

MXFUnwrapper

Specification Sheet

Version 1.4
June 2004



This information is subject to change without prior notice.

Uses the MXF::SDK developed in co-operation with Institut für Rundfunktechnik GmbH,
www.irt.de.

Table of Contents

Table of Contents	4
Overview	5
ActiveX Interface Specification.....	6
Methods	6
<i>unwrap</i>	6
<i>selectEssenceClip</i>	7
<i>cancel</i>	7
<i>reset</i>	8
Events.....	8
<i>handleNewEssenceContainer</i>	8
<i>progressUpdate</i>	9
<i>done</i>	9
<i>error</i>	9
Properties	10
<i>dictionaryFile</i>	10
<i>logicalMetadataView</i>	10
<i>extractDarkMetadata</i>	10
<i>extractOnlyStructuralMetadata</i>	11
<i>metadataOutputFile</i>	11
<i>essenceOutputDirectory</i>	11
<i>essenceFilenamePrefix</i>	12
<i>separateAudioVideo</i>	12
Annex I - Error Codes	13
References	14

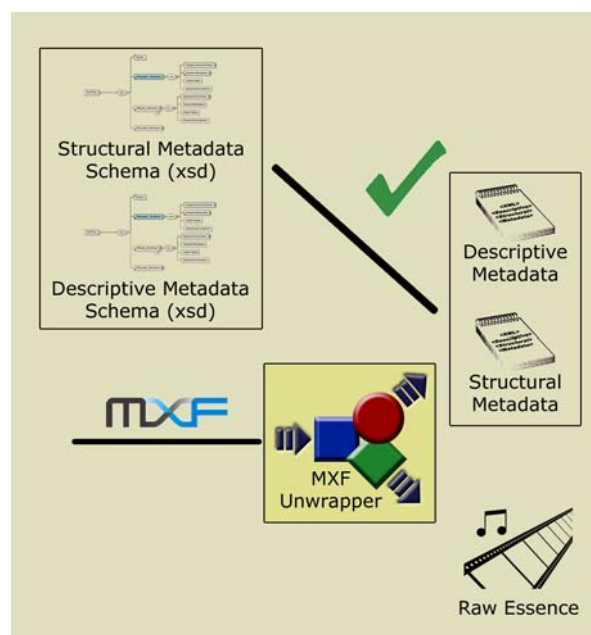
Overview

The **MXFUnwrapper** is a binary component for Microsoft Windows® that decodes MXF [1] files, extracting the Essence and Metadata they contain.

The **MXFUnwrapper** is Essence format agnostic and can deal with MXF Operational Patterns OP1a to OP3c. Both Structural and Descriptive Metadata are supported and a dictionary is used to convert the KLV-coded format into a XML document. The dictionary is a XML Schema document as defined in [2]. The component is distributed with option to extract Descriptive Metadata or just the Structural Metadata.

The **MXFUnwrapper** is available either as an ActiveX® component or as a C++ library.

The ActiveX component generates a file per Essence Container and a XML document containing the Metadata. The document's structure is defined by the XML Schema shipped with the **MXFComponentSuite**, along with schema overview documentation [2].



The C++ library is slightly more complex but has a flexible streaming interface that allows its integration in streaming environments.

The next section details the ActiveX interface. The programming interface for the C++ version of the Components is defined in a separate document [3].

ActiveX Interface Specification

Methods

unwrap

Method	
<p>Extracts data from the MXF file, depending on the current properties.</p> <p>If extractAllEssence is true, all internal Source Packages will be extracted.</p> <p>If extractAllEssence is false, the extracted Essence will be defined by the calls to selectEssence and selectEssenceClip. If no clip is added, no Essence will be extracted.</p> <p>If extractMetadata is true, Metadata will be extracted into the file defined by metadataOutputFile.</p> <p>The extracted Essence will be written to files in the directory defined by essenceOutputDirectory. The name of the files will be the BodySID of the Package (in hexadecimal).</p> <p>If separateAudioVideo is true, Essence will be extracted using different audio and video files.</p>	
Return	
HRESULT	S_OK
Parameters	
BSTR mxfFile	Path to the MXF file to unwrap.
SHORT asynchronous	If 1 then client will receive progress events and 0 for blocking the method to return.
SHORT* retValue	Result code. 1 if something failed and 0 (zero) if Ok.

