

Avails Version Mapping

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REVISION HISTORY

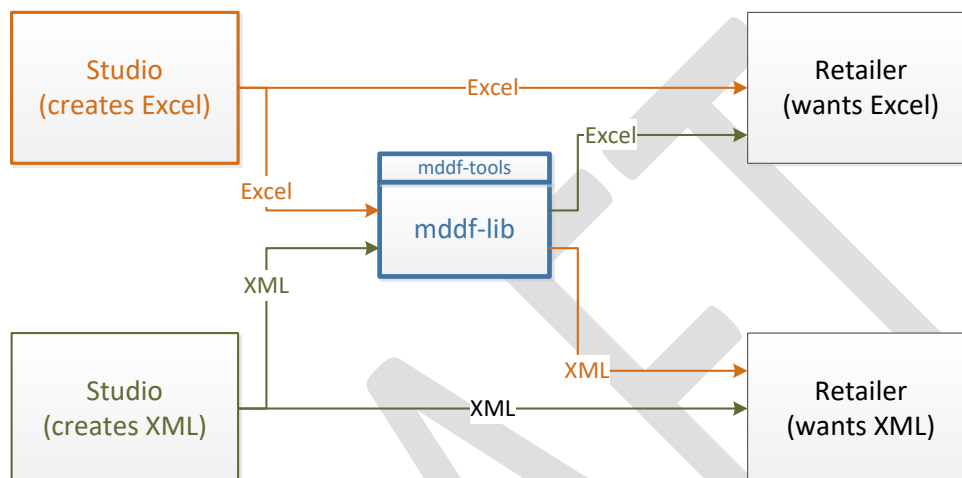
Version	Date	Description
1.0	TBD	First Release

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1 INTRODUCTION

MovieLabs, The Entertainment Merchant's Association (EMA), and the Digital Entertainment Group (DEG) have defined formats for the delivery of Content Availability (Avails) data. Both Excel and XML versions exist. This document defines the translation between Avails version 1.6 (Excel), version 1.7 (Excel) and Version 2.2 (XML).

Libraries and tools, part of the MovieLabs Digital Distribution Framework (MDDF) are provided to support translation.



Information about the specifications and libraries can be found at www.movelabs.com/md/avails.

The intent is allow content providers to edit a single Avails file that may then be re-generated in whatever format downstream consumers require.

1.1 Document Organization

This document is organized as follows:

1. Introduction—References, scope and conventions
2. Background—comparison of XML and XLSX representations
3. Translations—field-by-field details of each mode of translation
4. Best Practices—recommendations for minimizing translation-related issues

1.2 Document Notation and Conventions

The document uses the conventions of Common Metadata [CM].

1.3 Normative References

- [AVAILS-2.2] EMA Content Availability Metadata, TR-META-AVAIL, Version 2.2, November 15, 2016
- [AVAILS-2.1] EMA Content Availability Metadata, TR-META-AVAIL, Version 2.1, October 13, 2015
- [AVAILS-1.7] Avails spreadsheet template for Film and TV, **Version 1.7.1**, January 12, 2017
- [AVILS-1.6] Avails spreadsheet template for Film and TV, Version 1.6e2, January 20, 2016

1.4 Informative References

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1.5 Status

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2 BACKGROUND

Avails data may be defined in the form of either an XML document or an Excel (XLSX) spreadsheet. To facilitate the reuse of data, as well as interoperability between content provider and retailer, this document specifies the rules and mechanisms for implementing software tools able to translate Avails file from:

- One format to another
- One version of a format to another version of the same format

Examples of supported translations include:

