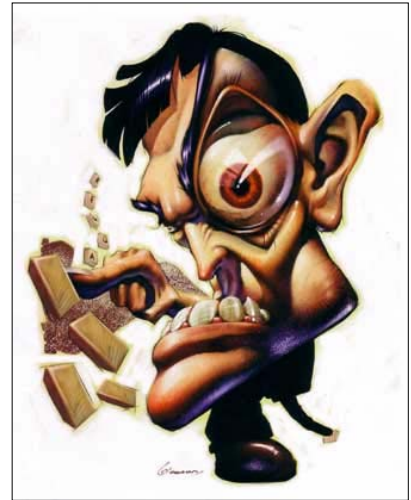


CGT 353: Principles of Interactive and Dynamic Media Integration, Distribution, and Optimization

Introduction:

- Know how to draw, animate, and code in Flash is only half the battle...
- The difference between the huge, choppy Flash movies we see on the Internet is most often the result of people who don't know how to properly publish their files.
- Flash provides many features to assist you with these efforts...

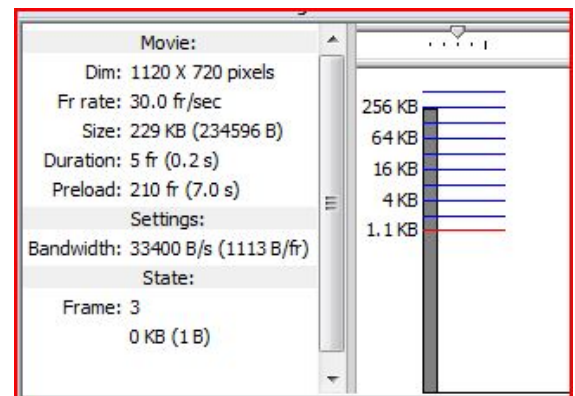


Test, Test, Test:

- Testing is vital and is expected in this class.
- **Concurrent testing** takes place throughout project development.
- **Compatibility testing** is done once the project is completed to "trial run" it on various technologies.

Testing in Flash:

- **The Bandwidth Profiler** is the predominant feature along with the features in the control menu.
- Enable Frame Actions and Enable Simple Buttons will be toggled the most often.
- When you publish an .swf file, you are publishing a "shockwave flash" movie that is a scaled down version of the fla file.



Distribution - Ways to Publish a file:

- As an .swf to play in the standalone Flash player.
- As an s.wf to play back in a Web browser
- A standalone projector file (.exe)
- A QuickTime movie (.mov)
- An AIR application (more on this later.)

Note: Publishing for the standalone Flash player assumes that the audience has the Flash player installed....

Creating Projectors:

- Best for large standalone apps like CDs/ DVDs....
- Doing so converts the swf into an executable (.exe) that can run on any computer regardless of whether or not they have the Flash player...
- Not cross-platform compatible, so you will have to specify which type of projector you want to create.
- Anti-virus and other types of protection software have limited the use of this type of format.



QuickTime:

- QuickTime 6 was downloaded more than 350 million times.
- 98% of those downloads were from PC users, at a rate of over 10 million per month.
- 25,000 per day for QuickTime 7...
- Does much more than just video
www.apple.com/quicktime/whyqt



Web Delivery:

- Can utilize hand-written HTML or the HTML in Flash publish feature

SWF vs. FLA:

- During the conversion, Flash removes extra data the .swf doesn't need...
- Sound and bitmap compression is then applied...

- .swf files can be protected so end users cannot "borrow" them

Export Movie, Export Image: publish in even more formats

Using Publish Settings:

Note: Unchecking "Use default names" will allow you to rename your files differently than your fla

Player Version – which player the movie can run in....

ActionScript Version - for saving as older versions of Flash, especially useful for integration with other programs like Director and older Web browsers.

Images and Sounds - (covered in previous lectures on audio and video)

SWF Settings:

Compress Movie - gives you the choice of compressing the vector elements...

