METS

Metadata Encoding and Transmission Standard

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„...standard for encoding descriptive, administrative, and structural metadata...“

http://www.loc.gov/mets/

METS - history

Ideas from „Making of America II“ project

Testbed participants: 5 libraries (Cornell, Penn State, Berkeley, Stanford, New York Public)

Goals:

- common object format to (re-) use developed tools
- Interoperability of digital library materials for exchange between institutions

METS - history

Common format for archiving (also for other projects):

Should fulfil roles of SIP, DIP and AIPs according to OAIS reference model

More flexibility needed for descriptive and administrative metadata

Support for other data formats as audio, video etc. necessary

METS - history

Library of Congress as Maintainance Agency

Hosting of website, documentation

Listserv

Profile registry

http://www.loc.gov/mets

METS - Basics

Description of complex objects:

Structure

Metadata (administrative; descriptive)

Content

References

METS - Basics

Technical components:

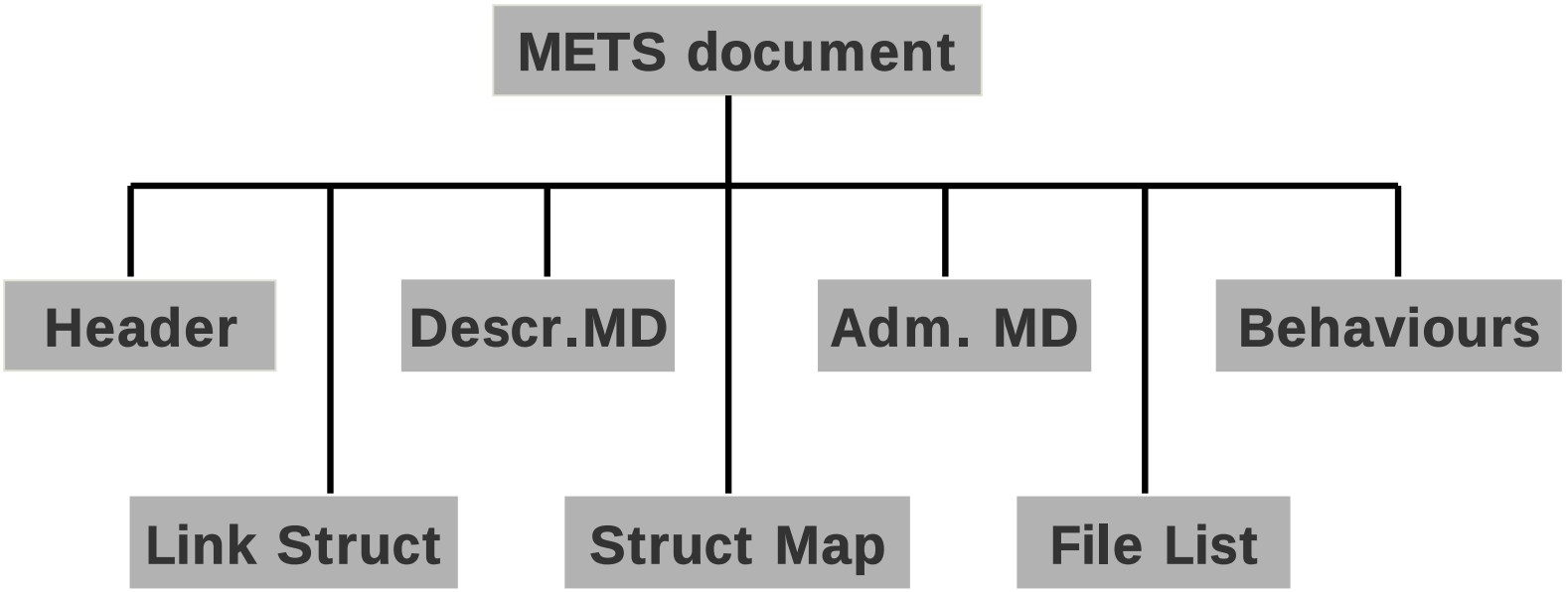
Primary XML schema (mets.xsd)

Extension schema (e.g. for metadata)

Controlled vocabulary

METS - Basics

Technical components:



METS - Basics

StructMap

Object can be modeled as a tree

Every node in the tree can have (descriptive and/or administrative) metadata

Every node can have individual / multiple files (contentfiles)

METS - Basics

StructMap

Example:

```
<METS:structMap TYPE="LOGICAL">
        <METS:div TYPE="Monograph" ID="log0001" DMDID="dmdlog0001">
                <METS:div TYPE="TitlePage" ID="log0002"/>
                <METS:div TYPE="Dedication" ID="log0003"/>
                <METS:div TYPE="CurriculumVitae" ID="log0005"/>
        </METS:div>
</METS:structMap>
```

