

EMA
Content Availability Data
(Avails)
Showing changes from v2.1

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REVISION HISTORY

Version	Date	Description
1.0	January 3, 2013	Original Version
1.4	December 1, 2013	Updated to sync with EMA Avails Excel template v1.4. Added closed caption annotation for United States.
1.6	September 29, 2014	Update to <ul style="list-style-type: none"> • Support television and complex asset structures • Allow the specification of any number of terms • Increase flexibility of terms than can specified, including holdbacks • Provide identifier linkage to Media Manifest • Incorporate field changes from Excel Avails v1.5 and v1.6 • Clarifications, corrections and editorial improvements
1.6B	October 15, 2014	Added CompanyDisplayCredit
2.0	June 12, 2015	Improved miniseries support Improved handling of open start/end dates and rolling time zones. Added Season and series status (cancellation) Simplified identifiers Added provisions for shared entitlement systems (e.g., DMA, UltraViolet) Added digital signature option
2.0a	July 1, 2015	Corrections in metadata to align with schema.
2.1	October 13, 2015	EIDR <ul style="list-style-type: none"> • Updated EIDR references to use URN form. • Removed incorrect EIDR references. Fixed RunLength cardinality in schema.
<u>2.2</u>	<u>November 15, 2016</u>	<u>Co-release with Excel Avails v1.7</u> <u>Added support for Bundles (BundledAsset)</u> <u>FormatProfile: Added UHD profile; and added HDR, WCG and HFR attributes</u>

	<p><u>Revised language handling: Replaced StoreLanguage, with AssetLanguage, replaced HoldbackExclusionLanguage with AllowedLanguages, added HoldbackLanguage include asset type attribute, removed Holdback Terms.</u></p> <p><u>Simplified LicenseRightsDescription to “Next Day TV” and “POD” (Publish on Delivery).</u></p> <p><u>Added Region term type.</u></p> <p><u>Pricing: Added DMRP, SMRP, Bundled (not sold separately) and LicenseFee terms.</u></p> <p><u>Added ReportingID for future use.</u></p> <p><u>Added ability to list depreciated EcosystemIDs</u></p> <p><u>Clarified date terms. Added ESTStart as an EndCondition</u></p> <p><u>Made optional:</u></p> <ul style="list-style-type: none"> • <u>TitleDisplayUnlimited, SeasonTitleDisplayUnlimited and SeriesTitleDisplayUnlimited</u> • <u>Terms/Description</u> <p><u>Fixed ratings cardinality in spec (was correct in schema)</u></p> <p><u>Added support for separately availed supplemental and promotion including AvailType values and Transaction/RefALID. Note that supplemental and promotion can also be included in an Avail through Asset instances.</u></p> <p><u>Added USACaptionsExceptionsReason, ReleaseHistory and Ratings to Series and Season metadata. This is used when a series (miniseries) or season are avail'd and this information is needed.</u></p>
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1 INTRODUCTION

The Entertainment Merchant's Association (EMA) has defined the means to delivery Content Availability (Avails) data. 'Avails' is an industry term for business information regarding the availability of assets to be offered. It includes information such as region of available, times of available and business terms. This document was developed by the EMA Digital Council with the objective of standardizing the metadata communication from content providers to digital retailers.

This document defines EMA Avails.

The document describes encoding for Avails data in both spreadsheet form and in XML form. Although spreadsheets may serve an interim purpose, migration to XML is encouraged.

EMA Avails Metadata builds upon Media Entertainment Core (MEC) Metadata, and also Common Metadata developed by Motion Picture Laboratories, EMA, DEG and others.

1.1 Document Organization

This document is organized as follows:

1. Introduction—Provides background, scope and conventions
2. Avails—The definition of Avails data. This includes encoding information that applies to both spreadsheets and XML; and the XML definition.
3. Rules for Spreadsheet Encoding – Information on using Section 2 definitions within spreadsheets. Also, information on mapping between spreadsheets and XML.

1.2 Document Notation and Conventions

1.2.1 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.

1.2.1.1 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 initialLowercaseAttribute.
- XML structures are formatted as Courier New, such as `md:rightstoken`
- Names of both simple and complex types are followed with “-type”

1.2.1.2 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 or type
- 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.

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.

1.2.2 **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.

1.3 Normative References

- [CM] TR-META-CM MovieLabs Common Metadata, version 2.3,
<http://www.movielabs.com/md/md>
- [CR] TR-META-CM, MovieLabs Common Metadata Ratings, most current version,
<http://www.movielabs.com/md/ratings>
- [Manifest] TR-META-MMM, MovieLabs Common Media Manifest Metadata, version 1.4.
<http://www.movielabs.com/md/manifest>
- [MECMD] DEG-EMA Media Entertainment Core Metadata, version 2.3,
<http://www.movielabs.com/md/mec>
- [RFC2141] R. Moats, *RFC 2141, URN Syntax*, May 1997, <http://www.ietf.org/rfc/rfc2141.txt>
- [RFC3629] Yergeau, F., et al, *RFC 3629, UTF-8, a transformation format of ISO 10646*, November, 2003. <http://www.ietf.org/rfc/rfc3629.txt>
- [RFC3986] Berners-Lee, T., et al, *RFC 3986, Uniform Resource Identifier (URI): Generic Syntax*, January 2005, <http://www.ietf.org/rfc/rfc3986.txt>
- [RFC5646] Philips, A, et al, *RFC 5646, Tags for Identifying Languages*, IETF, September, 2009.
<http://www.ietf.org/rfc/rfc5646.txt>
- [RFC7302] Lemieux, P, *RFC 7302, Entertainment Identifier Registry (EIDR) URN Namespace Definition*, <http://www.ietf.org/rfc/rfc7302.txt>
- [IANA-LANG] IANA Language Subtag Registry. <http://www.iana.org/assignments/language-subtag-registry>
- [ISO3166-1] Codes for the representation of names of countries and their subdivisions -- Part 1: Country codes, 2007.
- [ISO3166-2] ISO 3166-2:2007 Codes 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.
- [CEA766] ANSI/CEA-766-C, U.S. and Canadian Rating Region Tables (RRT) and Content Advisory Descriptors for Transport of Content Advisory Information Using ATSC Program and System Information Protocol (PSIP). April 2008.[XMLC1.1] *Canonical XML Version 1.1*, W3C Recommendation 2 May 2008, <http://www.w3.org/TR/xml-c14n11/>
- [XMLDSIG] *XML Signature Syntax and Processing (Second Edition)*,
<http://www.w3.org/TR/xml-c14n11/>, June 2008, <http://www.w3.org/TR/2008/REC-xmlsig-core-20080610/>

1.4 Informative References

[RFC4647] Philips, A., et al, *RFC 4647, Matching of Language Tags*, September 2006.
<http://www.ietf.org/rfc/rfc4647.txt>

European Broadcast Union, Tech 3295 – P_META Metadata Library,
http://www.ebu.ch/en/technical/metadata/specifications/notes_on_tech3295.php

1.5 XML Namespaces

This document refers to the following XML namespaces:

- md: Common Metadata corresponding with Common Metadata.
- mdmec: Media Entertainment Core Metadata. Note that mdmec: references md: schemas
- avails: includes Avails data. Note that avails: references md: and mdmec: schemas

1.6 Identifiers

Identifiers must be universally unique. Recommended identifier schemes may be found in Common Metadata and in UltraViolet Content Metadata.

