

## METS profile - Sound Recordings 2

### XML Version of Profile Document

#### Abstract

This METS profile supports the compilation of metadata for the Sound Archive's Archival Sound Recordings (ASR) 2 project in terms of file identification and linking and the description of content, processes and conditions associated with those files. It is anticipated that this profile will serve the needs of audio preservation and access generally though a modified profile will be needed for handling born-digital files: this profile is applicable specifically to datafiles that have been generated from analogue originals. As such, the profile defines a logical and a physical structure. The logical structure represents the intellectual content, i.e. the recorded 'work', its sequential properties and connectivity between intellectual components, such as audio, text and images, while the physical structure represents the physical carriers that were used as the source for digitization. Entities from both structures need metadata in order to represent and preserve the digitized content. All of the content, as datafiles, relating to a single METS instance must be referenced from the <fileSec> (file section) and they may have technical and process metadata attached to each of them. They are linked to either the logical or the physical structures. For this reason, the interpretation of a METS file must start at the logical section. From there the related components (disc and tape sides, tracks, images, etc.) are mapped and can be retrieved by means of the links in the <fptr> (file pointer section), or the <smLink> (structural links) element.

#### URI

<http://to.be.announced>

#### Date

2008-10-08T17:11:00

#### Contact

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#### Related Profile

Though this profile borrows the descriptive metadata part from the profile for DOM eJournal ingest, these are not formally related to each other.

#### Extension Schema

MODS, version 3.2  
<http://www.loc.gov/standards/mods/>

**Context:** The MODS extension schema is used to store descriptive metadata for the logical <div> elements of the type "Collection" and "Work". This section is only used for preservation purposes.

#### Extension Schema

Dublin Core Metadata Element Set, version 1.1  
<http://dublincore.org/documents/dces/>

**Context:** Every logical <div> element of the type "Collection" or "Work" must have a descriptive metadata section containing Dublin Core metadata. This metadata is used for presentation purposes.

#### Extension Schema

DCMI Metadata Terms  
<http://dublincore.org/documents/dcmi-terms/>

**Context:** The DCMI metadata terms are used for refinement within the Dublin Core metadata section.

#### Extension Schema

BLAP-Sound  
<http://www.bl.uk/profiles/Sound/BLAPSoundASR2-V0.2>

**Context:** The BLAP-Sound schema is used for storing descriptive metadata for recordings. It is used as an addition to MODS by the presentation system.

## Extension Schema

BLAPSI

<http://www.bl.uk/profiles/sound/BLAPSI-v1-3>

**Context:** The BLAPSI schema is used for storing technical metadata for sound files.

## Extension Schema

MIX 1.0

<http://www.loc.gov/standards/mix/>

**Context:** Related material such as labels, books etc. can be scanned as images. For preservation purposes the MIX extension schema is used to store the technical metadata of images.

## Extension Schema

AES process history

The draft for AES x098c hasn't been officially published yet

**Context:** The digitization processes for the audio master files are described using the current draft of the AES X098c standard. It lists all devices and their settings used to create the master files. As the AES standard is not officially published yet, there is no official URL.

## Description Rules

## Controlled Vocabularies

## Structural Requirements

### Descriptive Metadata Section

#### dmdSec Requirement 1:

##### General

Each descriptive metadata section stores a metadata record which is linked to a structural entity that is represented in the <div> element. For that reason every <dmdSec> element must have an ID attribute. It contains a unique value which is used in the appropriate <div> element's DMDID attribute to link to this section. The ID-attribute's value should not have any semantic meaning as the METS file will / must always be parsed starting with the <structMap> section.

Each <div> element may have an unlimited number of descriptive metadata section. Depending on the kind of structural entity represented by the <div> element (value of the <div>'s TYPE attribute) a descriptive metadata section of some kind must be linked to it.

For the Sound Archive all required descriptive metadata must be embedded using the <mdWrap> element. If additional descriptive metadata sections are available pointing to an external catalogue record using <mdWrap> these will be ignored. In any case every <mdWrap> and <mdRef> element must have an MDTYPE attribute storing the metadata extension schema used in this section. If other than the predefined values from the METS schema are used, the MDTYPE attribute must contain the value "OTHER" and the OTHERMDTYPE attribute must be used. The usage of all other attributes for the <mdWrap> or <mdRef> elements is optional.

This profile supports only metadata stored in XML. Any metadata section not encoded in XML will be ignored. Therefore the <mdWrap> element must have a <xmlData> child element.

#### Example 1: Descriptive metadata section

```
<mets:mets>
  <mets:dmdSec ID="dmd02">
    <mets:mdWrap MIMETYPE="text/xml" MDTYPE="OTHER" OTHERMDTYPE="blapsi"
LABEL="ID3V1.1 Tag Metadata of the Work">
      <mets:xmlData>
        <mods:mods> </mods:mods>
      </mets:xmlData>
```

```

        </mets:mdWrap>
    </mets:dmdSec>
    <mets:structMap TYPE="LOGICAL">
        <mets:div DMDID="dmd02" TYPE="WORK" />
    </mets:structMap>
</mets:mets>

```

## dmdSec Requirement 2: MODS Extension schemas

The MODS extension schema is the only supported descriptive metadata schema for preservation purposes. For this reason every METS file must have at least a MODS-based descriptive metadata section for the uppermost logical entity in the METS file. The MODS extension schema must use the "mods" prefix.

Some of the repository's functions are based on the MODS metadata schema. Therefore the MODS metadata in this profile must be compliant with the DOM Metadata Definition Project.

During the production process the descriptive metadata being stored in the MODS section is derived from the Sound Archive's MARC catalogue record.

### Example 2: Descriptive metadata using MODS extension schema

```

<mets:mets>
  <mets:dmdSec ID="mods_descr">
    <mets:mdWrap MIMETYPE="text/xml" MDTYPE="MODS">
      <mets:xmlData>
        <mods:mods>
          <mods:identifier
type="SoundArchiveIdentifier">sounds.bl.uk/1LP0181075XX-01</mods:identifier>
          <mods:recordInfo>
            <mods:recordIdentifier source="Sound Archive
Catalogue">CKEY4720680</mods:recordIdentifier>
          </mods:recordInfo>
          <mods:titleInfo type="uniform">
            <mods:title>Symphonies, no. 3, op. 55, E flat major</mods:title>
          </mods:titleInfo>
          <mods:titleInfo type="alternative">
            <mods:title>Eroica</mods:title>
          </mods:titleInfo>
          <mods:name type="personal">
            <mods:namePart>Beecham, Thomas</mods:namePart>
            <mods:namePart type="date">1879-1961</mods:namePart>
            <mods:role>
              <mods:roleTerm type="code"
authority="marcrelator">CND</mods:roleTerm>
            </mods:role>
          </mods:name>
          <mods:name type="corporate">
            <mods:namePart>Royal Philharmonic Orchestra</mods:namePart>

```

```

        <mods:role>
            <mods:roleTerm type="code"
authority="marcrelator">PRF</mods:roleTerm>
        </mods:role>
        <mods:description>orchestra</mods:description>
    </mods:name>
    <mods:name type="personal">
        <mods:namePart>Beethoven, Ludwig van</mods:namePart>
        <mods:namePart type="date">1770-1826</mods:namePart>
        <mods:role>
            <mods:roleTerm type="code"
authority="marcrelator">CMP</mods:roleTerm>
        </mods:role>
        <mods:description />
    </mods:name>
    <mods:accessCondition type="restriction on
access">none</mods:accessCondition>
    <mods:accessCondition type="RightsStatement">copyright The British
        Library Board</mods:accessCondition>
    <mods:originInfo>
        <mods:dateCreated>1954-01</mods:dateCreated>
    </mods:originInfo>
    <mods:typeOfResource>sound recording</mods:typeOfResource>
</mods:mods>
</mets:xmlData>
</mets:mdWrap>
</mets:dmdSec>
<!--
    the structmap which is mandatory for METS , this
    is NOT a complete <structMap> in this example
-->
<mets:structMap TYPE="logical">
    <mets:div TYPE="Recording" />
</mets:structMap>
</mets:mets>

```

### dmdSec Requirement 3: Identification of the resource/object

Every resource is identified by a unique identifier. These identifiers are stored within the MODS extension schema using its <mods:identifier> element. Its TYPE attribute must store the kind of identifier used. For the Sound-Archive the type "SoundArchiveIdentifier" is used.

Every collection and every recording must have at least a single unique identifier. Additionally every top structural entity from the logical <structMap> must have a unique identifier.

For preservation purposes the MMC-ID-identifier might be added later. It will be stored in the same metadata section.

### dmdSec Requirement 4: DublinCore extension schema

The Dublin Core extension schema is used to store descriptive metadata for all the logical structural entities (all <div> elements in the logical <structMap>). Every collection and recording must link to a DublinCore metadata section. The

DublinCore section makes use of the following namespaces, which must be tied to the appropriate prefixes:

dc: the dc prefix is used for the DublinCore namespace ("http://purl.org/dc/elements/1.1/")

dcterms: the dcterms prefix is used for the DublinCore dcterms namespace ("http://purl.org/dc/terms/") specifying additional DublinCore terms.

marcrel: the marcrel prefix is used for the MARC relators namespace ("http://www.loc.gov/loc/terms/relators/") defining the roles of each contributor.

blterms: the blterms prefix is used for a list containing additional relators ("http://www.bl.uk/namespaces/blterms/")

Further more scanned disc labels may also have additional descriptive metadata. Their metadata is stored using the DublinCore extension schema as well.

The metadata stored in this schema is used for presentation (i.e. retrieval and display) purposes.

