

# More on HTML

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## <img> tag

The <img> tag in HTML embeds images into a web page. It's an empty or self-closing tag, meaning it doesn't have a closing tag. Here's an overview of its attributes:

### Required Attributes:

- **'src'**: Specifies the URL or path to the image file. This attribute is mandatory.

```

```

### Optional Attributes:

- **'alt'**: Provides alternative text for the image. It's essential for accessibility and SEO. It describes the image if it fails to load or for disabled users.

```

```

- **'width'** and **'height'**: Set the width and height of the image, respectively, in pixels. These attributes are optional but can help browsers reserve space for the image before it loads, preventing layout shifts.

```

```

- **'title'**: Adds a tooltip when the user hovers over the image. It's not mandatory but can be helpful.

```

```

- **'loading'**: Determines how the browser should load the image. Options include **'lazy'**, **'eager'**, and **'auto'**. lazy postpones loading until the image is near the viewport.

```

```

- **'decoding'**: Specifies the decoding method of the image. Options include async, sync, and auto. It controls the image decoding process.

```

```

- **'srcset'** and **'sizes'**: For responsive images, srcset allows specifying multiple image sources with different resolutions, while sizes help the browser understand the image's display size.

```

```

These attributes provide flexibility in displaying images while considering performance, accessibility, and responsiveness across various devices and screen sizes.

## Relative and Absolute Paths

In web development, paths refer to the location of files or resources within a directory structure. There are two main types of paths: relative paths and absolute paths.

**Relative paths:** Relative paths specify the location of a file about the current page. They don't include the full URL but rather the path from the current directory.

### Types of Relative Paths:

1. **Relative to the Current Directory:** If the file you want to link to is in the same directory as the current HTML file, you can reference it directly.

```

```

- 2. Relative to the Parent Directory:** Use '../' to move up one directory level. For instance, if the file is one level up from the current directory:

```

```

- 3. Relative to Child Directories:** If the file is located in a subdirectory of the current directory, indicate the path accordingly:

```

```

**Absolute Paths:** Absolute paths define the full URL or path from the root directory to the file. They include the protocol (e.g., http:// or https://) and the complete address.

### Types of Absolute Paths:

- 1. URL-Based Absolute Paths:** Specify the full URL to the file or resource:

```

```

- 2. Server-Based Absolute Paths:** Provide the full path from the root directory of the server:

```

```

### Factors to Consider:

- 1. Portability:** Relative paths are more portable as they adjust automatically if the site structure changes.
- 2. Ease of Use:** Absolute paths might be easier to implement for resources hosted on other domains or servers.
- 3. Maintenance:** Relative paths can simplify maintenance within a website's directory structure.

When choosing between relative and absolute paths, consider the context of your project, ease of maintenance, and the flexibility needed for future modifications to your website's structure or location of resources.

## <video> tag

The <video> tag in HTML is used to embed video content into a web page. It lets you play videos directly within the browser without needing third-party plugins. Here's an overview of its usage and attributes:

### Basic Structure:

```
<video controls width="400" height="300">  
  <source src="video.mp4" type="video/mp4">  
  Your browser does not support the video tag.  
</video>
```

### Attributes of the <video> Tag:

1. **controls:** Adds playback controls (play, pause, volume, etc.) to the video player.

```
<video controls>
```

2. **width** and **height:** Sets the width and height of the video display area in pixels.

```
<video width="400" height="300">
```

3. **src:** Specifies the URL or path to the video file. Multiple sources can be provided inside <source> tags to support different formats and browsers.

```
<source src="video.mp4" type="video/mp4">  
<source src="video.webm" type="video/webm">
```

4. **type:** Defines the MIME type of the video file. It helps the browser determine which video format to use.
  - a. For MP4: **type="video/mp4"**
  - b. For WebM: **type="video/webm"**
  - c. Other formats have different MIME types.

5. **autoplay:** Automatically starts playing the video when the page loads. Use it cautiously, as autoplaying content can be intrusive.

```
<video autoplay>
```

6. **loop:** Repeats the video playback once it reaches the end.

```
<video loop>
```

7. **muted:** Starts the video muted by default.

```
<video muted>
```

8. **poster:** Displays an image while the video is loading or before it's played. It's a fallback option if the video takes time to load.

```
<video poster="video-poster.jpg">
```

9. **Preload:** Specifies whether the video should be loaded when the page loads ("auto"), whether only metadata should be loaded ("metadata"), or whether the video should not be preloaded ("none").

```
<video preload="auto">
```

These attributes control how the video is displayed, played, and interacted with on the webpage, making the `<video>` tag versatile for incorporating video content into your site.

## <audio> tag

The `<audio>` tag in HTML is used to embed audio files directly into a web page. It allows for the inclusion of audio content without relying on third-party plugins. The `<source>` tag is used within the `<audio>` tag to provide multiple audio sources in different formats for compatibility across browsers.

