

Adobe GoLive and Adobe LiveMotion 1.0.2

# Adding sound to the Web

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The explosion of the highly compressed but high quality MP3 format, the advent of streaming audio, and attempts to integrate sound more tightly into Web site interfaces have all played a part in the ever-growing presence of sound on the Web. This technical guide provides an overview of digital audio and common audio file formats for the Web, demonstrates the tools that Adobe® GoLive™ and Adobe® LiveMotion™ 1.0.2 provide for integrating sound into your Web sites, and gives tips for using sound effectively on the Web.

## Digitizing sound

Most audio is analog and must be digitized in order to be played back on a computer. In simple terms, samples are taken at regular intervals from the waveform of the sound and the information is stored in binary format as a digital audio file. The higher the sampling rate and the greater the bit depth or resolution (the amount of information used to represent the waveform for each sample), the greater the digital sound's fidelity is to the original. Conversely, the greater the fidelity of the digital to the original sound, the larger the size of the audio file produced.

Audio formats for the Web use a variety of strategies for reducing file size and each has an impact on the quality of the sound. The following section describes common strategies for reducing audio file sizes.

## Audio compression

File compression is one strategy to reduce audio file size. Most audio compression schemes are lossy in style, which means they permanently remove data from a file in order to reduce file size. Early codec (compression/decompression) schemes suffered from a significant loss of sound quality. More recent compression schemes produce much smaller file sizes and retain greater fidelity to the original audio file by removing information beyond hearing range.

Another common strategy for reducing the file size of Web audio is to reduce the sample rate and the bit depth of the file. Many of the audio files found on the web are mono, rather than stereo, and have a low sampling rate. These strategies certainly help to reduce file size, however, the quality of the sound degrades as the file size is reduced.

## Audio formats

Until the advent of RealAudio, MP3, and other modern Web audio contenders, AU, AIFF, WAV, and MIDI files accounted for most of the sound heard on the Web. Many of the formats described below use some or all of three elements: intelligent compression schemes to reduce file sizes, a server to stream content, and a player (or plug-in) to allow playback on the end-user's computer.

Pseudo-streaming of files occurs when the file is cached to disk and can begin playing before the file has fully downloaded. True streaming, on the other hand, occurs when a part of the file is loaded into a buffer in the computer's memory and plays from there as it is streamed, without saving the file to the listener's computer at all.

The list of formats below is by no means an exhaustive survey of audio file formats used on the Internet. As with much else on the Web, there are many different solutions and competing technologies which have been developed to address the problems of file size and bandwidth.



**AU (or Sun/NeXT audio)**

A common compressed file format used for UNIX.

**AIFF (Audio Interchange File Format)**

A common audio format used for Mac OS. Because the format does not support any kind of compression, it tends to produce large files.

**MP3 (MPEG-1, Layer III)**

Uses a compression ratio capable of bringing file sizes down to approximately a megabyte a minute. MP3 uses a lossy compression scheme that removes information that is largely beyond the human hearing range. These techniques contribute to the near-CD audio quality that has made the MP3 format extremely popular. Adobe LiveMotion exports all sound using MP3 audio compression. With a suitable server/player combination (for example, Shoutcast/Winamp or QuickTime Streaming Server/QuickTime 4.0 Player), MP3 can also be streamed.

**MIDI (Musical Instrument Digital Interface)**

Not a recorded audio format at all. Rather than containing a digital representation of a sound, the file contains instructions which can be read by a computer's sound card and produce particular notes to be played by particular musical instruments. Because they do not contain digital audio information, MIDI files are tiny in comparison to standard audio files.

**QT (QuickTime)**

Movies can be created without a video channel and used as a sound format. QuickTime accepts different sample rates, bit depths, and beginning with version 3.0, was the first format to offer full functionality in Windows as well as Mac OS. QuickTime 4.0, which allows for considerable compression, supports streaming audio and video, while earlier versions support pseudo-streaming of files.

**RA (Real Audio)**

Supports streaming audio. RealAudio not only streams audio, but the production tools necessary for encoding files in the RealAudio format produce significant file size reductions. The latest versions of their server and player software are capable of handling multiple encodings of a single file, allowing different versions (and qualities) to be served up to the user depending upon the bandwidth they have available.