1.7 Status

This specification is completed and ready for pilot implementation. Although tested, we anticipate that additional implementation experience will yield recommendation for changes. Implementers should anticipate one or more revisions. Reasonable measures will be taken to ensure changes are backwards compatible.

1.8 Date and Time encoding

Dates and times are sometimes expressed as an absolute time (2:00AM PST) and sometimes relative to the local time zone (12:00AM local time). In the case of Avail start and end, the former would reflect a worldwide start/end time and the latter would represent start/end times rolling with the local time (e.g., 12:00AM EDT in the EDT time zone, 12:00AM CDT in the CDT time zone, etc.).

Absolute times are indicated with the use of a time zone. Even though the time is specified for a given region, it is a fixed time worldwide. When specifying times worldwide, it is recommended that UTC be used (encoded with 'Z'). For example,

```
<start>2015-03-12T04:25:00Z</start> (preferred format with UTC)  
<end>2015-04-24T17:00:00-08:00</end> (less preferred format)
```

Times relative to a time zone should be expressed without a time zone. For example,

```
<start>2015-03-12T04:25:00</start>  
<end>2015-04-24T17:00:00</end>
```

In some instances, in lieu of a date or time, a condition can be specified (e.g., StartCondition and EndCondition). Conditions specify the status of the date or time without necessarily defining a date or time. Encoding for condition elements are as follows

- ‘Open’ – The date is not currently known.
 - If used in the context of a start date, the date is considered unknown and no date match will be satisfied.
 - If used in the context of an end date, the end date is considered infinitely in the future. Any date after a valid start date would be considered a match.
- ‘Immediate’ – Date applies immediately, as if date were right now.
 - If in the context of start date, action can be taken immediately
 - If in the context of end date, action should stop as soon as possible.
- ‘ESTStart’ – End Date is the StartDate of the EST offering.
 - Only applies to EndCondition
 - There must exist a Transaction instance with LicenseType=‘EST’ in identical territories.

A title can be availed before start date is known by setting StartCondition=‘Open’. This is not a valid avail in the sense that the title cannot be offered until an actual date is provided. An example of this usage is providing an avail for an episode before it is aired (i.e., air date is not known). If a title is availed, but the end date of the avail is not known, EndCondition=‘Open’ is used. An example of this usage is a pre-order avail when street date is not known.

2 AVAIL INFORMATION

The top level element for Avails are `Avail` and `AvailList`. The top-level XML type for Avails are `Avail-type` and `AvailList-type`.

2.1 Avail List

An Avail List contains on or more Avials.

Element	Attribute	Definition	Value	Card.
<code>AvailList</code>		Element for an Avail List	<code>avails:AvailList-type</code>	

Element	Attribute	Definition	Value	Card.
<code>AvailList-type</code>				
<code>Avail</code>		An Avail	<code>avails:Avail-type</code>	1..n

2.2 Avail

The Avail element is defined as follows:

Element	Attribute	Definition	Value	Card.
<code>Avail</code>		Element continuing a single Avail	<code>avail:Avail-type</code>	

The Avail-type complex type is defined as follows:

Element	Attribute	Definition	Value	Card.
<code>Avail-type</code>				
ALID		Logical Asset Identifier. The ALID identifies the set of content contained within the Avail.	<code>md:AssetLogicalID-type</code>	
Disposition		Information about the Avails message such as whether it is a new Avail or if it replaces a previous Avail message.	<code>avails:AvailDisposition-type</code>	
Licensor		The entity issuing the Avail	<code>mdmec:Publisher-type</code>	

ServiceProvider		Entity that will deliver assets associated with the Avail. This is typically a post-production organization.	mdmec:Publisher-type	0..1
AvailType		Defines the asset structure of this avail. (see below)	xs:string	
ShortDescription		A short description of the Avail. This is optional but strongly recommended.	xs:string	0..1
Asset		Each instance defines an asset subject to the Avail instructions	avails:AvailAsset-type	1..n
Transaction		Each instance includes transaction information regarding the Avail	avails:AvailTrans-type	1..n
CoreMetadata		Media Entertainment Core (MEC) if available.	mdmec:CoreMetadata-type	0..1
SharedEntitlement		Information about Shared Entitlement systems such as Disney Movies Anywhere and UltraViolet. One instance per system.	avails:AvailSharedEntitlement-type	0..n
ExceptionsFlag		In indicator from the studio to the retailer that his avail should be reviewed in some manner before being published by the retailer. If present, it shall be set to 'true'. If absent, it is assumed to be 'false'	xs:boolean	0..1

AvailType defines the asset structure of the avail. This is how the studio differentiates between offering a single title (e.g., an episode) from multiple titles (e.g., a season). This type also support additional content such as a movie offered with extras.

AvailType shall have one of the following values. Note that WorkType is defined in Section 2.2.2.

- 'single' – A single non-episodic asset. This is used for a WorkType such as 'Movie'.
 - ~~There shall be a single~~ Shall include exactly one Avail/Asset element with an Avail/Asset/Metadata element.
 - where Asset/WorkType corresponds with work types associated with single assets (i.e., work types such as 'movie' or 'short', but not work types such as 'series' or 'Collection').
- 'episode' – A single episodic asset (i.e., an episode).

