specifies what value is the optimal value for the gauge |
| [pattern](http://www.w3schools.com/tags/att_pattern.asp) | [<input>](http://www.w3schools.com/tags/tag_input.asp) | Specifies a regular expression that an <input> element's value is checked against |
| [placeholder](http://www.w3schools.com/tags/att_placeholder.asp) | [<input>](http://www.w3schools.com/tags/tag_input.asp), [<textarea>](http://www.w3schools.com/tags/tag_textarea.asp) | Specifies a short hint that describes the expected value of the element |
| [poster](http://www.w3schools.com/tags/att_poster.asp) | [<video>](http://www.w3schools.com/tags/tag_video.asp) | Specifies an image to be shown while the video is downloading, or until the user hits the play button |
| [preload](http://www.w3schools.com/tags/att_preload.asp) | [<audio>](http://www.w3schools.com/tags/tag_audio.asp), [<video>](http://www.w3schools.com/tags/tag_video.asp) | Specifies if and how the author thinks the audio/video should be loaded when the page loads |
| [readonly](http://www.w3schools.com/tags/att_readonly.asp) | [<input>](http://www.w3schools.com/tags/tag_input.asp), [<textarea>](http://www.w3schools.com/tags/tag_textarea.asp) | Specifies that the element is read-only |
| [rel](http://www.w3schools.com/tags/att_rel.asp) | [<a>](http://www.w3schools.com/tags/tag_a.asp), [<area>](http://www.w3schools.com/tags/tag_area.asp), [<link>](http://www.w3schools.com/tags/tag_link.asp) | Specifies the relationship between the current document and the linked document |
| [required](http://www.w3schools.com/tags/att_required.asp) | [<input>](http://www.w3schools.com/tags/tag_input.asp), [<select>](http://www.w3schools.com/tags/tag_select.asp), [<textarea>](http://www.w3schools.com/tags/tag_textarea.asp) | Specifies that the element must be filled out before submitting the form |
| [reversed](http://www.w3schools.com/tags/att_reversed.asp) | [<ol>](http://www.w3schools.com/tags/tag_ol.asp) | Specifies that the list order should be descending (9,8,7...) |
| [rows](http://www.w3schools.com/tags/att_rows.asp) | [<textarea>](http://www.w3schools.com/tags/tag_textarea.asp) | Specifies the visible number of lines in a text area |
| [rowspan](http://www.w3schools.com/tags/att_rowspan.asp) | [<td>](http://www.w3schools.com/tags/tag_td.asp), [<th>](http://www.w3schools.com/tags/tag_th.asp) | Specifies the number of rows a table cell should span |
| [sandbox](http://www.w3schools.com/tags/att_sandbox.asp) | [<iframe>](http://www.w3schools.com/tags/tag_iframe.asp) | Enables an extra set of restrictions for the content in an <iframe> |
| [scope](http://www.w3schools.com/tags/att_scope.asp) | [<th>](http://www.w3schools.com/tags/tag_th.asp) | Specifies whether a header cell is a header for a column, row, or group of columns or rows |
| [scoped](http://www.w3schools.com/tags/att_scoped.asp) | [<style>](http://www.w3schools.com/tags/tag_style.asp) | Specifies that the styles only apply to this element's parent element and that element's child elements |
| [selected](http://www.w3schools.com/tags/att_selected.asp) | [<option>](http://www.w3schools.com/tags/tag_option.asp) | Specifies that an option should be pre-selected when the page loads |
| [shape](http://www.w3schools.com/tags/att_shape.asp) | [<area>](http://www.w3schools.com/tags/tag_area.asp) | Specifies the shape of the area |
| [size](http://www.w3schools.com/tags/att_size.asp) | [<input>](http://www.w3schools.com/tags/tag_input.asp), [<select>](http://www.w3schools.com/tags/tag_select.asp) | Specifies the width, in characters (for <input>) or specifies the number of visible options (for <select>) |
| [sizes](http://www.w3schools.com/tags/att_sizes.asp) | [<link>](http://www.w3schools.com/tags/tag_link.asp) | Specifies the size of the linked resource |
| [span](http://www.w3schools.com/tags/att_span.asp) | [<col>](http://www.w3schools.com/tags/tag_col.asp), [<colgroup>](http://www.w3schools.com/tags/tag_colgroup.asp) | Specifies the number of columns to span |
| [spellcheck](http://www.w3schools.com/tags/att_spellcheck.asp) | [Global Attributes](http://www.w3schools.com/tags/ref_standardattributes.asp) | Specifies whether the element is to have its spelling and grammar checked or not |
| [src](http://www.w3schools.com/tags/att_src.asp) | [<audio>](http://www.w3schools.com/tags/tag_audio.asp), [<embed>](http://www.w3schools.com/tags/tag_embed.asp), [<iframe>](http://www.w3schools.com/tags/tag_iframe.asp), [<img>](http://www.w3schools.com/tags/tag_img.asp), [<input>](http://www.w3schools.com/tags/tag_input.asp), [<script>](http://www.w3schools.com/tags/tag_script.asp), [<source>](http://www.w3schools.com/tags/tag_source.asp), [<track>](http://www.w3schools.com/tags/tag_track.asp), [<video>](http://www.w3schools.com/tags/tag_video.asp) | Specifies the URL of the media file |
| [srcdoc](http://www.w3schools.com/tags/att_srcdoc.asp) | [<iframe>](http://www.w3schools.com/tags/tag_iframe.asp) | Specifies the HTML content of the page to show in the <iframe> |
| [srclang](http://www.w3schools.com/tags/att_srclang.asp) | [<track>](http://www.w3schools.com/tags/tag_track.asp) | Specifies the language of the track text data (required if kind="subtitles") |
| [start](http://www.w3schools.com/tags/att_start.asp) | [<ol>](http://www.w3schools.com/tags/tag_ol.asp) | Specifies the start value of an ordered list |
| [step](http://www.w3schools.com/tags/att_step.asp) | [<input>](http://www.w3schools.com/tags/tag_input.asp) | Specifies the legal number intervals for an input field |
| [style](http://www.w3schools.com/tags/att_style.asp) | [Global Attributes](http://www.w3schools.com/tags/ref_standardattributes.asp) | Specifies an inline CSS style for an element |
| [tabindex](http://www.w3schools.com/tags/att_tabindex.asp) | [Global Attributes](http://www.w3schools.com/tags/ref_standardattributes.asp) | Specifies the tabbing order of an element |
| [target](http://www.w3schools.com/tags/att_target.asp) | [<a>](http://www.w3schools.com/tags/tag_a.asp), [<area>](http://www.w3schools.com/tags/tag_area.asp), [<base>](http://www.w3schools.com/tags/tag_base.asp), [<form>](http://www.w3schools.com/tags/tag_form.asp) | Specifies the target for where to open the linked document or where to submit the form |
| [title](http://www.w3schools.com/tags/att_title.asp) | [Global Attributes](http://www.w3schools.com/tags/ref_standardattributes.asp) | Specifies extra information about an element |
| [translate](http://www.w3schools.com/tags/att_translate.asp) | [Global Attributes](http://www.w3schools.com/tags/ref_standardattributes.asp) | Specifies whether the content of an element should be translated or not |
| [type](http://www.w3schools.com/tags/att_type.asp) | [<button>](http://www.w3schools.com/tags/tag_button.asp), [<embed>](http://www.w3schools.com/tags/tag_embed.asp), [<input>](http://www.w3schools.com/tags/tag_input.asp), [<link>](http://www.w3schools.com/tags/tag_link.asp), [<menu>](http://www.w3schools.com/tags/tag_menu.asp), [<object>](http://www.w3schools.com/tags/tag_object.asp), [<script>](http://www.w3schools.com/tags/tag_script.asp), [<source>](http://www.w3schools.com/tags/tag_source.asp), [<style>](http://www.w3schools.com/tags/tag_style.asp) | Specifies the type of element |
| [usemap](http://www.w3schools.com/tags/att_usemap.asp) | [<img>](http://www.w3schools.com/tags/tag_img.asp), [<object>](http://www.w3schools.com/tags/tag_object.asp) | Specifies an image as a client-side image-map |
| [value](http://www.w3schools.com/tags/att_value.asp) | [<button>](http://www.w3schools.com/tags/tag_button.asp), [<input>](http://www.w3schools.com/tags/tag_input.asp), [<li>](http://www.w3schools.com/tags/tag_li.asp), [<option>](http://www.w3schools.com/tags/tag_option.asp), [<meter>](http://www.w3schools.com/tags/tag_meter.asp), [<progress>](http://www.w3schools.com/tags/tag_progress.asp), [<param>](http://www.w3schools.com/tags/tag_param.asp) | Specifies the value of the element |
| [width](http://www.w3schools.com/tags/att_width.asp) | <canvas>, [<embed>](http://www.w3schools.com/tags/tag_embed.asp), [<iframe>](http://www.w3schools.com/tags/tag_iframe.asp), [<img>](http://www.w3schools.com/tags/tag_img.asp), [<input>](http://www.w3schools.com/tags/tag_input.asp), [<object>](http://www.w3schools.com/tags/tag_object.asp), [<video>](http://www.w3schools.com/tags/tag_video.asp) | Specifies the width of the element |
| [wrap](http://www.w3schools.com/tags/att_wrap.asp) | [<textarea>](http://www.w3schools.com/tags/tag_textarea.asp) | Specifies how the text in a text area is to be wrapped when submitted in a form |

# HTML Global Attributes

HTML attributes give elements meaning and context.

The global attributes below can be used on **any** HTML element.

## HTML Global Attributes

= Attribute added in HTML5.

|  |  |
| --- | --- |
| **Attribute** | **Description** |
| [accesskey](http://www.w3schools.com/tags/att_global_accesskey.asp) | Specifies a shortcut key to activate/focus an element |
| [class](http://www.w3schools.com/tags/att_global_class.asp) | Specifies one or more classnames for an element (refers to a class in a style sheet) |
| [contenteditable](http://www.w3schools.com/tags/att_global_contenteditable.asp) | Specifies whether the content of an element is editable or not |
| [contextmenu](http://www.w3schools.com/tags/att_global_contextmenu.asp) | Specifies a context menu for an element. The context menu appears when a user right-clicks on the element |
| [data-\*](http://www.w3schools.com/tags/att_global_data.asp) | Used to store custom data private to the page or application |
| [dir](http://www.w3schools.com/tags/att_global_dir.asp) | Specifies the text direction for the content in an element |
| [draggable](http://www.w3schools.com/tags/att_global_draggable.asp) | Specifies whether an element is draggable or not |
| [dropzone](http://www.w3schools.com/tags/att_global_dropzone.asp) | Specifies whether the dragged data is copied, moved, or linked, when dropped |
| [hidden](http://www.w3schools.com/tags/att_global_hidden.asp) | Specifies that an element is not yet, or is no longer, relevant |
| [id](http://www.w3schools.com/tags/att_global_id.asp) | Specifies a unique id for an element |
| [lang](http://www.w3schools.com/tags/att_global_lang.asp) | Specifies the language of the element's content |
| [spellcheck](http://www.w3schools.com/tags/att_global_spellcheck.asp) | Specifies whether the element is to have its spelling and grammar checked or not |
| [style](http://www.w3schools.com/tags/att_global_style.asp) | Specifies an inline CSS style for an element |
| [tabindex](http://www.w3schools.com/tags/att_global_tabindex.asp) | Specifies the tabbing order of an element |
| [title](http://www.w3schools.com/tags/att_global_title.asp) | Specifies extra information about an element |
| [translate](http://www.w3schools.com/tags/att_global_translate.asp) | Specifies whether the content of an element should be translated or not |

# HTML Event Attributes

## Global Event Attributes

HTML 4 added the ability to let events trigger actions in a browser, like starting a JavaScript when a user clicks on an element.

To learn more about programming events, please visit our [JavaScript tutorial](http://www.w3schools.com/js/default.asp).

Below are the global event attributes that can be added to HTML elements to define event actions.

= New event attributes in HTML5.

## Window Event Attributes

Events triggered for the window object (applies to the <body> tag):

|  |  |  |
| --- | --- | --- |
| **Attribute** | **Value** | **Description** |
| [onafterprint](http://www.w3schools.com/tags/ev_onafterprint.asp) | *script* | Script to be run after the document is printed |
| [onbeforeprint](http://www.w3schools.com/tags/ev_onbeforeprint.asp) | *script* | Script to be run before the document is printed |
| [onbeforeunload](http://www.w3schools.com/tags/ev_onbeforeunload.asp) | *script* | Script to be run when the document is about to be unloaded |
| [onerror](http://www.w3schools.com/tags/ev_onerror.asp) | *script* | Script to be run when an error occurs |
| [onhashchange](http://www.w3schools.com/tags/ev_onhashchange.asp) | *script* | Script to be run when there has been changes to the anchor part of the a URL |
| [onload](http://www.w3schools.com/tags/ev_onload.asp) | *script* | Fires after the page is finished loading |
| onmessage | *script* | Script to be run when the message is triggered |
| [onoffline](http://www.w3schools.com/tags/ev_onoffline.asp) | *script* | Script to be run when the browser starts to work offline |
| [ononline](http://www.w3schools.com/tags/ev_ononline.asp) | *script* | Script to be run when the browser starts to work online |
| onpagehide | *script* | Script to be run when a user navigates away from a page |
| [onpageshow](http://www.w3schools.com/tags/ev_onpageshow.asp) | *script* | Script to be run when a user navigates to a page |
| onpopstate | *script* | Script to be run when the window's history changes |
| [onresize](http://www.w3schools.com/tags/ev_onresize.asp) | *script* | Fires when the browser window is resized |
| onstorage | *script* | Script to be run when a Web Storage area is updated |
| [onunload](http://www.w3schools.com/tags/ev_onunload.asp) | *script* | Fires once a page has unloaded (or the browser window has been closed) |

## Form Events

Events triggered by actions inside a HTML form (applies to almost all HTML elements, but is most used in form elements):

|  |  |  |
| --- | --- | --- |
| **Attribute** | **Value** | **Description** |
| [onblur](http://www.w3schools.com/tags/ev_onblur.asp) | *script* | Fires the moment that the element loses focus |
| [onchange](http://www.w3schools.com/tags/ev_onchange.asp) | *script* | Fires the moment when the value of the element is changed |
| [oncontextmenu](http://www.w3schools.com/tags/ev_oncontextmenu.asp) | *script* | Script to be run when a context menu is triggered |
| [onfocus](http://www.w3schools.com/tags/ev_onfocus.asp) | *script* | Fires the moment when the element gets focus |
| [oninput](http://www.w3schools.com/tags/ev_oninput.asp) | *script* | Script to be run when an element gets user input |
| [oninvalid](http://www.w3schools.com/tags/ev_oninvalid.asp) | *script* | Script to be run when an element is invalid |
| [onreset](http://www.w3schools.com/tags/ev_onreset.asp) | *script* | Fires when the Reset button in a form is clicked |
| [onsearch](http://www.w3schools.com/tags/ev_onsearch.asp) | *script* | Fires when the user writes something in a search field (for <input="search">) |
| [onselect](http://www.w3schools.com/tags/ev_onselect.asp) | *script* | Fires after some text has been selected in an element |
| [onsubmit](http://www.w3schools.com/tags/ev_onsubmit.asp) | *script* | Fires when a form is submitted |

## Keyboard Events

|  |  |  |
| --- | --- | --- |
| **Attribute** | **Value** | **Description** |
| [onkeydown](http://www.w3schools.com/tags/ev_onkeydown.asp) | *script* | Fires when a user is pressing a key |
| [onkeypress](http://www.w3schools.com/tags/ev_onkeypress.asp) | *script* | Fires when a user presses a key |
| [onkeyup](http://www.w3schools.com/tags/ev_onkeyup.asp) | *script* | Fires when a user releases a key |

## Mouse Events

|  |  |  |
| --- | --- | --- |
| **Attribute** | **Value** | **Description** |
| [onclick](http://www.w3schools.com/tags/ev_onclick.asp) | *script* | Fires on a mouse click on the element |
| [ondblclick](http://www.w3schools.com/tags/ev_ondblclick.asp) | *script* | Fires on a mouse double-click on the element |
| [onmousedown](http://www.w3schools.com/tags/ev_onmousedown.asp) | *script* | Fires when a mouse button is pressed down on an element |
| [onmousemove](http://www.w3schools.com/tags/ev_onmousemove.asp) | *script* | Fires when the mouse pointer is moving while it is over an element |
| [onmouseout](http://www.w3schools.com/tags/ev_onmouseout.asp) | *script* | Fires when the mouse pointer moves out of an element |
| [onmouseover](http://www.w3schools.com/tags/ev_onmouseover.asp) | *script* | Fires when the mouse pointer moves over an element |
| [onmouseup](http://www.w3schools.com/tags/ev_onmouseup.asp) | *script* | Fires when a mouse button is released over an element |
| onmousewheel | *script* | Deprecated. Use the [onwheel](http://www.w3schools.com/tags/ev_onwheel.asp) attribute instead |
| [onwheel](http://www.w3schools.com/tags/ev_onwheel.asp) | *script* | Fires when the mouse wheel rolls up or down over an element |

## Drag Events

|  |  |  |
| --- | --- | --- |
| **Attribute** | **Value** | **Description** |
| [ondrag](http://www.w3schools.com/tags/ev_ondrag.asp) | *script* | Script to be run when an element is dragged |
| [ondragend](http://www.w3schools.com/tags/ev_ondragend.asp) | *script* | Script to be run at the end of a drag operation |
| [ondragenter](http://www.w3schools.com/tags/ev_ondragenter.asp) | *script* | Script to be run when an element has been dragged to a valid drop target |
| [ondragleave](http://www.w3schools.com/tags/ev_ondragleave.asp) | *script* | Script to be run when an element leaves a valid drop target |
| [ondragover](http://www.w3schools.com/tags/ev_ondragover.asp) | *script* | Script to be run when an element is being dragged over a valid drop target |
| [ondragstart](http://www.w3schools.com/tags/ev_ondragstart.asp) | *script* | Script to be run at the start of a drag operation |
| [ondrop](http://www.w3schools.com/tags/ev_ondrop.asp) | *script* | Script to be run when dragged element is being dropped |
| [onscroll](http://www.w3schools.com/tags/ev_onscroll.asp) | *script* | Script to be run when an element's scrollbar is being scrolled |

## Clipboard Events

|  |  |  |
| --- | --- | --- |
| **Attribute** | **Value** | **Description** |
| [oncopy](http://www.w3schools.com/tags/ev_oncopy.asp) | *script* | Fires when the user copies the content of an element |
| [oncut](http://www.w3schools.com/tags/ev_oncut.asp) | *script* | Fires when the user cuts the content of an element |
| [onpaste](http://www.w3schools.com/tags/ev_onpaste.asp) | *script* | Fires when the user pastes some content in an element |

## Media Events

Events triggered by medias like videos, images and audio (applies to all HTML elements, but is most common in media elements, like <audio>, <embed>, <img>, <object>, and <video>).

**Tip:** Look at our [HTML Audio and Video DOM Reference](http://www.w3schools.com/tags/ref_av_dom.asp) for more information.

|  |  |  |
| --- | --- | --- |
| **Attribute** | **Value** | **Description** |
| Onabort | *script* | Script to be run on abort |
| Oncanplay | *script* | Script to be run when a file is ready to start playing (when it has buffered enough to begin) |
| oncanplaythrough | *script* | Script to be run when a file can be played all the way to the end without pausing for buffering |
| oncuechange | *script* | Script to be run when the cue changes in a <track> element |
| ondurationchange | *script* | Script to be run when the length of the media changes |
| onemptied | *script* | Script to be run when something bad happens and the file is suddenly unavailable (like unexpectedly disconnects) |
| onended | *script* | Script to be run when the media has reach the end (a useful event for messages like "thanks for listening") |
| onerror | *script* | Script to be run when an error occurs when the file is being loaded |
| onloadeddata | *script* | Script to be run when media data is loaded |
| onloadedmetadata | *script* | Script to be run when meta data (like dimensions and duration) are loaded |
| onloadstart | *script* | Script to be run just as the file begins to load before anything is actually loaded |
| onpause | *script* | Script to be run when the media is paused either by the user or programmatically |
| onplay | *script* | Script to be run when the media is ready to start playing |
| onplaying | *script* | Script to be run when the media actually has started playing |
| onprogress | *script* | Script to be run when the browser is in the process of getting the media data |
| onratechange | *script* | Script to be run each time the playback rate changes (like when a user switches to a slow motion or fast forward mode) |
| onseeked | *script* | Script to be run when the seeking attribute is set to false indicating that seeking has ended |
| onseeking | *script* | Script to be run when the seeking attribute is set to true indicating that seeking is active |
| onstalled | *script* | Script to be run when the browser is unable to fetch the media data for whatever reason |
| onsuspend | *script* | Script to be run when fetching the media data is stopped before it is completely loaded for whatever reason |
| ontimeupdate | *script* | Script to be run when the playing position has changed (like when the user fast forwards to a different point in the media) |
| onvolumechange | *script* | Script to be run each time the volume is changed which (includes setting the volume to "mute") |
| onwaiting | *script* | Script to be run when the media has paused but is expected to resume (like when the media pauses to buffer more data) |

## Misc Events

|  |  |  |
| --- | --- | --- |
| **Attribute** | **Value** | **Description** |
| [onshow](http://www.w3schools.com/tags/ev_onshow.asp) | *script* | Fires when a <menu> element is shown as a context menu |
| [ontoggle](http://www.w3schools.com/tags/ev_ontoggle.asp) | *script* | Fires when the user opens or closes the <details> element |

# HTML Color Names

## Color Names Supported by All Browsers

All modern browsers support the following 140 color names (click on a color name, or a hex value, to view the color as the background-color along with different text colors):

