MainConcept File Formats

Components for Streaming and File Formats

MainConcept SDK components for multiplexing and demultiplexing support most professional production and broadcast formats for streaming and file regardless you are working with on-premise servers or in a cloud workflow.

CONTAINERS FOR MANY MEDIA STREAMS & DEVICES

To correctly play back your content on screens and devices, ingest in a broadcast environment, or exchange files for post-processing and delivery, the video and audio streams need to be interleaved in one coherent container. This process is called multiplexing, and later on the file needs to be demultiplexed, i.e. the streams need to be extracted from the container again.

STRICT ADHERENCE TO OFFICIAL STANDARDS

Multiplexing and de-multiplexing of complex audio/video streams from different sources into a single transport/program stream for video production or broadcast requires a solution that delivers the highest possible quality and performance with strict adherence to format standards. MainConcept's file format components found in many of our codec products fit the bill, providing highly efficient and compatible muxing/demuxing for nearly every popular specification or use-case.

The MainConcept Multiplexers and Demultiplexers offer strict adherence to format standards allowing a high degree of compliance with software and hardware players, mobile devices, cell phones, game consoles, professional and consumer cameras, etc.

STREAMING & FILE MODES

Some of these containers can carry more than one audio or video stream. In several cases, even metadata is included that way. Muxing can be done in either Streaming or File mode. In Streaming mode, the audio and video input comes from the audio and video encoders, whereas in File mode the input comes from existing files on disk.

WIDE VIDEO AND AUDIO CODEC SUPPORT

Although the MainConcept SDKs support a wide range of audio/video encoders and decoders, not every container format can be used with every codec. The official specifications and public standards can be strict, so please check the SDK Video pages, which Muxer and Demuxer components are included in what Codec Package.

SPEC-COMPLIANT CONTAINERS FROM A VARIETY OF SOURCES

BENEFITS

- Approved by the major professional camera vendors
- Compliance with international TV broadcast standards from DVB, ATSC, SBTVD, ISDB, etc.
- Cloud and on-premise deployment
- Suitable for live and VOD workflows
- Seamlessly work with MainConcept and 3rd party codec libraries

KEY FEATURES

- Full set of multiplexers and demultiplexers
- Support for Transport Stream, Program Stream, ISO BMFF (MP4), MXF, etc.
- MPEG-H 3D audio multiplexing into MP4 and MPEG-2 Transport Stream
- Significant MPEG-2 TS performance improvements
- JPEG-XS TR07 compliant multiplexing and demultiplexing in Transport Stream
- Blu-ray UHD, Blu-ray and DVD compliance with the most popular authoring tools

OPTIMIZE WITH MAINCONCEPT PROFESSIONAL SERVICES

SYSTEM REQUIREMENTS

	x86	ARM
Windows	Windows 10, Windows 11	Windows 11 ARM
Linux	Ubuntu 20.04 LTS – 22.04 LTS, Rocky Linux 8.9	Ubuntu 20.04 LTS – 22.04 LTS
macOS	macOS 10.15 – 12.x	macOS 11.x – 12.x

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Supported Stream Types: Elementary Stream, MPEG-2 Transport Streams, MPEG-2 Program Streams, MPEG-1 System Streams, MP4, MXF, 3GP, AVI, ASF, F4V, DV, MJ2

Supported Media & Devices: VCD / SVCD / DVD, MICROMV, HDV HD1/2, HDTV, CableLabs, Canon XF-HEVC, Sony XDCAM DV (DVCAM), Sony XDCAM HD, Sony XDCAM IMX, Sony XDCAM EX, Sony XDCAM Proxy, Sony XAVC, Sony XAVC Sub Streams, Ikegami GFCAM, Blu-ray Disc / HD DVD, DVB, ATSC / ATSCHI, DVHS, D10, AVCHD, Panasonic P2 DVCPRO, Panasonic P2 AVC-Intra Class 50/100, AVC-ULTRA (AVC-I Class 200), Panasonic AVCCAM, Digital TV, 1Seg, Sony NXCAM, Sony PSP / PS3 / PS4, Apple iPad / iPhone / iPod, Apple TV, Adobe Flash (F4V), HTML5, Microsoft Silverlight, Ultra HD / UHDTV, Windows Media, Digital Cinema 2K / 4K, Intel Indeo, Avid DNxHD/DNxHR

