

zvdd/ DFG Viewer METS Profile – Version 2.0

XML version of the METS Profile: http://dfg-viewer.de/fileadmin/groups/dfgviewer/METS_Application_Profile_2.0.xml

Abstract

This METS profile describes the data format for the DFG Viewer and also defines further expansions for the zvdd portal going beyond this. Documents corresponding to this profile can both be displayed by the DFG Viewer and processed as well as indexed by the zvdd portal. In this context, the fact has to be taken into account that all the examples contained only display excerpts of the respective METS document. Some full examples are provided in the XML version of the profile at the end of the section <Appendix>.

URI

http://dfg-viewer.de/fileadmin/groups/dfgviewer/METS_Application_Profile_2.0.pdf

Date

2009-04-16T12:00:00

Contact

Stefan E. Funk

funk@sub.uni-goettingen.de

Göttingen State and University Library

Papendiek 14, 37073 Göttingen, Germany

Further linked/ used profiles

This profile is independent; other METS profiles are not linked to this profile.

Extension schemas used

Metadata Object and Description Schema (MODS)

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

Description rules

Controlled vocabularies

ISO 639-2

International Standard Organization

<http://www.iso.ch/>

All language specifications within the MODS Extension Schema are made in accordance with ISO 639-2 Code for the representation of names of languages. This concerns the element <mods:languageTerm>.

zvdd structural data typology

zvdd – Zentrales Verzeichnis Digitalisierter Drucke [Central Directory of Digitised Printed Works]

http://zvdd.gdz-cms.de/dokumentation/datenformate_im_ueberblick/strukturdaten/

For zvdd all <div> have a TYPE attribute whose value needs to correspond to the structural data typology.

zvdd MODS Anwendungsprofil

zvdd – Zentrales Verzeichnis Digitalisierter Drucke [Central Directory of Digitised Printed Works]

http://dfg-viewer.de/fileadmin/groups/dfgviewer/MODS_Application_Profile_1.0.pdf

The zvdd MODS application profile has to be used with the zvdd/ DFG Viewer METS profile.

Structural requirements

Descriptive metadata section

dmdSec requirement 1: Number and type of the descriptive metadata

Every structural element (which means every <div>) can have one or several descriptive metadata sections <dmdSec>. The type of a metadata section must be specified in the MDTYPE attribute of every <mdRef> or <mdWrap> element. Both the DFG Viewer and the zvdd portal only support descriptive metadata sections of the MODS type. These have to be integrated into the METS document and should be located within <mdWrap>. Furthermore, only the first metadata section of the type is taken into account. If there are several MODS sections, only the section is considered whose identifier ranks first in the corresponding DMDID attribute of the <div> element.

The highest <div> element from the logical <structMap> must have a corresponding MODS metadata set, since this e.g. contains information on the clear identification and indexing of the resource as well as for displaying in corresponding page turners – such as the DFG Viewer. In case the highest element is a <div> of a superior document (e.g. a journal), which does not reference any MODS metadata set, the child element must have such a metadata set.

There can be further metadata sections, e.g. in order to include further metadata formats such as DublinCore or to refer to the corresponding metadata set in the local OPAC with the help of <mdRef>. Both the DFG Viewer and the zvdd portal ignore corresponding sections.

dmdSec requirement 2: MODS metadata for logical objects

On account of their degree of detailing MODS metadata can be used for indexing a document – specifically for indexing each <div> element. Essentially, this corresponds to the use by the zvdd portal.

The MODS metadata of the highest <div> element (and/ or that of the first child element) are used for displaying the bibliographic data by the DFG Viewer. Information on the MODS fields, their use and their existence (mandatory fields, optional fields) are provided in the separate MODS profile.

dmdSec requirement 3: Unique identification of the document with <mods:identifier>

Every document and/ or every document structure is identified clearly with the help of the value saved in the <mods:identifier> element. There can be random different identifiers for one <div> element. As a result, generally common identifiers, such as the ISBN, can be saved in this field in addition to local identifiers specific for the respective library. The existence of a corresponding identifier in the logical <structMap> is mandatory for the highest<div> element (and/ or for its first child element).

