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# HTML Basic

## 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="https://www.w3schools.com">This is a link</a>

## 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

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

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

Examples of some HTML elements:

<h1>My First Heading</h1>

<p>My first paragraph.</p>

## Nested HTML Elements

HTML elements can be nested (this means that elements can contain other elements).

All HTML documents consist of nested HTML elements.

The following example contains four HTML elements (<html>, <body>, <h1> and <p>):

Example

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

## Empty HTML Elements

HTML elements with no content are called empty elements.

The <br> tag defines a line break, and is an empty element without a closing tag:

Example

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

Note: HTML is Not Case Sensitive

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

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

## HTML Tag Reference

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

|  |  |
| --- | --- |
| **Tag** | **Description** |
| <html> | Defines the root of an HTML document |
| <body> | Defines the document's body |
| <h1> to <h6> | Defines HTML headings |

# HTML Attributes

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

## The href Attribute

The <a> tag defines a hyperlink. The href attribute specifies the URL of the page the link goes to:

Example

<a href="https://www.w3schools.com">Visit W3Schools</a>

The src Attribute

The <img> tag is used to embed an image in an HTML page. The src attribute specifies the path to the image to be displayed:

Example

<img src="img\_girl.jpg">

## The width and height Attributes

The <img> tag should also contain the width and height attributes, which specify the width and height of the image (in pixels):

Example

<img src="img\_girl.jpg" width="500" height="600">

## The alt Attribute

The required alt attribute for the <img> tag specifies an alternate text for an image, if the image for some reason cannot be displayed. This can be due to a slow connection, or an error in the src attribute, or if the user uses a screen reader.

Example

<img src="img\_girl.jpg" alt="Girl with a jacket">

## The style Attribute

The style attribute is used to add styles to an element, such as color, font, size, and more.

Example

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

## The title Attribute

The title attribute defines some extra information about an element.

The value of the title attribute will be displayed as a tooltip when you mouse over the element:

Example

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

## 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>Heading 1</h1>  
<h2>Heading 2</h2>  
<h3>Heading 3</h3>  
<h4>Heading 4</h4>  
<h5>Heading 5</h5>  
<h6>Heading 6</h6>

## HTML Paragraphs

The HTML <p> element defines a paragraph.

A paragraph always starts on a new line, and browsers automatically add some white space (a margin) before and after a paragraph.

Example

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

### 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>

### 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 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 Styles

The HTML style attribute is used to add styles to an element, such as color, font, size, and more.

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 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;*">

### Text Color

The CSS 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>

### Fonts

The CSS 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>

### Text Size

The CSS 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>

### Text Alignment

The CSS 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>

### HTML Text Formatting

HTML contains several elements for defining text with a special meaning.

Example

**This text is bold**

*This text is italic*

This issubscript and superscript

### HTML Formatting Elements

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> - Smaller 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>

HTML <i> and <em> Elements

The HTML <i> element defines a part of text in an alternate voice or mood. The content inside is typically displayed in italic.

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

Example

<i>This text is italic</i>

### HTML <small> Element

The HTML <small> element defines smaller text:

Example

<small>This is some smaller text.</small>

### HTML <mark> Element

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

Example

<p>Do not forget to buy <mark>milk</mark> today.</p>

### HTML <del> Element

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

Example

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

### HTML <ins> Element

The HTML <ins> element defines a text that has been inserted into a document. Browsers will usually underline inserted text:

Example

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

### HTML <sub> Element

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:

Example

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

### HTML <sup> Element

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]:

Example

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

### HTML Text Formatting Elements

Tag Description

<b> Defines bold text

<em> Defines emphasized text

<i> Defines a part of text in an alternate voice or mood

<small> Defines smaller text

<strong> Defines important text

<sub> Defines subscripted text

<sup> Defines superscripted text

<ins> Defines inserted text

<del> Defines deleted text

<mark> Defines marked/highlighted text

# HTML Comments

## HTML Comment Tag

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

<!-- Write your comments here -->

## Add Comments

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

Example

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

## Hide Content

Comments can be used to hide content.