METS - Basics

Link Structure

Stores links between nodes in a structural map

Uses XLink / Xptr syntax

Can be used to store references between nodes in a structural map

Can link from one structural map to another (METS files can have several structural maps)

METS - Basics

Link Structure

Example:

```
<METS:structLink>
  <!--Monograph -->
  <METS:smLink from="log0001" to="phys0001"/>
  <!--Titelseite-->
  <METS:smLink from="log0002" to="phys0002"/>
            ...
</METS:structLink>
```

METS - Basics

ContentFiles (Listing)

List of content files, which contain metadata: checksum, file size, creation date/time

Files can be arranged in (hierarchical) groups

Metadata can be attached to each file

Content itself can be included into METS-file (base64 encoded) or referenced using XLink

METS - Basics

ContentFiles (Listing)

Example:

```
<METS:fileSec>
   <METS:fileGrp>
      <METS:file ID="bitonal0001" MIMETYPE="image/tiff">
            <METS:FLocat LOCTYPE="OTHER" xlink:href="file://./00000001.tif"/>
      </METS:file>
      <METS:file ID="bitonal0002" MIMETYPE="image/tiff">
      </METS:file>
   </METS:fileGrp>
<METS:fileSec>
```

METS

Dateiinformationen

Verknüpfung zwischen Dateiinformationen und Strukturen mittels XML-IDs:

```
<METS:div TYPE="page" ID="phys0002" DMDID="dmdphys0001">
        <METS:fptr FILEID="bitonal0001"/>
</METS:div>
```

File-Pointer

```
<METS:file ID="bitonal0001" MIMETYPE="image/tiff">
        <METS:FLocat LOCTYPE="OTHER" xlink:href="file://./00000001.tif"/>
</METS:file>
```

METS - Basics

Descriptive Metadata

Example:

```
<METS:dmdSec ID="dmdlog0001">
        <METS:mdRef MDTYPE="OTHER" LOCTYPE="URN">
                http://opac.your.library.de/catalognr=xxx
        </METS:mdRef>
</METS:dmdSec>
```

METS - Basics

Descriptive Metadata

Example:

```
<METS:dmdSec ID="dmdlog0001">
    <METS:mdWrap MDTYPE="DC">
        <METS:xmlData>
            <dc:title>...</dc:title>
            .....
            .....
        </METS:xmlData>
    </METS:mdWrap>
</METS:dmdSec>
```

METS - Basics

Descriptive Metadata

Associated with many METS components:

- **Node in structural map**
- **ContentFiles**

Metadata can be internal (as XML or binary) or external (Xlink for referencing)

Different Metadata schemas can be used (extensions schemas) as MODS, DublinCore etc…