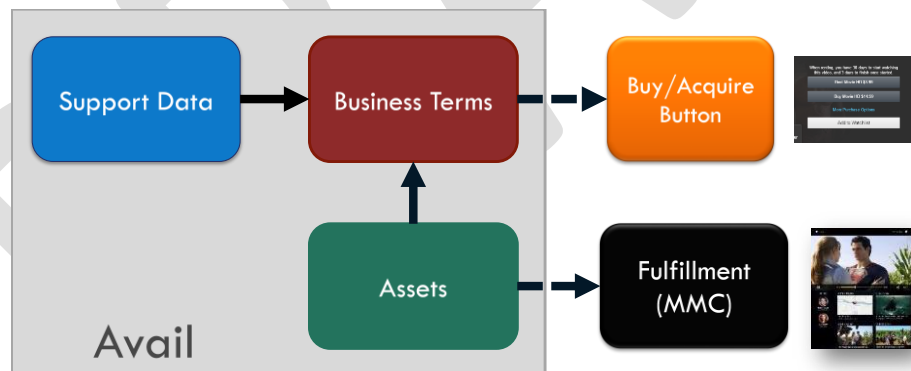
- XLSX v1.7 to XML v2.2
- XLSX v1.6 to XLSX v1.7
- XML 2.2 to XLSX v1.7

Note that Version 1.6 is depreciated, and translation to 1.6 is not recommended.

Software implementing the mappings and functionality described in this document is available as free and open source (FOSS) code on GitHub (<https://github.com/MovieLabs/mddf>).

2.1 Avail Information Model

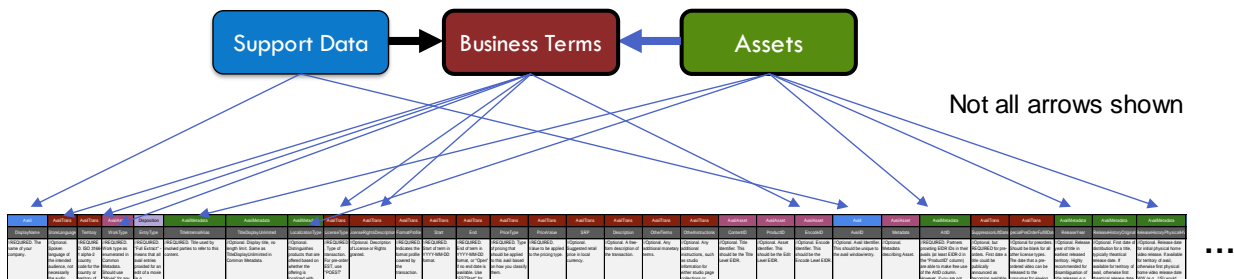
Abstractly, an Avail consist of three parts: Support Data, Asset Data and Business/Transaction Data. In general terms, the Asset Data identifies what will be fulfilled, and the Business Data drives the acquisition (“buy button”) process. This is illustrated here:



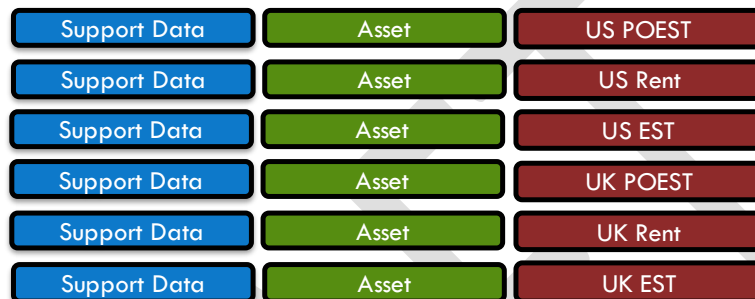
2.2 Structural Comparison

An XML document structures the information in a tree. In the case on Avails, a single Avail element may have multiple Assets (Asset elements) and Business Terms (Transaction elements).

Excel maps each combination of Assets and Business Terms to a single row:



Conceptually, an Excel Avail for one asset in two regions (US and UK) and with three license types would look like this:

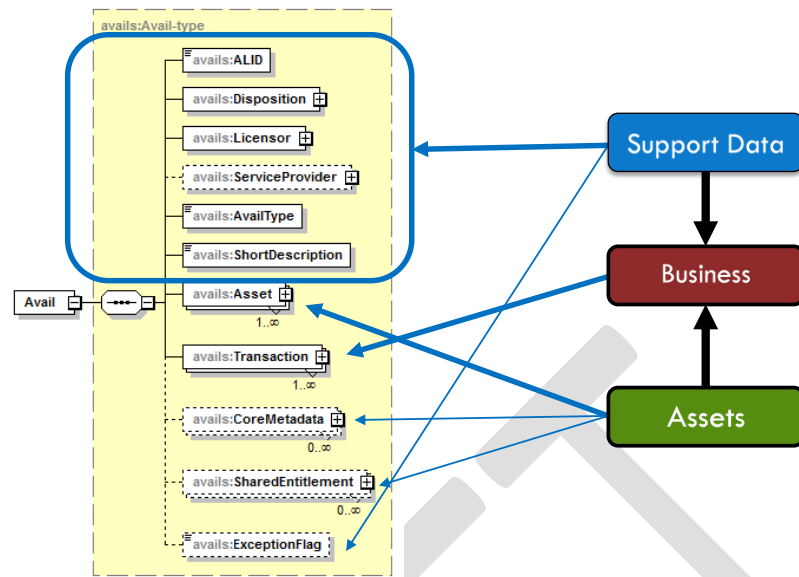


Note that the Support Data and Asset information is repeated in every row. For Example:

Avail 1	Asset 1	WorkType	Metadata	Transaction 1.1	Term 1.1.1	Term 1.1.2	...
Avail 1	Asset 1	WorkType	Metadata	Transaction 1.2	Term 1.2.1	Term 1.2.2	...

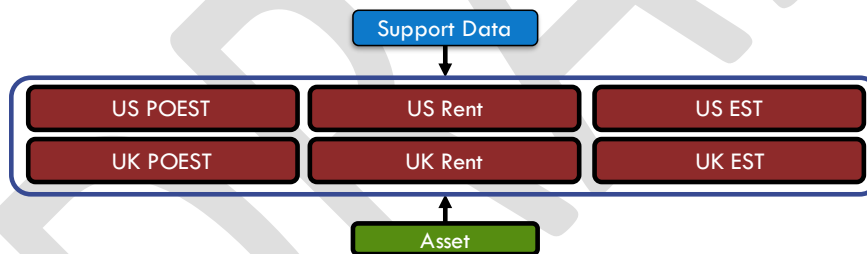
This is repeated for each asset being Avail'd.

Where Excel allows one asset to be associated to a limited set of business terms, XML can associate one or more assets to a flexible set of business terms. Grouping occurs in the XML structure as illustrated here. There can be multiple `Asset` elements corresponding with the Assets, and multiple `Transaction` elements corresponding with the Business Terms.

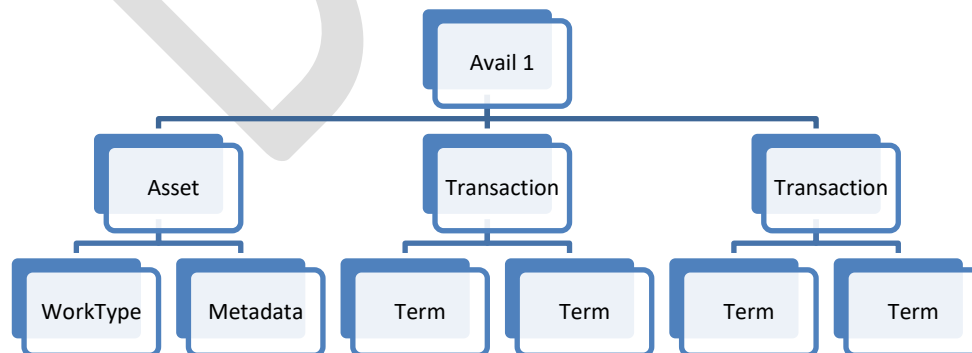


Business Terms are defined very flexibly by allowing both well-defined and bilaterally defined terms. This is implemented by including one or more Terms elements in the Transaction.

