

**Sound and Video**

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**Topics**

- Sound
  - Timeline
  - ActionScript
  - Sound Design for Instruction
- Video
  - FLVPlayback Component
  - Adobe Media Encoder

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**Sound design (Bishop & Cates, 2001)**

- Music
  - Set mood/control pacing
  - Keep short
- Narration
  - Text <= narration
- Environmental sounds
  - Inverse length relationships
  - First person (immersion)
  - Feel free to exaggerate

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## Sound design (cont.)

- Referential sound
  - Metaphor reinforcement
  - Feedback/consistency (audio syntax)
- Learner control
  - On/off
  - Replay

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## Sound formats supported by Flash

| Type                     | PC | Mac |
|--------------------------|----|-----|
| .mp3                     | x  | x   |
| .wav*                    | x  | x   |
| .aiff*                   | x  | x   |
| .au                      | x  | x   |
| .midi                    |    |     |
| .qta or .mov (quicktime) | x  | x   |

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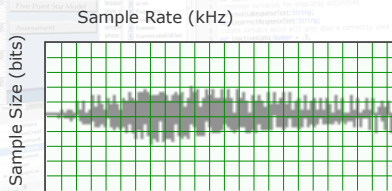
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## Impacts on file size



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## Sound compression in Flash

| Compression | Use  |
|-------------|--|
| ADPCM       | Good for short sound effects (correct/incorrect response, button clicks, etc . . . ) |
| MP3         | Ideal for music, best general purpose choice   |
| Speech      | Great for voice only   |
| RAW         | No compression = huge file sizes, but best quality                                   |

Adapted from CS5 help file

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## Issues with sound

- Action Script is preferred control mechanism.
- Event vs. Stream

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## Sound in the timeline

- Effects (mostly custom effects)
- Export settings/compression (true of sounds in timeline or sounds controlled with actionscript)

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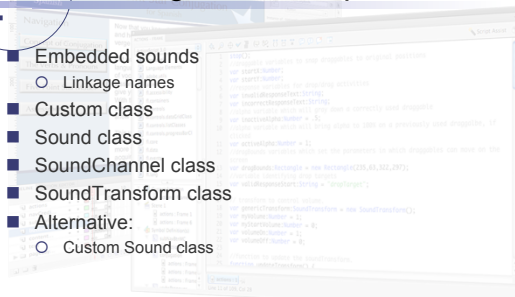
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## Sound using ActionScript 3.0

- Embedded sounds
  - Linkage names
- Custom class
- Sound class
- SoundChannel class
- SoundTransform class
- Alternative:
  - Custom Sound class




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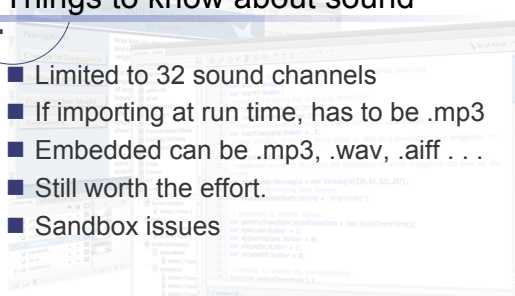
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## Things to know about sound

- Limited to 32 sound channels
- If importing at run time, has to be .mp3
- Embedded can be .mp3, .wav, .aiff . . .
- Still worth the effort.
- Sandbox issues




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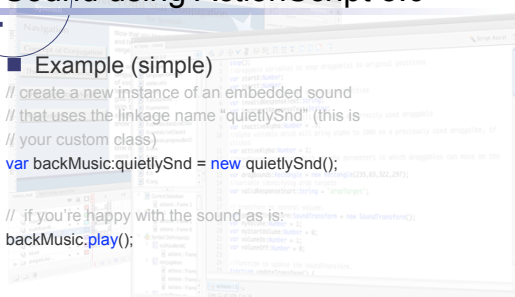
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## Sound using ActionScript 3.0

- Example (simple)
 

```
// create a new instance of an embedded sound
// that uses the linkage name "quietlySnd" (this is
// your custom class)
var backMusic:quietlySnd = new quietlySnd();

// if you're happy with the sound as is:
backMusic.play();
```