At this point, zvdd demands an identifier which is clear worldwide, such as URN, PURL, DOI, Handle or ARK. In the context of the digital library the URN has gained in importance over the last years. For this reason, the URN is recommended as the persistent identifier for the zvdd portal.

The DFG Viewer does not need such a URN for displaying a document. Nonetheless, saving such a URN in the MODS metadata is recommended since further services, which could be addressed with the help of the URN, are conceivable with the help of such an identifier. It could, e.g. serve linking between the DFG Viewer and the zvdd portal.

On account of its unambiguousness the URN can also be used as an identifier for OAI PMH (protocol for metadata harvesting). This means the OAI Harvester installed on the zvdd portal in this way uses the URN in order to unambiguously identify the corresponding OAI records. In this context, every <div> element which has a URN is considered an independent OAI record.

Example 1: Identification of a <div>

```
<mets:mets>
  <mets:dmdSec ID="DMD_00">
    <mets:mdWrap MDTYPE="MODS">
      <mets:xmlData>
        <!-- The MODS-specific metadata block starts here -->
        <mods:mods>
          <!-- Clear identification of the corresponding <div> element -->
          <mods:identifier type="urn">urn:nbn:gbv-7-PPN481399712</mods:identifier>
        </mods:mods>
      </mets:xmlData>
    </mets:mdWrap>
```

```

</mets:dmdSec>

<!-- Logical Struct-Map -->
<mets:structMap TYPE="LOGICAL">
  <mets:div DMDID="DMD_00" TYPE="Monograph" />
</mets:structMap>
</mets:mets>

```

dmdSec requirement 4: Hierarchical linking of documents with the help of MODS

In addition to the common, METS internal possibility of hierarchically linking parts of documents with each other (see explanations on the optional logical document structure), there are also hierarchical links between documents. The relationship between a multivolume work and its individual, subordinate volumes constitutes one example of such a link. Usually, all volumes are digitised independently so that an independent METS file is generated for each of the volumes. In order to group the volumes and to reflect the fact that they belong together a separate METS file is generated for the multivolume work. This file does not contain any references to image files – it only contains references to the subordinate volumes. This hierarchical link applies analogously to all other <div> elements which refer to a superior element – i.e. for example it also applies to the link between a journal volume and the journal.

In zvdd such a link is saved in MODS. The <relatedItem> element of the "host" type saves a reference to the superior work. To that end, it contains a sub-element of the <mods:recordInfo><mods:recordIdentifier> type, which contains an identifier valid at the running time within the supplying repository. In this context, the fact that, at this point, such a link is only effected to the superior unit at all times on principle has to be taken into account.

However, the DFG Viewer uses METS pointers <mptr>, which each refer directly to superior as well as subordinate METS files, for navigating hierarchical structures, so that navigation in both directions is possible. For example a reference to all volumes from one journal element as well as a reference from individual volumes to the superior journal element are possible, see also section "Treatment of Journals and Multivolume Works in the DFG Viewer".

Example 2: Hierarchical linking of two documents with the help of MODS - subsequent and superior element

```

<!-- Subsequent element -->
<mets:mets>
  <mets:dmdSec ID="DMD_01">
    <mets:mdWrap MDTYPE="MODS">
      <mets:xmlData>
        <mods:mods>
          <!-- Clear identification of the <div> element -->
          <mods:identifier type="urn">urn:nbn:gbv-7-PPN481399712</mods:identifier>
          <!-- Identification of the element -->
          <mods:recordInfo>