- ~~There shall be a single Avail/Asset element with an Avail/Asset/EpisodeMetadata element.~~
 - where Asset/WorkType= 'Episode'.
- 'season' – A single season consisting of multiple episodes. A season may be availed even though the number of episodes is unknown (e.g., prior to airing).
 - ~~There shall be a single Shall include exactly one Avail/Asset element with an Avail/where Asset/SeasonMetadata element. WorkType= 'Season'.~~
 - Note that with a 'season' asset, metadata is Asset instances are not provided for individual episodes.
 - ~~Asset/WorkType= 'Season'.~~
- 'series' – A single series consisting of two or more seasons. If only one season is offered, AvailType='season' or AvailType='miniseries' should be used.
 - ~~There shall be a single Shall include exactly one Avail/Asset element with an Avail/Asset/SeriesMetadata element.~~
 - where Asset/WorkType= 'Series'.
 - Note that with a 'series' asset, Asset instances are not provided for individual seasons or episodes.
- 'miniseries' – A single series consisting of two or more episodes. If only one episode is offered, AvailType='episode' should be used. Note that if the title was expected to have multiple seasons (i.e, either cancelled after one or more anticipated), 'season' should be used.
 - ~~There shall be a single Shall include exactly one Avail/Asset element with an Avail/Asset/SeriesMetadata element.~~ where
 - Asset/WorkType= 'Series'.
 - Asset/SeriesMetadata/NumberOfSeasons, if included, shall be interpreted as number of episodes.
- 'collection' – Any collection of two or more assets.
 - ~~One Shall include an Avail/Asset element shall exist for each asset. If there is a main title (e.g., feature film) it should be listed first and other assets (e.g., extras) should follow.~~
- Asset element shall be constructed as 'bundle' – One or more assets defined above in other Avails.
 - Shall include exactly one instance of Avail/Asset where
 - Asset/WorkType = 'Collection'
 - Asset/@contentID shall be a Content ID created for single, episodes, seasons and series. For example, if an this Bundle.

- Asset/Metadata element describes the bundle. Note that metadata is required for offering a Bundle.
- An instance of BundleAsset exists for each bundled asset
 - Note: Some implementations may allow ALIDs in BundleAsset to reference other Bundles.
- 'supplement' – One or more supplemental (i.e., bonus, extra-is-a, VAM) assets are offered.
 - Shall include an Asset element for each supplemental object where
 - Asset/WorkType = 'Supplemental', encoding would be in accordance
 - Asset/Metadata is allowed
 - Asset/Episode is allowed. Asset/Episode should only be used when episodic ordering is required (e.g., supplemental goes between two episodes). It is preferable to reference the episode with 'single' the understanding bonus will follow the episode.
 - A Transaction/ReferencedALID shall exist containing the ALID of the supplemented offer.
- 'promotion' – One or more promoted assets.
 - Shall include an Asset element for each promotion asset where Asset/WorkType = 'Promotion'
 - A Transaction/ReferencedALID shall exist containing the ALID of the promoted offer.

In addition to the above requirements, any Avail may have additional Asset elements for additional material with WorkType of 'Ad', 'Album', 'Excerpt', 'Music Video', 'Promotion', 'Song' or 'Supplemental'.

Note that for AvailTypes that intrinsically included subordinate assets (e.g., episodes within seasons, or episodes within mini-series, or seasons within series), do not include the subordinate assets as Asset instances.

2.2.1 AvailDisposition-type

Disposition instructs the recipient had to process the Avail in the context of previously sent Avails. The *scope* of the disposition is the combination ALID, Licensor and regions. 'Full Extract' creates Avails, of if they exist replaces all Avails with the same ALID, Licensor and regions. Note that if Avails in a particular region and the Full Extract does not cover that region, then Avails will not be changed for that region—another Full Extra is required to update or a Delete to remove it.

Element	Attribute	Definition	Value	Card.
AvailDisposition-type				
EntryType		Indication of whether this Avail is new, update or deletion.	xs:string	
IssueDate		Date this Avail was issued. If necessary, recipients can use IssueDate to reconstruct the order of issuance. Although this may be xs:gYear only or xs:date, it is strongly recommended that the xs:dateTime form be used.	md:YearDateOrTime-type	0..1
<any>		Any other element	any ##other	0..n

EntryType shall have one of the following values:

- "Full Delete" – Deletes all Avails with the same scope.
- "Full Extract" – Avails in this instance will replace all other Avails with the same scope.

2.2.2 AvailAsset-type

Element	Attribute	Definition	Value	Card.
AvailAsset-type				
	contentID	Asset Identifier. This should be an EIDR.	md:ContentID-type	
WorkType		Work type as enumerated in Common Metadata.	xs:string	
WorkTypeDetail		WorkTypeDetail as enumerated in Common Metadata	xs:string	0..1
Metadata		Metadata describing Asset	avails:AvailUnitMetadata-type	Choice (see Avail-type)
EpisodeMetadata		Metadata to describe an instance of an episode.	avails:AvailEpisodeMetadata-type	

SeasonMetadata		Metadata to describe a season of episodes.	avails:AvailSeasonMetadata-type	
SeriesMetadata		Additional metadata describing series information, such as seasons and series. This shall only be included if the asset is part of a series (e.g., an episode)	avails:AvailSeriesMetadata-type	
<u>BundledAsset</u>		<u>Information about a bundled asset. The entire asset is included by reference.</u>	<u>avails:AvailBundledAsset-type</u>	<u>0..n</u>
<any>		Used for asset description extensions	any ##other	0..n

The appropriate choice of metadata object is as follows:

<u>Metadata Object</u>	<u>WorkType</u>
<u>Metadata</u>	<u>Anything other than Episode, Season or Series (e.g., Movie, Short, Non-episodic show, Supplemental, Promotion and Ad).</u>
<u>EpisodeMetadata</u>	<u>Episode</u>
<u>SeasonMetadata</u>	<u>Season</u>
<u>SeriesMetadata</u>	<u>Series (including mini-series)</u>

2.2.2.1 AvailMetadata-type

This type is used for single asset work types. It is also the base for other metadata objects.

Element	Attribute	Definition	Value	Card.
AvailMetadata-type				
TitleDisplayUnlimited		Display title, no length limit. Same as TitleDisplayUnlimited in Common Metadata.	xs:string	<u>0..1</u>
TitleInternalAlias		Title used by involved parties to refer to this content.	xs:string	
EditEIDR-URN		Edit (Performance-Level) EIDR identifier using URN syntax as per [RFC7302]	xs:anyURI	0..1

