**Common Extras
Menu Metadata**
DRAFT

Ref : TR-META-MENU
Version : v0.56
Date : Mar 16, 2012

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REVISION HISTORY

Version	Date	Description

1 INTRODUCTION

This document builds on Common Extras Manifest Metadata by adding a simple menu system.

This specification is designed as a resource. Those using this specification may extend the definition with additional data element specific for their needs. They may replace elements with others perhaps more suitable to their needs; however, for interoperability all are highly encouraged to use the data elements exactly as defined.

Common Extras Metadata is part of the Common Metadata family of specifications.

1.1 Overview

1.1.1 Technical Approach

This document builds on Common Extras Manifest Metadata by adding a simple menu system.

1.1.2 Extras Architecture

The Extras Menu architecture has the following data objects

- [TBS]

From these components an Extras Menu can be created.

1.1.3 Relationship of Extras to Common Metadata

Common Extras is an extension to Common Metadata and may be used in conjunction with Common Metadata, or as its own entity.

Common Metadata includes elements that cover typical definitions of media, particularly movies and television. Common Metadata has two parts: Basic Metadata and Digital Asset Metadata. Basic Metadata includes descriptions such as title and artists. It describes information about the work independent of encoding. Digital Asset metadata describes information about individual encoded audio, video and subtitle streams, and other media included. Package and File Metadata describes one possible packaging scenario and ties in other metadata types. Ratings and Parental Control information is described.

Common Metadata is designed to provide definitions to be inserted into other metadata systems. A given metadata scheme, for example, the Entertainment Merchant's Association (EMA) may select element of the Common Metadata to be used within its definitions. EMA would then define additional metadata to cover areas not included in Common Metadata.

1.2 Document Organization

This document is organized as follows:

1. Introduction—Provides background, scope and conventions
2. [TBS]

1.3 Document Notation and Conventions

The key words "MUST", "MUST NOT", "REQUIRED", "SHALL", "SHALL NOT", "SHOULD", "SHOULD NOT", "RECOMMENDED", "MAY", and "OPTIONAL" in this document are to be interpreted as described in [RFC2119]. That is:

- "MUST", "REQUIRED" or "SHALL", mean that the definition is an absolute requirement of the specification.

- "MUST NOT" or "SHALL NOT" means that the definition is an absolute prohibition of the specification.

- "SHOULD" or "RECOMMENDED" mean that there may be valid reasons to ignore a particular item, but the full implications must be understood and carefully weighed before choosing a different course.

- "SHOULD NOT" or "NOT RECOMMENDED" mean that there may be valid reasons when the particular behavior is acceptable, but the full implications should be understood and the case carefully weighed before implementing any behavior described with this label.

- "MAY" or "OPTIONAL" mean the item is truly optional, however a preferred implementation may be specified for OPTIONAL features to improve interoperability.

Terms defined to have a specific meaning within this specification will be capitalized, e.g. "Track", and should be interpreted with their general meaning if not capitalized.

Normative key words are written in all caps, e.g. "SHALL"

1.3.1 XML Conventions

XML is used extensively in this document to describe data. It does not necessarily imply that actual data exchanged will be in XML. For example, JSON may be used equivalently.

This document uses tables to define XML structure. These tables may combine multiple elements and attributes in a single table. Although this does not align with schema structure, it is much more readable and hence easier to review and to implement.

Although the tables are less exact than XSD, the tables should not conflict with the schema. Such contradictions should be noted as errors and corrected.

1.3.1.1 Naming Conventions

This section describes naming conventions for Common Metadata XML attributes, element and other named entities. The conventions are as follows:

- Names use initial caps, as in InitialCaps.

- Elements begin with a capital letter, as in InitialCapitalElement.

- Attributes begin with a lowercase letter, as in initiaLowercaseAttribute.

- XML structures are formatted as Courier New, such as md:rightstoken

- Names of both simple and complex types are followed with "-type"

1.3.1.2 Structure of Element Table

Each section begins with an information introduction. For example, "The Bin Element describes the unique case information assigned to the notice."

This is followed by a table with the following structure.

The headings are

- Element—the name of the element.

- Attribute—the name of the attribute

- Definition—a descriptive definition. The definition may define conditions of usage or other constraints.

- Value—the format of the attribute or element. Value may be an XML type (e.g., "string") or a reference to another element description (e.g., "See Bar Element"). Annotations for limits or enumerations may be included (e.g.," int [0..100]" to indicate an XML xs:int type with an accepted range from 1 to 100 inclusively)

- Card—cardinality of the element. If blank, then it is 1. Other typical values are 0..1 (optional), 1..n and 0..n.

