



# Preselections in ISOBMFF - An Intro for DASH BoG

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2022-07-22

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**INTRODUCTION:**

**ISOBMFF PRESELECTIONS**

# Preselections in ISO/BMFF @ MPEG

## **MPEG 135** (July 2021)

Initial proposal

Use case:

- DASH MPD generation
  - codec agnostic
  - w/o sample entry type specific data
- ...

Motivated by roll-out of NGA audio with  
IP-based broadcasts

## **MPEG 137** (Jan 2022)

ISO/IEC 14496-12:2022/CD Amd 1:

Improved brand documentation and other improvements

## **MPEG 139:** (now)

Received ~39 comments from US, FI, DE

→ One comment suggested to  
clarify the alignment with DASH

→ ISO/IEC 14496-12:2022/DIS 8<sup>th</sup> Edition

# Preselections in ISOBMFF - Architecture

- Preselections are based on “Track Grouping”:
  - Added generic “Track Group Description” on MOOV-level
  - Linking between tracks and description via track\_group\_id
- Preselections:
  - MOOV: Preselection Track Group Entry
    - track\_group\_id
    - Preselection properties: preselection\_tag,...
    - Descriptive information in child boxes
  - TRAK: Preselection Group
    - track\_group\_id
    - Processing data for multi-track preselections

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## EXAMPLE FILE STRUCTURE

# Example Use Case

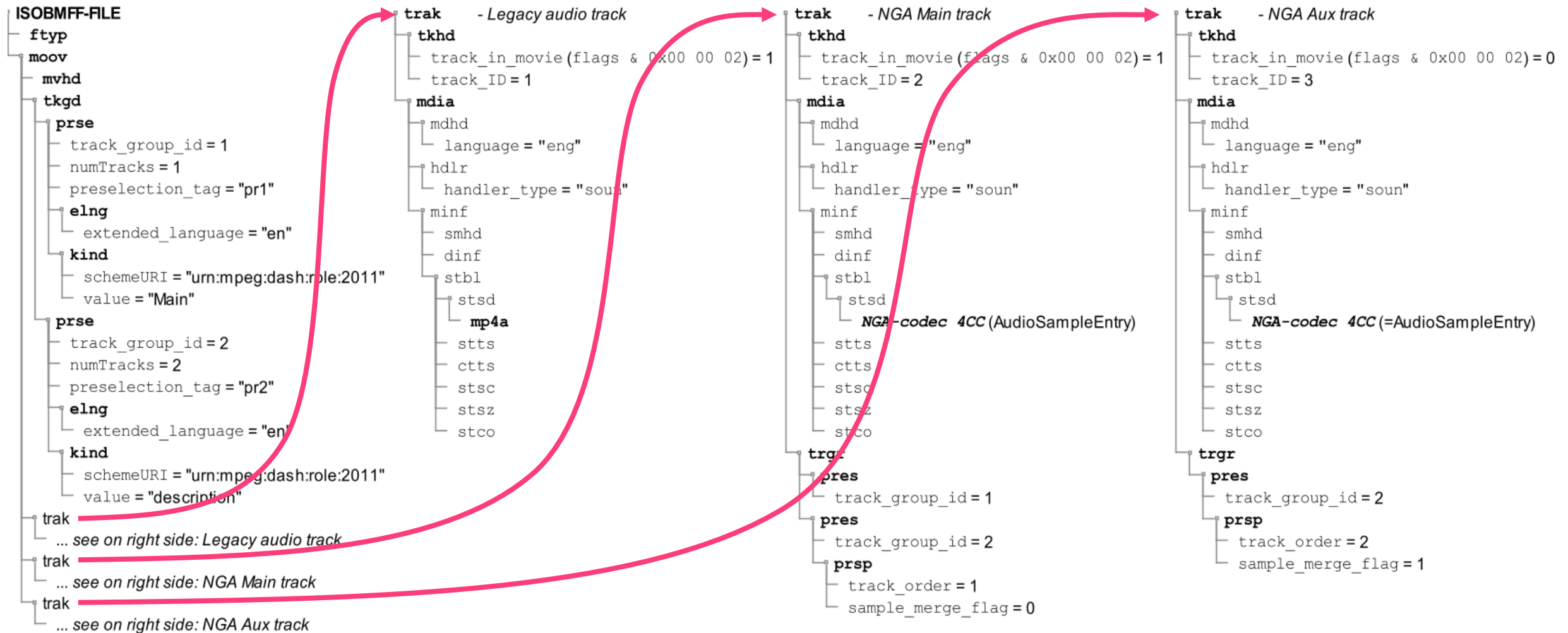
## 3 Tracks:

- AAC Audio
- NGA "Main" Audio
  - M&E and Dialog stems
- NGA "Auxiliary Audio":
  - Audio Description stem