TitleEIDR-URN		Title Abstraction-Level EIDR identifier using URN syntax as per [RFC7302]	xs:anyURI	0..1
AltIdentifier		Other identifiers referring to the same asset. Same as AltIdentifier in CommonMetadata.	md:ContentIdentifier-type	0..n
	scope	Indicates the scope of the AltIdentifier	xs:string	0..1
VersionDescription		A brief description of the version.	xs:string	0..1
ReleaseDate		Release date of title in earliest territory. This is highly recommended to disambiguate different works with the same title (e.g., Footloose 1984 vs. 2011). Can express year, year and month or release date.	Union(xs:gYear, xs:gYearMonth, xs:date)	0..1
RunLength		Total run time. Same as RunLength in Common Metadata.	xs:duration	0..1
ReleaseHistory		History of release such as air dates or DVD release information. Defined in Common Metadata, 4.1.1.	md:ReleaseHistory-type	0..n
USACaptionsExemption Reason		Caption information for United States distribution. If captions are not required this element should be populated with a value defined below.	xs:positiveInteger	0..1
Ratings		Content Ratings. Ratings from should comply with Common Ratings [CR].	md:ContentRatings-type	<u>0..1</u>
EncodeID		EIDR identifying encoding (manifestation)	md:id-type	0..1
LocalizationOffering		Distinguishes products that are offered based on whether the offering is localized with dubbed audio track or a language subtitle track. Titles must have these components when offered to the consumer.	xs:string	0..1
<any>		Any other element	any ##other	0..n

The @scope attribute is encoded as follows

- ‘Title’ – equivalent to an Abstraction (title) level EIDR (‘level 1’)
- ‘Edit’ – equivalent to a Performance (edit) level EIDR (‘level 2’)
- ‘Manifestation’ – equivalent to an EIDR manifestation (‘level 3’)

USACaptions is required for Avails whose Territory is the United States.

CaptionExemptionReason shall hold one of the following values

- ‘1’ – This content has never aired on television in the U.S.

- ‘2’ – This content has only aired on television in the U.S. without captions.
- ‘3’ – This content has not aired on U.S. television with captions since Sept. 30, 2012
- ‘4’ – This content does not consist of full-length video programming.
- ‘5’ – This content does not fall within a category of online programming that currently requires captions under FCC regulations (49 C.F.R. § 79.4(b)).
- ‘6’ – The FCC and/or U.S. Congress has granted an exemption from captioning requirements for this content.

LocalizationOffering shall, if present, hold one of the following values:

- ‘sub’ – offering must include subtitles
- ‘dub’ – offering must include dubbed audio
- ‘subdub’ – offering must include both subtitles and dubbed audio.
- ‘any’ – offering can have any combination of subtitles and dubbed audio (whatever is available)

‘any’ is the default and is assumed if this term is not included.

2.2.2.2 AvailUnitMetadata-type

This metadata object is used for content that is a standalone title (e.g., a movie).

Element	Attribute	Definition	Value	Card.
AvailUnitMetadata-type		Episode metadata. Base object is extended.	Avail:AvailMetadata-type (by extension)	
CompanyDisplayCredit		Information about grouping content into storefronts based on organizations such as studio or broadcaster. Equivalent to ComapnyDisplayCredits in Media Entertainment Core (MEC).	md:CompanyCredits-type	0..n

2.2.2.3 AvailEpisodeMetadata-type

This metadata object is used when the Avail’s asset is an episode. This applies to any episodic material, such as TV episodes and mini-series episodes.

Note that the episode optionally includes the season which in turn optionally includes the series. This provides a complete definition of the episode.

Element	Attribute	Definition	Value	Card.
AvailEpisodeMetadata-type		Episode metadata. Base object is extended.	avail:AvailMetadata-type (by extension)	
EpisodeNumber		Episode number as defined in Common Metadata. Parties should agree upon which numbering scheme to use.	md:ContentSequenceInfo-type	
SeasonMetadata		Metadata for the season in which the episode exists	avail:AvailSeasonMetadata-type	(choice)
SeriesMetadata		Metadata for a series in which the episode exists. This only used for episodes that not part of season; for example, mini-series.	avail:AvailSeriesMetadata-type	

2.2.2.4 AvailSeasonMetadata-type

This metadata object is used for a single season.

Element	Attribute	Definition	Value	Card.
AvailSeasonMetadata-type				
SeasonContentID		The identifier for this season, preferably an EIDR.	md:id-type	
SeasonEIDR-URN		Season Abstraction-Level EIDR identifier using URN syntax as per [RFC7302]	xs:anyURI	0..1
SeasonTitleDisplayUnlimited		Title for season. Same as Common Metadata TitleDisplayUnlimited for WorkType 'Season.	xs:string	<u>0..1</u>
SeasonTitleInternalAlias		Title used by involved parties to refer to this season.	xs:string	0..n
SeasonNumber		Season number as defined in Common Metadata. Parties should agree upon which numbering scheme to use.	md:ContentSequenceInfo-type	

VersionDescription		A brief description of the version.	xs:string	0..1
ReleaseDate		Release date of title in earliest territory. This is highly recommended to disambiguate different works with the same title (e.g., Footloose 1984 vs. 2011). Can express year, year and month or release date.	Union(xs:gYear, xs:gYearMonth, xs:date)	0..1
<u>ReleaseHistory</u>		<u>History of release such as air dates or DVD release information. Defined in Common Metadata, 4.1.1.</u>	<u>md:ReleaseHistory-type</u>	<u>0..n</u>
<u>USACaptionsExemptionReason</u>		<u>Caption information for United States distribution. If captions are not required this element should be populated with a value defined below.</u>	<u>xs:positiveInteger</u>	<u>0..1</u>
<u>Ratings</u>		<u>Content Ratings. Ratings from should comply with Common Ratings [CR].</u>	<u>md:ContentRatings-type</u>	<u>0..1</u>
SeasonAltIdentifier		Other identifiers for the season.	md:ContentIdentifier-type	0..n
NumberOfEpisodes		Number of episodes in this season. Omit if number of episodes is unknown.	xs:positiveInteger	0..1
	estimate	Indicates the number of episodes is estimated, particularly when a season is offered prior to the season being completely aired. If present, it must be 'true'. If 'true' then NumberOfEpisodes is an estimate.	xs:boolean	0..1

SeasonStatus		Indicates the current status of the season (see below). If absent, season is assumed to either completed or in the process of being distributed/aired.	xs:string	0..1
SeriesMetadata		Metadata about the series that includes this season.	Avails:AvailSeriesMetadata-type	0..1
<any>		Any other element	any ##other	0..n

For the purposes of counting episodes, an episode is a single video. This could be a single episode, double-episode or any other packaging. Bonus material should be handled as separate asset and not counted as an episode.

SeasonStatus is encoded as following

- ‘Partial – Series was terminated mid-season. If still airing new episodes, NumberOfEpisodes is the anticipated number of episodes that will be completed.

2.2.2.5 AvailSeriesMetadata-type

This metadata object is used for a full series (multiple episodes).

