

Chapter 9

HTML 5 Video and Audio

Part 1

HTML5 Video and Audio

In this lecture, you will learn:

- Using HTML5 video and audio vs. traditional methods of adding video and audio on Web pages
- How to use <video> and <audio> tags to add HTML5 video and audio to Web pages
- What source list is and how to set up a source list
- To use the attributes for preloading, autoplay, looping, width, height, and poster image for the media

Traditional methods of adding video and audio on Web pages
vs.

HTML5 <video> and <audio>

Key difference: What applications play the media

- Traditional method (non-HTML5):
browser **plug-in** (such as Flash Player and QuickTime) or **external application** (such as QuickTime player)
- Using HTML5 <video> and <audio>:
browser's **built-in player**

Effects on User Experience

- HTML5 Video and Audio
 - Each Web browser may support different features of video and audio playback
 - Each Web browser has its own visual design of the player controller
- Traditional non-HTML5
 - The same plug-in or external application has the same interface across Web browsers

Screenshot of Video Player: Firefox



current time

total time

Controller: Overlaid on the video; appears when mouse
over the video

Screenshot of Video Player: Chrome



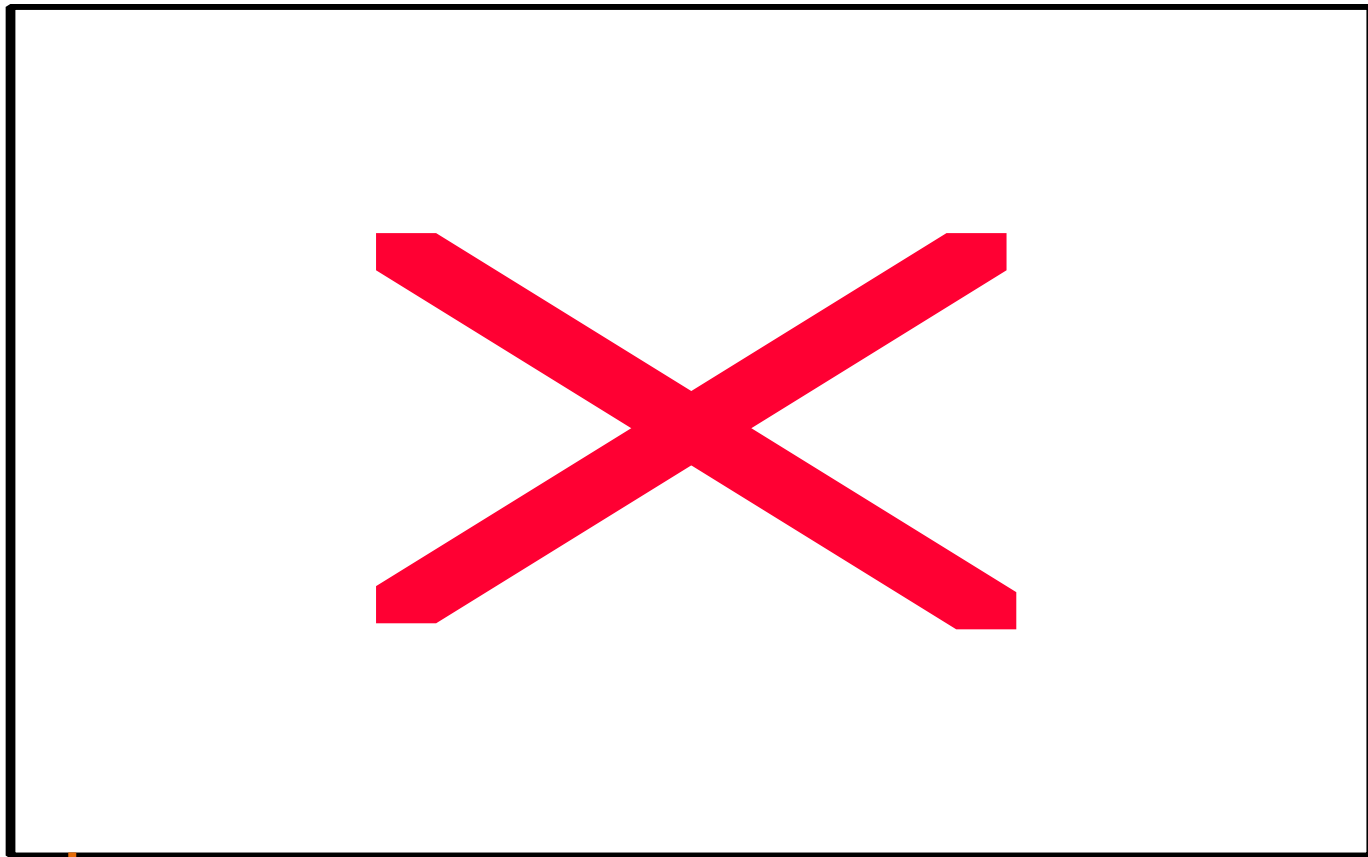
Controller: Overlaid on the video; appears when mouse
over the video

