

AcroTeX.Net

## AcroTeX PDF Blog

### Scale Modes

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The source files for this AcroTeX PDF Blog are attached to this PDF, and can be saved by clicking [this link](#). The source files are in ZIP format, when you save the file, change the name from `blog2.zip.txt` to `blog2.zip`. (Acrobat does not allow attachments with a `.zip` extension, so we must fool Mr. Acrobat.)

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## 1. Introduction

Before getting into the more interesting topics of how to write a SWF application, and the use of the scripting bridge to pass information between Acrobat (Adobe Reader) and the SWF widget, we take up a more mundane topic of the study of the scale mode of the SWF. This article expands on *How Do You Create SWF files for Acrobat 9 Using Flex?*,<sup>1</sup> found on Joel Geraci's **The PDF Developer Junkie Blog**.<sup>2</sup>

The scale mode affects how the SWF file is fit into the allotted rectangular region defined by the rich media annotation. As Geraci notes in his article, when the SWF is created by Adobe Flash CS3, the scaling of the SWF is not an issue; however, when the SWF is authored by Adobe FLEX 3, it is important to set the appropriate scale mode.

There are four scale modes, as listed in the **Flex documentation**:<sup>3</sup>

- `StageScaleMode.SHOW_ALL`: Specifies that the entire Flash application be visible in the specified area without distortion while maintaining the original aspect ratio of the application. Borders can appear on two sides of the application.
- `StageScaleMode.EXACT_FIT` Specifies that the entire Adobe® Flash® application be visible in the specified area without trying to preserve the original aspect ratio. Distortion can occur.
- `StageScaleMode.NO_BORDER`: Specifies that the entire Flash application fill the specified area, without distortion but possibly with some cropping, while maintaining the original aspect ratio of the application.
- `StageScaleMode.NO_SCALE`: The entire Flash application is fixed, so that it remains unchanged even as the size of the player window changes. Cropping might occur if the player window is smaller than the content.

Within the FLEX source file (.mxml), the scale mode is set when the application is activated:

```
applicationComplete="stage.scaleMode = StageScaleMode.EXACT_FIT;"
```

See the source file, `scaleMode1.mxml`, attached to this PDF file. The scale mode can be reset using ActionScript, as `scaleMode1.mxml` (`scaleMode1.swf`) demonstrates.

Subsequent pages in the PDF Blog illustrate the various scale mode settings under different conditions.

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<sup>1</sup>[http://blogs.adobe.com/pdfdevjunkie/2008/09/how\\_do\\_you\\_create\\_swf\\_files\\_fo.html](http://blogs.adobe.com/pdfdevjunkie/2008/09/how_do_you_create_swf_files_fo.html)

<sup>2</sup><http://blogs.adobe.com/pdfdevjunkie/>

<sup>3</sup><http://livedocs.adobe.com/flex/3/langref/flash/display/Stage.html#scaleMode>

## 2. Commentary on Various Scale Modes

The page to the left shows the three instances of the `scaleMode1.swf` widget. The widget simply shows a picture of the author of this PDF Blog.<sup>4</sup>

The following is a description of the three rich media annotations to the left:

- **Caption 1:** This annotation is wider than the widget. To reproduce this with the user interface, use Flash tool to marquee select a wide rectangle, select `scaleMode1.swf`, then uncheck the option `Snap to content proportions`.
- **Caption 2:** This annotation has the same aspect ration as the widget and is what you get when you select the option `Snap to content proportions`.
- **Caption 3:** This annotation, similar to `Caption 1`, but is higher than the widget.

Each widget is set initially to `EXACT_FIT`. Clicking the button in the upper-left corner cycles the widget through the four scale modes in the order `EXACT_FIT`, `SHOW_ALL`, `NO_BORDER`, and `NO_SCALE`.

`EXACT_FIT` distorts the image and the button for `Captions 1` and `2`. For `Caption 2`, there is no distortion.

In all three captions, `SHOW_ALL` fits the entire image in the annotation without distortion.

