DAITSS METS Document Profile for Submission Information Packages

Table of Contents

1 Introduction

This document serves as the official specification for Submission Information Package[1] (SIP) descriptors[2] as required by DAITSS[3]. It follows the model for general METS profile descriptions as presented by Jerome McDonough in "METS Profile 1.1 Requirements"[4].

All SIP descriptors must meet the rules presented in Sections 9-12 of this document in order to be considered sufficient for the purposes of ingest by DAITSS. Sections 7-12 are optional according to the METS profile requirements. An empty section denotes that this profile places no special restriction on conforming documents. Section 13 describes related tools and applications that may be used in conjunction with conforming METS documents. Section 15: Appendix B provides an example of a conforming document.

Two important design goals of the metadata plan proposed by the FCLA Digital Archive (FDA) are to facilitate the sharing of Archival Information Packages (AIP) among heterogeneous digital archiving systems and to simplify the processing of metadata throughout a package's life-cycle from SIP to AIP to Dissemination Information Package (DIP) and possibly back to SIP. To this end, all pertinent METS descriptor documents created by DAITSS software shall meet all the rules presented in this document.

2 URI

A profile's URI must be unique across all registered profiles. The URI proposed here should be considered a temporary, working URI. Once a profile is accepted by the METS governing board, it is supplied a URI of the form: http://www.loc.gov/mets/profiles/[unique_number].xml.

The current working URI is: http://www.fcla.edu/dls/md/profiles/DAITSS_METS_SIP_Profile_v0p1p0.xml

3 Short Title

DAITSS METS Document Profile for Submission Information Package Descriptors

---

1 Submission Information Package , Archival Information Package, and Dissemination Information Package are defined by the OIAS Reference Model (ISO 14721:2002). The formal specification can be found at: http://ssdoo.gsfc.nasa.gov/nost/wwwclassic/documents/pdf/CCSDS-650.0-B-1.pdf.

2 A SIP descriptor is a metadata document containing Preservation Description Information, which is also formally defined in the OAIS Reference Model.

3 Dark Archive in the Sunshine State, digital archiving software designed by the FCLA Digital Archive (FDA)

4 http://www.loc.gov/standards/mets/profile_docs/METS.profile.requirements.1-1.rtf

4 Abstract

This profile specifies the structure and content of METS documents used as descriptors for SIPs presented to DAITSS for ingest. Two goals of DAITSS (and the FDA in general) are 1) to accept material in diverse formats and 2) to simplify the SIP-creation process. As a result, there are very few requirements placed on conforming documents. There are several strongly recommended practices that should be treated as requirements whenever pertinent information (metadata) is available.

5 Creation Date

January 24, 2006 17:00:00 GMT

6 Contact Information

Chris Vicary
Florida Center for Library Automation
5830 NW 39th Ave, Gainesville, FL 32606
(352) 392-9020 ex. 323
fclctv@cns.ufl.edu

Lu Ai
Florida Center for Library Automation
5830 NW 39th Ave, Gainesville, FL 32606
(352) 392-9020 ex. 274
luai@cns.ufl.edu

7 Related Profiles

There are currently no related profiles.

8 Extension Schema

8.1 Digital Archive in the Sunshine State (DAITSS), version 1.5
(http://www.fcla.edu/dls/md/daitss/daitss.xsd)

8.2 Metadata Object Description Schema (MODS), version 3
(http://www.loc.gov/standards/mods/v3/mods-3-1.xsd)

8.3 Simple Dublin Core XML Schema (DC), version 1.1
   (http://dublincore.org/schemas/xmls/simpledc20021212.xsd)

9 Rules of Description

9.1 Document-Entity Cardinality

9.1.1   A SIP descriptor is expected to correspond to a single bibliographic entity. For materials that are represented by a single physical or digital object such as monographs, maps, and postcards, the descriptor must contain a complete description of the entity. For materials consisting of several distinct parts, such as serials and multiparts, the descriptor is expected to contain a complete description of at least one of the constituent parts.