**RMF (Rich Music Format)**

Beatnik's audio file format is unusual in that it can contain recorded audio and MIDI sequences at the same time. File sizes are usually extremely small and the audio required for a Web site's interface can be downloaded in a single file. Beatnik's Player and JavaScript Music Object are required to play back RMF files. Beatnik's JavaScript library allows the Beatnik Player to be scripted in order to produce interactive audio on the page.

**SWA (Shockwave Audio)**

Produces high quality and small file sizes based, like MP3, on MPEG audio compression.

## SWF (Flash)

A binary, vector animation format with built-in sound capabilities. Sound can loop in the background of a SWF animation or be triggered by a particular frame or event. As a vector format, SWF files tend to be quite small, even when they contain sound, and are capable of streaming files.

## WAV (RIFF WAVE)

Developed by Microsoft and IBM and is the common audio file format used for Windows. WAV files may be compressed or uncompressed, but even when compressed are still comparatively large.

## WMA (Windows Media Audio)

Another new player in the field is Microsoft, whose Windows Media Technologies offers a suite of utilities for creating, serving up and viewing streamed multimedia, including high quality audio.




## Using sound in Adobe GoLive

You can use Adobe GoLive to link to a sound file or embed existing sounds. Linking to sound gives the user a choice whether to hear the sound or not whereas embedding sound does not always give the user a choice unless the audio plug-in used offers that control to the user. In addition, GoLive has Play Sound and Stop Sound JavaScript actions that you can use with embedded sound in your Web pages. For guidelines on using these actions refer to Adobe's Support Knowledgebase document [323946](#), "Using the Play Sound or Stop Sound Action in CyberStudio or GoLive."

### Linking to an audio file

You can link to any type of audio file, including RealAudio, MP3, and WAV files. Streaming formats will not stream when linked to in this way, but will download before playing, as non-streaming audio does.

You can create a link from text or an image in your page to an audio file using the following steps:




1. Open your Web page within GoLive and select the text or image that you want to serve as the link to your audio file.
2. Select the New Link button () on the GoLive toolbar.
3. Link to the URL of your audio file using one of the following methods:
  - If you are working within a GoLive site, drag the Point and Shoot button () in the Image Inspector's Link tab to the audio file (strongly recommended).
  - In the Image Inspector's Link tab, click the Browse button () to locate and select the audio file.
  - Type the URL for the audio file in the URL text box of the Link tab.
4. Preview your page in a browser that has the appropriate plug-in installed and select the link you just created.

When someone follows the link you created to your audio file, the browser will play the file using the plug-in or helper application associated with the file—if it is installed. Which plug-in or helper this will be, and how it will behave, is dependent on the computer platform being used, the browser and its version, and the way the browser is configured.

### Embedding an audio file and using the Plug-in Inspector options

An alternative approach for integrating sound is to embed a plug-in in the Web page. Embedded sound is supported by both Netscape and Internet Explorer versions later than 3.0.

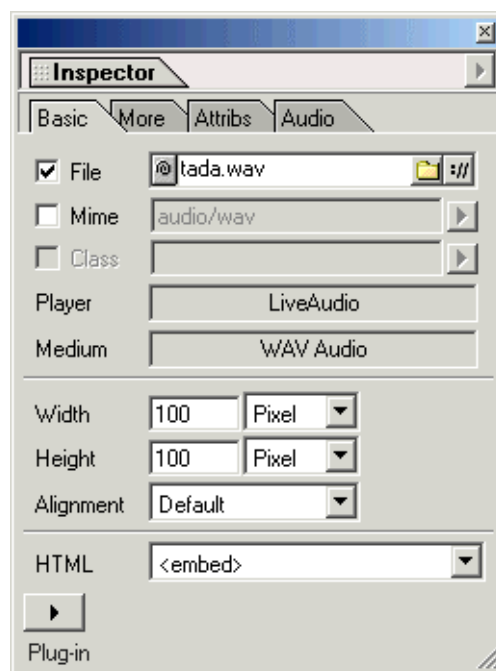
1. Open your Web page in GoLive. Make sure that the Objects palette (formerly called the Palette in GoLive 4.x) and Inspector are visible.