For `NO_BORDER`, the widget is scaled without distortion to fill the entire rectangle of the rich media annotation. In all three cases, the image is set into the upper left corner. For `Caption 1`, where the width is too large in proportion to the height, the image is scaled to fit the width, and its height is cropped at the bottom. For `Caption 3`, where the height is too large in proportion to the width, the image is scaled to fit the height, and its width is cropped to the right.

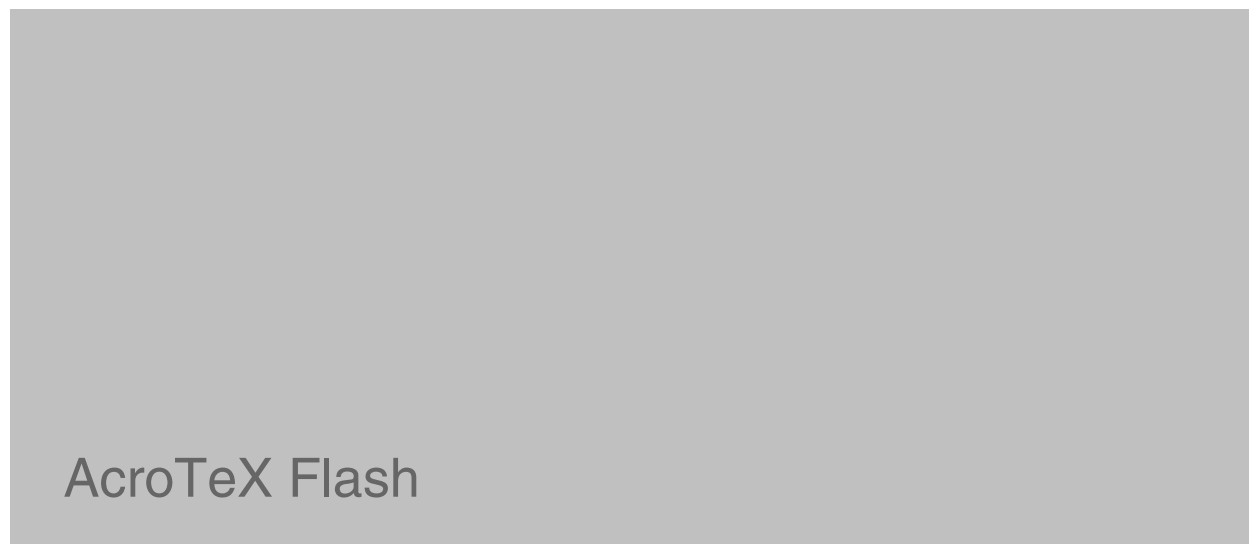
The `NO_SCALE` is a problem child, and is the default scaling of a SWF file produced by FLEX 3. To see the problem, experiment by putting one of the widgets on **noScale**, and place the other two on **showAll** or **exactFit**. Now, decrease the magnification of the page. The button of the widget that is set on **noScale** and the image are not rescaled, but the bounding annotation is rescaled smaller. As a result, the button fills more and more of the annotation, and less and less is seen of the image. Considering the page magnification is under the control of the user, this is not good.

Printing is another reason for not using the default scale mode, `NO_SCALE`. When you print a page containing a SWF widget set to `NO_SCALE`, the widget is rescaled unexpectedly. I've printed the next page using the Adobe PDF printer, the result is a PDF that shows how the next page would be printed when one or more of the widgets are set on `NO_SCALE`. [Click here](#) to view this printed page.