Manufacturer	Type	Decoding/Demuxing	Encoding/Muxing	Codec	Container
Sony	XDCAM EX	Yes	Yes	MPEG-2	MP4
Sony	XDCAM DV (DVCAM)	Yes	Yes	DV25	MXF OP-1a
Sony	IMX	Yes	Yes	MPEG-2 D10	MXF OP-1a
Sony	XDCAM HD	Yes	Yes	MPEG-2	MXF OP-1a
Sony	XAVC-Intra	Yes	Yes	AVC-Intra HD CBG, AVC-Intra 4K CBG/VBR	MXF OP-1a
Sony	XAVC-LongGOP	Yes	Yes	AVC-LongGOP HD, 4K	MXF OP-1a
Sony	XAVC-S Intra	Yes	Yes	AVC-Intra HD VBR	MP4
Sony	XAVC-S LongGOP	Yes	Yes	AVC-Intra LongGOP HD, 4K	MP4
Panasonic	P2 DVCPRO	Yes	Yes	DVCPRO 25/50/100	MXF OP-Atom
Panasonic	P2 AVC-Intra	Yes	Yes	AVC-Intra class 50/100/200	MXF OP-Atom
Panasonic	P2 AVC-LongGOP	Yes	Yes	AVC LongGOP G6/G12/G50	MXF OP-1b
Canon	XF	Yes	No	MPEG-2	MXF OP-1b
Canon	XF-AVC	Yes	No	AVC/H.264	MXF OP-1a
Canon	XF-HEVC	Yes	No	HEVC/H.265	MXF OP-1a
Ikegami	GFCAM	Yes	No	MPEG-2	MXF OP-Atom
JVC	ProHD	Yes	Yes	MPEG-2	MP4
JVC	ProHD MXF	Yes	No	MPEG-2	MXF
Digital Cinema (DCI)	SMPTE 429	Yes	Yes	JPEG 2000	MXF OP-Atom
Digital Cinema	InterOp	Yes	No	JPEG 2000	MXF OP-Atom
AVID	DNxHD	Yes	Yes	DNxHD (VC-3 derivate)	MXF OP-Atom MXF OP-1a
AVID	DNxHR	Yes	Yes	DNxHR (VC-3 derivate)	MXF OP-Atom MXF OP-1a
Generic MXF as used in post production	OP-1a, OP-1b, OP-Atom	Yes	Yes	DV/DVCPRO (SMPTE 383) MPEG-2 (SMPTE-381-2) AVC-Intra (RP2027, SMPTE 381-3) AVC-LongGOP (RP2027, SMPTE 381-3) JPEG2000 (SMPTE422) VC-3 (SMPTE 2019-4)	MXF

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MAINCONCEPT MULTIPLEXER/DEMULTIPLEXER COMPONENTS & PRODUCTS

The MainConcept Multiplexer and Demultiplexer components are part of the dedicated Video Encoder and Decoder SDKs. Please have a look at the corresponding datasheets if the components are included in the package(s) you are looking for.

MPEG Multiplexer / Demultiplexer	MXF Multiplexer / Demultiplexer	MP4 Multiplexer / Demultiplexer	ASF Multiplexer / Demultiplexer (LL)	DV Multiplexer / Demultiplexer
• VVC/H.266 Encoder SDK • VVC/H.266 Decoder SDK • HEVC/H.265 Encoder SDK • HEVC/H.265 Decoder SDK • MPEG-1/2 Encoder SDK • MPEG-1/2 Decoder SDK • AVC/H.264 Encoder SDK • AVC/H.264 Decoder SDK • AVC/H.264 Encoder SDK Broadcast • AVC/H.264 Decoder SDK Broadcast • VC-1 Encoder SDK • VC-1 Decoder SDK	• HEVC/H.265 Decoder SDK • MPEG-1/2 Encoder SDK • MPEG-1/2 Decoder SDK • AVC/H.264 Encoder SDK Broadcast • AVC/H.264 Decoder SDK Broadcast • DVCPRO 25/50 Encoder SDK • DVCPRO 25/50 Decoder SDK • DVCPRO HD Encoder SDK • DVCPRO HD Decoder SDK • VC-3 Encoder SDK • VC-3 Decoder SDK • Video Decoder SDK for Apple ProRes • JPEG2000 Encoder SDK • JPEG2000 Decoder SDK • MXF SDK	• VVC/H.266 Encoder SDK • VVC/H.266 Decoder SDK • HEVC/H.265 Encoder SDK • HEVC/H.265 Decoder SDK • MPEG-1/2 Encoder SDK • MPEG-1/2 Decoder SDK • AVC/H.264 Encoder SDK • AVC/H.264 Decoder SDK • AVC/H.264 Encoder SDK Broadcast • AVC/H.264 Decoder SDK Broadcast • Video Decoder SDK for Apple ProRes • MPEG-4 Part 2 / H.263 Encoder SDK • MPEG-4 Part 2 / H.263 Decoder SDK • JPEG2000 Encoder SDK • JPEG2000 Decoder SDK	• VC-1 Encoder SDK • VC-1 Decoder SDK	• DV/DVCPRO 25 Encoder SDK • DV/DVCPRO 25 Decoder SDK • DVCPRO 25/50 Encoder SDK • DVCPRO 25/50 Decoder SDK • DVCPRO HD Encoder SDK • DVCPRO HD Decoder SDK