2. Drag a Plug-in icon  from the Basic tab of GoLive's Objects palette to your Web page.
3. Make sure that the plug-in is selected in the Web page, and then link to the URL of your audio file using one of the following methods:
  - If you are working within a GoLive site, drag the Point and Shoot button () in the Plug-in Inspector's Basic tab to the audio file (strongly recommended).
  - In the Plug-in Inspector's Basic tab, click the Browse button () to locate the audio file.
  - Type the URL for your sound file in the URL text box of the Basic tab.
4. Select the Mime option in the Basic tab.
5. Choose the appropriate Mime type from the Mime type pop-up menu located to the right of the Mime option. (You must have the plug-in installed in GoLive's Plug-ins folder for the associated mime type to appear in the Mime Type pop-up menu.) Optional attributes for GoLive's Plug-in Inspector are described later in this section.
6. Preview your page in a browser that has the appropriate plug-in installed.

What actually appears when the page opens again depends on the platform being used, the browser and its configuration, and the choice of attributes set when embedding the file in the first place. If the browser has a plug-in or application that can handle the audio file type it will display the plug-in's control interface within the web page, unless of course the embedded file was deliberately hidden by the Web designer.

The following are optional attributes you can apply to your audio file from within GoLive's Plug-in Inspector when embedding sound in a Web page.

## Basic tab



### Width and Height

Define the size of the plug-in's interface in pixels or percentage values. Percentage values resize the plug-in file relative to the browser window size and relative to the plug-in's space on the Web page.

**Hspace and Vspace (GoLive 4.x)**

Define the amount of horizontal and vertical blank space that will appear around the audio file in pixel values.

**Alignment**

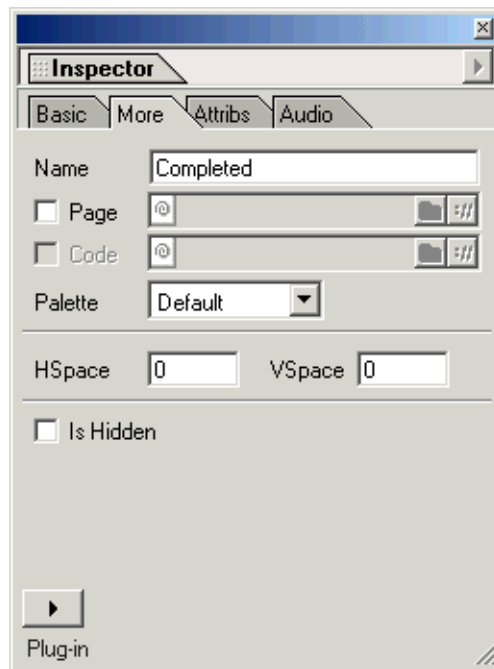
Defines the alignment of content surrounding the audio file relative to the audio file. This value works in the same manner as the Align value in the Image Inspector.

**Is Hidden (GoLive 4.x)**

Select this option if you want the audio controls to be hidden from view. Note that if you select this option and the user does not have the required plug-in, they will have no options to retrieve the plug-in.

**Play button**

Click to play the audio file while in the Layout view of your Web page. If you have the proper plug-in installed in GoLive's Plug-ins folder, the audio will play.

**More tab****Name text box**

Type a name for your audio file. If you are grouping sounds, the sounds in the group should share this value.

**Page**

Select this option and type a URL for a Web page where users can download the required plug-in for your audio file. If their browser does not have the required plug-in, they can select the plug-in icon on your Web page and the browser will take them to the URL you specified. Please note that if you selected the Is Hidden option (located in the Basic tab in GoLive 4.x), user's will not see the plug-in icon necessary to link to the plug-in's URL.