9.2 Document-Entity Representation[5]

9.2.1   A SIP descriptor should include information about at least one complete representation of the corresponding intellectual entity.

9.2.2   Partial description of a representation should never be used, even when a complete description of another representation is given.

9.2.3   A representation must consist of at least one content file[6]. All content files composing the representation must be referenced from the descriptor document as <file> elements in the <fileSec>, with each <file> element, in turn, being referenced from the <structMap>.

9.3 Dates

9.3.1   Whenever possible, dates should be expressed in Greenwich Mean Time (or UTC) using the following format: YYYY-MM-DDTHH:MM:SSZ, where 'T' and 'Z' are literal constants. This corresponds to ISO Standard 8601, with the

---

5 According to the PREMIS data model, representation is defined as a single digital instance of an intellectual entity. The PREMIS data dictionary can be found at:
   http://www.oclc.org/research/projects/pmwg/premis-final.pdf
6 Content files are officially defined as all files that are part of a SIP, with the exception of descriptors. Examples of content files include images, text documents, and non-descriptor markup files (such as SGML-encoded full-text markup).

additional requirement that 'T' be used to denote the beginning of the time sequence, and 'Z' be used to signify that the date is normalized to GMT. Normalized dates are preferred, however unnormalized dates are acceptable. Unnormalized dates must not include the 'Z' marker.

9.4 External Bibliographic Records and Other Metadata Related to the Intellectual Entity

9.4.1   (optional) The document creator can record information about institution-specific bibliographic records using the <mdRef> child of the first <dmdSec> element included in the descriptor. The ID attribute of the <mdRef> should be used to specify the unique institution-specific bibliographic identifier and the MDTYPE and OTHERMDTYPE attributes should be used to store the type of bibliographic record. The LOCTYPE and OTHERLOCTYPE attributes should be used to describe the type of locator used to reference the record. Vocabularies for MDTYPE and LOCTYPE are controlled by the METS schema. Note that DAITSS will not attempt to retrieve the record, but it will preserve the identifier and its type.

9.5 Agent Information

9.5.1   (optional) It is strongly recommended that information about agents involved in the creation the SIP descriptor be included in the <metsHdr> section. An agent may be an individual, an organization, or software. In the case of software agents, the TYPE attribute of the <agent> element should contain the value "OTHER" and the OTHERTYPE attribute should contain the value "SOFTWARE".

10   Controlled Vocabularies

10.1   DAITSS Entity Types: {aerial, artifact, collection, map, monograph, multipart, photo, postcard, serial, unknown}

10.2   DAITSS METS Profile Types: {DAITSS METS SIP Profile 1.0}

11   Structural Requirements

11.1   All Schemata

11.1.1   The METS namespace and all extension namespaces must be declared and associated with prefixes in the METS root element (using xmlns). Schema locations must be provided in the root element, using the schemaLocation attribute (part of the XSI[7] namespace).

11.1.2   All elements included in conforming documents must be qualified using namespace prefixes. This policy must be followed for METS elements as well as for elements encoded using extension schema.

11.1.3   Attributes must be *un*qualified with the following exceptions:
   - attributes belonging to the XML Schema Instance namespace (using the prefix xsi),
   - attributes involved in namespace declaration (using the prefix xmlns),
   - and attributes belonging to the XLINK namespace (using the prefix xlink, most notably xlink:href).

11.1.4   All elements containing descriptive or administrative metadata (whether encoded in METS or using extension schema) must be uniquely identified using ID attributes. In METS, this corresponds to the <dmdSec>, <amdSec>, <techMD>, <rightsMD>, <sourceMD>, and <digiprovMD> elements.

11.1.5   Every metadata section listed in 11.1.4 must be referenced by at least one IDREF/IDREFS attribute contained within the <structMap> (including <div> elements) or <fileSec>(including <fileGrp> and <file> elements). References can be made through ADMID and DMDID attributes. There is one exception to this rule described in 11.7.1.5 (Agreement Information).

