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SMPTE RECOMMENDED PRACTICE

Film to Video Transfer List



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1 Scope

1.1 This practice describes the data format of a list of film-to-video transfers. This list may be stored and referenced to document the process of transferring pictures and sound from film-related media to video media. The information documented in this list may include general production and post-production information (date, facility, film type). The list also contains the specific time (synchronization) relationships between source and destination elements. The storage medium for this list is not specified by this practice.

1.2 This practice is based on ANSI/SMPTE 258M. The edit decision list (EDL) forms the base description of the structure of this film transfer list (FTL). Sections of this practice describe additional information that is used to document film-to-tape transfer sessions. Only the differences between EDL and FTL are contained here.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this practice. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this practice are encouraged to investigate the possibility of applying the most recent edition of the standards indicated below.

ANSI/SMPTE 258M-1993, Television — Transfer of Edit Decision Lists

SMPTE RP 194-1998, Film Negative Cutter's Conform List

3 Notation

3.1 Terms

Grammatical terms are capitalized, with an underscore separating words. Some terms are used in a specific and formal manner to identify the meaning of that term in the context of a film transfer list. This type of term is printed in upper case using underscores () to join words into one term. Each of these terms will be defined in a formal manner using Backus-Naur Form (BNF) or the defined terms of 3.2 and ANSI/SMPTE 258M.

3.2 Defined terms in addition to the SMPTE EDL

3.2.1 film: Used to include both picture and sound sources on film-related media.

3.2.2 video: Used to include both video and audio destinations of video-related recording formats.

4 Film transfer list — Overall structure

4.1 General information

The FTL replaces the EDL component in the grammar. Like the EDL, the FTL consists of the INITIAL_DIRECTIVES followed by the FILM_TRANSFER_LIST.

FTL:

```
INITIAL_DIRECTIVES FILM_TRANSFER_LIST 'SUB'
| INITIAL_DIRECTIVES FILM_TRANSFER_LIST
;
```

The FILM_TRANSFER_LIST replaces the EDIT_LIST grammar item in an FTL and is made up of ELEMENTS. The physical order of the ELEMENTS in the list is representative of the order in which the transfers occurred.

FILM_TRANSFER_LIST:

```
ELEMENT
| ELEMENT FILM_TRANSFER_LIST
;
```

4.2 Film transfer list elements

There are six types of elements in the list:

- system directive
- information element
- transfer element
- user element
- trigger element
- device control element

ELEMENT:

```
[SEPARATOR] TERMINATOR
| SYSTEM_DIRECTIVE_ELEMENT [SEPARATOR] TERMINATOR
| INFORMATION_ELEMENT [SEPARATOR] TERMINATOR
| TRANSFER_ELEMENT [SEPARATOR] TERMINATOR
| USER_ELEMENT [SEPARATOR] TERMINATOR
| TRIGGER_ELEMENT [SEPARATOR] TERMINATOR
| DEVICE_CONTROL_ELEMENT [SEPARATOR] TERMINATOR
```

5 System directives

5.1 System directives of the film transfer list are not the same as the SYSTEM_DIRECTIVE of the EDL. They are used to contain information used by the transfer system to perform and document the transfer at the system level. This information has meaning across several transfer elements. When a system directive is encountered in the list, the effect of the directive remains until cancelled by another directive. Some system directives act as default values for fields within a TRANSFER_ELEMENT. When a new value is specified in a transfer, the transfer suspends the system directive's value for that transfer only.

SYSTEM_DIRECTIVE_ELEMENT:

```
"*" PRINTABLE_STRING
| "INCLUDE" SEPARATOR FILENAME "=" TIMECODE
| "NORECORD" SEPARATOR MODE_FIELD SEPARATOR MEDIUM_IDENTIFIER
| "RECORD" SEPARATOR MODE_FIELD SEPARATOR MEDIUM_IDENTIFIER ["=" TIMECODE]
;
```

5.2 '*' directive

The '*' directive is the same as the '*' item in the EDL's INFORMATIONAL_DIRECTIVE. It is a system level comment.

5.3 INCLUDE, NORECORD and RECORD directives

The INCLUDE, NORECORD, and RECORD directives are the same as the EDL's CONTROL_DIRECTIVES of the same names.

6 Information elements

6.1 The INFORMATION_ELEMENT is unique to the FTL. It is used to create specific data items for the session. Data items are formed by an IDENTIFIER followed by the character ':'. Some specific INFORMATION_ELEMENT names are defined by this guideline. Other IDENTIFIERS followed by ':' can be created in the list as long as the name is different from those specified here. The content of the nonreserved names is the PRINTABLE_STRING that follows. The content of each reserved INFORMATION_ELEMENT name is as defined in this clause.