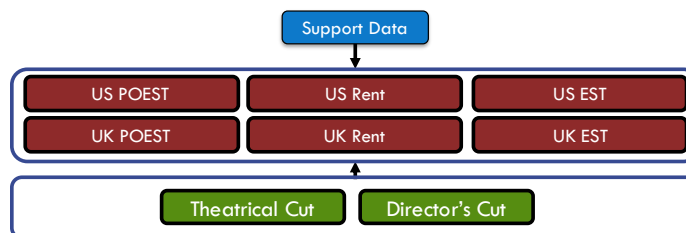
The simplest case is a single asset and multiple transactions. Transactions might correspond with license type (e.g. POEST or EST), profile (i.e., SD, HD, UHD) or with territory. Conceptually, it looks like this:



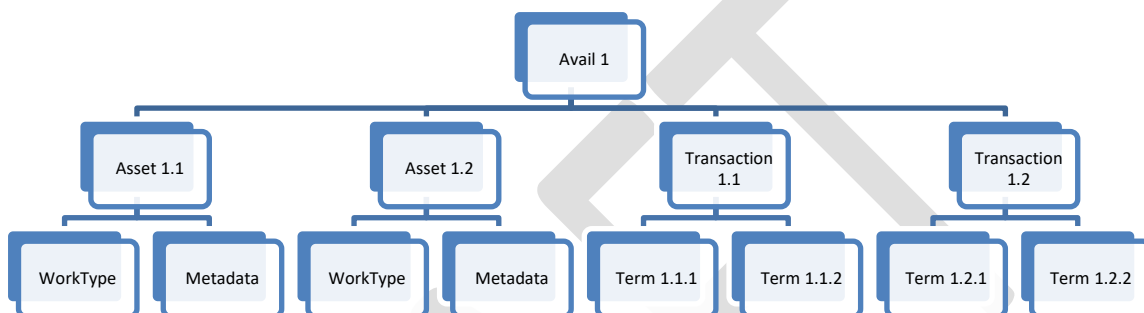
In XML it would be structured as follows:



When a transaction includes multiple assets, it conceptually looks like this:



The XML structure would look like this:



Multiple assets cannot be represented in Excel.

2.3 Mapping Process

The mddf-lib software supports the following translations of an Avails file:

- Excel v1.7 to XML v2.2
- Excel v1.6 to XML v2.2
- XML v2.2 to Excel v1.7

The mddf Avails Validator may be used to perform one of these listed translations. To do so, however, the Avails file must first be validated in its original format and found to be error-free. After this has been done, the document may be translated.

Instructions of the use of the Avails Validator to perform translations may be found in the Avails Validator's [Users Manual, Section 3: Format Conversion](#).

2.3.1 Mapping between Excel and XML

The Avails XML schema is the information superset in that it supports the complete Avails data model. The Excel format, as noted in the previous section, supports a more limited data model. For this reason, Excel can be mapped to XML without any loss or distortion of the data. The mapping of a validated Excel file will always result in a valid XML file. However, because Excel repeats Support Data and Asset data in every row, there can be inconsistencies that cannot be resolved by an automatic translation process. Mapping an invalid Excel file will therefore result in an invalid XML file.

Mapping from XML to Excel has more constraints due to the limited data model supported by Excel. These constraints are detailed in the following sections. Due to the limitations when mapping from XML to Excel, it is therefore very important to re-validate any Excel file that has been generated from an XML original. Errors may be introduced due to the dropping of unsupported constructs. The mapping of a validated XML file *may* result in an invalid Excel file.

2.3.2 Mapping between Versions

Mapping from older versions to newer versions is always supported.

Mapping from newer versions to older only works if the newer version uses features only available in the older versions. For example, when mapping Excel 1.7 to Excel 1.6, fields like DMA_ID and UV_ID cannot be supported. We strongly recommend using the latest versions to avoid these issues.

Note that the same applies to 'dot' versions like 1.7.1 and 1.7.2. Excel 1.7.2 adds fields that are not present in 1.7.1. Therefore, mapping from 1.7.2 to 1.7.1 cannot be performed if those fields are used.

3 TRANSLATION FROM EXCEL V1.6 TO EXCEL V1.7

The following sections define the mapping from v1.6 to v1.7, both movie and television. In v1.7, with the exception of ALID, there is no mapping to new columns.