#### Example 5: Descriptive metadata using Dublin Core extension schema

```

<mets:mets>
  <mets:dmdSec ID="dcSec">
    <mets:mdWrap MIMETYPE="text/xml" MDTYPE="DC">
      <mets:xmlData>
        <dc:title>String quartet no. 3, op. 18, no. 3, D major</dc:title>
        <dc:description>Recording released on the Odeon label; original issue
          numbers: Odeon 123874 to 123876 (123874, 123875, 123876). Matrix Numbr
            : XXP 7400, XXP 7401, XXP 7402, XXP 7403, XXP 7404, XXP 7405.</dc:des
        <dc:identifier>sounds.bl.uk/1CL0006307XX-00</dc:identifier>
        <dc:source>1CL0006307, 1CL0006308, 1CL0006309</dc:source>
        <dcterms:created>1926</dcterms:created>
        <dc:rights>http://sounds.bl.uk/JISC ASR IPR STATUS LIST.xls</dc:rights>
        <marcrel:CMP>Beethoven, Ludwig van, 1770-1827</marcrel:CMP>
        <marcrel:PRF>Quatuor Pascal</marcrel:PRF>
        <dcterms:spatial> </dcterms:spatial>
        <dcterms:temporal> </dcterms:temporal>
        <dc:language> </dc:language>
        <dc:subject> </dc:subject>
        <rdf:about xmlns:rdf="http://www.w3.org/1999/02/22-rdf-syntax-ns#"
          xlink:href="http://cadensa.bl.uk/uhtbin/cgiisirs/x/0/5?searchdata1=CKEY6873817&
          amp;library=ALL">CKEY6873817</rdf:about>
        <dc:type>sound</dc:type>
      </mets:xmlData>
    </mets:mdWrap>
  </mets:dmdSec>
  <!--
    the structmap which is mandatory for METS , this
    is NOT a complete <structMap> in this example
  -->
  <mets:structMap TYPE="logical">
    <mets:div TYPE="Recording" />
  </mets:structMap>
</mets:mets>

```

### dmdSec Requirement 5: Sound Archive catalogue MARC record

The Sound Archive catalogue is populated with MARC records. Though the formal syntax of the MARC record is identical to standard MARC, the semantics of the fields reflect the difference between time-based media and other bibliographic formats. They contain technical as well as descriptive data. Though the technical metadata is already stored either in BLAP-S or in a METS' attribute within the <file> element, it was decided to keep the complete Sound Archive catalogue record as a complete entity. The descriptive metadata in the Sound Archive's MARC record may only be partly converted to MODS. A mapping table will be available to provide guidance for the mapping. As the METS file is the central file which is stored in the preservation system it must include all necessary data. In general it should be possible to re-create the catalogue from the data being stored in the METS file. Storing the xml-version of this MARC record might not be the most elegant solution but it is the easiest way to preserve the data.

The Sound Archive's MARC record is referenced from a separate <dmdSec> element. As the record is usually quite detailed, it is not embedded into the METS file. The <mdRef>'s MDTYPE attribute is set to "OTHER". The value of the "OTHERMDTYPE" is set to "SOUNDARCHIVEMARC". As the MARC format is not compliant with any common version of the MARC standard (e.g. MARC21) the MDTYPE must not be set to "MARC".

As the data is referenced the <mdRef> element must contain a LOCTYPE attribute. Its value is set to "URL" as a URL is used in the mandatory <xlink:href> element. The Catalogue Key (CKEY) of the Sound Archive Catalogue is used in the URL to provide a persistent link to the catalogue record. This link must return a machine readable version (XML) of the catalogue record. A link to a website showing the catalogue record must not be used in this section.

#### Example 6: Sound Archive's MARC record embedded in METS

```

<mets:mets>
  <mets:dmdSec ID="marc_descr">
    <mets:mdRef MDTYPE="OTHER" OTHERMDTYPE="SOUNDARCHIVEMARC" LABEL="Sound
Archive's MARCXML Metadata" LOCTYPE="URL" xlink:href="http://www.bl.uk/soundarchive
/catalogue?CKEY282480006" />
  </mets:dmdSec>
  <!--
    the structmap which is mandatory for METS , this
    is NOT a complete <structMap> in this example
  -->
  <mets:structMap TYPE="logical">
    <mets:div TYPE="Recording" />
  </mets:structMap>
</mets:mets>

```

### dmdSec Requirement 6: ID3 Tags for MP3 audio files

Audio derivatives stored in mp3 file format may contain embedded descriptive metadata. This metadata is known as ID3-tags. The contents of the ID3 tags is stored in the descriptive metadata section. The metadata is embedded into the METS file. Therefore the <mdWrap> contains information about the current metadata extension schema. Its MDTYPE attribute is set to "OTHER". Its OTHERMDTYPE attribute is set to "blapsi".

Unlike all other <dmdSec> elements, the ID3 descriptive metadata is linked to the mp3 audio file.

#### Example 7: ID3 tags as descriptive metadata

```

<mets:mets>
  <mets:dmdSec ID="ex07dMD02">
    <mets:mdWrap MIMETYPE="text/xml" MDTYPE="OTHER" OTHERMDTYPE="blapsi"
LABEL="ID3V1.1 Tag Metadata of the Work">
    <mets:xmlData>

```

```

        <blapsi:id3songtitle>String quartet no.3, op.18, no</blapsi:id3songtitle>
        <blapsi:id3artist>Quatuor Pascal</blapsi:id3artist>
        <blapsi:id3album>Beethoven String Quartets</blapsi:id3album>
        <blapsi:id3year>1926</blapsi:id3year>
        <blapsi:id3comments />
        <blapsi:id3track />
        <blapsi:id3genre />
    </mets:xmlData>
</mets:mdWrap>
</mets:dmdSec>
<!--
    the structmap which is mandatory for METS , this
    is NOT a complete <structMap> in this example
-->
<mets:structMap TYPE="logical">
    <mets:div TYPE="Recording" />
</mets:structMap>
</mets:mets>

```

## Administrative Metadata Section

### amdSec Requirement 1:

#### General

Administrative metadata is stored in the <amdSec>. There is an <amdSec> element for every <div> and <file> which has administrative metadata. Administrative metadata include technical, digital provenance and source metadata. Rights metadata is currently not used by the ASR2 project.

Every <amdSec> is identified by its ID attribute. The value of the attribut needs to be unique within the METS file. This ID is the only ID which should be used for linking to data stored within the administrative metadata section. The <techMD> and <digiprovMD> for the same object are always stored in the same <amdSec>.

Administrative Metadata is embedded into the METS file. For this reason the appropriate <techMD> and <digiprovMD> elements must contain a <mdWrap> element. Referenced metadata sections will be ignored. All administrative metadata must be stored in XML. The <xmlData> element will be the only valid element under the <mdRef> element.

The <mdWrap> must have a MDTYPE attribute which has always the value "OTHER" as this profile does not use any endorsed extension schemas from the predefined list. The OTHERMDTYPE attribute stores the kind of metadata schema being used. Its value is always set to "BLAPSI".

#### Example 8: Administrative metadata section

```

<mets:mets>
  <mets:amdSec ID="ex08aDM01">
    <mets:techMD ID="ex08tech">
      <mets:mdWrap MDTYPE="OTHER" OTHERMDTYPE="blapsi"> </mets:mdWrap>
    </mets:techMD>
    <mets:sourceMD ID="ex08source">
      <mets:mdWrap MDTYPE="OTHER" OTHERMDTYPE="blapsi" />
    </mets:sourceMD>
    <mets:digiprovMD ID="ex08digiprov">

```

```

        < mets:mdWrap MDTYPE="OTHER" OTHERMDTYPE="blapsi" />
    </ mets:digiprovMD>
</ mets:amdSec>
<!--
    the structmap which is mandatory for METS , this
    is NOT a complete <structMap> in this example
-->
< mets:structMap TYPE="logical">
    < mets:div TYPE="Recording" />
</ mets:structMap>
</ mets:mets>

```

## amdSec Requirement 2:

### SourceMD for physical entities or related material

Metadata about the source can only be recorded for the physical unit or related material. It contains information about the original object which was used in the digitization process. This section may store the original object's location e.g. its shelfmark etc.

This profile supports only the BLAPSI metadata extension schema. Sections using other schemas are ignored.

#### Example 9: Source metadata for a physical structure entity or related material

```

< mets:mets>
  < mets:amdSec>
    < mets:sourceMD ID="SHELF6">
      < mets:mdWrap MIMETYPE="text/xml" MDTYPE="OTHER" OTHERMDTYPE="blapsi">
        < mets:xmlData>
          < blapsi:resource_id>026</ blapsi:resource_id>
          < blapsi:resource_name>Drawn from published phonograms, Beethoven stri
            quartets, Classical Music</ blapsi:resource_name>
          < blapsi:root_id>1CL0006309XX</ blapsi:root_id>
          < blapsi:stream_sq>AB</ blapsi:stream_sq>
          < blapsi:format>disc, coarse groove, 30 cm, 78 RPM, mono </ blapsi:form
        </ mets:xmlData>
      </ mets:mdWrap>
    </ mets:sourceMD>
  </ mets:amdSec>
  <!--
    the structmap which is mandatory for METS , this
    is NOT a complete <structMap> in this example
-->
  < mets:structMap TYPE="logical">
    < mets:div TYPE="Recording" />
  </ mets:structMap>
</ mets:mets>

```



### amdSec Requirement 3: digiProvMD for audio files

The digital provenance metadata section contains digitization reports relating to the audio masterfiles. The digitization reports contain detailed information about the tasks, their settings and (the human) operators. The section is only available for master audio files and is therefore only referenced by <file> elements within the "MASTER" <fileSec>. Its <mdWrap> element must have an MDTYPE and OTHERMDTYPE attribute. The MDTYPE attribute is set to "OTHER", the OTHERMDTYPE attribute must be set to "processHistory".