Element	Attribute	Definition	Value	Card.
AvailSeriesMetadata-type				
SeriesContentID		Identifier for Series. Preferably an EIDR.	md:id-type	
SeriesEIDR-URN		Series Abstraction-Level EIDR identifier using URN syntax as per [RFC7302].	xs:anyURI	0..1
SeriesTitleDisplayUnlimited		Title for series. Same as Common Metadata TitleDisplayUnlimited for WorkType ‘Series.	xs:string	<u>0..1</u>
SeriesTitleInternalAlias		Title for series in language mutually agreed upon by sender and receiver. Same as Core Metadata TitleInternalAlias	xs:string	

LocalSeriesTitle		Local series title, if applicable. Same as Common Metadata TitleDisplayUnlimited for WorkType 'Series'	xs:string	0..n
	language	Language for local series title	xs:language	0..1
VersionDescription		A brief description of the version.	xs:string	0..1
ReleaseDate		Release date of title in earliest territory. This is highly recommended to disambiguate different works with the same title (e.g., Footloose 1984 vs. 2011). Can express year, year and month or release date.	Union(xs:gYear, xs:gYearMonth, xs:date)	0..1
<u>ReleaseHistory</u>		<u>History of release such as air dates or DVD release information. Defined in Common Metadata, 4.1.1.</u>	<u>md:ReleaseHistory-type</u>	<u>0..n</u>
<u>USACaptionsExemptionReason</u>		<u>Caption information for United States distribution. If captions are not required this element should be populated with a value defined below.</u>	<u>xs:positiveInteger</u>	<u>0..1</u>
<u>Ratings</u>		<u>Content Ratings. Ratings from should comply with Common Ratings [CR].</u>	<u>md:ContentRatings-type</u>	<u>0..1</u>
SeriesAltIdentifier		Other identifiers for the series.	md:ContentIdentifier-type	0..n
NumberOfSeasons		Number of seasons in this series. If series is a miniseries, then this is interpreted as number of episodes.	xs:positiveInteger	0..1
SeriesStatus		Indicates the current status of the series (see below). If absent, 'Pending' is assumed.	xs:string	0..1
CompanyDisplayCredit		Information about grouping content into storefronts based on organizations such as studio or broadcaster. Equivalent to CompanyDisplayCredits in Media Entertainment Core (MEC).	md:CompanyCredits-type	0..n

<any>		Any other element	any ##other	0..n
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SeriesStatus is encoded as following

- ‘Concluded – Series is complete or will be at the end of the current season. This includes cancelled series.
- ‘Continuing’ – The series has been taken up for a new season.
- ‘Pending’ – The decision to conclude or continue a series has not been announced.

2.2.2.6 AvailBundledAsset-type

This complex type is used reference assets that are part of a Bundle. By definition, Bundles are collections of other products, although those assets are not necessarily being availed at the moment.

Information co

<u>Element</u>	<u>Attribute</u>	<u>Definition</u>	<u>Value</u>	<u>Card.</u>
<u>AvailBundledAsset-type</u>				
<u>BundledALID</u>		<u>Reference to the Logical Asset that is being bundled.</u>	<u>md:LogicalAsset-type</u>	
<u>SharedEntitlement</u>		<u>Identifiers used for shared entitlement systems associated with this bundled asset, if applicable.</u>	<u>md:AvailSharedEntitlement-type</u>	<u>0..n</u>
<u>ShortDescription</u>		<u>Short Description for Avail associated with ALID. This is used for human readability and quality control.</u>	<u>xs:string</u>	<u>0..1</u>

2.2.3 AvailTrans-type

AvailTrans-type defines the business terms associated with the Avail.

<u>Element</u>	<u>Attribute</u>	<u>Definition</u>	<u>Value</u>	<u>Card.</u>
<u>AvailTrans-type</u>				
	TransactionID	Transaction Identifier must be unique within AvailList. It should be globally unique.	md:id-type	<u>0..1</u>

LicenseType		Type of transaction. See below.	xs:string	
Description		A free-form description of the transaction.	xs:string	<u>0..1</u>
Territory		Region or regions where transaction applies. Default is worldwide. Note that if both Territory and TerritoryExcluded are absent, default is worldwide.	md:Region-type	0..n
TerritoryExcluded		Region or regions where transaction does not apply. Default is nowhere, and Territory takes precedence.	md:Region-type	0..n
Start		Start of terms. If Start is absent, terms begin immediately. See Section 1.8.	xs:dateTime	(choice)
StartCondition		Non-date condition for start. For example, "Open". See Section 1.8.	xs:string	
End		End of terms. See Section 1.8.	xs:dateTime	(choice)
EndCondition		Non-date condition for start. For example, "Open". See Section 1.8.	xs:string	
<u>St</u> AllowedLanguage		Language or languages to which transaction applies. If absent, then <u>all languages is assumed language restrictions, if any, will exist in bilateral agreements.</u>	xs:language	0..n
	<u>asset</u>	<u>Indicates the scope of assets covered. See below.</u>	<u>xs:string</u>	<u>0..1</u>
<u>AssetLanguage</u>		<u>Languages in which the content provider intends to provide assets. Note that this indicates intent, not commitment. .</u>	<u>xs:language</u>	<u>0..n</u>
	<u>asset</u>	<u>Indicates the scope of assets covered. See below.</u>	<u>xs:string</u>	<u>0..1</u>
	<u>descriptive</u>	<u>Indicates descriptive audio is an intended asset.</u>	<u>xs:boolean</u>	<u>0..1</u>
<u>HoldbackLanguage</u>		<u>Indicates language associated with holdback</u>	<u>xs:language</u>	<u>0..n</u>
	<u>asset</u>	<u>Indicates the scope of assets covered. See below.</u>	<u>xs:string</u>	<u>0..1</u>
LicenseRightsDescription		Description of License or Rights granted. See below.	xs:string	
FormatProfile		Indicates the format profile covered by the transaction. This typically refers to HD, SD, <u>UHD</u> , <u>3D</u> , <u>3DSD</u> , <u>3DHD</u> or <u>3UHD</u> .	xs:string	