The first row of the table after the header is the element being defined. This is immediately followed by attributes of this element, if any. Subsequent rows are child elements and their attributes. All child elements (i.e., those that are direct descendents) are included in the table. Simple child elements may be fully defined here (e.g., "Title", " ", "Title of work", "xs:string"), or described fully elsewhere ("POC", " ", "Person to contact in case there is a problem", "md:ContactInfo-type"). In this example, if POC was to be defined by a complex type defined as md:ContactInfo-type. Attributes immediately follow the containing element.

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Accompanying the table is as much normative explanation as appropriate to fully define the element, and potentially examples for clarity. Examples and other informative descriptive text may follow. XML examples are included toward the end of the document and the referenced web sites.

1.3.2 General Notes

All required elements and attributes must be included.

When enumerations are provided in the form 'enumeration', the quotation marks ('') should not be included.

The term "Device" refers to an entity playing the interactive material specified here. It may be a standalone physical device, such as a Blu-ray player, or it might be an application running on a general purpose computer, a table, phone or as part of another device. The term 'User' refers to the person using the Device.

1.4 Normative References

[CM] Common Metadata, www.movielabs.com/md/md

[CommonExtra] Common Extras Manifest Metadata, www.movielabs.com/md/extras

[RFC4646] Philips, A, et al, *RFC 4646, Tags for Identifying Languages*, IETF, September, 2006. http://www.ietf.org/rfc/rfc4646.txt

 [ISO639] ISO 639-2 Registration Authority, Library of Congress. http://www.loc.gov/standards/iso639-2/

[ISO3166-1] Codes for the representation of names of countries and their subdivisions -- Part 1: Country codes, 2007.

[ISO3166-2] ISO 3166-2:2007Codes for the representation of names of countries and their subdivisions -- Part 2: Country subdivision code

[ISO4217] Currency shall be encoded using ISO 4217 Alphabetic Code. http://www.iso.org/iso/currency_codes_list-1

[ISO8601] ISO 8601:2000 Second Edition, *Representation of dates and times, second edition*, 2000-12-15.

[TTML] Timed Text Markup Language (TTML) 1.0, W3C Proposed Recommendation 14 September 2010, http://www.w3.org/TR/ttaf1-dfxp/

1.5 Informative References

1.6 General Types

1.6.1 ChapterUnique-type

This uniquely identifies a chapter fully within the Chain context.

Element	Attribute	Definition	Value	Card.
ChapterUnique-type				
ChainID		The Chain in which the TrackGroup exists	extras:ChainID-type	
TrackGroupID		The TrackGroup in which the Chapter exists	extras:TrackGroupID-type	
ChapterIndex		Chapter Index from reference Chapter's Chapter/@Index.	xs:integer	

[CHS: should this be in extras: ?]

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2   PICTURE GROUPS AND GALLERIES

Images may be provided with a main title, or as supplements to supplemental audiovisual material.

Images are grouped and sequenced. Basic models allow for a single sequence (slide show). More advanced models allow more complex navigation paths.

The Gallery, part of Behavior, defines how a Picture Group is displayed.

2.1 Picture Group

The top level definition for Picture Groups is PictureGroupList-type. It contains one or more Picture Groups.

Element	Attribute	Definition	Value	Card.
PictureGroupList-type				
PictureGroup		An unordered list of Picture Groups.	extras:PictureGroup-type	0..n

2.2 Picture Group Type

A Picture Group is an identified and sequenced collection of images with annotation.

Image annotation includes

- Localized captions to be displayed with images
- Languages of text in images (for localization)
- Intended sequence for playback in a gallery.

Element	Attribute	Definition	Value	Card.
PictureGroup-type				
	PictureGroupID	Identifier for the Picture Group. Must be unique within an Extras element.	extras:PictureGroupID-type	
Picture		An individual picture within the PictureGroup.	extras:Picture-type	1..n

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2.2.1 Picture-Type

Picture-Type describes an individual picture, including how it relates to other pictures when sequenced within a Gallery. Note that a 'Picture' is more than an 'Image', so it has it's own identity, PictureID.

Element	Attribute	Definition	Value	Card.
Picture-type				
PictureID		Identifier for this Picture.	extras:PictureID-type	
ImageID		Reference to the image for the Picture.	extras:ImageID-type	
LanguageInImage		If there is any text visible in the image, this element identifies this language. Anticipated use is to determine when alternate text is required.	xs:language	
AlternateText		Alternate text to be used for accessibility and Internationalization. This can be used to represent text on the screen.	xs:string	0..n
	Language	Language of AlternateText	xs:language	0..1
AlternateAudio		Audio corresponding with text in image. Anticipated use is accessibility.	extras:AudioClipRef-type	0..n
	Language	Language of AlternateAudio	xs:language	0..1
Caption		Caption for the image.	xs:string	0..n
	Language	Language of Caption	xs:language	0..1
AlternateCaptionAudio		Audio corresponding Caption. Anticipated use is accessibility.	extras:AudioClipRef-type	0..n
	Language	Language of AlternateCaptionAudio	xs:language	0..1

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2.3 Gallery

The user interface for the presentation of images is called a Gallery. The Gallery contains enough information to provide a simple display of images.