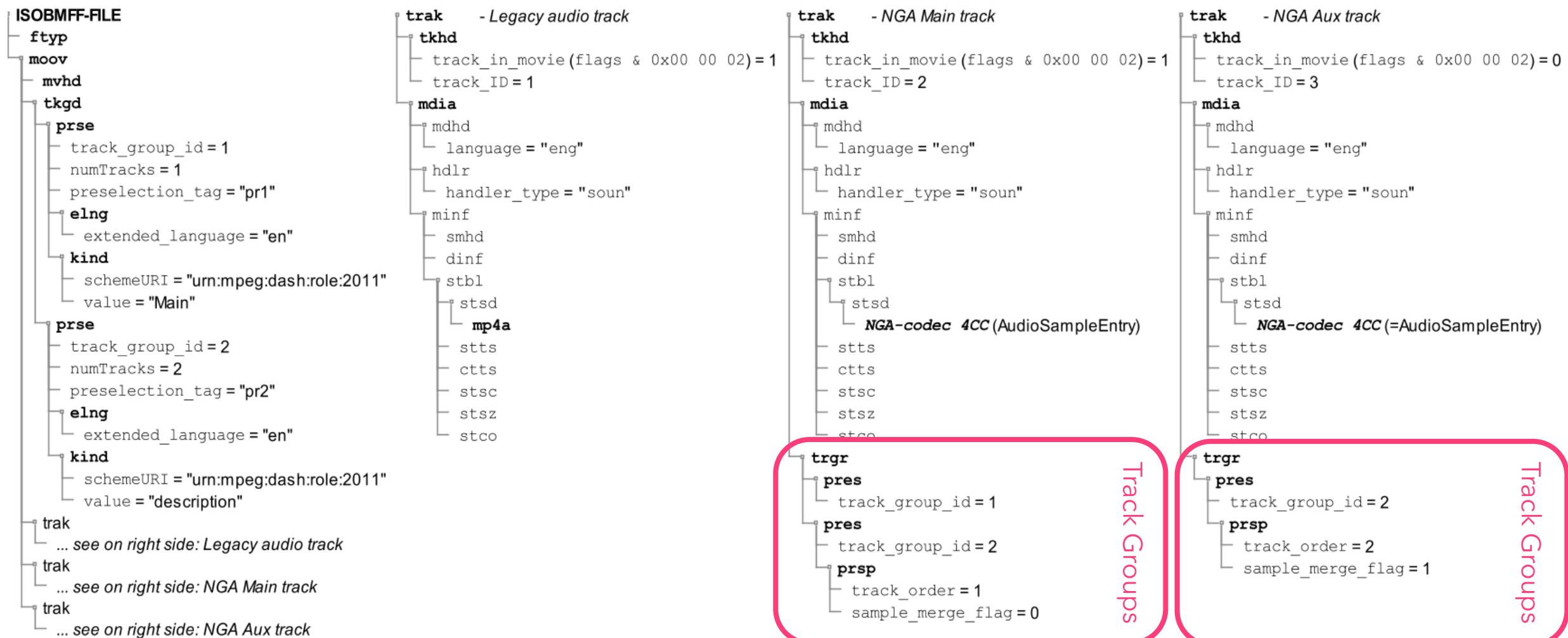
## 2 Preselections:

- "Main"
- Audio Description
  - = Visual Description Service
  - = Descriptive Audio

