

Transcoding SDK

Professional Transcoding Engine



Formerly known as Reference SDK, Transcoding SDK offers improved quality and performance as well as exciting new features and stability enhancements to further optimize the workflow in your application, service or environment.

The MainConcept Transcoding SDK consists of a powerful encoding & decoding engine supporting all renowned MainConcept codecs. Due to the extensive format support, the transcoding engine offers highest flexibility to generate streams that are compliant to numerous devices and renowned media, such as Blu-ray Disc, many Apple mobile devices, DVD, the whole Sony XDCAM and XAVC portfolio, Adobe Flash, Panasonic P2 AVC Ultra, AVC-Intra and DVCPRO, etc.

Transcoding SDK also offers a HEVC/H.265 Encoding Plug-In, providing comprehensive transcoding support and import capabilities for the 4:2:0 8-bit and 10-bit profiles in MP4 and Transport Stream file formats. The ready-to-use Main 10 presets allow HEVC 10-bit content creation in your solution. Additionally, Transcoding SDK supports signaling of various High Dynamic Range (HDR) flavors based on the official standards like HDR-10 / PQ-10 and HLG (Hybrid Log Gamma) for both AVC/H.264 and HEVC/H.265.

Transcoding SDK is the perfect engine for solutions that cater to content preparation and transcoding into adaptive formats for digital delivery, such as Apple HLS or DASH-264 and DASH-265, including hybrid playlist generation for HLS (AVC & HEVC), and manifest file creation for MPEG-DASH. For DASH-265, MainConcept Transcoding SDK offers the HEVC/H.265 SABET Encoding Plug-In; our patent-pending Smart Adaptive Bitrate Encoding Technology that enables efficient accelerated encoding across HEVC profiles. The technology allows encoding of up to 10 output streams from a single source while maintaining equal high quality across all levels within an adaptive stream set by leveraging shared data. SABET effectively provides software programmers the ability to enable their solutions to encode adaptive formats in less time, or with less hardware.

You can even create and edit XML based transcoding presets and use them in your own applications. Depending on the platform used, MainConcept Transcoding SDK offers import via DirectShow, QuickTime, GStreamer as well as MPEG, HEVC/H.265 and AVC/H.264. Powerful features, such as watermarking, watch folder and batch list transcoding, allow you to leverage the same conversion tools that power the TotalCode product portfolio. Additionally, the Transcoding SDK supports several powerful subtitling and closed caption features that make your solutions suitable for professional broadcast as well as production environments.

NEW FEATURES

- Update to Codec SDK 10.6 and HEVC SDK 10.1.
- Native ProRes ingest using the MainConcept ProRes Decoder.
- Ingest of interlaced and progressive 10-bit 4:2:2 XF-HEVC recordings from Canon's latest XF 705 professional camcorders.
- Hardware HEVC/H.265 Encoding via NVIDIA® NVENC for Windows and CentOS Linux.

Leverage more of our codec expertise with Transcoding SDK

This particular SDK is aimed at developers who want to release their own transcoding applications, service or environment in a portable and extensible fashion, built on top of MainConcept's Low Level SDKs. Key advantages:

- Comes with a well-documented API (Application Programming Interface - in C-programming language) allowing you to easily create your own transcoding software with a GUI (Graphical User Interface).
- Fast development of conversion tools that can be controlled via command line or act as a server side transcoding application.
- DirectShow filters for decoding are also included for Windows operating systems.
- QuickTime module for importing ProRes and other QuickTime compliant MOV files (QuickTime Player install required)

Developers have the opportunity to easily add the transcoding engine's functionalities to their own application design. Moreover, it enables them to integrate the MainConcept transcoding engine into custom workflows and optimize their transcoding environment.

How does it work?

The MainConcept Transcoding SDK works as an additional layer above the popular MainConcept Codec SDK, so developers do not need to manage the numerous codec settings and parameters required for transcoding. Due to its easy-to-use API on top of the Codec SDK, there is no need to set all conversion parameters manually, as developers can configure the encoders with predefined profiles where the transcoding engine will take care of the rest of the process. This flexible API is as simple as: **Input Source => Transcoding Preset => Output File.**

The functionality – if required – to control every aspect of the conversion process is still included in Transcoding SDK, including source/target destinations, export presets, transcoding and filter parameters, etc.

It is even possible to deploy the Transcoding SDK as is on a server, by using the numerous tutorials included for content creation and preparation, as it already offers ready-to-use presets optimized for both quality and performance.

FEATURES

Powerful & easy-to-use API

Comes with a well documented API (Application Programming Interface - in C-programming language) allowing you to easily create your own transcoding software with a GUI (Graphical User Interface).

Flexible conversion tool development & usage

Fast development of conversion tools that can be controlled via command line or act as a server side transcoding application.

Tight integration with MainConcept Codec SDK

Transcoding SDK works as an additional layer above the popular MainConcept Codec SDK, so developers do not need to take care of the numerous codec settings and parameters.

Input Source => Transcoding Preset => Output File

Developers can set the encoders by using predefined profiles, and the transcoding engine takes care of the rest.

Complete user control

Control every aspect of the conversion process by the Transcoding SDK, incl. source/target destinations, export presets, transcoding and filter parameters, etc.

Ready-to-use tutorials as a quick start

Use Transcoding SDK as is on a server using the numerous tutorials included for direct content creation. They already offer ready-to-use presets focusing on both quality and performance.

Closed Caption support

Pass-through of CEA-608 and CEA-708 (aka EIA-608/708) captions from sources containing ATSC A/53 or A/72 captions.