Screenshot of Video Player: IE



Controller: Overlaid on the video; appears when mouse
over the video

Screenshot of Video Player: Safari



current time

full screen

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Controller: Added at the bottom, always showing

Use of <video> Tag

The simplest form of <video> tag to add an HTML5 video on a Web page:

`<video src="demo.ogv" controls>`

source attribute file path of the media controls attribute: to show the controller

Use of <audio> Tag

The simplest form of <audio> tag to add an HTML5 audio on a Web page:

`<audio src="demo.oга" controls>`

source attribute file path of the media controls attribute: to show the controller

HTML 5 Video Formats

- H.264 MPEG-4/AVC:
.mp4

- OGG:
.ogg, .ogv

- WebM:
.webm

HTML 5 Audio Formats

- WAV:
.wav
- OGG Vorbis:
.ogg, .oga
- MP3:
.mp3
- AAC:
.m4a

Browser Support for HTML 5 Video

	H.264 MPEG/AVC	OGG	WebM
Firefox	33+	3.5+	4.0+
Safari	3.0+		
IE	9.0+		
Chrome	Yes, but will discontinue support	5.0+	6.0+
Opera		10.5+	10.6+

Note:

- Latest Firefox supports all three video formats
- H.264 MPEG/AVC is supported by almost all browsers

Browser Support for HTML 5 Audio

	WAV	OGG Vorbis	MP3	AAC
Firefox	X	X		
Safari	X		X	X
IE			X	X
Chrome	X	X	X	X
Opera	X	X		

Note:

- No one browser supports all four audio formats
- No one audio format is supported by all browsers

Dealing with Browser Support

Scenario #1: Not all browsers and browser *versions* support HTML5 video and audio

Add a text display as fallback: e.g.:

```
<video src="demo.ogv" controls>  
  <p>Your browser does not support HTML5 video.</p>  
</video>
```

Dealing with Browser Support

Scenario #2: A browser supports HTML5 video and audio, but only certain HTML5 video formats

Use a source list: e.g.:

```
<video controls>
  <source src="demo.mp4" type="video/mp4" />
  <source src="demo.webm" type="video/webm" />
  <source src="demo.ogv" type="video/ogg" />
  <p>Your browser does not support HTML5 video.</p>
</video>
```


Source List Example for Audio

```
<audio controls>
```

```
  <source src="demo.m4a" type="audio/mp4" />
```

```
  <source src="demo.oga" type="audio/ogg" />
```

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

```
  <source src="demo.wav" type="audio/wav" />
```

```
  <p>Your browser does not support HTML5 audio.</p>
```

```
</audio>
```

<source> Tag

- To provide multiple video or audio sources for different browsers
- General Syntax:
`<source src="filePath" type="mediaType" />`
- A list of <source> is placed within in the <video> or <audio> content

- Example:

```
<video controls>
```

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

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

```
  <source src="demo.ogv" type="video/ogg" />
```

```
  <p>Your browser does not support HTML5 video.</p>
```

```
</video>
```

Preloading a Media

- Add `preload` attribute
- 3 possible values:
 - `none`

The Web browser will not start loading the media until the user clicks the play button.
 - `auto`
 - The Web browser will decide whether the media will be preloaded.
 - Example: On Apple iOS devices, the browser will not preload the media.
 - `metadata`

The Web browser will preload only the metadata of the media, such as duration, frame size, and the first frame of the video

Preloading a Media

Example:

```
<video controls preload="auto">  
  <source src="demo.mp4" type="video/mp4" />  
  <source src="demo.webm" type="video/webm" />  
  <source src="demo.ogv" type="video/ogg" />  
  <p>Your browser does not support HTML5 video.</p>  
</video>
```

Setting Autoplay

- Attribute: `autoplay`
- Value: None; simply add the attribute to the tag
- The video or audio automatically starts playing as soon as it has been loaded

- Example:

```
<video controls preload="auto" autoplay>
  <source src="demo.mp4" type="video/mp4" />
  <source src="demo.webm" type="video/webm" />
  <source src="demo.ogv" type="video/ogg" />
  <p>Your browser does not support HTML5 video.</p>
</video>
```

Setting the Media to Loop

- Attribute: **loop**
- Value: None; simply add the attribute to the tag
- The video or audio automatically starts over after it has reached the end

- Example:

```
<video controls preload="auto" loop>
  <source src="demo.mp4" type="video/mp4" />
  <source src="demo.webm" type="video/webm" />
  <source src="demo.ogv" type="video/ogg" />
  <p>Your browser does not support HTML5 video.</p>
</video>
```

