

Transitional 1, or JPEG Interop or Interop DCP

The Interop DCP stage represents current practice as of June 2009. Interop DCPs, KDMs and Certificates shall follow the specifications in the table below, found at [ftp://ftp.digicine.com/Document Release 2.0](ftp://ftp.digicine.com/Document%20Release%202.0), or from the SMPTE. Note that that “mpeg_ii” stands for MPEG Interop Initiative, the name of the effort that led to Interop DCP. Also note that the Interop DCP stage does not include projector configuration (PCF) files.

Specification	Document	Comment
Sound & Picture Track File	mpeg_ii_track.doc (v2.7)	Some ULs are not listed in any Registry. Only two partitions allowed. Undocumented change from MPEG to JPEG encoding.
Track File Encryption	mpeg_ii_track_file_encryption.doc (v5)	Key indicating encrypted essence in KLV triplet is not registered. Files may not have proper MIC value.
Constraints	mpeg_ii_pack_constraints.doc (v2.6)	
Key Delivery Message	SMPTE 430-1	Some fields required by DCI are not populated or are ignored upon playback.
Certificate	SMPTE 430-2	Certificate rules may not be enforced.
Extra-theater messages	SMPTE 430-3	
Asset Map	mpeg_ii_am_spec.doc (v3.4)	Filename is ASSETMAP
Composition Playlist	mpeg_ii_cpl_spec.doc (v2.4)	
Subtitles	TI_sub-titling_2504760b.pdf	Subtitle track file is an XML file that cannot be encrypted. Requires special directory structure to deliver.
Sound	S382M-GC-aesbwf-20040808.zip	Supports only a single, fixed, 6-channel mapping
JPEG 2000 Wrapping	MXF J2K-v3e 200509231.doc	JPEG Subdescriptor UL is not registered.
JPEG 2000 D-Cinema Constraints	MXF JPEG 2000 Application for D-Cinema (SMPTE3285B)	Very similar to final SMPTE specification.
Packing List	mpeg_ii_pkl_spec.doc (v2.4)	
Stereoscopic Picture Track File	3D_Interop_Single_File_2007_18_05_v1_5.doc	Similar to SMPTE 429-10, but uses Digicine namespace for CPL and uses unregistered JPEG subdescriptor UL.

SMPTE DCP

The SMPTE DCP stage reflects the set of published SMPTE specifications as summarized and constrained by SMPTE S429-2-2009, D-Cinema Packaging – DCP Operational Constraints. SMPTE DCPs, KDMs, and Certificates follow the specifications in the table below. This table may not be a complete representation of all SMPTE DCP requirements, and is intended only for comparison to the Transitional 1 table. Note that due to changes in the XML namespace, none of the SMPTE DCP XML files are compatible with Transitional 1 players. And due to changes to partitions and ULs, none of the SMPTE DCP MXF files are compatible with Transitional 1 players. In addition, there are new requirements for content, KDM and Certificate validation. Software updates will be needed to support this SMPTE DCP. In addition to the specifications below, it is generally accepted that adoption of SMPTE DCPs will coincide with deployment of DCI-compliant players. Note that there are additional requirements on both the DCP and on playback imposed by the DCI requirements, which are not contained in the SMPTE standards.

Specification	Document	Comments
Sound & Picture Track File	SMPTE 429-3	Three partitions required.
Track File Encryption	SMPTE 429-6	Similar to JPEG Interop but uses correct encrypted essence key and MIC value.
Constraints	SMPTE 429-2	Additional constraints such as: <ul style="list-style-type: none"> - All Reels must have picture and sound - Picture size constraints. - Timed text rate - Hash element is required for encrypted track
Key Delivery Message	SMPTE 430-1	All elements required by the SMPTE spec. and DCI must be present and validated for playback to take place.
Certificate	SMPTE 430-2	DCI requirements must be met.
Extra-theater messages	SMPTE 430-3	
Asset Map	SMPTE 429-9	Filename is ASSETMAP.xml
Composition Playlist	SMPTE 429-7	Uses SMPTE namespace.
Subtitles	SMPTE 429-5 and SMPTE 428-7	Change to XML source format. Subtitle track file is now an MXF file that encapsulates XML source and aux data and supports encryption. No special packaging directory structure needed.
Sound	SMPTE 382M	ChannelAssignment label allows multiple channel assignments to be used.
JPEG 2000 Wrapping	SMPTE 422M	JPEG subdescriptor UL is now correct.
JPEG 2000 D-Cinema Application	SMPTE 429-4	
Packing List	SMPTE 429-8	The GroupID element was added to support delivery of "Asset Packages".
Stereoscopic Picture Track File	SMPTE 429-10	
Closed Captions	SMPTE 429-12 and SMPTE 428-10	Closed captions not available in Transition 1