



Speaker Biography

Kevin Towes
 Sr. Consultant, New Toronto Group | www.newyyz.com

- Macromedia Certified Trainer
- Author: Macromedia Press, Macromedia.com
- Degree in Film and Photography
- New Toronto Group consulting focus:
 - FLEX, Flash Video
 - Flash Media Server (Flashcom) ColdFusion

Today's Objectives

After the session, you should be familiar with

- Understanding the new Flash Video (FLV) format
- Converting to FLV using the new Flash Video Exporter
 - Inside Flash Professional 8
 - Using Adobe Premier Pro and QuickTime Pro
- Understanding bandwidth and data rate
- Adjusting digital video properties
- Getting the best video encoding
- Optimizing encoder settings
- Runtime effects (if there is time)

DEMO: Flash Video 8 Comparison

- Side-by-side comparison of the new video quality in Flash 8 Professional with previous versions
 - Beginnings (Flash 5) – Sorenson Spark
 - Streaming (Flash 6) – Sorenson Spark Pro
 - A new Codec (Flash MX) – FFMPEG; Video Exporter
 - A new world (Flash 8) – On2; new Video Exporter

Flash Video Market Analysis

Flash player is the most installed media player in the world

| | V.2 | V.3 | V.4 | V.5 | V.6 | V.7 |
|-----------------------|-------|-------|-------|-------|-------|-------|
| March 2007 | | | | | | |
| US | 98.3% | 98.2% | 98.1% | 97.6% | 95.6% | 90.0% |
| Canada | 98.0% | 98.7% | 98.7% | 98.6% | 97.0% | 90.3% |
| Europe | 99.3% | 99.2% | 99.2% | 99.2% | 97.7% | 92.3% |
| Asia | 97.1% | 97.1% | 96.9% | 96.6% | 93.9% | 86.3% |
| December 2006 | | | | | | |
| US | 98.2% | 98.2% | 98.1% | 97.3% | 95.1% | 92.8% |
| Canada | 98.3% | 98.3% | 98.3% | 98.2% | 96.6% | 89.9% |
| Europe | 98.5% | 98.5% | 98.4% | 98.3% | 96.9% | 88.7% |
| Asia | 95.9% | 95.8% | 95.6% | 95.6% | 92.0% | 81.1% |
| September 2006 | | | | | | |
| US | 98.2% | 98.1% | 98.0% | 97.3% | 95.3% | 79.4% |
| Canada | 98.5% | 98.5% | 98.4% | 98.4% | 96.1% | 82.4% |
| Europe | 97.9% | 97.9% | 97.9% | 97.9% | 96.0% | 86.6% |
| Asia | 96.8% | 96.5% | 96.3% | 96.8% | 93.6% | 81.0% |

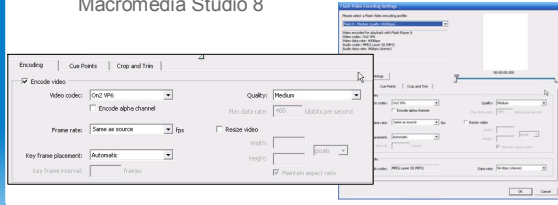
* Supports Macromedia Flash Video (FLV)

The Flash Video 8 (FLV) Format

- Flash 8 Video
 - Uses On2 Video CODEC
 - Encoded using Macromedia new Video Exporter
 - Video encoded in the new CODEC cannot be played in Flash players before Flash player 8
 - Flash player 7 still supports Sorenson / FFMPEG
 - Audio is encoded with MP3
 - Video cannot be trans-coded from FLV
 - Meta data is encoded into the FLV
 - Supports 8-bit Alpha channel encoding
 - Streamed using the new **Flash Media Server 2.0** and *Flash Communication Server 1.5 (or greater)*

DEMO: Flash Video 8 Encoder

- Macromedia Flash 8 Video Encoder
 - stand-alone video encoding application that lets you encode video in Macromedia Flash Video (FLV) format
 - comes with Macromedia Flash Professional 8 or Macromedia Studio 8



Flash Video 8 Encoder Highlights

- Encoding profiles for all Flash Player versions
- Higher quality video compressor (on2)
- Encode Alpha Channel
- Batch Encoding
- Embedded Cue Points
- Improved quality for low-bandwidth
- Stand-alone Video Encoder
- Video import workflow inside Flash 8
- Video export plug-in for professional video tools
- Easy integration with the new Flash Video Components

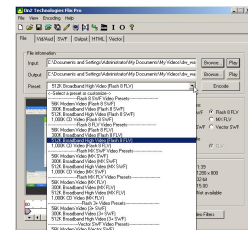


3rd-party encoding tools

- On2 Flix (version 8)
- Sorenson Squeeze (for version 6/7 support)
- Digital Rapids (hardware encoding)

