

TRAINER PREPARATION GUIDE 2.3: CHOOSE AND CONFIGURE HTML5 TAGS TO PLAY MEDIA

Lesson Objective 2.3:

Choose and configure HTML5 tags to play media.

Required materials to teach this lesson:

1. Microsoft® Expression® Studio 4 (preferred)
2. Video camera or video file
3. 98-375-ENU-2.3-LP
4. 98-375-ENU-2.3-IC
5. 98-375-ENU-2.3-ICKEY
6. 98-375-ENU-2.3-IC-RESOURCES.ZIP
7. 98-375-ENU-2.3-PC

Preparation tasks

Technical preparation activities:

1. The lesson demonstration requires either Expression Web or Notepad to create an HTML5 document.
2. The demonstration shows the students how to use the new <audio> HTML5 tag.
3. Unzip the resources file to access to the BuffaloChickenDip.mp3 file (a recording with directions to make a snack dip). Alternately, use a different MP3 file or create one.
4. Copy the following code into your HTML page:

```
<!DOCTYPE html>
<html>
<head>
<title>HTML5 Audio Example</title>
<script type="text/javascript">
function playAt(seconds){
var audio = document.getElementsByTagName("audio")[0];
audio.currentTime=seconds;
audio.play();
}
function restart(){
var audio = document.getElementsByTagName("audio")[0];
audio.currentTime=0;
audio.play();
}
</script>
</head>
<body>
```

```
<audio controls="controls">
  <source src="BuffaloChickenDip.mp3" />
  Your browser does not support the audio element.
</audio>
<br />
<button title="Play at 15 seconds" onclick="playAt(4.5);" >4.5
Seconds</button>
<br />
<button title="Restart Audio" onclick="restart();" >Restart</button>
</body>
</html>
```

5. When you preview the page in a browser, discuss the possible uses of these new tags and the associated controls (see sample screen below).



6. Vocabulary:

codec: a technology used for compressing data. Audio and video codec compress and/or decompress digital audio data into different formats to retain the highest quality with minimum bit rate.

data compression: a means of reducing the amount of space or bandwidth needed to store or transmit a block of data, used in data communications, facsimile transmission, file storage and transfer, and CD-ROM publishing.

semantic: the relationship between words or symbols and their intended meanings. Programming languages are subject to certain semantic rules. A program statement can be syntactically correct but semantically incorrect; a statement can be written in an acceptable form and still convey the wrong meaning.

video compression: reduction of the size of files containing video images stored in digital form. If not compressed, 24-bit color video at 640 x 480 pixels would occupy almost one megabyte per frame, or over a gigabyte per minute.

7. Additional readings and resources:

MSDN®:

HTML5 Audio and Video: [http://msdn.microsoft.com/en-us/library/gg589509\(v=VS.85\).aspx](http://msdn.microsoft.com/en-us/library/gg589509(v=VS.85).aspx)

Internet Explorer® 9 Guide for Developers: http://msdn.microsoft.com/en-us/ie/hh410106#_HTML5_video_audio

Other Resources (books, e-reference):

W3C Audio Element Definition: <http://www.w3.org/TR/html5/the-iframe-element.html#the-audio-element>

W3C Audio Element Definition: <http://www.w3.org/TR/html5/the-iframe-element.html#the-video-element>

HTML5 Tutorial: <http://www.w3schools.com/html5>

Lubbers, Peter; Albers, Brian; Smith, Ric; Salim, Frank (2010-09-01). *Pro HTML5 Programming: Powerful APIs for Richer Internet Application Development* (Kindle Location 161). Apress. Kindle Edition.

Note: HTML5 is changing and developing quickly. The list of resources is current as of January 2012. Check resources for current and up-to-date information at the time of classroom use.

Instructor computer setup:

1. A workstation with Expression Web 4 (with Service Pack 2).

Instructional preparation activities:

1. Review the instructor notes in the notes view of Microsoft PowerPoint® presentation 98-375-ENU-2.3-LP.
2. Make copies of student documents available as needed.
3. If possible, use a video camera to allow the students to record a short video on a "how to" topic such as "how to make a good sandwich." They can use this video for their in-class activity. A camera that outputs an .mp4 file is convenient. If a video camera is not available, make a suitable video clip available for student use in this activity.
4. Complete the instructions for the demonstration before class. Check to see if the available browsers support the HTML5 features in the demonstration.

Lesson sequence (50 minutes)

Activating prior knowledge/lesson staging (5 minutes):

Instruct students to answer each question in the "Guiding questions" section of the In-class Activity document or in their personal class notes.

Guiding Questions:

1. **What are the advantages and disadvantages of using the new <audio> and <video> tags available in HTML5?** Advantages: semantic tag, vendor independent (no plug-ins required), elements are part of the DOM, which provides more control with scripts and CSS. Disadvantages: not supported by all browsers (requires Internet Explorer 9 or higher), which makes it necessary to have several encoded versions available.
2. **What types of controls are available for audio and video?** Controls for audio and video are very similar; they both include native code and JavaScript commands. For example, native commands such as boolean values, autoplay/loop, preload, metadata, and none can be added directly to the tag, such as in `<audio controls preload>`. JavaScript can be used for more control, such as `canplaytype(type)`, `currentTime`, `duration`, `play()`, and `pause()`.
3. **What file types are recommended for audio and video?** Browser support for audio and video varies, but most browsers support .aac, .mp3, and .wav audio files and .mp4 (H.264), .ogg, and WebM video files. Note: iOS ONLY supports H.264, which is propriety codec software.

Lesson activity (35 minutes):

1. Teacher instruction (35 minutes)

- a. Use the PowerPoint presentation 98-375-ENU-2.3-LP to review choosing and configuring HTML5 tags to play media.
- b. An In-class Activity document is available for use as needed. (If the video example does not work, replace it with a quick audio example similar to the demonstration.)

Lesson review (10 minutes):

1. Lead students in a discussion of the guiding questions.
2. During and after the discussion, have students list any questions they have or any topics with which they would like more assistance.
3. Have students work in pairs to answer the additional questions written by students. Answer any questions that cannot be answered by students, or collect them for follow-up later.
4. Provide the Post-class Activity document for additional review.