This can be helpful if you hide content temporarily:

Example

<p>This is a paragraph.</p>  
  
<!-- <p>This is another paragraph </p> -->  
  
<p>This is a paragraph too.</p>

# 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. A link can be an image or any other HTML element!

## HTML Links - Syntax

The HTML <a> tag defines a hyperlink. It has the following syntax:

<a href="*url*">*link text*</a>

The most important attribute of the <a> element is the href attribute, which indicates the link's destination.

The *link text* is the part that will be visible to the reader.

Clicking on the link text, will send the reader to the specified URL address.

Example

This example shows how to create a link to W3Schools.com:

<a href="https://www.w3schools.com/">Visit W3Schools.com!</a>

## HTML Links - The target Attribute

By default, the linked page will be displayed in the current browser window. To change this, you must specify another target for the link.

The target attribute specifies where to open the linked document.

The target attribute can have one of the following values:

* \_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

Example

Use target="\_blank" to open the linked document in a new browser window or tab:

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

## Absolute URLs vs. Relative URLs

Both examples above are using an **absolute URL** (a full web address) in the href attribute.

A local link (a link to a page within the same website) is specified with a **relative URL** (without the "https://www" part):

Example

<h2>Absolute URLs</h2>  
<p><a href="https://www.w3.org/">W3C</a></p>  
<p><a href="https://www.google.com/">Google</a></p>  
  
<h2>Relative URLs</h2>  
<p><a href="html\_images.asp">HTML Images</a></p>  
<p><a href="/css/default.asp">CSS Tutorial</a></p>

## HTML Links - Use an Image as a Link

To use an image as a link, just put the <img> tag inside the <a> tag:

Example

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

## Link to an Email Address

Use mailto: inside the href attribute to create a link that opens the user's email program (to let them send a new email):

Example

<a href="mailto:someone@example.com">Send email</a>

## Link Titles

The title attribute specifies extra information about an element. The information is most often shown as a tooltip text when the mouse moves over the element.

Example

<a href="https://www.w3schools.com/html/" title="Go to W3Schools HTML section">Visit our HTML Tutorial</a>

# HTML Images

Images can improve the design and the appearance of a web page.

Example

<img src="pic\_trulli.jpg" alt="Italian Trulli">

## HTML Images Syntax

The HTML <img> tag is used to embed an image in a web page.

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 is empty, it contains attributes only, and does not have a closing tag.

The <img> tag has two required attributes:

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

Syntax

<img src="*url*" alt="*alternatetext*">

## The src Attribute

The required src attribute specifies the path (URL) to the image.

**Note:** When a web page loads, it is the browser, at that moment, that gets the image from a web server and inserts it into the page. Therefore, make sure that the image actually stays in the same spot in relation to the web page, otherwise your visitors will get a broken link icon. The broken link icon and the alt text are shown if the browser cannot find the image.

Example

<img src="img\_chania.jpg" alt="Flowers in Chania">

Width and Height, or Style?

The width, height, and style attributes are all valid in HTML.

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

## Image as a Link

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

Example

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

## Common Image Formats

Here are the most common image file types, which are supported in all browsers (Chrome, Edge, Firefox, Safari, Opera):

|  |  |  |
| --- | --- | --- |
| **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 |

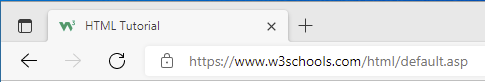
# HTML Favicon

How To Add a Favicon in HTML

You can use any image you like as your favicon. You can also create your own favicon on sites like [https://www.favicon.cc](https://www.favicon.cc/).

**Tip:** A favicon is a small image, so it should be a simple image with high contrast.

A favicon image is displayed to the left of the page title in the browser tab, like this:



To add a favicon to your website, either save your favicon image to the root directory of your webserver, or create a folder in the root directory called images, and save your favicon image in this folder. A common name for a favicon image is "favicon.ico".