Mappings for other columns are defined in terms of the following:

- Change: What changed from 1.6 to 1.7
- Resolution: How the mapping is performed
- Message level ('Msg Level'): What warnings or errors are provided by the translation
- Impact: Expected impact of the change

Changes are grouped by general categories as reflected in the first row heading. These are not necessarily in column order.

3.1 New fields in 1.7 and 1.7.2

Several new columns have been added to v1.7, all of which define optional fields. The translation process will, therefore, simply insert empty columns when generating a v1.7 Avails. Users may then manually edit the generated Excel to include the new information.

The added columns with optional values are identified in the table below.

New V1.7 Column		Movie	TV
Avail			
	BundledALIDs	X	
	DMA_ID	X	X
	UV_ID	X	X
AvailMetadata			
	CompanyDisplayCredit	X	X
AvailTrans			
	AnnounceDate	X	X
	HDR	X	X
	HFR	X	X
	NGAudio	X	X
	PriceCurrency	X	X
	WCG	X	X

Version 1.7.2 adds the following. Note that the AltIDs carry over from 1.6. These are copied when translating from 1.6. RetailerID1 and RetailerID2 are completely new and are not translated.

New V1.7.2 Column		Movie	TV
AvailMetadata			
	AltID	X	
	RetailerID1	X	X
	RetailerID2	X	X
	EpisodeAltID		X
	SeasonAltID		X
	SeriesAltID		X

3.2 Mapping Movie Avails

The following table defines mapping 1.6 Excel Movie columns to 1.7 Excel Movie columns.

V1.6 Column		Change in v1.7	Resolution	Msg Level	Impact
AvailMetadata					
	AltID	<ul style="list-style-type: none"> Renamed to Avail/ALID Copied to ContentID Copied in 1.7.2. See [NOTE 1] 	Value copied as-is	None	TBD – depends on whether AltID can be used as ContentID
Asset					
	ContentID	Renamed TitleID	Value copied as-is	None	None
	EncodeID	Deleted EncodeID is an OPTIONAL field. There are no known uses and it is not carried into 1.7	Value dropped.	WARNING if present	No expected impact as nobody is using this field to spec. Using this bilaterally could cause problems.
	ProductID	Renamed AvailAsset/EditID	Value copied as-is	None	None
AvailTrans					
	End	Increased precision via inclusion of Time as well as Date.	00:00:00 in 1 st timezone in region will be assumed	None	Low

	FormatProfile	Removed values: HFR, 3DHFR, 4K, 3D4K Added values: UHD, 3DUHD	All existing values passed during translation; [Note 2]	None	None
	HoldbackExclusionLanguage	Renamed to 'AvailTrans/AllowedLanguages'	Value copied as-is	None	None
	LicenseRightsDescription	Removed values 'Library', 'Priority Library' and 'Season Only'	No validation or translation performed	None	Low. Use of non-standard terms is allowed via bilateral agreement.
	PriceType	Removed values: SRP Added values: DMRP, SMRP, 'License Fee', and 'Season Only'	All existing values passed during translation; exported v1.7 may not pass validation if SRP is present.	None	None
	Start	Increased precision via inclusion of Time as well as Date.	00:00:00 in 1 st timezone in region will be assumed	None	Low
	StoreLanguage	Renamed 'AvailTrans/AssetLanguage'	Value copied as-is	None	None

Notes:

1. AltID was reintroduced in 1.7.2. This *additional* field is a direct copy of the old AltID. Note that the translations defined in the table above apply as well.
2. Translation of FormatProfile values that are no longer supported is as follows:
 - 4K changed to UHD,
 - 3DHFR changed to 3D with HFR set,
 - HFR changed to HD with HFR set (and a warning).
 - 3D4K changed to 3DUHD

3.3 Mapping v1.6 TV Avails

The following table defines mapping 1.6 Excel TV columns to 1.7 Excel TV columns.