# EXAMPLE ISOBMFF FILE w/ Preselections

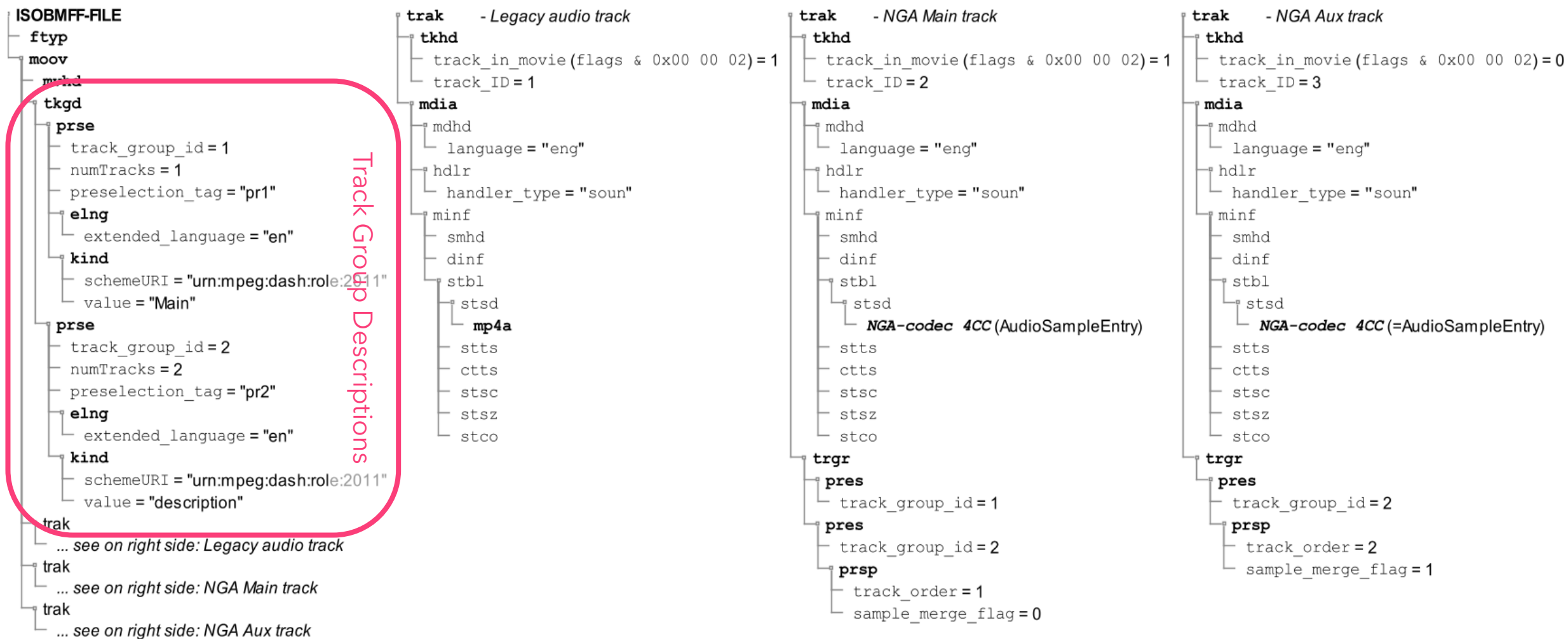


# Track Groups

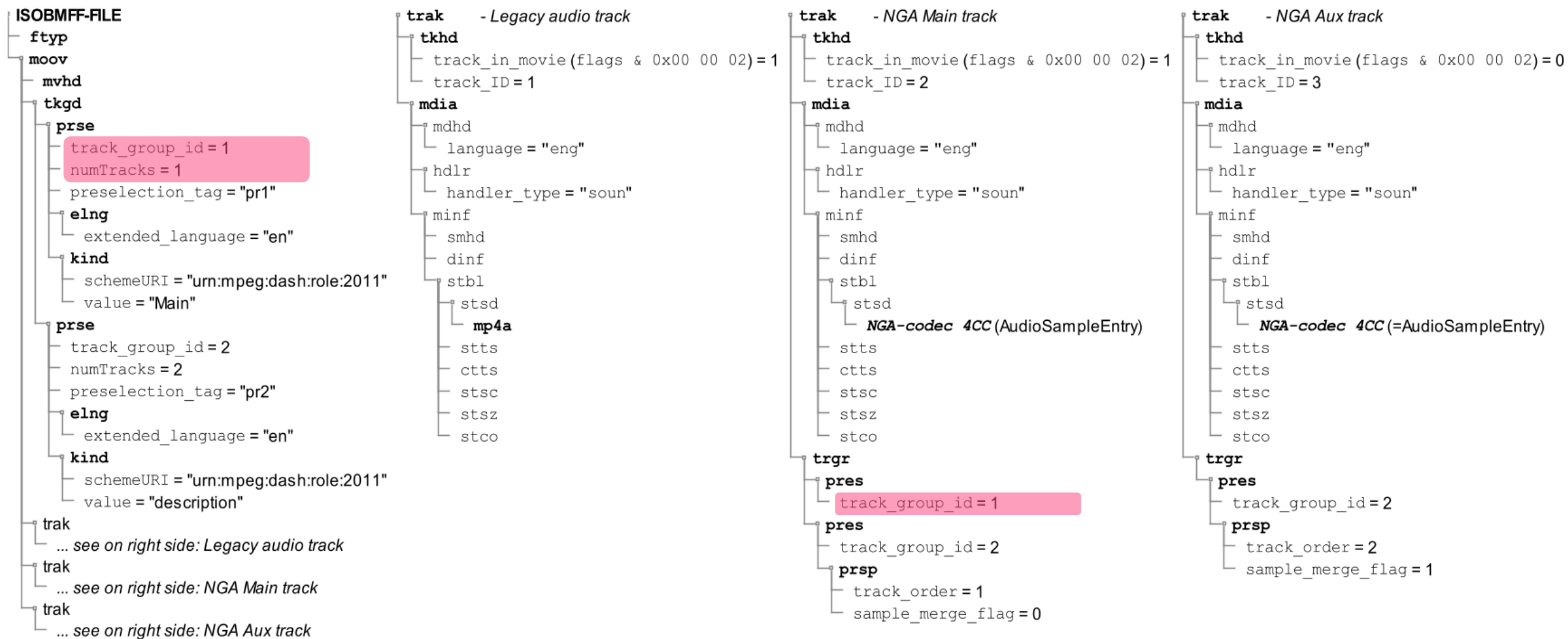




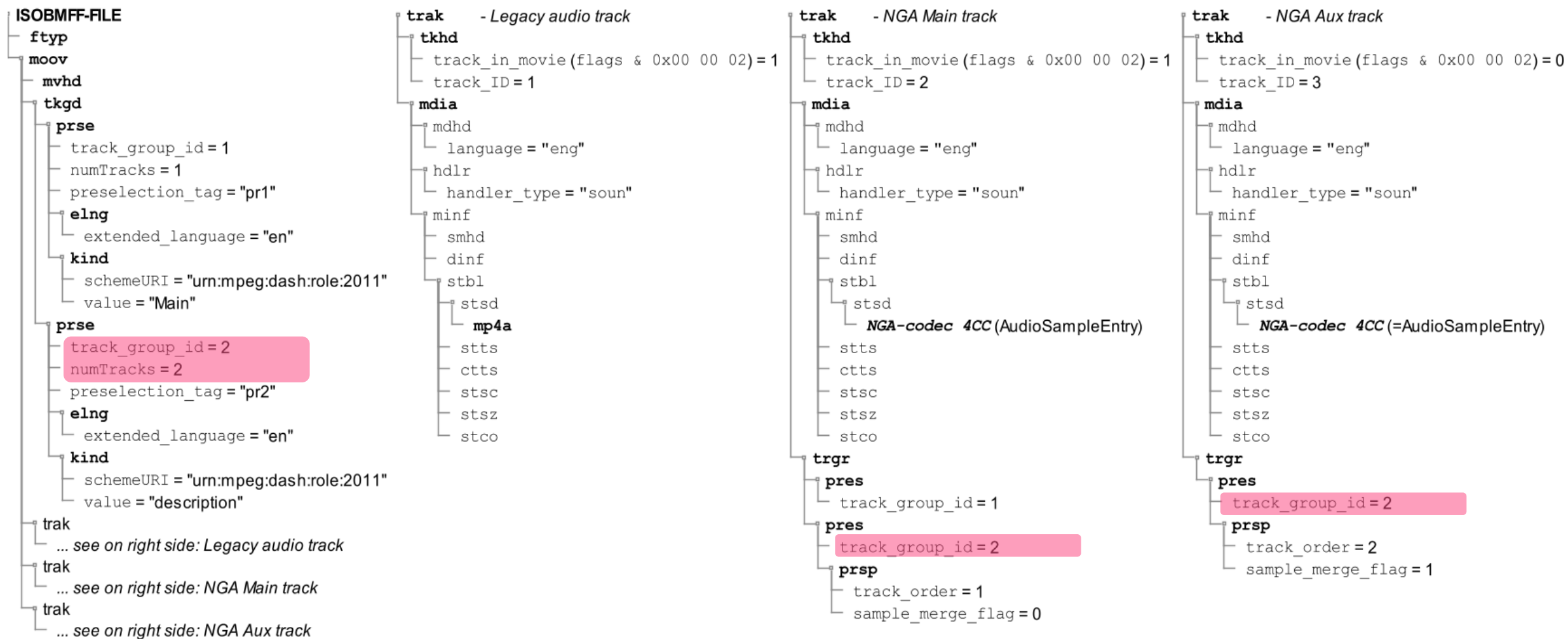