[For a full overview of HTML colors, visit our colors tutorial.](http://www.w3schools.com/colors/default.asp)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Color Name** | **HEX** | **Color** | **Shades** | **Mix** |
| [AliceBlue](http://www.w3schools.com/colors/color_tryit.asp?color=AliceBlue) | [#F0F8FF](http://www.w3schools.com/colors/color_tryit.asp?hex=F0F8FF) |  | [Shades](http://www.w3schools.com/colors/colors_picker.asp?colorhex=F0F8FF) | [Mix](http://www.w3schools.com/colors/colors_mixer.asp?colorbottom=F0F8FF&colortop=FFFFFF) |
| [AntiqueWhite](http://www.w3schools.com/colors/color_tryit.asp?color=AntiqueWhite) | [#FAEBD7](http://www.w3schools.com/colors/color_tryit.asp?hex=FAEBD7) |  | [Shades](http://www.w3schools.com/colors/colors_picker.asp?colorhex=FAEBD7) | [Mix](http://www.w3schools.com/colors/colors_mixer.asp?colorbottom=FAEBD7&colortop=FFFFFF) |
| [Aqua](http://www.w3schools.com/colors/color_tryit.asp?color=Aqua) | [#00FFFF](http://www.w3schools.com/colors/color_tryit.asp?hex=00FFFF) |  | [Shades](http://www.w3schools.com/colors/colors_picker.asp?colorhex=00FFFF) | [Mix](http://www.w3schools.com/colors/colors_mixer.asp?colorbottom=00FFFF&colortop=FFFFFF) |
| [Aquamarine](http://www.w3schools.com/colors/color_tryit.asp?color=Aquamarine) | [#7FFFD4](http://www.w3schools.com/colors/color_tryit.asp?hex=7FFFD4) |  | [Shades](http://www.w3schools.com/colors/colors_picker.asp?colorhex=7FFFD4) | [Mix](http://www.w3schools.com/colors/colors_mixer.asp?colorbottom=7FFFD4&colortop=FFFFFF) |
| [Azure](http://www.w3schools.com/colors/color_tryit.asp?color=Azure) | [#F0FFFF](http://www.w3schools.com/colors/color_tryit.asp?hex=F0FFFF) |  | [Shades](http://www.w3schools.com/colors/colors_picker.asp?colorhex=F0FFFF) | [Mix](http://www.w3schools.com/colors/colors_mixer.asp?colorbottom=F0FFFF&colortop=FFFFFF) |
| [Beige](http://www.w3schools.com/colors/color_tryit.asp?color=Beige) | [#F5F5DC](http://www.w3schools.com/colors/color_tryit.asp?hex=F5F5DC) |  | [Shades](http://www.w3schools.com/colors/colors_picker.asp?colorhex=F5F5DC) | [Mix](http://www.w3schools.com/colors/colors_mixer.asp?colorbottom=F5F5DC&colortop=FFFFFF) |
| [Bisque](http://www.w3schools.com/colors/color_tryit.asp?color=Bisque) | [#FFE4C4](http://www.w3schools.com/colors/color_tryit.asp?hex=FFE4C4) |  | [Shades](http://www.w3schools.com/colors/colors_picker.asp?colorhex=FFE4C4) | [Mix](http://www.w3schools.com/colors/colors_mixer.asp?colorbottom=FFE4C4&colortop=FFFFFF) |
| [Black](http://www.w3schools.com/colors/color_tryit.asp?color=Black) | [#000000](http://www.w3schools.com/colors/color_tryit.asp?hex=000000) |  | [Shades](http://www.w3schools.com/colors/colors_picker.asp?colorhex=000000) | [Mix](http://www.w3schools.com/colors/colors_mixer.asp?colorbottom=000000&colortop=FFFFFF) |
| [BlanchedAlmond](http://www.w3schools.com/colors/color_tryit.asp?color=BlanchedAlmond) | [#FFEBCD](http://www.w3schools.com/colors/color_tryit.asp?hex=FFEBCD) |  | [Shades](http://www.w3schools.com/colors/colors_picker.asp?colorhex=FFEBCD) | [Mix](http://www.w3schools.com/colors/colors_mixer.asp?colorbottom=FFEBCD&colortop=FFFFFF) |
| [Blue](http://www.w3schools.com/colors/color_tryit.asp?color=Blue) | [#0000FF](http://www.w3schools.com/colors/color_tryit.asp?hex=0000FF) |  | [Shades](http://www.w3schools.com/colors/colors_picker.asp?colorhex=0000FF) | [Mix](http://www.w3schools.com/colors/colors_mixer.asp?colorbottom=0000FF&colortop=FFFFFF) |
| [BlueViolet](http://www.w3schools.com/colors/color_tryit.asp?color=BlueViolet) | [#8A2BE2](http://www.w3schools.com/colors/color_tryit.asp?hex=8A2BE2) |  | [Shades](http://www.w3schools.com/colors/colors_picker.asp?colorhex=8A2BE2) | [Mix](http://www.w3schools.com/colors/colors_mixer.asp?colorbottom=8A2BE2&colortop=FFFFFF) |
| [Brown](http://www.w3schools.com/colors/color_tryit.asp?color=Brown) | [#A52A2A](http://www.w3schools.com/colors/color_tryit.asp?hex=A52A2A) |  | [Shades](http://www.w3schools.com/colors/colors_picker.asp?colorhex=A52A2A) | [Mix](http://www.w3schools.com/colors/colors_mixer.asp?colorbottom=A52A2A&colortop=FFFFFF) |
| [BurlyWood](http://www.w3schools.com/colors/color_tryit.asp?color=BurlyWood) | [#DEB887](http://www.w3schools.com/colors/color_tryit.asp?hex=DEB887) |  | [Shades](http://www.w3schools.com/colors/colors_picker.asp?colorhex=DEB887) | [Mix](http://www.w3schools.com/colors/colors_mixer.asp?colorbottom=DEB887&colortop=FFFFFF) |
| [CadetBlue](http://www.w3schools.com/colors/color_tryit.asp?color=CadetBlue) | [#5F9EA0](http://www.w3schools.com/colors/color_tryit.asp?hex=5F9EA0) |  | [Shades](http://www.w3schools.com/colors/colors_picker.asp?colorhex=5F9EA0) | [Mix](http://www.w3schools.com/colors/colors_mixer.asp?colorbottom=5F9EA0&colortop=FFFFFF) |
| [Chartreuse](http://www.w3schools.com/colors/color_tryit.asp?color=Chartreuse) | [#7FFF00](http://www.w3schools.com/colors/color_tryit.asp?hex=7FFF00) |  | [Shades](http://www.w3schools.com/colors/colors_picker.asp?colorhex=7FFF00) | [Mix](http://www.w3schools.com/colors/colors_mixer.asp?colorbottom=7FFF00&colortop=FFFFFF) |
| [Chocolate](http://www.w3schools.com/colors/color_tryit.asp?color=Chocolate) | [#D2691E](http://www.w3schools.com/colors/color_tryit.asp?hex=D2691E) |  | [Shades](http://www.w3schools.com/colors/colors_picker.asp?colorhex=D2691E) | [Mix](http://www.w3schools.com/colors/colors_mixer.asp?colorbottom=D2691E&colortop=FFFFFF) |
| [Coral](http://www.w3schools.com/colors/color_tryit.asp?color=Coral) | [#FF7F50](http://www.w3schools.com/colors/color_tryit.asp?hex=FF7F50) |  | [Shades](http://www.w3schools.com/colors/colors_picker.asp?colorhex=FF7F50) | [Mix](http://www.w3schools.com/colors/colors_mixer.asp?colorbottom=FF7F50&colortop=FFFFFF) |
| [CornflowerBlue](http://www.w3schools.com/colors/color_tryit.asp?color=CornflowerBlue) | [#6495ED](http://www.w3schools.com/colors/color_tryit.asp?hex=6495ED) |  | [Shades](http://www.w3schools.com/colors/colors_picker.asp?colorhex=6495ED) | [Mix](http://www.w3schools.com/colors/colors_mixer.asp?colorbottom=6495ED&colortop=FFFFFF) |
| [Cornsilk](http://www.w3schools.com/colors/color_tryit.asp?color=Cornsilk) | [#FFF8DC](http://www.w3schools.com/colors/color_tryit.asp?hex=FFF8DC) |  | [Shades](http://www.w3schools.com/colors/colors_picker.asp?colorhex=FFF8DC) | [Mix](http://www.w3schools.com/colors/colors_mixer.asp?colorbottom=FFF8DC&colortop=FFFFFF) |
| [Crimson](http://www.w3schools.com/colors/color_tryit.asp?color=Crimson) | [#DC143C](http://www.w3schools.com/colors/color_tryit.asp?hex=DC143C) |  | [Shades](http://www.w3schools.com/colors/colors_picker.asp?colorhex=DC143C) | [Mix](http://www.w3schools.com/colors/colors_mixer.asp?colorbottom=DC143C&colortop=FFFFFF) |
| [Cyan](http://www.w3schools.com/colors/color_tryit.asp?color=Cyan) | [#00FFFF](http://www.w3schools.com/colors/color_tryit.asp?hex=00FFFF) |  | [Shades](http://www.w3schools.com/colors/colors_picker.asp?colorhex=00FFFF) | [Mix](http://www.w3schools.com/colors/colors_mixer.asp?colorbottom=00FFFF&colortop=FFFFFF) |
| [DarkBlue](http://www.w3schools.com/colors/color_tryit.asp?color=DarkBlue) | [#00008B](http://www.w3schools.com/colors/color_tryit.asp?hex=00008B) |  | [Shades](http://www.w3schools.com/colors/colors_picker.asp?colorhex=00008B) | [Mix](http://www.w3schools.com/colors/colors_mixer.asp?colorbottom=00008B&colortop=FFFFFF) |
| [DarkCyan](http://www.w3schools.com/colors/color_tryit.asp?color=DarkCyan) | [#008B8B](http://www.w3schools.com/colors/color_tryit.asp?hex=008B8B) |  | [Shades](http://www.w3schools.com/colors/colors_picker.asp?colorhex=008B8B) | [Mix](http://www.w3schools.com/colors/colors_mixer.asp?colorbottom=008B8B&colortop=FFFFFF) |
| [DarkGoldenRod](http://www.w3schools.com/colors/color_tryit.asp?color=DarkGoldenRod) | [#B8860B](http://www.w3schools.com/colors/color_tryit.asp?hex=B8860B) |  | [Shades](http://www.w3schools.com/colors/colors_picker.asp?colorhex=B8860B) | [Mix](http://www.w3schools.com/colors/colors_mixer.asp?colorbottom=B8860B&colortop=FFFFFF) |
| [DarkGray](http://www.w3schools.com/colors/color_tryit.asp?color=DarkGray) | [#A9A9A9](http://www.w3schools.com/colors/color_tryit.asp?hex=A9A9A9) |  | [Shades](http://www.w3schools.com/colors/colors_picker.asp?colorhex=A9A9A9) | [Mix](http://www.w3schools.com/colors/colors_mixer.asp?colorbottom=A9A9A9&colortop=FFFFFF) |
| [DarkGrey](http://www.w3schools.com/colors/color_tryit.asp?color=DarkGrey) | [#A9A9A9](http://www.w3schools.com/colors/color_tryit.asp?hex=A9A9A9) |  | [Shades](http://www.w3schools.com/colors/colors_picker.asp?colorhex=A9A9A9) | [Mix](http://www.w3schools.com/colors/colors_mixer.asp?colorbottom=A9A9A9&colortop=FFFFFF) |
| [DarkGreen](http://www.w3schools.com/colors/color_tryit.asp?color=DarkGreen) | [#006400](http://www.w3schools.com/colors/color_tryit.asp?hex=006400) |  | [Shades](http://www.w3schools.com/colors/colors_picker.asp?colorhex=006400) | [Mix](http://www.w3schools.com/colors/colors_mixer.asp?colorbottom=006400&colortop=FFFFFF) |
| [DarkKhaki](http://www.w3schools.com/colors/color_tryit.asp?color=DarkKhaki) | [#BDB76B](http://www.w3schools.com/colors/color_tryit.asp?hex=BDB76B) |  | [Shades](http://www.w3schools.com/colors/colors_picker.asp?colorhex=BDB76B) | [Mix](http://www.w3schools.com/colors/colors_mixer.asp?colorbottom=BDB76B&colortop=FFFFFF) |
| [DarkMagenta](http://www.w3schools.com/colors/color_tryit.asp?color=DarkMagenta) | [#8B008B](http://www.w3schools.com/colors/color_tryit.asp?hex=8B008B) |  | [Shades](http://www.w3schools.com/colors/colors_picker.asp?colorhex=8B008B) | [Mix](http://www.w3schools.com/colors/colors_mixer.asp?colorbottom=8B008B&colortop=FFFFFF) |
| [DarkOliveGreen](http://www.w3schools.com/colors/color_tryit.asp?color=DarkOliveGreen) | [#556B2F](http://www.w3schools.com/colors/color_tryit.asp?hex=556B2F) |  | [Shades](http://www.w3schools.com/colors/colors_picker.asp?colorhex=556B2F) | [Mix](http://www.w3schools.com/colors/colors_mixer.asp?colorbottom=556B2F&colortop=FFFFFF) |
| [DarkOrange](http://www.w3schools.com/colors/color_tryit.asp?color=DarkOrange) | [#FF8C00](http://www.w3schools.com/colors/color_tryit.asp?hex=FF8C00) |  | [Shades](http://www.w3schools.com/colors/colors_picker.asp?colorhex=FF8C00) | [Mix](http://www.w3schools.com/colors/colors_mixer.asp?colorbottom=FF8C00&colortop=FFFFFF) |
| [DarkOrchid](http://www.w3schools.com/colors/color_tryit.asp?color=DarkOrchid) | [#9932CC](http://www.w3schools.com/colors/color_tryit.asp?hex=9932CC) |  | [Shades](http://www.w3schools.com/colors/colors_picker.asp?colorhex=9932CC) | [Mix](http://www.w3schools.com/colors/colors_mixer.asp?colorbottom=9932CC&colortop=FFFFFF) |
| [DarkRed](http://www.w3schools.com/colors/color_tryit.asp?color=DarkRed) | [#8B0000](http://www.w3schools.com/colors/color_tryit.asp?hex=8B0000) |  | [Shades](http://www.w3schools.com/colors/colors_picker.asp?colorhex=8B0000) | [Mix](http://www.w3schools.com/colors/colors_mixer.asp?colorbottom=8B0000&colortop=FFFFFF) |
| [DarkSalmon](http://www.w3schools.com/colors/color_tryit.asp?color=DarkSalmon) | [#E9967A](http://www.w3schools.com/colors/color_tryit.asp?hex=E9967A) |  | [Shades](http://www.w3schools.com/colors/colors_picker.asp?colorhex=E9967A) | [Mix](http://www.w3schools.com/colors/colors_mixer.asp?colorbottom=E9967A&colortop=FFFFFF) |
| [DarkSeaGreen](http://www.w3schools.com/colors/color_tryit.asp?color=DarkSeaGreen) | [#8FBC8F](http://www.w3schools.com/colors/color_tryit.asp?hex=8FBC8F) |  | [Shades](http://www.w3schools.com/colors/colors_picker.asp?colorhex=8FBC8F) | [Mix](http://www.w3schools.com/colors/colors_mixer.asp?colorbottom=8FBC8F&colortop=FFFFFF) |
| [DarkSlateBlue](http://www.w3schools.com/colors/color_tryit.asp?color=DarkSlateBlue) | [#483D8B](http://www.w3schools.com/colors/color_tryit.asp?hex=483D8B) |  | [Shades](http://www.w3schools.com/colors/colors_picker.asp?colorhex=483D8B) | [Mix](http://www.w3schools.com/colors/colors_mixer.asp?colorbottom=483D8B&colortop=FFFFFF) |
| [DarkSlateGray](http://www.w3schools.com/colors/color_tryit.asp?color=DarkSlateGray) | [#2F4F4F](http://www.w3schools.com/colors/color_tryit.asp?hex=2F4F4F) |  | [Shades](http://www.w3schools.com/colors/colors_picker.asp?colorhex=2F4F4F) | [Mix](http://www.w3schools.com/colors/colors_mixer.asp?colorbottom=2F4F4F&colortop=FFFFFF) |
| [DarkSlateGrey](http://www.w3schools.com/colors/color_tryit.asp?color=DarkSlateGrey) | [#2F4F4F](http://www.w3schools.com/colors/color_tryit.asp?hex=2F4F4F) |  | [Shades](http://www.w3schools.com/colors/colors_picker.asp?colorhex=2F4F4F) | [Mix](http://www.w3schools.com/colors/colors_mixer.asp?colorbottom=2F4F4F&colortop=FFFFFF) |
| [DarkTurquoise](http://www.w3schools.com/colors/color_tryit.asp?color=DarkTurquoise) | [#00CED1](http://www.w3schools.com/colors/color_tryit.asp?hex=00CED1) |  | [Shades](http://www.w3schools.com/colors/colors_picker.asp?colorhex=00CED1) | [Mix](http://www.w3schools.com/colors/colors_mixer.asp?colorbottom=00CED1&colortop=FFFFFF) |
| [DarkViolet](http://www.w3schools.com/colors/color_tryit.asp?color=DarkViolet) | [#9400D3](http://www.w3schools.com/colors/color_tryit.asp?hex=9400D3) |  | [Shades](http://www.w3schools.com/colors/colors_picker.asp?colorhex=9400D3) | [Mix](http://www.w3schools.com/colors/colors_mixer.asp?colorbottom=9400D3&colortop=FFFFFF) |
| [DeepPink](http://www.w3schools.com/colors/color_tryit.asp?color=DeepPink) | [#FF1493](http://www.w3schools.com/colors/color_tryit.asp?hex=FF1493) |  | [Shades](http://www.w3schools.com/colors/colors_picker.asp?colorhex=FF1493) | [Mix](http://www.w3schools.com/colors/colors_mixer.asp?colorbottom=FF1493&colortop=FFFFFF) |
| [DeepSkyBlue](http://www.w3schools.com/colors/color_tryit.asp?color=DeepSkyBlue) | [#00BFFF](http://www.w3schools.com/colors/color_tryit.asp?hex=00BFFF) |  | [Shades](http://www.w3schools.com/colors/colors_picker.asp?colorhex=00BFFF) | [Mix](http://www.w3schools.com/colors/colors_mixer.asp?colorbottom=00BFFF&colortop=FFFFFF) |
| [DimGray](http://www.w3schools.com/colors/color_tryit.asp?color=DimGray) | [#696969](http://www.w3schools.com/colors/color_tryit.asp?hex=696969) |  | [Shades](http://www.w3schools.com/colors/colors_picker.asp?colorhex=696969) | [Mix](http://www.w3schools.com/colors/colors_mixer.asp?colorbottom=696969&colortop=FFFFFF) |
| [DimGrey](http://www.w3schools.com/colors/color_tryit.asp?color=DimGrey) | [#696969](http://www.w3schools.com/colors/color_tryit.asp?hex=696969) |  | [Shades](http://www.w3schools.com/colors/colors_picker.asp?colorhex=696969) | [Mix](http://www.w3schools.com/colors/colors_mixer.asp?colorbottom=696969&colortop=FFFFFF) |
| [DodgerBlue](http://www.w3schools.com/colors/color_tryit.asp?color=DodgerBlue) | [#1E90FF](http://www.w3schools.com/colors/color_tryit.asp?hex=1E90FF) |  | [Shades](http://www.w3schools.com/colors/colors_picker.asp?colorhex=1E90FF) | [Mix](http://www.w3schools.com/colors/colors_mixer.asp?colorbottom=1E90FF&colortop=FFFFFF) |
| [FireBrick](http://www.w3schools.com/colors/color_tryit.asp?color=FireBrick) | [#B22222](http://www.w3schools.com/colors/color_tryit.asp?hex=B22222) |  | [Shades](http://www.w3schools.com/colors/colors_picker.asp?colorhex=B22222) | [Mix](http://www.w3schools.com/colors/colors_mixer.asp?colorbottom=B22222&colortop=FFFFFF) |
| [FloralWhite](http://www.w3schools.com/colors/color_tryit.asp?color=FloralWhite) | [#FFFAF0](http://www.w3schools.com/colors/color_tryit.asp?hex=FFFAF0) |  | [Shades](http://www.w3schools.com/colors/colors_picker.asp?colorhex=FFFAF0) | [Mix](http://www.w3schools.com/colors/colors_mixer.asp?colorbottom=FFFAF0&colortop=FFFFFF) |
| [ForestGreen](http://www.w3schools.com/colors/color_tryit.asp?color=ForestGreen) | [#228B22](http://www.w3schools.com/colors/color_tryit.asp?hex=228B22) |  | [Shades](http://www.w3schools.com/colors/colors_picker.asp?colorhex=228B22) | [Mix](http://www.w3schools.com/colors/colors_mixer.asp?colorbottom=228B22&colortop=FFFFFF) |
| [Fuchsia](http://www.w3schools.com/colors/color_tryit.asp?color=Fuchsia) | [#FF00FF](http://www.w3schools.com/colors/color_tryit.asp?hex=FF00FF) |  | [Shades](http://www.w3schools.com/colors/colors_picker.asp?colorhex=FF00FF) | [Mix](http://www.w3schools.com/colors/colors_mixer.asp?colorbottom=FF00FF&colortop=FFFFFF) |
| [Gainsboro](http://www.w3schools.com/colors/color_tryit.asp?color=Gainsboro) | [#DCDCDC](http://www.w3schools.com/colors/color_tryit.asp?hex=DCDCDC) |  | [Shades](http://www.w3schools.com/colors/colors_picker.asp?colorhex=DCDCDC) | [Mix](http://www.w3schools.com/colors/colors_mixer.asp?colorbottom=DCDCDC&colortop=FFFFFF) |
| [GhostWhite](http://www.w3schools.com/colors/color_tryit.asp?color=GhostWhite) | [#F8F8FF](http://www.w3schools.com/colors/color_tryit.asp?hex=F8F8FF) |  | [Shades](http://www.w3schools.com/colors/colors_picker.asp?colorhex=F8F8FF) | [Mix](http://www.w3schools.com/colors/colors_mixer.asp?colorbottom=F8F8FF&colortop=FFFFFF) |
| [Gold](http://www.w3schools.com/colors/color_tryit.asp?color=Gold) | [#FFD700](http://www.w3schools.com/colors/color_tryit.asp?hex=FFD700) |  | [Shades](http://www.w3schools.com/colors/colors_picker.asp?colorhex=FFD700) | [Mix](http://www.w3schools.com/colors/colors_mixer.asp?colorbottom=FFD700&colortop=FFFFFF) |
| [GoldenRod](http://www.w3schools.com/colors/color_tryit.asp?color=GoldenRod) | [#DAA520](http://www.w3schools.com/colors/color_tryit.asp?hex=DAA520) |  | [Shades](http://www.w3schools.com/colors/colors_picker.asp?colorhex=DAA520) | [Mix](http://www.w3schools.com/colors/colors_mixer.asp?colorbottom=DAA520&colortop=FFFFFF) |
| [Gray](http://www.w3schools.com/colors/color_tryit.asp?color=Gray) | [#808080](http://www.w3schools.com/colors/color_tryit.asp?hex=808080) |  | [Shades](http://www.w3schools.com/colors/colors_picker.asp?colorhex=808080) | [Mix](http://www.w3schools.com/colors/colors_mixer.asp?colorbottom=808080&colortop=FFFFFF) |
| [Grey](http://www.w3schools.com/colors/color_tryit.asp?color=Grey) | [#808080](http://www.w3schools.com/colors/color_tryit.asp?hex=808080) |  | [Shades](http://www.w3schools.com/colors/colors_picker.asp?colorhex=808080) | [Mix](http://www.w3schools.com/colors/colors_mixer.asp?colorbottom=808080&colortop=FFFFFF) |
| [Green](http://www.w3schools.com/colors/color_tryit.asp?color=Green) | [#008000](http://www.w3schools.com/colors/color_tryit.asp?hex=008000) |  | [Shades](http://www.w3schools.com/colors/colors_picker.asp?colorhex=008000) | [Mix](http://www.w3schools.com/colors/colors_mixer.asp?colorbottom=008000&colortop=FFFFFF) |
| [GreenYellow](http://www.w3schools.com/colors/color_tryit.asp?color=GreenYellow) | [#ADFF2F](http://www.w3schools.com/colors/color_tryit.asp?hex=ADFF2F) |  | [Shades](http://www.w3schools.com/colors/colors_picker.asp?colorhex=ADFF2F) | [Mix](http://www.w3schools.com/colors/colors_mixer.asp?colorbottom=ADFF2F&colortop=FFFFFF) |
| [HoneyDew](http://www.w3schools.com/colors/color_tryit.asp?color=HoneyDew) | [#F0FFF0](http://www.w3schools.com/colors/color_tryit.asp?hex=F0FFF0) |  | [Shades](http://www.w3schools.com/colors/colors_picker.asp?colorhex=F0FFF0) | [Mix](http://www.w3schools.com/colors/colors_mixer.asp?colorbottom=F0FFF0&colortop=FFFFFF) |
| [HotPink](http://www.w3schools.com/colors/color_tryit.asp?color=HotPink) | [#FF69B4](http://www.w3schools.com/colors/color_tryit.asp?hex=FF69B4) |  | [Shades](http://www.w3schools.com/colors/colors_picker.asp?colorhex=FF69B4) | [Mix](http://www.w3schools.com/colors/colors_mixer.asp?colorbottom=FF69B4&colortop=FFFFFF) |
| [IndianRed](http://www.w3schools.com/colors/color_tryit.asp?color=IndianRed) | [#CD5C5C](http://www.w3schools.com/colors/color_tryit.asp?hex=CD5C5C) |  | [Shades](http://www.w3schools.com/colors/colors_picker.asp?colorhex=CD5C5C) | [Mix](http://www.w3schools.com/colors/colors_mixer.asp?colorbottom=CD5C5C&colortop=FFFFFF) |
| [Indigo](http://www.w3schools.com/colors/color_tryit.asp?color=Indigo) | [#4B0082](http://www.w3schools.com/colors/color_tryit.asp?hex=4B0082) |  | [Shades](http://www.w3schools.com/colors/colors_picker.asp?colorhex=4B0082) | [Mix](http://www.w3schools.com/colors/colors_mixer.asp?colorbottom=4B0082&colortop=FFFFFF) |
| [Ivory](http://www.w3schools.com/colors/color_tryit.asp?color=Ivory) | [#FFFFF0](http://www.w3schools.com/colors/color_tryit.asp?hex=FFFFF0) |  | [Shades](http://www.w3schools.com/colors/colors_picker.asp?colorhex=FFFFF0) | [Mix](http://www.w3schools.com/colors/colors_mixer.asp?colorbottom=FFFFF0&colortop=FFFFFF) |
| [Khaki](http://www.w3schools.com/colors/color_tryit.asp?color=Khaki) | [#F0E68C](http://www.w3schools.com/colors/color_tryit.asp?hex=F0E68C) |  | [Shades](http://www.w3schools.com/colors/colors_picker.asp?colorhex=F0E68C) | [Mix](http://www.w3schools.com/colors/colors_mixer.asp?colorbottom=F0E68C&colortop=FFFFFF) |
| [Lavender](http://www.w3schools.com/colors/color_tryit.asp?color=Lavender) | [#E6E6FA](http://www.w3schools.com/colors/color_tryit.asp?hex=E6E6FA) |  | [Shades](http://www.w3schools.com/colors/colors_picker.asp?colorhex=E6E6FA) | [Mix](http://www.w3schools.com/colors/colors_mixer.asp?colorbottom=E6E6FA&colortop=FFFFFF) |
| [LavenderBlush](http://www.w3schools.com/colors/color_tryit.asp?color=LavenderBlush) | [#FFF0F5](http://www.w3schools.com/colors/color_tryit.asp?hex=FFF0F5) |  | [Shades](http://www.w3schools.com/colors/colors_picker.asp?colorhex=FFF0F5) | [Mix](http://www.w3schools.com/colors/colors_mixer.asp?colorbottom=FFF0F5&colortop=FFFFFF) |
| [LawnGreen](http://www.w3schools.com/colors/color_tryit.asp?color=LawnGreen) | [#7CFC00](http://www.w3schools.com/colors/color_tryit.asp?hex=7CFC00) |  | [Shades](http://www.w3schools.com/colors/colors_picker.asp?colorhex=7CFC00) | [Mix](http://www.w3schools.com/colors/colors_mixer.asp?colorbottom=7CFC00&colortop=FFFFFF) |
| [LemonChiffon](http://www.w3schools.com/colors/color_tryit.asp?color=LemonChiffon) | [#FFFACD](http://www.w3schools.com/colors/color_tryit.asp?hex=FFFACD) |  | [Shades](http://www.w3schools.com/colors/colors_picker.asp?colorhex=FFFACD) | [Mix](http://www.w3schools.com/colors/colors_mixer.asp?colorbottom=FFFACD&colortop=FFFFFF) |
| [LightBlue](http://www.w3schools.com/colors/color_tryit.asp?color=LightBlue) | [#ADD8E6](http://www.w3schools.com/colors/color_tryit.asp?hex=ADD8E6) |  | [Shades](http://www.w3schools.com/colors/colors_picker.asp?colorhex=ADD8E6) | [Mix](http://www.w3schools.com/colors/colors_mixer.asp?colorbottom=ADD8E6&colortop=FFFFFF) |
| [LightCoral](http://www.w3schools.com/colors/color_tryit.asp?color=LightCoral) | [#F08080](http://www.w3schools.com/colors/color_tryit.asp?hex=F08080) |  | [Shades](http://www.w3schools.com/colors/colors_picker.asp?colorhex=F08080) | [Mix](http://www.w3schools.com/colors/colors_mixer.asp?colorbottom=F08080&colortop=FFFFFF) |
| [LightCyan](http://www.w3schools.com/colors/color_tryit.asp?color=LightCyan) | [#E0FFFF](http://www.w3schools.com/colors/color_tryit.asp?hex=E0FFFF) |  | [Shades](http://www.w3schools.com/colors/colors_picker.asp?colorhex=E0FFFF) | [Mix](http://www.w3schools.com/colors/colors_mixer.asp?colorbottom=E0FFFF&colortop=FFFFFF) |
| [LightGoldenRodYellow](http://www.w3schools.com/colors/color_tryit.asp?color=LightGoldenRodYellow) | [#FAFAD2](http://www.w3schools.com/colors/color_tryit.asp?hex=FAFAD2) |  | [Shades](http://www.w3schools.com/colors/colors_picker.asp?colorhex=FAFAD2) | [Mix](http://www.w3schools.com/colors/colors_mixer.asp?colorbottom=FAFAD2&colortop=FFFFFF) |
| [LightGray](http://www.w3schools.com/colors/color_tryit.asp?color=LightGray) | [#D3D3D3](http://www.w3schools.com/colors/color_tryit.asp?hex=D3D3D3) |  | [Shades](http://www.w3schools.com/colors/colors_picker.asp?colorhex=D3D3D3) | [Mix](http://www.w3schools.com/colors/colors_mixer.asp?colorbottom=D3D3D3&colortop=FFFFFF) |
| [LightGrey](http://www.w3schools.com/colors/color_tryit.asp?color=LightGrey) | [#D3D3D3](http://www.w3schools.com/colors/color_tryit.asp?hex=D3D3D3) |  | [Shades](http://www.w3schools.com/colors/colors_picker.asp?colorhex=D3D3D3) | [Mix](http://www.w3schools.com/colors/colors_mixer.asp?colorbottom=D3D3D3&colortop=FFFFFF) |
| [LightGreen](http://www.w3schools.com/colors/color_tryit.asp?color=LightGreen) | [#90EE90](http://www.w3schools.com/colors/color_tryit.asp?hex=90EE90) |  | [Shades](http://www.w3schools.com/colors/colors_picker.asp?colorhex=90EE90) | [Mix](http://www.w3schools.com/colors/colors_mixer.asp?colorbottom=90EE90&colortop=FFFFFF) |