Next, add a <link> element to your "index.html" file, after the <title> element, like this:

Example

<!DOCTYPE html>  
<html>  
<head>  
  <title>My Page Title</title>  
  <link rel="icon" type="image/x-icon" href="/images/favicon.ico">  
</head>  
<body>  
  
<h1>This is a Heading</h1>  
<p>This is a paragraph.</p>  
  
</body>  
</html>

# HTML Page Title

Every web page should have a page title to describe the meaning of the page.

## The Title Element

The <title> element adds a title to your page:

Example

<!DOCTYPE html>  
<html>  
<head>  
  <title>HTML Tutorial</title>  
</head>  
<body>  
  
The content of the document......  
  
</body>  
</html>

# HTML Tables

## Define an HTML Table

A table in HTML consists of table cells inside rows and columns.

Example

A simple HTML table:

<table>  
  <tr>  
    <th>Company</th>  
    <th>Contact</th>  
    <th>Country</th>  
  </tr>  
  <tr>  
    <td>Alfreds Futterkiste</td>  
    <td>Maria Anders</td>  
    <td>Germany</td>  
  </tr>  
  <tr>  
    <td>Centro comercial Moctezuma</td>  
    <td>Francisco Chang</td>  
    <td>Mexico</td>  
  </tr>  
</table>

## HTML Table Tags

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

## HTML Table - Colspan

To make a cell span over multiple columns, use the colspan attribute:

Example

<table>  
  <tr>  
    <th colspan="2">Name</th>  
    <th>Age</th>  
  </tr>  
  <tr>  
    <td>Jill</td>  
    <td>Smith</td>  
    <td>43</td>  
  </tr>  
  <tr>  
    <td>Eve</td>  
    <td>Jackson</td>  
    <td>57</td>  
  </tr>  
</table>

**Note:** The value of the colspan attribute represents the number of columns to span.

## HTML Table - Rowspan

To make a cell span over multiple rows, use the rowspan attribute:

Example

<table>  
  <tr>  
    <th>Name</th>  
    <td>Jill</td>  
  </tr>  
  <tr>  
    <th rowspan="2">Phone</th>  
    <td>555-1234</td>  
  </tr>  
  <tr>  
    <td>555-8745</td>  
</tr>  
</table>

# HTML Lists

## 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>

## 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>

## 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>

## HTML List Tags

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

# HTML Block and Inline Elements

## Block-level Elements

A block-level element always starts on a new line, and the browsers automatically add some space (a margin) before and after the element.

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

Two commonly used block elements are: <p> and <div>.

The <p> element defines a paragraph in an HTML document.

The <div> element defines a division or a section in an HTML document.

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

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

### Here are the block-level elements in HTML:

<address>

<article>

<aside>

<blockquote>

<canvas>

<dd><div>

<dl>

<dt>

<fieldset>

<figcaption>

<figure>

<footer>

<form>

<h1>-<h6>

<header>

<hr>

<li>

<main>

<nav>

<noscript>

<ol>

<p>

<pre>

<section>

<table>

<tfoot>

<ul>

<video>

## Inline Elements

An inline element does not start on a new line.

An inline element only takes up as much width as necessary.

This is a <span> element inside a paragraph.

Example

<span>Hello World</span>

### Here are the inline elements in HTML:

<a> <abbr> <acronym> <b> <bdo> <big> <br> <button> <cite> <code> <dfn> <em> <i> <img> <input> <kbd> <label> <map> <object> <output> <q> <samp> <script> <select> <small> <span> <strong> <sub> <sup> <textarea> <time> <tt><var>

The <div> Element

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

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

The <span> Element

The <span> element is an inline container used to mark up a part of a text, or a part of a document.

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

# HTML class Attribute

## The class Attribute

The class attribute is often used to point to a class name in a style sheet. It can also be used by a JavaScript to access and manipulate elements with the specific class name.