## Attributes of the <audio> Tag:

1. **controls:** Adds playback controls (play, pause, volume, etc.) to the audio player.

```
<audio controls>
```

2. **src:** Specifies the URL or path to the audio file. Multiple sources can be provided inside <source> tags to support different formats and browsers.

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

3. **type:** Defines the MIME type of the audio file. It helps the browser determine which audio format to use.
  - a. For MP3: type="audio/mpeg"
  - b. For Ogg Vorbis: type="audio/ogg"
  - c. Other formats have different MIME types.

4. **autoplay:** Automatically starts playing the audio when the page loads. Similar to video autoplay, use this sparingly.

```
<audio autoplay>
```

5. **loop:** Repeats the audio playback once it reaches the end.

```
<audio loop>
```

6. **muted:** Starts the audio muted by default.

```
<audio muted>
```

7. **preload:** Specifies whether the audio should be loaded when the page loads ("auto"), only metadata should be loaded ("metadata"), or the audio should not be preloaded ("none").

```
<audio preload="auto">
```

These attributes allow for customisation of audio playback and provide options to ensure compatibility with different browsers by offering alternative audio formats using the `<source>` tag inside the `<audio>` element.

## <iframe> tag

The `<iframe>` (short for inline frame) tag in HTML is used to embed another document within the current HTML document. It allows you to display content from another source inside the current page, like a webpage, video, map, or any other HTML document.

### Attributes of the <iframe> Tag:

1. **src:** Specifies the document URL or resource to be embedded within the iframe.

```
<iframe src="https://www.example.com"></iframe>
```

2. **width** and **height:** Sets the width and height of the iframe's display area in pixels.

```
<iframe width="600" height="400"></iframe>
```

3. **title:** Provides a title or name for the embedded content. It's good practice to include this attribute for accessibility reasons.

```
<iframe title="Embedded Content"></iframe>
```

4. **sandbox:** Adds a security sandbox to the iframe, restricting what the embedded content can do (such as preventing scripts or forms from running).

```
<iframe sandbox></iframe>
```

5. **allow:** Specifies a list of permissions for the embedded content, such as allowing or restricting specific features like fullscreen mode or autoplay for videos.

```
<iframe allow="fullscreen"></iframe>
```

6. **loading:** Determines how the iframe content should be loaded. Options include eager (load immediately) and lazy (load when near the viewport).

```
<iframe loading="lazy"></iframe>
```

7. **frameborder:** Specifies whether to display a border around the iframe. 0 means no border, while 1 means a border should be displayed.

```
<iframe frameborder="0"></iframe>
```

The **<iframe>** tag is commonly used to embed content from other sources into a webpage while providing a segregated environment for that content. Using it responsibly is crucial, considering security and user experience aspects.

## <a> tag

The anchor tag, **<a>**, in HTML, is used to create hyperlinks to other web pages, files, locations within the same page, or content on the internet. It's the foundation for navigating the web by linking various resources.

### Attributes of the <a> Tag:

1. **href:** The most crucial attribute; it specifies the destination URL or the location to which the link points.

```
<a href="https://www.example.com">Link Text</a>
```



2. **target:** Specifies where the linked document should open. Common values include `_self` (default, opens in the same window/tab), `_blank` (opens in a new window/tab), `_parent`, and `_top`.

```
<a href="https://www.example.com" target="_blank">Link Text</a>
```

3. **download:** Forces the browser to download the linked file instead of navigating to it when clicked. It's used for links to downloadable resources.

```
<a href="file.pdf" download>Download PDF</a>
```

4. **rel:** Describes the relationship between the current and linked documents. For example, `rel="nofollow"` instructs search engines not to follow the link for indexing.

```
<a href="https://www.example.com" rel="nofollow">Link Text</a>
```

5. **title:** Adds a tooltip that appears when the user hovers over the link.

```
<a href="https://www.example.com" title="Go to Example">Link Text</a>
```

6. **aria-label:** Provides an accessible label for screen readers to describe the purpose of the link.

```
<a href="https://www.example.com" aria-label="Go to Example">Link Text</a>
```

7. **role:** Specifies the role of the link for accessibility purposes. For instance, `role="button"` links look and behave like a button.

```
<a href="https://www.example.com" role="button">Link Text</a>
```

The `<a>` tag is fundamental for creating navigable content on the web. It allows users to move between different web pages and resources, making it a core element in HTML for building interconnected web experiences.

## iframe with anchor Tag:

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:

```
<!DOCTYPE html>
<html>
<body>

<h2>Iframe -Target for a Link</h2>

<iframe
src=" "
name="iframe_a"
height="300px"
width="100%"
title="Iframe Example">
</iframe>

<p>
<a
href="https://wwwcodingninjas.com"
target="iframe_a"
>
W3Schools.com
</a>
</p>

<p>When the target attribute of a link matches the name of an iframe, the
link will open in the iframe.</p>

</body>
</html>
```

You have to leave the src attribute empty in the iframe tag.