| [LightPink](http://www.w3schools.com/colors/color_tryit.asp?color=LightPink) | [#FFB6C1](http://www.w3schools.com/colors/color_tryit.asp?hex=FFB6C1) |  | [Shades](http://www.w3schools.com/colors/colors_picker.asp?colorhex=FFB6C1) | [Mix](http://www.w3schools.com/colors/colors_mixer.asp?colorbottom=FFB6C1&colortop=FFFFFF) |
| [LightSalmon](http://www.w3schools.com/colors/color_tryit.asp?color=LightSalmon) | [#FFA07A](http://www.w3schools.com/colors/color_tryit.asp?hex=FFA07A) |  | [Shades](http://www.w3schools.com/colors/colors_picker.asp?colorhex=FFA07A) | [Mix](http://www.w3schools.com/colors/colors_mixer.asp?colorbottom=FFA07A&colortop=FFFFFF) |
| [LightSeaGreen](http://www.w3schools.com/colors/color_tryit.asp?color=LightSeaGreen) | [#20B2AA](http://www.w3schools.com/colors/color_tryit.asp?hex=20B2AA) |  | [Shades](http://www.w3schools.com/colors/colors_picker.asp?colorhex=20B2AA) | [Mix](http://www.w3schools.com/colors/colors_mixer.asp?colorbottom=20B2AA&colortop=FFFFFF) |
| [LightSkyBlue](http://www.w3schools.com/colors/color_tryit.asp?color=LightSkyBlue) | [#87CEFA](http://www.w3schools.com/colors/color_tryit.asp?hex=87CEFA) |  | [Shades](http://www.w3schools.com/colors/colors_picker.asp?colorhex=87CEFA) | [Mix](http://www.w3schools.com/colors/colors_mixer.asp?colorbottom=87CEFA&colortop=FFFFFF) |
| [LightSlateGray](http://www.w3schools.com/colors/color_tryit.asp?color=LightSlateGray) | [#778899](http://www.w3schools.com/colors/color_tryit.asp?hex=778899) |  | [Shades](http://www.w3schools.com/colors/colors_picker.asp?colorhex=778899) | [Mix](http://www.w3schools.com/colors/colors_mixer.asp?colorbottom=778899&colortop=FFFFFF) |
| [LightSlateGrey](http://www.w3schools.com/colors/color_tryit.asp?color=LightSlateGrey) | [#778899](http://www.w3schools.com/colors/color_tryit.asp?hex=778899) |  | [Shades](http://www.w3schools.com/colors/colors_picker.asp?colorhex=778899) | [Mix](http://www.w3schools.com/colors/colors_mixer.asp?colorbottom=778899&colortop=FFFFFF) |
| [LightSteelBlue](http://www.w3schools.com/colors/color_tryit.asp?color=LightSteelBlue) | [#B0C4DE](http://www.w3schools.com/colors/color_tryit.asp?hex=B0C4DE) |  | [Shades](http://www.w3schools.com/colors/colors_picker.asp?colorhex=B0C4DE) | [Mix](http://www.w3schools.com/colors/colors_mixer.asp?colorbottom=B0C4DE&colortop=FFFFFF) |
| [LightYellow](http://www.w3schools.com/colors/color_tryit.asp?color=LightYellow) | [#FFFFE0](http://www.w3schools.com/colors/color_tryit.asp?hex=FFFFE0) |  | [Shades](http://www.w3schools.com/colors/colors_picker.asp?colorhex=FFFFE0) | [Mix](http://www.w3schools.com/colors/colors_mixer.asp?colorbottom=FFFFE0&colortop=FFFFFF) |
| [Lime](http://www.w3schools.com/colors/color_tryit.asp?color=Lime) | [#00FF00](http://www.w3schools.com/colors/color_tryit.asp?hex=00FF00) |  | [Shades](http://www.w3schools.com/colors/colors_picker.asp?colorhex=00FF00) | [Mix](http://www.w3schools.com/colors/colors_mixer.asp?colorbottom=00FF00&colortop=FFFFFF) |
| [LimeGreen](http://www.w3schools.com/colors/color_tryit.asp?color=LimeGreen) | [#32CD32](http://www.w3schools.com/colors/color_tryit.asp?hex=32CD32) |  | [Shades](http://www.w3schools.com/colors/colors_picker.asp?colorhex=32CD32) | [Mix](http://www.w3schools.com/colors/colors_mixer.asp?colorbottom=32CD32&colortop=FFFFFF) |
| [Linen](http://www.w3schools.com/colors/color_tryit.asp?color=Linen) | [#FAF0E6](http://www.w3schools.com/colors/color_tryit.asp?hex=FAF0E6) |  | [Shades](http://www.w3schools.com/colors/colors_picker.asp?colorhex=FAF0E6) | [Mix](http://www.w3schools.com/colors/colors_mixer.asp?colorbottom=FAF0E6&colortop=FFFFFF) |
| [Magenta](http://www.w3schools.com/colors/color_tryit.asp?color=Magenta) | [#FF00FF](http://www.w3schools.com/colors/color_tryit.asp?hex=FF00FF) |  | [Shades](http://www.w3schools.com/colors/colors_picker.asp?colorhex=FF00FF) | [Mix](http://www.w3schools.com/colors/colors_mixer.asp?colorbottom=FF00FF&colortop=FFFFFF) |
| [Maroon](http://www.w3schools.com/colors/color_tryit.asp?color=Maroon) | [#800000](http://www.w3schools.com/colors/color_tryit.asp?hex=800000) |  | [Shades](http://www.w3schools.com/colors/colors_picker.asp?colorhex=800000) | [Mix](http://www.w3schools.com/colors/colors_mixer.asp?colorbottom=800000&colortop=FFFFFF) |
| [MediumAquaMarine](http://www.w3schools.com/colors/color_tryit.asp?color=MediumAquaMarine) | [#66CDAA](http://www.w3schools.com/colors/color_tryit.asp?hex=66CDAA) |  | [Shades](http://www.w3schools.com/colors/colors_picker.asp?colorhex=66CDAA) | [Mix](http://www.w3schools.com/colors/colors_mixer.asp?colorbottom=66CDAA&colortop=FFFFFF) |
| [MediumBlue](http://www.w3schools.com/colors/color_tryit.asp?color=MediumBlue) | [#0000CD](http://www.w3schools.com/colors/color_tryit.asp?hex=0000CD) |  | [Shades](http://www.w3schools.com/colors/colors_picker.asp?colorhex=0000CD) | [Mix](http://www.w3schools.com/colors/colors_mixer.asp?colorbottom=0000CD&colortop=FFFFFF) |
| [MediumOrchid](http://www.w3schools.com/colors/color_tryit.asp?color=MediumOrchid) | [#BA55D3](http://www.w3schools.com/colors/color_tryit.asp?hex=BA55D3) |  | [Shades](http://www.w3schools.com/colors/colors_picker.asp?colorhex=BA55D3) | [Mix](http://www.w3schools.com/colors/colors_mixer.asp?colorbottom=BA55D3&colortop=FFFFFF) |
| [MediumPurple](http://www.w3schools.com/colors/color_tryit.asp?color=MediumPurple) | [#9370DB](http://www.w3schools.com/colors/color_tryit.asp?hex=9370DB) |  | [Shades](http://www.w3schools.com/colors/colors_picker.asp?colorhex=9370DB) | [Mix](http://www.w3schools.com/colors/colors_mixer.asp?colorbottom=9370DB&colortop=FFFFFF) |
| [MediumSeaGreen](http://www.w3schools.com/colors/color_tryit.asp?color=MediumSeaGreen) | [#3CB371](http://www.w3schools.com/colors/color_tryit.asp?hex=3CB371) |  | [Shades](http://www.w3schools.com/colors/colors_picker.asp?colorhex=3CB371) | [Mix](http://www.w3schools.com/colors/colors_mixer.asp?colorbottom=3CB371&colortop=FFFFFF) |
| [MediumSlateBlue](http://www.w3schools.com/colors/color_tryit.asp?color=MediumSlateBlue) | [#7B68EE](http://www.w3schools.com/colors/color_tryit.asp?hex=7B68EE) |  | [Shades](http://www.w3schools.com/colors/colors_picker.asp?colorhex=7B68EE) | [Mix](http://www.w3schools.com/colors/colors_mixer.asp?colorbottom=7B68EE&colortop=FFFFFF) |
| [MediumSpringGreen](http://www.w3schools.com/colors/color_tryit.asp?color=MediumSpringGreen) | [#00FA9A](http://www.w3schools.com/colors/color_tryit.asp?hex=00FA9A) |  | [Shades](http://www.w3schools.com/colors/colors_picker.asp?colorhex=00FA9A) | [Mix](http://www.w3schools.com/colors/colors_mixer.asp?colorbottom=00FA9A&colortop=FFFFFF) |
| [MediumTurquoise](http://www.w3schools.com/colors/color_tryit.asp?color=MediumTurquoise) | [#48D1CC](http://www.w3schools.com/colors/color_tryit.asp?hex=48D1CC) |  | [Shades](http://www.w3schools.com/colors/colors_picker.asp?colorhex=48D1CC) | [Mix](http://www.w3schools.com/colors/colors_mixer.asp?colorbottom=48D1CC&colortop=FFFFFF) |
| [MediumVioletRed](http://www.w3schools.com/colors/color_tryit.asp?color=MediumVioletRed) | [#C71585](http://www.w3schools.com/colors/color_tryit.asp?hex=C71585) |  | [Shades](http://www.w3schools.com/colors/colors_picker.asp?colorhex=C71585) | [Mix](http://www.w3schools.com/colors/colors_mixer.asp?colorbottom=C71585&colortop=FFFFFF) |
| [MidnightBlue](http://www.w3schools.com/colors/color_tryit.asp?color=MidnightBlue) | [#191970](http://www.w3schools.com/colors/color_tryit.asp?hex=191970) |  | [Shades](http://www.w3schools.com/colors/colors_picker.asp?colorhex=191970) | [Mix](http://www.w3schools.com/colors/colors_mixer.asp?colorbottom=191970&colortop=FFFFFF) |
| [MintCream](http://www.w3schools.com/colors/color_tryit.asp?color=MintCream) | [#F5FFFA](http://www.w3schools.com/colors/color_tryit.asp?hex=F5FFFA) |  | [Shades](http://www.w3schools.com/colors/colors_picker.asp?colorhex=F5FFFA) | [Mix](http://www.w3schools.com/colors/colors_mixer.asp?colorbottom=F5FFFA&colortop=FFFFFF) |
| [MistyRose](http://www.w3schools.com/colors/color_tryit.asp?color=MistyRose) | [#FFE4E1](http://www.w3schools.com/colors/color_tryit.asp?hex=FFE4E1) |  | [Shades](http://www.w3schools.com/colors/colors_picker.asp?colorhex=FFE4E1) | [Mix](http://www.w3schools.com/colors/colors_mixer.asp?colorbottom=FFE4E1&colortop=FFFFFF) |
| [Moccasin](http://www.w3schools.com/colors/color_tryit.asp?color=Moccasin) | [#FFE4B5](http://www.w3schools.com/colors/color_tryit.asp?hex=FFE4B5) |  | [Shades](http://www.w3schools.com/colors/colors_picker.asp?colorhex=FFE4B5) | [Mix](http://www.w3schools.com/colors/colors_mixer.asp?colorbottom=FFE4B5&colortop=FFFFFF) |
| [NavajoWhite](http://www.w3schools.com/colors/color_tryit.asp?color=NavajoWhite) | [#FFDEAD](http://www.w3schools.com/colors/color_tryit.asp?hex=FFDEAD) |  | [Shades](http://www.w3schools.com/colors/colors_picker.asp?colorhex=FFDEAD) | [Mix](http://www.w3schools.com/colors/colors_mixer.asp?colorbottom=FFDEAD&colortop=FFFFFF) |
| [Navy](http://www.w3schools.com/colors/color_tryit.asp?color=Navy) | [#000080](http://www.w3schools.com/colors/color_tryit.asp?hex=000080) |  | [Shades](http://www.w3schools.com/colors/colors_picker.asp?colorhex=000080) | [Mix](http://www.w3schools.com/colors/colors_mixer.asp?colorbottom=000080&colortop=FFFFFF) |
| [OldLace](http://www.w3schools.com/colors/color_tryit.asp?color=OldLace) | [#FDF5E6](http://www.w3schools.com/colors/color_tryit.asp?hex=FDF5E6) |  | [Shades](http://www.w3schools.com/colors/colors_picker.asp?colorhex=FDF5E6) | [Mix](http://www.w3schools.com/colors/colors_mixer.asp?colorbottom=FDF5E6&colortop=FFFFFF) |
| [Olive](http://www.w3schools.com/colors/color_tryit.asp?color=Olive) | [#808000](http://www.w3schools.com/colors/color_tryit.asp?hex=808000) |  | [Shades](http://www.w3schools.com/colors/colors_picker.asp?colorhex=808000) | [Mix](http://www.w3schools.com/colors/colors_mixer.asp?colorbottom=808000&colortop=FFFFFF) |
| [OliveDrab](http://www.w3schools.com/colors/color_tryit.asp?color=OliveDrab) | [#6B8E23](http://www.w3schools.com/colors/color_tryit.asp?hex=6B8E23) |  | [Shades](http://www.w3schools.com/colors/colors_picker.asp?colorhex=6B8E23) | [Mix](http://www.w3schools.com/colors/colors_mixer.asp?colorbottom=6B8E23&colortop=FFFFFF) |
| [Orange](http://www.w3schools.com/colors/color_tryit.asp?color=Orange) | [#FFA500](http://www.w3schools.com/colors/color_tryit.asp?hex=FFA500) |  | [Shades](http://www.w3schools.com/colors/colors_picker.asp?colorhex=FFA500) | [Mix](http://www.w3schools.com/colors/colors_mixer.asp?colorbottom=FFA500&colortop=FFFFFF) |
| [OrangeRed](http://www.w3schools.com/colors/color_tryit.asp?color=OrangeRed) | [#FF4500](http://www.w3schools.com/colors/color_tryit.asp?hex=FF4500) |  | [Shades](http://www.w3schools.com/colors/colors_picker.asp?colorhex=FF4500) | [Mix](http://www.w3schools.com/colors/colors_mixer.asp?colorbottom=FF4500&colortop=FFFFFF) |
| [Orchid](http://www.w3schools.com/colors/color_tryit.asp?color=Orchid) | [#DA70D6](http://www.w3schools.com/colors/color_tryit.asp?hex=DA70D6) |  | [Shades](http://www.w3schools.com/colors/colors_picker.asp?colorhex=DA70D6) | [Mix](http://www.w3schools.com/colors/colors_mixer.asp?colorbottom=DA70D6&colortop=FFFFFF) |
| [PaleGoldenRod](http://www.w3schools.com/colors/color_tryit.asp?color=PaleGoldenRod) | [#EEE8AA](http://www.w3schools.com/colors/color_tryit.asp?hex=EEE8AA) |  | [Shades](http://www.w3schools.com/colors/colors_picker.asp?colorhex=EEE8AA) | [Mix](http://www.w3schools.com/colors/colors_mixer.asp?colorbottom=EEE8AA&colortop=FFFFFF) |
| [PaleGreen](http://www.w3schools.com/colors/color_tryit.asp?color=PaleGreen) | [#98FB98](http://www.w3schools.com/colors/color_tryit.asp?hex=98FB98) |  | [Shades](http://www.w3schools.com/colors/colors_picker.asp?colorhex=98FB98) | [Mix](http://www.w3schools.com/colors/colors_mixer.asp?colorbottom=98FB98&colortop=FFFFFF) |
| [PaleTurquoise](http://www.w3schools.com/colors/color_tryit.asp?color=PaleTurquoise) | [#AFEEEE](http://www.w3schools.com/colors/color_tryit.asp?hex=AFEEEE) |  | [Shades](http://www.w3schools.com/colors/colors_picker.asp?colorhex=AFEEEE) | [Mix](http://www.w3schools.com/colors/colors_mixer.asp?colorbottom=AFEEEE&colortop=FFFFFF) |
| [PaleVioletRed](http://www.w3schools.com/colors/color_tryit.asp?color=PaleVioletRed) | [#DB7093](http://www.w3schools.com/colors/color_tryit.asp?hex=DB7093) |  | [Shades](http://www.w3schools.com/colors/colors_picker.asp?colorhex=DB7093) | [Mix](http://www.w3schools.com/colors/colors_mixer.asp?colorbottom=DB7093&colortop=FFFFFF) |
| [PapayaWhip](http://www.w3schools.com/colors/color_tryit.asp?color=PapayaWhip) | [#FFEFD5](http://www.w3schools.com/colors/color_tryit.asp?hex=FFEFD5) |  | [Shades](http://www.w3schools.com/colors/colors_picker.asp?colorhex=FFEFD5) | [Mix](http://www.w3schools.com/colors/colors_mixer.asp?colorbottom=FFEFD5&colortop=FFFFFF) |
| [PeachPuff](http://www.w3schools.com/colors/color_tryit.asp?color=PeachPuff) | [#FFDAB9](http://www.w3schools.com/colors/color_tryit.asp?hex=FFDAB9) |  | [Shades](http://www.w3schools.com/colors/colors_picker.asp?colorhex=FFDAB9) | [Mix](http://www.w3schools.com/colors/colors_mixer.asp?colorbottom=FFDAB9&colortop=FFFFFF) |
| [Peru](http://www.w3schools.com/colors/color_tryit.asp?color=Peru) | [#CD853F](http://www.w3schools.com/colors/color_tryit.asp?hex=CD853F) |  | [Shades](http://www.w3schools.com/colors/colors_picker.asp?colorhex=CD853F) | [Mix](http://www.w3schools.com/colors/colors_mixer.asp?colorbottom=CD853F&colortop=FFFFFF) |
| [Pink](http://www.w3schools.com/colors/color_tryit.asp?color=Pink) | [#FFC0CB](http://www.w3schools.com/colors/color_tryit.asp?hex=FFC0CB) |  | [Shades](http://www.w3schools.com/colors/colors_picker.asp?colorhex=FFC0CB) | [Mix](http://www.w3schools.com/colors/colors_mixer.asp?colorbottom=FFC0CB&colortop=FFFFFF) |
| [Plum](http://www.w3schools.com/colors/color_tryit.asp?color=Plum) | [#DDA0DD](http://www.w3schools.com/colors/color_tryit.asp?hex=DDA0DD) |  | [Shades](http://www.w3schools.com/colors/colors_picker.asp?colorhex=DDA0DD) | [Mix](http://www.w3schools.com/colors/colors_mixer.asp?colorbottom=DDA0DD&colortop=FFFFFF) |
| [PowderBlue](http://www.w3schools.com/colors/color_tryit.asp?color=PowderBlue) | [#B0E0E6](http://www.w3schools.com/colors/color_tryit.asp?hex=B0E0E6) |  | [Shades](http://www.w3schools.com/colors/colors_picker.asp?colorhex=B0E0E6) | [Mix](http://www.w3schools.com/colors/colors_mixer.asp?colorbottom=B0E0E6&colortop=FFFFFF) |
| [Purple](http://www.w3schools.com/colors/color_tryit.asp?color=Purple) | [#800080](http://www.w3schools.com/colors/color_tryit.asp?hex=800080) |  | [Shades](http://www.w3schools.com/colors/colors_picker.asp?colorhex=800080) | [Mix](http://www.w3schools.com/colors/colors_mixer.asp?colorbottom=800080&colortop=FFFFFF) |
| [RebeccaPurple](http://www.w3schools.com/colors/color_tryit.asp?color=RebeccaPurple) | [#663399](http://www.w3schools.com/colors/color_tryit.asp?hex=663399) |  | [Shades](http://www.w3schools.com/colors/colors_picker.asp?colorhex=663399) | [Mix](http://www.w3schools.com/colors/colors_mixer.asp?colorbottom=663399&colortop=FFFFFF) |
| [Red](http://www.w3schools.com/colors/color_tryit.asp?color=Red) | [#FF0000](http://www.w3schools.com/colors/color_tryit.asp?hex=FF0000) |  | [Shades](http://www.w3schools.com/colors/colors_picker.asp?colorhex=FF0000) | [Mix](http://www.w3schools.com/colors/colors_mixer.asp?colorbottom=FF0000&colortop=FFFFFF) |
| [RosyBrown](http://www.w3schools.com/colors/color_tryit.asp?color=RosyBrown) | [#BC8F8F](http://www.w3schools.com/colors/color_tryit.asp?hex=BC8F8F) |  | [Shades](http://www.w3schools.com/colors/colors_picker.asp?colorhex=BC8F8F) | [Mix](http://www.w3schools.com/colors/colors_mixer.asp?colorbottom=BC8F8F&colortop=FFFFFF) |
| [RoyalBlue](http://www.w3schools.com/colors/color_tryit.asp?color=RoyalBlue) | [#4169E1](http://www.w3schools.com/colors/color_tryit.asp?hex=4169E1) |  | [Shades](http://www.w3schools.com/colors/colors_picker.asp?colorhex=4169E1) | [Mix](http://www.w3schools.com/colors/colors_mixer.asp?colorbottom=4169E1&colortop=FFFFFF) |
| [SaddleBrown](http://www.w3schools.com/colors/color_tryit.asp?color=SaddleBrown) | [#8B4513](http://www.w3schools.com/colors/color_tryit.asp?hex=8B4513) |  | [Shades](http://www.w3schools.com/colors/colors_picker.asp?colorhex=8B4513) | [Mix](http://www.w3schools.com/colors/colors_mixer.asp?colorbottom=8B4513&colortop=FFFFFF) |
| [Salmon](http://www.w3schools.com/colors/color_tryit.asp?color=Salmon) | [#FA8072](http://www.w3schools.com/colors/color_tryit.asp?hex=FA8072) |  | [Shades](http://www.w3schools.com/colors/colors_picker.asp?colorhex=FA8072) | [Mix](http://www.w3schools.com/colors/colors_mixer.asp?colorbottom=FA8072&colortop=FFFFFF) |
| [SandyBrown](http://www.w3schools.com/colors/color_tryit.asp?color=SandyBrown) | [#F4A460](http://www.w3schools.com/colors/color_tryit.asp?hex=F4A460) |  | [Shades](http://www.w3schools.com/colors/colors_picker.asp?colorhex=F4A460) | [Mix](http://www.w3schools.com/colors/colors_mixer.asp?colorbottom=F4A460&colortop=FFFFFF) |
| [SeaGreen](http://www.w3schools.com/colors/color_tryit.asp?color=SeaGreen) | [#2E8B57](http://www.w3schools.com/colors/color_tryit.asp?hex=2E8B57) |  | [Shades](http://www.w3schools.com/colors/colors_picker.asp?colorhex=2E8B57) | [Mix](http://www.w3schools.com/colors/colors_mixer.asp?colorbottom=2E8B57&colortop=FFFFFF) |
| [SeaShell](http://www.w3schools.com/colors/color_tryit.asp?color=SeaShell) | [#FFF5EE](http://www.w3schools.com/colors/color_tryit.asp?hex=FFF5EE) |  | [Shades](http://www.w3schools.com/colors/colors_picker.asp?colorhex=FFF5EE) | [Mix](http://www.w3schools.com/colors/colors_mixer.asp?colorbottom=FFF5EE&colortop=FFFFFF) |
| [Sienna](http://www.w3schools.com/colors/color_tryit.asp?color=Sienna) | [#A0522D](http://www.w3schools.com/colors/color_tryit.asp?hex=A0522D) |  | [Shades](http://www.w3schools.com/colors/colors_picker.asp?colorhex=A0522D) | [Mix](http://www.w3schools.com/colors/colors_mixer.asp?colorbottom=A0522D&colortop=FFFFFF) |
| [Silver](http://www.w3schools.com/colors/color_tryit.asp?color=Silver) | [#C0C0C0](http://www.w3schools.com/colors/color_tryit.asp?hex=C0C0C0) |  | [Shades](http://www.w3schools.com/colors/colors_picker.asp?colorhex=C0C0C0) | [Mix](http://www.w3schools.com/colors/colors_mixer.asp?colorbottom=C0C0C0&colortop=FFFFFF) |
| [SkyBlue](http://www.w3schools.com/colors/color_tryit.asp?color=SkyBlue) | [#87CEEB](http://www.w3schools.com/colors/color_tryit.asp?hex=87CEEB) |  | [Shades](http://www.w3schools.com/colors/colors_picker.asp?colorhex=87CEEB) | [Mix](http://www.w3schools.com/colors/colors_mixer.asp?colorbottom=87CEEB&colortop=FFFFFF) |
| [SlateBlue](http://www.w3schools.com/colors/color_tryit.asp?color=SlateBlue) | [#6A5ACD](http://www.w3schools.com/colors/color_tryit.asp?hex=6A5ACD) |  | [Shades](http://www.w3schools.com/colors/colors_picker.asp?colorhex=6A5ACD) | [Mix](http://www.w3schools.com/colors/colors_mixer.asp?colorbottom=6A5ACD&colortop=FFFFFF) |
| [SlateGray](http://www.w3schools.com/colors/color_tryit.asp?color=SlateGray) | [#708090](http://www.w3schools.com/colors/color_tryit.asp?hex=708090) |  | [Shades](http://www.w3schools.com/colors/colors_picker.asp?colorhex=708090) | [Mix](http://www.w3schools.com/colors/colors_mixer.asp?colorbottom=708090&colortop=FFFFFF) |
| [SlateGrey](http://www.w3schools.com/colors/color_tryit.asp?color=SlateGrey) | [#708090](http://www.w3schools.com/colors/color_tryit.asp?hex=708090) |  | [Shades](http://www.w3schools.com/colors/colors_picker.asp?colorhex=708090) | [Mix](http://www.w3schools.com/colors/colors_mixer.asp?colorbottom=708090&colortop=FFFFFF) |
| [Snow](http://www.w3schools.com/colors/color_tryit.asp?color=Snow) | [#FFFAFA](http://www.w3schools.com/colors/color_tryit.asp?hex=FFFAFA) |  | [Shades](http://www.w3schools.com/colors/colors_picker.asp?colorhex=FFFAFA) | [Mix](http://www.w3schools.com/colors/colors_mixer.asp?colorbottom=FFFAFA&colortop=FFFFFF) |
| [SpringGreen](http://www.w3schools.com/colors/color_tryit.asp?color=SpringGreen) | [#00FF7F](http://www.w3schools.com/colors/color_tryit.asp?hex=00FF7F) |  | [Shades](http://www.w3schools.com/colors/colors_picker.asp?colorhex=00FF7F) | [Mix](http://www.w3schools.com/colors/colors_mixer.asp?colorbottom=00FF7F&colortop=FFFFFF) |
| [SteelBlue](http://www.w3schools.com/colors/color_tryit.asp?color=SteelBlue) | [#4682B4](http://www.w3schools.com/colors/color_tryit.asp?hex=4682B4) |  | [Shades](http://www.w3schools.com/colors/colors_picker.asp?colorhex=4682B4) | [Mix](http://www.w3schools.com/colors/colors_mixer.asp?colorbottom=4682B4&colortop=FFFFFF) |
| [Tan](http://www.w3schools.com/colors/color_tryit.asp?color=Tan) | [#D2B48C](http://www.w3schools.com/colors/color_tryit.asp?hex=D2B48C) |  | [Shades](http://www.w3schools.com/colors/colors_picker.asp?colorhex=D2B48C) | [Mix](http://www.w3schools.com/colors/colors_mixer.asp?colorbottom=D2B48C&colortop=FFFFFF) |
| [Teal](http://www.w3schools.com/colors/color_tryit.asp?color=Teal) | [#008080](http://www.w3schools.com/colors/color_tryit.asp?hex=008080) |  | [Shades](http://www.w3schools.com/colors/colors_picker.asp?colorhex=008080) | [Mix](http://www.w3schools.com/colors/colors_mixer.asp?colorbottom=008080&colortop=FFFFFF) |
| [Thistle](http://www.w3schools.com/colors/color_tryit.asp?color=Thistle) | [#D8BFD8](http://www.w3schools.com/colors/color_tryit.asp?hex=D8BFD8) |  | [Shades](http://www.w3schools.com/colors/colors_picker.asp?colorhex=D8BFD8) | [Mix](http://www.w3schools.com/colors/colors_mixer.asp?colorbottom=D8BFD8&colortop=FFFFFF) |
| [Tomato](http://www.w3schools.com/colors/color_tryit.asp?color=Tomato) | [#FF6347](http://www.w3schools.com/colors/color_tryit.asp?hex=FF6347) |  | [Shades](http://www.w3schools.com/colors/colors_picker.asp?colorhex=FF6347) | [Mix](http://www.w3schools.com/colors/colors_mixer.asp?colorbottom=FF6347&colortop=FFFFFF) |
| [Turquoise](http://www.w3schools.com/colors/color_tryit.asp?color=Turquoise) | [#40E0D0](http://www.w3schools.com/colors/color_tryit.asp?hex=40E0D0) |  | [Shades](http://www.w3schools.com/colors/colors_picker.asp?colorhex=40E0D0) | [Mix](http://www.w3schools.com/colors/colors_mixer.asp?colorbottom=40E0D0&colortop=FFFFFF) |
| [Violet](http://www.w3schools.com/colors/color_tryit.asp?color=Violet) | [#EE82EE](http://www.w3schools.com/colors/color_tryit.asp?hex=EE82EE) |  | [Shades](http://www.w3schools.com/colors/colors_picker.asp?colorhex=EE82EE) | [Mix](http://www.w3schools.com/colors/colors_mixer.asp?colorbottom=EE82EE&colortop=FFFFFF) |
| [Wheat](http://www.w3schools.com/colors/color_tryit.asp?color=Wheat) | [#F5DEB3](http://www.w3schools.com/colors/color_tryit.asp?hex=F5DEB3) |  | [Shades](http://www.w3schools.com/colors/colors_picker.asp?colorhex=F5DEB3) | [Mix](http://www.w3schools.com/colors/colors_mixer.asp?colorbottom=F5DEB3&colortop=FFFFFF) |
| [White](http://www.w3schools.com/colors/color_tryit.asp?color=White) | [#FFFFFF](http://www.w3schools.com/colors/color_tryit.asp?hex=FFFFFF) |  | [Shades](http://www.w3schools.com/colors/colors_picker.asp?colorhex=FFFFFF) | [Mix](http://www.w3schools.com/colors/colors_mixer.asp?colorbottom=FFFFFF&colortop=FFFFFF) |
| [WhiteSmoke](http://www.w3schools.com/colors/color_tryit.asp?color=WhiteSmoke) | [#F5F5F5](http://www.w3schools.com/colors/color_tryit.asp?hex=F5F5F5) |  | [Shades](http://www.w3schools.com/colors/colors_picker.asp?colorhex=F5F5F5) | [Mix](http://www.w3schools.com/colors/colors_mixer.asp?colorbottom=F5F5F5&colortop=FFFFFF) |
| [Yellow](http://www.w3schools.com/colors/color_tryit.asp?color=Yellow) | [#FFFF00](http://www.w3schools.com/colors/color_tryit.asp?hex=FFFF00) |  | [Shades](http://www.w3schools.com/colors/colors_picker.asp?colorhex=FFFF00) | [Mix](http://www.w3schools.com/colors/colors_mixer.asp?colorbottom=FFFF00&colortop=FFFFFF) |
| [YellowGreen](http://www.w3schools.com/colors/color_tryit.asp?color=YellowGreen) | [#9ACD32](http://www.w3schools.com/colors/color_tryit.asp?hex=9ACD32) |  | [Shades](http://www.w3schools.com/colors/colors_picker.asp?colorhex=9ACD32) | [Mix](http://www.w3schools.com/colors/colors_mixer.asp?colorbottom=9ACD32&colortop=FFFFFF) |

