Video Compression from QuickTime to .flv

Tips from the MediaStorm Workflow

by Eric Maierson

Compression Workflow: From Quicktime .mov to .flv

MediaStorm's compression workflow begins by outputting a completed project from Final Cut Pro.

See our document *Producing in Final Cut* for a detailed explanation of this process.

Once your Final Cut project has been exported, highlight the file's icon in the Finder. Then click command-I to open the file's info window. Towards the bottom of the window, under the "Open With" drop-down menu, change Final Cut Pro to QuickTime Player. Note that file's icon has changed. Now, when you double click it, the project opens in QuickTime.

Flattening QuickTime Headers

Next you will need to flatten the file. Simply put, flattening the file makes it more compatible with other operating systems.

If you haven't already, double click your file so that it opens in QuickTime Player.

Under the "File" menu select "Save As..."

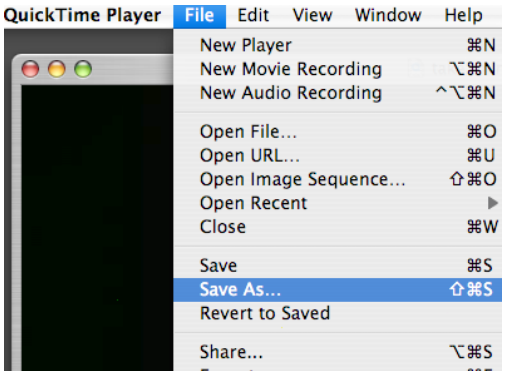

Figure 1.1: Quicktime Save As Menu

Name your file accordingly. Most importantly, make sure to select the "Save as a self-contained movie" radio button. Saving as a self-contained movie ensures that your file is flattened.

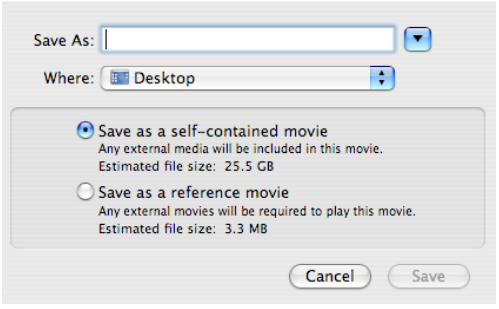

Figure 1.2: Quicktime Save As Options

Using Squeeze to encode .flv

Next, you will need to convert the flattened QuickTime file to a .flv format for use on the web. MediaStorm uses Sorensen Squeeze for this task (http://www.sorensonmedia.com).

Note: If you are using a Mac Pro, or any other Intel-based Macs, do yourself a favor and purchase the Intel version of Squeeze 4.5 or higher. Additionally, when purchasing Squeeze, make sure to purchase the On2 VP6 plugin. The On2 VP6 plugin is at the core of a good encode.

The extra cost of the upgrade is more than made up for by the time saved. Also, make sure you have the latest update from Sorenson Media.

After opening Squeeze, drag your flattened QuickTime file to the application's Settings window.

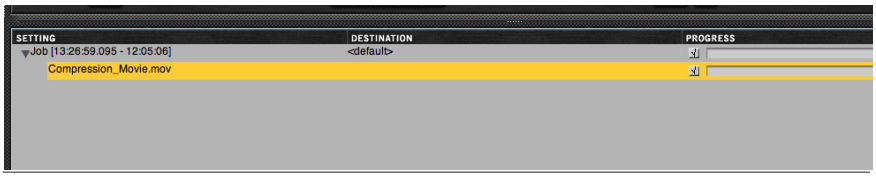

Figure 2.1: Squeeze Settings window

Next, click on the disclosure triangle adjacent to the Macromedia Flash Video Compression Settings in the Format & Compression Settings window. You'll need to create a new .flv preset.

To do this, single-click the preset labeled "VP6_512k" then click the "+" (plus sign) below, in the Format & Compression Settings window.

This will duplicate the preset and open a Settings window so that you may make additional changes. Double click on the setting's name to make changes.