# Track Group Descriptions



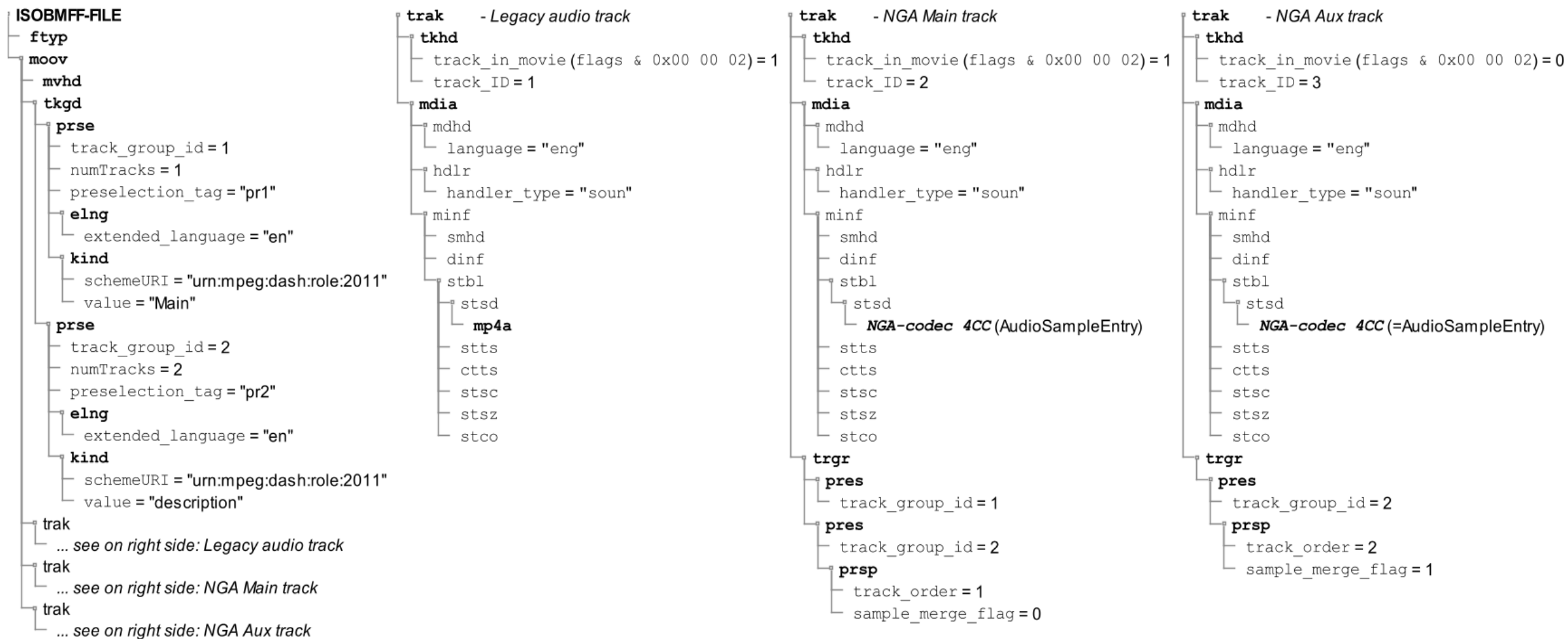
# Preselection #1 – single track



# Preselection #2 - multitrack



## EXAMPLE



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## MAPPING FROM ISOBMFF TO DASH MPD