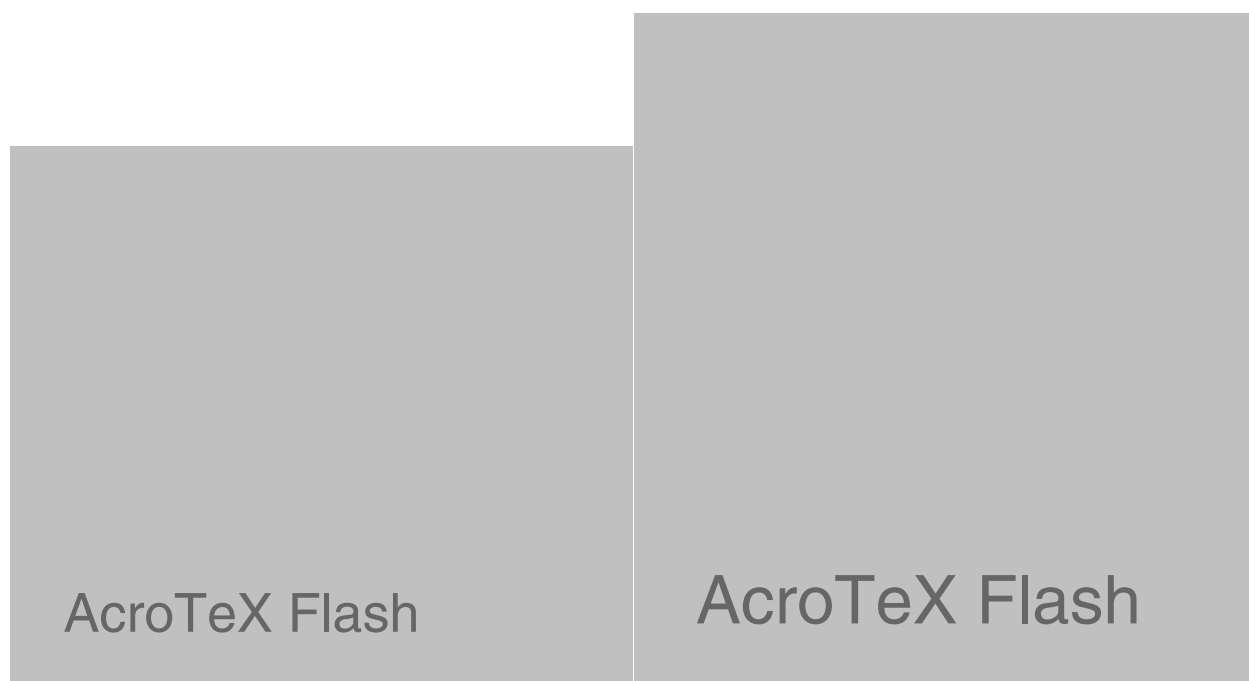
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<sup>4</sup>This is the greatest picture taken of me in the history of the world, normally, I don't take good pictures.

### 3. Exploring Scale Mode on Page



Caption 1



Caption 2

Caption 3

#### 4. Exploring Scale Mode in Floating Window



When the rich media annotation is set to be displayed in a floating window, there is some distinction between the various scale modes. Click on the rich media annotation icon at the beginning of this paragraph, explore the different modes. Play with changing the size and aspect ratio of the floating window; change width, not height, then change height, then width.

#### 5. Final Comments

My final recommendations for what scale mode to use depends on the Playback Style of the Launch Settings tab of the Edit Flash dialog box.

- **Play content on page:** In this case, I would follow Joel Geraci's advice to use `EXACT_FIT` scale mode, when the rich media annotation is created using the Snap to content proportions option of the Insert Flash dialog box. When Snap to content proportions option is not used, for whatever reason, there may be distortion of images or any UI components of the widget; in this case, the use of `SHOW_ALL` might be preferred.
- **Play content in floating window:** The choice of `EXACT_FIT` or `SHOW_ALL` depends on whether the user wants to resize the window, and whether distortion of the widget is acceptable. When the widget contains UI components and graphical images that may be distorted, using `SHOW_ALL` is the better choice. For a widget, such as a chart (a graph), with no UI components, such as buttons, `EXACT_FIT` might be the better choice; in this case, the user can resize the chart to extend the horizontal or vertical axis as desired. For an example of a chart, the article [This article expands on \*How Do You Create SWF files for Acrobat 9 Using Flex?\*](#) referenced earlier contains a PDF with two charts in it, one with `NO_SCALE` scale mode, and the other with `EXACT_FIT`. The `SHOW_ALL` would work in that PDF as well, and be preferred if the widget is set to play in a floating window.

Now, I simply must get back to my retirement. ☹