selectEssence

Method

<p>Adds a Package to the list of packages to extract.</p> <p>Sets extractAllEssence to false.</p>	
Return	
HRESULT	TBD
Parameters	
ULONG bodySID	The BodySID value of the EssenceContainer to unwrap. See event handleNewEssenceContainer.

selectEssenceClip

Method	
<p>Similar to selectEssence but the output will contain only the part of the item that falls within [inPoint, inPoint + duration).</p>	
Return	
HRESULT	TBD
Parameters	
ULONG bodySID	The BodySID value of the EssenceContainer to unwrap
LONGLONG inPoint	Offset into Essence measured in Edit Units.
LONGLONG duration	Duration of the clip in Edit Units.

cancel

Method

Stops the unwrapping process if asynchronous flag of the unwrap method is set.

Return

HRESULT	TBD
---------	-----

reset

Method

Resets all properties.

Return

HRESULT	TBD
---------	-----

Events

handleNewEssenceContainer

Event

Called whenever a new Essence Container is found in a Partition's Structural Metadata.

Parameters

ULONG bodySID	The Body SID of the Essence Container, as defined in SMPTE 377M.
BSTR essenceTypeUL	The identifier of the Essence type, as defined in SMPTE EG43.

progressUpdate

Event	
Tells client application the percentage of completion while unwrapping the MXF file. If asynchronous flag of the wrap function is set.	
Parameters	
SHORT percent	Percentage of unwrapping process. Values range from 0 to 100.

done

Event
Event raised when the unwrapping process has finished. If asynchronous flag of the unwrap function is set.

error

Event	
Event raised when an error occurred. The parameters provide further information on the nature of the error.	
Parameters	
SHORT errorCode	The error code, please refer to Annex I
BSTR message	A human readable message with information on the nature of the error.

Properties

dictionaryFile

Property	
The path to the binary form of the MXF dictionary (e.g. mxf_file.bin).	
Type	BSTR
Default	""

logicalMetadataView

Property	
<p>If true, the XML output will represent a logical view of the MXF file. If false, the output will be flat.</p> <p>The logical view resolves the Strong References, nesting the referenced Metadata Sets (in the XML sense) underneath the Metadata Sets that refer to them.</p> <p>The flat view keeps the Metadata Set in a flat list, keeping the UID-based MXF referencing mechanism.</p>	
Type	SHORT
Default	False

extractDarkMetadata

Property	
If false, Metadata with unknown Universal Labels (known as Dark Metadata) will be ignored.	

If true, the XML output will contain Dark Metadata sets, displaying the set's Keys and attribute's UL Designators, but with the data encoded as raw byte streams.

Type	SHORT
Default	False

extractOnlyStructuralMetadata

Property	
If true, only Structural Metadata sets will be extracted and written to the XML output file.	
Type	SHORT
Default	True

metadataOutputFile

Property	
The path to the file that will contain the XML Metadata.	
Type	BSTR
Default	""

essenceOutputDirectory

Property	
The path to the directory where the Essence files will be placed.	
Type	BSTR

Default	""
----------------	----

essenceFilenamePrefix

Property	
The prefix used to name the output files.	
Type	BSTR
Default	""

separateAudioVideo

Property	
<p>If false, Essence will be extracted in a single multiplexed file, e.g.: Audio and Video in a single file.</p> <p>If true, Essence will be extracted using one file for each demultiplexed source, e.g.: separated Audio and Video output files.</p>	
Type	SHORT
Default	False

Annex I - Error Codes

Error Codes	
Code	Description
0	Unknown Exception.
1 - 1023	Internal error (please report this error code to support@mog-solutions.com).
1024	General error with an error message.
1025	Error processing the metadata, see message for details.
1026	Error loading EssenceAnalyzer DLL. Please check your installation.
1027	Error when trying to parse Essence. Please make sure that the Essence format is the one specified in the Essence Type UniversalLabel.

References

- [1] SMPTE 377M, *Material Exchange Format (MXF) File Format Specification (Standard)*, 2003
- [2] MOG Solutions, "XML Schema for MXF Metadata", 2003
- [3] MOG Solutions, "MXFComponentSuite C++ API Reference"