DSpace METS Document Profile for Submission Information Packages (SIP)

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This document temporarily resides at:
http://cwspace.mit.edu/docs/xsd/METS/SIP/profilev0p9p1/metssipv0p9p1.pdf

This document will be permanently published at:
http://www.dspace.org/standards/METS/SIP/profilev0p9p1/metssipv0p9p1.pdf

Revision History

version 0p9p1	**3 November 2005**	**RW, WR**
Administrative Changes	The following changes were made to the document: o The version of this document has been adjusted to reflect its draft status. Version 1p0 (the first public version) would have been version 0p7, version 1p1 would have been version 0p9, version 1p2 becomes version 0p9. o Added Acknowledgments page	
Changes to the Introduction	In the DSpace Content Object Model discussion: o Edited the discussion of DSpace bundles and the <fileGrp> element. Labeling <fileGrp> elements with DSpace bundle types no longer required. The USE attribute of the <fileGrp> element is still reserved for that purpose. In the Technical Metadata discussion: o Added DSpace Bitstream Metadata section	

Changes to the Official METS Profile Documentation	Changes to **Rules of Description**: o Changed the language of rule #7 to make the USE attribute of the <fileGrp> element recommended, but not longer mandatory. Changes to **Controlled Vocabularies**: o Adjusted value in DSpace Bundle Type Vocabulary from "MANIFEST MD" to "METADATA". Changes to **Structural Requirements**: o Changed the language of requirement #12 to make the appearance of the USE attribute of the <file> element recommended, but not required.	
Changes to the Information Model	Changes to <fileSec> element group: o Changed the occurrence of the USE attribute of the <fileGrp> element to "0 or 1" o Changed the obligation of the USE attribute of the <fileGrp> element to R (Recommended)	
Replaced Official XML Expression	Reflects changes to profile and sample METS document.	
version 1p2 (also version 0p9)	**2 November 2005**	**RW, WR**
Administrative Changes	The following changes were made to the format of the document: o Adjusted the format of the Revision History o Added a Table of Contents o Updated Supporting docs (metssipv1p2.xml csailexample1p2.xml)	
Changes to the Introduction	Completed the Introduction: o Completed the Reference Model for Open Archives Information Systems (OAIS) section o Edited the Technical Metadata section to provide better instructions for SIP authors o Completed the Rights Metadata section o Completed the Descriptive Metadata section o Completed the DSpace Content Object Model section o METS Profile Schema: Edited this section for clarity o Removed DSpace Items Accurately Represented in METS section	

<table>
<tr><td>Changes to the Official METS Profile Documentaiton</td><td colspan="2">Changes to Rules of Description:

o Added link to MODS controlling document to Rule #5.
o Added reference to Items in Rule #6's explanation of the assignment of additional metadata records.
o Edited Rule #9 for language.
o Corrected address to PREMIS documentation in Rule #10

Changes to Controlled Vocabularies:

o Corrected addresses to DSpace maintained vocabularies.

Changes to Structural Requirements:

o Edited #16 to identify AMDID and DMDID attributes as IDREFs, included reference to the DSpace Metadata tables as the target for ingested metadata.</td></tr>
<tr><td>Replaced Official XML Expression</td><td colspan="2">Reflects changes to profile and sample METS document.</td></tr>
<tr><td>version 1p1</td><td>12 October 2005</td><td>RW</td></tr>
<tr><td>Changes to the Official METS Profile Documentation</td><td colspan="2">Changes to Rules of Description:

o Added "first" to description rule 8 to indicate which structMap element is controlled by the rule.

Changes to Structural Requirements:

o Inserted new structural requirement #14 and shifted the rest up a number.

14. In the case of multiple expressions of the same content object in different file formats (e.g. .pdf, .ps, .latex), it is strongly recommended that the USE attribute be present on the one file element representing the format that is preferred for public consumption. The value of this attribute must be "preferred".</td></tr>
</table>

<table>
<tr><td>Additions to the Information Model</td><td>Add the following rows to the Information Model tables:

In the <file> element group:

<table>
<tr><td>USE</td><td>0 or 1

R</td><td>In the case of multiple expressions of the same content object in different file formats (e.g. .pdf, .ps, .latex), it is strongly recommended that the USE attribute be present on the one file element representing the format that is preferred for public consumption. The value of this attribute must be “preferred”.</td></tr>
</table>

In the element group:

<table>
<tr><td><fptr></td><td>0 or 1

R</td><td>The first div element under the first structMap element shall be used to identify the DSpace Item and, for websites, the primary bitstream. It must not contain an fptr element unless the DSpace Item is a website with a primary bitstream.</td></tr>
</table>
</td></tr>
<tr><td>Replaced Official XML Expression</td><td>Reflects changes to profile and sample METS document.</td></tr>
<tr><td>version 1p0</td><td>9 September 2005</td><td>RW, WR</td></tr>
<tr><td>Semi-Public Document First Delivered</td><td>Delivered the following sections:

o Introduction (Incomplete in v1p0)
o Official METS Profile Documentation (complete)
o DSpace METS SIP Profile Information Model (complete)
o Official XML Expression of METS SIP Profile (complete)

Associated files also prepared for version 1p0. These documents will be revised and versioned according to the same schedule as this document.

o metssipv1p0.xml (The Official XML Expression as a separate xml document)
o csailexample1p0.xml (An example of a METS instance document conforming to the DSpace METS SIP Profile)</td></tr>
</table>

Table of Contents

Acknowledgements

This document was prepared with the assistance of:

MacKenzie Smith, MIT Libraries
Rob Tansley, Hewlett-Packard
Larry Stone, MIT Libraries
Margret Branchovsky, MIT Libraries

Introduction

Reference Model for Open Archives Information Systems (OAIS)

DSpace at MIT has implemented the *Reference Model for Open Archival Information Systems* (OAIS) http://ssdoo.gsfc.nasa.gov/nost/wwwclassic/documents/pdf/CCSDS-650.0-B-1.pdf. DSpace's implementation has identified a need to prepare a METS profile or profiles that will govern the creation of the three types of content "packages" defined by the reference model.

This profile is intended to provide a complete set of instructions for the preparation of OAIS Submission Information Packages (SIPs). The purpose of this SIP profile is to make creation of SIPs as easy as possible for DSpace content partners. Many of these content partners will be other DSpace instances. In this case, the SIP profile may also serve as an OAIS Dissemination Information Package (DIP) profile. Future use of this profile, or related profiles, to govern the creation of Archive Information Packages (AIPs) will require the inclusion of additional information to account for the larger information needs of AIPs.