# HTML Canvas Reference

## Description

The HTML5 <canvas> tag is used to draw graphics, on the fly, via scripting (usually JavaScript).

However, the <canvas> element has no drawing abilities of its own (it is only a container for graphics) - you must use a script to actually draw the graphics.

The getContext() method returns an object that provides methods and properties for drawing on the canvas.

This reference will cover the properties and methods of the getContext("2d") object, which can be used to draw text, lines, boxes, circles, and more - on the canvas.

## Browser Support

The numbers in the table specify the first browser version that fully supports the element.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Element |  |  |  |  |  |
| <canvas> | 4.0 | 9.0 | 2.0 | 3.1 | 9.0 |

Internet Explorer 9, Firefox, Opera, Chrome, and Safari support <canvas> and its properties and methods.

**Note:** Internet Explorer 8 and earlier versions, do not support the <canvas> element.

## Colors, Styles, and Shadows

|  |  |
| --- | --- |
| **Property** | **Description** |
| [fillStyle](http://www.w3schools.com/tags/canvas_fillstyle.asp) | Sets or returns the color, gradient, or pattern used to fill the drawing |
| [strokeStyle](http://www.w3schools.com/tags/canvas_strokestyle.asp) | Sets or returns the color, gradient, or pattern used for strokes |
| [shadowColor](http://www.w3schools.com/tags/canvas_shadowcolor.asp) | Sets or returns the color to use for shadows |
| [shadowBlur](http://www.w3schools.com/tags/canvas_shadowblur.asp) | Sets or returns the blur level for shadows |
| [shadowOffsetX](http://www.w3schools.com/tags/canvas_shadowoffsetx.asp) | Sets or returns the horizontal distance of the shadow from the shape |
| [shadowOffsetY](http://www.w3schools.com/tags/canvas_shadowoffsety.asp) | Sets or returns the vertical distance of the shadow from the shape |

|  |  |
| --- | --- |
| **Method** | **Description** |
| [createLinearGradient()](http://www.w3schools.com/tags/canvas_createlineargradient.asp) | Creates a linear gradient (to use on canvas content) |
| [createPattern()](http://www.w3schools.com/tags/canvas_createpattern.asp) | Repeats a specified element in the specified direction |
| [createRadialGradient()](http://www.w3schools.com/tags/canvas_createradialgradient.asp) | Creates a radial/circular gradient (to use on canvas content) |
| [addColorStop()](http://www.w3schools.com/tags/canvas_addcolorstop.asp) | Specifies the colors and stop positions in a gradient object |

## Line Styles

|  |  |
| --- | --- |
| **Property** | **Description** |
| [lineCap](http://www.w3schools.com/tags/canvas_linecap.asp) | Sets or returns the style of the end caps for a line |
| [lineJoin](http://www.w3schools.com/tags/canvas_linejoin.asp) | Sets or returns the type of corner created, when two lines meet |
| [lineWidth](http://www.w3schools.com/tags/canvas_linewidth.asp) | Sets or returns the current line width |
| [miterLimit](http://www.w3schools.com/tags/canvas_miterlimit.asp) | Sets or returns the maximum miter length |

## Rectangles

|  |  |
| --- | --- |
| **Method** | **Description** |
| [rect()](http://www.w3schools.com/tags/canvas_rect.asp) | Creates a rectangle |
| [fillRect()](http://www.w3schools.com/tags/canvas_fillrect.asp) | Draws a "filled" rectangle |
| [strokeRect()](http://www.w3schools.com/tags/canvas_strokerect.asp) | Draws a rectangle (no fill) |
| [clearRect()](http://www.w3schools.com/tags/canvas_clearrect.asp) | Clears the specified pixels within a given rectangle |

## Paths

|  |  |
| --- | --- |
| **Method** | **Description** |
| [fill()](http://www.w3schools.com/tags/canvas_fill.asp) | Fills the current drawing (path) |
| [stroke()](http://www.w3schools.com/tags/canvas_stroke.asp) | Actually draws the path you have defined |
| [beginPath()](http://www.w3schools.com/tags/canvas_beginpath.asp) | Begins a path, or resets the current path |
| [moveTo()](http://www.w3schools.com/tags/canvas_moveto.asp) | Moves the path to the specified point in the canvas, without creating a line |
| [closePath()](http://www.w3schools.com/tags/canvas_closepath.asp) | Creates a path from the current point back to the starting point |
| [lineTo()](http://www.w3schools.com/tags/canvas_lineto.asp) | Adds a new point and creates a line to that point from the last specified point in the canvas |
| [clip()](http://www.w3schools.com/tags/canvas_clip.asp) | Clips a region of any shape and size from the original canvas |
| [quadraticCurveTo()](http://www.w3schools.com/tags/canvas_quadraticcurveto.asp) | Creates a quadratic Bézier curve |
| [bezierCurveTo()](http://www.w3schools.com/tags/canvas_beziercurveto.asp) | Creates a cubic Bézier curve |
| [arc()](http://www.w3schools.com/tags/canvas_arc.asp) | Creates an arc/curve (used to create circles, or parts of circles) |
| [arcTo()](http://www.w3schools.com/tags/canvas_arcto.asp) | Creates an arc/curve between two tangents |
| [isPointInPath()](http://www.w3schools.com/tags/canvas_ispointinpath.asp) | Returns true if the specified point is in the current path, otherwise false |

## Transformations

|  |  |
| --- | --- |
| **Method** | **Description** |
| [scale()](http://www.w3schools.com/tags/canvas_scale.asp) | Scales the current drawing bigger or smaller |
| [rotate()](http://www.w3schools.com/tags/canvas_rotate.asp) | Rotates the current drawing |
| [translate()](http://www.w3schools.com/tags/canvas_translate.asp) | Remaps the (0,0) position on the canvas |
| [transform()](http://www.w3schools.com/tags/canvas_transform.asp) | Replaces the current transformation matrix for the drawing |
| [setTransform()](http://www.w3schools.com/tags/canvas_settransform.asp) | Resets the current transform to the identity matrix. Then runs [transform()](http://www.w3schools.com/tags/canvas_transform.asp) |

## Text

|  |  |
| --- | --- |
| **Property** | **Description** |
| [font](http://www.w3schools.com/tags/canvas_font.asp) | Sets or returns the current font properties for text content |
| [textAlign](http://www.w3schools.com/tags/canvas_textalign.asp) | Sets or returns the current alignment for text content |
| [textBaseline](http://www.w3schools.com/tags/canvas_textbaseline.asp) | Sets or returns the current text baseline used when drawing text |

|  |  |
| --- | --- |
| **Method** | **Description** |
| [fillText()](http://www.w3schools.com/tags/canvas_filltext.asp) | Draws "filled" text on the canvas |
| [strokeText()](http://www.w3schools.com/tags/canvas_stroketext.asp) | Draws text on the canvas (no fill) |
| [measureText()](http://www.w3schools.com/tags/canvas_measuretext.asp) | Returns an object that contains the width of the specified text |

## Image Drawing

|  |  |
| --- | --- |
| **Method** | **Description** |
| [drawImage()](http://www.w3schools.com/tags/canvas_drawimage.asp) | Draws an image, canvas, or video onto the canvas |

## Pixel Manipulation

|  |  |
| --- | --- |
| **Property** | **Description** |
| [width](http://www.w3schools.com/tags/canvas_imagedata_width.asp) | Returns the width of an ImageData object |
| [height](http://www.w3schools.com/tags/canvas_imagedata_height.asp) | Returns the height of an ImageData object |
| [data](http://www.w3schools.com/tags/canvas_imagedata_data.asp) | Returns an object that contains image data of a specified ImageData object |

|  |  |
| --- | --- |
| **Method** | **Description** |
| [createImageData()](http://www.w3schools.com/tags/canvas_createimagedata.asp) | Creates a new, blank ImageData object |
| [getImageData()](http://www.w3schools.com/tags/canvas_getimagedata.asp) | Returns an ImageData object that copies the pixel data for the specified rectangle on a canvas |
| [putImageData()](http://www.w3schools.com/tags/canvas_putimagedata.asp) | Puts the image data (from a specified ImageData object) back onto the canvas |

## Compositing

|  |  |
| --- | --- |
| **Property** | **Description** |
| [globalAlpha](http://www.w3schools.com/tags/canvas_globalalpha.asp) | Sets or returns the current alpha or transparency value of the drawing |
| [globalCompositeOperation](http://www.w3schools.com/tags/canvas_globalcompositeoperation.asp) | Sets or returns how a new image are drawn onto an existing image |

## Other

|  |  |
| --- | --- |
| **Method** | **Description** |
| save() | Saves the state of the current context |
| restore() | Returns previously saved path state and attributes |
| createEvent() |  |
| getContext() |  |
| toDataURL() |  |

# HTML Audio/Video DOM Reference

## HTML Audio and Video DOM Reference

The HTML5 DOM has methods, properties, and events for the <audio> and <video> elements.

These methods, properties, and events allow you to manipulate <audio> and <video> elements using JavaScript.

## HTML Audio/Video Methods

|  |  |
| --- | --- |
| **Method** | **Description** |
| [addTextTrack()](http://www.w3schools.com/tags/av_met_addtexttrack.asp) | Adds a new text track to the audio/video |
| [canPlayType()](http://www.w3schools.com/tags/av_met_canplaytype.asp) | Checks if the browser can play the specified audio/video type |
| [load()](http://www.w3schools.com/tags/av_met_load.asp) | Re-loads the audio/video element |
| [play()](http://www.w3schools.com/tags/av_met_play.asp) | Starts playing the audio/video |
| [pause()](http://www.w3schools.com/tags/av_met_pause.asp) | Pauses the currently playing audio/video |

## HTML Audio/Video Properties

|  |  |
| --- | --- |
| **Property** | **Description** |
| [audioTracks](http://www.w3schools.com/tags/av_prop_audiotracks.asp) | Returns an AudioTrackList object representing available audio tracks |
| [autoplay](http://www.w3schools.com/tags/av_prop_autoplay.asp) | Sets or returns whether the audio/video should start playing as soon as it is loaded |
| [buffered](http://www.w3schools.com/tags/av_prop_buffered.asp) | Returns a TimeRanges object representing the buffered parts of the audio/video |
| [controller](http://www.w3schools.com/tags/av_prop_controller.asp) | Returns the MediaController object representing the current media controller of the audio/video |
| [controls](http://www.w3schools.com/tags/av_prop_controls.asp) | Sets or returns whether the audio/video should display controls (like play/pause etc.) |
| crossOrigin | Sets or returns the CORS settings of the audio/video |
| [currentSrc](http://www.w3schools.com/tags/av_prop_currentsrc.asp) | Returns the URL of the current audio/video |
| [currentTime](http://www.w3schools.com/tags/av_prop_currenttime.asp) | Sets or returns the current playback position in the audio/video (in seconds) |
| [defaultMuted](http://www.w3schools.com/tags/av_prop_defaultmuted.asp) | Sets or returns whether the audio/video should be muted by default |
| [defaultPlaybackRate](http://www.w3schools.com/tags/av_prop_defaultplaybackrate.asp) | Sets or returns the default speed of the audio/video playback |
| [duration](http://www.w3schools.com/tags/av_prop_duration.asp) | Returns the length of the current audio/video (in seconds) |
| [ended](http://www.w3schools.com/tags/av_prop_ended.asp) | Returns whether the playback of the audio/video has ended or not |
| [error](http://www.w3schools.com/tags/av_prop_error.asp) | Returns a MediaError object representing the error state of the audio/video |
| [loop](http://www.w3schools.com/tags/av_prop_loop.asp) | Sets or returns whether the audio/video should start over again when finished |
| [mediaGroup](http://www.w3schools.com/tags/av_prop_mediagroup.asp) | Sets or returns the group the audio/video belongs to (used to link multiple audio/video elements) |
| [muted](http://www.w3schools.com/tags/av_prop_muted.asp) | Sets or returns whether the audio/video is muted or not |
| [networkState](http://www.w3schools.com/tags/av_prop_networkstate.asp) | Returns the current network state of the audio/video |
| [paused](http://www.w3schools.com/tags/av_prop_paused.asp) | Returns whether the audio/video is paused or not |
| [playbackRate](http://www.w3schools.com/tags/av_prop_playbackrate.asp) | Sets or returns the speed of the audio/video playback |
| [played](http://www.w3schools.com/tags/av_prop_played.asp) | Returns a TimeRanges object representing the played parts of the audio/video |
| [preload](http://www.w3schools.com/tags/av_prop_preload.asp) | Sets or returns whether the audio/video should be loaded when the page loads |
| [readyState](http://www.w3schools.com/tags/av_prop_readystate.asp) | Returns the current ready state of the audio/video |
| [seekable](http://www.w3schools.com/tags/av_prop_seekable.asp) | Returns a TimeRanges object representing the seekable parts of the audio/video |
| [seeking](http://www.w3schools.com/tags/av_prop_seeking.asp) | Returns whether the user is currently seeking in the audio/video |
| [src](http://www.w3schools.com/tags/av_prop_src.asp) | Sets or returns the current source of the audio/video element |
| [startDate](http://www.w3schools.com/tags/av_prop_startdate.asp) | Returns a Date object representing the current time offset |
| [textTracks](http://www.w3schools.com/tags/av_prop_texttracks.asp) | Returns a TextTrackList object representing the available text tracks |
| [videoTracks](http://www.w3schools.com/tags/av_prop_videotracks.asp) | Returns a VideoTrackList object representing the available video tracks |
| [volume](http://www.w3schools.com/tags/av_prop_volume.asp) | Sets or returns the volume of the audio/video |

## HTML Audio/Video Events

|  |  |
| --- | --- |
| **Event** | **Description** |
| [abort](http://www.w3schools.com/tags/av_event_abort.asp) | Fires when the loading of an audio/video is aborted |
| [canplay](http://www.w3schools.com/tags/av_event_canplay.asp) | Fires when the browser can start playing the audio/video |
| [canplaythrough](http://www.w3schools.com/tags/av_event_canplaythrough.asp) | Fires when the browser can play through the audio/video without stopping for buffering |
| [durationchange](http://www.w3schools.com/tags/av_event_durationchange.asp) | Fires when the duration of the audio/video is changed |
| emptied | Fires when the current playlist is empty |
| [ended](http://www.w3schools.com/tags/av_event_ended.asp) | Fires when the current playlist is ended |
| [error](http://www.w3schools.com/tags/av_event_error.asp) | Fires when an error occurred during the loading of an audio/video |
| [loadeddata](http://www.w3schools.com/tags/av_event_loadeddata.asp) | Fires when the browser has loaded the current frame of the audio/video |
| [loadedmetadata](http://www.w3schools.com/tags/av_event_loadedmetadata.asp) | Fires when the browser has loaded meta data for the audio/video |
| [loadstart](http://www.w3schools.com/tags/av_event_loadstart.asp) | Fires when the browser starts looking for the audio/video |
| [pause](http://www.w3schools.com/tags/av_event_pause.asp) | Fires when the audio/video has been paused |
| [play](http://www.w3schools.com/tags/av_event_play.asp) | Fires when the audio/video has been started or is no longer paused |
| [playing](http://www.w3schools.com/tags/av_event_playing.asp) | Fires when the audio/video is playing after having been paused or stopped for buffering |
| [progress](http://www.w3schools.com/tags/av_event_progress.asp) | Fires when the browser is downloading the audio/video |
| [ratechange](http://www.w3schools.com/tags/av_event_ratechange.asp) | Fires when the playing speed of the audio/video is changed |
| [seeked](http://www.w3schools.com/tags/av_event_seeked.asp) | Fires when the user is finished moving/skipping to a new position in the audio/video |
| [seeking](http://www.w3schools.com/tags/av_event_seeking.asp) | Fires when the user starts moving/skipping to a new position in the audio/video |
| [stalled](http://www.w3schools.com/tags/av_event_stalled.asp) | Fires when the browser is trying to get media data, but data is not available |
| [suspend](http://www.w3schools.com/tags/av_event_suspend.asp) | Fires when the browser is intentionally not getting media data |
| [timeupdate](http://www.w3schools.com/tags/av_event_timeupdate.asp) | Fires when the current playback position has changed |
| [volumechange](http://www.w3schools.com/tags/av_event_volumechange.asp) | Fires when the volume has been changed |
| [waiting](http://www.w3schools.com/tags/av_event_waiting.asp) | Fires when the video stops because it needs to buffer the next frame |

# HTML Character Sets

## Common HTML Character Sets

ANSI was the first official default character set in Windows.