Setting Width and Height for Video

- Attribute: `width, height`
- Value: in number of pixels
- Apply to video only

- Example:

```
<video controls preload="auto" width="480" height="320">  
  <source src="demo.mp4" type="video/mp4" />  
  <source src="demo.webm" type="video/webm" />  
  <source src="demo.ogv" type="video/ogg" />  
  <p>Your browser does not support HTML5 video.</p>  
</video>
```

Combined Use of Attributes

- These attributes can be used together
- Example:

```
<video controls preload="auto" autoplay loop  
width="480" height="320">  
  <source src="demo.mp4" type="video/mp4" />  
  <source src="demo.webm" type="video/webm" />  
  <source src="demo.ogv" type="video/ogg" />  
  <p>Your browser does not support HTML5 video.</p>  
</video>
```


Setting Width of Controller for Audio

- Use Cascading Style Sheets (CSS)
- Best practice: use external style sheet
- For sake of simplicity, example shown here uses inline style:

```
<audio controls style="width:480px;">
  <source src="demo.m4a" type="audio/mp4" />
  <source src="demo.oga" type="audio/ogg" />
  <source src="demo.mp3" type="audio/mp3" />
  <source src="demo.wav" type="audio/wav" />
  <p>Your browser does not support HTML5 audio.</p>
</audio>
```

Setting Poster Image

- Poster image:
An image that is shown in place of the video before the video starts
- Attribute: `poster`
- Value: the file path of the image file
- Example:

```
<video controls preload="none" poster="demo-poster.png">  
  <source src="demo.mp4" type="video/mp4" />  
  <source src="demo.webm" type="video/webm" />  
  <source src="demo.ogv" type="video/ogg" />  
  <p>Your browser does not support HTML5 video.</p>  
</video>
```

If you don't set the width and height in `<video>`, what is going to be displayed before the video is loaded?

Without Setting Width and Height

Scenario	What will be displayed before the video starts to play
If a poster image is set	Show the poster image using its width and height
No poster image and preload is enabled	<ul style="list-style-type: none">• Show the first frame of the video• The size of the video player matches the actual video frame size
No poster image and no preload	<ul style="list-style-type: none">• Video player appears blank• The size of the video player does not match the actual video frame size until the user clicks to play (load) the video

What if the width and height do not match the actual video frame?

If Width and Height \neq Actual Video Frame Size

- The video will be scaled such that its frame aspect ratio is maintained
- Example:
If the width attribute is set too wide:
 - the video will be scaled such that it fills the player vertically
 - leave empty space on the left and right sides



Chapter 9

HTML 5 Video and Audio

Part 2

Fallback Strategies and Creation

In this lecture, you will learn:

- Several for HTML5 video and audio fallback strategies for browsers that do not support HTML5 video and audio:
 - Links
 - Image
- How to create HTML5 video and audio

Why Fallback Strategies?

- Not all browsers and browser versions support HTML5 video and audio
- Use fallback strategies to provide alternatives for those browsers

Basic Idea of Fallback Strategies

- In `<video>` element, add extra HTML code, which is not HTML5 specific
- This extra code tells the browser what to display
- If the browser does not support HTML5 video and audio, it will:
 - ignore the `<video>` and `<audio>` tags
 - use that extra code intended for fallback

Fallback Strategies

- Use of links to download video
- Use of a static image

Video Download Links as Fallback

- Simply add links for users to download the video

Video Download Links as Fallback

```
<video controls preload="none" poster="demo-
poster.png">
  <source src="demo.mp4" type="video/mp4" />
  <source src="demo.webm" type="video/webm" />
  <source src="demo.ogv" type="video/ogg" />
  <p>Your browser does not support HTML5
  video.</p>
  <p>Download Videos:
    <a href="demo.mp4">MP4</a>
    <a href="demo.webm">WEBM</a>
    <a href="demo.ogv">OGG</a>
  </p>
</video>
```

Image as Fallback

- Simply use an image (often a representative frame of the video) in place of the video

Add Image as Fallback

```
<video controls preload="none" poster="demo-  
poster.png">  
  <source src="demo.mp4" type="video/mp4" />  
  <source src="demo.webm" type="video/webm" />  
  <source src="demo.ogv" type="video/ogg" />  
  <img src "media/demo-poster.png" alt "browser does  
not support HTML5 video" />  
  <p>Your browser does not support HTML5 video.</p>  
  <p>Download Videos:  
    <a href="demo.mp4">MP4</a>  
    <a href="demo.webm">WEBM</a>  
    <a href="demo.ogv">OGG</a>  
  </p>  
</video>
```