### **Notes:**

- Educative, not compliant MDP “fragment”
- Details in M60491
- Data structures were revised during MPEG139  
These changes are not reflected in following slides

```
<MPD>
  <Period>
    <AdaptationSet id="1" mimeType="audio/mp4" codecs="mp4a" />
    <AdaptationSet id="2" mimeType="audio/mp4" codecs="<NGA 4CC>">
      <SupplementalProperty id="urn:mpeg:dash:preselection:2016" />
    </AdaptationSet>
    <AdaptationSet id="3" mimeType="audio/mp4" codecs="<NGA 4CC>" />
      <EssentialProperty id="urn:mpeg:dash:preselection:2016" />
    </AdaptationSet>

    <Preselection id="1" lang="en" preselectionComponents="2" tag="pr1"" codecs="<NGA 4CC>">
      <Role schemeIdUri="urn:mpeg:dash:role:2011" value="main"/>
    </Preselection>

    <Preselection id="2" lang="en" preselectionComponents="2 3" tag="pr2"" codecs="<NGA 4CC>">
      <Role schemeIdUri="urn:mpeg:dash:role:2011" value="alternate"/>
      <Accessibility schemeIdUri="urn:mpeg:dash:role:2011" value="description"/>
    </Preselection>
  </Period>
</MPD>
```

## 3 Tracks

```

ISOBMFF-FILE
- ftyp
- moov
  - mvhd
  - tkgd
  - prse
    - track_group_id = 1
    - numTracks = 1
  - prsi
    - preselection_tag = "pr1"
  - elng
    - extended_language = "en"
  - kind
    - schemeURI = "urn:mpeg:dash:role:2011"
    - value = "Main"
  - prse
    - track_group_id = 2
    - numTracks = 2
  - prsi
    - preselection_tag = "pr2"
  - elng
    - extended_language = "en"
  - kind
    - schemeURI = "urn:mpeg:dash:role:2011"
    - value = "description"
- trak
  - ... see on right side: Legacy audio track
- trak
  - ... see on right side: NGA Main track
- trak
  - ... see on right side: NGA Aux track
  
```

```

trak - Legacy audio track
- tkhd
  - track_in_movie(flags & 0x00 00 02) = 1
  - track_ID = 1
- mdia
  - mdhd
    - language = "eng"
  - hdlr
    - handler_type = "soun"
  - minf
    - smhd
    - dinf
    - stbl
      - stsd
        - mp4a
      - stts
      - ctts
      - stsc
      - stsz
      - stco
  
```

```

trak - NGA Main track
- tkhd
  - track_in_movie(flags & 0x00 00 02) = 1
  - track_ID = 2
- mdia
  - mdhd
    - language = "eng"
  - hdlr
    - handler_type = "soun"
  - minf
    - smhd
    - dinf
    - stbl
      - stsd
        - NGA-codec 4CC (AudioSampleEntry)
      - stts
      - ctts
      - stsc
      - stsz
      - stco
  - trgr
    - pres
      - track_group_id = 1
    - pres
      - track_group_id = 2
    - prsp
      - track_order = 1
      - sample_merge_flag = 0
  