DSpace Content Object Model

In order the make easier the preparation of conformant SIPs, the DSpace Content Object Model is here mapped to the METS object model.

1. DSpace Item = METS Document (**Rules of Description** #1 and 2, **Structural Requirements** #19)
   This profile identifies a single METS document with a single Item in the DSpace Content Object Model. This profile does not anticipate or allow for the aggregation of multiple DSpace Items into one METS document for ingest.

2. DSpace Bundle = METS <fileGrp> (**Rules of Description** #3 and 7, **Structural Requirements** #12)
   DSpace groups files into "bundles," the purpose of which is to make it easier for DSpace to process them. These Bundles are loosely controlled by a vocabulary of bundles types. Creators of SIP documents who are familiar with DSpace bundle types are encouraged to organize <fileGrp> elements by bundle and to label them using the USE attribute. The USE attribute of the <fileGrp> element is reserved for use with the DSpace Bundle Type Vocabulary, but it is not required. DSpace will deposit the files in any unlabeled <fileGrp> element into the "Content" bundle.

3. Content Bundle = METS <structMap> (**Rules of Description** #8, **Structural Requirements** #17)
   The first <structMap> is reserved to organize the files intended for the DSpace "Content" Bundle. These files will be displayed to the public.

4. Bitstream = METS <file> element, <mdRef> element (**Rules of Description** #4 and 6, **Structural Requirements** #1)
   All files intended for inclusion in the DSpace Item as bitstreams should be found at either a xlink:href attribute of the <file> element, or a xlink:href attribute of the <mdRef> element. Metadata files referenced from <mdRef> elements in the <dmdSec> and <amdSec> elements will be deposited in the DSpace item as bitstreams. Only the metadata record for the whole item will be processed into the DSpace metadata database tables.

5. DSpace Item MD = METS (**Rules of Description** #5, 9, 10 and 11 **Structural Requirements** #16)
   The element is a child of the <structMap> element and is recursive. In the first <structMap> there must be only one first level element. It may contain any number of child elements. This first level element represents the DSpace Item within the structMap and *must* contain references to metadata for the Item.

6. Primary Bistream = METS <fptr> (**Structural Requirements** #16)
   When DSpace ingests websites as items it identifies a "primary bitstream," or index file that it presents to the public. All other website files are suppressed to the DSpace user. The first element under the first <structMap> element, also called the DSpace Item , may only contain a child <fptr> element when the METS document represents a website with a primary bitstream. This <fptr> element should then reference the <file> element that represents the primary bitstream.

7. Preferred Bitstream = METS <file> element @USE (**Structural Requirements** #14)
   There are some potential DSpace Items that are not websites—they do not have a primary bitstream—that need to show preference for one bitstream or file above all others. One example of this is a potential item that contains three versions of the same document (e.g. pdf, ps and latex). It is advantageous to the user to know that the pdf is the version intended for public consumption. In this case this profile recommends that USE attribute of the <file> element representing the preferred bitstream contain the value "preferred".

Descriptive Metadata

As outlined in **Rules of Description** #5 and #6, the DSpace has adopted the Metadata Object Description Schema (MODS) as a transfer schema for descriptive metadata in SIPs. Further discussion of the use of MODS to encode descriptive metadata for the DSpace Item is best handled in a separate document that is yet to be written but will reside at:
http://www.dspace.org/standards/MODS/profilev1p0/DSpacemodsv1p0.pdf.

As declared in **Structural Requirements** #16, DSpace requires just one MODS record that describes the entire item. This MODS record will be deposited into the DSpace Metadata Tables. This profile also recommends the inclusion of other metadata records where they exist. These records may describe discrete parts of the DSpace Item like single files, they may also record Item metadata in another schema native to system authoring the SIP. Future versions of this profile will address the use of the GROUPID attribute of the <dmdSec> element in coordination with the DMDID (IDREF) attribute to associate multiple records in different schemas. For now, any other metadata that is included in the SIP will not be processed into the metadata tables, but will be remain associated with the Item.

Technical Metadata

DSpace has defined a Technical Metadata Element Set to fulfill their preservation and content lifecycle management information needs. This Technical Metadata Element Set is best expressed using the PREMIS Preservation Metadata Schema: Object. DSpace use of the PREMIS Data Dictionary to represent

needed technical metadata elements does not constitute full implementation of the PREMIS data model. These technical metadata records are not conforming instances of the PREMIS Data Dictionary.

The **Rules of Description** #9 calls for the use of the DSpace Technical Metadata Element Set and points to a governing document that has yet to be written. Further discussion of these elements and their PREMIS expression is best handled in a separate document. That document will reside at http://www.dspace.org/standards/techMD/PREMIS/profilev1p0/DSpacetechMDv1p0.pdf.

There is also a **Structural Requirements** (#15) that encourages the use of CHECKSUM, CHECKSUMTYPE, CREATED and MIMETYPE attributes of the <file> element. These attributes mirror elements in the Technical Metadata Element Set. In order to avoid confusion on the part of content partners preparing SIPs, the following logic applies to the addition of technical metadata to METS instances conformant with this SIP profile.

- Do you as a content provider have this information?
  - If you do not have it, DSpace will create some of this information upon ingestion of the package.
- If you do have this information, its inclusion is still optional but strongly recommended.
  - If you can, write both.
  - If you can't write both, write the <techMD> using PREMIS elements.
  - If you can't write that, write the attributes in the <file> element.

DSpace Technical Metadata Element Set Information Model and Sample XML

DSpace Element	PREMIS Semantic Unit	Explanation	Example
Identifier	object.objectIdentifier.objectIdentiferType	The identifier information DSpace desires is recorded in to elements (Type, Value)	URL
	object.objectIdentifier.objectIdentifierValue		OcwWeb/History/21H-500Fall-2004/CourseHome/index.html
Category	object.objectcategory	Element required by Premis schema validation, populated with Premis vocabulary value "file."	File
Checksum Type †	object.objectCharacteristics.fixity.messageDigestAlgorithm	The terms used by PREMIS for Checksum are "fixity" and "message digest."	MD5
Checksum †	object.objectCharacteristics.fixity.messageDigest		asd908f73e4aedf9a823
Size †	object.objectCharacteristics.size	Size in bytes	8000
Format*	object.objectCharacteristics.format.formatDesignation.formatName	The format designation elements (name, version) allow for one to identify a	text/html

	object.objectCharacteristics.format.formatDesignation.formatVersion	format by name similar to the IMT vocabulary.	4.0 transitional
Created Date	object.creatingApplication.dateCreatedbyApplication	Datatype is DateTime and values must conform to ISO 8601.	2005-07-22T22:03:34
Original File Name (Path)	object.originalName	A record of the file name and path assigned by the submitting system to aid in identifying objects returned to that system.	2005/AMMNS/RP/AMMNS016.pdf

† DSpace will calculate upon ingest values may be used to verify ingested files but will not be preserved.
*Future versions of the DSpace Technical Metadata Element Set may employ the Global Digital Format Registry to identify the format of files in METS SIP documents. This preferred vocabulary is under development and not ready for implementation at this time.
Comparison of the two methods for expressing the DSpace Required Technical Metadata Element Set in METS SIP documents.