INFORMATION_ELEMENT:

```
"FRAME_RATE:" SEPARATOR ROLL_ID SEPARATOR REAL_NUMBER
    [SEPARATOR REAL_NUMBER]
| "RECORD_FRAME_RATE:" SEPARATOR REAL_NUMBER
| "EDGE_NUMBER_PERIOD:" SEPARATOR ROLL_ID SEPARATOR INTEGER "/" INTEGER
| "EDGE_NUMBER_TYPE:" SEPARATOR ROLL_ID SEPARATOR EDGE_NUMBER_TYPE
| "FILM_FORMAT:" SEPARATOR ROLL_ID SEPARATOR FILM_FORMAT
| "FILM_ASPECT_RATIO:" SEPARATOR ROLL_ID SEPARATOR ASPECT_RATIO
| "FILM_APERTURE:" SEPARATOR ROLL_ID SEPARATOR FILM_APERTURE
| "VIDEO_ASPECT_RATIO:" SEPARATOR VIDEO_ASPECT_RATIO
| "VIDEO_IMAGE_UNITS:" SEPARATOR VIDEO_IMAGE_UNITS
| "PAN:" SEPARATOR PAN_PARAMETERS
| "ZOOM:" SEPARATOR ZOOM_PARAMETERS
| "ROTATION:" SEPARATOR ROT_PARAMETERS
| "OPERATOR:" SEPARATOR PRINTABLE_STRING
| "TRANSFER_FACILITY:" SEPARATOR PRINTABLE_STRING
| "PRODUCTION_NUMBER:" SEPARATOR PRINTABLE_STRING
| "PRODUCTION_TITLE:" SEPARATOR PRINTABLE_STRING
| "SHOOT_DATE:" SEPARATOR PRINTABLE_STRING
| "TRANSFER_DATE:" SEPARATOR PRINTABLE_STRING
| "SOURCE_MEDIUM:" SEPARATOR ROLL_ID SEPARATOR PRINTABLE_STRING
| IDENTIFIER ':' SEPARATOR PRINTABLE_STRING
;
```

6.2 FRAME_RATE:

The "FRAME_RATE:" item is used to specify the natural frame rate and the transfer frame rate for each source.

The first value is expressed as a real number and should contain enough precision to reflect the exact frame rate of the source material when it was produced; however, it is often an integer (e.g., 24). The second value, if present, is also a real number and represents the frame rate to which the source was resolved during transfer. FRAME_RATE must be specified for each roll in a transfer session; there is no default.

In the case of a film source in an NTSC system, the first value might be "24," and the second value might be "23.98," reflecting the standard practice and field rate of NTSC. If 25 frames/s film or audio sources were

transferred in a 50-Hz system, the second value would not be needed to document a standard frame-per-frame transfer. The ratio between the two values documents variable speed transfer rates that may take place in a transfer. Although two digits of decimal precision are an approximation of the exact frequency involved, implementations may round to the closest exact frame rate on the system. If an ambiguity must be avoided, additional digits of decimal precision should be used.

6.3 RECORD_FRAME_RATE:

The "RECORD_FRAME_RATE" item is used to specify the exact frame rate of the device recording the transfer. It is expressed as a real number and should contain enough precision to reflect the exact frame rate of the device. For NTSC systems, the value is usually 29.97. RECORD_FRAME_RATE must be specified for each transfer session; there is no default.

6.4 EDGE_NUMBER_PERIOD:

"EDGE_NUMBER_PERIOD:" is used to note the number of film frames between whole edge numbers on the source medium identified. This may be used by the system to calculate conversions based on frame rates, time, and edge numbers. The value in EDGE_NUMBER_PERIOD is expressed as a ratio of two integers, the number of perforations per edge number, and the number of perforations per frame.

When the first integer is not divisible by the second integer (as in the example below), a "perf specifier" is required to identify unambiguously the film frame referred to by transfer elements. Refer to SMPTE RP 195 for a description of the perf specifier. EDGE_NUMBER_PERIOD must be specified for each roll in a transfer session; there is no default. Example:

EDGE_NUMBER_PERIOD: ROLL01 64/3

6.5 EDGE_NUMBER_TYPE:

"EDGE_NUMBER_TYPE:" records the method used to mark the edge numbers on the identified source roll.