```

```

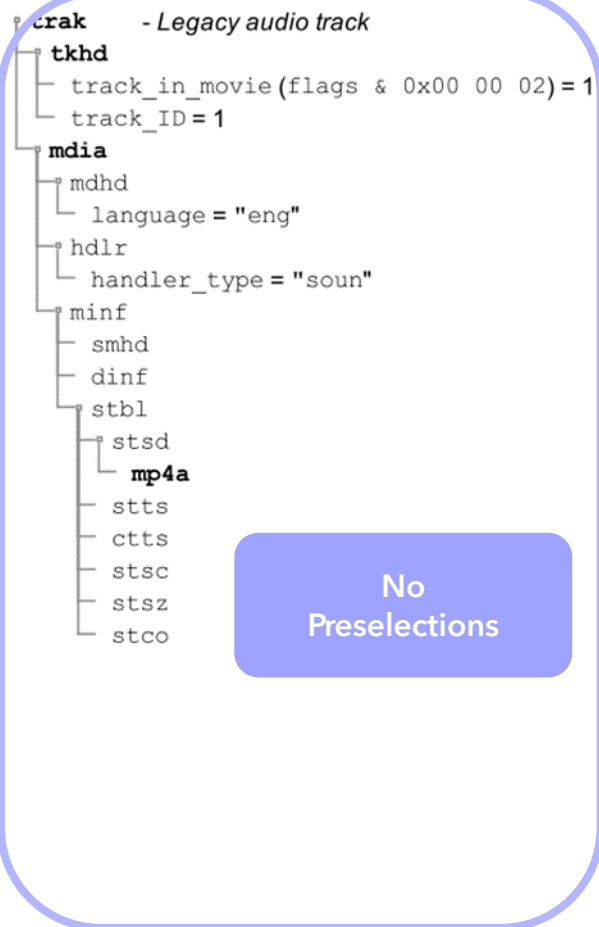
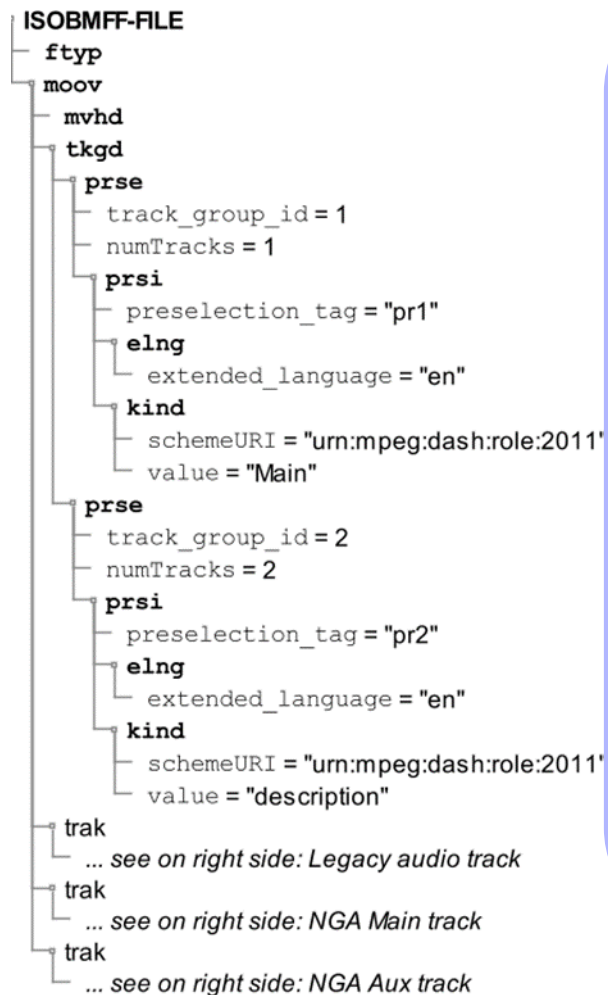
trak - NGA Aux track
- tkhd
  - track_in_movie(flags & 0x00 00 02) = 0
  - track_ID = 3
- mdia
  - mdhd
    - language = "eng"
  - hdlr
    - handler_type = "soun"
  - minf
    - smhd
    - dinf
    - stbl
      - stsd
        - NGA-codec 4CC (=AudioSampleEntry)
      - stts
      - ctts
      - stsc
      - stsz
      - stco
  - trgr
    - pres
      - track_group_id = 2
    - prsp
      - track_order = 2
      - sample_merge_flag = 1
  
```

```
<MPD>
  <Period>
    <AdaptationSet id="1" mimeType="audio/mp4" codecs="mp4a" />
    <AdaptationSet id="2" mimeType="audio/mp4" codecs="<NGA 4CC>">
      <SupplementalProperty id="urn:mpeg:dash:preselection:2016" />
    </AdaptationSet>
    <AdaptationSet id="3" mimeType="audio/mp4" codecs="<NGA 4CC>" />
      <EssentialProperty id="urn:mpeg:dash:preselection:2016" />
    </AdaptationSet>

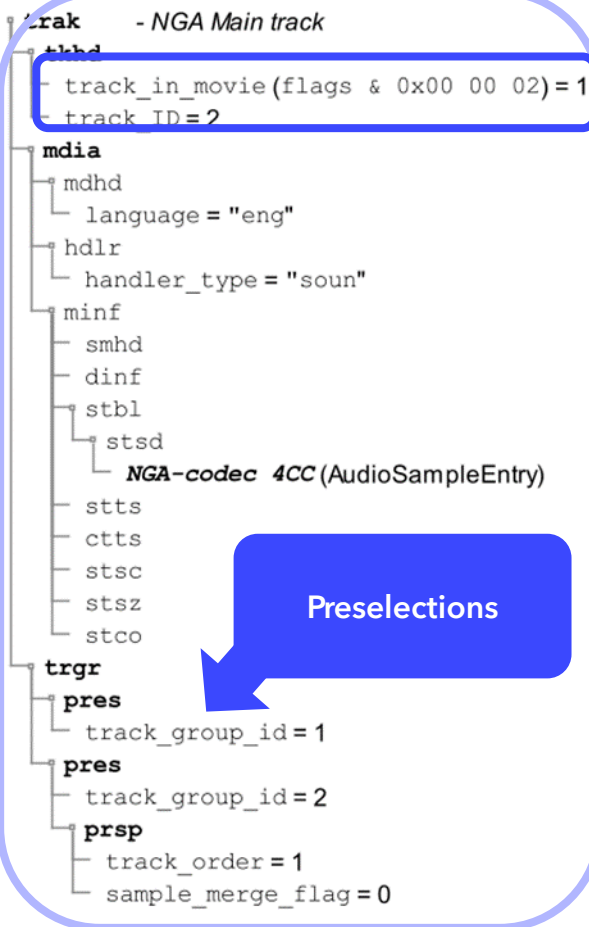
    <Preselection id="1" lang="en" preselectionComponents="2" tag="pr1"" codecs="<NGA 4CC>">
      <Role schemeIdUri="urn:mpeg:dash:role:2011" value="main"/>
    </Preselection>

    <Preselection id="2" lang="en" preselectionComponents="2 3" tag="pr2"" codecs="<NGA 4CC>">
      <Role schemeIdUri="urn:mpeg:dash:role:2011" value="alternate"/>
      <Accessibility schemeIdUri="urn:mpeg:dash:role:2011" value="description"/>
    </Preselection>
  </Period>
</MPD>
```