<file> Element

```
<file ID="OcwWeb/History/21H-560Fall-2004/CourseHome/index.html" ADMID="uniqueID4"
CHECKSUM="9877890" CHECKSUMTYPE="MD5" CREATED="2005-07-22T22:03:04" DMDID="dmd001"
MIMETYPE="text/html">
    <FLocat LOCTYPE="URL" xlink:href="OcwWeb/History/21H-560Fall-
2004/CourseHome/index.html" xlink:type="simple"/>
</file>
```

<techMD> Element

```
    <techMD ID=”uniqueID4”>
      <mdWrap MDTYPE=”Other” OTHERMDTYPE=”PREMIS”>
        <xmlData>
          <premis:premis>
            <premis:object>
              <premis:objectIdentifier>

<premis:objectIdentifierType>URL</premis:objectIdentifierType>

<premis:objectIdentifierValue>OcwWeb/History/21H-560Fall-
2004/CourseHome/index.html</premis:objectIdentifierValue>
              </premis:objectIdentifier>

<premis:objectCategory>File</premis:objectCategory>
              <premis:objectCharacteristics>
                <premis:fixity>

<premis:messageDigestAlgorithm>MD5</premis:messageDigestAlgorithm>

<premis:messageDigest>asd908f73e4aedf9a823</premis:messageDigest>
```

```
                    </premis:fixity>
                    <premis:size>8000</premis:size>
                    <premis:format>
                      <premis:formatDesignation>

<premis:formatName>text/html</premis:formatName>
                      </premis:formatDesignation>
                      <premis:formatRegistry>

<premis:formatRegistryName>Global Digital Format Registry</premis:formatRegistryName>
                        <premis:formatRegistryKey>Fake Key 1</premis:formatRegistryKey>
                      </premis:formatRegistry>
                    </premis:format>
                  </premis:objectCharacteristics>
                  <premis:creatingApplication>

<premis:dateCreatedByApplication>2005-07-22T22:03:34</premis:dateCreatedByApplication>
                  </premis:creatingApplication>
                  <premis:originalName>path/to/Name.pdf</originalName>
                </premis:object>
              </premis:premis>
            </xmlData>
          </mdWrap>
        </techMD>
```

DSpace Bitstream Metadata

In the use case where one DSpace instance uses this profile to create a SIP intended for a second DSpace instance it would be useful to include metadata the DSpace captures for each bitstream. There are three semantic units that DSpace captures: name, source and description. The appropriate metadata schema for transferring this information is currently under investigation.

In addition DSpace assigns a Sequence ID to each bitstream. These sequence IDs may look like handles, but they are not handles and will not resolve via the Handle system. The appropriate means to include Sequence IDs in bitstream metadata is under investigation for the DSpace-2-DSpace use case. If Sequence IDs are included in a SIP, every bitstream would require a unique sequence ID to avoid collision with a DSpace import mechanism that will assign a Sequence ID to any bitstream lacking one.

Rights Metadata

The DSpace Item Submission interaction provides an opportunity to assign a Creative Commons license to the material deposited in the repository. In this METS SIP profile the same opportunity is provided. Inclusion of CC licenses as rdf/xml is encouraged, but not required, in **Rules of Description** #11. An example of CC license metadata is included in the sample METS document in the Official XML Expression of the METS SIP Profile.

The DSpace Deposit License is not required for METS documents that conform to this SIP Profile. It is assumed that agreement concerning this license between DSpace and its content providers will be accomplished elsewhere than the submission package.

METS Profile Schema

Extension Schema vs. External Schema

This profile does not "extend" the METS schema by adding any previously undefined elements or declaring any new xml namespaces. It does recommend the use of established metadata schemas external to the METS namespace (e.g. MODS, PREMIS, Creative Commons). The use of these schemas is governed in this profile via METS own mechanisms (i.e. <mdRef> and <mdWrap> elements).

Rules of Description

This profile interprets the METS Profile Schema Documentation prepared by Jerome McDonough to intend for the Rules of Description to include both instructions for encoding element and attribute values and profile specific interpretations of the definition and appropriate use of elements and values.

Official METS Profile Documentation

The following are the necessary component parts of any METS profile conforming to the METS Profile Schema as defined in Jerome McDonough's METS Profile Documentation:
http://www.loc.gov/standards/mets/profile_docs/METS.profile.requirements.1-1.rtf

These parts are presented first in human readable form, then repeated in an requirements compliant xml expression. The xml expression is governed by the schema at:
http://www.loc.gov/standards/mets/profile_docs/mets.profile.v1-1.xsd

URI

http://www.dspace.org/standards/METS/SIP/profilev0p9p1/metssipv0p9p1.xml

Title

DSpace METS Document Profile for Submission Information Packages (SIP)

Abstract

This profile specifies how METS documents organizing Items for submission to DSpace should be encoded.

Creation Date

4 November 2005, 12:16:00 EDT

Contact Information

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Related Profiles

There are no Related Profiles at this date.

<!--There will be related profiles for the DSpace AIP, DIP and for any METS packages aggregating "leaf" SIPs.-->

Extension Schema

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

Elements from MODS are used to express descriptive metadata for the DSpace Item and its constituent files.

2. Creative Commons License Schema
   http://web.resource.org/cc/schema.rdf
   The Creative Commons RDFXML schema is used to capture distribution licenses for the content of METS SIPs.

3. PREMIS Preservation Metadata Schema
   http://www.loc.gov/standards/premis/PREMIS-v1-0.xsd
   Elements from the PREMIS Preservation Metadata Schema: Object are used to express the DSpace Required Technical Metadata Element Set.

Rules of Description

1. A conforming METS document must represent only one DSpace Item.

2. A conforming METS document is a complete manifest of the DSpace Item. Do not include content or metadata files in the SIP that are not referenced in the METS document.

