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## Deep Dish Case Study: Preservation Research on XML

### **DTD (Document Type Definition)**

Each extensible Markup Language document uses its own set of fields and rules known as the DTD or Document Type Definition. Final Cut Pro (FCP) uses a custom-made DTD known as xmeml. Several versions of xmeml have been produced. XML version information is always located in the second and third tag of each XML document. Apple has made a reference guide titled "Final Cut Pro XML Interchange Format" that contains a description of xmeml, of the potential uses of XML by FCP, and a list of tags and their meanings. The guide can be downloaded at: [http://developer.apple.com/appleapplications/download/FinalCutPro\\_XML.pdf](http://developer.apple.com/appleapplications/download/FinalCutPro_XML.pdf). To export a clip in FCP, open the desired project and choose File/Export/XML.

### **Editing an XML Document**

Part of the reason XML is considered such a useful tool is that it creates a human-readable language to describe minute operations and adjustments to a FCP file and allows a user to edit or change those settings with a regular text editor. Although using a "Find and Replace" command is somewhat effective in applying desired changes, a number of graphical and wysiwyg XML editors are available for purchase or even free download.

Some of these editors were created specifically for use with FCP's xmeml DTD (love those acronyms!), and were designed to perform certain popular types of changes. For example, one editor extracts metadata from WAV files and adds it to the metadata for FCP audio clips. Several editors have been developed that add titles, subtitles, and other text into a sequence. At some point, perhaps a preservationist's XML tool will be authored that can link source reels to media files and perform other helpful operations.

### **Re-Linking Source Reels Using XML**

The source reel (actual videotape) plays while FCP captures a media file that is translated into a FCP master clip. These master clips are subsequently added to the bin for storage. Clips that are used in the timeline are called affiliate clips, and are derivatives of corresponding master clips. Each of these types of clips has their own set metadata. This metadata can be edited or changed in some instances, though certain crucial information, such as source reel and log and capture details cannot be altered. Therefore, regardless of where a clip goes or what iteration of it may be encountered, provenance metadata is always retained.

Although FCP comes with a number of helpful media management tools, most of these are used to link clips with media files, not media files with source reels. In order to do this, source reels must be named during the log and capture process so that they can be identified later. Once assigned, these names are passed on as metadata to all derivative clips and can be traced. FCP is able to generate or export XML files not only for entire

projects, but for specific sequences, bins, and clips as well. For complete information relating to each clip, an XML file can be generated, source reels can be identified through names furnished during log and capture, and media files or clips can be matched to source reels. The first section of chapter 5 of the FCP XML manual (Final Cut Pro XML Interchange Format) provides a complete list of xml tags associated with clips, media files, and source reels. This guide can be used as a reference should a user wish to join a clip with its source reel or apply a global change.

### **Observations and Recommendations**

While the XML file serves as back-up documentation should anything happen to the Final Cut media and files, a hard copy printout may simply be a waste of paper. For example, the XML file we outputted for this Deep Dish case study turned out to be more than 275 pages of metadata. Thus, it is recommended that the XML file be exported and saved for preservation purposes, but it may not always be practical or necessary to create a print copy.

Another issue that we encountered during this case study was that our sample XML file lacked some source reel names. This may indicate that clips were digitized on the fly without assigning a proper or consistent source reel. In this scenario, reconstructing a show with only the XML file is not possible. Even attempting to perform a global change to conform reel names to tape names and numbers would be extremely challenging. As last year's class observed and reported, it is crucial for source reels in Final Cut Pro to

match with actual camera original videotapes. Naming the source materials consistently during shooting, and then referencing the same names as reels in Final Cut Pro during editing would make a future attempt at reconstruction possible.

(The Final Cut Pro 6 User Manual downloaded from the Apple web site, was consulted for the above research. Volume IV (Media Management and Output), Part II, Chapter 11 was most useful.)