In the following example we have three <div> elements with a class attribute with the value of "city". All of the three <div> elements will be styled equally according to the .city style definition in the head section:

Example

<!DOCTYPE html>  
<html>  
<head>  
<style>  
.city {  
  background-color: tomato;  
  color: white;  
  border: 2px solid black;  
  margin: 20px;  
  padding: 20px;  
}  
</style>  
</head>  
<body>  
  
<div class="city">  
  <h2>London</h2>  
  <p>London is the capital of England.</p>  
</div>  
  
<div class="city">  
  <h2>Paris</h2>  
  <p>Paris is the capital of France.</p>  
</div>  
  
<div class="city">  
  <h2>Tokyo</h2>  
  <p>Tokyo is the capital of Japan.</p>  
</div>  
  
</body>  
</html>

## HTML id Attribute

The HTML id attribute is used to specify a unique id for an HTML element.

You cannot have more than one element with the same id in an HTML document.

## The id Attribute

The id attribute specifies a unique id for an HTML element. The value of the id attribute must be unique within the HTML document.

The id attribute is used to point to a specific style declaration in a style sheet. It is also used by JavaScript to access and manipulate the element with the specific id.

The syntax for id is: write a hash character (#), followed by an id name. Then, define the CSS properties within curly braces {}.

In the following example we have an <h1> element that points to the id name "myHeader". This <h1> element will be styled according to the #myHeader style definition in the head section:

Example

<!DOCTYPE html>  
<html>  
<head>  
<style>  
#myHeader {  
  background-color: lightblue;  
  color: black;  
  padding: 40px;  
  text-align: center;  
}  
</style>  
</head>  
<body>  
  
<h1 id="myHeader">My Header</h1>  
  
</body>  
</html>

# HTML Iframes

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

HTML Iframe Syntax

The HTML <iframe> tag specifies an inline frame.

An inline frame is used to embed another document within the current HTML document.

Syntax

<iframe src="*url*" title="*description*"></iframe>

**Tip:** It is a good practice to always include a title attribute for the <iframe>. This is used by screen readers to read out what the content of the iframe is.

Iframe - Set Height and Width

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

The height and width are specified in pixels by default:

Example

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

Or you can add the style attribute and use the CSS height and width properties:

Example

<iframe src="demo\_iframe.htm" style="height:200px;width:300px;" title="Iframe Example"></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" title="Iframe Example"></iframe>  
  
<p><a href="https://www.w3schools.com" target="iframe\_a">W3Schools.com</a></p>

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

The <script> element either contains script 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 most often uses the document.getElementById() method.

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

Example

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

# HTML Forms

## The <form> Element

The HTML <form> element is used to create an HTML form for user input:

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

The <form> element is a container for different types of input elements, such as: text fields, checkboxes, radio buttons, submit buttons, etc.

## The <input> Element

The HTML <input> element is the most used form element.

An <input> element can be displayed in many ways, depending on the type attribute.

Here are some examples:

|  |  |
| --- | --- |
| **Type** | **Description** |
| <input type="text"> | Displays a single-line text input field |
| <input type="radio"> | Displays a radio button (for selecting one of many choices) |
| <input type="checkbox"> | Displays a checkbox (for selecting zero or more of many choices) |
| <input type="submit"> | Displays a submit button (for submitting the form) |
| <input type="button"> | Displays a clickable button |

## Text Fields

The <input type="text"> defines a single-line input field for text input.

Example

A form with input fields for text:

<form>  
  <label for="fname">First name:</label><br>  
  <input type="text" id="fname" name="fname"><br>  
  <label for="lname">Last name:</label><br>  
  <input type="text" id="lname" name="lname">  
</form>

## The <label> Element

Notice the use of the <label> element in the example above.

The <label> tag defines a label for many form elements.

The <label> element is useful for screen-reader users, because the screen-reader will read out loud the label when the user focuses on the input element.

The <label> element also helps users who have difficulty clicking on very small regions (such as radio buttons or checkboxes) - because when the user clicks the text within the <label> element, it toggles the radio button/checkbox.