V1.6 Column	Change in v1.7	Resolution	Msg Level	Impact
Asset				
EncodeID	No longer supported.	Dropped	None	TBD

	EpisodeContentID	Changed from OPTIONAL to REQUIRED for episodes	If not specified, the EpisodeAltID is used..	WARNING if EpisodeAltID is used.	TBD
	EpisodeProductID	No longer supported.	Dropped	None	TBD
	SeasonContentID	Changed from OPTIONAL to REQUIRED	If not specified, the SeasonAltID is used..	WARNING if SeasonAltID is used.	TBD
	SeriesContentID	Changed from OPTIONAL to REQUIRED	If not specified, the SeriesAltID is used..	WARNING if SeriesAltID is used.	TBD
AvailsMetadata					
	EpisodeAltID	<ul style="list-style-type: none"> • Renamed EpisodeID • Copied to EpisodeContentID • Used as ALID [Note 1] • Copied in 1.7.2 [Note 2] 	Value copied as-is	None	TBD – depends on whether AltID can be used as ContentID
	EpisodeTitleInternalAlias	Changed from OPTIONAL to REQUIRED	If not present, TitleDisplayUnlimited will be copied. If both are missing the v1.7 Avails will fail validation	ERROR when validating v1.7 file.	Low
	SeasonAltID	<ul style="list-style-type: none"> • Renamed SeasonID • Copied to SeasonContentID • Used as ALID [Note 1] • Copied in 1.7.2 [Note 2] 	Value copied as-is	None	TBD – depends on whether AltID can be used as ContentID
	SeriesAltID	<ul style="list-style-type: none"> • Renamed SeriesID • Copied to SeriesContentID • Copied in 1.7.2 [Note 2] 	Value copied as-is	None	TBD – depends on whether AltID can be used as ContentID
AvailTrans					
	End	Increased precision via inclusion of Time as well as Date.	00:00:00 in 1 st timezone in region will be assumed	None	Low
	FormatProfile	Removed values: HFR, 3DHFR, 4K, 3D4K Added values: UHD,3DUHD	All existing values passed during translation;[Note 3]	None	None

HoldbackExclusionLanguage	Renamed to 'AvailTrans/AllowedLanguages'	Value copied as-is	None	None
LicenseRightsDescription	Removed values 'Library', 'Priority Library' and 'Season Only'	No validation or translation performed	None	Low. Use of non-standard terms is allowed via bilateral agreement.
PriceType	Removed values: SRP Added values: DMRP, SMRP, 'License Fee', and 'Season Only'	All existing values passed during translation; exported v1.7 may not pass validation if SRP is present.	Error if values conflict	None expected
Start	Increased precision via inclusion of Time as well as Date.	00:00:00 in 1 st timezone in region will be assumed	None	Low
StoreLanguage	Renamed 'AvailTrans/AssetLanguage'	Value copied as-is	None	None

Notes:

- Excel v1.6 adds an ALID column that requires a value to be entered. When converting from v1.6 to v1.7 the ALID value will be set to that of the v1.6 EpisodeAltID or SeasonAltID based on the type of the Avail's Asset.
- EpisodeAltID, SeasonAltID, and SeriesAltID were reintroduced in 1.7.2. These *additional* fields are direct copies of the old versions. Note that the translations defined in the table above apply as well.
- Translation of FormatProfile values that are no longer supported is as follows:
 - 4K changed to UHD,
 - 3DHFR changed to 3D with HFR set,
 - HFR changed to HD with HFR set (and a warning).
 - 3D4K changed to 3DUHD

4 TRANSLATION FROM XML V2.2 TO EXCEL V1.7

An Excel Avails file must contain a single spreadsheet. The spreadsheet must contain Avails that are all defining either Movie or TV content. The types may not be mixed in a single file. In contrast, the XML format impose no such restriction. As a result, when converting an XML Avails file to XLSX, either 1 or 2 Excel files will be generated, depending on what types of content is being availed.

XML is the definitive format and some constructs and capabilities available via XML may not be supported by XLSX. The following sections identify information that will be dropped when converting from XML to Excel.