11.1.6   All metadata contained within the descriptor, whether encoded in METS or extension schema, must be schema-valid.

11.2   METS Schema

11.2.1   Conforming descriptors must contain at least one <structMap> that references at least one content file contained in the <fileSec>.

11.2.2   Conforming descriptors must contain the PROFILE attribute of the METS root element, indicating intended adherence to this profile. Allowable values are specified in Section 10: Controlled Vocabularies.

11.3   Extension Schemata

---

7   XML Schema Instance namespace

11.3.1   Extension schemata can be used in <dmdSec>, <techMD>, <rightsMD>, <sourceMD>, and <digiprovMD> elements only. These will be referred to as *extension metadata sections*.

11.3.2   Only one extension schema can be used per extension metadata section. Metadata belonging to different namespaces must be in separate extension metadata sections. For example, if a document author intends to include descriptive metadata using the MODS and Dublin Core namespaces, each would be contained by a distinct <dmdSec> element.

11.3.3   Metadata expressed using extension schema must always be contained by the <xmlData> child of the <mdWrap> element of an extension metadata section. The type of the embedded extension metadata should always be indicated using appropriate combination of attributes (either MDTYPE, or MDTYPE="OTHER" and OTHERMDTYPE). References to metadata contained in separate documents (using the <mdRef> element) will not be resolved (see Section 9.4 for more information).

11.3.4   Metadata encoded using the DAITSS namespace must always be contained by the DAITSS root element. For example, to add DAITSS Agreement information, a path with the following structure: <mets:amdSec>/<mets:digiprovMD>/<mets:mdWrap>/<mets:xmlData> must be created, inside which the DAITSS root element <daitss:daitss> must be added. The DAITSS Agreement info element, <daitss:AGREEMENT_INFO>, must then be placed under the DAITSS root element. Any metadata belonging to the DAITSS namespace that is not contained by the DAITSS root element will be ignored by DAITSS software.

11.4   Structure Map Model

11.4.1   For the purpose of flexibility, there is no model for the structure map of SIP descriptors. As described previously, however, the structure map must ultimately contain a reference to at least one content file.

11.5   Content Files

11.5.1   All content files must be included as <file> elements within a <fileSec>/<fileGrp> . Each <file> must, in turn, be referenced from the <structMap>.

11.5.2   At least one content file must be included in the SIP.

11.5.3   <file> elements must be referenced from the <structMap> using <fptr>s.

11.5.4   Content files cannot be embedded in the SIP descriptor itself and must remain external to the descriptor.

11.5.5   <Flocat> must always be used to reference external content files. The xlink:href attribute must be used to point to external content files using a relative system path.

11.6   File Group Organization

11.6.1   (optional) DAITSS does not firmly restrict the organization of <fileGrp>s, however it is strongly recommended that a logical classification scheme be used to differentiate files by some meaningful criteria such as file format (all TIFFs together) or underlying manifestation (page image, chapter bundle, etc).

11.7   Administrative Metadata

11.7.1   Agreement Information

11.7.1.1   All conforming documents must contain one <amdSec> that ultimately contains Agreement information used by DAITSS to determine ownership and preservation treatment.

11.7.1.2   All Agreement information must be encoded using DAITSS as an extension schema. The XPath to the Agreement information beginning with <amdSec> must be: /mets:amdSec/mets:digiprovMD/mets:mdWrap/ mets:xmlData/daitss:daitss/daitss:AGREEMENT_INFO.

11.7.1.3   Account and project information are mandatory.

11.7.1.4   There may be more than one amdSec present in the document, but only one can contain Agreement information.

11.7.1.5   (optional) Since Agreement information applies to all content of the SIP, the <digiprovMD> element containing the Agreement information is the only extension metadata section that does not need to be explicitly referenced by its ID (although references are allowed). This is the sole exception to rule 11.1.5.

11.7.2   PackageID and Other Package Information

11.7.2.1   (optional) The ID attribute of the <metsHdr> element should be

used to encode the PackageID[8].