The process information contained in the <mdWrap> element uses the preliminary draft of the AES X098c. Each of those sections describes a single process which might consist of different steps.

The <processEvent> element contains all the information about the event including the operator and the devices. Each device is represented by a <device> element. A <descriptor> contains metadata about the device (manufacturer, model, serial number and the kind of device). The important things are the input- and output channels. Both are represented by <inputChannel> and <outputChannel> elements. Each of those elements have a unique ID attribute (the value must be unique within the METS file). Stereo equipment has two input- and two output channels. The <settings> element captures the settings for the device during the process.

The list of devices is stored in the <devicePatchList>. This list links the input- and output channels of each device. The sourceRef attribute of the <patch> element must contain a value being stored in an <outputChannel> element's ID attribute. The destinationRef attribute of the <patch> element must contain a value being stored in an <inputChannel> element's ID attribute. The device with its input channels no listed in the <devicePatchList> element, is the first device in the chain. The device with its output channels not listed in the <devicePatchList> is the last device in the chain.

Each <media> element within the <mediaPool> element represents a single channel. The <media> element must have a unique ID attribute. Each <timeRange> element stores the information about the length of each channel. As the SoundArchive always uses 2 channels to represent the stereo signal, there must be 2 <media> elements. The time range information for both channels must be identical. It stores the length of each channel in TCF format.

As the two channels are defining a stereo signal they need to be played back in sync. For this reason the <syncGroup> element defines a group consisting of the two channels. Each channel is represented by a <syncMedia> element. This element contains a mediaRef attribute containing the ID-value of the channel's <media> element. The groupRef attribute of each <syncMedia> element must contain the same value which is the value of the <syncGroup> element's ID attribute. The <syncGroup> contains also time information. As both channels need to be played back over the complete runtime, the values within the <timeRange> element needs to be the same as in the <media> elements. There is only a single <syncGroup> element per processEvent.

As the Sound Archive uses a standardized digitization workflow, it is sensible to employ templates. A template could store predefined data for the devices, the device patchlist, the media and sync group elements. The only information which needs to be added for the individual files is the operator, the device settings and the time range information for the <media> and <syncGroup> elements.

#### Example 10: Digital provenance metadata for audio files storing information about the digitization process

```

<mets:mets>
  <mets:amdSec>
    <mets:digiProvMD ID="process_provMD">
      <mets:mdWrap ID="archival_2Fdigiprov.xml" MIMETYPE="text/xml"
MDTYPE="OTHER" OTHERMDTYPE="ProcessHistory">
        <mets:xmlData>
          <processHistory:processHistory
xmlns:processHistory="http://www.aes.org/processHistory" ID="PROCESS1"
xsi:schemaLocation="http://www.aes.org/processHistory file://C://data/METS/other_schemas
/processHistory.xsd" schemaVersion="1.0">
            <!-- xsi:schemaLocation="http://www.aes.org
/processHistory file://C:\data\METS\other_schemas\processHistory.xsd" -->
            <processHistory:processEvent ID="EVENT1" sequenceNum="1"
label="archival transfer" processHistoryRef="PROCESS1">
              <processHistory:operator ID="OPERATOR1">
                <processHistory:lastName>Smith</processHistory:lastName>
                <processHistory:firstName>John</processHistory:firstName>
                <processHistory:organization>The British Library</process

```

```

</processhistory:street1>Euston Road</processhistory:street1>
</processhistory:city>London</processhistory:city>
</processhistory:postalCode>NW1 2DB</processhistory:postalCode>
</processhistory:countryCode>UK</processhistory:countryCode>
</processhistory:operator>
</processhistory:creationDate>2007-10-12T10:20:30</processhistory:creationDate>
</processhistory:treatment>Discs cleaned on Keith Monk record
cleaning machine before transfer</processhistory:treatment>
</processhistory:deviceChain ID="ASR-026A-1CL0050307XX-
AA-EVENT1-DEVICE_CHAIN" label="chain of devices for archival transfer of analog originals">
  </processhistory:device ID="ASR-026A-1CL0050307XX-
AA-EVENT1-DEVICE1" deviceChainRef="ASR-026A-1CL0050307XX-AA-EVENT1-DEVICE_CHAIN">
    </processhistory:descriptor>
    </processhistory:manufacturer>Technics</processhistory:manufacturer>
    </processhistory:modelName>1210</processhistory:modelName>
    </processhistory:kind>turntable</processhistory:kind>
  </processhistory:descriptor>
  </processhistory:outputChannel ID="ASR-
026A-1CL0050307XX-AA-EVENT1-DEVICE1-CHANNEL1" label="channel 1 out" routing="OUTPUT"
format="ANALOG_RCA" deviceRef="ASR-026A-1CL0050307XX-AA-EVENT1-DEVICE1" />
  </processhistory:outputChannel ID="ASR-
026A-1CL0050307XX-AA-EVENT1-DEVICE1-CHANNEL2" label="channel 2 out" routing="OUTPUT"
format="ANALOG_RCA" deviceRef="ASR-026A-1CL0050307XX-AA-EVENT1-DEVICE1" />
  </processhistory:settings>
  </processhistory:singleStateParameter ID="ASR-
026A-1CL0050307XX-AA-EVENT1-DEVICE1-SINGLE_STATE_PARAMETER1" name="speed" value="78"
units="revolutions per minute" interface="ANALOG_STEPPED" />
  </processhistory:settings>
  </processhistory:module ID="ASR-026A-1CL0050307XX-
AA-EVENT1-DEVICE1-MODULE1" deviceRef="ASR-026A-1CL0050307XX-AA-EVENT1-DEVICE1">
    </processhistory:descriptor>
    </processhistory:manufacturer>Expert Stylus</processhistory:manufacturer>
    </processhistory:modelName>N/A</processhistory:modelName>
    </processhistory:kind>stylus</processhistory:kind>
  </processhistory:descriptor>
  </processhistory:inputChannel routing="INPUT"
moduleRef="ASR-026A-1CL0050307XX-AA-EVENT1-DEVICE1-MODULE1" label="Input 1" ID="ASR-
026A-1CL0050307XX-AA-EVENT1-DEVICE1-MODULE1-CHANNEL1" />
  </processhistory:outputChannel routing="OUTPUT"
moduleRef="ASR-026A-1CL0050307XX-AA-EVENT1-DEVICE1-MODULE1" label="Output 1" ID="ASR-
026A-1CL0050307XX-AA-EVENT1-DEVICE1-MODULE1-CHANNEL2" />
  </processhistory:settings>
  </processhistory:singleStateParameter ID="ASR-
026A-1CL0050307XX-AA-EVENT1-DEVICE1-MODULE1-SINGLE_STATE_PARAMETER1" name="shape"
value="elliptical truncated" interface="ANALOG_FREE" />
  </processhistory:settings>
</processhistory:module>
</processhistory:module ID="ASR-026A-1CL0050307XX-
AA-EVENT1-DEVICE1-MODULE2" deviceRef="ASR-026A-1CL0050307XX-AA-EVENT1-DEVICE1">
  </processhistory:descriptor>
  </processhistory:manufacturer>Shure</processhistory:manufacturer>
  </processhistory:modelName>V15</processhistory:modelName>
  </processhistory:kind>Phono