4.1.1 Avail

XML	Excel Limitation	Resolution	Msg Level	Impact
Disposition				
IssueDate	not supported	Dropped	WARNING	Low – no impact unless field is required for workflow
Licensor	Display is the only Licensor-related data supported	Other attributes and properties will be dropped.	WARNING	Low – no impact unless field is required for workflow
ServiceProvider	Display is the only data supported	Other attributes and properties will be dropped.	WARNING	Low – no impact unless field is required for workflow
ShortDescription	not supported	dropped	WARNING	Low – no impact unless field is required for workflow

4.1.2 Asset

XML		Excel Limitation	Resolution	Msg Level	Impact
Asset		limits an Avail to a single Asset.	additional Asset elements will be dropped	ERROR	High – additional Assets (e.g., bonus material) will not be communicated to retailers
	WorkType	only supports a subset of WorkTypes. <ul style="list-style-type: none"> TV: restricted to either Episode or Season. Movie: restricted to WorkType of Movie, Short, or Collection. 	Assets with non-supported WorkTypes are dropped	ERROR	Low – no current need for non-supported types.
	BundledAsset	only allowed when the parent Asset has a WorkType of Collection	Dropped when parent WorkType is incompatible.	ERROR	Low – no current need for non-supported types.
	SharedEntitlement	Not supported.	Dropped.	ERROR	Low

4.1.3 Metadata

Unless otherwise stated, the following issues are applicable to all forms of Metadata (i.e., EpisodeMetadata, SeriesMetadata, etc.).

XML		Excel Limitation	Resolution	Msg Level	Impact
VersionDescription		Not supported	Dropped	WARNING	Low
ReleaseDate		Limited to only YEAR	MONTH and DAY are dropped.	None	Low
ReleaseHistory					
	ReleaseTypes	only supported types are 'original' and 'DVD'	Non-supported types are dropped.	NOTICE	Low
	DistrTerritory	Not supported	Dropped	WARNING	Low
	Description	Not supported	Dropped	WARNING	Low
	ReleaseOrg	Not supported	Dropped	WARNING	Low

Ratings					
	Rating		limited to a single Rating.	Additional Rating elements dropped.	WARNING Low
	Region		Excel assumes that the Rating/Region is the same as the Transaction/Territory.	Region data in the XML is dropped	WARNING Low

4.1.4 Transaction

XML		Excel Limitation	Resolution	Msg Level	Impact
Transaction		Limits an Avail to a single Transaction.	Row will be created for each Transaction	None	None
	Territory	Optional in XML but required for Excel		ERROR	
		Limited to single Territory	additional Territory elements will be dropped	WARNING	Low
	TerritoryExcluded	Not supported	dropped	ERROR	TBD
	AssetLanguage	Limited to single entry	Additional elements will be dropped.	ERROR	TBD
	RefALID	Excel does not support availing supplemental material	dropped	ERROR	Low
	Term	must have exactly one of the following type of Term: <ul style="list-style-type: none"> WSP DMRP SMRP Tier LicenseFee Category TPR- form of one of the other allowed termNames 	Redundant Terms will be dropped.	ERROR	TBD
	ExperienceCondition	Not supported	dropped	WARNING	TBD

	OtherInstructions	Not supported	dropped	WARNING	Low
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5 APPENDIX A: JSON MAPPINGS

The mddf-lib implements Avails translation using JSON data structured to formally define the mappings. The latest version is available on the mddf GitHub repository and may be downloaded at <https://github.com/MovieLabs/mddf/blob/master/mddf-lib/src/com/movielabs/mddf/lib/avails/xlsx/Mappings.json>.

The syntax is as follows:

- XLSX columns are identified by the column names defined in rows 1 and 2 of the templates.
- XPath notation is used to identify XML elements.
- XML namespaces are indicated in an Xpath by brackets.
- An XPath of 'n.a.' indicates that the XML does not support the Excel field.
- JSON arrays are used to indicate conditional mappings.

For example, the following indicates that the values in the Excel column identified as "AvailTrans:Territory" may be mapped to an XML element with one of two XPaths:

```
"AvailTrans:Territory":  
[  
    "{avail}Territory/{md}country",  
    "{avail}Territory/{md}countryRegion"  
]
```

The JSON structures further differentiate between the mapping used for Avails for movies and those for TV.