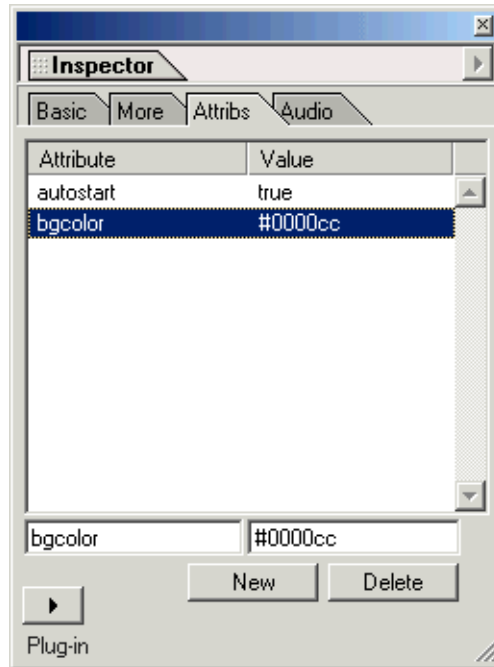
**Hspace and Vspace (GoLive 5)**

Define the amount of horizontal and vertical blank space that will appear around the audio file in pixel values.

**Is Hidden (GoLive 5)**

Select this option if you want the audio controls to be hidden from view. Note that if you select this option and the user does not have the required plug-in, they will have no options to retrieve the plug-in.

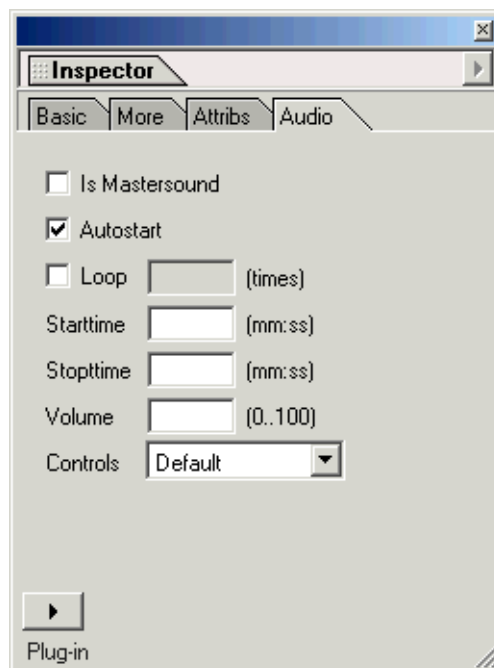
## Attribs tab



### Attributes and Values

Define attributes and values for the plug-in in the Attribs tab. Click New, define an attribute in the left text box located below the Attribute/Value list, and then define its value in the right text box.

### Audio tab ([Audio] may display as the name of the selected plug-in)



**Autostart**

Select to allow the audio to play as soon as the page begins to load.

**Loop**

When selecting this option, leave the Loop text box blank if you want the audio to loop continuously, or specify the number of times for it to loop.

**Starttime and Stoptime**

Define a certain point within the audio file to begin playing and a certain point to stop playing. Type the values using the minute:second:fraction-of-a-second format. For example, 00:15:25 is at a point 15 and 25/100 seconds into the audio file, 01:30:00 is 1 minute and 30 seconds into an audio file.

**Volume**

Selecting this option allows you to decrease the audio file's volume in percentage values.

**Streaming audio**

Linking and embedding are two basic methods of including sound on a page—streaming sound is not essentially different in this respect. A link or an embedded instance of a player application or plug-in must be placed in the page. In most streaming solutions, however, the link or URL for the embedded file does not point directly to the audio file itself but to a reference file, commonly called a meta file, that contains a URL (or URLs) for the file(s) to be streamed. The files called from the reference file then stream to the computer requesting them. Depending on how a file is to be streamed, specialized server software may be required to implement the stream, but in many cases it is possible to stream files from an ordinary Web server using the standard delivery protocol, HTTP (Hypertext Transfer Protocol). The specifics of how streaming needs to be implemented for the various streaming solutions competing for attention on the Web are beyond the scope this guide.

**Using sound in Adobe LiveMotion 1.0.2**

LiveMotion supports the import of most standard sound formats such as WAV, AIFF, and AU, but not MP3. All sounds imported into LiveMotion are then exported with the SWF (Flash) file format using MP3 compression, which can decrease the file size of other audio formats significantly. LiveMotion provides standard sound controls such as panning, fade in/fade out, and volume, as well as the ability to effortlessly link sounds to specific objects and their events, such as a mouse rollover.