3. The DSpace Content Object Model organizes DSpace Items into Bundles. Bundles are exclusive classifications of files within a DSpace Item.

4. Content files—files intended for the Content bundle—must be included in or referenced from the fileSec and the structMap. Metadata files—files intended for the Thumbnail, Text (Extracted), License, CC_License and ManifestMD bundles—are included in or referenced either from the fileSec, dmdSecs or amdSecs.

5. A conforming METS document must contain at least one descriptive metadata record for the DSpace Item that conforms to the DSpace MODS Application Profile defined at http://www.dspace.org/standards/MODS/profilev1p0/DSpacemodsv1p0.pdf.

6. A conforming METS document may contain multiple metadata records expressed in any defined metadata schemes. These records may be assigned to the DSpace Item or any of the files within the Item.

7. It is strongly recommended that fileGrp elements be used to organize files according to the DSpace Bundle Types Vocabulary (see Controlled Vocabularies).

8. The first structMap element shall be used to organize files intended for public display in DSpace. These files correspond to those intended for the Content Bundle in DSpace.

9. DSpace has defined a set of technical metadata elements for preservation and administration. This metadata includes a unique identifier, checksum, checksum type, mimetype, file size, creation date and file path originally assigned to the file. If this data exists within a system that is authoring a conforming METS document it should be included within the METS document.

10. Inclusion of technical metadata should occur in the techMD element and should conform to the DSpace Required Technical Metadata Element Set defined at http://www.dspace.org/standards/techMD/PREMIS/profilev1p0/DSpacetechMDv1p0.pdf. This metadata should be encoded using the PREMIS Data Dictionary.

11. A conforming document may contain user supplied Creative Commons licenses in the rightsMD element.

Controlled Vocabularies

1. DSpace METS Profile Types
   DSpace Federation
   http://www.dspace.org/standards/vocab/METS/profileTypev1p0/metsprofiletypev1p0.pdf
   DSpace METS SIP Profile 1.0
   DSpace METS AIP Profile 1.0
   DSpace METS DIP Profile 1.0

2. DSpace Bundle Types
   DSpace Federation
   http://www.dspace.org/standards/vocab/bundles/bundleTypev1p0/DSpacebundletypev1p0.pdf
   CONTENT
   TEXT (EXTRACTED)
   THUMBNAIL
   LICENSE
   CC_LICENSE
   METADATA

Structural Requirements

1. A conforming METS document must reference all files accompanying the METS document and comprising the DSpace Item via an xlink:href attribute on either an mdRef or FLocat element. There must be only one FLocat element per parent File element.

2. A conforming METS document must contain the ID attribute of the METS root element.

3. A conforming METS document must contain the PROFILE attribute of the METS root element. Eligible values for this attribute are defined by the DSpace METS Profile Types Vocabulary.

4. DSpace implementations will ignore the metsHdr element, its attributes, child elements and their attributes.

5. The dmdSec is reserved exclusively for bibliographic description and subject analysis of the item and its constituent files, at a ratio of one dmdSec for each metadata record. Multiple expressions of the same metadata in multiple schemas must be recorded in separate dmdSecs and must be grouped through the GROUPID attribute.

6. A conforming METS document must contain at least one dmdSec containing the metadata record for the entire DSpace item the document represents.

7. Each unique configuration of techMD and rightsMD elements must be contained within a separate amdSec element.

8. A conforming METS document must contain the ID attribute for all amdSec elements.

9. DSpace implementations will ignore the sourceMD element, its attributes, child elements and their attributes.

10. DSpace implementations will ignore the digiprovMD element, its attributes, child elements and their attributes.

11. File elements must not contain the FContent child element. A conforming METS document may not contain content encoded as binary or xml data. These encoding mechanisms may be used to include metadata in the METS document.

12. It is strongly recommended that the USE attribute be present for every fileGrp element included in conforming METS documents. Eligible values for this attribute are restricted to the DSpace Bundle Type vocabulary.

13. Multiple expressions of the same content object (e.g. thumbnails and archival masters of the same image) though organized in separate DSpace bundles should be related via the GROUPID attribute of the File element.

14. In the case of multiple expressions of the same content object in different file formats (e.g. .pdf, .ps, .latex), it is strongly recommended that the USE attribute be present on the one file element representing the format that is preferred for public consumption. The value of this attribute must be “preferred”.

15. If available, supply the CHECKSUM, CHECKSUMTYPE, CREATED and MIMETYPE attributes of the File element.

16. The first div element under the first structMap element shall be used to identify the DSpace Item and, for websites, the primary bitstream. It must not contain an fptr element unless the DSpace Item is a website with a primary bitstream. It must contain AMDID and DMDID (IDREF) attributes that identify the appropriate metadata to be processed into the DSpace metadata database tables upon ingest.

17. All files in the content bundle must be represented by child div elements of the first div (DSpace Item div) element of the first structMap element.

18. Multiple structMap elements recording alternate organizations of the DSpace Item are encouraged when applicable.

19. A conforming METS document represents a single DSpace Item and must not contain any mptr elements referencing other METS documents.

20. DSpace implementations will ignore the structLink element, its attributes, child elements and their attributes.

21. DSpace implementations will ignore the behaviorSec element, its attributes, child elements and their attributes.

Technical Requirements of Content, Behavior and Metadata Files

1. The list of allowable content files that may be referenced in conforming documents via the FLocat element is restricted to those files DSpace has agreed to support. This list is available at [where?]

2. Metadata Files should be encoded in xml and should validate to the schema corresponding to the mdType attribute value of the mdRef element.

Tools and Applications

There are not Tools to describe at this time.

DSpace METS SIP Profile Information Model

The authors of this profile find it easier to present as a list of additions to the definitions of elements, attributes and their rules of application. These additions are captured in the table below, which the authors call an Information Model. Implementers of this profile are directed to METS schema for any elements, attributes or definitions not mentioned or adjusted in this information model.

This information in this information model is recorded in the official profile in the description_rules, controlled_vocabularies and structural_requirements elements.

Obligation and Occurrence

Applied rules of description or controlled vocabularies are recorded in the "Profile Rules" column of the table. All comments in this column should be assumed to be enforced by the profile and mandatory.

There are four scenarios under which structural requirements of obligation might be added above and beyond the METS specification. These scenarios make up the following matrix of profile rules. In the information model these scenarios are indicated by the intials M, R, I and D in the occurrences column of the table.