Figure 2.2: Squeeze Compression Settings

Audio Settings

For the Audio section, use the following details:

- Codec: FraunhoferMP3
- Data Rate: 48 Kpbs
- Sample Size: 16
- Sample Rate: 22050
- Channels: Stereo

Finally, make sure the box labeled "Audio" at the top left of the window is checked. For web compression, these presets will rarely need to be altered.

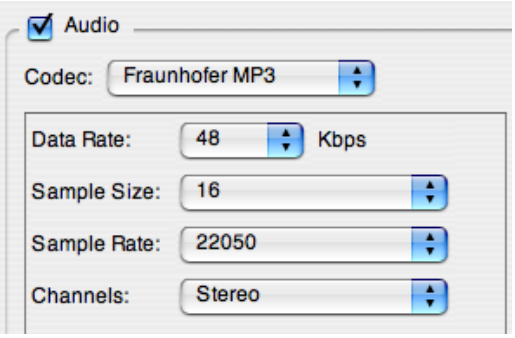

Figure 2.3: Squeeze Audio Settings

Video Settings

Compressing video is a bit of a dark art. There are often no easy explanations as to why settings that work on one project will need to be radically altered for another.

The following video preset is used as a starting point for MediaStorm compression. You may need to make subtle and sometimes even extravagant adjustments when trying to find the perfect encode.

Make sure the box labeled "Video" at the top right of the window is checked. Then use the following settings:

- Codec: On2 VP6 Pro
- Method: 2-Pass VBR
- Data Rate: 466 Kpbs
- Frame Size: 576 W 432H
- Display Aspect Ratio Policy: Maintain Aspect Ratio
- Frame Rate: 1:1 Frame/Sec.
- Key Frame Every: 100 frames
- Compress Alpha Data: [Leave Unchecked]

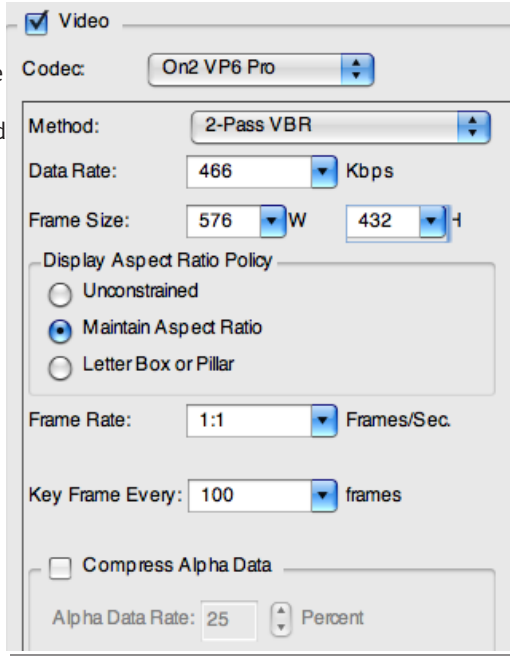

Figure 2.4: Squeeze Video Settings

Note: "Key Frame Every:" may need to be as quick as one per second for video with rapid motion. For example, for video at 29.97fps, "Key Frame Every" should be set to 30 frames.

Check the button “Auto Key Frames Enabled,” then use the following guidelines:

- Auto Keyframe Threshold: 70
- Minimum Distance to Key Frame: 30 Frames
- Compression Speed: Best
- Minimum Quality: 75
- Maximum Quality: 81
- VBR Variability: 50