Subtitle support

Subtitle visibility improvements, such as changing the font type, color and outline features (*.srt and *.sub files).

HLS production compliant with iOS 11 and macOS High Sierra (and higher)

Updated HLS Presets using HEVC/H.265 and AVC/H.264, incl. hybrid playlist generation with support for MPEG-2 TS and fMP4 segments fully compliant with Apple's latest encoding recommendations and specs.

Video & Audio processing filters

Many powerful video and audio filters for different production environments and occasions.

Batch List transcoding

Execute multiple tasks efficiently by setting up a batch process for files that use specified encoding presets and output formats.

Watch Folder support

Configure folders with predefined encoding parameters and leave it to the application to automatically process incoming media whenever it is added.

Smart rendering & remuxing support

Time-saving smart rendering and remuxing support for various codecs and multiplexers.

Signaling of various High Dynamic Range (HDR) flavors

Signaling SMPTE 2084 based HDR-10 / PQ-10 including SMPTE 2086 mastering display metadata and MaxFALL, MaxCLL for encoding into HD and 4K. Transcoding SDK additionally supports HLG transfer characteristics signaling in accordance with ITU-R BT.2100-1.

SPECS

THE CORE API CONSISTS OF THE FOLLOWING ITEMS:

- Transcoding process control
- Management of processing modules
- Utility functions
- Built-in processing modules

AVAILABLE INPUT FORMATS:

- DirectShow import (Win)
- QuickTime import (Win + Mac)
- GStreamer import (Linux)
- MPEG-1/2, MPEG-4 Part 2, VC-1, HEVC/H.265 & AVC/H.264
- DV / DVCPRO
- JPEG 2000
- Apple ProRes
- Avid DNxHD / DNxHR

AVAILABLE OUTPUT VIDEO FORMATS:

- HEVC/H.265 (incl. IQSV & NVENC)
- AVC/H.264 (incl. IQSV)
- MPEG-1/2
- DV / DVCPRO 25/50/100 (HD)
- VC-1
- JPEG 2000
- MPEG-4 Part 2
- RAW/YUV

AVAILABLE OUTPUT AUDIO FORMATS:

- PCM / LPCM
- MPEG Layer 1/2 Audio
- AAC, HE-AAC
- WMA
- AMR
- Raw
- DV
- Dolby Digital Plus Pro (AC-3 & E-AC-3)

AVAILABLE OUTPUT MUXER FORMATS:

- Elementary Streams
- MPEG-2 Program Stream
- MPEG-2 Transport Stream
- MP4
- 3GP
- F4V
- ASF
- DV
- DIF
- MJ2
- MXF
- RAW

TRANSCODING SDK ENCODER PACKAGES

HEVC/H.265 ENCODER PACKAGE

HEVC/H.265 encoder to create HLS, DASH-265, and other generic 8-bit/10-bit 4:2:0 HEVC streams in ES, MP4 and TS file formats. Includes hardware encoding using Intel Quick Sync Video (IQSV) and NVIDIA NVENC for Windows & Linux.

HEVC/H.265 SABET ENCODER PACKAGE

HEVC/H.265 Codec SDK including our Smart Adaptive Bitrate Encoding Technology (SABET). Includes hardware encoding using Intel Quick Sync Video (IQSV) and NVIDIA NVENC for Windows & Linux.

AVC/H.264 ENCODER PACKAGE

AVC/H.264 encoder to create HLS, DASH-264, and many more 8-bit 4:2:0 streams in ES, MP4, TS, etc.

AVC/H.264 BROADCAST ENCODER PACKAGE

Encoding up to AVC/H.264 10-bit High 4:2:2 profile support, incl. AVC-Intra 50/100/200, AVC Ultra and XAVC presets.

AVC/H.264 IQSV ENCODER PACKAGE

AVC/H.264 Intel Quick Sync Video encoding for Windows and Linux. Free add-on for any AVC/H.264 Encoder Package.

DVCPRO HD ENCODER PACKAGE

DV, DVCPRO 25, 50 and 100 (HD) support.

JPEG 2000 ENCODER PACKAGE

DCP compliant frames generation.

MPEG-2 ENCODER PACKAGE

MPEG-1 and MPEG-2 compliant stream generation.

MPEG-4 PART 2 ENCODER PACKAGE

MPEG-4 Part 2 and H.263 compliant stream generation.

VC-1 ENCODER PACKAGE

WMV and Blu-ray Disc encoding.

DOLBY DIGITAL PLUS PRO ENCODER PACKAGE

Full AC-3 and E-AC-3 audio support.

TECH SPECS

- Microsoft® Windows® Windows 7, Windows 8, Windows 10 (64-bit)
- Apple macOS 10.7 or higher (64-bit)
- Linux Ubuntu 14.04 LTS (glibc2.19), CentOS 7.2 (64-bit)

For Windows, macOS and Linux, the codec package consists of a Low Level API (in the C programming language). Under Windows, it additionally includes DirectShow® decoder filters for file import. For QuickTime and ProRes import, QuickTime Player needs to be installed on the system.

For using AVC/H.264 or HEVC/H.265 hardware encoding in Transcoding SDK, we recommend the following processors running Microsoft® Windows® or CentOS Linux:

- Intel® Xeon® E3 CPU family with integrated graphics unit
- Intel® Core™ CPU family (6th or 7th Generation Intel® Core™ i7 processors), e.g. i7-7700 or i7-7000K, etc.

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