Mandatory M	**Required R**	**Ignored I**	**Do Not Use D**
This profile requires the existence of certain elements in compliant METS instances. These requirements are above and beyond the requirements of the METS schema.	This profile strongly sanctions some elements and attributes while not strictly requiring their use in compliant METS instances.	DSpace systems in compliance with this schema will ignore certain metadata elements. This does not preclude their inclusion in compliant METS instances.	Some elements and attributes must not be included in compliant METS instances.

Legend:

Elements are in angle brackets.
Attributes are in all capitals.

<METS> element group:

Element/Attribute	**Occurrences**	**Profile Rules**
<METS>	1 and only 1	Must contain ID and PROFILE attributes.

ID	1 and only 1 M	
PROFILE	1 and only 1 M	The value space for this attribute is defined by the following vocabulary: DSpace METS SIP Profile 1.0 DSpace METS AIP Profile 1.0 DSpace METS DIP Profile 1.0
<metsHdr>	O or multiple I	DSpace implementations will ignore this element, its attributes, child elements and their attributes.

<dmdSec> element group

Element/Attribute	Occurrences	Profile Rules
<dmdSec>	1 or multiple, unbounded M	The dmdSec is reserved exclusively for bibliographic description and subject analysis of the item and its constituent files, at a ratio of one dmdSec for each unique metadata record. Multiple expressions of the same metadata in multiple schemas should be captured in separate dmdSecs and linked via the GroupID attribute. At least 1 dmdSec with the metadata record for the entire SIP (DSpace item) must be present, the metadata in this dmdSec must conform to the DSpace Dublin Core Metadata Application Profile.
ID	1 and only 1	
<mdRef> or <mdWrap>		See mdRef and mdWrap element group section

<amdSec> element group

Element/Attribute	Occurrences	Profile Rules
<amdSec>	0 or Multiple	Each unique configuration of techMD and rightsMD elements should be organized in their own amdSec.

	R	
ID	1 and only 1 M	All amdSec elements must contain the ID attribute.
<techMD>	0 or multiple, unbounded R	Reserved to capture the DSpace technical metadata record, where available.
ID	1 and only 1	
<mdRef> or <mdWrap>		See mdRef and mdWrap element group section
<rightsMD>	0 or multiple, unbounded R	It is strongly recommended that METS SIP documents contain user supplied Creative Commons distribution licenses within the rights element.
ID	1 and only 1	
<mdRef> or <mdWrap>		See mdRef and mdWrap element group section
<sourceMD>	I	DSpace implementations will ignore this element, its attributes, child elements and their attributes.
<digiprovMD>	I	DSpace implementations will ignore this element, its attributes, child elements and their attributes.

<mdRef> and <mdWrap> element groups

Element/Attribute	**Occurrences**	**Profile Rules**
<mdRef>	0 or 1	Metadata may be either included in the METS file or referenced externally.
xlink	1 and only 1	
LOCTYPE	1 and only 1	The METS specification requires the presence of this attribute and restricts values to the following vocabulary:

		URN URL PURL HANDLE DOI OTHER
OTHERLOCTYPE	0 or 1	Use if and only if LOCTYPE value is "OTHER".
MDTYPE	1 and only 1	The METS specification require the presence of this attribute and restricts values to the following vocabulary: MARC MODS EAD DC NISOIMG LC-AV VRA TEIHDR DDI FGDC OTHER
OTHERMDTYPE	0 or 1	Use if and only if MDTYPE value is "OTHER."
<mdWrap>	0 or 1	Metadata may be either included in the METS file or referenced externally.
MDTYPE	1 and only 1	The METS specification requires the presence of this attribute and restricts values to the following vocabulary: MARC MODS EAD DC NISOIMG LC-AV VRA TEIHDR DDI FGDC LOM OTHER

OTHERMDTYPE	0 or 1	Use if and only if MDTYPE value is "OTHER".
<binData>	0 or 1	Conforming mets documents may contain metadata encoded as xml or binary data.
<xmlData>	0 or 1	Conforming mets documents may contain metadata encoded as xml or binary data.

<fileSec> element group

Element/Attribute	Occurrences	Profile Rules
<fileSec>	1 and only 1 M	All content object must be referenced via the fileSec.
<fileGrp>	1 or multiple, unbounded	Use this element to bundle files according to the following DSpace vocabulary: CONTENT TEXT (EXTRACTED) THUMBNAIL LICENSE CC_LICENSE MANIFESTMD
USE	0 or 1 R	Use this element to label bundles according to the above vocabulary.
<file>		See <file> element group section.

<file> element group

Element/Attribute	Occurrences	Profile Rules
<file>	0 or multiple, unbounded	
ID	1 and only 1	ID attributes must be globally unique.
GROUPID	0 or 1 R	Multiple expressions of the same content object (e.g. thumbnails and archival masters of the same image) though organized in separate DSpace bundles should be related via the GROUPID attribute.
MIMETYPE	0 or 1	DSpace strongly recommends the use of this

	R	attribute to record the Internet Media Type (IMT) of the file referenced.
CREATED	0 or 1 R	DSpace strongly recommends the use of this attribute to record the date of creation of the object.
CHECKSUM	0 or 1 R	DSpace strongly recommends the use of this attribute.
CHECKSUMTYPE	0 or 1 R	DSpace strongly recommends the use of this attribute. The METS specification restrictes values to the following vocabulary: HAVAL MD5 SHA-1 SHA-256 SHA-384 SHA-512 TIGER WHIRLPOOL
USE	0 or 1 R	In the case of multiple expressions of the same content object in different file formats (e.g. .pdf, .ps, .latex), it is strongly recommended that the USE attribute be present on the one file element representing the format that is preferred for public consumption. The value of this attribute must be “preferred”.
<Flocat>	1 and only 1 M	Conforming mets documents must reference external content files via the Flocat element. This profile enforces a strict relationship of one Flocat element per parent file element.
xlink	1 and only 1	
LOCTYPE	1 and only 1	The METS specification requires the presence of this attribute and restricts values to the following vocabulary: URN URL PURL HANDLE DOI OTHER

OTHERLOCTYPE	0 or 1	Use if and only if LOCTYPE values is "OTHER".
<Fcontent>	0 D	Conforming mets documents must not contain content encoded as binary or xml data. File elements must not contain the Fcontent child element.

