|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| chrome | Edge | Firefox | Safari | Opera |
| 95 | **95** | **93** | **15** | **80** |

**Latest Browsers version**

* **1989** Tim Berners-Lee invented www
* **1991** Tim Berners-Lee invented HTML
* **1999** W3C Recommendation: HTML 4.01
* **2000** W3C Recommendation: XHTML 1.0
* **2014** W3C Recommendation: HTML5
* **2017** W3C Recommendation: HTML5.2

If you want to create your own website and host your .html files, try our **free website builder**, called **W3schools Spaces**.The <!DOCTYPE html> declaration defines that this document is an HTML5 document, The <!DOCTYPE> declaration is not case sensitive.

You should always include the lang attribute inside the <html> tag, to declare the language of the Web page. This is meant to assist search engines and browsers. Country codes can also be added to the language code in the lang attribute. So, the first two characters define the language of the HTML page, and the last two characters define the country.

<html lang="en-US">

To view page source press ctrl + u

**HTML Elements and attributes**

* empty elements do not have an end tag
* HTML elements can be nested (this means that elements can contain other elements).
* HTML tags are not case sensitive. The HTML standard does not require lowercase tags, but W3C **recommends** lowercase in HTML, and **demands** lowercase for stricter document types like XHTML.
* All HTML elements can have **attributes**
* 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:

 If the URL begins without a slash, it will be relative to the current page. Example: src="img\_girl.jpg". If the URL begins with a slash, it will be relative to the domain. Example: src="/images/img\_girl.jpg".

**HTML** **Headings**

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

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

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

**HTML Paragraphs**

browsers automatically add some white space (a margin) before and after a paragraph.

**The HTML <pre> Element**

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

# HTML Text formatting

The <i> tag is often used to indicate a technical term, a phrase from another language, a thought, a ship name, etc.

A screen reader will pronounce the words in <em> with an emphasis, using verbal stress.

The HTML <mark> element defines text that should be marked or highlighted:

The HTML <del> element defines text that has been deleted from a document. Browsers will usually strike a line through deleted text:

The HTML <sub> element defines subscript text. Subscript text appears half a character below the normal line, and is sometimes rendered in a smaller font. Subscript text can be used for chemical formulas, like H2O:

The HTML <sup> element defines superscript text. Superscript text appears half a character above the normal line, and is sometimes rendered in a smaller font. Superscript text can be used for footnotes, like WWW[1]:

**HTML Quotation and Citation Elements**

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

Browsers usually indent <blockquote> elements.

The HTML <q> tag defines a short quotation.

Browsers normally insert quotation marks around the quotation.

The HTML <abbr> tag defines an abbreviation or an acronym, like "HTML", "CSS", "Mr.", "Dr.", "ASAP", "ATM".

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

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

The HTML <address> tag defines the contact information for the author/owner of a document or an article.

The contact information can be an email address, URL, physical address, phone number, social media handle, etc.

The text in the <address> element usually renders in *italic,* and browsers will always add a line break before and after the <address> element.

The HTML <cite> tag defines the title of a creative work (e.g. a book, a poem, a song, a movie, a painting, a sculpture, etc.).

**Note:** A person's name is not the title of a work.

The text in the <cite> element usually renders in *italic*.

BDO stands for Bi-Directional Override.

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

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

## **HTML Comment Tag**

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 start tag, but not in the end tag.

# HTML Colors

HTML colors are specified with predefined color names, or with RGB, HEX, HSL, RGBA, or HSLA values. HTML supports [140 standard color names](https://www.w3schools.com/colors/colors_names.asp).

An RGB color value represents RED, GREEN, and BLUE light sources.

Each parameter (red, green, and blue) defines the intensity of the color with a value between 0 and 255. there are 256 x 256 x 256 = 16.777.216 possible colors

* rgb(red, green, blue)
* rgb(255, 0, 0) red
* rgb(0, 255, 0)green
* rgb(0, 0, 0) black
* rgb(255, 255, 255) white
* Shades of gray are often defined using equal values for all three parameters

An RGBA color value is an extension of RGB with an Alpha channel (opacity). The alpha parameter is a number between 0.0 (fully transparent) and 1.0 (not transparent at all)

**rgba(255, 99, 71, 0.8)**

In HTML, a color can 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

Shades of gray are often defined using equal values for all three parameters.

In HTML, a color can be specified using hue, saturation, and lightness (HSL) in the form:

**hsl(hue, saturation, lightness)**

HSLA color values are an extension of HSL with an Alpha channel (opacity).

Hue is a degree on the color wheel from 0 to 360. 0 is red, 120 is green, and 240 is blue.

Saturation is a percentage value, 0% means a shade of gray, and 100% is the full color. Saturation can be described as the intensity of a color.

100% is pure color, no shades of gray

50% is 50% gray, but you can still see the color.

0% is completely gray, you can no longer see the color.

Lightness is also a percentage value, 0% is black, and 100% is white

The lightness of a color can be described as how much light you want to give the color, where 0% means no light (black), 50% means 50% light (neither dark nor light) 100% means full lightness (white)

Shades of gray are often defined by setting the hue and saturation to 0, and adjust the lightness from 0% to 100% to get darker/lighter shades.

HSLA color values are an extension of HSL color values with an Alpha channel - which specifies the opacity for a color.

An HSLA color value is specified with:

**hsla(hue, saturation, lightness, alpha)**

HTML CSS

CSS can be added to HTML documents in 3 ways:

* **Inline** - by using the style attribute inside HTML elements(to a single HTML element)
* **Internal** - by using a <style> element in the <head> section ( for a single HTML page)
* **External** - by using a <link> element to link to an external CSS file(e for many HTML pages)

HTML Links

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

You can change the link state colors, by using CSS:

a:link {} a:visited {} a:hover {} a:active {}

The target attribute specifies where to open the linked document.

