HTML5: MULTIMEDIA

Multimedia

Multimedia comes in many different formats. It can be almost anything you can hear or see. For example, Pictures, music, sound, videos, records, films, animations, and more. Web pages often contains multimedia elements of different types and formats.

Multimedia Formats

Multimedia elements (like sounds or videos) are stored in media files. The most common way to discover the type of a file, is to look at the file extension. When a browser sees the file extension .htm or .html, it will treat the file as an HTML file. The .xml extension indicates an XML file, and the .css extension indicates a style sheet file. Pictures are recognized by extensions like .gif, .png and .jpg. Multimedia files also have their own formats and different extensions like: .swf, .wav, .mp3, .mp4, .mpg, .wmv, and .avi.

Common Video Formats

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	RealVideo. Developed by Real Media to allow video streaming

	.ram	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.

Sound 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.

Plug-in applications

Plug-in applications are programs that can easily be installed and used as part of your Web browser. Initially, the Netscape browser allowed you to download, install, and define supplementary programs that played sound or motion video or performed other functions. These were called helper applications. However, these applications run as a separate application and require that a second window be opened. A plug-in application is recognized automatically by the browser and its function is integrated into the main HTML file that is being presented.
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.

The <object> Element

The <object> element is supported by all browsers. It's 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="lecture1.pdf"></object>
```

The <object> element can also be used to include HTML in HTML:

Example

```
<object width="100%" height="500px" data="object1.html"></object>
```

Or images if you like:

Example

```
<object data="objc.jpeg"></object>
```

The <embed> Element

The <embed> element is supported in all major browsers. And 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. The element will validate in an HTML5 page, but not in an HTML 4 page.

Example
<embed width="400" height="50" src="lecture1.pdf">

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">

Playing Videos in HTML

Before HTML5, there was no standard for showing videos on a web page.

Before HTML5, videos could only be played with a plug-in (like flash).

The HTML5 <video> element specifies a standard way to embed a video in a web page.

HTML5 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

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 browser does not know the size of the video. The effect will be that the page will change (or flicker) while the video loads.
- Text between the <video> and </video> tags will only display in browsers that do not support the <video> element.
- Multiple **<source>** elements can link to different video files. The browser will use the first recognized format.

Video Attribute Specification

The HTML5 video tag can have a number of attributes to control the look and feel and various functionalities of the control −

Attribute	Description
autoplay	This boolean attribute if specified, the video will automatically begin to play back as soon as it can do so without stopping to finish loading the data.
controls	If this attribute is present, it will allow the user to control video playback, including volume, seeking, and pause/resume playback.
height	This attribute specifies the height of the video's display area, in CSS pixels.
loop	This boolean attribute if specified, will allow video automatically seek back to the start after reaching at the end.
preload	This attribute specifies that the video will be loaded at page load, and ready to run. Ignored if autoplay is present.
poster	This is a URL of an image to show until the user plays or seeks.
src	The URL of the video to embed. This is optional; you may instead use the <source> element within the video block to specify the video to embed
width	This attribute specifies the width of the video's display area, in CSS pixels.

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> preload

The preload attribute specifies if and how the author thinks that the video should be loaded when the page loads.

The preload attribute allows the author to provide a hint to the browser about what he/she thinks will lead to the best user experience. This attribute may be ignored in some instances. The preload attribute is ignored if autoplay is present.

Attribute Values

Value	Description
auto	The author thinks that the browser should load the entire video when the page loads
none	The author thinks that the browser should NOT load the video when the page loads

Example

```
<video width="320" height="240" preload = “none”>
  <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> poster

The poster attribute specifies an image to be shown while the video is downloading, or until the user hits the play button. If this is not included, the first frame of the video will be used instead.

Example

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

HTML5 Audio

HTML5 provides a standard for playing audio files.

Audio on the Web

Before HTML5, there was no standard for playing audio files on a web page.

Before HTML5, audio files could only be played with a plug-in (like flash).

The HTML5 <audio> element specifies a standard way to embed audio in a web page.

HTML5 Audio Tags

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

How It Works

- The **controls** attribute adds audio controls, like play, pause, and volume.
- Text between the <audio> and </audio> tags will display in browsers that do not support the <audio> element.
- Multiple **<source>** elements can link to different audio files. The browser will use the first recognized format.

Audio Attribute Specification

The HTML5 audio tag can have a number of attributes to control the look and feel and various functionalities of the control:

Attribute	Description
autoplay	This boolean attribute if specified, the audio will automatically begin to play back as soon as it can do so without stopping to finish loading the data.
controls	If this attribute is present, it will allow the user to control audio playback, including volume, seeking, and pause/resume playback.
loop	This boolean attribute if specified, will allow audio automatically seek back to the start after reaching at the end.
preload	This attribute specifies that the audio will be loaded at page load, and ready to run. Ignored if autoplay is present.
src	The URL of the audio to embed. This is optional; you may instead use the <source> element within the video block to specify the video to embed