```

```

        cartridge</processhistory:kind>
    </processhistory:descriptor>
    <processhistory:inputChannel routing="INPUT"
moduleRef="ASR-026A-1CL005037XX-AA-EVENT1-DEVICE1-MODULE1" label="Input 1" ID="ASR-
026A-1CL005037XX-AA-EVENT1-DEVICE1-MODULE2-CHANNEL1" />
    <processhistory:outputChannel routing="OUTPUT"
moduleRef="ASR-026A-1CL005037XX-AA-EVENT1-DEVICE1-MODULE1" label="Output 1" ID="ASR-
026A-1CL005037XX-AA-EVENT1-DEVICE1-MODULE2-CHANNEL2" />
    <processhistory:outputChannel routing="OUTPUT"
moduleRef="ASR-026A-1CL005037XX-AA-EVENT1-DEVICE1-MODULE1" label="Output 2" ID="ASR-
026A-1CL005037XX-AA-EVENT1-DEVICE1-MODULE2-CHANNEL3" />
    <processhistory:settings>
    <processhistory:singleStateParameter ID="ASR-
026A-1CL005037XX-AA-EVENT1-DEVICE1-SINGLE_STATE_PARAMETER2" name="serial number" value="v15"
interface="ANALOG_FREE" />
    </processhistory:settings>
</processhistory:module>
    <processhistory:inputMediaChannel ID="ASR-
026A-1CL0050307XX-AA-EVENT1-DEVICE1-MEDIACHANNEL1" label="Media in" patchRef="ASR-
026A-1CL0050307XX-AA-EVENT1-DEVICE1-PATCHLIST-PATCH1" channelNumber="1" multiplexed="false"
streamRef="ASR-026A-1CL0050307XX-AA-EVENT1-IN_MEDIA-STREAM1" deviceRef="ASR-026A-1CL005037XX-
AA-EVENT1-DEVICE1" />
    <processhistory:inputMediaChannel ID="ASR-
026A-1CL0050307XX-AA-EVENT1-DEVICE1-MEDIACHANNEL2" label="Media in" patchRef="ASR-
026A-1CL0050307XX-AA-EVENT1-DEVICE1-PATCHLIST-PATCH1" channelNumber="1" multiplexed="false"
streamRef="ASR-026A-1CL0050307XX-AA-EVENT1-IN_MEDIA-STREAM1" deviceRef="ASR-026A-1CL005037XX-
AA-EVENT1-DEVICE1" />
    <processhistory:patchList ID="ASR-
026A-1CL0050307XX-AA-EVENT1-DEVICE1-PATCHLIST">
    <processhistory:patch ID="ASR-
026A-1CL0050307XX-AA-EVENT1-DEVICE1-PATCHLIST-PATCH1" sourceRef="ASR-026A-1CL0050307XX-
AA-EVENT1-DEVICE1-MEDIACHANNEL1" destinationRef="ASR-026A-1CL0050307XX-AA-EVENT1-DEVICE1-
CHANNEL1" />
    </processhistory:patchList>
</processhistory:device>
    <processhistory:device ID="ASR-026A-1CL0050307XX-
AA-EVENT1-DEVICE2" deviceChainRef="ASR-026A-1CL0050307XX-AA-EVENT1-DEVICE_CHAIN">
    <processhistory:descriptor>
    <processhistory:manufacturer>Eldberg</processhisto
    <processhistory:modelName>MD 12 MK2</processhisto
    <processhistory:kind>phono
    preamplifier</processhistory:kind>
    </processhistory:descriptor>
    <processhistory:inputChannel ID="ASR-
026A-1CL0050307XX-AA-EVENT1-DEVICE2-CHANNEL1" label="phono 1 left in" routing="INPUT"
format="ANALOG_RCA" deviceRef="ASR-026A-1CL0050307XX-AA-EVENT1-DEVICE2" />
    <processhistory:inputChannel ID="ASR-
026A-1CL0050307XX-AA-EVENT1-DEVICE2-CHANNEL2" label="phono 1 right in" routing="INPUT"
format="ANALOG_RCA" deviceRef="ASR-026A-1CL0050307XX-AA-EVENT1-DEVICE2" />
    <processhistory:inputChannel ID="ASR-
026A-1CL0050307XX-AA-EVENT1-DEVICE2-CHANNEL5" label="phono 1 left return" routing="RETURN"
format="ANALOG_RCA" deviceRef="ASR-026A-1CL0050307XX-AA-EVENT1-DEVICE2" />
    <processhistory:inputChannel ID="ASR-
026A-1CL0050307XX-AA-EVENT1-DEVICE2-CHANNEL6" label="phono 1 right return" routing="RETURN"
format="ANALOG_RCA" deviceRef="ASR-026A-1CL0050307XX-AA-EVENT1-DEVICE2" />
    <processhistory:outputChannel ID="ASR-
026A-1CL0050307XX-AA-EVENT1-DEVICE2-CHANNEL3" label="phono 1 left send" routing="SEND"
format="ANALOG_RCA" deviceRef="ASR-026A-1CL0050307XX-AA-EVENT1-DEVICE2" />
    <processhistory:outputChannel ID="ASR-
026A-1CL0050307XX-AA-EVENT1-DEVICE2-CHANNEL4" label="phono 1 right return" routing="SEND"

```

```

format="ANALOG_RCA" deviceRef="ASR-026A-1CL0050307XX-AA-EVENT1-DEVICE2" />
    <processhistory:outputChannel ID="ASR-
026A-1CL0050307XX-AA-EVENT1-DEVICE2-CHANNEL7" label="TRS out left" routing="OUTPUT"
format="ANALOG_BALANCED_TRS" deviceRef="ASR-026A-1CL0050307XX-AA-EVENT1-DEVICE2" />
    <processhistory:outputChannel ID="ASR-
026A-1CL0050307XX-AA-EVENT1-DEVICE2-CHANNEL8" label="TRS out right" routing="OUTPUT"
format="ANALOG_BALANCED_TRS" deviceRef="ASR-026A-1CL0050307XX-AA-EVENT1-DEVICE2" />
    <processhistory:outputChannel ID="ASR-
026A-1CL0050307XX-AA-EVENT1-DEVICE2-CHANNEL9" label="RCA out left" routing="OUTPUT"
format="ANALOG_RCA" deviceRef="ASR-026A-1CL0050307XX-AA-EVENT1-DEVICE2" />
    <processhistory:outputChannel ID="ASR-
026A-1CL0050307XX-AA-EVENT1-DEVICE2-CHANNEL10" label="RCA out right" routing="OUTPUT"
format="ANALOG_RCA" deviceRef="ASR-026A-1CL0050307XX-AA-EVENT1-DEVICE2" />
    <processhistory:settings>
        <processhistory:singleStateParameter ID="ASR-
026A-1CL0050307XX-AA-EVENT1-DEVICE2-SETTING1" name="chronological EQ"
interface="ANALOG_STEPPED" value="HMV" />
    </processhistory:settings>
    <processhistory:patchList ID="ASR-
026A-1CL0050307XX-AA-DEVICE2-PATCHLIST" />
</processhistory:device>
    <processhistory:device ID="ASR-026A-1CL0050307XX-
AA-EVENT1-DEVICE3" deviceChainRef="ASR-026A-1CL0050307XX-AA-EVENT1-DEVICE_CHAIN">
    <processhistory:descriptor>
        <processhistory:manufacturer>Prism</processhistory:manufacturer>
        <processhistory:modelName>AD-2 030</processhistory:modelName>
        <processhistory:kind>analog to digital
converter</processhistory:kind>
    </processhistory:descriptor>
    <processhistory:inputChannel ID="ASR-
026A-1CL0050307XX-AA-EVENT1-DEVICE3-CHANNEL1" label="left in" routing="INPUT"
format="ANALOG_BALANCED_XLR" deviceRef="ASR-026A-1CL0050307XX-AA-EVENT1-DEVICE3" />
    <processhistory:inputChannel ID="ASR-
026A-1CL0050307XX-AA-EVENT1-DEVICE3-CHANNEL2" label="right in" routing="INPUT"
format="ANALOG_BALANCED_XLR" deviceRef="ASR-026A-1CL0050307XX-AA-EVENT1-DEVICE3" />
    <processhistory:inputChannel ID="ASR-
026A-1CL0050307XX-AA-EVENT1-DEVICE3-CHANNEL3" label="Word clock in" routing="INPUT"
format="WORD_CLOCK" deviceRef="ASR-026A-1CL0050307XX-AA-EVENT1-DEVICE3" />
    <processhistory:outputChannel ID="ASR-
026A-1CL0050307XX-AA-EVENT1-DEVICE3-CHANNEL4" label="Digital out" routing="OUTPUT"
format="DIGITAL_AES_EBU" deviceRef="ASR-026A-1CL0050307XX-AA-EVENT1-DEVICE3" />
    <processhistory:outputChannel ID="ASR-
026A-1CL0050307XX-AA-EVENT1-DEVICE3-CHANNEL5" label="Word clock out" routing="OUTPUT"
format="WORD_CLOCK" deviceRef="ASR-026A-1CL0050307XX-AA-EVENT1-DEVICE3" />
    <processhistory:settings>
        <processhistory:singleStateParameter ID="ASR-
026A-1CL0050307XX-AA-EVENT1-DEVICE3-SETTING1" name="sample rate" interface="ANALOG_STEPPED"
value="96" units="kHz" />
        <processhistory:singleStateParameter ID="ASR-
026A-1CL0050307XX-AA-EVENT1-DEVICE3-SETTING2" name="Word Length (Bit depth)"
interface="ANALOG_STEPPED" value="24" units="Bits" />
    </processhistory:settings>
    <processhistory:patchList ID="ASR-
026A-1CL0050307XX-AA-EVENT1-DEVICE3-PATCHLIST" />
</processhistory:device>
    <processhistory:device ID="ASR-026A-1CL0050307XX-
AA-EVENT1-DEVICE4" deviceChainRef="ASR-026A-1CL0050307XX-AA-EVENT1-DEVICE_CHAIN">
    <processhistory:descriptor>