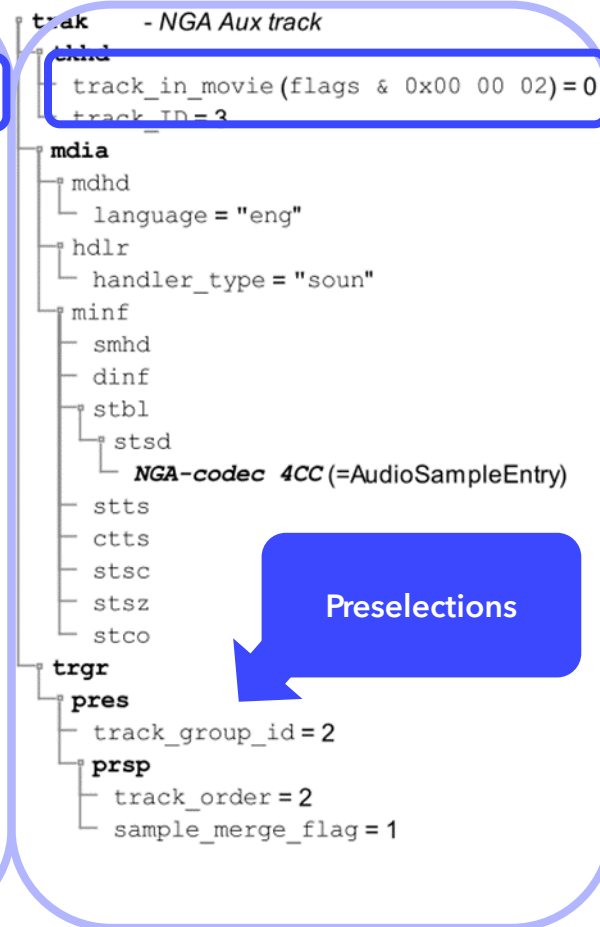




No  
Preselections



Preselections



Preselections

```

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  <Period>
    <AdaptationSet id="1" mimeType="audio/mp4" codecs="mp4a" />
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      <EssentialProperty id="urn:mpeg:dash:preselection:2016" />
    </AdaptationSet>

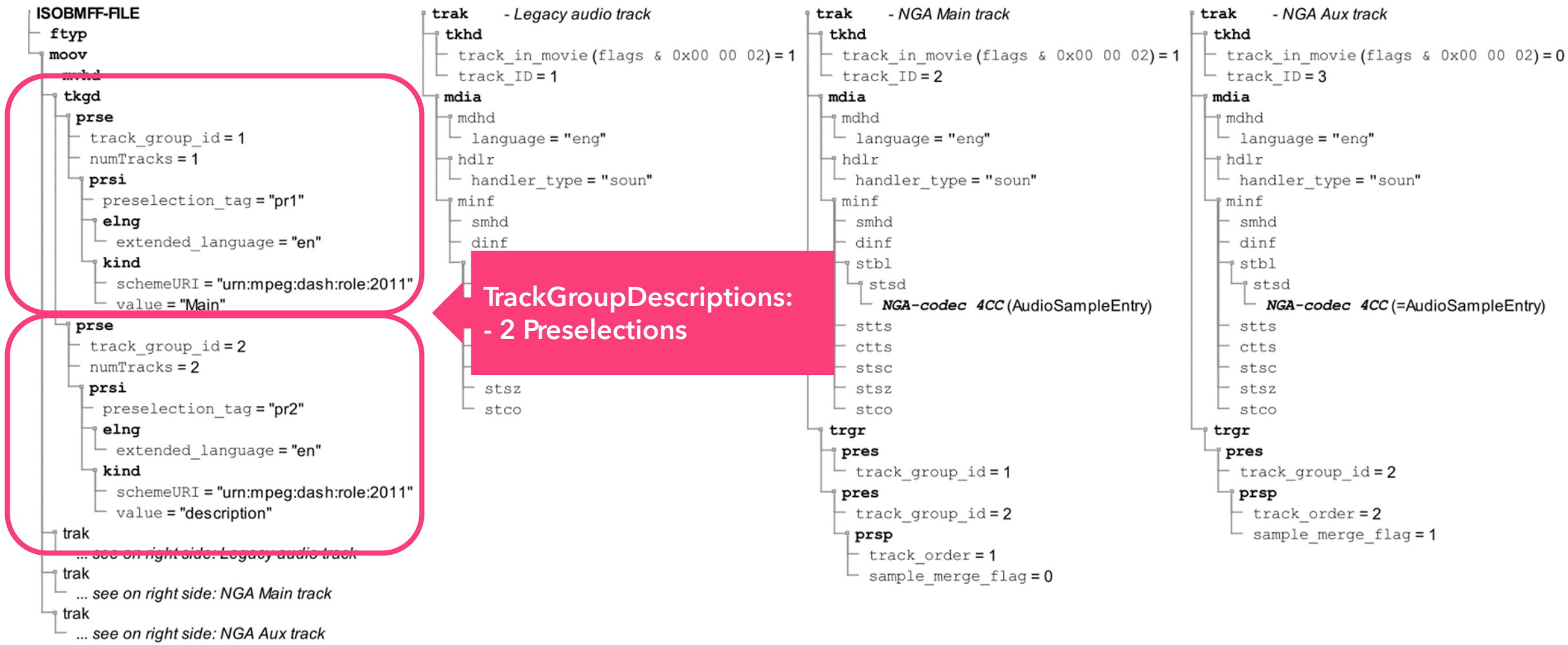
    <Preselection id="1" lang="en" preselectionComponents="2" tag="pr1" codecs="<NGA 4CC>">
      <Role schemeIdUri="urn:mpeg:dash:role:2011" value="main"/>
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      <Role schemeIdUri="urn:mpeg:dash:role:2011" value="alternate"/>
      <Accessibility schemeIdUri="urn:mpeg:dash:role:2011" value="description"/>
    </Preselection>
  </Period>
</MPD>