<structMap> element group

Element/Attribute	Occurrences	Profile Rules
<structMap>	1 or multiple, unbounded	The first structMap must organize the content bundles as they are to be represented in DSpace and must reference every file that is to be publicly displayed in the DSpace Item.
		See div element group section

* element group*

Element/Attribute	Occurrences	Profile Rules
	1 and only 1	The first div element in the first structMap represents the DSpace Item.
AMDID	1 and only 1 R	This attribute should be present in the first div element to identify any technical and rights metadata assigned to the item.
DMDID	1 and only 1 M	This attribute must be present in this first div element to identify descriptive metadata for the item to be created in DSpace.
<mptr>	0 D	Conforming METS documents represent a single DSpace Item and should contain a complete list of references to all content and metadata files for the item. Aggregation of mets files via the mptr element is not allowed within this profile.
<fptr>	0 or 1 R	The first div element under the first structMap element shall be used to identify the DSpace Item and, for websites, the primary bitstream. It must not contain an fptr element unless the DSpace Item is a website with a primary bitstream.
	1 or multiple, unbounded and recursive M	These multiple div elements represent the content files of the DSpace Item and must be present at a ratio of one div per each file.

<structLink> element group

Element/Attribute	Occurrences	Profile Rules
<structLink>	0 or 1 I	DSpace implementations will ignore this element, its attributes, child elements and their attributes.

<behaviorSec> element group

Element/Attribute	Occurrences	Profile Rules
<structLink>	0 or multiple I	DSpace implementations will ignore this element, its attributes, child elements and their attributes.

Official XML Expression of METS SIP Profile

```
<?xml version="1.0" encoding="UTF-8" ?>
<METS_Profile xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:noNamespaceSchemaLocation="http://www.loc.gov/standards/mets/profile_docs/mets.profile.v1-1.xsd" xmlns:mets="HTTP://www.loc.gov/METS"
xmlns:xlink="http://www.w3.org/TR/xlink">
    <URI
LOCTYPE="URL">http://www.dspace.org/standards/METS/SIP/profilev0p9p1/metssipv0p9p1.xml</URI>
    <title>DSpace METS Document Profile for Submission Information Packages (SIP)</title>
    <abstract>This profile specifies how METS documents organizing Items for submission to DSpace should be encoded.</abstract>
    <date>2005-11-04T12:16:00</date>
    <contact>
        <name>Robert Wolfe</name>
        <institution>DSpace Federation</institution>
        <address>77 Massachusetts Avenue, Cambridge, MA 02138</address>
        <phone>(617) 253-0604</phone>
        <email>rwolfe@mit.edu</email>
    </contact>
    <related_profile>There are no related profiles at this date.</related_profile>
    <!--  There will be related profiles for the DSpace AIP, DIP and for any
METS packages aggregating "leaf" SIPs.   -->
    <extension_schema ID="extschm1">
        <name>MODS (Metadata Object Description Schema), version 3</name>
        <URI>http://www.loc.gov/standards/mods/v3/mods-3-1.xsd</URI>
        <context>Elements from MODS are used to express descriptive metadata for
    the DSpace Item andits constituent files.</context>
    </extension_schema>
    <extension_schema ID="extschm2">
        <name>Creative Commons License Schema</name>
        <URI>http://web.resource.org/cc/schema.rdf</URI>
        <context>The Creative Commons RDFXML schema is used to capture
    distribution licenses for the content of METS SIPs.</context>
    </extension_schema>
    <extension_schema ID="extschm3">
        <name>PREMIS Preservation Metadata Schema</name>
        <URI>http://www.loc.gov/standards/premis/PREMIS-v1-0.xsd</URI>
```