METS - Basics

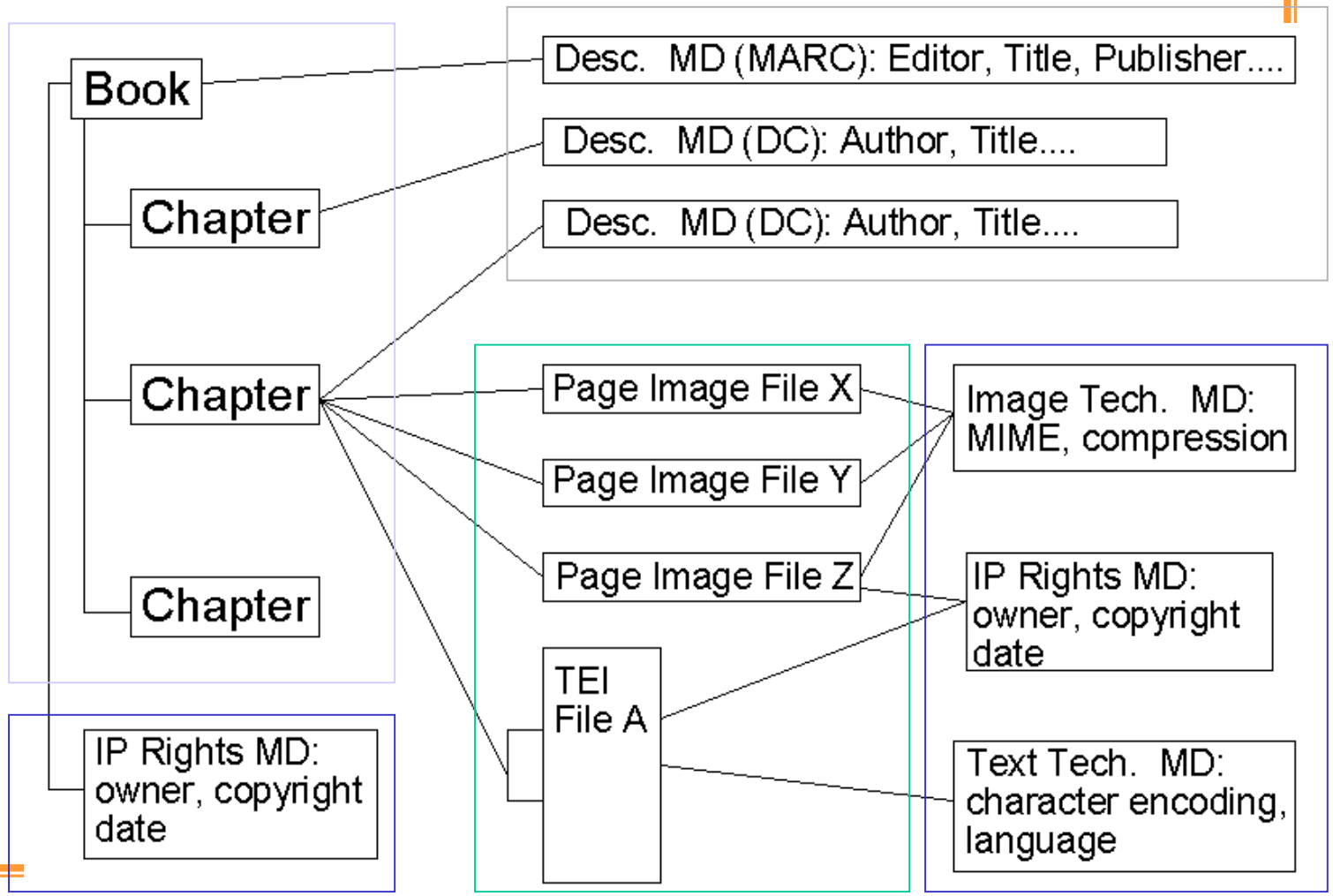
Administrative Metadata

As descriptive metadata but:

4 types of administrative metadata:

- Technical
- Rights
- Source
- Digital Provenance

METS - Basics


Book
Chapter
Chapter
Chapter
IP Rights MD: owner, copyright date
Desc. MD (MARC): Editor, Title, Publisher....
Desc. MD (DC): Author, Title....
Desc. MD (DC): Author, Title....
Page Image File X
Page Image File Y
Page Image File Z
TEI File A
Image Tech. MD: MIME, compression
IP Rights MD: owner, copyright date
Text Tech. MD: character encoding, language

METS – Extension Schemas

Descriptive Metadata

- DublinCore
- MARC
- MODS

Administrative Metadata

- Technical: **image, text, audio, video**
- IP Rights: **XrML, ODRL, MPEG 21**

METS – Controlled Vocabularies

Metadata Types

Files Adress Types: xptr , time-codes etc.

METS-profiles

METS – Profiles

"METS Profiles are intended to describe a class of METS documents in sufficient detail to provide both document authors and programmers the guidance they require to create and process METS documents conforming with a particular profile."

A profile is expressed as an XML document. There is a schema for this purpose.

METS – Profiles

Not machine readable.

Standarized form for documentation

Profiles are freely downloadable from METS-website (e.g. for re-use)

Profiles contain at least one example document

METS – Profiles

13 components:

1. Unique URI
2. Short Title
3. Abstract
4. Date and time of creation
5. Contact Information
6. Related profiles

METS – Profiles

13 components:

7. Extension schemas used
8. Rules of description
9. Controlled vocabularies used
10. Structural requirements
11. Technical requirements
12. Tools and applications
13. Sample document

METS – Profiles

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METS – Profiles

Currently 6 profiles registered

http://www.loc.gov/standards/mets/mets-profiles.html

METS – Usage at GDZ

METS for retrodigitzation

Allows flexible structure:

- Logical structure (monograph, chapters….)
- Physical structure (pages, columns)
- Both structures are linked to each other

METS – Usage at GDZ

METS for retrodigitzation

Multiple files for individual pages:

File Groups can be used to group files for single pages (e.g. high and low resolution versions)

METS – Usage at GDZ

METS for retrodigitzation

Flexible metadata support

- Using MODS for desriptive Metadata
- Using MIX for technical metadata (images)

The end

http://www.loc.gov/standards/mets