The default character set in HTML 4 was 8859-1.

The default character set in HTML 5 is UTF-8.

For a closer look, visit our [Complete HTML Character Set Reference](http://www.w3schools.com/charsets/default.asp).

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Number** | **ASCII** | **ANSI** | **8859-1** | **UTF-8** | **Description** |
| 32 |  |  |  |  | space |
| 33 | ! | ! | ! | ! | exclamation mark |
| 34 | " | " | " | " | quotation mark |
| 35 | # | # | # | # | number sign |
| 36 | $ | $ | $ | $ | dollar sign |
| 37 | % | % | % | % | percent sign |
| 38 | & | & | & | & | ampersand |
| 39 | ' | ' | ' | ' | apostrophe |
| 40 | ( | ( | ( | ( | left parenthesis |
| 41 | ) | ) | ) | ) | right parenthesis |
| 42 | \* | \* | \* | \* | asterisk |
| 43 | + | + | + | + | plus sign |
| 44 | , | , | , | , | comma |
| 45 | - | - | - | - | hyphen-minus |
| 46 | . | . | . | . | full stop |
| 47 | / | / | / | / | solidus |
| 48 | 0 | 0 | 0 | 0 | digit zero |
| 49 | 1 | 1 | 1 | 1 | digit one |
| 50 | 2 | 2 | 2 | 2 | digit two |
| 51 | 3 | 3 | 3 | 3 | digit three |
| 52 | 4 | 4 | 4 | 4 | digit four |
| 53 | 5 | 5 | 5 | 5 | digit five |
| 54 | 6 | 6 | 6 | 6 | digit six |
| 55 | 7 | 7 | 7 | 7 | digit seven |
| 56 | 8 | 8 | 8 | 8 | digit eight |
| 57 | 9 | 9 | 9 | 9 | digit nine |
| 58 | : | : | : | : | colon |
| 59 | ; | ; | ; | ; | semicolon |
| 60 | < | < | < | < | less-than sign |
| 61 | = | = | = | = | equals sign |
| 62 | > | > | > | > | greater-than sign |
| 63 | ? | ? | ? | ? | question mark |
| 64 | @ | @ | @ | @ | commercial at |
| 65 | A | A | A | A | Latin capital letter A |
| 66 | B | B | B | B | Latin capital letter B |
| 67 | C | C | C | C | Latin capital letter C |
| 68 | D | D | D | D | Latin capital letter D |
| 69 | E | E | E | E | Latin capital letter E |
| 70 | F | F | F | F | Latin capital letter F |
| 71 | G | G | G | G | Latin capital letter G |
| 72 | H | H | H | H | Latin capital letter H |
| 73 | I | I | I | I | Latin capital letter I |
| 74 | J | J | J | J | Latin capital letter J |
| 75 | K | K | K | K | Latin capital letter K |
| 76 | L | L | L | L | Latin capital letter L |
| 77 | M | M | M | M | Latin capital letter M |
| 78 | N | N | N | N | Latin capital letter N |
| 79 | O | O | O | O | Latin capital letter O |
| 80 | P | P | P | P | Latin capital letter P |
| 81 | Q | Q | Q | Q | Latin capital letter Q |
| 82 | R | R | R | R | Latin capital letter R |
| 83 | S | S | S | S | Latin capital letter S |
| 84 | T | T | T | T | Latin capital letter T |
| 85 | U | U | U | U | Latin capital letter U |
| 86 | V | V | V | V | Latin capital letter V |
| 87 | W | W | W | W | Latin capital letter W |
| 88 | X | X | X | X | Latin capital letter X |
| 89 | Y | Y | Y | Y | Latin capital letter Y |
| 90 | Z | Z | Z | Z | Latin capital letter Z |
| 91 | [ | [ | [ | [ | left square bracket |
| 92 | \ | \ | \ | \ | reverse solidus |
| 93 | ] | ] | ] | ] | right square bracket |
| 94 | ^ | ^ | ^ | ^ | circumflex accent |
| 95 | \_ | \_ | \_ | \_ | low line |
| 96 | ` | ` | ` | ` | grave accent |
| 97 | a | a | a | a | Latin small letter a |
| 98 | b | b | b | b | Latin small letter b |
| 99 | c | c | c | c | Latin small letter c |
| 100 | d | d | d | d | Latin small letter d |
| 101 | e | e | e | e | Latin small letter e |
| 102 | f | f | f | f | Latin small letter f |
| 103 | g | g | g | g | Latin small letter g |
| 104 | h | h | h | h | Latin small letter h |
| 105 | i | i | i | i | Latin small letter i |
| 106 | j | j | j | j | Latin small letter j |
| 107 | k | k | k | k | Latin small letter k |
| 108 | l | l | l | l | Latin small letter l |
| 109 | m | m | m | m | Latin small letter m |
| 110 | n | n | n | n | Latin small letter n |
| 111 | o | o | o | o | Latin small letter o |
| 112 | p | p | p | p | Latin small letter p |
| 113 | q | q | q | q | Latin small letter q |
| 114 | r | r | r | r | Latin small letter r |
| 115 | s | s | s | s | Latin small letter s |
| 116 | t | t | t | t | Latin small letter t |
| 117 | u | u | u | u | Latin small letter u |
| 118 | v | v | v | v | Latin small letter v |
| 119 | w | w | w | w | Latin small letter w |
| 120 | x | x | x | x | Latin small letter x |
| 121 | y | y | y | y | Latin small letter y |
| 122 | z | z | z | z | Latin small letter z |
| 123 | { | { | { | { | left curly bracket |
| 124 | | | | | | | | | vertical line |
| 125 | } | } | } | } | right curly bracket |
| 126 | ~ | ~ | ~ | ~ | tilde |
| 127 | DEL |  |  |  |  |
| 128 |  | € |  |  | euro sign |
| 129 |  |  |  |  | NOT USED |
| 130 |  | ‚ |  |  | single low-9 quotation mark |
| 131 |  | ƒ |  |  | Latin small letter f with hook |
| 132 |  | „ |  |  | double low-9 quotation mark |
| 133 |  | … |  |  | horizontal ellipsis |
| 134 |  | † |  |  | dagger |
| 135 |  | ‡ |  |  | double dagger |
| 136 |  | ˆ |  |  | modifier letter circumflex accent |
| 137 |  | ‰ |  |  | per mille sign |
| 138 |  | Š |  |  | Latin capital letter S with caron |
| 139 |  | ‹ |  |  | single left-pointing angle quotation mark |
| 140 |  | Œ |  |  | Latin capital ligature OE |
| 141 |  |  |  |  | NOT USED |
| 142 |  | Ž |  |  | Latin capital letter Z with caron |
| 143 |  |  |  |  | NOT USED |
| 144 |  |  |  |  | NOT USED |
| 145 |  | ‘ |  |  | left single quotation mark |
| 146 |  | ’ |  |  | right single quotation mark |
| 147 |  | “ |  |  | left double quotation mark |
| 148 |  | ” |  |  | right double quotation mark |
| 149 |  | • |  |  | bullet |
| 150 |  | – |  |  | en dash |
| 151 |  | — |  |  | em dash |
| 152 |  | ˜ |  |  | small tilde |
| 153 |  | ™ |  |  | trade mark sign |
| 154 |  | š |  |  | Latin small letter s with caron |
| 155 |  | › |  |  | single right-pointing angle quotation mark |
| 156 |  | œ |  |  | Latin small ligature oe |
| 157 |  |  |  |  | NOT USED |
| 158 |  | ž |  |  | Latin small letter z with caron |
| 159 |  | Ÿ |  |  | Latin capital letter Y with diaeresis |
| 160 |  |  |  |  | no-break space |
| 161 |  | ¡ | ¡ | ¡ | inverted exclamation mark |
| 162 |  | ¢ | ¢ | ¢ | cent sign |
| 163 |  | £ | £ | £ | pound sign |
| 164 |  | ¤ | ¤ | ¤ | currency sign |
| 165 |  | ¥ | ¥ | ¥ | yen sign |
| 166 |  | ¦ | ¦ | ¦ | broken bar |
| 167 |  | § | § | § | section sign |
| 168 |  | ¨ | ¨ | ¨ | diaeresis |
| 169 |  | © | © | © | copyright sign |
| 170 |  | ª | ª | ª | feminine ordinal indicator |
| 171 |  | « | « | « | left-pointing double angle quotation mark |
| 172 |  | ¬ | ¬ | ¬ | not sign |
| 173 |  |  |  |  | soft hyphen |
| 174 |  | ® | ® | ® | registered sign |
| 175 |  | ¯ | ¯ | ¯ | macron |
| 176 |  | ° | ° | ° | degree sign |
| 177 |  | ± | ± | ± | plus-minus sign |
| 178 |  | ² | ² | ² | superscript two |
| 179 |  | ³ | ³ | ³ | superscript three |
| 180 |  | ´ | ´ | ´ | acute accent |
| 181 |  | µ | µ | µ | micro sign |
| 182 |  | ¶ | ¶ | ¶ | pilcrow sign |
| 183 |  | · | · | · | middle dot |
| 184 |  | ¸ | ¸ | ¸ | cedilla |
| 185 |  | ¹ | ¹ | ¹ | superscript one |
| 186 |  | º | º | º | masculine ordinal indicator |
| 187 |  | » | » | » | right-pointing double angle quotation mark |
| 188 |  | ¼ | ¼ | ¼ | vulgar fraction one quarter |
| 189 |  | ½ | ½ | ½ | vulgar fraction one half |
| 190 |  | ¾ | ¾ | ¾ | vulgar fraction three quarters |
| 191 |  | ¿ | ¿ | ¿ | inverted question mark |
| 192 |  | À | À | À | Latin capital letter A with grave |
| 193 |  | Á | Á | Á | Latin capital letter A with acute |
| 194 |  | Â | Â | Â | Latin capital letter A with circumflex |
| 195 |  | Ã | Ã | Ã | Latin capital letter A with tilde |
| 196 |  | Ä | Ä | Ä | Latin capital letter A with diaeresis |
| 197 |  | Å | Å | Å | Latin capital letter A with ring above |
| 198 |  | Æ | Æ | Æ | Latin capital letter AE |
| 199 |  | Ç | Ç | Ç | Latin capital letter C with cedilla |
| 200 |  | È | È | È | Latin capital letter E with grave |
| 201 |  | É | É | É | Latin capital letter E with acute |
| 202 |  | Ê | Ê | Ê | Latin capital letter E with circumflex |
| 203 |  | Ë | Ë | Ë | Latin capital letter E with diaeresis |
| 204 |  | Ì | Ì | Ì | Latin capital letter I with grave |
| 205 |  | Í | Í | Í | Latin capital letter I with acute |
| 206 |  | Î | Î | Î | Latin capital letter I with circumflex |
| 207 |  | Ï | Ï | Ï | Latin capital letter I with diaeresis |
| 208 |  | Ð | Ð | Ð | Latin capital letter Eth |
| 209 |  | Ñ | Ñ | Ñ | Latin capital letter N with tilde |
| 210 |  | Ò | Ò | Ò | Latin capital letter O with grave |
| 211 |  | Ó | Ó | Ó | Latin capital letter O with acute |
| 212 |  | Ô | Ô | Ô | Latin capital letter O with circumflex |
| 213 |  | Õ | Õ | Õ | Latin capital letter O with tilde |
| 214 |  | Ö | Ö | Ö | Latin capital letter O with diaeresis |
| 215 |  | × | × | × | multiplication sign |
| 216 |  | Ø | Ø | Ø | Latin capital letter O with stroke |
| 217 |  | Ù | Ù | Ù | Latin capital letter U with grave |
| 218 |  | Ú | Ú | Ú | Latin capital letter U with acute |
| 219 |  | Û | Û | Û | Latin capital letter U with circumflex |
| 220 |  | Ü | Ü | Ü | Latin capital letter U with diaeresis |
| 221 |  | Ý | Ý | Ý | Latin capital letter Y with acute |
| 222 |  | Þ | Þ | Þ | Latin capital letter Thorn |
| 223 |  | ß | ß | ß | Latin small letter sharp s |
| 224 |  | à | à | à | Latin small letter a with grave |
| 225 |  | á | á | á | Latin small letter a with acute |
| 226 |  | â | â | â | Latin small letter a with circumflex |
| 227 |  | ã | ã | ã | Latin small letter a with tilde |
| 228 |  | ä | ä | ä | Latin small letter a with diaeresis |
| 229 |  | å | å | å | Latin small letter a with ring above |
| 230 |  | æ | æ | æ | Latin small letter ae |
| 231 |  | ç | ç | ç | Latin small letter c with cedilla |
| 232 |  | è | è | è | Latin small letter e with grave |
| 233 |  | é | é | é | Latin small letter e with acute |
| 234 |  | ê | ê | ê | Latin small letter e with circumflex |
| 235 |  | ë | ë | ë | Latin small letter e with diaeresis |
| 236 |  | ì | ì | ì | Latin small letter i with grave |
| 237 |  | í | í | í | Latin small letter i with acute |
| 238 |  | î | î | î | Latin small letter i with circumflex |
| 239 |  | ï | ï | ï | Latin small letter i with diaeresis |
| 240 |  | ð | ð | ð | Latin small letter eth |
| 241 |  | ñ | ñ | ñ | Latin small letter n with tilde |
| 242 |  | ò | ò | ò | Latin small letter o with grave |
| 243 |  | ó | ó | ó | Latin small letter o with acute |
| 244 |  | ô | ô | ô | Latin small letter o with circumflex |
| 245 |  | õ | õ | õ | Latin small letter o with tilde |
| 246 |  | ö | ö | ö | Latin small letter o with diaeresis |
| 247 |  | ÷ | ÷ | ÷ | division sign |
| 248 |  | ø | ø | ø | Latin small letter o with stroke |
| 249 |  | ù | ù | ù | Latin small letter u with grave |
| 250 |  | ú | ú | ú | Latin small letter u with acute |
| 251 |  | û | û | û | Latin small letter with circumflex |
| 252 |  | ü | ü | ü | Latin small letter u with diaeresis |
| 253 |  | ý | ý | ý | Latin small letter y with acute |
| 254 |  | þ | þ | þ | Latin small letter thorn |
| 255 |  | Ÿ | ÿ | ÿ | Latin small letter y with diaeresis |

# HTML Elements and Valid DOCTYPES

## HTML Elements - Valid DOCTYPES

The table below lists all HTML elements, and shows what [!DOCTYPE](http://www.w3schools.com/tags/tag_doctype.asp) each element appears in.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  |  | **HTML 4.01 / XHTML 1.0** | |  |  |
| **Tag** | **HTML5** | **Transitional** | **Strict** | **Frameset** | **XHTML 1.1** |
| [<a>](http://www.w3schools.com/tags/tag_a.asp) | Yes | Yes | Yes | Yes | Yes |
| [<abbr>](http://www.w3schools.com/tags/tag_abbr.asp) | Yes | Yes | Yes | Yes | Yes |
| [<acronym>](http://www.w3schools.com/tags/tag_acronym.asp) | No | Yes | Yes | Yes | Yes |
| [<address>](http://www.w3schools.com/tags/tag_address.asp) | Yes | Yes | Yes | Yes | Yes |
| [<applet>](http://www.w3schools.com/tags/tag_applet.asp) | No | Yes | No | Yes | No |
| [<area>](http://www.w3schools.com/tags/tag_area.asp) | Yes | Yes | Yes | Yes | No |
| [<article>](http://www.w3schools.com/tags/tag_article.asp) | Yes | No | No | No | No |
| [<aside>](http://www.w3schools.com/tags/tag_aside.asp) | Yes | No | No | No | No |
| [<audio>](http://www.w3schools.com/tags/tag_audio.asp) | Yes | No | No | No | No |
| [<b>](http://www.w3schools.com/tags/tag_b.asp) | Yes | Yes | Yes | Yes | Yes |
| [<base>](http://www.w3schools.com/tags/tag_base.asp) | Yes | Yes | Yes | Yes | Yes |
| [<basefont>](http://www.w3schools.com/tags/tag_basefont.asp) | No | Yes | No | Yes | No |
| [<bdi>](http://www.w3schools.com/tags/tag_bdi.asp) | Yes | No | No | No | No |
| [<bdo>](http://www.w3schools.com/tags/tag_bdo.asp) | Yes | Yes | Yes | Yes | No |
| [<big>](http://www.w3schools.com/tags/tag_big.asp) | No | Yes | Yes | Yes | Yes |
| [<blockquote>](http://www.w3schools.com/tags/tag_blockquote.asp) | Yes | Yes | Yes | Yes | Yes |
| [<body>](http://www.w3schools.com/tags/tag_body.asp) | Yes | Yes | Yes | Yes | Yes |
| [<br>](http://www.w3schools.com/tags/tag_br.asp) | Yes | Yes | Yes | Yes | Yes |
| [<button>](http://www.w3schools.com/tags/tag_button.asp) | Yes | Yes | Yes | Yes | Yes |
| [<canvas>](http://www.w3schools.com/tags/tag_canvas.asp) | Yes | No | No | No | No |
| [<caption>](http://www.w3schools.com/tags/tag_caption.asp) | Yes | Yes | Yes | Yes | Yes |
| [<center>](http://www.w3schools.com/tags/tag_center.asp) | No | Yes | No | Yes | No |
| [<cite>](http://www.w3schools.com/tags/tag_cite.asp) | Yes | Yes | Yes | Yes | Yes |
| [<code>](http://www.w3schools.com/tags/tag_code.asp) | Yes | Yes | Yes | Yes | Yes |
| [<col>](http://www.w3schools.com/tags/tag_col.asp) | Yes | Yes | Yes | Yes | No |
| [<colgroup>](http://www.w3schools.com/tags/tag_colgroup.asp) | Yes | Yes | Yes | Yes | No |
| [<datalist>](http://www.w3schools.com/tags/tag_datalist.asp) | Yes | No | No | No | No |
| [<dd>](http://www.w3schools.com/tags/tag_dd.asp) | Yes | Yes | Yes | Yes | Yes |
| [<del>](http://www.w3schools.com/tags/tag_del.asp) | Yes | Yes | Yes | Yes | No |
| [<details>](http://www.w3schools.com/tags/tag_details.asp) | Yes | No | No | No | No |
| [<dfn>](http://www.w3schools.com/tags/tag_dfn.asp) | Yes | Yes | Yes | Yes | Yes |
| [<dialog>](http://www.w3schools.com/tags/tag_dialog.asp) | Yes | No | No | No | No |
| [<dir>](http://www.w3schools.com/tags/tag_dir.asp) | No | Yes | No | Yes | No |
| [<div>](http://www.w3schools.com/tags/tag_div.asp) | Yes | Yes | Yes | Yes | Yes |
| [<dl>](http://www.w3schools.com/tags/tag_dl.asp) | Yes | Yes | Yes | Yes | Yes |
| [<dt>](http://www.w3schools.com/tags/tag_dt.asp) | Yes | Yes | Yes | Yes | Yes |
| [<em>](http://www.w3schools.com/tags/tag_em.asp) | Yes | Yes | Yes | Yes | Yes |
| [<embed>](http://www.w3schools.com/tags/tag_embed.asp) | Yes | No | No | No | No |
| [<fieldset>](http://www.w3schools.com/tags/tag_fieldset.asp) | Yes | Yes | Yes | Yes | Yes |
| [<figcaption>](http://www.w3schools.com/tags/tag_figcaption.asp) | Yes | No | No | No | No |
| [<figure>](http://www.w3schools.com/tags/tag_figure.asp) | Yes | No | No | No | No |
| [<font>](http://www.w3schools.com/tags/tag_font.asp) | No | Yes | No | Yes | No |
| [<footer>](http://www.w3schools.com/tags/tag_footer.asp) | Yes | No | No | No | No |
| [<form>](http://www.w3schools.com/tags/tag_form.asp) | Yes | Yes | Yes | Yes | Yes |
| [<frame>](http://www.w3schools.com/tags/tag_frame.asp) | No | No | No | Yes | No |
| [<frameset>](http://www.w3schools.com/tags/tag_frameset.asp) | No | No | No | Yes | No |
| [<h1> to <h6>](http://www.w3schools.com/tags/tag_hn.asp) | Yes | Yes | Yes | Yes | Yes |
| [<head>](http://www.w3schools.com/tags/tag_head.asp) | Yes | Yes | Yes | Yes | Yes |
| [<header>](http://www.w3schools.com/tags/tag_header.asp) | Yes | No | No | No | No |
| [<hr>](http://www.w3schools.com/tags/tag_hr.asp) | Yes | Yes | Yes | Yes | Yes |
| [<html>](http://www.w3schools.com/tags/tag_html.asp) | Yes | Yes | Yes | Yes | Yes |
| [<i>](http://www.w3schools.com/tags/tag_i.asp) | Yes | Yes | Yes | Yes | Yes |
| [<iframe>](http://www.w3schools.com/tags/tag_iframe.asp) | Yes | Yes | No | Yes | No |
| [<img>](http://www.w3schools.com/tags/tag_img.asp) | Yes | Yes | Yes | Yes | Yes |
| [<input>](http://www.w3schools.com/tags/tag_input.asp) | Yes | Yes | Yes | Yes | Yes |
| [<ins>](http://www.w3schools.com/tags/tag_ins.asp) | Yes | Yes | Yes | Yes | No |
| [<kbd>](http://www.w3schools.com/tags/tag_kbd.asp) | Yes | Yes | Yes | Yes | Yes |
| [<keygen>](http://www.w3schools.com/tags/tag_keygen.asp) | Yes | No | No | No | No |
| [<label>](http://www.w3schools.com/tags/tag_label.asp) | Yes | Yes | Yes | Yes | Yes |
| [<legend>](http://www.w3schools.com/tags/tag_legend.asp) | Yes | Yes | Yes | Yes | Yes |
| [<li>](http://www.w3schools.com/tags/tag_li.asp) | Yes | Yes | Yes | Yes | Yes |
| [<link>](http://www.w3schools.com/tags/tag_link.asp) | Yes | Yes | Yes | Yes | Yes |
| [<main>](http://www.w3schools.com/tags/tag_main.asp) | Yes | No | No | No | No |
| [<map>](http://www.w3schools.com/tags/tag_map.asp) | Yes | Yes | Yes | Yes | No |
| [<mark>](http://www.w3schools.com/tags/tag_mark.asp) | Yes | No | No | No | No |
| [<menu>](http://www.w3schools.com/tags/tag_menu.asp) | Yes | Yes | No | Yes | No |
| [<menuitem>](http://www.w3schools.com/tags/tag_menuitem.asp) | Yes | No | No | No | No |
| [<meta>](http://www.w3schools.com/tags/tag_meta.asp) | Yes | Yes | Yes | Yes | Yes |
| [<meter>](http://www.w3schools.com/tags/tag_meter.asp) | Yes | No | No | No | No |
| [<nav>](http://www.w3schools.com/tags/tag_nav.asp) | Yes | No | No | No | No |
| [<noframes>](http://www.w3schools.com/tags/tag_noframes.asp) | No | Yes | No | Yes | No |
| [<noscript>](http://www.w3schools.com/tags/tag_noscript.asp) | Yes | Yes | Yes | Yes | Yes |
| [<object>](http://www.w3schools.com/tags/tag_object.asp) | Yes | Yes | Yes | Yes | Yes |
| [<ol>](http://www.w3schools.com/tags/tag_ol.asp) | Yes | Yes | Yes | Yes | Yes |
| [<optgroup>](http://www.w3schools.com/tags/tag_optgroup.asp) | Yes | Yes | Yes | Yes | Yes |
| [<option>](http://www.w3schools.com/tags/tag_option.asp) | Yes | Yes | Yes | Yes | Yes |
| [<output>](http://www.w3schools.com/tags/tag_output.asp) | Yes | No | No | No | No |
| [<p>](http://www.w3schools.com/tags/tag_p.asp) | Yes | Yes | Yes | Yes | Yes |
| [<param>](http://www.w3schools.com/tags/tag_param.asp) | Yes | Yes | Yes | Yes | Yes |
| [<pre>](http://www.w3schools.com/tags/tag_pre.asp) | Yes | Yes | Yes | Yes | Yes |
| [<progress>](http://www.w3schools.com/tags/tag_progress.asp) | Yes | No | No | No | No |
| [<q>](http://www.w3schools.com/tags/tag_q.asp) | Yes | Yes | Yes | Yes | Yes |
| [<rp>](http://www.w3schools.com/tags/tag_rp.asp) | Yes | No | No | No | No |
| [<rt>](http://www.w3schools.com/tags/tag_rt.asp) | Yes | No | No | No | No |
| [<ruby>](http://www.w3schools.com/tags/tag_ruby.asp) | Yes | No | No | No | No |
| [<s>](http://www.w3schools.com/tags/tag_s.asp) | Yes | Yes | No | Yes | No |
| [<samp>](http://www.w3schools.com/tags/tag_samp.asp) | Yes | Yes | Yes | Yes | Yes |
| [<script>](http://www.w3schools.com/tags/tag_script.asp) | Yes | Yes | Yes | Yes | Yes |
| [<section>](http://www.w3schools.com/tags/tag_section.asp) | Yes | No | No | No | No |
| [<select>](http://www.w3schools.com/tags/tag_select.asp) | Yes | Yes | Yes | Yes | Yes |
| [<small>](http://www.w3schools.com/tags/tag_small.asp) | Yes | Yes | Yes | Yes | Yes |
| [<source>](http://www.w3schools.com/tags/tag_source.asp) | Yes | No | No | No | No |
| [<span>](http://www.w3schools.com/tags/tag_span.asp) | Yes | Yes | Yes | Yes | Yes |
| [<strike>](http://www.w3schools.com/tags/tag_strike.asp) | No | Yes | No | Yes | No |
| [<strong>](http://www.w3schools.com/tags/tag_strong.asp) | Yes | Yes | Yes | Yes | Yes |
| [<style>](http://www.w3schools.com/tags/tag_style.asp) | Yes | Yes | Yes | Yes | Yes |
| [<sub>](http://www.w3schools.com/tags/tag_sub.asp) | Yes | Yes | Yes | Yes | Yes |
| [<summary>](http://www.w3schools.com/tags/tag_summary.asp) | Yes | No | No | No | No |
| [<sup>](http://www.w3schools.com/tags/tag_sup.asp) | Yes | Yes | Yes | Yes | Yes |
| [<table>](http://www.w3schools.com/tags/tag_table.asp) | Yes | Yes | Yes | Yes | Yes |
| [<tbody>](http://www.w3schools.com/tags/tag_tbody.asp) | Yes | Yes | Yes | Yes | No |
| [<td>](http://www.w3schools.com/tags/tag_td.asp) | Yes | Yes | Yes | Yes | Yes |
| [<textarea>](http://www.w3schools.com/tags/tag_textarea.asp) | Yes | Yes | Yes | Yes | Yes |
| [<tfoot>](http://www.w3schools.com/tags/tag_tfoot.asp) | Yes | Yes | Yes | Yes | No |
| [<th>](http://www.w3schools.com/tags/tag_th.asp) | Yes | Yes | Yes | Yes | Yes |
| [<thead>](http://www.w3schools.com/tags/tag_thead.asp) | Yes | Yes | Yes | Yes | No |
| [<time>](http://www.w3schools.com/tags/tag_time.asp) | Yes | No | No | No | No |
| [<title>](http://www.w3schools.com/tags/tag_title.asp) | Yes | Yes | Yes | Yes | Yes |
| [<tr>](http://www.w3schools.com/tags/tag_tr.asp) | Yes | Yes | Yes | Yes | Yes |
| [<track>](http://www.w3schools.com/tags/tag_track.asp) | Yes | No | No | No | No |
| [<tt>](http://www.w3schools.com/tags/tag_tt.asp) | No | Yes | Yes | Yes | Yes |
| [<u>](http://www.w3schools.com/tags/tag_u.asp) | Yes | Yes | No | Yes | No |
| [<ul>](http://www.w3schools.com/tags/tag_ul.asp) | Yes | Yes | Yes | Yes | Yes |
| [<var>](http://www.w3schools.com/tags/tag_var.asp) | Yes | Yes | Yes | Yes | Yes |
| [<video>](http://www.w3schools.com/tags/tag_video.asp) | Yes | No | No | No | No |
| [<wbr>](http://www.w3schools.com/tags/tag_wbr.asp) | Yes | No | No | No | No |

