

You use DCPs every day in your cinema, but things are going to change....

Rich Phillips knows all about it
and provides us with his

Dummy's guide to the SMPTE DCP



The what?

It's the new emerging standard for packaging and distribution of digital cinema content.

Generally pronounced 'sump-tee dee cee pee'. DCP stands for Digital Cinema Package and SMPTE is the Society of Motion Picture and Television Engineers – the organisation that sets technical standards for the television and cinema industries.

But we already have DCPs. Are they not SMPTE DCPs?

No. They follow a slightly different packaging format and are more properly referred to as "Interop DCPs".

Interop is not a standard but rather a packaging format that was agreed between some of the early manufacturers of digital cinema equipment to try to ensure that content was interoperable between all of their systems. The SMPTE DCP is based upon the Interop DCP but with some further enhancements, and the specification is published as a formal standard by SMPTE.

What we have now seems to be working OK. Why should we care about standards?

Standards give manufacturers of equipment and software detailed instructions they can use to make sure that their products are built to a common specification - helping to eliminate problems with interoperability.

They are drawn up by committees of experts after lots of consideration and debate which helps to ensure that all the requirements are considered and nothing is left out. The SMPTE DCP specification includes some very useful features that are not supported in the Interop DCP.

Like what?

Like support for 3D subtitles.

The interop DCP format cannot carry soft 3D subtitles. Instead they have to be rendered into the image track of the film which means that every subtitled language version has to be mastered and distributed individually rather than sending a single picture bed and just overlaying different language subtitle text at playback, like we do for 2D subtitles. This is very costly. On the subject of subtitles, the SMPTE DCP also supports encrypted subtitles. An Interop DCP can have encrypted picture and audio but not subtitles. This can be a risk particularly for distribution of previews of much anticipated blockbuster titles where the distributor wants to keep the details about the plot secret.

So it's all about helping the distributor?

Not at all. There are features that will benefit the exhibitor too.

For a start the SMPTE DCP supports 'Auxiliary Data' - that's the ability to include additional data in the DCP other than the picture, sound and subtitles. For example,

Dolby use this facility to transport Atmos soundtracks within the DCP – this data is then passed on to the audio processor from the playback server for onward processing and playback. The same mechanism can also carry other payloads, such as the data necessary to drive moving seats, or lighting effect systems and synchronise them with the playback of the film. This feature is ready to support innovations that the industry hasn't thought of yet.

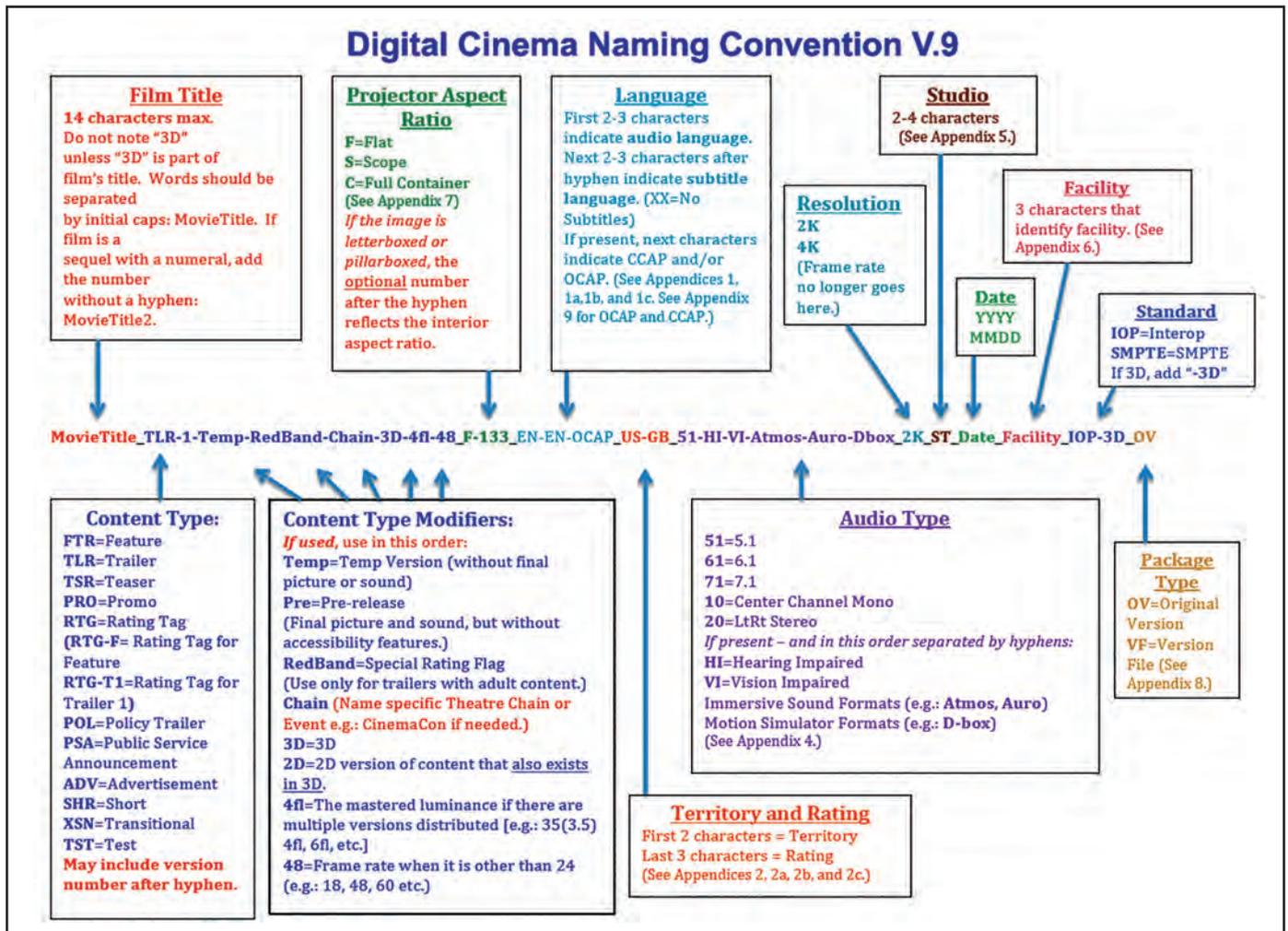
OK. But I don't have Atmos so I don't need this.