```

```

        <processhistory:manufacturer>Lynx</processhistory>
        <processhistory:modelName>AES 16</processhistory:
        <processhistory:serialNumber>2405230490</processh
        <processhistory:kind>Sound card
            (PCI)</processhistory:kind>
        </processhistory:descriptor>
        <processhistory:inputChannel routing="INPUT"
format="DIGITAL_AES_EBU" deviceRef="ASR-026A-1CL0050307XX-AA-EVENT1-DEVICE4" label="Input 1 and
2" ID="ASR-026A-1CL0050307XX-AA-EVENT1-DEVICE4-CHANNEL1" />
        <processhistory:inputChannel routing="INPUT"
format="DIGITAL_AES_EBU" deviceRef="ASR-026A-1CL0050307XX-AA-EVENT1-DEVICE4" label="Input 3 and
4" ID="ASR-026A-1CL0050307XX-AA-EVENT1-DEVICE4-CHANNEL2" />
        <processhistory:inputChannel routing="INPUT"
format="DIGITAL_AES_EBU" deviceRef="ASR-026A-1CL0050307XX-AA-EVENT1-DEVICE4" label="Input 5 and
6" ID="ASR-026A-1CL0050307XX-AA-EVENT1-DEVICE4-CHANNEL3" />
        <processhistory:inputChannel routing="INPUT"
format="DIGITAL_AES_EBU" deviceRef="ASR-026A-1CL0050307XX-AA-EVENT1-DEVICE4" label="Input 7 and
8" ID="ASR-026A-1CL0050307XX-AA-EVENT1-DEVICE4-CHANNEL4" />
        <processhistory:inputChannel routing="INPUT"
format="WORD_CLOCK" deviceRef="ASR-026A-1CL0050307XX-AA-EVENT1-DEVICE4" label="Word Clock In"
ID="ASR-026A-1CL0050307XX-AA-EVENT1-DEVICE4-CHANNEL5" />
        <processhistory:outputChannel routing="OUTPUT"
format="DIGITAL_AES_EBU" deviceRef="ASR-026A-1CL0050307XX-AA-EVENT1-DEVICE4" label="Output 1
and 2" ID="ASR-026A-1CL0050307XX-AA-EVENT1-DEVICE4-CHANNEL6" />
        <processhistory:outputChannel routing="OUTPUT"
format="DIGITAL_AES_EBU" deviceRef="ASR-026A-1CL0050307XX-AA-EVENT1-DEVICE4" label="Output 3
and 4" ID="ASR-026A-1CL0050307XX-AA-EVENT1-DEVICE4-CHANNEL7" />
        <processhistory:outputChannel routing="OUTPUT"
format="DIGITAL_AES_EBU" deviceRef="ASR-026A-1CL0050307XX-AA-EVENT1-DEVICE4" label="Output 5
and 6" ID="ASR-026A-1CL0050307XX-AA-EVENT1-DEVICE4-CHANNEL8" />
        <processhistory:outputChannel routing="OUTPUT"
format="DIGITAL_AES_EBU" deviceRef="ASR-026A-1CL0050307XX-AA-EVENT1-DEVICE4" label="Output 7
and 8" ID="ASR-026A-1CL0050307XX-AA-EVENT1-DEVICE4-CHANNEL9" />
        <processhistory:outputChannel routing="OUTPUT"
format="WORD_CLOCK" deviceRef="ASR-026A-1CL0050307XX-AA-EVENT1-DEVICE4" label="Word clock Out"
ID="ASR-026A-1CL0050307XX-AA-EVENT1-DEVICE4-CHANNEL10" />
        <processhistory:outputChannel routing="OUTPUT"
format="OTHER" otherFormat="PCI slot" deviceRef="ASR-026A-1CL0050307XX-AA-EVENT1-DEVICE4"
label="PCI slot output" ID="ASR-026A-1CL0050307XX-AA-EVENT1-DEVICE4-CHANNEL11" />
        <processhistory:patchList ID="ASR-
026A-1CL0050307XX-AA-1CL0050307XX-AA-EVENT1-DEVICE4-PATCHLIST" />
    </processhistory:device>
    <processhistory:device ID="ASR-026A-1CL0050307XX-
AA-EVENT1-DEVICE5" deviceChainRef="ASR-026A-1CL0050307XX-AA-EVENT1-DEVICE_CHAIN">
        <processhistory:descriptor>
            <processhistory:manufacturer>Dell</processhistory>
            <processhistory:modelName>Optiplex GX620</process
            <processhistory:kind>host computer
                (PC)</processhistory:kind>
            </processhistory:descriptor>
            <processhistory:inputChannel ID="ASR-
026A-1CL0050307XX-AA-EVENT1-DEVICE5-CHANNEL1" label="Input" routing="INPUT" format="OTHER"
otherFormat="PCI slot" deviceRef="ASR-026A-1CL0050307XX-AA-EVENT1-DEVICE5" patchRef="ASR-
026A-1CL0050307XX-AA-EVENT1-DEVICE5-PATCHLIST-PATCH1" />
            <processhistory:settings />
            <processhistory:module ID="ASR-026A-1CL0050307XX-
AA-EVENT1-DEVICE5-MODULE1">
                <processhistory:descriptor>

```

```

        <processhistory:manufacturer>Steinberg</processhistory:manufacturer>
        <processhistory:modelName>Wavelab 6</processhistory:modelName>
        <processhistory:kind>Recording/Editing
        Software</processhistory:kind>
    </processhistory:descriptor>
    <processhistory:inputChannel routing="INPUT"
moduleRef="ASR-026A-1CL0050307XX-AA-EVENT1-DEVICE5-MODULE1" label="Input 1" ID="ASR-
026A-1CL0050307XX-AA-EVENT1-DEVICE5-MODULE1-CHANNEL1" />
    <processhistory:inputChannel routing="INPUT"
moduleRef="ASR-026A-1CL0050307XX-AA-EVENT1-DEVICE5-MODULE1" label="Input 2" ID="ASR-
026A-1CL0050307XX-AA-EVENT1-DEVICE5-MODULE1-CHANNEL2" />
    <processhistory:inputChannel routing="INPUT"
moduleRef="ASR-026A-1CL0050307XX-AA-EVENT1-DEVICE5-MODULE1" label="Input 3" ID="ASR-
026A-1CL0050307XX-AA-EVENT1-DEVICE5-MODULE1-CHANNEL3" />
    <processhistory:inputChannel routing="INPUT"
moduleRef="ASR-026A-1CL0050307XX-AA-EVENT1-DEVICE5-MODULE1" label="Input 4" ID="ASR-
026A-1CL0050307XX-AA-EVENT1-DEVICE5-MODULE1-CHANNEL4" />
    <processhistory:inputChannel routing="RETURN"
moduleRef="ASR-026A-1CL0050307XX-AA-EVENT1-DEVICE5-MODULE1" label="Return 1" ID="ASR-
026A-1CL0050307XX-AA-EVENT1-DEVICE5-MODULE1-CHANNEL5" />
    <processhistory:inputChannel routing="RETURN"
moduleRef="ASR-026A-1CL0050307XX-AA-EVENT1-DEVICE5-MODULE1" label="Return 2" ID="ASR-
026A-1CL0050307XX-AA-EVENT1-DEVICE5-MODULE1-CHANNEL6" />
    <processhistory:outputChannel routing="SEND"
moduleRef="ASR-026A-1CL0050307XX-AA-EVENT1-DEVICE5-MODULE1" label="Send 1" ID="ASR-
026A-1CL0050307XX-AA-EVENT1-DEVICE5-MODULE1-CHANNEL7" />
    <processhistory:outputChannel routing="SEND"
moduleRef="ASR-026A-1CL0050307XX-AA-EVENT1-DEVICE5-MODULE1" label="Send 2" ID="ASR-
026A-1CL0050307XX-AA-EVENT1-DEVICE5-MODULE1-CHANNEL8" />
    <processhistory:settings />
</processhistory:module>
    <processhistory:outputMediaChannel ID="ASR-
026A-1CL0050307XX-AA-DEVICE5-MEDIACHANNEL1" label="Media Out" channelNumber="1" streamRef="ASR-
026A-1CL0050307XX-AA-EVENT1-OUT_MEDIA-STREAM1" multiplexed="false" deviceRef="ASR-
026A-1CL0050307XX-AA-EVENT1-DEVICE5" />
    <processhistory:patchList ID="ASR-
026A-1CL0050307XX-AA-EVENT1-DEVICE5-PATCHLIST">
        <processhistory:patch ID="ASR-
026A-1CL0050307XX-AA-EVENT1-DEVICE5-PATCHLIST-PATCH1" sourceRef="ASR-026A-1CL0050307XX-
AA-EVENT1-DEVICE5-CHANNEL1" destinationRef="ASR-026A-1CL0050307XX-AA-DEVICE5-MEDIACHANNEL1" />
    </processhistory:patchList>
</processhistory:device>
    <processhistory:devicePatchList ID="ASR-
026A-1CL0050307XX-AA-EVENT1-PATCHLIST">
        <processhistory:patch ID="ASR-026A-1CL0050307XX-
AA-EVENT1-PATCHLIST-PATCH1" sourceRef="ASR-026A-1CL0050307XX-AA-EVENT1-DEVICE1-CHANNEL1"
destinationRef="ASR-026A-1CL0050307XX-AA-EVENT1-DEVICE2-CHANNEL1" />
        <processhistory:patch ID="ASR-026A-1CL0050307XX-
AA-EVENT1-PATCHLIST-PATCH2" sourceRef="ASR-026A-1CL0050307XX-AA-EVENT1-DEVICE1-CHANNEL2"
destinationRef="ASR-026A-1CL0050307XX-AA-EVENT1-DEVICE2-CHANNEL2" />
        <processhistory:patch ID="ASR-026A-1CL0050307XX-
AA-EVENT1-PATCHLIST-PATCH3" sourceRef="ASR-026A-1CL0050307XX-AA-EVENT1-DEVICE2-CHANNEL7"
destinationRef="ASR-026A-1CL0050307XX-AA-EVENT1-DEVICE3-CHANNEL1" />
        <processhistory:patch ID="ASR-026A-1CL0050307XX-
AA-EVENT1-PATCHLIST-PATCH4" sourceRef="ASR-026A-1CL0050307XX-AA-EVENT1-DEVICE2-CHANNEL8"
destinationRef="ASR-026A-1CL0050307XX-AA-EVENT1-DEVICE3-CHANNEL2" />
        <processhistory:patch ID="ASR-026A-1CL0050307XX-
AA-EVENT1-PATCHLIST-PATCH5" sourceRef="ASR-026A-1CL0050307XX-AA-EVENT1-DEVICE3-CHANNEL4"
destinationRef="ASR-026A-1CL0050307XX-AA-EVENT1-DEVICE4-CHANNEL1" />
        <processhistory:patch ID="ASR-026A-1CL0050307XX-
AA-EVENT1-PATCHLIST-PATCH6" sourceRef="ASR-026A-1CL0050307XX-AA-EVENT1-DEVICE4-CHANNEL11"
destinationRef="ASR-026A-1CL0050307XX-AA-EVENT1-DEVICE5-CHANNEL1" />
    </processhistory:devicePatchList>