The for attribute of the <label> tag should be equal to the id attribute of the <input> element to bind them together.

## Radio Buttons

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

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

Example

A form with radio buttons:

<p>Choose your favorite Web language:</p>  
  
<form>  
  <input type="radio" id="html" name="fav\_language" value="HTML">  
  <label for="html">HTML</label><br>  
  <input type="radio" id="css" name="fav\_language" value="CSS">  
  <label for="css">CSS</label><br>  
  <input type="radio" id="javascript" name="fav\_language" value="JavaScript">  
  <label for="javascript">JavaScript</label>  
</form>

## Checkboxes

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

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

Example

A form with checkboxes:

<form>  
  <input type="checkbox" id="vehicle1" name="vehicle1" value="Bike">  
  <label for="vehicle1"> I have a bike</label><br>  
  <input type="checkbox" id="vehicle2" name="vehicle2" value="Car">  
  <label for="vehicle2"> I have a car</label><br>  
  <input type="checkbox" id="vehicle3" name="vehicle3" value="Boat">  
  <label for="vehicle3"> I have a boat</label>  
</form>

## The Submit Button

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

The form-handler is typically a file on the server with a script for processing input data.

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

Example

A form with a submit button:

<form action="/action\_page.php">  
  <label for="fname">First name:</label><br>  
  <input type="text" id="fname" name="fname" value="John"><br>  
  <label for="lname">Last name:</label><br>  
  <input type="text" id="lname" name="lname" value="Doe"><br><br>  
  <input type="submit" value="Submit">  
</form>

## The Name Attribute for <input>

Notice that each input field must have a name attribute to be submitted.

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

Example

This example will not submit the value of the "First name" input field:

<form action="/action\_page.php">  
  <label for="fname">First name:</label><br>  
  <input type="text" id="fname" value="John"><br><br>  
  <input type="submit" value="Submit">  
</form>

## HTML Form Attributes

### The Action Attribute

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

Usually, the form data is sent to a file on the server when the user clicks on the submit button.

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

Example

On submit, send form data to "action\_page.php":

<form action="/action\_page.php">  
  <label for="fname">First name:</label><br>  
  <input type="text" id="fname" name="fname" value="John"><br>  
  <label for="lname">Last name:</label><br>  
  <input type="text" id="lname" name="lname" value="Doe"><br><br>  
  <input type="submit" value="Submit">  
</form>

### The Target Attribute

The target attribute specifies where to display the response that is received after submitting the form.

The target attribute can have one of the following values:

|  |  |
| --- | --- |
| **Value** | **Description** |
| \_blank | The response is displayed in a new window or tab |
| \_self | The response is displayed in the current window |
| \_parent | The response is displayed in the parent frame |
| \_top | The response is displayed in the full body of the window |
| *framename* | The response is displayed in a named iframe |

The default value is \_self which means that the response will open in the current window.

Example

Here, the submitted result will open in a new browser tab:

<form action="/action\_page.php" target="\_blank">

### The Method Attribute

The method attribute specifies the HTTP method to be used when submitting the form data.

The form-data can be sent as URL variables (with method="get") or as HTTP post transaction (with method="post").

The default HTTP method when submitting form data is GET.

Example

This example uses the GET method when submitting the form data:

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

## HTML Form Elements

The HTML <form> element can contain one or more of the following form elements:

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

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

## HTML Input Types

* <input type="button">
* <input type="checkbox">
* <input type="color">
* <input type="date">
* <input type="datetime-local">
* <input type="email">
* <input type="file">
* <input type="hidden">
* <input type="image">
* <input type="month">
* <input type="number">
* <input type="password">
* <input type="radio">
* <input type="range">
* <input type="reset">
* <input type="search">
* <input type="submit">
* <input type="tel">
* <input type="text">
* <input type="time">
* <input type="url">
* <input type="week">

## HTML Input Attributes

### The value Attribute

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

Example

Input fields with initial (default) values:

<form>  
  <label for="fname">First name:</label><br>  
  <input type="text" id="fname" name="fname" value="John"><br>  
  <label for="lname">Last name:</label><br>  
  <input type="text" id="lname" name="lname" value="Doe">  
</form>

### The readonly Attribute

The input readonly attribute specifies that an input field is read-only.