```

track\_in\_movie = 1

track\_in\_movie = 0



```
<MPD>
  <Period>
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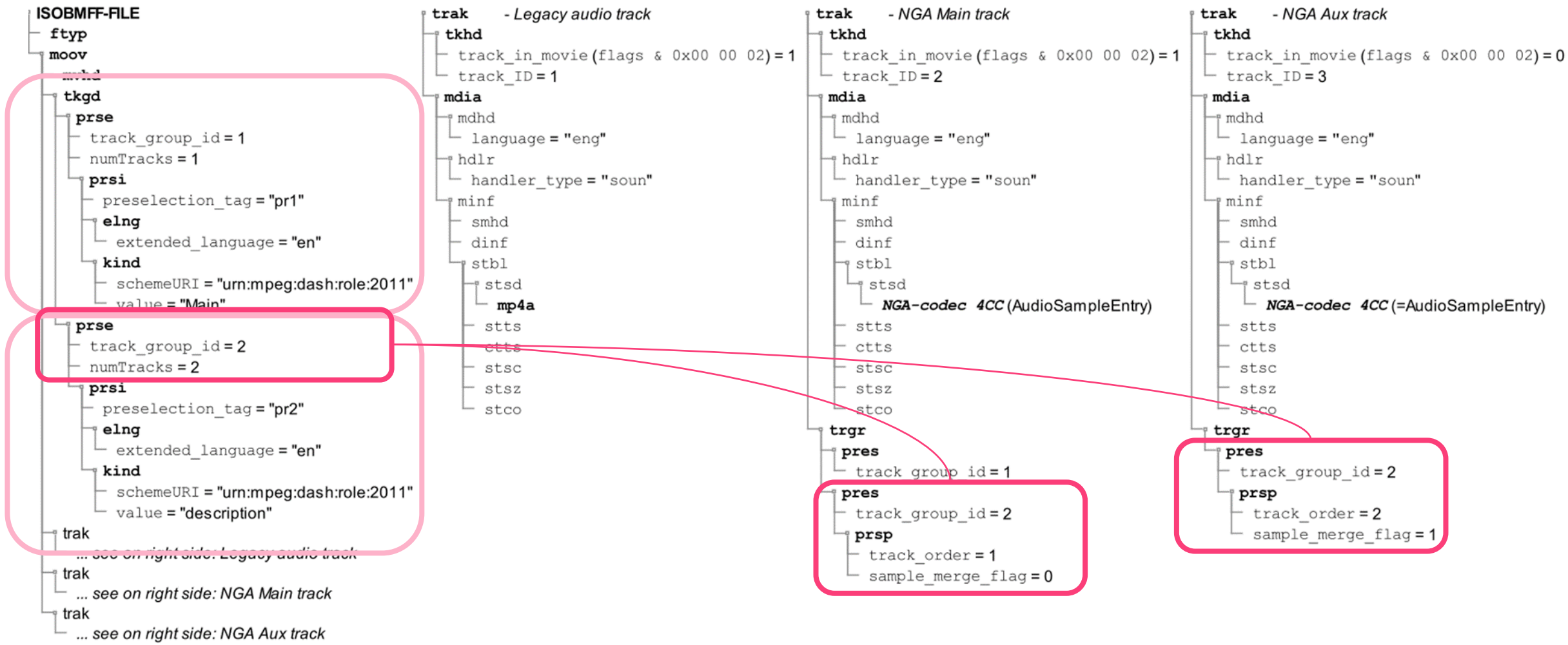


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    <AdaptationSet id="1" mimeType="audio/mp4" codecs="mp4a" />
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Order of entries:  
per track\_order





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    </Preselection>
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    <AdaptationSet id="2" mimeType="audio/mp4" codecs="<NGA 4CC>">
      <SupplementalProperty id="urn:mpeg:dash:preselection:2016" />
    </AdaptationSet>
    <AdaptationSet id="3" mimeType="audio/mp4" codecs="<NGA 4CC>" />
      <EssentialProperty id="urn:mpeg:dash:preselection:2016" />
    </AdaptationSet>

    <Preselection id="1" lang="en" preselectionComponents="2" tag="pr1"" codecs="<NGA 4CC>">
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    </Preselection>
  </Period>
</MPD>
```

—  
QUESTIONS?

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