* \_self - Default. Opens the document in the same window/tab as it was clicked
* \_blank - Opens the document in a new window or tab
* \_parent - Opens the document in the parent frame
* \_top - Opens the document in the full body of the window
* Absolute URLs starts with http but Relative URLs doesn't
* Use mailto: inside the href attribute to create a link that opens the user's email program (to let them send a new email):
* <a href="mailto:someone@example.com">Send email</a>

Button as a Link

<button onclick="document.location='default.asp'">HTML Tutorial</button>

A link can also be styled as a button, by using CSS:

a:link, a:visited {  
  background-color: #f44336;  
  color: white;  
  padding: 15px 25px;  
  text-align: center;  
  text-decoration: none;  
  display: inline-block;  
}  
  
a:hover, a:active {  
  background-color: red;  
}

# Create Bookmarks

# To create a bookmark - first create the bookmark, then add a link to it. First, use the id attribute to create a bookmark:

# href="#C4"

# You can also add a link to a bookmark on another page:

# href="html\_demo.html#C4"

# HTML Images

# Images are not technically inserted into a web page; images are linked to web pages. The <img> tag creates a holding space for the referenced image.

The <img> tag has two required attributes:

* src - Specifies the path to the image
* alt - Specifies an alternate text for the image

# The width and height attributes always define the width and height of the image in pixels

# Always specify the width and height of an image. If width and height are not specified, the web page might flicker while the image loads.

# <img src="html5.gif" alt="HTML5 Icon" width="128" height="128"> we suggest using the style attribute. It prevents styles sheets from changing the size of images:

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

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

<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>

|  |  |  |
| --- | --- | --- |
| Abbreviation | File Format | File Extension |
| APNG | Animated Portable Network Graphics | .apng |
| GIF | Graphics Interchange Format | .gif |
| ICO | Microsoft Icon | .ico, .cur |
| JPEG | Joint Photographic Expert Group image | .jpg, .jpeg, .jfif, .pjpeg, .pjp |
| PNG | Portable Network Graphics | .png |
| SVG | Scalable Vector Graphics | .svg |

# Common Image Formats

# HTML Image Maps

<img src="workplace.jpg" alt="Workplace" usemap="#workmap">

The only difference from other images is that you must add a usemap attribute: The usemap value starts with a hash tag # followed by the name of the image map, and is used to create a relationship between the image and the image map.  
  
The <map> element is used to create an image map, and is linked to the image by using the required name attribute:

<map name="workmap">  
  <area shape="rect" coords="34,44,270,350" alt="Computer" href="computer.htm">  
  <area shape="rect" coords="290,172,333,250" alt="Phone" href="phone.htm">  
  <area shape="circle" coords="337,300,44" alt="Coffee" href="coffee.htm">  
</map>

Shapes:

* rect - defines a rectangular region
* circle - defines a circular region
* poly - defines a polygonal region
* default - defines the entire region

<area shape="rect" coords="34, 44, 270, 350" href="computer.htm">

The coordinates 270,350 is located 270 pixels from the left margin and 350 pixels from the top:

<area shape="circle" coords="337,300,44" alt="Coffee" href="coffee.htm">

To add a circle area, first locate the coordinates of the center of the circle:

337,300

Then specify the radius of the circle:

44 pixels

The shape="poly" contains several coordinate points, which creates a shape formed with straight lines (a polygon).

This can be used to create any shape.( The coordinates come in pairs)

A clickable area can also trigger a JavaScript function

Add a click event to the <area> element to execute a JavaScript function

<map name="workmap">  
  <area shape="circle" coords="337,300,44" href="coffee.htm" onclick="myFunction()">  
</map>  
  
<script>  
function myFunction() {  
  alert("You clicked the coffee cup!");  
}

# HTML Background Images

# Background Cover

# If you want the background image to cover the entire element, you can set the background-size property to cover. Also, to make sure the entire element is always covered, set the background-attachment property to fixed: This way, the background image will cover the entire element, with no stretching (the image will keep its original proportions):

# background-repeat: no-repeat; background-attachment: fixed; background-size: cover;

If you want the background image to stretch to fit the entire element, you can set the background-size property to 100% 100%:the image will stretch, but always cover the entire element

 background-repeat: no-repeat;  
  background-attachment: fixed;  
  background-size: 100% 100%;

# HTML <picture> Element

The HTML <picture> element allows you to display different pictures for different devices or screen sizes.

The HTML <picture> element gives web developers more flexibility in specifying image resources.

The <picture> element contains one or more <source> elements, each referring to different images through the srcset attribute. This way the browser can choose the image that best fits the current view and/or device.

Each <source> element has a media attribute that defines when the image is the most suitable.



Always specify an <img> element as the last child element of the <picture> element. The <img> element is used by browsers that do not support the <picture> element, or if none of the <source> tags match.

## **When to use the Picture Element**

There are two main purposes for the <picture> element:

### **1. Bandwidth**

If you have a small screen or device, it is not necessary to load a large image file. The browser will use the first <source> element with matching attribute values, and ignore any of the following elements.

### **2. Format Support**

Some browsers or devices may not support all image formats. By using the <picture> element, you can add images of all formats, and the browser will use the first format it recognizes, and ignore any of the following elements.

The browser will use the first image format it recognizes

The browser will use the first <source> element with matching attribute values, and ignore any following <source> elements.

# HTML Favicon