A gallery contains

- Name – Used for gallery selection)

- Picture Group – Images associated with Gallery. The Gallery will include all images in the Picture Group.

- Background – Image or video background with optional audio.

- Auto-advance timing – If system is to display images automatically, how long to dwell on each slide.

- Menu reference – Allows a more author-controlled gallery (in lieu of basic mechanism).

2.3.1 Gallery-type

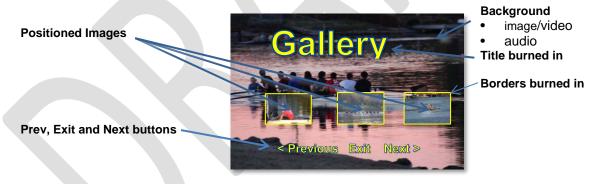| Element	Attribute	Definition	Value	Card.
Gallery-type				
Type				
PictureGroupID		Picture Group containing Pictures for gallery	extras:PictureGroupID	
GalleryName		Title of Gallery	xs:string	0..n
	language	Language of gallery	xs:language	0..1
GalleryNameAlternateAudio		Audio corresponding GalleryName. Anticipated use is accessibility.	extras:AudioClipRef-type	0..n
	language	Language of GalleryNameAlternateAudio	xs:language	0..1
Layout		Layout and behavior for images	extras:GalleryLayout-type	0..1

AutoNextSlideTime		Time each Picture dwells on screen before switching to next Picture. If '0', images should be switched manually. If absent, Device may select its own time, or choose not to switch images automatically.	extras:AudioClipRef-type	0..1
Loop		Should images be displayed in a loop? That is, should first image be displayed after last image? If absent or 'false' images are not looped. If 'true' images are looped.	xs:boolean	0..1
MenuID		Reference to Menu for displaying Gallery.	extras:MenuID-type	0..1

2.3.1.1 GalleryLayout-type

This definition allows the author to specify Gallery layout including background image, image placement and buttons.

The following illustrates the elements of a layout.

Element	Attribute	Definition	Value	Card.
GalleryLayout-type				
Background		Background image for gallery. Pictures will be overlaid on this image. If absent, Device may use a background of its choice.	extras:Background-type	0..1

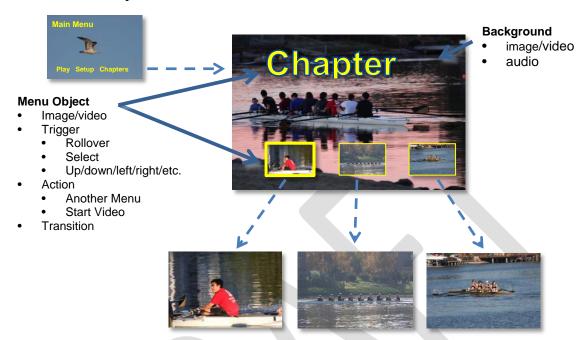| PicturePosition		For each image that can be displayed simultaneously, the position of that image. One entry must exist for each position. For example, in a 4-up gallery, there must be 4 instances.	extras:Position-type	1…n
NextButton		Button that goes to next page of Gallery	Extras:ButtonPositioned-type	0..1
PreviousButton		Button that goes to previous page of Gallery	Extras:ButtonPositioned-type	0..1
ExitButton		Button to exit Gallery	Extras:ButtonPositioned-type	0..1

[CHS: I'm concerned the buttons are too complicated. Perhaps we can have something simpler.]

3   MENUS

Menus is a generalized mechanism for displaying simple menus. The following illustrates the components of a menu:

Menus are designed to be independent of human interface modalities (navigation using a remote control, keyboard/mouse, gesture, etc.) (left, right, up, down, select, numbers) would be a different modality than a mouse and keyboard.