```

```

        </processhistory:devicePatchList>
    </processhistory:deviceChain>
    <processhistory:mediaPool ID="POOL1" label="analog
originals">
        <processhistory:media ID="ASR-026A-1CL0050307XX-
AA-EVENT1-IN_MEDIA" mediaPoolRef="POOL1" temporary="false">
            <processhistory:mediaLocation />
            <processhistory:stream label="In media"
streamNum="1" mediaRef="ASR-026A-1CL0050307XX-AA-EVENT1-IN_MEDIA" ID="ASR-026A-1CL0050307XX-
AA-EVENT1-IN_MEDIA-STREAM1" />
        </processhistory:media>
        <processhistory:media ID="ASR-026A-1CL0050307XX-
AA-EVENT1-OUT_MEDIA" mediaPoolRef="POOL1" temporary="false">
            <processhistory:mediaLocation />
            <processhistory:stream label="Out media"
streamNum="1" mediaRef="ASR-026A-1CL0050307XX-AA-EVENT1-OUT_MEDIA" ID="ASR-026A-1CL0050307XX-
AA-EVENT1-OUT_MEDIA-STREAM1" />
        </processhistory:media>
    </processhistory:mediaPool>
    <processhistory:syncGroup masterMediaRef="ASR-
026A-1CL005037XX-AA-SYNC_GROUP1-SYNC_MEDIA1" sequenceNum="1" ID="ASR-026A-1CL005037XX-
AA-SYNC_GROUP1">
        <processhistory:syncMedia mediaRef="ASR-
026A-1CL0050307XX-AA-EVENT1-IN_MEDIA" groupRef="ASR-026A-1CL005037XX-AA-SYNC_GROUP1" ID="ASR-
026A-1CL005037XX-AA-SYNC_GROUP1-SYNC_MEDIA1" />
        <processhistory:syncMedia mediaRef="ASR-
026A-1CL0050307XX-AA-EVENT1-OUT_MEDIA" groupRef="ASR-026A-1CL005037XX-AA-SYNC_GROUP1" ID="ASR-
026A-1CL005037XX-AA-SYNC_GROUP1-SYNC_MEDIA2" />
    </processhistory:syncGroup>
    <processhistory:timeRange>
        <tcf:startTime frameCount="25" timeBase="1000"
videoField="FIELD_1" countingMode="NTSC_NON_DROP_FRAME">
            <tcf:hours>0</tcf:hours>
            <tcf:minutes>0</tcf:minutes>
            <tcf:seconds>0</tcf:seconds>
            <tcf:frames>0</tcf:frames>
            <tcf:samples sampleRate="S48000">
                <tcf:numberOfSamples>0</tcf:numberOfSamples>
            </tcf:samples>
            <tcf:filmFraming
xsi:type="tcf:ntscFilmFramingType" framing="NOT_APPLICABLE" />
        </tcf:startTime>
        <tcf:duration frameCount="25" timeBase="1000"
videoField="FIELD_1" countingMode="NTSC_NON_DROP_FRAME">
            <tcf:hours>0</tcf:hours>
            <tcf:minutes>04</tcf:minutes>
            <tcf:seconds>38</tcf:seconds>
            <tcf:frames>5</tcf:frames>
            <tcf:samples sampleRate="S48000">
                <tcf:numberOfSamples>9504000</tcf:numberOfSampl
            </tcf:samples>
            <tcf:filmFraming
xsi:type="tcf:ntscFilmFramingType" framing="NOT_APPLICABLE" />
        </tcf:duration>

```

```

        </processhistory:timeRange>
    </processhistory:syncGroup>
    <processhistory:mediaPatchList ID="ASR-026A-1CL0050307XX-
AA-EVENT1-MEDIA_PATCH_LIST" />
    </processhistory:processEvent>
</processhistory:processHistory>
</mets:xmlData>
</mets:mdWrap>
</mets:digiprovMD>
</mets:amdSec>
<!--
    the structmap which is mandatory for METS , this
    is NOT a complete <structMap> in this example
-->
<mets:structMap TYPE="logical">
    <mets:div TYPE="Recording" />
</mets:structMap>
</mets:mets>

```

#### amdSec Requirement 4:

##### Technical metadata for audio files

The <techMD> section stores technical metadata for all audio files included and inter-related within the resource. Unlike the <digiprovMD> section this section may contain metadata for master audio files and all derivatives. Each audio file will have its own <amdSec> attached to it which must contain a single <techMD> element with the OTHERMDTYPE set to "blapsi".

##### Example 12: Technical metadata for audio files

```

<mets:mets>
  <mets:amdSec>
    <mets:techMD ID="techMD05">
      <mets:mdWrap MIMETYPE="text/xml" MDTYPE="OTHER" OTHERMDTYPE="blapsi">
        <mets:xmlData>
          <blapsi:file_duration>0:04:09</blapsi:file_duration>
          <blapsi:file_size>72748748</blapsi:file_size>
          <blapsi:file_sample>48000</blapsi:file_sample>
          <blapsi:file_resolution>24</blapsi:file_resolution>
          <blapsi:file_channels>1</blapsi:file_channels>
          <blapsi:file_length>11961920</blapsi:file_length>
        </mets:xmlData>
      </mets:mdWrap>
    </mets:techMD>
  </mets:amdSec>
  <!--
    the structmap which is mandatory for METS , this

```

```

    is NOT a complete <structMap> in this example

-->
<mets:structMap TYPE="logical">
    <mets:div TYPE="Recording" />
</mets:structMap>
</mets:mets>

```

### amdSec Requirement 5: Technical metadata for image files

Related material may consist of scans of record labels, company brochures, field notes etc. These scans are stored as images. Their technical metadata is stored using the MIX extension schema. The MDTYPE attribute of the appropriate <techMD> element has the value "MIX". There must be one <techMD> section for every image using the MIX metadata extension schema. For this reason the appropriate <techMD> section is linked to the file, not to the <div> in the related material <structMap>.

#### Example 13: Technical metadata for image files

```

<mets:mets>
  <mets:amdSec>
    <mets:techMD ID="Mix_TechMD10">
      <mets:mdWrap MIMETYPE="text/xml" MDTYPE="NISOIMG">
        <mets:xmlData>
          <mix:mix>
            <mix:BasicImageParameters>
              <mix:Format>
                <mix:MYMEType>Image/tiff</mix:MYMEType>
                <mix:ByteOrder>little-endian</mix:ByteOrder>
                <mix:Compression>
                  <mix:CompressionScheme>1</mix:CompressionScheme>
                </mix:Compression>
                <mix:PhotometricInterpretation>
                  <mix:ColourSpace>1</mix:ColourSpace>
                </mix:PhotometricInterpretation>
              </mix:Format>
              <mix:File>
                <mix:orientation>1</mix:orientation>
              </mix:File>
            </mix:BasicImageParameters>
            <mix:ImageCreation>
              <mix:ScanningSystemCapture>
                <mix:ScanningSystemSoftware>
                  <mix:ScanningSoftware>Adobe Photoshop CS
                    Macintosh</mix:ScanningSoftware>
                </mix:ScanningSystemSoftware>
              </mix:ScanningSystemCapture>
            </mix:ImageCreation>
          </mix:mix>
        </mets:xmlData>
      </mets:mdWrap>
    </mets:techMD>
  </mets:amdSec>
</mets:mets>

```

```

        <mix:DateTimeCreated>2007-03-04T12:08:25</mix:DateTimeCreated>
    </mix:ImageCreation>
    <mix:ImagePerformanceAssessment>
        <mix:SpatialMetrics>
            <mix:SamplingFrequencyUnit>2</mix:SamplingFrequencyUnit>
            <mix:XSamplingFrequency>300</mix:XSamplingFrequency>
            <mix:YsamplingFrequency>300</mix:YsamplingFrequency>
            <mix:ImageWidth>2543</mix:ImageWidth>
            <mix:ImageLength>2678</mix:ImageLength>
        </mix:SpatialMetrics>
    </mix:ImagePerformanceAssessment>
    <mix:Energetics>
        <mix:BitsPerSample>8</mix:BitsPerSample>
        <mix:BitsPerPixel>1</mix:BitsPerPixel>
    </mix:Energetics>
</mix:mix>
</mets:xmlData>
</mets:mdWrap>
</mets:techMD>
</mets:amdSec>
<!--
    the structmap which is mandatory for METS , this
    is NOT a complete <structMap> in this example
-->
<mets:structMap TYPE="logical">
    <mets:div TYPE="Recording" />
</mets:structMap>
</mets:mets>

```

## File Section

### fileSec Requirement 1:

#### File groups (general)

The file section (the <fileSec> element) must contain at least one file group. A file group contains all files which are necessary for a single independent rendition of the content. A rendition may include all files which are necessary to display (e.g. in case of a booklet) or play the content (e.g. a recording). Besides the actual content files a file group must contain all files which are referenced from the content files and are needed for the rendition (e.g. style sheets). In case two sets of content files are dependent on each other, because the content files have direct or indirect relationships which might lead to inconsistencies during a potential future migration, they need to be stored in a common file group.

Each file group is expressed by a <fileGrp> element. Every <fileGrp> element must have an ID attribute which contains an unique identifier. The identifier should not have any semantic meaning.

As the files are grouped according to their use, every <fileGrp> element must have a USE attribute. All audio files which are regarded as archival master copies must be stored in the <fileGrp> with the USE attribute set to "ARCHIVALMASTER". Playback copies must be stored in the <fileGrp> with the USE attribute set to "PLAYBACKMASTER". These two file groups must be available in every METS file though the appropriate <file> elements may point to the same file in the file system.

There are no such restrictions for related material (scans of booklets, record labels etc.) There can be an unlimited number of additional file groups. For this reason the value of the USE attribute is uncontrolled for related material though it is recommended to store additional text information in a <fileGrp> with its USE attribute set to "TEXT" and

image information (scans of the physical records) into a <fileGrp> with its USE attribute set to "IMAGES". Information from these two file groups are used for rendition of the content, if available.