        11.7.2.1.1   If a PackageID is provided, the name of the descriptor must be [PackageID].xml.

        11.7.2.1.2   If a PackageID is provided, the name of the package directory containing the entire SIP must be the same as the PackageID.

    11.7.2.2   (optional) It is strongly recommended that the creation and last modification dates of the SIP descriptor itself be recorded using the CREATEDATE and LASTMODDATE attributes of the <metsHdr>.

  11.7.3 EntityID and Entity Type

    11.7.3.1   (optional) It is strongly recommended that depositors include an institution-specific entity identifier (EntityID) by using the OBJID attribute of the METS root element. For SIPs representing an entire bibliographic entity, the EntityID is often used as the PackageID. For SIPs representing complete constituent parts of an entity, the EntityID is usually different than the PackageID (since there are multiple parts constituting the entity and PackageIDs must be unique).

    11.7.3.2   Depositors should include information about the type of entity represented by the SIP. This metadata is encoded in the TYPE attribute of the METS root element. DAITSS recognizes entity types as defined in Section 10.1.

  11.8   Technical Metadata

  11.8.1 Conforming documents may contain technical metadata using as many <techMD> sections as needed.

  11.8.2 There is no restriction on the scheme used to encode technical metadata, but each section can use no more than one external namespace.

  11.8.3 Checksum/Checksumtype

    11.8.3.1   (optional) It is strongly recommended that a checksum be provided for each SIP content file. The checksum value must be encoded in the CHECKSUM attribute of the file element. If a checksum value is given, it is necessary to include a value for the <file> attribute CHECKSUMTYPE.

---

8 PackageID refers to the unique identifier of the package with respect to the depositor's naming system (not the unique identifier supplied by DAITSS).

11.8.4   Mime-type

11.8.4.1   (optional) It is strongly recommended that the mime-type be provided for each SIP content file. This facilitates efficient format identification and may help "tip the scale" when deciding among similar formats. The mime-type should be encoded in the MIMETYPE attribute of the <file> element.

11.8.5   Size

11.8.5.1   (optional) It is strongly recommended that the file size (in bytes) be provided for each SIP content file in the SIZE attribute of the file element.

11.8.6   Creation Date

11.8.6.1   (optional) It is strongly recommended that the creation date be provided for each SIP content file in the CREATED attribute of the file element.

11.9   Descriptive Metadata

11.9.1   Conforming documents may include descriptive metadata using as many <dmdSec> elements as necessary.

11.9.2   Title

11.9.2.1   It is strongly recommended that all SIP descriptors include a <dmdSec> containing title information. The title can be expressed in either the DC or MODS namespace, but not both.

12   Technical Requirements of Content, Behavior and Metadata Files

While DAITSS will accept any type of file for archiving, a list of preferred formats can be found at: http://www.fcla.edu/digitalArchive/pdfs/recFormats.pdf.

13   Tools and Applications

DAITSS uses Xerces2 for Java to validate all descriptors. For maximum compatibility, it is suggested that document creators also use Xerces2 technology for validation.

14   Appendix A: Conformance to DSpace METS Document Profile for SIPs

This section lists all components of the DSpace SIP Profile[9] that are not compatible with the profile presented in this document. Compatibility in this context is bidirectional. Two questions need to be answered: "How do documents conforming to the DSpace profile conflict with the DAITSS profile?" and "How do documents conforming to the DAITSS profile conflict with the DSpace profile?" Any DSpace or DAITSS component whose obligation is descried as "recommended" is considered optional and therefore not included in this comparison. Each requirement is referenced by requirement type (structural, technical, etc) and number.

14.1   DAITSS Profile Conformance Against DSpace Profile

This section answers the question, "How do documents conforming to the DAITSS profile conflict with the DSpace profile?"

