

Supplementary Materials for “Forensic Analysis of Video Files Using Metadata”

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1. MP4 Metadata Discarded in Metadata Extraction Step

We discard the MP4 nodes with the following type during MP4 metadata extraction. Non-ASCII or non-printable characters are represented as hex codes surrounded with black frames.

```
iods, gstd, sdix, [A9]nam, [A9]day, [A9]xyz
```

We discard MP4 metadata key-value pairs with the following keys:

```
@entry_list, @creation_time, @modification_time,  
@SequenceParameterSets_list, @PictureParameterSets  
_list, @elementary_stream_descriptor, @entry_list,  
@duration, @entry_count, @sample_list, @samples,  
@segment_duration, @media_time, @sample_count, @xml_  
data, @bufferSizeDB, [A9]day, [A9]xyz, @xmp:CreateDate,  
@xmp:ModifyDate, @@exif:GPSLatitude, @@exif:  
GPSAltitude, @@exif:GPSLongitude, @loci, @@stRef  
:fromPart, @@stRef:toPart, @@stRef:instanceID  
, @@stEvt:when, @@xmp:MetadataDate, @@xmpMM:  
InstanceID, @@xmpMM:OriginalDocumentID, @@xmpMM:  
DocumentID, @@stEvt:instanceID, @@stRef:documentID,  
@@stRef:filePath, @@stRef:originalDocumentID, @exif  
:GPSLatitude, @exif:GPSAltitude, @exif:GPSLongitude,  
@baseMediaDecode
```

2. Continuous Metadata Fields in MP4

We consider MP4 metadata key-value pairs with the following keys to be continuous:

```
@volume, @width, @height, @media_rate_integer,  
@media_rate_fraction, @timescale, @sample_size,  
@@xmpDM:videoFrameRate, @@xmpDM:startTimeScale  
, @@xmpDM:startTimeSampleSize, @@xmpDM:value,  
@@stDim:w, @@stDim:h, @xmpDM:videoFrameRate  
, @tiff:ImageLength, @tiff:ImageWidth, @xmpDM:  
videoFrameRate, @avgBitrate, @maxBitrate, @rate
```