Audio Files

**Midi Files:**

The Musical Instrument Digital Interface (MIDI) protocol has been widely accepted and utilized by musicians and composers since its conception in the 1982/1983 time frame. MIDI data is a very efficient method of representing musical performance information, and this makes MIDI an attractive protocol not only for composers or performers, but also for computer applications which produce sound, such as multimedia presentations or computer games. MIDI data files are extremely small when compared with sampled audio files. MIDI is not a specification for sampled digital audio. Rather, it contains a bank of digitized sounds and control information for replaying the file - similar to an electronic synthesizer.

You can find some midi clips at <http://www.prs.net/midi.html/>.

**Wav Files:**

Wav files are proprietary to Microsoft and IBM and are most commonly used on Windows-based PCs.

You can find some wav clips at <http://dir.yahoo.com/Computers_and_Internet/Multimedia/Audio/Archives/WAV/>.

**Mp3 and Mp4 Files:**

MP3 files are CD quality songs that are compressed down from huge files to much smaller files without any noticeable decrease in sound quality. These songs are small enough to be stored on your computer, downloaded from the Internet and played on your computer using freely available software. MP3 stands for MPEG 1 (Motion Picture Experts Group) Layer 3. It's a digital audio compression format built from over 15 years of psycho-acoustical research. MP3 squishes down sound files 10-15 times smaller than a parent file. And yet that tiny .mp3 file retains most of the perceived audio fidelity by stripping out the waveforms that the human ear doesn't process. Not nearly CD-quality -- do an "a to b" comparison on headphones and you will quickly unsubscribe from that myth -- MP3 is nonetheless a tremendous breakthrough in terms of sound quality for a high compression rate. Culturally and economically, this little file format has thrown open new vistas of commercial possibilities, altered our music listening habits, and brought concerns about piracy violently to the forefront of our attention.

MP4 is short for Moving Picture Expert Group-4. First published in 1998, MPEG-4 or MP4 was designed to encompass all the features that were part of earlier releases of MPEG files, and add a few more that would prove helpful with the advancing online [technology](http://www.tech-faq.com/mp4.shtml) of the day. As a standardized group of video and perceptual coding formats, MP in general quickly became a hit with the average Internet user. The introduction of MP4 made it possible for the audience to continue growing by providing quicker, faster, and higher quality broadcast media for the average user.

So great was the success of MP4 that by 1999, it was considered the gold standard for all types of streaming and broadcast applications online. The functionality of the format was such that programmers were able to easily make use of MP4 on web sites and in various other applications. Businesses found it to be a great sales and marketing tool, and residential users also had a great time viewing, swapping, and even creating their own streaming media in the MP4 format.

You should generally indicate the size of the mp3 or mp4 file on your web page, next to the link for it.

You can find some mp3 clips at <http://dir.yahoo.com/Computers_and_Internet/Multimedia/Audio/Formats/MP3/>.

**Embedding Audio Clips:**

Embedding an audio file on a web page means that the viewer's sound controller will be loaded on the page, at the time that the browser loads the page. Midi, wav, and mp3 files can all be embedded on a web page. In Homework 4, if you embed an audio file then you should also provide a link for it. Note that the embed tag has been deprecated and it will **not validate** for XHTML. Here is an example of an embedded midi file.

**Here is the coding of this example:**

<embed src="beethoven.mid" autostart="false" loop="false" width="20%" height="20" />

autostart="false" - means that the midi file will NOT start playing automatically right after the page is loaded. This is generally a good idea. The viewer must click the start button on the controller for the file to play.

loop="false" - means that the midi file will not keep playing continuously after the viewer clicks start.

width="20%" - means that the controller will occupy 20% of the viewer's screen width.

heigth="20" -means the controller will be 20 pixels high.

You can also embed an audio file using just the **object tag**. The object tag **will validate** for XHTML. See the first example on this [page](http://fog.ccsf.edu/~srubin/h4Object.html). Here is the coding:

<object classid="clsid:02BF25D5-8C17-4B23-BC80-D3488ABDDC6B"codebase="http://www.apple.com/qtactivex/qtplugin.cab" width="200" height="16">

<param name="src" value="jungle.mp3" />

<param name="controller" value="true" />

<param name="autoplay" value="false" />

<param name="autostart" value="0" /> <param name="pluginspage"value="http://www.apple.com/quicktime/download/" />

<object type="audio/x-mpeg" data="jungle.mp3" width="200" height="16"> <param name="src" value="jungle.mp3"/>

<param name="controller" value="true" />

<param name="autoplay" value="false" />

<param name="autostart" value="0" /> <param name="pluginurl"value="http://www.apple.com/quicktime/download/" />

</object>

</object>

**Note:** classid="clsid:02BF25D5-8C17-4B23-BC80-D3488ABDDC6B" is necessary for the audio file to play in an IE controller. IE needs a non-standard value to the valid classid attribute, an identifier to load an associated activeX.

**Notes:**

1. If you embed an audio file with the embed tag, I suggest that you also provide a link to it. Here is an example of a[linked midi file](http://fog.ccsf.edu/~srubin/beethoven.mid). This will bring up an audio controller outside of the web page, and the midi file will play automatically.  
  
2. A few semesters ago, a student suggested another method combining the object and embed tags for embedding audio files. It works cross browser and cross platform for all audio filetypes. But it doesn't validate for XHTML because of the embed tag. Here is an [example](http://www.mitford.org/embaudio.html).

3. For HTML5, the classid tag won't validate. This example's coding will validate for HTML5.

<object type="audio/x-mpeg" data="jungle.mp3" width="200" height="16"> <param name="src" value="jungle.mp3">  
<param name="controller" value="true">  
<param name="autoplay" value="false">  
<param name="autostart" value="0">   
<param name="pluginurl" value="http://www.apple.com/quicktime/download/">  
</object>

4. For HTML5, you can use the **audio tag**, for example:

<audio controls="controls">  
<source src="jungle.mp3" type="audio/mpeg" />  
<source src="jungle.ogg" type="audio/ogg" />  
Your browser does not support this audio  
</audio>

I needed to convert jungle.mp3 into an ogg file for use with this tag. The OGG Converter (allows a Free Trial, but costs 19.95 to buy it).  
  
Converts MP3, WAV, WMA, OGG from one to another  
Supports Resampling of MP3, WAV, WMA, OGG Vorbis

See this example:

<http://fog.ccsf.edu/~srubin/multi5.html>

You can also download a [free audio converter](http://www.freemake.com/free_audio_converter/).

5. For HTML5, the embed tag will not validate. You should use the audio tag or the object tag.