A read-only input field cannot be modified (however, a user can tab to it, highlight it, and copy the text from it).

The value of a read-only input field will be sent when submitting the form!

Example

### A read-only input field:

<form>  
  <label for="fname">First name:</label><br>  
  <input type="text" id="fname" name="fname" value="John" readonly><br>  
  <label for="lname">Last name:</label><br>  
  <input type="text" id="lname" name="lname" value="Doe">  
</form>

### The disabled Attribute

The input disabled attribute specifies that an input field should be disabled.

A disabled input field is unusable and un-clickable.

The value of a disabled input field will not be sent when submitting the form!

Example

A disabled input field:

<form>  
  <label for="fname">First name:</label><br>  
  <input type="text" id="fname" name="fname" value="John" disabled><br>  
  <label for="lname">Last name:</label><br>  
  <input type="text" id="lname" name="lname" value="Doe">  
</form>

### The size Attribute

The input size attribute specifies the visible width, in characters, of an input field.

The default value for size is 20.

**Note:** The size attribute works with the following input types: text, search, tel, url, email, and password.

Example

Set a width for an input field:

<form>  
  <label for="fname">First name:</label><br>  
  <input type="text" id="fname" name="fname" size="50"><br>  
  <label for="pin">PIN:</label><br>  
  <input type="text" id="pin" name="pin" size="4">  
</form>

### The maxlength Attribute

The input maxlength attribute specifies the maximum number of characters allowed in an input field.

**Note:** When a maxlength is set, the input field will not accept more than the specified number of characters. However, this attribute does not provide any feedback. So, if you want to alert the user, you must write JavaScript code.

Example

Set a maximum length for an input field:

<form>  
  <label for="fname">First name:</label><br>  
  <input type="text" id="fname" name="fname" size="50"><br>  
  <label for="pin">PIN:</label><br>  
  <input type="text" id="pin" name="pin" maxlength="4" size="4">  
</form>

### The min and max Attributes

The input min and max attributes specify the minimum and maximum values for an input field.

The min and max attributes work with the following input types: number, range, date, datetime-local, month, time and week.

**Tip:** Use the max and min attributes together to create a range of legal values.

Example

Set a max date, a min date, and a range of legal values:

<form>  
  <label for="datemax">Enter a date before 1980-01-01:</label>  
  <input type="date" id="datemax" name="datemax" max="1979-12-31"><br><br>  
  
  <label for="datemin">Enter a date after 2000-01-01:</label>  
  <input type="date" id="datemin" name="datemin" min="2000-01-02"><br><br>  
  
  <label for="quantity">Quantity (between 1 and 5):</label>  
  <input type="number" id="quantity" name="quantity" min="1" max="5">  
</form>

### The multiple Attribute

The input multiple attribute specifies that the user is allowed to enter more than one value in an input field.

The multiple attribute works with the following input types: email, and file.

Example

A file upload field that accepts multiple values:

<form>  
  <label for="files">Select files:</label>  
  <input type="file" id="files" name="files" multiple>  
</form>

### The pattern Attribute

The input pattern attribute specifies a regular expression that the input field's value is checked against, when the form is submitted.

The pattern attribute works with the following input types: text, date, search, url, tel, email, and password.

**Tip:** Use the global [title](https://www.w3schools.com/tags/att_global_title.asp) attribute to describe the pattern to help the user.

**Tip:** Learn more about [regular expressions](https://www.w3schools.com/js/js_regexp.asp) in our JavaScript tutorial.

Example

An input field that can contain only three letters (no numbers or special characters):

<form>  
  <label for="country\_code">Country code:</label>  
  <input type="text" id="country\_code" name="country\_code"  
  pattern="[A-Za-z]{3}" title="Three letter country code">  
</form>

### The placeholder Attribute

The input placeholder attribute specifies a short hint that describes the expected value of an input field (a sample value or a short description of the expected format).