Creating HTML5 Video and Audio

Creating HTML5 Video and Audio

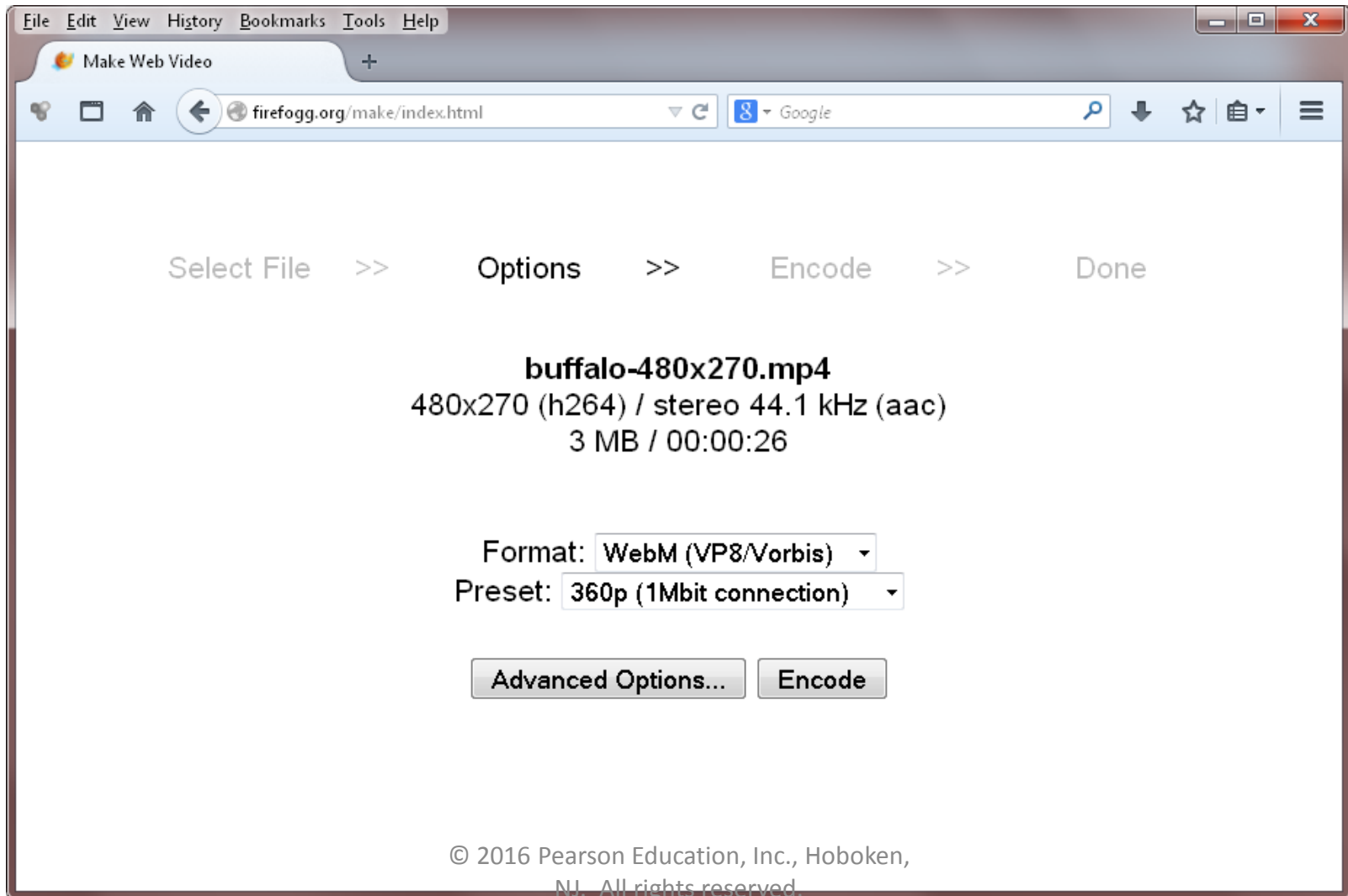
If your video/audio editor does not support exporting all or any of the HTML5 video/audio formats, you can:

1. Export your video/audio to a common format, e.g.
 - Video: QuickTime (.mov), Flash Video (.f4v)
 - Audio: WAV (.wav)
2. Convert your video/audio to HTML5 formats

Free Tools for Converting Video/Audio to HTML5 Video/Audio Formats

Tool	Web Site	Supported OS	Output
MediaCoder	http://www.mediacoderhq.com/	Windows, Mac OS, Linux	Video: MP4, WebM, Ogg Audio: MP3, Ogg, AAC
HandBrake	http://handbrake.fr/	Windows, Mac OS, Linux	Video: MP4
Firefogg	http://firefogg.org/	(As a Firefox 6+ plug-in)	Video: WebM, Ogg
VLC Media Player	http://www.videolan.org/vlc/	Windows, Mac OS, Linux	Audio: MP3, AAC, Ogg

Screenshot of Firefogg with Settings for WebM Export



Screenshot of Handbrake v.0.9.5 with Settings for MP4 Export