<context>**Elements from the PREMIS Preservation Metadata Schema: Object are used to express the DSpace Required Technical Metadata Element Set.**</context>
</extension_schema>
<description_rules>
A conforming METS document must represent only one DSpace Item.
A conforming METS document is a complete manifest of the DSpace Item. Do not include content or metadata files in the SIP that are not referenced in the METS document.
The DSpace Content Object Model organizes DSpace Items into Bundles. Bundles are exclusive classifications of files within a DSpace Item.
Content files—files intended for the Content bundle—must be included in or referenced from the fileSec and the structMap. Metadata files—files intended for the Thumbnail, Text (Extracted), License, CC_License and ManifestMD bundles—are included in or referenced either from the fileSec, dmdSecs or amdSecs.
A conforming METS document must contain at least one descriptive metadata record for the DSpace Item that conforms to the DSpace MODS Application Profile defined at http://www.dspace.org/standards/MODS/profilev1p0/Dspacemodsv1p0.pdf.
A conforming METS document may contain multiple metadata records expressed in any defined metadata schemes. These records may be assigned to the DSpace Item or any of the files within the Item.
It is strongly recommended that fileGrp elements be used to organize files according to the DSpace Bundle Types Vocabulary (see Controlled Vocabularies).
The first structMap element shall be used to organize files intended for public display in DSpace. These files correspond to those intended for the Content Bundle in DSpace.
DSpace has defined a set of technical metadata elements for preservation and administration. This metadata includes a unique identifier, checksum, checksum type, mimetype, file size, creation date and file path originally assigned to the file. If this data exists within a system that is authoring a conforming METS document it should be included within the METS document.
Inclusion of technical metadata should occur in the techMD element and should conform to the DSpace Required Technical Metadata Element Set defined at http://www.dspace.org/standards/techMD/PREMIS/profilev1p0/DSpacetech

```
MDv1p0.pdf. This metadata should be encoded using the PREMIS Data
Dictionary.</p>
    <p ID="metssiprule11">A conforming document may contain user supplied
Creative Commons licenses in the rightsMD element.</p>
</description_rules>
<controlled_vocabularies>
    <vocabulary ID="vocab1">
        <name>DSpace METS Profile Types</name>
        <maintenance_agency>DSpace Federation</maintenance_agency>
        <URI>http://www.dspace.org/standards/vocab/METS/profileTypev1p0
    /metsprofiletypev1p0.pdf</URI>
        <values>
            <value>DSpace METS SIP Profile 1.0</value>
            <value>DSpace METS AIP Profile 1.0</value>
            <value>DSpace METS DIP Profile 1.0</value>
        </values>
        <context RELATEDMAT="metssipmetsreq2">This is used in PROFILE
    attribute of the mets element.</context>
        <description>
            <p>All DSpace METS SIP documents must be identified via the profile
            attribute of the mets element as conforming to one of the defined
            profiles.</p>
        </description>
    </vocabulary>
    <vocabulary ID="vocab2">
        <name>DSpace Bundle Types</name>
        <maintenance_agency>DSpace Federation</maintenance_agency>
        <URI>http://www.dspace.org/standards/vocab/bundles/bundleTypev1
    p0/DSpacebundletypev1p0.pdf</URI>
        <values>
            <value>CONTENT</value>
            <value>TEXT (EXTRACTED)</value>
            <value>THUMBNAIL</value>
            <value>LICENSE</value>
            <value>CC_LICENSE</value>
            <value>METADATA</value>
        </values>
        <context RELATEDMAT="metssipfileSecreq2">This is used in the USE
    attribute of the fileGrp element.</context>
        <description>
            <p>Files in a DSpace METS SIP document should be organized into
            fileGrps by bundle type.</p>
```

```
        </description>
    </vocabulary>
</controlled_vocabularies>
<structural_requirements>
    <multiSection>
        <requirement ID="metssipmultireq1" RELATEDMAT="metssiprule02">
            <p>A conforming METS document must reference all files
            accompanying the METS document and comprising the DSpace Item via
            an xlink:href attribute on either an mdRef or FLocat element. There must
            be only one FLocat element per parent File element.</p>
        </requirement>
    </multiSection>
    <metsRootElement>
        <requirement ID="metssipmetsreq1">
            <p>A conforming METS document must contain the ID attribute of the
            METS root element.</p>
        </requirement>
        <requirement ID="metssipmetsreq2" RELATEDMAT="vocab1">
            <p>A conforming METS document must contain the PROFILE attribute
            of the METS root element.</p>
        </requirement>
    </metsRootElement>
    <metsHdr>
        <requirement ID="metssipmetsHdrreq1">
            <p>DSpace implementations will ignore this element, its attributes,
            child elements and their attributes.</p>
        </requirement>
    </metsHdr>
    <dmdSec>
        <requirement ID="metssipdmdSecreq1">
            <p>The dmdSec is reserved exclusively for bibliographic description
            and subject analysis of the item and its constituent files, at a ratio of one
            dmdSec for each metadata record. Multiple expressions of the same
            metadata in multiple schemas must be recorded in separate dmdSecs
            and must be grouped through the GROUPID attribute.</p>
        </requirement>
        <requirement ID="metssipdmdSecreq2">
            <p>A conforming METS document must contain at least one dmdSec
            containing the metadata record for the entire DSpace item the document
            represents.</p>
        </requirement>
    </dmdSec>
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<amdSec>
    <requirement ID="metssipamdSecreq1">
        <p>Each unique configuration of techMD and rightsMD elements must
    be contained within a separate amdSec element.</p>
    </requirement>
    <requirement ID="metssipamdSecreq2">
        <p>A conforming METS document must contain the ID attribute for all
    amdSec elements.</p>
    </requirement>
    <requirement ID="metssipamdSecreq3">
        <p>DSpace implementations will ignore the sourceMD element, its
    attributes, child elements and their attributes.</p>
    </requirement>
    <requirement ID="metssipamdSecreq4">
        <p>DSpace implementations will ignore the digiprovMD element, its
    attributes, child elements and their attributes.</p>
    </requirement>
</amdSec>
<fileSec>
    <requirement ID="metsipfileSecreq1">
        <p>File elements must not contain the FContent child element. A
    conforming METS document may not contain content encoded as binary
    or xml data. These encoding mechanisms may be used to include
    metadata in the METS document.</p>
    </requirement>
    <requirement ID="metssipfileSecreq2" RELATEDMAT="vocab2">
        <p>It is strongly recommended that the USE attribute be present for
    every fileGrp element included in conforming mets documents. Eligible
    values for this attribute are restricted to the DSpace Bundle Type
    vocabulary.</p>
    </requirement>
    <requirement ID="metssipfileSecreq3">
        <p>Multiple expressions of the same content object (e.g. thumbnails
    and archival masters of the same image) though organized in separate
    DSpace bundles should be related via the GROUPID attribute of the File
    element.</p>
    </requirement>
    <requirement ID="metssipfileSecreq4">
        <p>In the case of multiple expressions of the same content object in
    different file formats (e.g. .pdf, .ps, .latex), it is strongly recommended
    that the USE attribute be present on the one file element representing
```

```
        the format that is preferred for public consumption.  The value of this
        attribute must be “preferred”.</p>
        </requirement>
        <requirement ID="metssipfileSecreq5">
            <p>If available, supply the CHECKSUM, CHECKSUMTYPE, CREATED
        and MIMETYPE attributes of the File element.</p>
        </requirement>
    </fileSec>
    <structMap>
        <requirement ID="metssipstructMapreq1">
            <p>The first div element under the first structMap element shall be
        used to identify the DSpace Item and, for websites, the primary
        bitstream. It must not contain an fptr element unless the DSpace Item is
        a website with a primary bitstream. It must contain AMDID and DMDID
        (IDREF) attributes that identify the appropriate metadata to be
        processed into the DSpace metadata database tables upon ingest.</p>
        </requirement>
        <requirement ID="metssipstructMapreq2" RELATEDMAT="metssiprule04">
            <p>All files in the content bundle must be represented by child div
        elements of the first div (DSpace Item div) element of the first structMap
        element.</p>
        </requirement>
        <requirement ID="metssipstructMapreq3">
            <p>Multiple structMap elements recording alternate organizations of
        the DSpace Item are encouraged when applicable.</p>
        </requirement>
        <requirement ID="metssipstructMapreq4" RELATEDMAT="metssiprule01">
            <p>A conforming METS document represents a single DSpace Item
        and must not contain any mptr elements referencing other METS
        documents.</p>
        </requirement>
    </structMap>
    <structLink>
        <requirement ID="metssipstructLinkreq1">
            <p>DSpace implementations will ignore the structLink element, its
        attributes, child elements and their attributes.</p>
        </requirement>
    </structLink>
    <behaviorSec ID="metssipbehaviorSecreq1">
        <requirement>
            <p>DSpace implementations will ignore the behaviorSec element, its
        attributes, child elements and their attributes.</p>
```