#### Example 14: File section with different file groups

```

<mets:mets>
  <mets:fileSec>
    <!-- This group contains the project documents. They are all expressed as link
           documents on the ASR website rather than embedd Base 64 binary code.-->
    <mets:fileGrp ID="ASR2projectdocuments" USE="project documentation" />
    <!-- -This group contains the -->
    <mets:fileGrp ID="MASTER" USE="ARCHIVALMASTER" />
    <mets:fileGrp USE="DERIVATIVE" ID="PLAYBACKMASTER" />
    <mets:fileGrp ID="IMAGES" USE="IMAGES" />
    <mets:fileGrp ID="TEXT" USE="TEXT"> </mets:fileGrp>
  </mets:fileSec>
  <!--
           the structmap which is mandatory for METS , this
           is NOT a complete <structMap> in this example
-->
  <mets:structMap TYPE="logical">
    <mets:div TYPE="Recording" />
  </mets:structMap>
</mets:mets>

```

#### fileSec Requirement 2:

##### File groups for audio files

Audio content is grouped into 2 different sections. One <fileGrp> element contains all the master files. Another one contains all the derivatives. The value of USE attribute for the master files' <fileGrp> element is "MASTER". The value for the derivatives' one is "DERIVATIVE". Though the derivative files are created from the master files the number of files in those groups may be different. This is due to post-digitization editing. The master files may contain a complete side of a disc whereas the derivatives may be the result of fusing together or splitting master files into single works.

#### fileSec Requirement 3:

##### File groups for additional files

Other files besides audio files can be stored in separate file groups. The value of the USE element is not controlled for these file groups.

#### fileSec Requirement 4:

##### Files

A file is defined by a <file> element. Each <file> element has a unique ID which is used to address this particular file from the structMap.

The use of the MIMETYPE and SIZE attributes is mandatory. The MIMETYPE attribute contains the mime type of the file. The SIZE attribute contains the file size in bytes.

The <file> element contains a <FLocat> element as the only child. It stores the physical location of the file. Within the project only URLs are supported. Therefore the LOCTYPE attribute must contain the value "URL". The href-attribute from the xlink namespace stores the actual location of the file. In case the file is located in the local file system, the value of this attribute must begin with "file://" followed by the path to the file's location (from the location of the METS file). Additionally http is supported. In this case the value must start with "http://" followed by an absolute path to the file using a fully qualified name. IP-addresses in the path are not valid. Protocols other than http are invalid.

As files are only representing a single instance of a work they must not have any descriptive metadata. Instead the descriptive metadata is stored and linked with the appropriate <div> element.

**Example 15: Pointing to file locations**

```

    <mets:mets>
      <mets:fileSec>
        <mets:fileGrp>
          <mets:file ADMID="ex08tech digiprov01" MIMETYPE="sound/wav" SIZE="76874304"
ID="FILE_003">
            <!-- relative path to file in file system: file is in the same directory
            <mets:FLocat LOCTYPE="URL" xlink:href="file://./026A-1CL0006308XX-
AAZZM0.wav" />
          </mets:file>
          <!-- relative path to file in file system: file is stored in a directory call
          directory is in the same directory as the mets file.-->
          <mets:file ADMID="ex08tech digiprov01" MIMETYPE="sound/wav" SIZE="76874304"
ID="FILE_004">
            <mets:FLocat LOCTYPE="URL" xlink:href="file://./soundfolder/026A-
1CL0006308XX-BBZZM0.wav" />
          </mets:file>
          <!-- link to a file using http protocol -->
          <mets:file ADMID="ex08tech digiprov01" MIMETYPE="application/pdf"
SIZE="76874304" ID="FILE_005">
            <mets:FLocat LOCTYPE="URL" xlink:href="http://sounds.bl.uk/BLAP-
SOUND_Contributor_refinements_ASR.pdf" />
          </mets:file>
        </mets:fileGrp>
      </mets:fileSec>
      <!--
      the structmap which is mandatory for METS , this
      is NOT a complete <structMap> in this example
      -->
      <mets:structMap TYPE="logical">
        <mets:div TYPE="Recording" />
      </mets:structMap>
    </mets:mets>

```

**fileSec Requirement 5:  
Audio Files**

Every audio file needs to have at least two administrative metadata sections attached to it: a digital provenance metadata section and a technical metadata section. It is optional to add a third section containing metadata about the digitization and editing processes. The identifiers of the appropriate identifiers must be stored in the <file> elements ADMID attribute separated from each other by a space character.

Besides the MIMETYPE and SIZE attribute every <file> element representing an audio file must have a USE attribute. The USE attribute contains information about the usage of the file. The usage of the file is directly linked to the content of the file group's USE attribute. All files of the "MASTER" file group must have the value "preservation" stored in their USE attribute. All audio files of the DERIVATIVE file group must have the value "playback" stored in their USE attribute.

**Example 16: Audio files represented by <file> elements**

```

<mets:mets>
  <mets:fileSec>

    <!-- -This MASTER group contains all audio master files
           with links to the technical metadata section, the digital provenance
           metadata section and a metadata section describing the digitization
           process.
    -->

    <mets:fileGrp ID="ex16MASTER" USE="MASTER">
      <mets:file ADMID="ex08tech ex08digiprov process_provMD"
MIMETYPE="sound/wav" USE="preservation" SIZE="69061388" ID="ex16_FILE_002">
        <mets:FLocat LOCTYPE="URL" xlink:href="026A-1CL0006307XX-ABZZM0.wav" />
      </mets:file>

      <mets:file ADMID="ex08tech ex08digiprov process_provMD"
MIMETYPE="sound/wav" USE="preservation" SIZE="76874304" ID="ex16_FILE_003">
        <mets:FLocat LOCTYPE="URL" xlink:href="026A-1CL0006308XX-AAZZM0.wav" />
      </mets:file>

      <mets:file ADMID="ex08tech ex08digiprov process_provMD"
MIMETYPE="sound/wav" USE="preservation" SIZE="77198544" ID="ex16_FILE_004">
        <mets:FLocat LOCTYPE="URL" xlink:href="026A-1CL0006308XX-ABZZM0.wav" />
      </mets:file>
    </mets:fileGrp>
  </mets:fileSec>

  <!--
           the structmap which is mandatory for METS , this
           is NOT a complete <structMap> in this example
  -->

  <mets:structMap TYPE="logical">
    <mets:div TYPE="Recording" />
  </mets:structMap>
</mets:mets>

```

### fileSec Requirement 6: image files

Image files must have a technical metadata section. The ID of the technical metadata section is stored in the <file> elements ADMID attribute. Additional administrative metadata for instance containing e.g. digital provenance metadata can be linked by adding additional ID-values to the ADMID attribute.

#### Example 17:

```

<mets:mets>
  <mets:fileSec>
    <mets:fileGrp ID="ex17_IMAGES" USE="IMAGES">
      <mets:file ADMID="Mix_TechMD10" MIMETYPE="image/tiff" USE="master"
SIZE="71730380" ID="FILE_008">

```

```

    < mets:FLocat LOCTYPE="URL" xlink:href="http://sounds.bl.uk/0261-1CL0006307XX-
AAZZM0.tif" />

    <!-- description="Disc label, side A, Odeon 123874: Beethoven String quartet no.

</mets:file>
</mets:fileGrp>
</mets:fileSec>
<!--
    the structmap which is mandatory for METS , this
    is NOT a complete <structMap> in this example
-->
<mets:structMap TYPE="logical">
    <mets:div TYPE="Recording" />
</mets:structMap>
</mets:mets>

```

## Structure Map

### structMap Requirement 1: structMap types

A structMap represents the structure of a work. The structures of the logical entity, the physical media and related material are stored respectively in separate <structMap> sections. Their <div> elements are linked to each other by <smLink> elements in the <structLink> section.

Every <structMap> element must have a TYPE -attribut. The value of the TYPE attribut must be one of the following: "logical", "physical" or "relatedMaterial". There can only be a single <structMap> element of each type.

#### Example 18: Three structmaps

```

<mets:mets>
  <!-- The logical and physical structMap are mandatory -->
  <mets:structMap TYPE="logical">
    <mets:div TYPE="" > </mets:div>
  </mets:structMap>
  <mets:structMap TYPE="physical">
    <mets:div TYPE="" > </mets:div>
  </mets:structMap>
  <!-- The third structMap is optional -->
  <mets:structMap TYPE="relatedMaterial">
    <mets:div TYPE="" />
  </mets:structMap>
</mets:mets>

```

### structMap Requirement 2: <div> elements within a structMap

In every structMap a <div> element represents a structural entity. Each <structMap> contains a single topmost <div> element. Each <div> element can have optional child-elements. Each <div> element must have a TYPE attribute recording its type. Available types depend on the kind of structMap and its parent element.

Each <div> element may have an ORDER attribute to record its position within its parent entity. If the ORDER element is not available the order of xml-elements represents the order of objects.

### structMap Requirement 3:

#### Links to metadata sections

If a structural entity has some metadata attached to it, the metadata is stored in a separate section in the METS file. To link the structural entity with this section, the DMDID or ADMID attribute is used, depending if the metadata is stored within the DMDSec or the AMDSec. The DMDID or ADMID attribute contains the value of the section's ID attribute. If a structural entity contains several metadata sets that are stored in separate sections, the value of the DMDID or ADMID attribute contains all ID-attribute values separated by the space character.

### structMap Requirement 4:

#### Link to the FileSec

Every <div> element in every section may have content attached to it. The content itself is stored within the file section (<fileSec> element). The appropriate <file> elements are referenced from each <div> element by using a file pointer. So the <fptr> element is a child of the <div> and contains the value of the <file> element's ID attribute in its FILEID attribute.

If the content is available in several formats (surrogates) there needs to be a file pointer for each of the <file> elements. The order of <fptr> is not relevant.