On2 Flix Encoder: www.on2.com

- Fine Tuning the encoder
- Additional pre-processing tools
- Encoding presets
- Advanced Filters
- Meta Data support
- No Cuepoint support



Encoding Properties: Frame Size

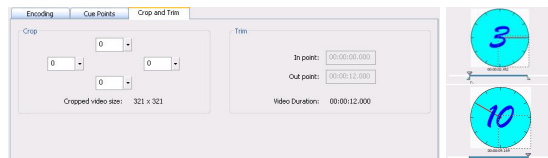
- Larger frame
 - More screen real-estate required
 - Higher resolution
 - Better quality of detail
 - Larger file size
 - Increased bandwidth required
- Smaller frame
 - Less screen real estate
 - Lower resolution and less detail
 - Smaller file size
 - Less bandwidth required

Encoding Properties: Frame Rate

- Frame rate is the number of frames per second (fps) displayed
- Typical frame rates
 - NTSC / widescreen: 29.97 fps
 - PAL / widescreen: 25.00 fps
 - Computer
 - 8 – 30 fps
 - Typically 12-15 fps
- The higher the frame rate, the larger the video file

DEMO: Crop and Trim

- Alter the dimensions of the video clip
- Cropping* eliminates areas of the video
- Trimming* edits the beginning and end points



DEMO Source Video Quality

- Goal: Reduce the amount of pixel change frame over frame**
- Too much motion requires
 - More Key Frames
 - More Bandwidth
 - More Money
- Frame motion affects the encoding process
 - Little movement (characters)
 - Static background (no trees blowing)
 - Reduce
 - camera effects: (Zoom, pans) – true horizontal / vertical pans are best
 - Post-production effects (Dissolves, Fades, Video effects)
 - Stabilize camera (No hand-held sources, Use a Tripod)
 - Good strong, balance light sources
 - High quality tape / film
 - Professional D1 video (not consumer DV)
 - No pre-compression

Balancing Bandwidth and Quality

- As bandwidth **decreases**
 - Reduce the key frame rate
 - A more blurry image results
- As motion **increases**
 - Increase the key frame rate
 - Increase the frame rate and (if possible) the data rate
- Dial up connections
 - Require consumption of almost 100% of all available bandwidth
- Frame rates
 - When reducing, they are calculated at half-rate, quarter-rate, & third-rate
- Frame size
 - Reduce when bandwidth is limited
 - A 1:1 conversion of 720 x 486 D1 aspect ratio is 640 x 480
- De-interlacing
 - If the video source you are encoding is straight from a video camera
 - Increase the performance of the video encoding and playback

DEMO: Data rate / Bandwidth / Frame Size

- Data rate** is related to frame rate and size

$$((w \times h \times color \times fps) / 1000 \text{ DIV } Compression) = \text{Data Rate}$$

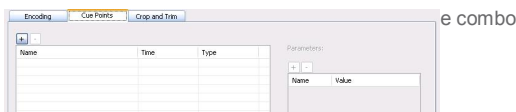
$$((320 \times 240 \times 30fps) / 1000) \text{ DIV } 60 = \underline{922 \text{ Kbps}}$$
- Reducing the **frame rate** in half requires half the data rate

$$((320 \times 240 \times 24 \times 15fps) / 1000) \text{ DIV } 60 = \underline{460 \text{ Kbps}}$$
- Reducing the **frame size** in half will have a much more dramatic effect on bandwidth

$$((160 \times 120 \times 24 \times 30fps) / 1000) \text{ DIV } 60 = \underline{230 \text{ Kbps}}$$

DEMO: Embedding Cue Points

- Cue Points**
 - Embedded (encoded) into the video FLV File
 - Stored as *metadata* within the FLV file
 - used to trigger actions within a Flash movie



| Name | Time | Type |
|---------------|--------------|-------|
| New_Cue_Point | 00:00:00.000 | Event |

DEMO: Encoding the Alpha Channels

- Pre-processing video for Alpha channel using Adobe Premiere Pro
- Enabling the alpha option in the Video encoder
- Displaying inside your Flash 8 movie

BONUS: Flash 8 Effects and Video Components

- The new Flash 8 blending tools can be applied to Flash Video
 - Demonstrate runtime [Blending Effects](#)
 - Demonstrate runtime [Color correcting](#)
- Flash 8 ships with brand new Video components
 - Demonstrate the [Video Components](#) and their quick development

Summary

- Flash Professional 8 introduces a new Video Codec
- Higher quality video and lower bandwidth
- Good video sources will affect the end-result
- Batch conversion is supported
- Cue points and Trimming are part of the new encoder
- Flash 8 runtime blending effects work with Video
- Flash 8 Video components are easy to use

Resources

- Macromedia.com
- Adobe.com
- [Flash 8 Video Development Course \(www.newyyz.com\)](#)
- Ben Waggoner



Questions?

Thank you / Merci.

Ideas in motion.

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