14.1.1   DSpace Structural Requirement 2

This requirement states that conforming METS documents must contain the ID attribute of the METS root element. No such restriction is enforced by the DAITSS profile. We do suggest the use of the metsHdr/@ID for the PackageID and the use of mets/@OBJID for the EntityID, but these are only recommendations. The are at least two options for solving this incompatibility: 1) enforce the same requirement in the DAITSS SIP Profile using an arbitrary value for mets/@ID or 2) require that either the PackageID or EntityID be present and move it to mets/@ID.

14.1.2   DSpace Structural Requirement 3

This requirement states that the PROFILE attribute of the METS root element must be used. There is a matching requirement for the DAITSS SIP Profile, but the allowable values are mutually exclusive.

14.1.3   DSpace Structural Requirement 5

This requirement states that "Multiple expressions of the same metadata in multiple schema must be recorded in separate dmdSecs and must be grouped through the GROUPID attribute." Although the DAITSS SIP Profile guarantees the first part of this requirement by specifying that only one extension schema can be used per extension metadata section (see Section 11.4 Extension Schema), it does not place any constraints on grouping of

---

9   http://cwspace.mit.edu/docs/xsd/METS/SIP/profilev0p9p1/metssipv0p9p1.pdf

metadata sections.

14.1.4   DSpace Structural Requirement 6

This requirement states that a "conforming METS document must contain at least one dmdSec containing the metadata record for the entire DSpace item the document represents." The DAITSS SIP Profile strongly recommends the inclusion of title information encoded in the DC or MODS namespace, but it is not strictly required.

14.1.5   DSpace Structural Requirement 16

This requirement states that the first div element under the first structMap identifies the DSpace Item and "must contain AMDID and DMDID (IDREF) attributes that identify the appropriate metadata to be processed". The DAITSS SIP Profile does require that all pertinent metadata be referenced from a structMap or by file elements referenced from a structMap, however it does not require that references be made specifically from the first div of the first structMap.

14.1.6   DSpace Technical Requirement 1

This requirement limits the allowable formats of content file to those formats that DSpace has agreed to support (although there is no reference to such a list). The DAITSS SIP Profile places no restriction on allowable formats.

14.2   DSpace Profile Conformance Against DAITSS Profile

This section answers the question, "How do documents conforming to the DSpace profile conflict with the DAITSS profile?"

14.2.1   DAITSS Structural Requirement 11.2.2

This requirement states that the PROFILE attribute of the METS root element must be used. There is a matching requirement for the MIT METS SIP Profile, but the allowable values are mutually exclusive.