3.1 Menus

3.1.1 Menus-type

TBS

Element	Attribute	Definition	Value	Card.
Menus-type				
StartMenuID		Initial Menu to be displayed	extras:MenuID-type	
Menu		A menu. Together, these elements constitute the set of menus.	extras:MenuID-type	1..n

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3.1.2 Menu-type

TBS

Element	Attribute	Definition	Value	Card.
Menu-type				
	menuID	Identifier for this menu	extras:MenuID-type	
Background		Background for the menu. This is displayed whenever the menu is active.	extras:Background-type	
FirstElementID		Element to start with.	extras:MenuElementID-type	
Element		Each element. Together these are all menu elements on the menu.	extras:MenuElement-type	1..n
Scrollbar		Description of how information scrolls on this menu (if applicable)	Extras:MenuScroll-type	0..1

3.1.3 MenuElement-type

Every element has both visual appearance and behavior that occurs upon user interaction. The Icon is the appearance. The action behaviors are similar to what would be found in in JavaScript (e.g., onClick). TBS

Element	Attribute	Definition	Value	Card.
MenuElement-type				
	MenuElementID	ID uniquely identifying this menu element.	extras:MenuElementID-type	
Icon		Visual, accessible audio and position information associated with element.	extras:ButtonPositioned-type	
OnSelect		Action taken when selected	extras:MenuBehavior-type	
OnLeft		Action taken when focus removed to left (e.g., left arrow)	extras:MenuBehavior-type	
OnRight		Action taken when focus removed to right (e.g., right arrow)	extras:MenuBehavior-type	

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Element	Attribute	Definition	Value	Card.
OnUp		Action taken when focus removed toward top (e.g., up arrow)	extras:MenuBehavior-type	
OnDown		Action taken when focus removed towards bottom (e.g., down arrow)	extras:MenuBehavior-type	

3.1.4 MenuBehavior-type

Indicates what happens 'next' after a menu item has been selected or when focused is removed from a menu item (i.e., left, right, down or up).

Element	Attribute	Definition	Value	Card.
MenuBehavior-type				
MenuID		Jump to this menu	extras:MenuID-type	(choice)
MenuElementID		Jump to this element on the same Menu	extras:MenuElement-type	(choice)
TitleID		Jump to this Chain	extras:TitleID-type	(choice)
ChapterUnique		Jump to this chapter.	extrasmenu:ChapterUnique-type	(choice)

3.1.5 MenuScroll-type

Provides for scrolling through options, such as traversing a gallery. Scrolling may be horizontal (left/right) or vertical (up/down). When a user selects to scroll left, text moves right. When a user selects to scroll right, text moves left. And, so forth.

Element	Attribute	Definition	Value	Card.
MenuScroll-type				
	horizontal	If present and 'true' menu scrolls horizontally. Otherwise, menu scroll vertically.	xs:boolean	0..1
ScrollBarImage		Image for scroll bar.	extras:ImagePositioned-type	

PositionMarker		Image at location of selected text, typically within ScrollBarImage. [CHS: this needs work for positioning.]	extras:ImageID-type	
LeftUpIcon		Icon to display for left scrolling (horizontal) or up scrolling (not horizontal).	extrasmenu:Button-type	
RightDownIcon		Icon to display for right scrolling (horizontal) or down scrolling (not horizontal)	extrasmenu:Button-type	

3.2 Menu Components

3.2.1 Position

Element	Attribute	Definition	Value	Card.
Position-type				
	relative	Is the position relative to some reference point.	xs:boolean	
PixelsFromLeft		Pixels from left. First pixel is '1'.	xs:integer	
PixelsFromTop		Pixels from top of area. First pixel is '1'	xs:integer	

3.2.2 Button

Element	Attribute	Definition	Value	Card.
Button-type				
Icon		ID of Image for the button icon.	extras:ImageID-type	
RolloverIdon		ID of Image for the button icon when cursor is on the icon.	extras:ImageID-type	0..1

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Element	Attribute	Definition	Value	Card.
LabelText		Alternative text representing button when images cannot be displayed. Also, for accessibility, especially text-to-speech.	xs:string	0..1
AlternateAudio		Audio clip associated with button, typically for accessibility	extras:AudioClipRef-type	

Element	Attribute	Definition	Value	Card.
ButtonPositioned-type			extras:Button-type (extension)	
Position		Position of Button	extras:Position-type	

3.2.3 Background

Backgrounds may contain at most one visual and one audio element. If a ChainID element is included, neither an AudioLoopID nor an ImageID element should be included.

Element	Attribute	Definition	Value	Card.
Background-type				
AudioLoopID		Audio to play with background. Audio specified should loop.	extras:AudioTrackID-type	0..1
ImageID		ImageID	extras:ImageID-type	0..1
ChainID		Chain that includes video and audio for background. Chain should loop.	Extras:ChainID-type	0..1

3.2.4 Image Positioned

Provides the ability to precisely position an image on the display.

Element	Attribute	Definition	Value	Card.
Background-type				
ImageID		Image to be positioned	extras:ImageD-type	
Position		Position for image	extrasmenu:Position-type	