Put the link of any website and location in the href attribute of the anchor tag.

## <table> tag

The <table> tag in HTML is used to create tables, allowing you to display data in rows and columns. Tables consist of rows (<tr>) and cells (<td> or <th>) organised within them.

### Tags and Components within the Table:

1. **<table>**: The container tag for the entire table.
2. **<tr>**: Stands for "table row." Used to define a row in the table.
3. **<th>**: Stands for "table header cell." Used to define headers within a table. Typically placed within the <tr> element to denote header cells for each column or row.
4. **<td>**: Stands for "table data cell." Used to define regular cells within a table (non-header cells). These cells contain the actual data.

### Attributes of the <table> Tag:

1. **border**: Specifies the border width of the table. Deprecated in HTML5; CSS is recommended for styling.

```
<table border="1">
```

2. **width**: Sets the width of the table. Can be specified in pixels or as a percentage.

```
<table width="100%">
```

3. **cellpadding**: Adds space inside the cells of the table. Deprecated in HTML5; CSS is recommended for styling.

```
<table cellpadding="5">
```

4. **cellspacing**: Specifies the space between cells in the table. Deprecated in HTML5; CSS is recommended for styling.

```
<table cellpadding="2">
```

### Example:

```
<table border="1" width="100%" cellpadding="5" cellspacing="2">
  <tr>
    <th>Name</th>
    <th>Age</th>
  </tr>
  <tr>
    <td>John</td>
    <td>25</td>
  </tr>
  <tr>
    <td>Sara</td>
    <td>30</td>
  </tr>
</table>
```

The output is as follows:-

Name	Age
John	25
Sara	30

Tables are used for organising and presenting tabular data in a structured format. However, in modern web design, they're often replaced with CSS frameworks and other layout methods for better responsiveness and accessibility.

### 5. rowspan and colspan:

In HTML, the `<table>` element is used to create tables, and the `rowspan` and `colspan` attributes are used to define the span of a cell in terms of rows and columns, respectively. Here are some notes on `rowspan` and `colspan`:

**rowspan Attribute:**

The rowspan attribute is used to specify how many rows a cell should span.

It is applied to a <td> (table data) or <th> (table header) element within a <tr> (table row) element.

The value of rowspan is an integer representing the number of rows the cell should span.

When a cell has a rowspan greater than 1, it occupies multiple rows in the table.

Example:

```
<table border="1">
  <tr>
    <td rowspan="2">Cell 1</td>
    <td>Cell 2</td>
    <td>Cell 3</td>
  </tr>
  <tr>
    <td>Cell 4</td>
    <td>Cell 5</td>
  </tr>
</table>
```

In this example, the first cell (Cell 1) spans two rows.

**colspan Attribute:**

The colspan attribute is used to specify how many columns a cell should span.

Like rowspan, it is applied to a <td> or <th> element.

The value of colspan is an integer representing the number of columns the cell should span.

When a cell has a colspan greater than 1, it occupies multiple columns in the table.

Example:

```
<table border="1">
  <tr>
    <td>Cell 1</td>
    <td colspan="2">Cell 2</td>
    <td>Cell 3</td>
  </tr>
</table>
```

In this example, the second cell (Cell 2) spans two columns.

## Combining rowspan and colspan:

You can combine both rowspan and colspan attributes in a single cell to create a cell that spans both rows and columns.

Example:

```
<table border="1">
  <tr>
    <td rowspan="2" colspan="2">Cell 1</td>
    <td>Cell 2</td>
  </tr>
  <tr>
    <td>Cell 3</td>
  </tr>
</table>
```

In this example, the first cell (Cell 1) spans two rows and two columns.

These attributes are useful for creating more complex table layouts and merging cells to accommodate different data structures in tables.

## CONCLUSION:

In conclusion, HTML tags like **<img>**, **<video>**, **<audio>**, **<source>**, **<iframe>**, **<a>**, and **<table>** offer incredible versatility in web design and content presentation. From embedding multimedia elements, and creating hyperlinks, to organizing data into tables, these tags provide the foundation for building engaging, accessible, and interactive web experiences.

Understanding their attributes and usage empowers developers to craft visually compelling, multimedia-rich, and structurally organized web pages, catering to diverse user needs and preferences. As web technologies evolve, these tags remain fundamental tools, facilitating the creation of immersive and dynamic online content across various devices and platforms.

## REFERENCES:

Explore more about these tags by going through the links below

1. [<img> tag](#)
2. [<video> tag](#)
3. [<audio> tag](#)
4. [<iframe> tag](#)
5. [<a> tag](#)
6. [<table> tag](#)