14.3   Appendix B: Example Document

```
<?xml version="1.0" encoding="UTF-8"?>

<!-- Sample METS descriptor. Two images with sibling relationship -->
<!-- Root element contains namespace declarations, prefix
     associations, schema locations, EntityID and entity type -->
<METS:mets xmlns:METS="http://www.loc.gov/METS/"
```

```
            xmlns:daitss="http://www.fcla.edu/dls/md/daitss/"
            xmlns:dc="http://purl.org/dc/elements/1.1/"
            xmlns:mods="http://www.loc.gov/mods/v3"
            xmlns:palmm="http://www.fcla.edu/dls/md/palmm/"
            xmlns:rightsmd="http://www.fcla.edu/dls/md/rightsmd/"
            xmlns:techmd="http://www.fcla.edu/dls/md/techmd/"
            xmlns:xlink="http://www.w3.org/1999/xlink"
            xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
            LABEL="Test Package"
            OBJID="FDA0000001"
            TYPE="photo"
            xsi:schemaLocation="http://www.loc.gov/METS/
http://www.loc.gov/standards/mets/version14/mets.xsd
http://purl.org/dc/elements/1.1/
http://dublincore.org/schemas/xmls/simpledc20021212.xsd
http://www.loc.gov/mods/v3 http://www.loc.gov/standards/mods/v3/mods-3-
0.xsd http://www.fcla.edu/dls/md/techmd/
http://www.fcla.edu/dls/md/techmd.xsd http://www.fcla.edu/dls/md/palmm/
http://www.fcla.edu/dls/md/palmm.xsd
http://www.fcla.edu/dls/md/rightsmd/
http://www.fcla.edu/dls/md/rightsmd.xsd
http://www.fcla.edu/dls/md/daitss/
http://www.fcla.edu/dls/md/daitss/daitss.xsd">
   <!--If specified, DAITSS expects an entity type (TYPE) from a
       controlled vocabulary. Valid values are: aerial, artifact,
       collection, map, monograph, multipart, photo, postcard,
       serial, oral and unknown. TYPE is optional, so it can be
       omitted if desired. -->


   <!-- metsHdr element contains timestamps and package ID -->
   <METS:metsHdr CREATEDATE="2002-11-13T14:48:05Z" ID="FDA0000001"
LASTMODDATE="2007-04-11T16:50:34Z" RECORDSTATUS="NEW">

     <!-- METS agent element for creator institution, includes notes for
image type
       and FDA project code. Agent elements are optional. -->
     <METS:agent ROLE="OTHER" TYPE="ORGANIZATION">
       <METS:name>FDA</METS:name>
       <METS:note>formats=image/jpeg</METS:note>
       <METS:note>projects=FHP</METS:note>
     </METS:agent>
   </METS:metsHdr>

   <!-- dmdSec section containing bibliographic information-->
   <METS:dmdSec ID="DMD1">
     <METS:mdRef ID="AAA4607" LOCTYPE="OTHER" MDTYPE="MARC"
OTHERLOCTYPE="FCLANOTIS:QF"/>
   </METS:dmdSec>

   <!-- The only required descriptive metadata is title.
       However, it is best practice to include as much
       descriptive metadata as is practical. -->
   <METS:dmdSec ID="DMD2">
```

```xml
    <METS:mdWrap xmlns:METS="http://www.loc.gov/METS/" MDTYPE="MODS"
MIMETYPE="text/xml">
        <METS:xmlData>
          <mods:mods xmlns:mods="http://www.loc.gov/mods/v3">
            <mods:typeOfResource>text</mods:typeOfResource>
            <mods:titleInfo>
               <mods:title>Title</mods:title>
            </mods:titleInfo>
          </mods:mods>
        </METS:xmlData>
      </METS:mdWrap>
  </METS:dmdSec>

  <!--ORDER OF MD SECS IS IMPORTANT (techMD, rightsMD, sourceMD,
digiprovMD)-->
  <!--amdSec contains numerous techMD sections, each uniquely
identified-->

  <!-- techMD is optional, and is not used by DAITSS which extracts
       its own comprehensive technical metadata.  You only need these
       sections if you want to record some technical information for
your
       own future use.  Otherwise, leave them out.-->

  <!-- in this example, below there is an amdSec element containing
       techMD elements with technical metadata for the files in the
       package. In this case, image files are described. -->
  <METS:amdSec>
    <METS:techMD ID="TMD1">
      <METS:mdWrap MDTYPE="OTHER" MIMETYPE="text/xml"
OTHERMDTYPE="TECHMD">
        <METS:xmlData>
          <techmd:compression NAME="LZW"/>
          <techmd:image>
            <techmd:bitDepth>24</techmd:bitDepth>
            <techmd:storage PLANARCONFIGURATION="UNKNOWN"