	<u>HDR</u>	<u>If present, High Dynamic Range is included. If absent, status depends on FormatProfile and bilateral agreement. May contain format as defined below.</u>	<u>xs:string</u>	<u>0..1</u>
	<u>WCG</u>	<u>Indicates whether Wide Color Gamut is included. If absent, status depends on FormatProfile and bilateral agreement.</u>	<u>xs:string</u>	<u>0..1</u>
	<u>HFR</u>	<u>Indicates whether HFR is included. If absent, status depends on FormatProfile and bilateral agreement.</u>	<u>xs:string</u>	<u>0..1</u>
	<u>NGAudio</u>	<u>If present, Next Generation audio, such as Object Based Sound, is included. If absent, status depends on FormatProfile and bilateral agreement. May encode format, such as "Atmos", "DTS:X" or "Auro3D".</u>	<u>xs:string</u>	<u>0..1</u>
ContractID		An identifier referencing any contract information relevant to this avail entry between the studio and retailer.	xs:string	0..1
<u>ReportingID</u>		<u>This identifier, if provided, should be used for reporting. Note that any identifier can be used for reporting as agreed upon bilaterally. This column is here in case an additional ID is needed, or if its more practical to always retrieve the reporting ID from a single location.</u>	<u>xs:string</u>	<u>0..1</u>
<u>RefALID</u>		<u>ALID relating to this transaction. See below</u>	<u>md:AssetLogicalID-type</u>	<u>0..n</u>
	<u>refAvailType</u>	<u>Indicates AvailType of associated with the promotion or supplement. If absent, it is assumed to be the same as the referenced Avail. If present, it must either match the referenced Avail or be 'series'</u>	<u>xs:string</u>	<u>0..1</u>
Terms		Terms described in pre-defined values.	avails:AvailTerms-type	0..n
ExperienceCondition		Used in conjunction with Media Manifest, ExperienceCondition is the value used to match @condition in manifest:ALIDExperienceMap-type. See [Manifest], Section 9.2.	xs:string	0..1

OtherInstructions		Any other instructions. Free text.	xs:string	0..1
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LicenseType should have one of the following values, although additional values may be used by agreement between sender and receiver:

- ‘EST’ (Electronic Sell Through)
- ‘VOD’ (Video on Demand) – Download or streaming based on individual transactions (e.g., payment per use).
- ‘SVOD’ (Subscription VOD) – Streaming on a subscription service
- ‘POEST’ (Pre-order EST)

Note that any of these models can be paid or free.

AllowedLanguage, AssetLanguage and HoldbackLanguage each have an @asset attribute. It is defined as follows:

- ‘subtitle’ Indicates subtitles (subs).
- ‘audio’ indicates audio dubs
- ‘subdub’ indicates subtitle and audio subs. If attribute it absent, ‘subdub’ is assumed.

LicenseRightsDescription should have one of the following values:

- ~~‘New Release’~~ New release
- ~~‘Library’~~ Catalog title
- ~~‘Mega Library’~~ High value library
- ~~‘Priority Library’~~ Library content that must be processed with high priority.
- ~~‘DD Theatrical’~~ EST, VOD or Subscription availability, Day and Date with Theatrical
- ~~‘Pre Theatrical’~~ EST, VOD or Subscription availability prior to theatrical availability
- ~~‘DD DVD’~~ Day and Date DVD
- ~~‘Early EST’~~ EST prior to DVD availability
- ~~‘Preorder EST’~~ preorder EST prior to DVD availability (order, but not download or play)
- ~~‘Early VOD’~~ VOD prior to DVD availability, also Preorder VOD
- ~~‘Preorder VOD’~~ preorder VOD prior to DVD availability (order, but not download or play)
- ~~‘DTV’~~ Direct to Video. I newly release feature that was not theatrically released.

- ‘Next Day TV’ – Content that is typically published day after initial broadcast date.
- ~~‘Season Only’ – Content only available with season purchase.~~
- ~~‘Free’ – Content offered at no cost. Terms must be consistent with a free offering.~~
- ‘POD’ – Publish on Delivery. Although a start date may be provided, the expectation is that content will be published when the assets are delivered to the retailer. This is typically used for library where there is no expectation that publication will meet the start date.

FormatProfile should have one of the following values

- ‘UHD’ – 4K UltraHD
- ‘HD’ – High Definition
- ‘SD’ – Standard Definition
- ‘3D’ – 3D, ~~non-specific~~nonspecific of resolution
- ‘3DUHD’ – 3D 4K UltraHD
- ‘3DHD’ – 3D High Definition
- ‘3DSD’ – 3D Standard Definition
- ~~‘HFR’ – HD High Frame Rate~~
- ~~‘3DHFR’ – 3D High Frame Rate~~
- ~~‘4K’ – 4K (4096x2160) format or 4xHD (3840x2160)~~
- ~~‘3D4K’ – 3D 4K~~

@HDR can be encoded with the following values

- ‘true’ – nonspecific HDR
- ‘HDR10’ – 10-bit HDR (nonspecific)
- ‘DV’ – DolbyVision

RefALID is defined only when AvailType = ‘promotion’ or ‘supplement’. It is the ALID(s) of the promoted or supplemented Avail(s). Generally, the assets associated with the promotion or supplement applies to all assets associated with refALID. However, there is a special case where the promotion or supplement applies to a series. As series are not generally availed, such cases are handled by setting RefALID refers to a season of a series or an episode of a miniseries. The @refAvailType attribute then set ‘series’. In the case of a season the series is identified by Asset/SeasonMetadata/SeriesMetadata/SeriesContentID. In the case of miniseries, the miniseries is identified by Asset/EpisodeMetadata/SeriesMetadata/SeriesContentID

2.2.3.1 AvailTerms-type

Terms allows arbitrary business terms to be specified.

The precise interpretation is subject to the mutual agreement of parties involved, although guidance is provided within.

Each term is a name/value pair with the name expressed as termName and the value expressed as one of Money, Event, Duration or text depending on the data contained within the term. If data cannot be otherwise expressed, the any##other element can be used.

Element	Attribute	Definition	Value	Card.
AvailTerms-type				
	termName	Identifies the term. Enumeration is below. termName is case insensitive (i.e., case shall be ignored).	xs:string	
Money		Used when termName refers to a term expressed in terms of money.	md:Money-type	(choice)
Event		Used when termName refers to a term expressed in terms of a date, or date and time. See Section 1.8.	xs:union(xs:date, xs:dateTime)	
Duration		Used when termName refers to a term expressed in terms of a time duration.	xs:duration	
Text		Used when a term can be expressed in text and it is not one of the other term types.	xs:string	
URI		Used for URIs, including identifiers.	xs:anyURI	
Language		Used for language.	xs:language	
ID		Any identifier	md:id-type	
YearDateTime		Year, date or date+time. For time-only use Time.	md:YearDateOrTime	
Time		Time. May include time zone.	xs:time	
<u>Region</u>		<u>Geographic area</u>	<u>md:Region-type</u>	

<any>		Any other element. Used when a term cannot practically be expressed with one of the other element choices.	any ##other	
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The Term specified is indicated by termName with the following conditions:–. Only one instance of each term may be included unless otherwise specified.