# HTML URL Encoding Reference

URL encoding converts characters into a format that can be transmitted over the Internet.

## URL - Uniform Resource Locator

Web browsers request pages from web servers by using a URL.

The URL is the address of a web page, like: **http://www.w3schools.com.**

## URL Encoding (Percent Encoding)

URLs can only be sent over the Internet using the [ASCII character-set](http://www.w3schools.com/charsets/ref_html_ascii.asp).

Since URLs often contain characters outside the ASCII set, the URL has to be converted into a valid ASCII format.

URL encoding replaces unsafe ASCII characters with a "%" followed by two hexadecimal digits.

URLs cannot contain spaces. URL encoding normally replaces a space with a plus (+) sign or with %20.

Bottom of Form

## URL Encoding Functions

In JavaScript, PHP, and ASP there are functions that can be used to URL encode a string.

In JavaScript you can use the encodeURI() function.

PHP has the rawurlencode() function, and ASP has the Server.URLEncode() function.

Click the "URL Encode" button to see how the JavaScript function encodes the text.



**Note:**The JavaScript function encodes space as %20.

## ASCII Encoding Reference

Your browser will encode input, according to the character-set used in your page.

The default character-set in HTML5 is UTF-8.

|  |  |  |
| --- | --- | --- |
| **Character** | **From Windows-1252** | **From UTF-8** |
| Space | %20 | %20 |
| ! | %21 | %21 |
| " | %22 | %22 |
| # | %23 | %23 |
| $ | %24 | %24 |
| % | %25 | %25 |
| & | %26 | %26 |
| ' | %27 | %27 |
| ( | %28 | %28 |
| ) | %29 | %29 |
| \* | %2A | %2A |
| + | %2B | %2B |
| , | %2C | %2C |
| - | %2D | %2D |
| . | %2E | %2E |
| / | %2F | %2F |
| 0 | %30 | %30 |
| 1 | %31 | %31 |
| 2 | %32 | %32 |
| 3 | %33 | %33 |
| 4 | %34 | %34 |
| 5 | %35 | %35 |
| 6 | %36 | %36 |
| 7 | %37 | %37 |
| 8 | %38 | %38 |
| 9 | %39 | %39 |
| : | %3A | %3A |
| ; | %3B | %3B |
| < | %3C | %3C |
| = | %3D | %3D |
| > | %3E | %3E |
| ? | %3F | %3F |
| @ | %40 | %40 |
| A | %41 | %41 |
| B | %42 | %42 |
| C | %43 | %43 |
| D | %44 | %44 |
| E | %45 | %45 |
| F | %46 | %46 |
| G | %47 | %47 |
| H | %48 | %48 |
| I | %49 | %49 |
| J | %4A | %4A |
| K | %4B | %4B |
| L | %4C | %4C |
| M | %4D | %4D |
| N | %4E | %4E |
| O | %4F | %4F |
| P | %50 | %50 |
| Q | %51 | %51 |
| R | %52 | %52 |
| S | %53 | %53 |
| T | %54 | %54 |
| U | %55 | %55 |
| V | %56 | %56 |
| W | %57 | %57 |
| X | %58 | %58 |
| Y | %59 | %59 |
| Z | %5A | %5A |
| [ | %5B | %5B |
| \ | %5C | %5C |
| ] | %5D | %5D |
| ^ | %5E | %5E |
| \_ | %5F | %5F |
| ` | %60 | %60 |
| a | %61 | %61 |
| b | %62 | %62 |
| c | %63 | %63 |
| d | %64 | %64 |
| e | %65 | %65 |
| f | %66 | %66 |
| g | %67 | %67 |
| h | %68 | %68 |
| i | %69 | %69 |
| j | %6A | %6A |
| k | %6B | %6B |
| l | %6C | %6C |
| m | %6D | %6D |
| n | %6E | %6E |
| o | %6F | %6F |
| p | %70 | %70 |
| q | %71 | %71 |
| r | %72 | %72 |
| s | %73 | %73 |
| t | %74 | %74 |
| u | %75 | %75 |
| v | %76 | %76 |
| w | %77 | %77 |
| x | %78 | %78 |
| y | %79 | %79 |
| z | %7A | %7A |
| { | %7B | %7B |
| | | %7C | %7C |
| } | %7D | %7D |
| ~ | %7E | %7E |
|  | %7F | %7F |
| ` | %80 | %E2%82%AC |
|  | %81 | %81 |
| ‚ | %82 | %E2%80%9A |
| ƒ | %83 | %C6%92 |
| „ | %84 | %E2%80%9E |
| … | %85 | %E2%80%A6 |
| † | %86 | %E2%80%A0 |
| ‡ | %87 | %E2%80%A1 |
| ˆ | %88 | %CB%86 |
| ‰ | %89 | %E2%80%B0 |
| Š | %8A | %C5%A0 |
| ‹ | %8B | %E2%80%B9 |
| Œ | %8C | %C5%92 |
|  | %8D | %C5%8D |
| Ž | %8E | %C5%BD |
|  | %8F | %8F |
|  | %90 | %C2%90 |
| ‘ | %91 | %E2%80%98 |
| ’ | %92 | %E2%80%99 |
| “ | %93 | %E2%80%9C |
| ” | %94 | %E2%80%9D |
| • | %95 | %E2%80%A2 |
| – | %96 | %E2%80%93 |
| — | %97 | %E2%80%94 |
| ˜ | %98 | %CB%9C |
| ™ | %99 | %E2%84 |
| š | %9A | %C5%A1 |
| › | %9B | %E2%80 |
| œ | %9C | %C5%93 |
|  | %9D | %9D |
| ž | %9E | %C5%BE |
| Ÿ | %9F | %C5%B8 |
|  | %A0 | %C2%A0 |
| ¡ | %A1 | %C2%A1 |
| ¢ | %A2 | %C2%A2 |
| £ | %A3 | %C2%A3 |
| ¤ | %A4 | %C2%A4 |
| ¥ | %A5 | %C2%A5 |
| ¦ | %A6 | %C2%A6 |
| § | %A7 | %C2%A7 |
| ¨ | %A8 | %C2%A8 |
| © | %A9 | %C2%A9 |
| ª | %AA | %C2%AA |
| « | %AB | %C2%AB |
| ¬ | %AC | %C2%AC |
|  | %AD | %C2%AD |
| ® | %AE | %C2%AE |
| ¯ | %AF | %C2%AF |
| ° | %B0 | %C2%B0 |
| ± | %B1 | %C2%B1 |
| ² | %B2 | %C2%B2 |
| ³ | %B3 | %C2%B3 |
| ´ | %B4 | %C2%B4 |
| µ | %B5 | %C2%B5 |
| ¶ | %B6 | %C2%B6 |
| · | %B7 | %C2%B7 |
| ¸ | %B8 | %C2%B8 |
| ¹ | %B9 | %C2%B9 |
| º | %BA | %C2%BA |
| » | %BB | %C2%BB |
| ¼ | %BC | %C2%BC |
| ½ | %BD | %C2%BD |
| ¾ | %BE | %C2%BE |
| ¿ | %BF | %C2%BF |
| À | %C0 | %C3%80 |
| Á | %C1 | %C3%81 |
| Â | %C2 | %C3%82 |
| Ã | %C3 | %C3%83 |
| Ä | %C4 | %C3%84 |
| Å | %C5 | %C3%85 |
| Æ | %C6 | %C3%86 |
| Ç | %C7 | %C3%87 |
| È | %C8 | %C3%88 |
| É | %C9 | %C3%89 |
| Ê | %CA | %C3%8A |
| Ë | %CB | %C3%8B |
| Ì | %CC | %C3%8C |
| Í | %CD | %C3%8D |
| Î | %CE | %C3%8E |
| Ï | %CF | %C3%8F |
| Ð | %D0 | %C3%90 |
| Ñ | %D1 | %C3%91 |
| Ò | %D2 | %C3%92 |
| Ó | %D3 | %C3%93 |
| Ô | %D4 | %C3%94 |
| Õ | %D5 | %C3%95 |
| Ö | %D6 | %C3%96 |
| × | %D7 | %C3%97 |
| Ø | %D8 | %C3%98 |
| Ù | %D9 | %C3%99 |
| Ú | %DA | %C3%9A |
| Û | %DB | %C3%9B |
| Ü | %DC | %C3%9C |
| Ý | %DD | %C3%9D |
| Þ | %DE | %C3%9E |
| ß | %DF | %C3%9F |
| à | %E0 | %C3%A0 |
| á | %E1 | %C3%A1 |
| â | %E2 | %C3%A2 |
| ã | %E3 | %C3%A3 |
| ä | %E4 | %C3%A4 |
| å | %E5 | %C3%A5 |
| æ | %E6 | %C3%A6 |
| ç | %E7 | %C3%A7 |
| è | %E8 | %C3%A8 |
| é | %E9 | %C3%A9 |
| ê | %EA | %C3%AA |
| ë | %EB | %C3%AB |
| ì | %EC | %C3%AC |
| í | %ED | %C3%AD |
| î | %EE | %C3%AE |
| ï | %EF | %C3%AF |
| ð | %F0 | %C3%B0 |
| ñ | %F1 | %C3%B1 |
| ò | %F2 | %C3%B2 |
| ó | %F3 | %C3%B3 |
| ô | %F4 | %C3%B4 |
| õ | %F5 | %C3%B5 |
| ö | %F6 | %C3%B6 |
| ÷ | %F7 | %C3%B7 |
| ø | %F8 | %C3%B8 |
| ù | %F9 | %C3%B9 |
| ú | %FA | %C3%BA |
| û | %FB | %C3%BB |
| ü | %FC | %C3%BC |
| ý | %FD | %C3%BD |
| þ | %FE | %C3%BE |
| ÿ | %FF | %C3%BF |

## URL Encoding Reference

The ASCII control characters **%00-%1F** were originally designed to control hardware devices.

Control characters have nothing to do inside a URL.

|  |  |  |
| --- | --- | --- |
| **ASCII Character** | **Description** | **URL-encoding** |
| NUL | null character | %00 |
| SOH | start of header | %01 |
| STX | start of text | %02 |
| ETX | end of text | %03 |
| EOT | end of transmission | %04 |
| ENQ | enquiry | %05 |
| ACK | acknowledge | %06 |
| BEL | bell (ring) | %07 |
| BS | backspace | %08 |
| HT | horizontal tab | %09 |
| LF | line feed | %0A |
| VT | vertical tab | %0B |
| FF | form feed | %0C |
| CR | carriage return | %0D |
| SO | shift out | %0E |
| SI | shift in | %0F |
| DLE | data link escape | %10 |
| DC1 | device control 1 | %11 |
| DC2 | device control 2 | %12 |
| DC3 | device control 3 | %13 |
| DC4 | device control 4 | %14 |
| NAK | negative acknowledge | %15 |
| SYN | synchronize | %16 |
| ETB | end transmission block | %17 |
| CAN | cancel | %18 |
| EM | end of medium | %19 |
| SUB | substitute | %1A |
| ESC | escape | %1B |
| FS | file separator | %1C |
| GS | group separator | %1D |
| RS | record separator | %1E |
| US | unit separator | %1F |

# HTML Language Code Reference

## ISO Language Codes

The HTML lang attribute can be used to declare the language of a Web page or a portion of a Web page. This is meant to assist search engines and browsers.

According to the W3C recommendation you should declare the primary language for each Web page with the lang attribute inside the <html> tag, like this:

<html lang="en">  
...  
</html>

In XHTML, the language is declared inside the <html> tag as follows:

<html xmlns="http://www.w3.org/1999/xhtml" lang="en" xml:lang="en">  
...  
</html>

## ISO 639-1 Language Codes

ISO 639-1 defines abbreviations for languages.

In HTML and XHTML they can be used in the lang and xml:lang attributes.

See also: next reference for country codes.

|  |  |
| --- | --- |
| **Language** | **ISO Code** |
| Abkhazian | ab |
| Afar | aa |
| Afrikaans | af |
| Albanian | sq |
| Amharic | am |
| Arabic | ar |
| Aragonese | an |
| Armenian | hy |
| Assamese | as |
| Aymara | ay |
| Azerbaijani | az |
| Bashkir | ba |
| Basque | eu |
| Bengali (Bangla) | bn |
| Bhutani | dz |
| Bihari | bh |
| Bislama | bi |
| Breton | br |
| Bulgarian | bg |
| Burmese | my |
| Byelorussian (Belarusian) | be |
| Cambodian | km |
| Catalan | ca |
| Cherokee |  |
| Chewa |  |
| Chinese | zh |
| Chinese (Simplified) | zh-Hans |
| Chinese (Traditional) | zh-Hant |
| Corsican | co |
| Croatian | hr |
| Czech | cs |
| Danish | da |
| Divehi |  |
| Dutch | nl |
| Edo |  |
| English | en |
| Esperanto | eo |
| Estonian | et |
| Faeroese | fo |
| Farsi | fa |
| Fiji | fj |
| Finnish | fi |
| Flemish |  |
| French | fr |
| Frisian | fy |
| Fulfulde |  |
| Galician | gl |
| Gaelic (Scottish) | gd |
| Gaelic (Manx) | gv |
| Georgian | ka |
| German | de |
| Greek | el |
| Greenlandic | kl |
| Guarani | gn |
| Gujarati | gu |
| Haitian Creole | ht |
| Hausa | ha |
| Hawaiian |  |
| Hebrew | he, iw |
| Hindi | hi |
| Hungarian | hu |
| Ibibio |  |
| Icelandic | is |
| Ido | io |
| Igbo |  |
| Indonesian | id, in |
| Interlingua | ia |
| Interlingue | ie |
| Inuktitut | iu |
| Inupiak | ik |
| Irish | ga |
| Italian | it |
| Japanese | ja |
| Javanese | jv |
| Kannada | kn |
| Kanuri |  |
| Kashmiri | ks |
| Kazakh | kk |
| Kinyarwanda (Ruanda) | rw |
| Kirghiz | ky |
| Kirundi (Rundi) | rn |
| Konkani |  |
| Korean | ko |
| Kurdish | ku |
| Laothian | lo |
| Latin | la |
| Latvian (Lettish) | lv |
| Limburgish ( Limburger) | li |
| Lingala | ln |
| Lithuanian | lt |
| Macedonian | mk |
| Malagasy | mg |
| Malay | ms |
| Malayalam | ml |
| Maltese | mt |
| Maori | mi |
| Marathi | mr |
| Moldavian | mo |
| Mongolian | mn |
| Nauru | na |
| Nepali | ne |
| Norwegian | no |
| Occitan | oc |
| Oriya | or |
| Oromo (Afaan Oromo) | om |
| Papiamentu |  |
| Pashto (Pushto) | ps |
| Polish | pl |
| Portuguese | pt |
| Punjabi | pa |
| Quechua | qu |
| Rhaeto-Romance | rm |
| Romanian | ro |
| Russian | ru |
| Sami (Lappish) |  |
| Samoan | sm |
| Sangro | sg |
| Sanskrit | sa |
| Serbian | sr |
| Serbo-Croatian | sh |
| Sesotho | st |
| Setswana | tn |
| Shona | sn |
| Sichuan Yi | ii |
| Sindhi | sd |
| Sinhalese | si |
| Siswati | ss |
| Slovak | sk |
| Slovenian | sl |
| Somali | so |
| Spanish | es |
| Sundanese | su |
| Swahili (Kiswahili) | sw |
| Swedish | sv |
| Syriac |  |
| Tagalog | tl |
| Tajik | tg |
| Tamazight |  |
| Tamil | ta |
| Tatar | tt |
| Telugu | te |
| Thai | th |
| Tibetan | bo |
| Tigrinya | ti |
| Tonga | to |
| Tsonga | ts |
| Turkish | tr |
| Turkmen | tk |
| Twi | tw |
| Uighur | ug |
| Ukrainian | uk |
| Urdu | ur |
| Uzbek | uz |
| Venda |  |
| Vietnamese | vi |
| Volapük | vo |
| Wallon | wa |
| Welsh | cy |
| Wolof | wo |
| Xhosa | xh |
| Yi |  |
| Yiddish | yi, ji |
| Yoruba | yo |
| Zulu | zu |

# HTML ISO Country Codes Reference

## ISO Country Codes

ISO country codes define abbreviations for countries.

In HTML they can be used as an addition to the language value in the lang attribute.

The first two characters of a language code defines the **language**. (see previous reference)

The last two defines the **country**.