EDGE_NUMBER_TYPE:

```
EDGE_NUMBER_TYPE_ITEM [SEPARATOR EDGE_NUMBER_DIRECTION]
| EDGE_NUMBER_TYPE [SEPARATOR] EDGE_NUMBER_TYPE_ITEM
  [SEPARATOR EDGE_NUMBER_DIRECTION]
;
```

EDGE_NUMBER_TYPE_ITEM:

```
"BAR" /* machine readable bar code */
| "LHR" /* human readable version of machine readable bar code*/
| "LAT" /* latent image characters */
| "INK" /* other printed characters */
;
```

EDGE_NUMBER_DIRECTION

```
"INCR" /* incrementing edge numbers */
| "DECR" /* decrementing edge numbers; i.e., tails out */
;
```

If no EDGE_NUMBER_DIRECTION is specified, INCR is assumed. Note that two varieties of edge number may be specified simultaneously, and that the count directions may be different. EDGE_NUMBER_TYPE must be specified for each roll in a transfer session; there is no default. For example:

EDGE_NUMBER_TYPE: ROLL01 BAR INCR INK DECR

6.6 FILM_FORMAT:

The "FILM_FORMAT:" data item is used to identify the specific gauge and variant of the transfer process for all film sources during the time the directive is active. There is no default value for this data item. (The defined contents of this data field are the same as those used in EBU Tech. 3245 Supplement 4.) FILM_FORMAT must be specified for each roll in a transfer session; there is no default.

```
FILM_FORMAT:
    "16MM"
    | "SUPER 16"
    | "35MM"
    | "35MM/3"
    | "35MM/4"
    | "35MM/8"
    | "35MM/12"
    | "SUPER 35"
    | "65MM"
    | "65MM/5"
    | "65MM/8"
    | "65MM/10"
    | "65MM/15"
    | NUMBER "MM/" NUMBER
    ;
```

6.7 FILM_ASPECT_RATIO:

"FILM_ASPECT_RATIO:" expresses a ratio of width to height for the intended production aperture of the source images. The standard television aspect ratio of 4:3 (1.33:1) need not be specified and is considered the default. This data item is assumed to affect all film sources transferred during the time the particular directive is in force.

A film aspect ratio specified different from the default means that the rectangular area of that proportion bounded horizontally by the FILM_APERTURE on the film is completely contained in the video production aperture. Aspect ratios wider than 4:3 will just fill the horizontal area of the video production aperture with the height of the picture being less than the height of the aperture. Black fill for letterboxing is implied. FILM_ASPECT_RATIO may be specified for each roll in a transfer session; by default, it is 4:3.

The modifier "ANAMORPHIC" implies that the distorted film image is adjusted to normal proportions before fitting to the applicable aspect ratio.

```
ASPECT_RATIO:
    WIDTH ':' HEIGHT ["ANAMORPHIC"]
    ;
```

```
WIDTH:
    REAL_NUMBER
    ;
```

```
HEIGHT:
    REAL_NUMBER
    ;
```

6.8 FILM_APERTURE:

"FILM_APERTURE:" describes the production aperture of the source images. It is either a reference to the appropriate SMPTE standard or a PRINTABLE_STRING, which may be used to describe a non-SMPTE aperture.

FILM_APERTURE may be specified for each roll in a transfer session; the default for a given FILM_FORMAT is the SMPTE standard for the aspect ratio specified. In many cases, this would be SMPTE 96M.

FILM_APERTURE:

```
"SMPTE" SEPARATOR "STD" NUMBER "M" ["--" NUMBER]
| "SMPTE" SEPARATOR "RP" NUMBER ["--" NUMBER]
| PRINTABLE_STRING
;
```

6.9 VIDEO_ASPECT_RATIO:

"VIDEO_ASPECT_RATIO:" expresses a ratio of width to height for the format of the production aperture in the video image output from the transfer. The standard television aspect ratio of 4:3 (1:33:1) need not be specified and is considered the default.

VIDEO_ASPECT_RATIO:

```
WIDTH ":" HEIGHT
;
```

6.10 VIDEO_IMAGE_UNITS:

"VIDEO_IMAGE_UNITS:" specifies the number of units of measurement of image width and height in the video output format production aperture. Typical values might be 8 6 (corresponding to common practice in the user interfaces of image manipulation devices), or 100 100 (corresponding to measurements as a percentage of picture).

The default is 720 x 486 for TIME_CODE_MODULUS of 30 and 720 x 576 for TIME_CODE_MODULUS of 25. These correspond to the actual video raster of ANSI/SMPTE 125M and EBU Tech. 3267.

VIDEO_IMAGE_UNITS:

```
HORIZONTAL_VIDEO_IMAGE_UNITS ':' VERTICAL_VIDEO_IMAGE_UNITS
;
```

HORIZONTAL_VIDEO_IMAGE_UNITS:

```
NUMBER
;
```

VERTICAL_VIDEO_IMAGE_UNITS:

```
NUMBER
;
```

Example:

```
VIDEO_IMAGE_UNITS: 24:18
```

6.11 PAN

"PAN" describes the amount of repositioning to frame an incompatible film image to the video production aperture in use. Any number of PAN elements may appear in an FTL; when a PAN has been specified, it