SEGMENT="STRIP"/>
            <techmd:samplingFrequency UNIT="INCH" X="400" Y="400"/>
            <techmd:colorSpace>BlackIsZero</techmd:colorSpace>
            <techmd:dimensions UNIT="PIXEL" X="128" Y="74"/>
          </techmd:image>
        </METS:xmlData>
      </METS:mdWrap>
    </METS:techMD>

    <!-- Another techMD section containing technical metadata for
another image file in the package -->
    <METS:techMD ID="TMD2">
      <METS:mdWrap MDTYPE="OTHER" MIMETYPE="text/xml"
OTHERMDTYPE="TECHMD">
        <METS:xmlData>
          <techmd:compression NAME="LZW"/>
          <techmd:image>
            <techmd:bitDepth>24</techmd:bitDepth>
```

```
            <techmd:storage PLANARCONFIGURATION="UNKNOWN"
SEGMENT="STRIP"/>
            <techmd:samplingFrequency UNIT="INCH" X="400" Y="400"/>
            <techmd:colorSpace>BlackIsZero</techmd:colorSpace>
            <techmd:dimensions UNIT="PIXEL" X="409" Y="98"/>
          </techmd:image>
        </METS:xmlData>
      </METS:mdWrap>
    </METS:techMD>

    <!-- rightsMD and sourceMD are optional.  Below is a sample
       rightsMD section that includes copyright and version statements.
-->
    <METS:rightsMD ID="RMD1">
      <METS:mdWrap MDTYPE="OTHER" MIMETYPE="text/xml"
OTHERMDTYPE="RIGHTSMD">
        <METS:xmlData>
         <rightsmd:versionStatement>Electronic version created 2002,
State University Sytem of Florida.</rightsmd:versionStatement>
        <rightsmd:copyrightStatement>Copyright
2007</rightsmd:copyrightStatement>
        </METS:xmlData>
      </METS:mdWrap>
    </METS:rightsMD>
  </METS:amdSec>

  <!-- For DAITSS processing, the digiprovMD section is
       required, and must minimally include the account and project
code -->

  <METS:amdSec>
    <METS:digiprovMD ID="DPMD1">
      <METS:mdWrap MDTYPE="OTHER" OTHERMDTYPE="DAITSS">
        <METS:xmlData>

        <!--DAITSS root element always used to enclose daitss
           metadata. All descriptors need agreement information-->
          <daitss:daitss>
            <daitss:AGREEMENT_INFO ACCOUNT="FDA" PROJECT="FDA"/>
          </daitss:daitss>
        </METS:xmlData>
      </METS:mdWrap>
    </METS:digiprovMD>
  </METS:amdSec>

  <!-- It is not necessary to create multiple file groups for
       each format included in the package, although it can be
       useful to do so to apply metadata sections to a group as a
       whole. -->

  <METS:fileSec>
    <METS:fileGrp>
      <METS:fileGrp>
```

```xml
        <!--file element includes some technical metadata. xlink:href
            is used to point to content files using relative system
            paths.
            Optional GROUPID is used to relate different
            representations of underlying content components
            (wave files and word docs as transcripts). Optional SEQ
            attribute is also used. Notice references to extension
            metadata sections using ADMID attribute-->

        <METS:file ADMID="TMD1"
CHECKSUM="2de9ef79df730f93e40819625cf7bcb2" CHECKSUMTYPE="MD5"
CREATED="2002-11-13T14:46:28Z" GROUPID="GID8" ID="FID1"
MIMETYPE="image/jpeg" SIZE="3452">
            <METS:FLocat LOCTYPE="OTHER" OTHERLOCTYPE="SYSTEM"
xlink:href="daitss.jpg"/>
        </METS:file>
        <METS:file ADMID="TMD2"
CHECKSUM="8c975de69a9419b8a02dc985839ea851" CHECKSUMTYPE="MD5"
CREATED="2002-11-13T14:46:31Z" GROUPID="GID9" ID="FID2"
MIMETYPE="image/jpeg" SIZE="19764">
            <METS:FLocat LOCTYPE="OTHER" OTHERLOCTYPE="SYSTEM"
xlink:href="diamondlogo.jpg"/>
        </METS:file>
      </METS:fileGrp>
    </METS:fileGrp>
  </METS:fileSec>

  <!-- structMap section uses fptr tags to reference files. Also,
dmdSecs referenced that apply to both files appear in top level div.-->
  <METS:structMap>
    <METS:div ADMID="RMD1" DMDID="DMD1 DMD2" LABEL="Test package"
TYPE="monograph">
      <METS:div LABEL="Logos" TYPE="monograph">
        <METS:div TYPE="page">
          <METS:fptr FILEID="FID1"/>
          <METS:fptr FILEID="FID2"/>
        </METS:div>
      </METS:div>
    </METS:div>
  </METS:structMap>
</METS:mets>
```