Include hidden layers

Include XMP metadata

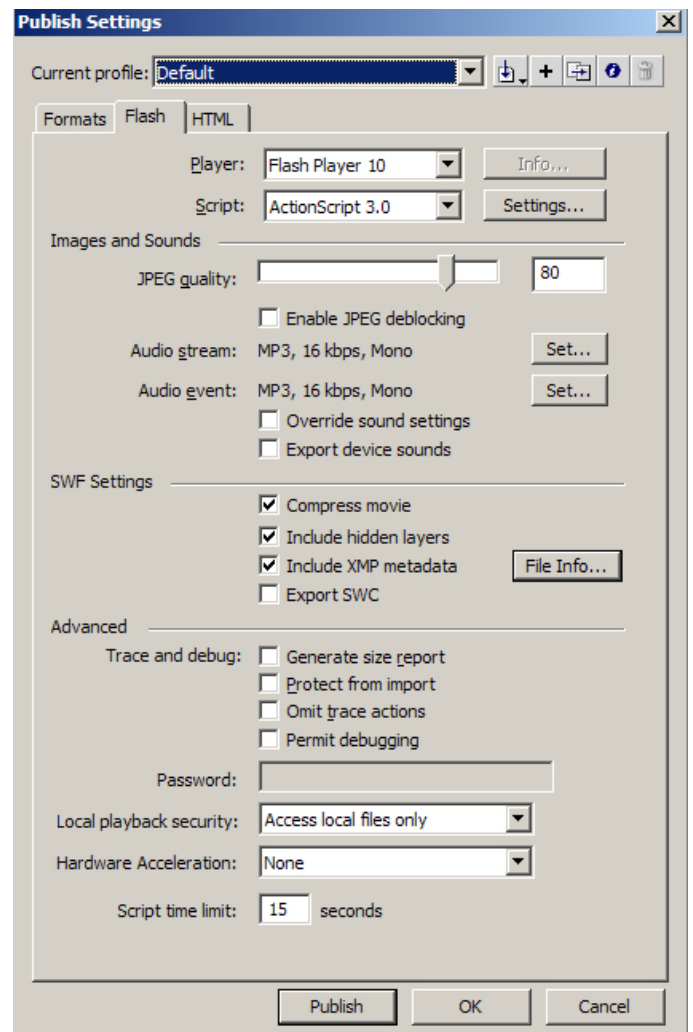
Export SWC - component compilation of the components.

Advanced Settings:

File Info: allows you to embed metadata using Adobe's Extensible Metadata Platform (XMP), a labeling technology

Generate Size Report - generates a text file that provides file object size details.

Protect From Import - prevents swf files from being loaded back into Flash and creates a password that will allow people with access to be able to retrieve the file.



Omit Trace Actions - should generally leave checked when publishing your files

Permit Debugging - allows user to debug the movie within the browser

Other Features:

- One to remember is **script time limit.....**

Exporting Images:

- Flash provides the ability to save in multiple static formats - bitmap, PICT, JPEG, GIF, AND PNG...
- Vector files can be a pain in the butt...

Cross Platform Issues:

- .swf format was designed to be **platform independent.**
- Native .fla files are also platform independent, but fonts can give you problems.
- Even if the font is on another machine, you will still have variations in size, kerning, letter spacing, and other type attributes...
- Remember some external media formats are platform dependent, like wav and aif files...
- **NOTE:** An .swf file created on PC will only play on a PC in the standalone player!!!
- Can create projectors for both platforms...



Integration vs. Optimization:

- Two ways to integrate with an HTML file: either create the HTML file by hand or use the Publish feature in Flash...
- Often better to do it manually...

The HTML Tab:

Dimensions - used to define the height and width attributes of your Flash movie in pixels or percentages. If browser is smaller than movie size, user will have to scroll.

Quality - can reduce complexity of movie to improve performance

Auto high - visual quality sacrificed for speed, starts with antialias on, turn off if playback degrades

Auto low - starts with antialiasing off, will turn it on if conditions are good

High - favors appearance, antialiasing always on

Medium - antialiases objects but not text

Low - antialiasing always off

Best - chooses from other settings based on initial performance

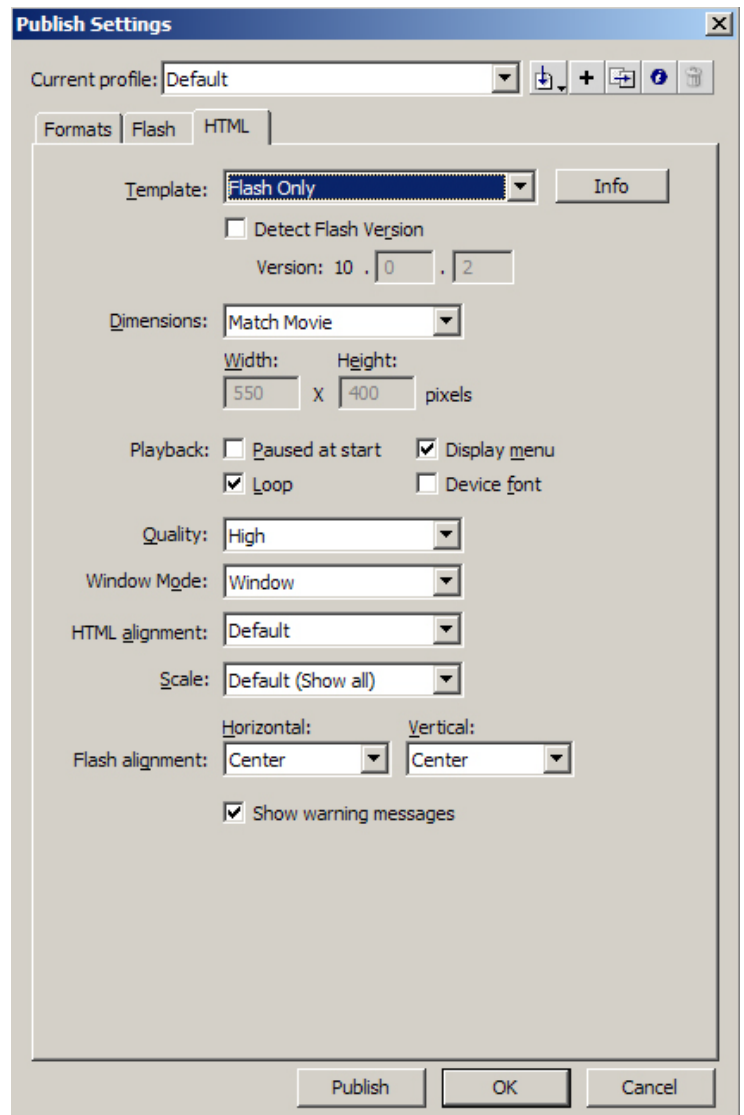
Window Mode:

Only applies to movies in Internet Explorer:

Default - normal

Opaque Windowless - allows you to put elements behind Shockwave movies

Transparent Windowless - allows elements to be put behind movie and allows them to show through.



HTML Alignment – controls the alignment of other elements on the page in relation to the Flash movie.

Scale – controls how the movie will fit into the framed area specified in “Dimensions”

- Default is “**Show All**”, which may leave HTML space left over if the aspect ratio of the movie is different than the framed area
- “**No Border**” scales the .swf to fill the area and may crop the movie with the frame if differing aspect ratios
- “**Exact Fit**” scaled the movie to fit the frame (usually a bad idea)..because it can cause distortion.....

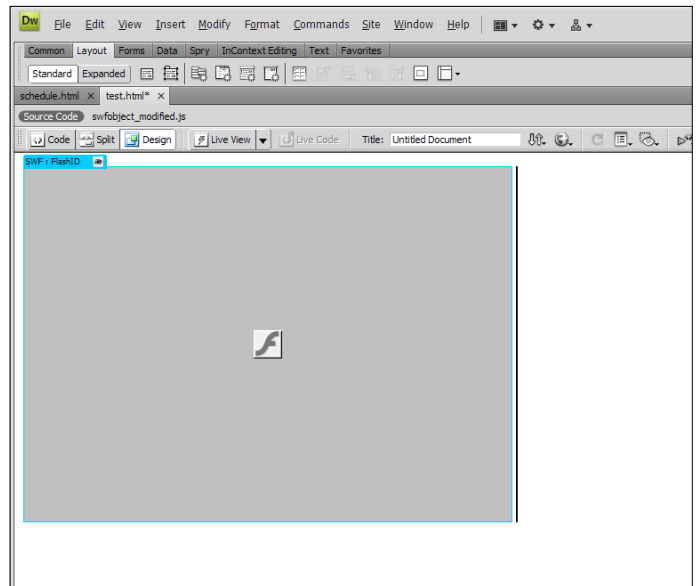
Flash Alignment – allows developers to control movie alignment when movie doesn’t fill the frame – aligns within the frame, not the browser window

Show Warning Messages – indicates any problems during publishing...

Embedding Flash in HTML:

Writing HTML:

- Should know how to embed a Flash movie without using the Publish feature or an authoring tool like Dreamweaver...
- Previously, two primary HTML tags to use were **<EMBED>** (for Mozilla) and **<OBJECT>** (for Internet Explorer) ...
- If coding by hand, always nested the tags...
- **<EMBED>** forced the browser to use a plug-in, where **<OBJECT>** forced the use of an ActiveX control...
- Both plug-ins and ActiveX controls are designed to extend HTML capabilities...
- Plug-ins are basically additions to the browser, whereas ActiveX controls are additions to the Windows Operating system...



- However, **changes to browsers have made this a pain in the rump.....**
- **Dreamweaver demo.....**

The <OBJECT> Tag:

classid attribute – the unique ActiveX identification code (necessary)

codebase attribute – specifies the location of the ActiveX control installer (.cab file)

Dealing with Problematic Elements:

- Again, test, test, test....
- Test on different:
 - Operating systems
 - Browsers
 - Monitors
 - Video Cards
 - Processors
 - Other hardware
- Flash is NOT a true **streaming multimedia technology** like Real Player...
- Instead, it is more accurately described as a **progressive download technology...**
- Falls under this classification because although individual frames are “streamed”, NO frame can play unless it has fully downloaded...