The short 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, number, tel, email, and password.

Example

An input field with a placeholder text:

<form>  
  <label for="phone">Enter a phone number:</label>  
  <input type="tel" id="phone" name="phone"  
  placeholder="123-45-678"  
  pattern="[0-9]{3}-[0-9]{2}-[0-9]{3}">  
</form>

### The required Attribute

The input 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.

Example

A required input field:

<form>  
  <label for="username">Username:</label>  
  <input type="text" id="username" name="username" required>  
</form>

### The step Attribute

The input step attribute specifies the legal number intervals for an input field.

Example: if step="3", legal numbers could be -3, 0, 3, 6, etc.

**Tip:** This 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.

Example

An input field with a specified legal number intervals:

<form>  
  <label for="points">Points:</label>  
  <input type="number" id="points" name="points" step="3">  
</form>

### The list Attribute

The input list attribute refers to a <datalist> element that contains pre-defined options for an <input> element.

Example

An <input> element with pre-defined values in a <datalist>:

<form>  
  <input list="browsers">  
  <datalist id="browsers">  
    <option value="Edge">  
    <option value="Firefox">  
    <option value="Chrome">  
    <option value="Opera">  
    <option value="Safari">  
  </datalist>  
</form>

### The autocomplete Attribute

The input autocomplete attribute specifies whether a form or an input field should have autocomplete on or off.

Example

An HTML form with autocomplete on, and off for one input field:

<form action="/action\_page.php" autocomplete="on">  
  <label for="fname">First name:</label>  
  <input type="text" id="fname" name="fname"><br><br>  
  <label for="lname">Last name:</label>  
  <input type="text" id="lname" name="lname"><br><br>  
  <label for="email">Email:</label>  
  <input type="email" id="email" name="email" autocomplete="off"><br><br>  
  <input type="submit" value="Submit">  
</form>

# HTML Media

|  |  |  |
| --- | --- | --- |
| **Format** | **File** | **Description** |
| MPEG | .mpg .mpeg | MPEG. Developed by the Moving Pictures Expert Group. The first popular video format on the web. Not supported anymore in HTML. |
| 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. |
| RealVideo | .rm .ram | RealVideo. Developed by Real Media to allow video streaming with low bandwidths. 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 HTML. |
| WebM | .webm | WebM. Developed by Mozilla, Opera, Adobe, and Google. Supported by HTML. |
| MPEG-4 or MP4 | .mp4 | MP4. Developed by the Moving Pictures Expert Group. Commonly used in video cameras and TV hardware. Supported by all browsers and  recommended by YouTube. |

**Note:** Only MP4, WebM, and Ogg video are supported by the HTML standard.

## HTML Video

### 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>

### 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>

HTML Video Formats

There are three supported video formats: MP4, WebM, and Ogg. The browser support for the different formats is:

|  |  |  |  |
| --- | --- | --- | --- |
| **Browser** | **MP4** | **WebM** | **Ogg** |
| Edge | YES | YES | YES |
| Chrome | YES | YES | YES |
| Firefox | YES | YES | YES |
| Safari | YES | YES | NO |
| Opera | YES | 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

The HTML DOM defines methods, properties, and events for the <video> element.

This allows you to load, play, and pause videos, as well as setting duration and volume.

There are also DOM events that can notify you when a video begins to play, is paused, etc.

HTML Video Tags

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

## HTML Audio

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> Autoplay

To start an audio file automatically, use the autoplay attribute:

Example

<audio controls autoplay>  
  <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 - Media Types

|  |  |
| --- | --- |
| **File Format** | **Media Type** |
| MP3 | audio/mpeg |
| OGG | audio/ogg |
| WAV | audio/wav |

### HTML Audio - Methods, Properties, and Events

The HTML DOM defines methods, properties, and events for the <audio> element.

This allows you to load, play, and pause audios, as well as set duration and volume.