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# Atmos Inventory/Audio Encoding Best Practice

This practice defines how to encode a Dolby Atmos track in the Media Manifest Inventory/Audio element.



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## REVISION HISTORY

Version	Date	Description
1.0	June 24, 2020	Initial publication
1.1	June 26, 2020	Incorporated Dolby comments

## 1 ATMOS FILES IN MEDIA MANIFEST

Dolby Atmos has five published file types at the time of publishing. Three are fully encoded Atmos (two in Dolby Digital Plus variants, one in Dolby TrueHD), and two are mastering formats (DAMF and ADM BWF).

Dolby Atmos Mastering Format (DAMF) includes multiple files that are used to create Atmos encodes.

BWF is an update of the WAV file format. Technically, in this context it is BWF RF64 as defined in ISU BS.2088-1. Audio Definition Model is a structure for audio defined in ITU BS.2076. Together, referred to as ADMBWF, they provide structure in which various forms of audio can be encoded, including Dolby Atmos and DTS:X. Currently, only Atmos is available in this format.

Each encode of Atmos is signaled in Media Manifest in Inventory/Audio/Encoding/Codec with its own label, as defined in the Common Metadata specification, Section 5.2.3.1, extracted here:

- ‘DAMF’ – Dolby Atmos Master Format (DAMF)
- ‘DOLBY-ATMOS-ADMBWF’ – ADM BWF (see ‘ADMBWF’) containing Dolby Atmos master
- ‘DOLBY-DDPLUS-ATMOS’ – Dolby Atmos in Dolby Digital Plus JOC (“Joint Object Coding”). Note that actual codec is Enhanced AC3 (.ec3). This is the Dolby Digital Plus variant used for streaming.
- ‘DOLBY-DDPLUS-ATMOS-B’ – Dolby Atmos in Dolby Digital Plus (.eb3). This is the Dolby Digital Plus variant used for Blu-ray and UHD Blu-ray.
- ‘DOLBY-TRUEHD-ATMOS’ – Dolby Atmos in Dolby TrueHD. Note that actual codec is TrueHD (.mlp)

It will look something like this:

```
<md:Encoding>  
  <md:Codec>DOLBY-ATMOS-ADMBWF</md:Codec>  
</md:Encoding>
```

Note that some of these codec names do not appear until after Common Metadata v2.8. Also, only one instance of ContainerReference was allowed until Media Manifest v1.9.

### 1.1 DAMF

DAMF is a little different from other encodings because there are up to four files associated with a DAMF delivery. This is expressed by having four instances of Audio/ContainerReference. It would look something like this

```
<manifest:Audio AudioTrackID="md:audtrackid:org:sofaspudfilms.com:abc123:feature.audio.hdr.en-US">  
  <md:Type>primary</md:Type>  
  <md:Encoding>  
    <md:Codec>DAMF</md:Codec>  
  </md:Encoding>  
  <md:Language>en-US</md:Language>
```

```
<manifest:ContainerReference>
  <manifest:ContainerLocation>./resource/MY-TITLE_DAMF/MY-TITLE.atmos
</manifest:ContainerLocation>
</manifest:ContainerReference>
<manifest:ContainerReference>
  <manifest:ContainerLocation>./resource/MY-TITLE_DAMF/MY-TITLE.atmos.audio
</manifest:ContainerLocation>
</manifest:ContainerReference>
<manifest:ContainerReference>
  <manifest:ContainerLocation>./resource/MY-TITLE_DAMF/MY-TITLE.atmos.dbmd
</manifest:ContainerLocation>
</manifest:ContainerReference>
<manifest:ContainerReference>
  <manifest:ContainerLocation>./resource/MY-TITLE_DAMF/MY-TITLE.atmos.matadata
</manifest:ContainerLocation>
</manifest:ContainerReference>
</manifest:Audio>
```

If necessary, each individual file can be identified in accordance with Type = ‘atmos’ and corresponding SubType as defined in Common Metadata, Section 6.2.1.1

```
<manifest:ContainerReference>
  <manifest:Type>atmos</manifest:Type>
  <manifest:SubType>atmos</manifest:SubType>
  <manifest:ContainerLocation>./resource/MY-TITLE_DAMF/MY-TITLE.atmos
</manifest:ContainerLocation>
</manifest:ContainerReference>
<manifest:ContainerReference>
  <manifest:Type>atmos</manifest:Type>
  <manifest:SubType>audio</manifest:SubType>
  <manifest:ContainerLocation>./resource/MY-TITLE_DAMF/MY-TITLE.atmos.audio
</manifest:ContainerLocation>
</manifest:ContainerReference>
<manifest:ContainerReference>
  <manifest:Type>atmos</manifest:Type>
  <manifest:SubType>dbmd</manifest:SubType>
  <manifest:ContainerLocation>./resource/MY-TITLE_DAMF/MY-TITLE.atmos.dbmd
</manifest:ContainerLocation>
</manifest:ContainerReference>
<manifest:ContainerReference>
  <manifest:Type>atmos</manifest:Type>
  <manifest:SubType>matadata</manifest:SubType>
  <manifest:ContainerLocation>./resource/MY-TITLE_DAMF/MY-TITLE.atmos.matadata
</manifest:ContainerLocation>
</manifest:ContainerReference>
```

## 1.2 ADMBWF

An ADMBWF file looks like this:

```
<manifest:Audio AudioTrackID="md:audtrackid:org:sofaspudfilms.com:abc123:feature.audio.hdr.en-US">
  <md:Type>primary</md:Type>
  <md:Encoding>
    <md:Codec>DOLBY-ATMOS-ADMBWF</md:Codec>
  </md:Encoding>
  <md:Language>en-US</md:Language>
  <manifest:ContainerReference>
    <manifest:Type>BWF-RF64</manifest:Type>
    <manifest:ContainerLocation>./resource/MY-TITLE.en-us.admbwf.atmos.wav
```



# Atmos Manifest Encoding

Ref: BP-MDD-ATMOS  
Version: v1.0  
Date: June 26, 2020

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```
</manifest:ContainerLocation>  
</manifest:ContainerReference>  
</manifest:Audio>
```