termName	Interpretation	Element used
Tier	Pricing Tier	Text
SRP	Suggested Retail Price	Money
WSP	Wholesale Price	Money
EpisodeWSP	Episode Wholesale Price	Money
SeasonWSP	Season Wholesale Price	Money
<u>DMRP</u>	<u>Deemed Minimum Retail Price</u>	<u>Money</u>
<u>SMRP</u>	<u>Suggested Minimum Retailer Price</u>	<u>Money</u>
<u>TPR-x</u>	<u>Temporary Price Reduction. 'x' represent represents another PriceType. For example, a temporary price reduction for WSP would be represented "TPR-WRP".</u>	<u>Money</u>
<u>LicenseFee</u>	<u>Indicates that this avail is associated with a license fee to the content provider, independent of pricing. The terms of this fee are within a bilateral agreement. Note that fee might be associated with a single title, or multiple titles (as per bilateral agreement). Text may be empty.</u>	<u>Text</u>
Category	Price Category	Text
<u>Included</u>	<u>Indicates item is not priced, but included with another Avail. ID is ALID of the object in which it is bundled. Item is not otherwise priced as it is included for free.</u>	<u>ID</u>
<u>SuppressionLiftDate</u>	<u>First date a title could be publicly announced as becoming available at a specific future date in territory of avail. See Section 2.2.5.</u>	<u>Event</u>
AnnounceDate	Date when the retailer is permitted to announce the availability start date of the title within the available territory. If expressed as a date, the time is assumed to be 12:01AM in the availability territory. <u>See Section 2.2.5.</u>	Event
<u>PreorderStart</u>	<u>Date when preorder sales may begin</u>	<u>Event</u>
PreorderFulfillDate	Date that a pre-order video can be released to a consumer for viewing. <u>Only applies to pre-order license types. If omitted, fulfillment date is EST start. See Section 2.2.5.</u>	Event
RentalDuration ²	Duration of rental period in hours	Duration

WatchDuration¹	How long user has to complete viewing once started, in hours	Duration
FixedEndDate	Fixed date when VOD rentals end, regardless of when purchased.	Event
HoldbackScope	Scope of holdback. Defined values include "All", "Sale", "Rental", "Download", "Stream", "License". If absent any other holdback term exists, then "All" is assumed.	Text
HoldbackAsset	Identifier of asset that is the subject of a holdback. If absent, all assets are assumed.	URI
HoldbackAssetType	Type of asset subject to the holdback. This is used specifically to holdback video, audio or subtitle tracks. Values include "Audio", "Video", "Subtitle". If absent, all types are assumed.	Text
HoldbackLanguage	Language that is held back (one instance per language). Cannot be used with HoldbackExclusionLanguage. If absent, all languages are assumed.	Language
HoldbackExclusionLanguage	All languages except those listed in the union of all instances are held back. Cannot be used with HoldbackLanguage. If absent, no languages are assumed.	Language
LocalizationOffering	Distinguishes products that are offered based on whether the offering is localized with dubbed audio track or a language subtitle track. Valid values are 'sub' which means the offering includes subtitles; and 'dub' means offering includes dubbed audio. If product contains both, this should not be included. If product contains one or the other, but is not offered based on that distinction, this should not be included.	Text
Promotion	Asset is availed against the content identified in the identifier. Nominal usage is to reference any Content against which promotional material will play (e.g., pre-roll trailer). Note that Manifest TimedEvent can provide additional information when to use this promotion.	ID
SharedEntitlementEcosystem	The ecosystem for a shared entitlement (Avail/SharedEntitlement). Must be used with SharedEntitlement-related term such as SharedEntitlementEndDate.	Text
SharedEntitlementEndDate	The date after which a shared entitlement (Avail/SharedEntitlement) is no longer valid. Must be used with SharedEntitlementEcosystem.	YearDateTime
SharedEntitlementDisposition	If "Add", Shared Entitlement is to be added to the SharedEntitlementEcosystem. If "Delete", Shared Entitlement is to be removed if present.	Text

If value is post-tax, then the term "-PostTax" should be appended. For example, if Episode WSP is expressed post-tax it would be "EpisodeWSP-PostTax". Otherwise, pre-tax pricing is assumed.

Money is defined in Common Metadata [CM]. Note that Currency as expressed in ISO 4217 Currency Alphabetic Code. For example, ‘USD’ for US Dollars. If absent, then local currency is assumed. ISO4217 typically allows two or three digits after the decimal. However, Value in this element may have as many decimal places as necessary.

If currency is omitted, it is to be handled in accordance with bilateral agreements. If there is no specific agreement, currency is the currency associated with Territory.

2.2.4 AvailSharedEntitlement-type

This type contains information needed to associate this Avail with shared entitlement systems such as Disney Movies Anywhere (DMA) and UltraViolet.

An Avail might correspond with multiple IDs within each ecosystem. For example, if a TV season is avail’d for UltraViolet, there must be an EcosystemID for each episode. If multiple instances of EcosystemID exist with the same @ecosystem, all ID should be entitled within that ecosystem.

When posting Ecosystem IDs, instances in Avail/SharedEntitlement and in Avail/Asset/Bundled/Asset/SharedEntitlement most all be included.

Element	Attribute	Definition	Value	Card.
AvailSharedEntitlement-type				
	ecosystem	Shared entitlement system.	xs:string	
EcosystemID		Identifier used in the system	xs:string	1..n

EcosystemID	DeprecatedEcosystemID	<u>ID that has been replaced by another ID</u>	xs:string	0..n
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The ecosystem attribute is encoded as follows:

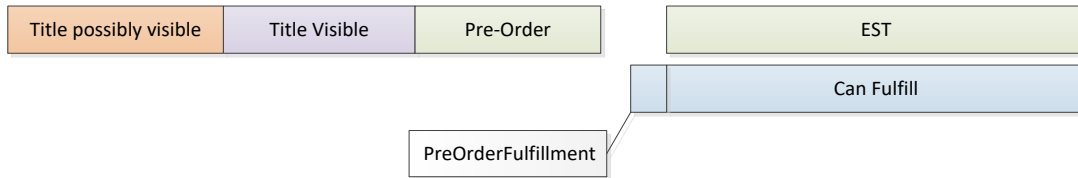
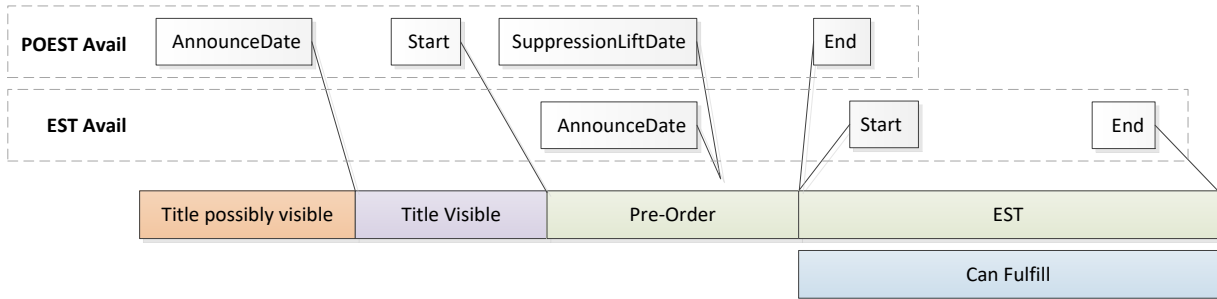
- ‘DMA’ – Disney Movies Anywhere
- ‘UVVU’ – UltraViolet

2.2.5 Relationship between date Terms

There are several date elements and Terms. The following describes the default definitions. Bilaterally agreed upon definitions always supersede definitions in the specification.

<u>License Type</u>	<u>Start</u>	<u>End</u>	<u>AnnounceDate</u>	<u>SuppressionLift Date</u>	<u>SpecialPreorderFull fillmentDate</u>
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<u>POEST</u>	<u>Start accepting preorder</u>	<u>Stop accepting preorder. If "ESTStart" then it's Start for EST</u>	<u>Date when retailer can announce Preorder Start (must be before Start)</u>	<u>Date when retailer can announce EST Start. Must be on or before End.</u>	<u>Date when preorder can be fulfilled. Must be after End and before EST Start.</u>
<u>EST</u>	<u>Start accepting EST. Start fulfilling. Must be after POEST End.</u>	<u>Stop accepting EST.</u>	<u>Date when you can announce EST Start. Must same as POEST</u> <u>SuppressionLiftDate (if both given)</u>	N/A	N/A



3 DIGITALLY SIGNED AVAILS

To support the signing of avails to avoid tampering and also for non-repudiation, a signing mechanism is provided. For example, this mechanism provides a mechanism to know that an Avail delivered in an email message is truly from the expected source and has not been modified in transit.

3.1 Signed Container (AvailListSigned)

An element AvailListSigned, defined as AvailListSigned-type, contains an AvailList and a Signature element.

Element	Attribute	Definition	Value
AvailListSigned-type			
Message		Avail List	avail:AvailList-type
Signature		xmldsig Signature. See "Signed XML" below. (optional)	ds:SignatureType

3.2 Signed XML

For message-level authentication, the general process is that the sender generates unsigned messages (based on the appropriate specification for the message), generates a digital signature for that message, and then packages the message with the signature. This package is then sent to the recipient. The signed message contains enough information to validate the sender of the message, and includes both the unsigned message as well as the digital signature of the unsigned message XMLDSIG Signature.

XML Digital Signatures can be used to sign and validate messages across any delivery structure. These shall be in conformance with [XMLDSIG]. Note that later versions may be adopted as defined here: <http://www.w3.org/TR/xmldsig-core/>.

The following constraints shall apply when generating digital signatures:

- For CanonicalizationMethod
 - Algorithm=<http://www.w3.org/2006/12/xml-c14n11#WithComments>
- For SignatureMethod,
 - Algorithm=<http://www.w3.org/2000/09/xmldsig#rsa-sha1>
- For DigestMethod,
 - Algorithm=<http://www.w3.org/2000/09/xmldsig#sha1>

A sample XML segment containing a digital signature is shown below.

```
<?xml version="1.0" encoding="UTF-8"?>
<AvailListSigned xmlns="http://www.movie-labs.com/schema/avails/v1.6c/avails"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
```



```

xmlns:md="http://www.movielabs.com/schema/md/v2.3/md"
xmlns:mdmec="http://www.movielabs.com/schema/mdmec/v2.3"
xsi:schemaLocation="http://www.movielabs.com/schema/avails/v1.6c/avails_avails-v1.6c-
draft-20150315.xsd">
<AvailList>
.
.
.
</AvailList>
<ds:Signature>
  <ds:SignedInfo>
    <ds:CanonicalizationMethod Algorithm="http://www.w3.org/2006/12/xml-
c14n11#WithComments"/>
    <ds:SignatureMethod Algorithm="http://www.w3.org/2000/09/xmldsig#rsa-sha1"/>
    <ds:Reference URI="#envelope">
      <Transforms>
        <Transform Algorithm="http://www.w3.org/2001/10/xml-exc-c14n#"/>
      </Transforms>
      <ds:DigestMethod Algorithm="http://www.w3.org/2001/10/xmldsig#sha1"/>
      <ds:DigestValue>6hpmccmjxQmAII143OhQfIWpkryw=</ds:DigestValue>
    </ds:Reference>
  </ds:SignedInfo>
  <ds:SignatureValue>UjBsR09EbGhjZ0dTQUxNQUFBUNBRU1tQ1p0dU1GUXhEUzhi</ds:SignatureVa
lue>
  <KeyInfo>
    <X509Data>
      <X509IssuerSerial>
        <X509IssuerName>CN=TestSignCert</X509IssuerName>
        <X509SerialNumber>75496503122422458150193540449068096025</X509SerialNumber>
      </X509IssuerSerial>
    </X509Data>
  </KeyInfo>
</ds:Signature>
</MessageEnvelope>

```

Note that senders must use the same certificate, as defined in the KeyInfo element of the XMLDSig, for all messages using web services. This Key will serve as a unique identifier for the sender, and will be used to describe configuration information (such as URIs) associated with the sender. Note that the Reference element's URI attribute will always be set to the value "#Body".

The following constraints shall apply when generating digital signatures:

- Data will be transmitted in accordance with section 6.6.4 of that document, "Envelope Transform". XML for encoding may be found here: <http://www.w3.org/TR/2002/REC-xmldsig-core-20020212/xmldsig-core-schema.xsd#enveloped-signature>

All web-based delivery mechanisms will support Signed Messages as defined above as a mechanism to sign and validate messages. Email-based delivery will not use XMLDSIG to sign messages.

All recipients of messages should validate Signed Messages before processing them.

Note that all messages require the use of Canonical XML, Version 1.1 (With Comments), [XMLC1.1], which is necessary for proper signing.

Note that when using W3C schemas it is best to copy schemas to a local directory. <http://www.w3.org/Help/Webmaster.html#slowdtd>.