<html lang="en**-US**">  
...  
</html>

## ISO Country Codes

|  |  |
| --- | --- |
| **Country** | **ISO Code** |
| AFGHANISTAN | AF |
| ALBANIA | AL |
| ALGERIA | DZ |
| AMERICAN SAMOA | AS |
| ANDORRA | AD |
| ANGOLA | AO |
| ANTARCTICA | AQ |
| ANTIGUA AND BARBUDA | AG |
| ARGENTINA | AR |
| ARMENIA | AM |
| ARUBA | AW |
| AUSTRALIA | AU |
| AUSTRIA | AT |
| AZERBAIJAN | AZ |
| BAHAMAS | BS |
| BAHRAIN | BH |
| BANGLADESH | BD |
| BARBADOS | BB |
| BELARUS | BY |
| BELGIUM | BE |
| BELIZE | BZ |
| BENIN | BJ |
| BERMUDA | BM |
| BHUTAN | BT |
| BOLIVIA | BO |
| BOSNIA AND HERZEGOVINA | BA |
| BOTSWANA | BW |
| BOUVET ISLAND | BV |
| BRAZIL | BR |
| BRITISH INDIAN OCEAN TERRITORY | IO |
| BRUNEI DARUSSALAM | BN |
| BULGARIA | BG |
| BURKINA FASO | BF |
| BURUNDI | BI |
| CAMBODIA | KH |
| CAMEROON | CM |
| CANADA | CA |
| CAPE VERDE | CV |
| CAYMAN ISLANDS | KY |
| CENTRAL AFRICAN REPUBLIC | CF |
| CHAD | TD |
| CHILE | CL |
| CHINA | CN |
| CHRISTMAS ISLAND | CX |
| COCOS (KEELING) ISLANDS | CC |
| COLOMBIA | CO |
| COMOROS | KM |
| CONGO | CG |
| CONGO, THE DEMOCRATIC REPUBLIC OF THE | CD |
| COOK ISLANDS | CK |
| COSTA RICA | CR |
| CÔTE D'IVOIRE | CI |
| CROATIA | HR |
| CUBA | CU |
| CYPRUS | CY |
| CZECH REPUBLIC | CZ |
| DENMARK | DK |
| DJIBOUTI | DJ |
| DOMINICA | DM |
| DOMINICAN REPUBLIC | DO |
| ECUADOR | EC |
| EGYPT | EG |
| EL SALVADOR | SV |
| EQUATORIAL GUINEA | GQ |
| ERITREA | ER |
| ESTONIA | EE |
| ETHIOPIA | ET |
| FALKLAND ISLANDS (MALVINAS) | FK |
| FAROE ISLANDS | FO |
| FIJI | FJ |
| FINLAND | FI |
| FRANCE | FR |
| FRENCH GUIANA | GF |
| FRENCH POLYNESIA | PF |
| FRENCH SOUTHERN TERRITORIES | TF |
| GABON | GA |
| GAMBIA | GM |
| GEORGIA | GE |
| GERMANY | DE |
| GHANA | GH |
| GIBRALTAR | GI |
| GREECE | GR |
| GREENLAND | GL |
| GRENADA | GD |
| GUADELOUPE | GP |
| GUAM | GU |
| GUATEMALA | GT |
| GUINEA | GN |
| GUINEA-BISSAU | GW |
| GUYANA | GY |
| HAITI | HT |
| HEARD ISLAND AND MCDONALD ISLANDS | HM |
| HONDURAS | HN |
| HONG KONG | HK |
| HUNGARY | HU |
| ICELAND | IS |
| INDIA | IN |
| INDONESIA | ID |
| IRAN, ISLAMIC REPUBLIC OF | IR |
| IRAQ | IQ |
| IRELAND | IE |
| ISRAEL | IL |
| ITALY | IT |
| JAMAICA | JM |
| JAPAN | JP |
| JORDAN | JO |
| KAZAKHSTAN | KZ |
| KENYA | KE |
| KIRIBATI | KI |
| KOREA, DEMOCRATIC PEOPLE'S REPUBLIC OF | KP |
| KOREA, REPUBLIC OF | KR |
| KUWAIT | KW |
| KYRGYZSTAN | KG |
| LAO PEOPLE'S DEMOCRATIC REPUBLIC (LAOS) | LA |
| LATVIA | LV |
| LEBANON | LB |
| LESOTHO | LS |
| LIBERIA | LR |
| LIBYAN ARAB JAMAHIRIYA | LY |
| LIECHTENSTEIN | LI |
| LITHUANIA | LT |
| LUXEMBOURG | LU |
| MACAO | MO |
| MACEDONIA, THE FORMER YUGOSLAV REPUBLIC OF | MK |
| MADAGASCAR | MG |
| MALAWI | MW |
| MALAYSIA | MY |
| MALDIVES | MV |
| MALI | ML |
| MALTA | MT |
| MARSHALL ISLANDS | MH |
| MARTINIQUE | MQ |
| MAURITANIA | MR |
| MAURITIUS | MU |
| MAYOTTE | YT |
| MEXICO | MX |
| MICRONESIA, FEDERATED STATES OF | FM |
| MOLDOVA, REPUBLIC OF | MD |
| MONACO | MC |
| MONGOLIA | MN |
| MONTENEGRO | ME |
| MONTSERRAT | MS |
| MOROCCO | MA |
| MOZAMBIQUE | MZ |
| MYANMAR | MM |
| NAMIBIA | NA |
| NAURU | NR |
| NEPAL | NP |
| NETHERLANDS | NL |
| NETHERLANDS ANTILLES | AN |
| NEW CALEDONIA | NC |
| NEW ZEALAND | NZ |
| NICARAGUA | NI |
| NIGER | NE |
| NIGERIA | NG |
| NIUE | NU |
| NORFOLK ISLAND | NF |
| NORTHERN MARIANA ISLANDS | MP |
| NORWAY | NO |
| OMAN | OM |
| PAKISTAN | PK |
| PALAU | PW |
| PALESTINIAN TERRITORY, OCCUPIED | PS |
| PANAMA | PA |
| PAPUA NEW GUINEA | PG |
| PARAGUAY | PY |
| PERU | PE |
| PHILIPPINES | PH |
| PITCAIRN | PN |
| POLAND | PL |
| PORTUGAL | PT |
| PUERTO RICO | PR |
| QATAR | QA |
| RÉUNION | RE |
| ROMANIA | RO |
| RUSSIAN FEDERATION | RU |
| RWANDA | RW |
| SAINT HELENA | SH |
| SAINT KITTS AND NEVIS | KN |
| SAINT LUCIA | LC |
| SAINT PIERRE AND MIQUELON | PM |
| SAINT VINCENT AND THE GRENADINES | VC |
| SAMOA | WS |
| SAN MARINO | SM |
| SAO TOME AND PRINCIPE | ST |
| SAUDI ARABIA | SA |
| SENEGAL | SN |
| SERBIA | RS |
| SEYCHELLES | SC |
| SIERRA LEONE | SL |
| SINGAPORE | SG |
| SLOVAKIA | SK |
| SLOVENIA | SI |
| SOLOMON ISLANDS | SB |
| SOMALIA | SO |
| SOUTH AFRICA | ZA |
| SOUTH GEORGIA AND THE SOUTH SANDWICH ISLANDS | GS |
| SPAIN | ES |
| SRI LANKA | LK |
| SUDAN | SD |
| SURINAME | SR |
| SVALBARD AND JAN MAYEN | SJ |
| SWAZILAND | SZ |
| SWEDEN | SE |
| SWITZERLAND | CH |
| SYRIAN ARAB REPUBLIC | SY |
| TAIWAN | TW |
| TAJIKISTAN | TJ |
| TANZANIA, UNITED REPUBLIC OF | TZ |
| THAILAND | TH |
| TIMOR-LESTE | TL |
| TOGO | TG |
| TOKELAU | TK |
| TONGA | TO |
| TRINIDAD AND TOBAGO | TT |
| TUNISIA | TN |
| TURKEY | TR |
| TURKMENISTAN | TM |
| TURKS AND CAICOS ISLANDS | TC |
| TUVALU | TV |
| UGANDA | UG |
| UKRAINE | UA |
| UNITED ARAB EMIRATES | AE |
| UNITED KINGDOM | GB |
| UNITED STATES | US |
| UNITED STATES MINOR OUTLYING ISLANDS | UM |
| URUGUAY | UY |
| UZBEKISTAN | UZ |
| VANUATU | VU |
| VENEZUELA | VE |
| VIET NAM | VN |
| VIRGIN ISLANDS, BRITISH | VG |
| VIRGIN ISLANDS, U.S. | VI |
| WALLIS AND FUTUNA | WF |
| WESTERN SAHARA | EH |
| YEMEN | YE |
| ZAMBIA | ZM |
| ZIMBABWE | ZW |

# HTTP Status Messages

When a browser requests a service from a web server, an error might occur.

This is a list of HTTP status messages that might be returned:

## 1xx: Information

|  |  |
| --- | --- |
| **Message:** | **Description:** |
| 100 Continue | The server has received the request headers, and the client should proceed to send the request body |
| 101 Switching Protocols | The requester has asked the server to switch protocols |
| 103 Checkpoint | Used in the resumable requests proposal to resume aborted PUT or POST requests |

## 2xx: Successful

|  |  |
| --- | --- |
| **Message:** | **Description:** |
| 200 OK | The request is OK (this is the standard response for successful HTTP requests) |
| 201 Created | The request has been fulfilled, and a new resource is created |
| 202 Accepted | The request has been accepted for processing, but the processing has not been completed |
| 203 Non-Authoritative Information | The request has been successfully processed, but is returning information that may be from another source |
| 204 No Content | The request has been successfully processed, but is not returning any content |
| 205 Reset Content | The request has been successfully processed, but is not returning any content, and requires that the requester reset the document view |
| 206 Partial Content | The server is delivering only part of the resource due to a range header sent by the client |

## 3xx: Redirection

|  |  |
| --- | --- |
| **Message:** | **Description:** |
| 300 Multiple Choices | A link list. The user can select a link and go to that location. Maximum five addresses |
| 301 Moved Permanently | The requested page has moved to a new URL |
| 302 Found | The requested page has moved temporarily to a new URL |
| 303 See Other | The requested page can be found under a different URL |
| 304 Not Modified | Indicates the requested page has not been modified since last requested |
| 306 Switch Proxy | *No longer used* |
| 307 Temporary Redirect | The requested page has moved temporarily to a new URL |
| 308 Resume Incomplete | Used in the resumable requests proposal to resume aborted PUT or POST requests |

## 4xx: Client Error

|  |  |
| --- | --- |
| **Message:** | **Description:** |
| 400 Bad Request | The request cannot be fulfilled due to bad syntax |
| 401 Unauthorized | The request was a legal request, but the server is refusing to respond to it. For use when authentication is possible but has failed or not yet been provided |
| 402 Payment Required | *Reserved for future use* |
| 403 Forbidden | The request was a legal request, but the server is refusing to respond to it |
| 404 Not Found | The requested page could not be found but may be available again in the future |
| 405 Method Not Allowed | A request was made of a page using a request method not supported by that page |
| 406 Not Acceptable | The server can only generate a response that is not accepted by the client |
| 407 Proxy Authentication Required | The client must first authenticate itself with the proxy |
| 408 Request Timeout | The server timed out waiting for the request |
| 409 Conflict | The request could not be completed because of a conflict in the request |
| 410 Gone | The requested page is no longer available |
| 411 Length Required | The "Content-Length" is not defined. The server will not accept the request without it |
| 412 Precondition Failed | The precondition given in the request evaluated to false by the server |
| 413 Request Entity Too Large | The server will not accept the request, because the request entity is too large |
| 414 Request-URI Too Long | The server will not accept the request, because the URL is too long. Occurs when you convert a POST request to a GET request with a long query information |
| 415 Unsupported Media Type | The server will not accept the request, because the media type is not supported |
| 416 Requested Range Not Satisfiable | The client has asked for a portion of the file, but the server cannot supply that portion |
| 417 Expectation Failed | The server cannot meet the requirements of the Expect request-header field |

## 5xx: Server Error

|  |  |
| --- | --- |
| **Message:** | **Description:** |
| 500 Internal Server Error | A generic error message, given when no more specific message is suitable |
| 501 Not Implemented | The server either does not recognize the request method, or it lacks the ability to fulfill the request |
| 502 Bad Gateway | The server was acting as a gateway or proxy and received an invalid response from the upstream server |
| 503 Service Unavailable | The server is currently unavailable (overloaded or down) |
| 504 Gateway Timeout | The server was acting as a gateway or proxy and did not receive a timely response from the upstream server |
| 505 HTTP Version Not Supported | The server does not support the HTTP protocol version used in the request |
| 511 Network Authentication Required | The client needs to authenticate to gain network access |

# HTTP Methods: GET vs. POST

The two most used HTTP methods are: GET and POST.

## What is HTTP?

The Hypertext Transfer Protocol (HTTP) is designed to enable communications between clients and servers.

HTTP works as a request-response protocol between a client and server.

A web browser may be the client, and an application on a computer that hosts a web site may be the server.

Example: A client (browser) submits an HTTP request to the server; then the server returns a response to the client. The response contains status information about the request and may also contain the requested content.

**Two HTTP Request Methods: GET and POST**

Two commonly used methods for a request-response between a client and server are: GET and POST.

* **GET** - Requests data from a specified resource
* **POST** - Submits data to be processed to a specified resource

## The GET Method

**Note that the query string (name/value pairs) is sent in the URL of a GET request:**

/test/demo\_form.asp**?name1=value1&name2=value2**

**Some other notes on GET requests:**

* GET requests can be cached
* GET requests remain in the browser history
* GET requests can be bookmarked
* GET requests should never be used when dealing with sensitive data
* GET requests have length restrictions
* GET requests should be used only to retrieve data

## The POST Method

**Note that the query string (name/value pairs) is sent in the HTTP message body of a POST request:**

POST /test/demo\_form.asp HTTP/1.1  
Host: w3schools.com  
**name1=value1&name2=value2**

**Some other notes on POST requests:**

* POST requests are never cached
* POST requests do not remain in the browser history
* POST requests cannot be bookmarked
* POST requests have no restrictions on data length

## Compare GET vs. POST

The following table compares the two HTTP methods: GET and POST.

|  |  |  |
| --- | --- | --- |
|  | **GET** | **POST** |
| BACK button/Reload | Harmless | Data will be re-submitted (the browser should alert the user that the data are about to be re-submitted) |
| Bookmarked | Can be bookmarked | Cannot be bookmarked |
| Cached | Can be cached | Not cached |
| Encoding type | application/x-www-form-urlencoded | application/x-www-form-urlencoded or multipart/form-data. Use multipart encoding for binary data |
| History | Parameters remain in browser history | Parameters are not saved in browser history |
| Restrictions on data length | Yes, when sending data, the GET method adds the data to the URL; and the length of a URL is limited (maximum URL length is 2048 characters) | No restrictions |
| Restrictions on data type | Only ASCII characters allowed | No restrictions. Binary data is also allowed |
| Security | GET is less secure compared to POST because data sent is part of the URL  Never use GET when sending passwords or other sensitive information! | POST is a little safer than GET because the parameters are not stored in browser history or in web server logs |
| Visibility | Data is visible to everyone in the URL | Data is not displayed in the URL |

## Other HTTP Request Methods

The following table lists some other HTTP request methods:

|  |  |
| --- | --- |
| **Method** | **Description** |
| HEAD | Same as GET but returns only HTTP headers and no document body |
| PUT | Uploads a representation of the specified URI |
| DELETE | Deletes the specified resource |
| OPTIONS | Returns the HTTP methods that the server supports |
| CONNECT | Converts the request connection to a transparent TCP/IP tunnel |

# Pixels to Ems Conversion

The tool below allows you to work out the em sizes from pixels (or vice versa).

## Pixel to Em Converter

* Set a default pixel size for body (usually 16px)
* Then, convert a pixel value to em, based on the default pixel size
* Or, convert an em value to pixels, based on the default pixel size

Set a default pixel size:

 px 

Convert PX to EM:  
 px

Convert EM to PX:  
 em

 Convert

Result:

## Body Font Size

In the table below, select a body font size in pixels (px) to display a complete "px to em and percent" conversion table.

**Tip:** The default font size is usually 16px.

|  |  |  |
| --- | --- | --- |
| **px** | **em** | **percent** |
| 5px | 0.3125em | 31.25% |
| 6px | 0.3750em | 37.50% |
| 7px | 0.4375em | 43.75% |
| 8px | 0.5000em | 50.00% |
| 9px | 0.5625em | 56.25% |
| 10px | 0.6250em | 62.50% |
| 11px | 0.6875em | 68.75% |
| 12px | 0.7500em | 75.00% |
| 13px | 0.8125em | 81.25% |
| 14px | 0.8750em | 87.50% |
| 15px | 0.9375em | 93.75% |
| 16px | 1.0000em | 100.00% |
| 17px | 1.0625em | 106.25% |
| 18px | 1.1250em | 112.50% |
| 19px | 1.1875em | 118.75% |
| 20px | 1.2500em | 125.00% |
| 21px | 1.3125em | 131.25% |
| 22px | 1.3750em | 137.50% |
| 23px | 1.4375em | 143.75% |
| 24px | 1.5000em | 150.00% |
| 25px | 1.5625em | 156.25% |

**What is the difference between PX, EM and Percent?**

Pixel is a static measurement, while percent and EM are relative measurements. The size of an EM or percent depends on its parent. If the text size of body is 16 pixels, then 150% or 1.5 EM will be 24 pixels (1.5 \* 16). Look at [CSS Units](http://www.w3schools.com/cssref/css_units.asp) for more measurement units.

# Keyboard Shortcuts

Save time by using keyboard shortcuts.

## Keyboard Shortcuts For Windows and Mac

Keyboard shortcuts are often used in modern operating systems and computer software programs.

Using keyboard shortcuts could save you a lot of time.

## Basic Shortcuts

|  |  |  |
| --- | --- | --- |
| **Description** | **Windows** | **Mac OS** |
| Edit menu | Alt + E | Ctrl + F2 + F |
| File menu | Alt + F | Ctrl + F2 + E |
| View menu | Alt + V | Ctrl + F2 + V |
| Select all text | Ctrl + A | Cmd + A |
| Copy text | Ctrl + C | Cmd + C |
| Find text | Ctrl + F | Cmd + F |
| Find and replace text | Ctrl + H | Cmd + F |
| New Document | Ctrl + N | Cmd + N |
| Open a file | Ctrl + O | Cmd + O |
| Print options | Ctrl + P | Cmd + P |
| Save file | Ctrl + S | Cmd + S |
| Paste text | Ctrl + V | Cmd + V |
| Cut text | Ctrl + X | Cmd + X |
| Redo text | Ctrl + Y | Shift + Cmd + Z |
| Undo text | Ctrl + Z | Cmd + Z |

## Text Editing

|  |  |  |
| --- | --- | --- |
| **Description** | **Windows** | **Mac OS** |
| **Cursor Movement** |  |  |
| Go to the right or to the beginning of next line break | Right Arrow | Right Arrow |
| Go to the left or to the end of previous line break | Left Arrow | Left Arrow |
| Go up one row | Up Arrow | Up Arrow |
| Go down one row | Down Arrow | Down Arrow |
| Go to the beginning of the current line | Home | Cmd + Left Arrow |
| Go to the end of the current line | End | Cmd + Right Arrow |
| Go to the beginning of the document | Ctrl + Home | Cmd + Up Arrow |
| Go to the end of the document | Ctrl + End | Cmd + Down Arrow |
| Move up one frame | Page Up | Fn + Up Arrow |
| Move down one frame | Page Down | Fn + Down Arrow |
| Go to beginning of previous word | Ctrl + Left Arrow | Option + Left Arrow |
| Go to beginning of next word | Ctrl + Right Arrow | Option + Right Arrow |
| Go to beginning of line break | Ctrl + Up Arrow | Cmd + Left Arrow |
| Go to end of line break | Ctrl + Down Arrow | Cmd + Right Arrow |
|  |  |  |
| **Text Selection** |  |  |
| Select characters to the left | Shift + Left Arrow | Shift + Left Arrow |
| Select characters to the right | Shift + Right Arrow | Shift + Right Arrow |
| Select lines upwards | Shift + Up Arrow | Shift + Up Arrow |
| Select lines downwards | Shift + Down Arrow | Shift + Down Arrow |
| Select words to the left | Shift + Ctrl + Left | Shift + Opt + Left |
| Select words to the right | Shift + Ctrl + Right | Shift + Opt + Right |
| Select paragraphs to the left | Shift + Ctrl + Up | Shift + Opt + Up |
| Select paragraphs to the right | Shift + Ctrl + Down | Shift + Opt + Down |
| Select text between the cursor and the beginning of the current line | Shift + Home | Cmd + Shift + Left Arrow |
| Select text between the cursor and the end of the current line | Shift + End | Cmd + Shift + Right Arrow |
| Select text between the cursor and the beginning of the document | Shift + Ctrl + Home | Cmd + Shift + Up Arrow or Cmd + Shift + Fn + Left Arrow |
| Select text between the cursor and the end of the document | Shift + Ctrl + End | Cmd + Shift + Down Arrow or Cmd + Shift + Fn + Right Arrow |
| Select one frame at a time of text above the cursor | Shift + Page Up | Shift + Fn + Up Arrow |
| Select one frame at a time of text below the cursor | Shift + Page Down | Shift + Fn + Down Arrow |
| Select all text | Ctrl + A | Cmd + A |
| Find text | Ctrl + F | Cmd + F |
|  |  |  |
| **Text Formatting** |  |  |
| Make selected text bold | Ctrl + B | Cmd + B |
| Make selected text italic | Ctrl + I | Cmd + I |
| Underline selected text | Ctrl + U | Cmd + U |
| Make selected text superscript | Ctrl + Shift + = | Cmd + Shift + = |
| Make selected text subscript | Ctrl + = | Cmd + = |
|  |  |  |
| **Text Editing** |  |  |
| Delete characters to the left | Backspace | Backspace |
| Delete characters to the right | Delete | Fn + Backspace |
| Delete words to the right | Ctrl + Del | Cmd + Backspace |
| Delete words to the left | Ctrl + Backspace | Cmd + Fn + Backspace |
| Indent | Tab | Tab |
| Outdent | Shift + Tab | Shift + Tab |
| Copy text | Ctrl + C | Cmd + C |
| Find and replace text | Ctrl + H | Cmd + F |
| Paste text | Ctrl + V | Cmd + V |
| Cut text | Ctrl + X | Cmd + X |
| Redo text | Ctrl + Y | Shift + Cmd + Z |
| Undo text | Ctrl + Z | Cmd + Z |

## Web Browsers

|  |  |  |
| --- | --- | --- |
| **Description** | **Windows** | **Mac OS** |
| **Navigation** |  |  |
| Scroll down a frame | Space or Page Down | Space or Fn + Down Arrow |
| Scroll up a frame | Shift + Space or Page Up | Shift + Space or Fn + Up Arrow |
| Go to bottom of the page | End | Cmd + Down Arrow |
| Go to top of the page | Home | Cmd + Up Arrow |
| Go back | Alt + Left Arrow or Backspace | Cmd + Left Arrow |
| Go forward | Alt + Right Arrow or Shift + Backspace | Cmd + Right Arrow |
| Refresh a webpage | F5 | Cmd + R |
| Refresh a webpage (no cache) | Ctrl + F5 | Cmd + Shift + R |
| Stop | Esc | Esc |
| Toggle full-screen | F11 | Cmd + Shift + F |
| Zoom in | Ctrl + + | Cmd + + |
| Zoom out | Ctrl + - | Cmd + - |
| Zoom 100% (default) | Ctrl + 0 | Cmd + 0 |
| Open homepage | Alt + Home | Option + Home or Option + Fn + Left Arrow |
| Find text | Ctrl + F | Cmd + F |
|  |  |  |
| **Tab / Window Management** |  |  |
| Open a new tab | Ctrl + T | Cmd + T |
| Close current tab | Ctrl + W | Cmd + W |
| Close all tabs | Ctrl + Shift + W | Cmd + Q |
| Close all tabs except the current tab | Ctrl + Alt + F4 | Cmd + Opt + W |
| Go to next tab | Ctrl + Tab | Control + Tab or Cmd + Shift + Right Arrow |
| Go to previous tab | Ctrl + Shift + Tab | Shift + Control + Tab or Cmd + Shift + Left Arrow |
| Go to a specific tab number | Ctrl + 1-8 | Cmd + 1-8 |
| Go to the last tab | Ctrl + 9 | Cmd + 9 |
| Reopen the last closed tab | Ctrl + Shift + T | Cmd + Shift + T |
| Open a new window | Ctrl + N | Cmd + N |
| Close current window | Alt + F4 | Cmd + W |
| Go to next window | Alt + Tab | Cmd + Tab |
| Go to previous window | Alt + Shift + Tab | Cmd + Shift + Tab |
| Reopen the last closed window | Ctrl + Shift + N |  |
| Open links in a new tab in the background | Ctrl + Click | Cmd + Click |
| Open links in a new tab in the foreground | Ctrl + Shift + Click | Cmd + Shift + Click |
| Print current webpage | Ctrl + P | Cmd + P |
| Save current webpage | Ctrl + S | Cmd + S |
|  |  |  |
| **Address Bar** |  |  |
| Cycle between toolbar, search bar, and page elements | Tab | Tab |
| Go to browser's address bar | Ctrl + L or Alt + D | Cmd + L |
| Focus and select the browser's search bar | Ctrl + E | Cmd + E / Cmd + K |
| Open the address bar location in a new tab | Alt + Enter | Opt + Enter |
| Display a list of previously typed addresses | F4 |  |
| Add "www." to the beginning and ".com" to the end of the text typed in the address bar (e.g., type "w3schools" and press Ctrl + Enter to open "www.w3schools.com") | Ctrl + Enter | Cmd + Enter or Control + Enter |
|  |  |  |
| **Bookmarks** |  |  |
| Open the bookmarks menu | Ctrl + B | Cmd + B |
| Add bookmark for current page | Ctrl + D | Cmd + Opt + B or Cmd + Shift + B |
| Open browsing history | Ctrl + H | Cmd + Shift + H or Cmd + Y |
| Open download history | Ctrl + J | Cmd + J or Cmd + Shift + J |

## Screenshots

|  |  |  |
| --- | --- | --- |
| **Description** | **Windows** | **Mac OS** |
| Save screenshot of the whole screen as file |  | Cmd + Shift + 3 |
| Copy screenshot of the whole screen to the clipboard | PrtScr (Print Screen) or Ctrl + PrtScr | Cmd + Ctrl + Shift + 3 |
| Save screenshot of window as file |  | Cmd + Shift + 4, then Space |
| Copy screenshot of window to the clipboard | Alt + PrtScr | Cmd + Ctrl + Shift + 4, then Space |
| Copy screenshot of wanted area to the clipboard |  | Cmd + Ctrl + Shift + 4 |
| Save screenshot of wanted area as file |  | Cmd + Shift + 4 |

**Note:** Due to different keyboard setups, some shortcuts may not be compatible for all users.

# HTML <!--...--> Tag

### Example

An HTML comment:

<!--This is a comment. Comments are not displayed in the browser-->  
  
<p>This is a paragraph.</p>

## Definition and Usage

The comment tag is used to insert comments in the source code. Comments are not displayed in the browsers.