You can use the library of AIF sounds from LiveMotion's Sound palette, installed with LiveMotion by default, or you can import supported sounds from your computer into LiveMotion.

**Adding sounds to compositions and to object states**

Sounds added to a composition will be visible in the composition's Timeline window and if the sound is associated with an object state it will also appear in the object's Rollover palette. If you want a sound to begin playing at a certain point in your animation, you should move the current-time marker to that point in the Timeline window before you add the sound. If wish to add the sound to the background of your presentation, make sure that no objects are selected before you add the sound to your composition. If you wish to add a sound to an object's state, such as a rollover button, select the appropriate object state in the object's rollover palette.

You can place sounds into an open LiveMotion composition using one of the following three methods:

- Select a sound in the Sounds palette and click the Apply Sound button.
- Place the sound file into your composition as you would place an image object:
  1. Choose File > Place.
  2. In the Place dialog box, locate and select the audio file, and then click Open.

- Drag the sound from its location on your computer into your open LiveMotion composition.

You can create a Play Sound button by simply attaching a sound to an object in the object's Rollover palette. Refer to “Attaching sounds to objects” in the “Making Objects Interactive” section of LiveMotion’s online Help. A Stop Sound button is just as easy to create using the Stop All Sounds behavior in LiveMotion, as described in “Creating other behaviors” in the “Working with behaviors” section of “Making Objects Interactive” in online Help.

## Sound properties and animation

If you want to have a sound loop continuously in the background during the presentation, you must first make the sound a Time Independent Group and then set the sound group to loop:

1. Add the sound to the composition using the steps described in the preceding section.
2. Select the sound in the Timeline window.
3. Choose Timeline > Make Time Independent Group. This will rename the sound Group of 1 objects in the Timeline window. If you want, you can rename the sound by pressing Enter on your keyboard and typing a new name.
4. Make sure that the sound is still selected, and then select the Loop button in the bottom left corner of the Timeline window.

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**Note:** If you are using LiveMotion 1.0 and want to have a sound loop continuously in the background, you must upgrade to LiveMotion 1.0.2 for sounds to loop seamlessly; otherwise, you may experience a gap of silence between loops.

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The Properties palette of a selected sound displays Pan and Volume controls. Because a sound placed into a LiveMotion composition retains its highest volume level by default, the volume can only be lowered from or raised to its original volume level. You would have use a sound editor to increase the volume of the sound beyond the range of the original sound file. The Pan property allows you to shift the sound signal to and from each of the listener's speakers.

You can animate the Pan and Volume sound properties in LiveMotion's Timeline window. For instructions on animating the properties of sound, refer to “Working with sound” in the “Animating Objects” section of LiveMotion’s online Help.

## Exporting sound settings

When you're ready to export a composition that contains sound, you can define settings in the Export palette that will affect the quality of the sound and the SWF file size.

1. Select a sound in the Timeline window.
2. To open the Export palette, choose Window > Export. Make sure that the SWF export format is selected in the Format pop-up menu, and then choose one of the following:
  - If you want to apply global sound settings that will affect all sounds within the composition, choose Document from the pop-up menu in the lower left corner of the palette.
  - If you want to apply different export settings for individual sounds, choose Object from the pop-up menu in the lower left corner of the palette, and then click the Create Object Settings button.
3. Select a bit rate from MP3 Compression Settings pop-up menu.
  - Auto Data Rate allows LiveMotion to determine the best bit rate for your sound.

- 16 kbps has the highest compression and lowest quality, whereas 160 kbps has the highest quality but potentially creates a larger file.
4. Click the Convert Stereo Sounds to Mono button if the audio file has stereo sound and you wish to convert it to Mono and perhaps reduce the file size.

If you are defining individual export settings for each sound, repeat these steps for each sound in the Timeline window.

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**Note:** Be certain to listen to your sound after exporting to a SWF file in order to hear the true quality of sound as the user will hear it. LiveMotion's preview mode plays an uncompressed audio file that may sound superior to the compressed audio created on export.

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