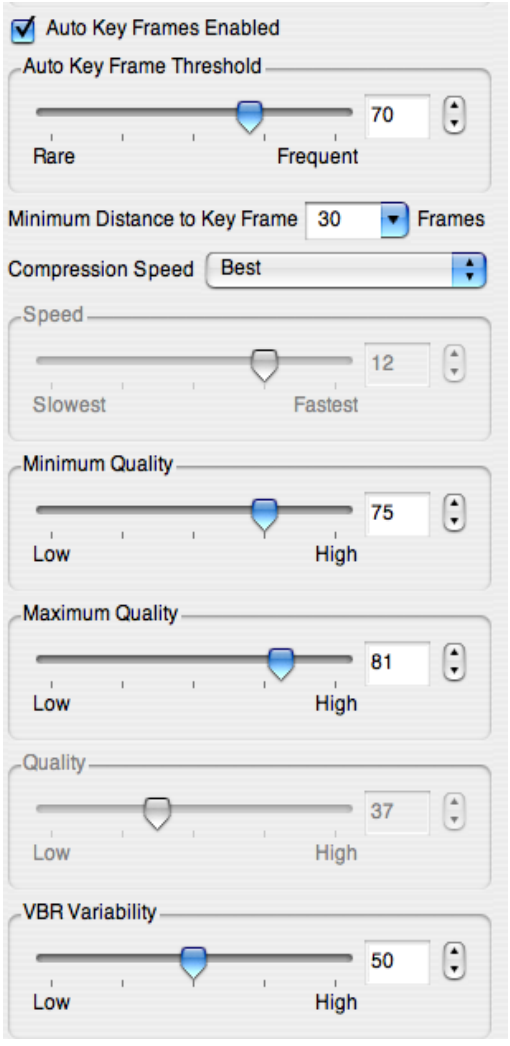

Figure 2.5: Squeeze Keyframe Settings

Make sure the “Drop Frames to Maintain Data Rate” button is checked.

Then, use the following criterion:

- Drop Frames WaterMark: 20
- Sharpness: 5
- Noise Pre-processing Level: 0

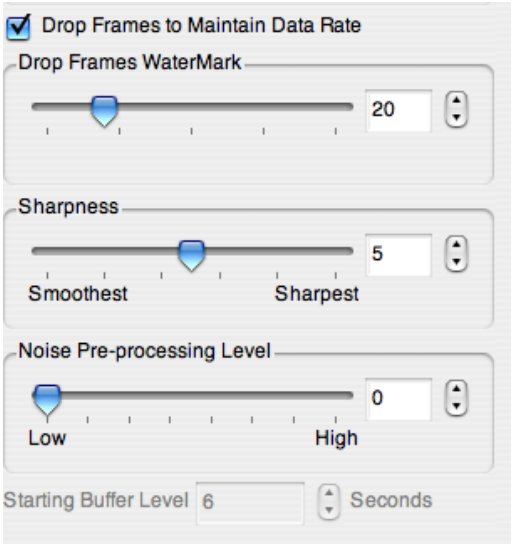

Figure 2.6: Squeeze Drop Frames Settings

And finally,

- Minimum 2 Pass VBR Data Rate: 70
- Maximum 2 Pass VBR Data Rate: 400
- Data Rate Undershoot: 90

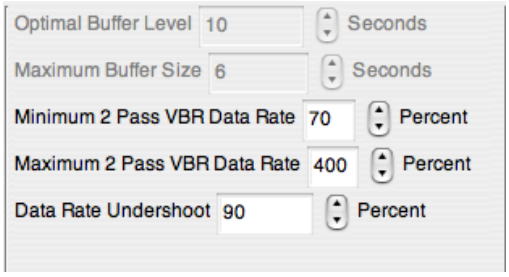

Figure 2.7: Squeeze Data Rate Settings

Once all of your settings are correct, change the setting name in the upper left corner of the window.

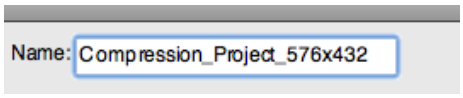

Figure 2.8: Squeeze Setting Name Changes

It’s best to create a new setting for each project. This way, you can re-encode easily and without guesswork.

With all of your settings in place, click the “OK” button at the bottom right of your settings screen.

A note on Frame Size: When determining frame size, it is always best to find an aspect ratio where both height and width are divisible by 16, such as 576x432 for a 4:3 aspect ration or 768x432 for a 16:9 aspect ratio. This will help make your compression sharper.

Lighten Filter

Squeeze tends to darken files, so in some cases, you'll also need to add a lighten filter.

Highlight the default "Lighten" button, then click the "+" (plus button) below. This will duplicate the setting.