You can use comments to explain your code, which can help you when you edit the source code at a later date. This is especially useful if you have a lot of code.

## Browser Support

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Element |  |  |  |  |  |
| <!--...--> | Yes | Yes | Yes | Yes | Yes |

## Differences Between HTML 4.01 and HTML5

NONE.

## Tips and Notes

You can also use the comment tag to "hide" scripts from browsers without support for scripts (so they don't show them as plain text):

<script type="text/javascript">  
<!--  
function displayMsg() {  
    alert("Hello World!")  
}  
//-->  
</script>

**Note:** The two forward slashes at the end of comment line (//) is the JavaScript comment symbol. This prevents JavaScript from executing the --> tag.

## Standard Attributes

The comment tag does not support any standard attributes.

More information about [Standard Attributes](http://www.w3schools.com/tags/ref_standardattributes.asp).

## Event Attributes

The comment tag does not support any event attributes.

More information about [Event Attributes](http://www.w3schools.com/tags/ref_eventattributes.asp).

# HTML <!DOCTYPE> Declaration

### Example

<!DOCTYPE html>  
<html>  
<head>  
<title>Title of the document</title>  
</head>  
  
<body>  
The content of the document......  
</body>  
  
</html>

## Definition and Usage

The <!DOCTYPE> declaration must be the very first thing in your HTML document, before the <html> tag.

The <!DOCTYPE> declaration is not an HTML tag; it is an instruction to the web browser about what version of HTML the page is written in.

In HTML 4.01, the <!DOCTYPE> declaration refers to a DTD, because HTML 4.01 was based on SGML. The DTD specifies the rules for the markup language, so that the browsers render the content correctly.

HTML5 is not based on SGML, and therefore does not require a reference to a DTD.

**Tip:** Always add the <!DOCTYPE> declaration to your HTML documents, so that the browser knows what type of document to expect.

## Browser Support

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Element |  |  |  |  |  |
| <!DOCTYPE> | Yes | Yes | Yes | Yes | Yes |

## Differences Between HTML 4.01 and HTML5

There are three different <!DOCTYPE> declarations in HTML 4.01. In HTML5 there is only one:

<!DOCTYPE html>

## HTML Elements and Doctypes

Look at our table of all [HTML elements, and what Doctype each element appears in](http://www.w3schools.com/tags/ref_html_dtd.asp).

## Tips and Notes

**Tip:** The <!DOCTYPE> declaration is NOT case sensitive.

**Tip:** To check if the HTML of your Web documents is valid, go to [W3C's validation service](http://validator.w3.org/).

## Common DOCTYPE Declarations

### HTML 5

<!DOCTYPE html>

### HTML 4.01 Strict

This DTD contains all HTML elements and attributes, but does NOT INCLUDE presentational or deprecated elements (like font). Framesets are not allowed.

<!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.01//EN" "http://www.w3.org/TR/html4/strict.dtd">

### HTML 4.01 Transitional

This DTD contains all HTML elements and attributes, INCLUDING presentational and deprecated elements (like font). Framesets are not allowed.

<!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.01 Transitional//EN" "http://www.w3.org/TR/html4/loose.dtd">

### HTML 4.01 Frameset

This DTD is equal to HTML 4.01 Transitional, but allows the use of frameset content.

<!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.01 Frameset//EN" "http://www.w3.org/TR/html4/frameset.dtd">

### XHTML 1.0 Strict

This DTD contains all HTML elements and attributes, but does NOT INCLUDE presentational or deprecated elements (like font). Framesets are not allowed. The markup must also be written as well-formed XML.

<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Strict//EN" "http://www.w3.org/TR/xhtml1/DTD/xhtml1-strict.dtd">

### XHTML 1.0 Transitional

This DTD contains all HTML elements and attributes, INCLUDING presentational and deprecated elements (like font). Framesets are not allowed. The markup must also be written as well-formed XML.

<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN" "http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">

### XHTML 1.0 Frameset

This DTD is equal to XHTML 1.0 Transitional, but allows the use of frameset content.

<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Frameset//EN" "http://www.w3.org/TR/xhtml1/DTD/xhtml1-frameset.dtd">

### XHTML 1.1

This DTD is equal to XHTML 1.0 Strict, but allows you to add modules (for example to provide ruby support for East-Asian languages).

<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.1//EN" "http://www.w3.org/TR/xhtml11/DTD/xhtml11.dtd">

# HTML <a> Tag

### Example

A link to W3Schools.com:

<a href="http://www.w3schools.com">Visit W3Schools.com!</a>

More "Try it Yourself" examples below.

## Definition and Usage

The <a> tag defines a hyperlink, which is used to link from one page to another.

The most important attribute of the <a> element is the href attribute, which indicates the link's destination.

By default, links will appear as follows in all browsers:

* An unvisited link is underlined and blue
* A visited link is underlined and purple
* An active link is underlined and red

## Browser Support

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Element |  |  |  |  |  |
| <a> | Yes | Yes | Yes | Yes | Yes |

## Tips and Notes

**Tip:** The following attributes: download, hreflang, media, rel, target, and type cannot be present if the href attribute is not present.

**Tip:** A linked page is normally displayed in the current browser window, unless you specify another target.

**Tip:** Use CSS to style links: [CSS Links Tutorial](http://www.w3schools.com/css/css_link.asp) & [CSS Buttons Tutorial](http://www.w3schools.com/css/css3_buttons.asp)

## Differences Between HTML 4.01 and HTML5

In HTML 4.01, the <a> tag could be either a hyperlink or an anchor. In HTML5, the <a> tag is always a hyperlink, but if it has no href attribute, it is only a placeholder for a hyperlink.

HTML5 has some new attributes, and some HTML 4.01 attributes are no longer supported.

## Attributes

= New in HTML5.

|  |  |  |
| --- | --- | --- |
| **Attribute** | **Value** | **Description** |
| [charset](http://www.w3schools.com/tags/att_a_charset.asp) | *char\_encoding* | Not supported in HTML5. Specifies the character-set of a linked document |
| [coords](http://www.w3schools.com/tags/att_a_coords.asp) | *coordinates* | Not supported in HTML5. Specifies the coordinates of a link |
| [download](http://www.w3schools.com/tags/att_a_download.asp) | *filename* | Specifies that the target will be downloaded when a user clicks on the hyperlink |
| [href](http://www.w3schools.com/tags/att_a_href.asp) | *URL* | Specifies the URL of the page the link goes to |
| [hreflang](http://www.w3schools.com/tags/att_a_hreflang.asp) | *language\_code* | Specifies the language of the linked document |
| [media](http://www.w3schools.com/tags/att_a_media.asp) | *media\_query* | Specifies what media/device the linked document is optimized for |
| [name](http://www.w3schools.com/tags/att_a_name.asp) | *section\_name* | Not supported in HTML5. Use the global [id attribute](http://www.w3schools.com/tags/ref_standardattributes.asp) instead. Specifies the name of an anchor |
| [rel](http://www.w3schools.com/tags/att_a_rel.asp) | alternate author bookmark external help license next nofollow noreferrer noopener prev search tag | Specifies the relationship between the current document and the linked document |
| [rev](http://www.w3schools.com/tags/att_a_rev.asp) | *text* | Not supported in HTML5. Specifies the relationship between the linked document and the current document |
| [shape](http://www.w3schools.com/tags/att_a_shape.asp) | default rect circle poly | Not supported in HTML5. Specifies the shape of a link |
| [target](http://www.w3schools.com/tags/att_a_target.asp) | \_blank \_parent \_self \_top framename | Specifies where to open the linked document |
| [type](http://www.w3schools.com/tags/att_a_type.asp) | *media\_type* | Specifies the media type of the linked document |

## Global Attributes

The <a> tag also supports the [Global Attributes in HTML](http://www.w3schools.com/tags/ref_standardattributes.asp).

## Event Attributes

The <a> tag also supports the [Event Attributes in HTML](http://www.w3schools.com/tags/ref_eventattributes.asp).

## Try it Yourself - Examples

[Create hyperlinks](http://www.w3schools.com/tags/tryit.asp?filename=tryhtml_link)  
How to create hyperlinks.

[An image as a link](http://www.w3schools.com/tags/tryit.asp?filename=tryhtml_link_image)  
How to use an image as a link.

[Open a link in a new browser window](http://www.w3schools.com/tags/tryit.asp?filename=tryhtml_link_target)  
How to open a link in a new browser window, so that the visitor does not have to leave your Web site.

[Create a mailto link](http://www.w3schools.com/tags/tryit.asp?filename=tryhtml_link_mailto)  
How to link to a mail message (will only work if you have mail installed).

[Create a mailto link 2](http://www.w3schools.com/tags/tryit.asp?filename=tryhtml_link_mailto2)  
Another mailto link.

[Link to an element with a specified id](http://www.w3schools.com/tags/tryit.asp?filename=tryhtml5_a_href_anchor)  
How to link to an element with a specified id within a page (the name attribute is not supported in HTML5).

[Link to a JavaScript](http://www.w3schools.com/tags/tryit.asp?filename=tryhtml5_a_href_script)  
How to add a JavaScript inside the href attribute.

## Related Pages

HTML tutorial: [HTML Links](http://www.w3schools.com/html/html_links.asp)

HTML DOM reference: [Anchor Object](http://www.w3schools.com/jsref/dom_obj_anchor.asp)

CSS Tutorial: [Styling Links](http://www.w3schools.com/css/css_link.asp)

## Default CSS Settings

Most browsers will display the <a> element with the following default values:

a:link, a:visited {   
    color: (internal value);  
    text-decoration: underline;  
    cursor: auto;  
}  
  
a:link:active, a:visited:active {   
    color: (internal value);  
}

# HTML <abbr> Tag

### Example

An abbreviation is marked up as follows:

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

## Definition and Usage

The <abbr> tag defines an abbreviation or an acronym, like "Mr.", "Dec.", "ASAP", "ATM".

**Tip:** An abbreviation and an acronym are both shortened versions of something else. Both are often represented as a series of letters.

Marking up abbreviations can give useful information to browsers, translation systems and search-engines.

## Browser Support

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Element |  |  |  |  |  |
| <abbr> | Yes | Yes | Yes | Yes | Yes |

## Tips and Notes

**Tip:** The global title attribute can be used in the <abbr> tag to show the full version of the abbreviation/acronym when you mouse over the <abbr> element.

## Differences Between HTML 4.01 and HTML5

NONE.

## Global Attributes

The <abbr> tag also supports the [Global Attributes in HTML](http://www.w3schools.com/tags/ref_standardattributes.asp).

## Event Attributes

The <abbr> tag also supports the [Event Attributes in HTML](http://www.w3schools.com/tags/ref_eventattributes.asp).

## Related Pages

HTML DOM reference: [Abbreviation Object](http://www.w3schools.com/jsref/dom_obj_abbr.asp)

## Default CSS Settings

None.

# HTML <acronym> Tag. Not Supported in HTML5.

### Example

An acronym is marked up as follows:

Can I get this <acronym title="as soon as possible">ASAP</acronym>?

## Definition and Usage

The <acronym> tag is not supported in HTML5. Use the [<abbr>](http://www.w3schools.com/tags/tag_abbr.asp) tag instead.

The <acronym> tag defines an acronym.

An acronym must spell out another word. For example: NASA, ASAP, GUI.

Marking up acronyms can give useful information to browsers, translation systems and search-engines.

## Browser Support

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Element |  |  |  |  |  |
| <acronym> | Yes | Yes | Yes | Yes | Yes |

## Tips and Notes

**Tip:**The title attribute can be used to show the full version of the acronym when you mouse over it.

## Differences Between HTML 4.01 and HTML5

The <acronym> tag is not supported in HTML5.

# HTML <address> Tag

### Example

Contact information for Example.com:

<address>  
Written by <a href="mailto:webmaster@example.com">Jon Doe</a>.<br>   
Visit us at:<br>  
Example.com<br>  
Box 564, Disneyland<br>  
USA  
</address>

## Definition and Usage

The <address> tag defines the contact information for the author/owner of a document or an article.

If the <address> element is inside the <body> element, it represents contact information for the document.

If the <address> element is inside an <article> element, it represents contact information for that article.

The text in the <address> element usually renders in *italic*. Most browsers will add a line break before and after the address element.

## Browser Support

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Element |  |  |  |  |  |
| <address> | Yes | Yes | Yes | Yes | Yes |

## Tips and Notes

**Tip:** The <address> tag should NOT be used to describe a postal address, unless it is a part of the contact information.

**Tip:** The <address> element will typically be included along with other information in a [<footer>](http://www.w3schools.com/tags/tag_footer.asp) element.

## Differences Between HTML 4.01 and HTML5

HTML 4.01 does not support the <article> tag, so in HTML 4.01 the <address> tag always defines the contact information of the *document's* author/owner.

## Global Attributes

The <address> tag also supports the [Global Attributes in HTML](http://www.w3schools.com/tags/ref_standardattributes.asp).

## Event Attributes

The <address> tag also supports the [Event Attributes in HTML](http://www.w3schools.com/tags/ref_eventattributes.asp).

## Related Pages

HTML DOM reference: [Address Object](http://www.w3schools.com/jsref/dom_obj_address.asp)

## Default CSS Settings

Most browsers will display the <address> element with the following default values:

### Example

address {   
    display: block;  
    font-style: italic;  
}

# HTML <applet> Tag. Not Supported in HTML5.

### Example

An embedded Java applet:

<applet code="Bubbles.class" width="350" height="350">  
Java applet that draws animated bubbles.  
</applet>

## Definition and Usage

The <applet> tag is not supported in HTML5. Use [<embed>](http://www.w3schools.com/tags/tag_embed.asp) or [<object>](http://www.w3schools.com/tags/tag_object.asp) instead.

The <applet> tag defines an embedded applet.

## Browser Support

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Element |  |  |  |  |  |
| <applet> | Not supported | Not supported | Yes | Yes | Not supported |

**Note**: There is still some support for the <applet> tag in some browsers, but it requires additional plug-ins/installations to work.

**Note:** The <applet> tag is supported in Internet Explorer 11 and earlier versions, using a plug-in.

## Differences Between HTML 4.01 and HTML5

The <applet> tag is not supported in HTML5.

## Required Attributes

|  |  |  |
| --- | --- | --- |
| **Attribute** | **Value** | **Description** |
| code | *URL* | Specifies the file name of a Java applet |
| object | *name* | Specifies a reference to a serialized representation of an applet |

## Optional Attributes

|  |  |  |
| --- | --- | --- |
| **Attribute** | **Value** | **Description** |
| align | left right top bottom middle baseline | Specifies the alignment of an applet according to surrounding elements |
| alt | *text* | Specifies an alternate text for an applet |
| Archive | *URL* | Specifies the location of an archive file |
| codebase | *URL* | Specifies a relative base URL for applets specified in the code attribute |
| Height | *pixels* | Specifies the height of an applet |
| Hspace | *pixels* | Defines the horizontal spacing around an applet |
| Name | *name* | Defines the name for an applet (to use in scripts) |
| Vspace | *pixels* | Defines the vertical spacing around an applet |
| Width | *pixels* | Specifies the width of an applet |

# HTML <area> Tag

### Example

An image-map, with clickable areas:

<img src="planets.gif" width="145" height="126" alt="Planets"  
usemap="#planetmap">  
  
<map name="planetmap">  
  <area shape="rect" coords="0,0,82,126" href="sun.htm" alt="Sun">  
  <area shape="circle" coords="90,58,3" href="mercur.htm" alt="Mercury">  
  <area shape="circle" coords="124,58,8" href="venus.htm" alt="Venus">  
</map>

## Definition and Usage

The <area> tag defines an area inside an image-map (an image-map is an image with clickable areas).

The <area> element is always nested inside a <map> tag.

**Note:** The usemap attribute in the [<img>](http://www.w3schools.com/tags/tag_img.asp) tag is associated with the [<map>](http://www.w3schools.com/tags/tag_map.asp) element's name attribute, and creates a relationship between the image and the map.

## Browser Support

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Element |  |  |  |  |  |
| <area> | Yes | Yes | Yes | Yes | Yes |

## Differences Between HTML 4.01 and HTML5

HTML5 has some new attributes, and some HTML 4.01 attributes are no longer supported.

## Differences Between HTML and XHTML

In HTML the <area> tag has no end tag.

In XHTML the <area> tag must be properly closed.

## Attributes

= New in HTML5.

|  |  |  |
| --- | --- | --- |
| **Attribute** | **Value** | **Description** |
| [alt](http://www.w3schools.com/tags/att_area_alt.asp) | *text* | Specifies an alternate text for the area. Required if the href attribute is present |
| [coords](http://www.w3schools.com/tags/att_area_coords.asp) | *coordinates* | Specifies the coordinates of the area |
| [download](http://www.w3schools.com/tags/att_area_download.asp) | *filename* | Specifies that the target will be downloaded when a user clicks on the hyperlink |
| [href](http://www.w3schools.com/tags/att_area_href.asp) | *URL* | Specifies the hyperlink target for the area |
| [hreflang](http://www.w3schools.com/tags/att_area_hreflang.asp) | *language\_code* | Specifies the language of the target URL |
| [media](http://www.w3schools.com/tags/att_area_media.asp) | *media query* | Specifies what media/device the target URL is optimized for |
| [nohref](http://www.w3schools.com/tags/att_area_nohref.asp) | *value* | Not supported in HTML5. Specifies that an area has no associated link |
| [rel](http://www.w3schools.com/tags/att_area_rel.asp) | alternate author bookmark help license next nofollow noreferrer prefetch prev search tag | Specifies the relationship between the current document and the target URL |
| [shape](http://www.w3schools.com/tags/att_area_shape.asp) | default rect circle poly | Specifies the shape of the area |
| [target](http://www.w3schools.com/tags/att_area_target.asp) | \_blank \_parent \_self \_top framename | Specifies where to open the target URL |
| [type](http://www.w3schools.com/tags/att_area_type.asp) | *media\_type* | Specifies the media type of the target URL |

## Global Attributes

The <area> tag also supports the [Global Attributes in HTML](http://www.w3schools.com/tags/ref_standardattributes.asp).

## Event Attributes

The <area> tag also supports the [Event Attributes in HTML](http://www.w3schools.com/tags/ref_eventattributes.asp).

## Related Pages

HTML DOM reference: [Area Object](http://www.w3schools.com/jsref/dom_obj_area.asp)

## Default CSS Settings

Most browsers will display the <area> element with the following default values:

area {   
    display: none;  
}

# HTML <article> Tag

### Example

<article>  
  <h1>Google Chrome</h1>  
  <p>Google Chrome is a free, open-source web browser developed by Google, released in 2008.</p>  
</article>

## Definition and Usage

The <article> tag specifies independent, self-contained content.

An article should make sense on its own and it should be possible to distribute it independently from the rest of the site.

Potential sources for the <article> element:

* Forum post
* Blog post
* News story
* Comment

## Browser Support

The numbers in the table specify the first browser version that fully supports the element.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Element |  |  |  |  |  |
| <article> | 6.0 | 9.0 | 4.0 | 5.0 | 11.1 |

## Differences Between HTML 4.01 and HTML5

The <article> tag is new in HTML5.

## Global Attributes

The <article> tag also supports the [Global Attributes in HTML](http://www.w3schools.com/tags/ref_standardattributes.asp).

## Event Attributes

The <article> tag also supports the [Event Attributes in HTML](http://www.w3schools.com/tags/ref_eventattributes.asp).

## Related Pages

HTML DOM reference: [Article Object](http://www.w3schools.com/jsref/dom_obj_article.asp)

## Default CSS Settings

Most browsers will display the <article> element with the following default values:

article {   
    display: block;  
}

# HTML <aside> Tag

### Example

<p>My family and I visited The Epcot center this summer.</p>  
  
<aside>  
  <h4>Epcot Center</h4>  
  <p>The Epcot Center is a theme park in Disney World, Florida.</p>  
</aside>

## Definition and Usage

The <aside> tag defines some content aside from the content it is placed in.

The aside content should be related to the surrounding content.

## Browser Support

The numbers in the table specify the first browser version that fully supports the element.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Element |  |  |  |  |  |
| <aside> | 6.0 | 9.0 | 4.0 | 5.0 | 11.1 |

## Differences Between HTML 4.01 and HTML5

The <aside> tag is new in HTML5.

## Tips and Notes

**Tip:** The <aside> content could be placed as a sidebar in an article.

## Global Attributes

The <aside> tag also supports the [Global Attributes in HTML](http://www.w3schools.com/tags/ref_standardattributes.asp).

## Event Attributes

The <aside> tag also supports the [Event Attributes in HTML](http://www.w3schools.com/tags/ref_eventattributes.asp).

## Related Pages

HTML DOM reference: [Aside Object](http://www.w3schools.com/jsref/dom_obj_aside.asp)

## Default CSS Settings

Most browsers will display the <aside> element with the following default values:

aside {   
    display: block;  
}

# HTML <audio> Tag

### Example

Play a sound:

<audio controls>  
  <source src="horse.ogg" type="audio/ogg">  
  <source src="horse.mp3" type="audio/mpeg">  
  Your browser does not support the audio tag.  
</audio>

## Definition and Usage

The <audio> tag defines sound, such as music or other audio streams.

Currently, there are 3 supported file formats for the <audio> element: MP3, Wav, and Ogg:

|  |  |  |  |
| --- | --- | --- | --- |
| **Browser** | **MP3** | **Wav** | **Ogg** |
| Internet Explorer | YES | NO | NO |
| Chrome | YES | YES | YES |
| Firefox | YES | YES | YES |
| Safari | YES | YES | NO |
| Opera | YES | YES | YES |

### MIME Types for Audio Formats

|  |  |
| --- | --- |
| **Format** | **MIME-type** |
| MP3 | audio/mpeg |
| Ogg | audio/ogg |
| Wav | audio/wav |

## Browser Support

The numbers in the table specify the first browser version that fully supports the element.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Element |  |  |  |  |  |
| <audio> | 4.0 | 9.0 | 3.5 | 4.0 | 10.5 |

## Differences Between HTML 4.01 and HTML5

The <audio> tag is new in HTML5.

## Tips and Notes

**Tip:** Any text inside the between <audio> and </audio> will be displayed in browsers that do not support the <audio> tag.

## Attributes

|  |  |  |
| --- | --- | --- |
| **Attribute** | **Value** | **Description** |
| [autoplay](http://www.w3schools.com/tags/att_audio_autoplay.asp) | Autoplay | Specifies that the audio will start playing as soon as it is ready |
| [controls](http://www.w3schools.com/tags/att_audio_controls.asp) | Controls | Specifies that audio controls should be displayed (such as a play/pause button etc) |
| [loop](http://www.w3schools.com/tags/att_audio_loop.asp) | Loop | Specifies that the audio will start over again, every time it is finished |
| [muted](http://www.w3schools.com/tags/att_audio_muted.asp) | Muted | Specifies that the audio output should be muted |
| [preload](http://www.w3schools.com/tags/att_audio_preload.asp) | auto metadata none | Specifies if and how the author thinks the audio should be loaded when the page loads |
| [src](http://www.w3schools.com/tags/att_audio_src.asp) | *URL* | Specifies the URL of the audio file |

## Global Attributes

The <audio> tag also supports the [Global Attributes in HTML](http://www.w3schools.com/tags/ref_standardattributes.asp).

## Event Attributes

The <audio> tag also supports the [Event Attributes in HTML](http://www.w3schools.com/tags/ref_eventattributes.asp).

## Related Pages

HTML DOM reference: [HTML Audio/Video DOM Reference](http://www.w3schools.com/tags/ref_av_dom.asp)

## Default CSS Settings

None.