AAF to Application Specifications

How They Fit An Advanced Media Workflow

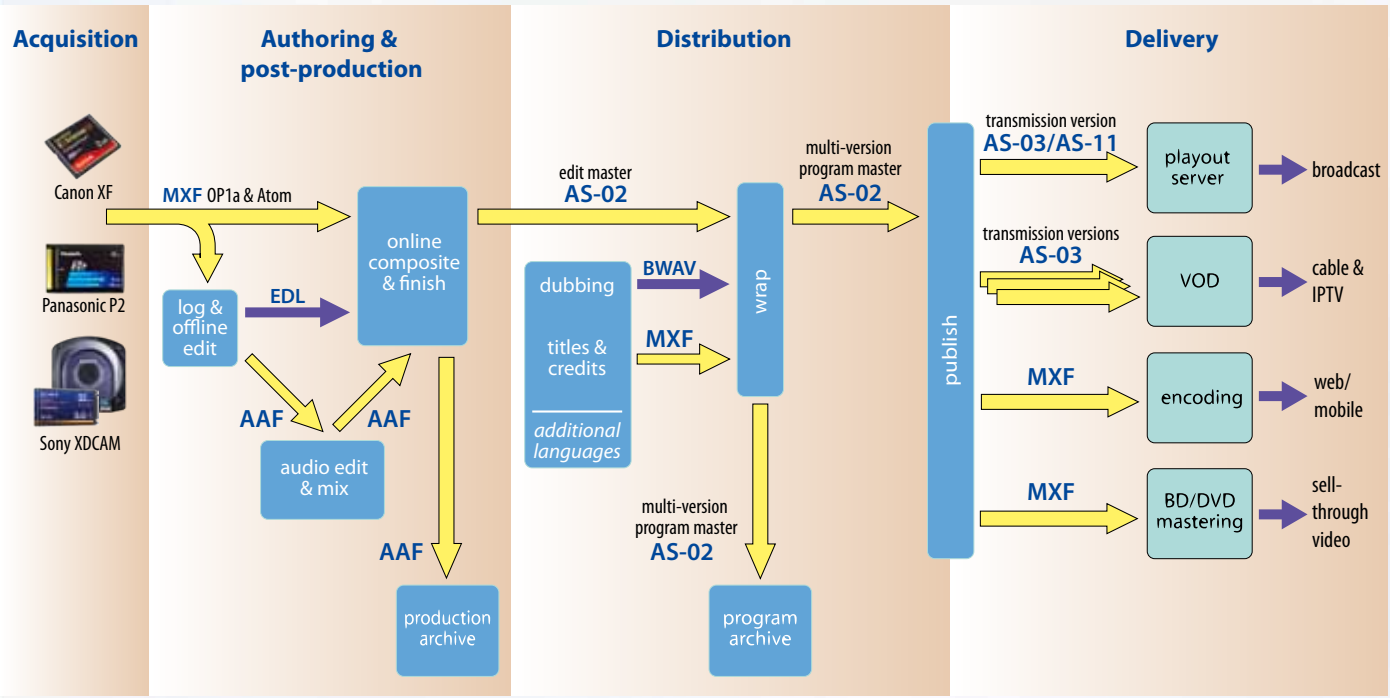
The AMWA and the Society of Motion Picture and Television Engineers (SMPTE) have developed the AAF and MXF standards as a means of providing multi-vendor cross-platform interoperation in digital video production.

Many vendors have adopted the standards, but their use is not universal, so issues of incompatibility still exist. The way around this is usually by means of a third-party "rewrapping" application.

In simple terms, AAF was developed to support content authoring processes, MXF for the exchange of content as files between applications.

In post-production MXF would typically be used for the source clips and for the finished sequence, and the project saved as an AAF file. To those of you used to editing on tape, MXF represents individual tapes, whereas AAF encompasses all the source tapes, the edit master, EDL files, graphics files and audio files, the bag you walk out of the post house with at the end of the job.

Much MXF development was by a group of vendors. It was made very flexible to cover the different design concepts each vendor had used in their products, and also to allow each to develop competitive advantage. This has led to a very long and complex set of standards, running to around 1,000 pages.



Operational Patterns

The MXF standards define constraints called Operational Patterns (OP), which do simplify the options. Of these patterns, OP Atom and OP1a are commonly found in post-production.

OP Atom is a very simple file format that just represents a single essence track. A typical example is the Panasonic P2 card, where the video and audio tracks are each wrapped as separate atoms (clip metadata is carried in a separate file).

OP1a defines a single item, single package. The essence container typically stores a single clip or single item of program material. An example is the files recorded on the Professional Disc used by XDCAM camcorders.

The great flexibility of MXF has not delivered the promised ease of file interchange, although interoperability has improved as vendors have learned better how to implement the standards.

Application Specifications

Recognising this fact, the AMWA are developing a further set of constraints on MXF for specific applications like transmission masters and versioned files. These are termed *Application Specifications*.

AS-02 and AS-03 are two examples of the Application Specifications.

AAF and MXF, AS-02 and AS-03, can all coexist in a workflow, and are designed to do just that.

The "Shim"

MXF defines a wrapper for video and audio content, and defines the metadata structures, but does not define how the content or *essence* is encoded. It could be DV, MPEG-2 or DPX for example. This adds another potential incompatibility when exchanging files between applications.

To cover this issue, the AMWA has introduced the concept of the "shim". For example, a broadcaster could use AS-03, the MXF Program Delivery specification to define how they want to deliver to playout servers, but add a shim to stipulate that video is coded MPEG-2, at 20Mb/s long-GOP. This shim ensures that what is delivered to the server is compatible with that server.

What do all these standards and specifications mean?

If a client asks for a file, wrapped to a given Application Specification, with a defined Shim, then you can export that file and despatch to the client happy in the knowledge that they can play the file—just as simple as sending them a Digital Betacam tape! The difference is you don't need to book a courier, and you don't need to dub a tape, its that easy.

How do I export an AS-02 file?

The AMWA is encouraging vendors to support the Application Specifications in order to ease all the issues around interoperability. There is growing support for Applications Specifications, but you may need to use a third-party product to create the files.

To find out more about the work of the AMWA, visit www.amwa.tv.