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## Sound using ActionScript 3.0

- Example (if you need to tweak things)

```

var quietlySound:quietlySnd = new quietlySnd();

// associate the sound with a sound channel, tell it to play:
var quietlyChannel:SoundChannel = quietlySound.play();

// associate that sound channel with a SoundTransform.
var quietlyTransform:SoundTransform = new SoundTransform();

// update things like the volume with that sound transform:
quietlyTransform.volume = .5;

// apply the sound transform to the channel.
quietlyChannel.soundTransform = quietlyTransform;

```

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## Sound object (linkage name)

- Example (if you need to tweak things)

```

var quietlySound:quietlySnd = new quietlySnd();

// associate the sound with a sound channel, tell it to play:
var quietlyChannel:SoundChannel = quietlySound.play();

// associate that sound channel with a SoundTransform.
var quietlyTransform:SoundTransform = new SoundTransform();

// update things like the volume with that sound transform:
quietlyTransform.volume = .5;

// apply the sound transform to the channel.
quietlyChannel.soundTransform = quietlyTransform;

```

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## Sound object instance

- Example (if you need to tweak things)

```

var quietlySound:quietlySnd = new quietlySnd();

// associate the sound with a sound channel, tell it to play:
var quietlyChannel:SoundChannel = quietlySound.play();

// associate that sound channel with a SoundTransform.
var quietlyTransform:SoundTransform = new SoundTransform();

// update things like the volume with that sound transform:
quietlyTransform.volume = .5;

// apply the sound transform to the channel.
quietlyChannel.soundTransform = quietlyTransform;

```

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## Sound Channel instance

- Example (if you need to tweak things)

```

var quietlySound:quietlySnd = new quietlySnd();

// associate the sound with a sound channel, tell it to play:
var quietlyChannel:SoundChannel = quietlySound.play();

// associate that sound channel with a SoundTransform.
var quietlyTransform:SoundTransform = new SoundTransform();

// update things like the volume with that sound transform:
quietlyTransform.volume = .5;

// apply the sound transform to the channel.
quietlyChannel.soundTransform = quietlyTransform;

```

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## Sound Transform instance

- Example (if you need to tweak things)

```

var quietlySound:quietlySnd = new quietlySnd();

// associate the sound with a sound channel, tell it to play:
var quietlyChannel:SoundChannel = quietlySound.play();

// associate that sound channel with a SoundTransform.
var quietlyTransform:SoundTransform = new SoundTransform();

// update things like the volume with that sound transform:
quietlyTransform.volume = .5;

// apply the sound transform to the channel.
quietlyChannel.soundTransform = quietlyTransform;

```

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## Supported Video

| File type                      | Extension   | PC | MAC |
|--------------------------------|-------------|----|-----|
| Active Streaming Format        | .asf        | *  | ?   |
| Audio Video Interleaved        | .avi        | *  | *   |
| Digital Video                  | .dv         | *  | *   |
| Motion Picture Experts Group   | .mpg, .mpeg | *  | *   |
| Motion Picture Experts Group 4 | .mpg4       | *  | ?   |
| QuickTime Video                | .mov        | *  | *   |
| Windows Media                  | .wmv        | *  | ?   |

Adapted from CS5 help file

-Direct X 9.0  
-Quicktime 7 (mac), Quicktime 6.5 (pc)

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## Video

- Live stream
- Flash Communication Server
- .FLV/.F4V (external/internal)
- Factors that affect video size
  - Frames per second
  - Picture quality
  - Dimensions (height/width)
  - Compression Algorithm

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## Video compression in Flash

| File | Compression    | Use   |
|------|----------------|---|
| .FLV | Sorenson Spark | Slower end user machines                                  |
|      | On2 VP6        | Faster end user machines (results in smaller files sizes) |
| .F4V | H.264          | Spectrum, "HD", Flash 9 required                          |

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## Video and Sound

- FLV component plays and persists (audio)
- Sound Channels play until stopped
- Work around
  - `import flash.media.SoundMixer;`
  - `SoundMixer.stopAll();`
  - Timeline controlled sounds are bad for you ("ghost sound"/bug).

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