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            </requirement>
        </behaviorSec>
    </structural_requirements>
    <technical_requirements>
        <content_files>
            <requirement ID="metssiptechreq1">
                <p>The list of allowable content files that may be referenced in
            conforming documents via the FLocat element is restricted to those files
            DSpace has agreed to support.</p>
            </requirement>
        </content_files>
        <metadata_files>
            <requirement ID="metssiptechreq2">
                <p>Metadata Files should be encoded in xml and should validate to
            the schema corresponding to the mdType attribute value of the mdRef
            element.</p>
            </requirement>
        </metadata_files>
    </technical_requirements>
    <tool />
    <Appendix NUMBER="1">
<mets xmlns="http://www.loc.gov/METS/"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xmlns:xlink="http://www.w3.org/1999/xlink"
xmlns:premis="http://www.loc.gov/standards/premis"
xsi:schemaLocation="http://www.loc.gov/METS/
http://www.loc.gov/standards/mets/mets.xsd
http://www.loc.gov/standards/premis
http://www.loc.gov/standards/premis/PREMIS-v1-0.xsd" ID="uniqueID1"
PROFILE="DSpace METS SIP Profile 1.0">
    <dmdSec ID="uniqueID2">
        <mdWrap MDTYPE="DC">
            <xmlData>
                <mods xmlns="http://www.loc.gov/mods/v3"
            xmlns:xlink="http://www.w3.org/TR/xlink"
            xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
            xsi:schemaLocation="http://www.loc.gov/mods/v3
            http://www.loc.gov/standards/mods/mods.xsd">
<!--  *** DSp QDC: title   -->
<titleInfo>
    <title>Title goes here</title>
</titleInfo>
```

```
<!--  *** DSp QDC: contributor.author   -->
<name type="personal">
   <namePart>Doe, Jane</namePart>
   <role>
      <roleTerm type="text">author</roleTerm>
   </role>
</name>
<name type="personal">
   <namePart>Smith, Irene</namePart>
   <role>
      <roleTerm type="text">author</roleTerm>
   </role>
</name>
<!--  *** DSp QDC: contributor.advisor   -->
<name type="personal">
   <namePart>Tannenbaum, Joseph</namePart>
   <role>
      <roleTerm type="text">advisor</roleTerm>
   </role>
</name>
<!--  *** DSp QDC: contributor.other   -->
<name type="corporate">
   <namePart>Security Research Group</namePart>
   <role>
      <roleTerm type="text">other</roleTerm>
   </role>
</name>
<!--  *** DSp QDC: date.created   -->
<!--  *** DSp QDC: publisher   -->
<originInfo>
   <dateIssued>CSAIL-formatted date (?)</dateIssued>
   <publisher>Massachusetts Institute of Technology Computer Science and
Artificial Intelligence Laboratory</publisher>
</originInfo>
<!--  *** DSp QDC: format.extent   -->
<physicalDescription>
   <extent>105 p.</extent>
   <!--  <extent>105 p.</extent> Yes, Do Add "p."   -->
</physicalDescription>
<!--  *** DSp QDC: description.abstract   -->
<abstract>Abstract goes here.</abstract>
<!--  *** DSp QDC: subject   -->
```

```
<subject>
   <topic>keyword1</topic>
   <topic>keyword phrase 2</topic>
</subject>
<!--  *** DSp QDC: identifier.other   -->
<identifier type="local">CBCL-243</identifier>
<!--  *** DSp QDC: relation.ispartofseries   -->
<relatedItem type="series">
   <titleInfo>
      <title>MIT-CSAIL-2005-001</title>
   </titleInfo>
</relatedItem>
<!--  *** DSp QDC: identifier.citation
   Assumption/Question: the CSAIL metadata for the citation will be treated
as a string (not parsed further).
http://www.loc.gov/standards/mods/v3/mods-3-1-outline.html#relatedItem
http://www.loc.gov/standards/mods/v3/mods-3-1-outline.html#part   -->
<relatedItem type="host">
   <part>
      <text>Journal of Physics, v. 53, no. 9, pp. 34-55, Aug. 15, 2004</text>
   </part>
</relatedItem>
            </mods>
         </xmlData>
      </mdWrap>
   </dmdSec>
   <amdSec ID="uniqueID3">
      <rightsMD ID="uniqueID4">
         <mdWrap MDTYPE="OTHER" OTHERMDTYPE="Creative Commons">
            <xmlData>
               <rdf:RDF xmlns="http://web.resource.org/cc/"
            xmlns:dc="http://purl.org/dc/elements/1.1/"xmlns:rdf="http://www.
            w3.org/1999/02/22-rdf-syntax-ns#">
<Work rdf:about="UUID for Item">
   <dc:type rdf:resource="http://purl.org/dc/dcmitype/Text" />
   <license rdf:resource="http://creativecommons.org/licenses/by-nc-nd/2.5/" />
</Work>
<License rdf:about="http://creativecommons.org/licenses/by-nc-nd/2.5/">
   <permits rdf:resource="http://web.resource.org/cc/Reproduction" />
   <permits rdf:resource="http://web.resource.org/cc/Distribution" />
   <requires rdf:resource="http://web.resource.org/cc/Notice" />
   <requires rdf:resource="http://web.resource.org/cc/Attribution" />
```

```
    <prohibits rdf:resource="http://web.resource.org/cc/CommercialUse" />
</License>
                    </rdf:RDF>
                </xmlData>
            </mdWrap>
        </rightsMD>
    </amdSec>
    <fileSec>
        <fileGrp USE="CONTENT">
            <file ID="uniqueID5" DMDID="uniqueID2" ADMID="uniqueID3"
        CHECKSUM="a3wdsasef8h32fh38" CHECKSUMTYPE="MD5" USE="preferred">
                <FLocat LOCTYPE="URL" xlink:type="simple"
            xlink:href="Security/theses/pdfs/filename.pdf" />
            </file>
            <file ID="uniqueID6" DMDID="uniqueID2" ADMID="uniqueID3"
        CHECKSUM="asdfafw39034rfasd" CHECKSUMTYPE="MD5">
                <FLocat LOCTYPE="URL" xlink:type="simple"
            xlink:href="Security/theses/postscripts/filename.ps" />
            </file>
            <file ID="uniqueID7" DMDID="uniqueID2" ADMID="uniqueID3"
        CHECKSUM="as393rhf4nslsda9f" CHECKSUMTYPE="MD5">
                <FLocat LOCTYPE="URL" xlink:type="simple"
            xlink:href="Security/theses/latex/filename.latex" />
            </file>
        </fileGrp>
    </fileSec>
    <structMap ID="uniqueID8" TYPE="LOGICAL" LABEL="DSpace">
        <div ID="uniqueID9" ADMID="uniqueID3" DMDID="uniqueID2">
            <div ID="uniqueID10">
                <fptr FILEID="uniqueID5" />
            </div>
            <div ID="uniqueID11">
                <fptr FILEID="uniqueID6" />
            </div>
            <div ID="uniqueID12">
                <fptr FILEID="uniqueID7" />
            </div>
        </div>
    </structMap>
</mets>
    </Appendix>
</METS_Profile>
```