In cases where the content of an object is represented by more than one file, the order of files becomes important. In this case the <fptr> does not contain a direct link to the <file> element but has a <seq> child element, which defines the sequence of files. Within the <seq> element the appropriate references are defined by <area> elements. There is one element for each reference containing the <file> element's ID value in its FILEID attribute. The order of <area> elements reflects the order of files.

It might even be the case that a file contains more than just a single object. In this case the object needs to point to a specific part of the file. The <area> element is used to confine the pointer to a specific section within the file. Therefore it is a child element of <fptr> and must have a FILEID attribute containing the ID of the appropriate file. The <fptr> element does not have a FILEID attribute. Additionally the <area> element provides additional attributes to describe the position of the content belonging to the <div>. Depending on the media type different kind pointers are supported. The kind of pointer is stored in the <area> element's BETYPE attribute. Every <area> element must have a BEGIN and END attribute for storing the section's start and end. If the section involves just a single unit, the value of the BEGIN and END attribute are the same.

For audio only the TCF timecode is supported as the only unit for BETYPE. The BETYPE attribute must have the value TCF.

For the related material other units can be chosen depending on the content type.

#### Example 17: Links from a structural Map to files

```

<mets:mets>
  <mets:fileSec>
    <mets:fileGrp>
      <!-- Link to the -->
      <mets:file ADMID="ex08tech ex08digiprov" MIMETYPE="sound/wav" SIZE="76874304"
ID="FILE_003_02" />
    </mets:fileGrp>
  </mets:fileSec>
  <mets:structMap TYPE="logical">
    <mets:div TYPE="">
      <!-- link to a complete file-->
      <mets:fptr FILEID="FILE_003_02" />
      <!-- Link to an area within an audio file -->
      <mets:fptr>
        <mets:area FILEID="FILE_003_02" BEGIN="" END="" BETYPE="TCF" />
      </mets:fptr>
    </mets:div>
  </mets:structMap>

```

```
</mets:mets>
```

### structMap Requirement 5: structMap for the logical structure

The structMap for the logical structure is very simple. The uppermost <div> element is always of the type "Recording". The recording can be partitioned into sub-sections representing the acts and scewnes in a play or movements of a concerto or symphony. Each is represented as a single child <div> element. Every <div> element must have an ID attribute and a TYPE attribute. The uppermost <div> element for the recording is mandatory in every METS document. The child elements are optional: there are many possible values for their TYPE attribute such as "Aria", , "Movement", "Act/Scene" or simply "Component". This list can be determined and extended in the future.

Descriptive metadata must be available for the recording. Therefore its <div> element must have a DMDID attribute pointing to one or more descriptive metadata sections. Descriptive metadata for the child <div> elements are optional unless the child <div> exists as a recording in its own right.

If administrative metadata is available, the <div> element must contain the ADMID attribute.

#### Example 19: The logical structMap

```
<mets:mets>
  <mets:structMap TYPE="logical">
    <!-- div element points to three different metadata sections-->
    <mets:div ID="ls001" TYPE="Recording" DMDID="mods_descr marc_descr dcSec"
LABEL="Beethoven String quartet no. 3, op. 18, no. 3, D major">
      <mets:fptr FILEID="ex16_FILE_002" />
      <!-- playback -->
      <mets:fptr FILEID="ex16_FILE_003" />
      <!-- download -->
      <mets:fptr FILEID="ex16_FILE_004" />
      <!-- stream -->
    </mets:div>
  </mets:structMap>
</mets:mets>
```

### structMap Requirement 6: structMap for the physical structure

The structMap for the physical structure is mandatory if a physical medium had been digitized. In this case the physical structMap represents one or more media. The <structMap> element can only have a single child <div> element. It represents the media which can be subdivided into several parts. E.g. an audio tape is subdivided into separate tracks (layers and/or sides of a tape). These parts are recorded by child <div> elements of the <div> element representing the tape.

As the example shows, the type of the child element depends on the parent element. Currently the following parent-child relationships between <div> elements are allowed:

parent: analogueDisc: child: Side - encompasses all grooved disc carriers and also the Laserdisc format

parent: digitalDisc: child: Side - used for all kind of optical discs (CD, DVDs and double sided DVDs)

parent: MiniDisc: no children - is a separate format due to its cartridge design and use of magneto-optical recording

parent: analogueTape: child: Track

parent: digitalTape: no children

parent: wire: no children

parent: dictabelt: no children

Some recordings are spread over several physical media. In those cases a uppermost <div> with the Type="Set" may be used. This <div> will contain a-<div> elements for the actual media (see above).

**Example 20: The physical structMap**

```

<mets:mets>
  <mets:structMap TYPE="physical" LABEL="volumes">
    <mets:div TYPE="Set">
      <mets:div TYPE="analogueDisc" ORDER="1">
        <mets:div ORDER="1" ID="physicadiv1" TYPE="Side" ADMID="ex08digipro
ex08tech">
          <mets:fptr FILEID="ex16_FILE_002" />
        </mets:div>
      <mets:div ORDER="2" ID="physicadiv2" TYPE="Side" ADMID="ex08digipro
ex08tech">
          <mets:fptr FILEID="ex16_FILE_003" />
        </mets:div>
      </mets:div>
      <mets:div TYPE="analogueDisc" ORDER="2">
        <mets:div ORDER="1" ID="physicadiv3" TYPE="Side" ADMID="ex08digipro
ex08tech">
          <mets:fptr FILEID="ex16_FILE_004" />
        </mets:div>
        <mets:div ORDER="2" ID="physicadiv4" TYPE="Side" ADMID="ex08digipro
ex08tech">
          <!-- <mets:fptr FILEID="ex16_FILE_005"/> -->
        </mets:div>
      </mets:div>
      <mets:div TYPE="analogueDisc" ORDER="3">
        <!--
          appropriate sub-structure of the disc with all
          file pointers for the sides.
        -->
      </mets:div>
    </mets:div>
  </mets:structMap>
</mets:mets>

```

**structMap Requirement 7:  
structMap for related material**

Many media come with additional material as booklets, covers etc. Even the label of a record can be regarded as auxiliary material which is important enough to be digitized and preserved. The relatedMaterial structMap contains records all those objects in <div> elements. In order to accommodate a single uppermost <div> element, an additional object is added and represented by a <div> element of the TYPE="relatedMaterial".

The <structMap> element must be of the type "relatedMaterial" as well. There can only be a single section of this type in the METS file.

Though there is no controlled vocabulary for the TYPE attribute beyond "relatedMaterial", every <div> must have a TYPE attribute. As the label attribute is used for display it is mandatory. The structure's ability to hold related material is unlimited. For instance, it will allow the incorporation of entire booklets with all of its chapters and pages. If there are

metadata attached to any of the <div> elements, these are stored in a separate metadata section.

#### Example 21:

```

<mets:mets>
  <mets:structMap TYPE="relatedMaterial">
    <!-- uppermost structure for additional material -->
    <mets:div TYPE="relatedMaterial">
      <!-- -->
      <mets:div TYPE="Booklet">
        <!-- we might have a file pointer to a PDF file which contains the booklet's
        -->
      </mets:div>
    </mets:div>
  </mets:structMap>
</mets:mets>

```

## Structure Link

### structLink Requirement 1:

#### Linking <div> elements

The purpose of the <structLink> section is to link different <div> elements from different <structMap> elements to reflect their non-hierarchical relationship. Relationships stored within this section are always expressed unidirectionally using a source <div> and a target > element. For the SoundArchive profile these relationships currently are:

logical-physical relationship: the relationship points from the logical entity (work) to the physical entity (disc etc.). All logical entities except the "Collection" entity must have at least one related physical entity.

Logical entities linked to related material: the relationship points from the logical entity to the related material. If applicable this relationship must only be recorded in one of the <structMap> elements.

physical entities linked to related material: the relationship points from the logical entity to the related material. This relationship must only be recorded, if applicable related material is stored in one of the <structMap> elements.

Even though different kinds of relationships may be stored, they are all stored within the same <structLink> section. Additional <structLink> sections are not allowed.

Every <div> from every <structMap> must be mentioned at least once in the <structLink> section, either as a target or as the source of a uni-directional relationship.

### structLink Requirement 2:

#### Single relationship

A single relationship is expressed by a <smLink> element. It uses the 'from' and 'to' attributes from the xlink-namespace. They contain the ID values of the appropriate <div> elements.

#### Example 22: Linking from logical to physical <div> elements

```

<mets:mets>
  <mets:structMap TYPE="logical">
    <mets:div ID="logicaldiv1" />
  </mets:structMap>
  <mets:structMap TYPE="physical">
    <mets:div TYPE="physicadiv1" />
  </mets:structMap>

```

```
< mets:structLink>
  <!-- linking from logical to physical -->
  < mets:smLink xlink:from="logicaldiv1" xlink:to="physicadiv1" />
  <!-- linking from physical to related material -->
  < mets:smLink xlink:from="physicadiv1" xlink:to="physical7" />
</ mets:structLink>
</ mets:mets>
```

### **structLink Requirement 3: Order of <smLink> elements**

There is no particular ordering for <smLink> elements. If the order is important, it must be stored within the ORDER attribute of the appropriate <div> element.

## **Technical Requirements**

### **Content Files**

#### **Audio Master Files**

As the Audio Master files are used for preservation, they must be stored in uncompressed WAV format. They must be sampled with a sample frequency of at least 48kHz and 24 bits/sample.

#### **Audio Files for Dissemination (Access)**

The dissemination audio files will have the same sample rate and depth as the appropriate Master file. Lossy compression is allowed for these audio files. The dissemination format may be mp3, wav or wma.

#### **Image Files**

Images to be stored for preservation purposes should be stored in TIFF format with at least 300 dpi. Images can be scanned in greyscale or colour.

Images for access should be stored either in jpeg or png format. The resolution should be at least 100 dpi.