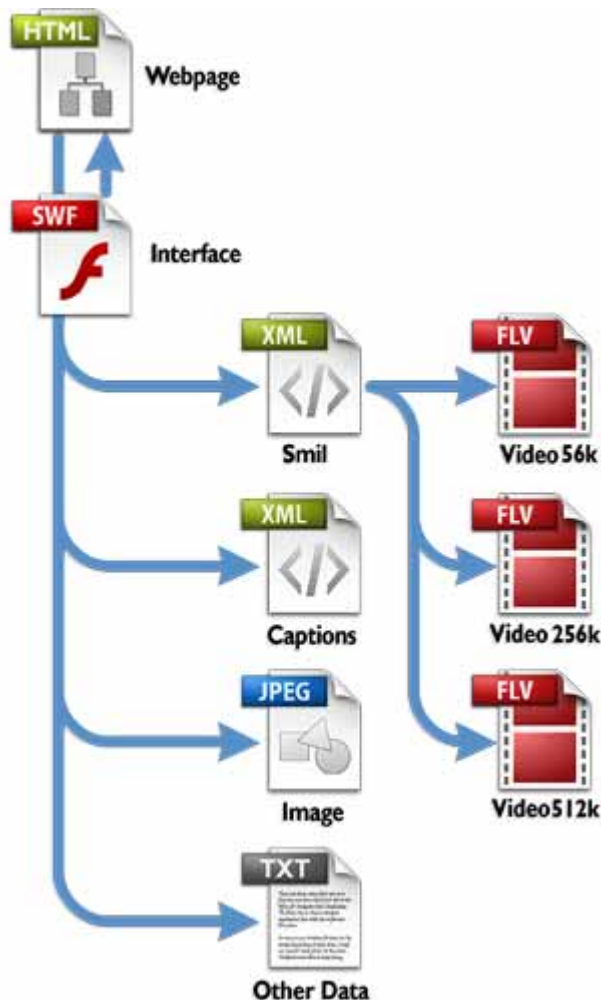


Requirements:

Accessibility describes the degree to which a system can be used by the population. To create an accessible video interface, we must consider the needs of our entire audience. This includes individuals with visual, auditory or mobility impairments. Our interface will need to provide alternatives for both the content and the video playback control.

Gather the Pieces:

Video on the web is often directly embedded into a static interface. Using a hierarchical structure allows us to more easily provide alternative content. This structure also incorporates a reusable interface that helps to make the entire system more maintainable.



Webpage

Each webpage includes the same interface file (swf). Variables are sent to the interface, indicating the location of the video file(s), captions, poster image and other data.

Interface

The video interface is created in Flash utilizing ActionScript 3. This lets us take advantage of the newer FLVPlayback components. At runtime, the interface uses the provided variables to select the correct files.

Video and Smil

A single video needs to be compressed into several flash video (flv) files, each optimized for a different bandwidth. An XML “smil” file specifies the correct video file to serve at each bandwidth level.

Captions

The interface expects captions to be in the “Distributed Format Exchange Profile” XML format. The National Center for Accessible Media maintains a free captioning tool called Magpie that exports to this format.

Image

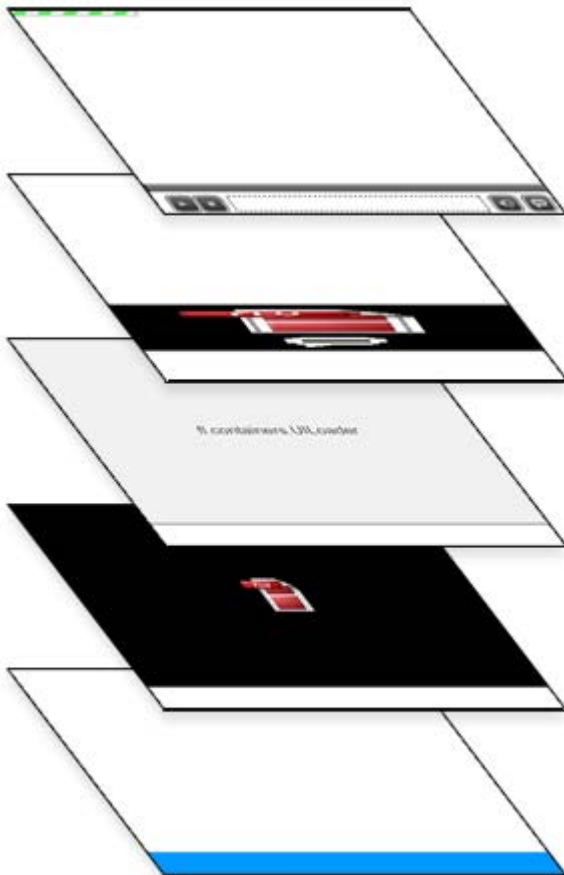
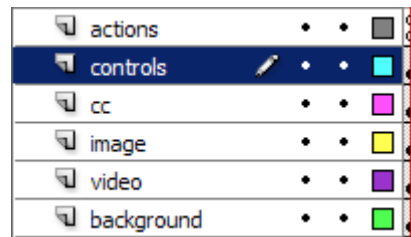
An image acts as a poster frame for the interface while the video file is being downloaded. It is also used to estimate the correct bandwidth setting.

Other data

Additional data can be sent to the interface using plain-text variables. For our sample interface we will simply pass in a title for the video.

Construct the Interface:

In flash there are many ways to build a video player. We will use a combination of pre-made components and coding. Components are placed on layers of the stage and can be visually customized. ActionScript is used to modify the behavior of the interface.



Controls

Users directly interact with the video controls via a mouse or keyboard. Place them near the top. Each control component can be visually customized.

Captions (cc)

Also place the FLVPlaybackCaptioning component near the top. This ensures that they are not covered by another component.

Image

The image is included using a UILoader component. The length of time it takes to download the image will be used to estimate the user's bandwidth.

Video

Video is included using the FLVPlayback component. The "source" parameter accepts a single .flv or a .smil.xml. However, it will be set using ActionScript, so leave it blank for now.

Background

This is a blank canvas. You can customize the background to match to look and feel of your website.

ActionScript

The very top layer is reserved for ActionScript. The code first tries to import a set of expected variables. It then proceeds depending on which variables were available:

| | | |
|-------------------------------------|-------|--|
| If: No video file specified | then: | Display an error. |
| If: Video, but no image file | then: | Can't check the bandwidth. Show lowest quality. |
| If: Video and Image | then: | Calculate bandwidth. Show compatible video. |

The ActionScript also enhances the components and accessibility of the interface. When a component is placed on the stage, you can use the "accessibility" panel to specify a keyboard shortcut. However, this only adds hints for a screen reader to pick up. It is up to you to program each access key combination.

Download the Source:

The sample files, source code and more are available at www.gabrielmcgovern.com