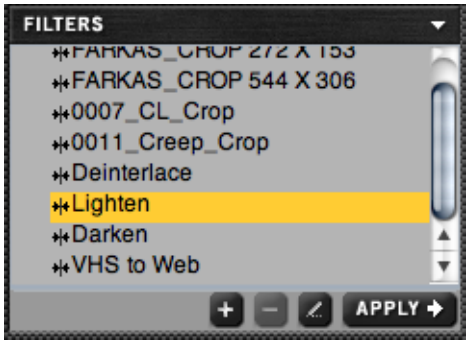

Figure 2.9: Squeeze Lighten Filter

In the Lighten window, use the following settings as a starting point:

- Contrast: 3
- Brightness: 3
- Gamma: 36

Additionally, make sure the respective boxes are checked.

Note: Gamma refers to midtones, and like the other lighten filters, will change according to your source material.

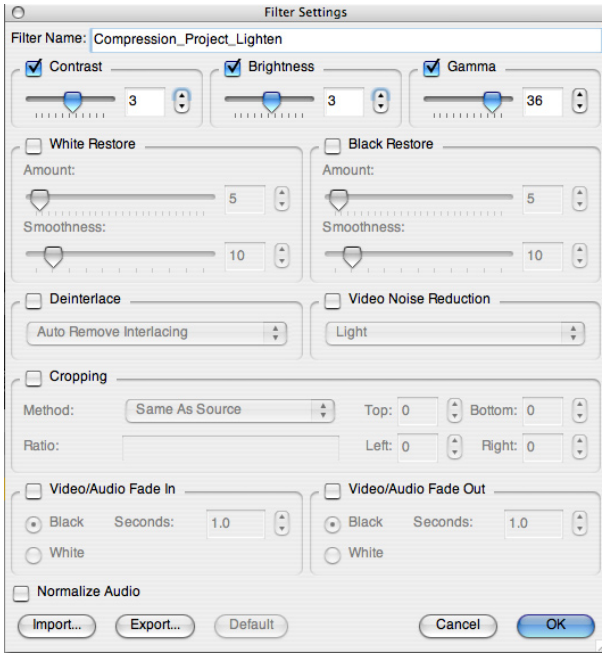

Figure 2.10: Squeeze Lighten Filter Settings

All other settings should remain unchecked.

Label the setting according to your project as you did with your compression setting.

The lighten filter is where you'll often make most of your changes. As with the previous compression settings, it's best to create a separate lighten filter for each project.

Once your lighten settings are correct, click the "OK" button and Squeeze will take you back to the main window.

Encoding

To encode, drag your new .flv compression setting and your lighten filter onto your file in the Settings window.

Figure 2.11: Squeeze It! Encoding

Finally, hit the “Squeeze It!” button at the bottom of the window.

Squeeze will begin its work, simultaneously offering an estimation of how long the encode will take. The time required depends on numerous factors including the length of your project, the speed of your Mac, the amount of its RAM, etc. Again, if you have a Mac Pro, by all means purchase the Squeeze 4.5 or higher upgrade.

Once Squeeze has completed its work, you will have a compressed .flv file that can be used accordingly.

Appendex

Table 1 - 4:3 Aspect Ratio Sizes

Best (16)	Better (8)	Good (4)
640 x 480	608 x 456	624 x 468
576 x 432	544 x 408	592 x 444
512 x 384	480 x 360	560 x 420
448 x 336	416 x 312	528 x 396
384 x 288	352 x 264	496 x 372
320 x 240	288 x 216	464 x 348
256 x 192	244 x 168	432 x 324
192 x 144	160 x 120	400 x 300
128 x 96		368 x 276
		336 x 252
		304 x 228
		272 x 204
		240 x 180
		208 x 156
		176 x 132
		144 x 108
		112 x 84

Table 2 - 16:9 Aspect Ratio Sizes

Best (16)	Better (8)	Good (4)
1280 x 720	1152 x 648	1216 x 684
1024 x 576	896 x 504	1088 x 612
768 x 432	640 x 360	960 x 540
512 x 288	384 x 216	832 x 468
256 x 144	128 x 72	704 x 396
		576 x 324
		448 x 252
		320 x 180
		192 x 108

Tables compiled by Robert Reinhardt
http://blogs.flashsupport.com/robert/