Best Practices - File Size Report and Bandwidth Profiling:

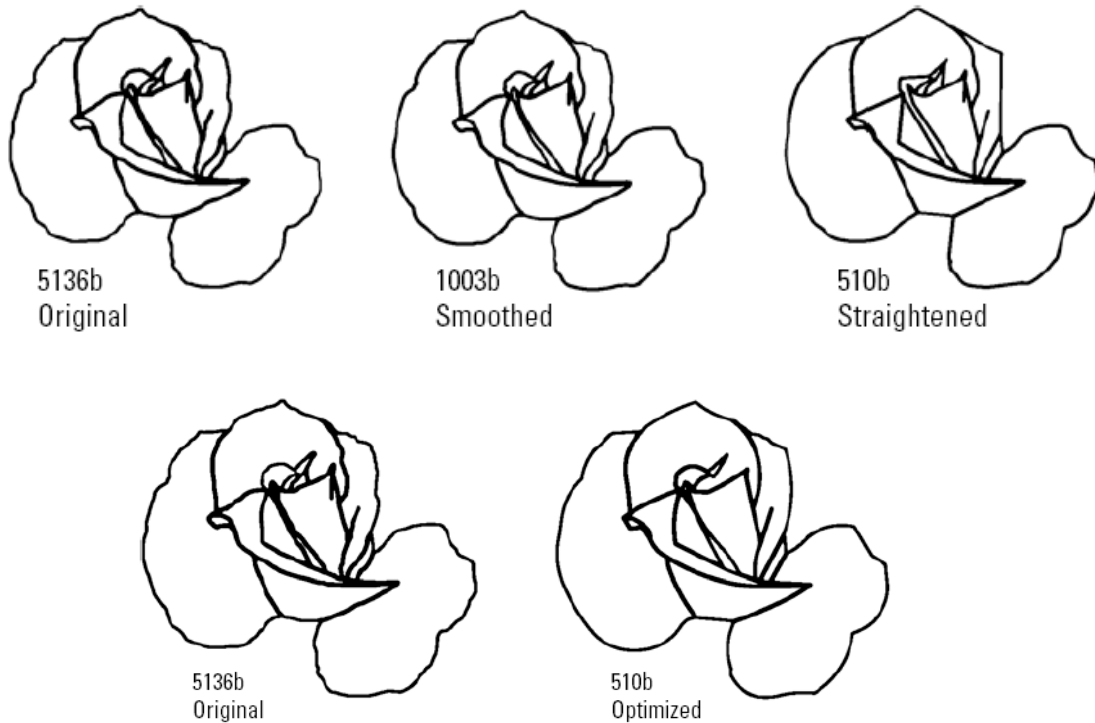
- Looked at **File Size Report** last time, which helps to analyze your movie for any “spikes” that could interfere with playback.
- The **Bandwidth Profiler** allows you to view “real-time” download rates (although it is by no means perfect.)

- The “show streaming” option allows you to view a graphic displaying the amount of data required over time.
- Select a different data rate in the Debug menu to simulate different connection speeds.
- **Rule of Thumb:** Never let the playback head catch up to the green bar, as it represents a pause in the playback



Best Practices - Transmitting Data:

- It is important to make sure that **all of your graphics are created as symbols (mostly movie clips.)**
- As a symbol, the graphic data is transmitted only once in the first frame of its use.
- All other instances in the data stream are only **pointers**, which are very small.
- Every time a graphic is used, the same data is downloaded multiple times.
- The way sound is transmitted is primarily controlled by the **event and streaming** settings.
- If the Flash player cannot play animation as quickly as the sound plays, it will drop animation frames, producing a choppy effect.
- Know that multiple, simultaneously playing sounds will slow playback.
- Keep the frame rate minimized because a high frame rate means that more frames per second need to be compiled and transmitted.
- **Alpha effects** and **transparent images** can also be problematic.
- Utilize **smooth, straighten,** and **optimize tools** as much as possible.



Best Practices - Optimizing Sounds:

1. Import the best quality possible, export the lowest quality possible.
2. Keep sounds short as you can.
3. Few sounds as possible.
4. Use appropriate compression (not always mp3...)
5. Use low bit-depth and sample rate...
6. Reuse sounds as much as possible
7. Never set streaming sounds to loop – info downloaded multiple times

Best Practices - General Optimization:

- Flash developers (in fact Web developers in general) need to become minimalists.
- Obviously... keep the **number and size of video, sounds, fonts, bitmaps, and vector images as small as possible.**

- **Load assets** whenever you can (discussed with ActionScript).
- **Use preloaders** whenever you can.
- Use as **few keyframes** and **embedded fonts** as possible.
- **Use shared libraries** whenever possible...
- When you can, **use tweens instead of frame-by-frame animation, and scripting in place of tweening...**
- **Avoid animating bitmaps...**
- Keep the animated area as small as possible...