There's more.

SMPTE DCP also supports 'markers' – these are points in time within the composition representing places where exhibitors might want other things to happen. For example, attaching an automation cue to bring up the houselights when the credit roll starts. Currently this has to be programmed manually. With markers it will be possible to program theatre management systems to insert these cues completely automatically, reducing effort, eliminating the possibility of human error and working towards total automation.

Anything else?

Yes. The SMPTE DCP also supports something called 'Extended CPL Metadata' - this is the ability to carry more information about the content than is possible at the moment, such as the name of the distributor, the audio format (5.1/7.1/Atmos etc), the



SMPTE DCPs can eliminate some of the complexity of the DCP Naming Convention

aspect ratio, the light level at which it was mastered. Right now with the Interop DCP the only way to carry this data is in the title of the content, following the "DCP naming convention" – <http://digitalcinemanamingconvention.com/> which is a big pain. It makes the content items difficult to identify on playback systems and limits the number of characters that can be used to express the title of the content itself. Once extended CPL metadata is adopted everything will be much easier. It will be much easier to search for and identify content, and to distinguish between different versions. More importantly it will allow cinema software developers to build more powerful automation into their products – using metadata to identify the right version of a piece of content and program it in the auditorium with the matching specifications (e.g. sending the 7.1 version to the auditoria with the 7.1 audio systems and the 5.1 version elsewhere)

Automation = fewer mistakes = better presentation = happier customers.

OK. Sounds good. But I don't want to spend more money upgrading my systems.

You shouldn't have to.

Almost all digital cinema equipment is capable of interpreting and playing back SMPTE DCPs, as long as it is running the manufacturer's latest recommended software versions, with one or two gotchas to be aware of.

Like what?

"Series 1" DLP cinema projectors are not capable of rendering 3D subtitles.

However, many playback servers are. So it will probably be possible to configure your system to render subtitles on the playback server instead. Your friendly cinema integrator should be able to advise. Or move the older equipment to 2D only auditoria.

When will this change happen?

Some SMPTE DCPs are already being distributed.

Dolby Atmos is only supported by the SMPTE DCP format.

However, not all of the features of the SMPTE DCP are in common use yet.

Manufacturers, content service providers, integrators, distributors, key exhibitors and industry bodies including the ISDCF, EDCF and UNIC are hard at work running tests and helping to work out how to make this transition as painless as possible. There is likely to be an extended overlap period where some content is still interop and some is SMPTE. Making sure that systems can handle the mixture of content types is key to a smooth transition.

Is it worth it?

Absolutely. The SMPTE DCP provides a great foundation for further innovation, automation, cost saving and presentation quality. And it is a proper standard.

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