```

```

        <mods:recordIdentifier source="gbv-ppn">PPN481399712</mods:recordIdentifier>
      </mods:recordInfo>
      <!-- Link to the superior element -->
      <mods:relatedItem type="host">
        <mods:recordInfo>
          <mods:recordIdentifier source="gbv-ppn">PPN515678759</mods:recordIdentifier>
        </mods:recordInfo>
      </mods:relatedItem>
    </mods:mods>
  </mets:xmlData>
</mets:mdWrap>
</mets:dmdSec>

<!-- Logical Struct-Map -->
<mets:structMap TYPE="LOGICAL">
  <mets:div DMDID="DMD_01" />
</mets:structMap>
</mets:mets>

<!-- Superior element -->
<mets:mets>
  <mets:dmdSec ID="DMD_02">
    <mets:mdWrap MDTYPE="MODS">
      <mets:xmlData>
        <mods:mods>
          <!-- Clear identification of the <div> element -->
          <mods:identifier type="urn">urn:nbn:gbv-7-PPN515678759</mods:identifier>
          <!-- Identification of the element -->
          <mods:recordInfo>
            <mods:recordIdentifier source="gbv-ppn">PPN515678759</mods:recordIdentifier>
          </mods:recordInfo>
        </mods:mods>
      </mets:xmlData>
    </mets:mdWrap>
  </mets:dmdSec>

  <!-- Logical Struct-Map -->
  <mets:structMap TYPE="LOGICAL">
    <mets:div DMDID="DMD_02" />
  </mets:structMap>
</mets:mets>

```

dmdSec requirement 5: Sequence of the structural elements in the logical structure

Within a METS document, the sequence of the <div> elements is determined by their arrangement in the logical <structMap>. In the event of a link by means of <relatedItem>, the corresponding information has to be saved at another point within the MODS dataset, however, since there are no nested <div> elements for this level. The individual <div> elements are stored in different METS documents instead.

Under MODS the <mods:part> element is used to save specific information regarding an individual part and its connection to a bigger whole. At this point, the number of the volume should be saved in a METS file for a volume both for displaying and for sorting the table of contents. This information is used both by the DFG Viewer (display of the volume number as bibliographic information) and by the zvdd portal (sorting of the table of contents of a multivolume work).

The <mods:part> element must have an ORDER attribute which specifies the sequence of the respective <div>s within the superior unit. The value of this element must be an integer. Information for displaying the volume number is saved within the <part> element under <detail><number>. The <number> element comprises all the information in text form, i.e. <number> can for example comprise numerals or other random information regarding the numbering.

The <mods:detail> element must have a TYPE attribute, which needs to correspond to a type of the zvdd structural data typology for zvdd. For the DFG Viewer it should correspond to one of the types proposed in the MODS documentation of the Library of Congress: volume, part, issue, chapter, section, paragraph or track.

Within the <part> element both fields (ORDER attribute and <number> element) need to be available in any case. In case the information for displaying is identical with the information for sorting, the corresponding information needs to be duplicated and specified in both fields.

Example 3: Reference to the number of the volume of the superior work

```
<mets:mets>
  <mets:dmdSec ID="DMD_03">
    <mets:mdWrap MDTYPE="MODS">
      <mets:xmlData>
        <mods:mods>
          <!-- Clear identification of the corresponding <div> element -->
          <mods:identifier type="urn">urn:nbn:gbv-7-481399712</mods:identifier>
          <!-- Link to the superior element -->
          <mods:relatedItem type="host">
            <mods:recordInfo>
              <mods:recordIdentifier source="gbv-ppn">PPN515678759</mods:recordIdentifier>
            </mods:recordInfo>
          </mods:relatedItem>
          <!-- Classification within the superior element -->
          <mods:part order="80">
            <mods:detail type="volume">
              <mods:number>Achte Theil</mods:number>
            </mods:detail>
          </mods:part>
        </mods:mods>
      </mets:xmlData>
    </mets:mdWrap>
  </mets:dmdSec>

  <!-- Logical Struct-Map -->
```

```

<mets:structMap TYPE="LOGICAL">
  <mets:div DMDID="DMD_03" />
</mets:structMap>
</mets:mets>

```

Administrative metadata section

amdSec requirement 1: Metadata regarding holders of rights and authors

In order to specify the holder of rights or the author of a digital representation in the zvdd portal and in the display of the DFG Viewer the information has to be saved within a <rightsMD> element. Within this element a specific schema, which is explained herein below, is used.

Since the corresponding information on authors/ rights usually apply to a whole resource, the corresponding <amdSec> can only be linked from the highest logical <div> element (or from its first child element) of a METS file. Therefore, the <amdSec> element must have an attribute ID. Though the <rightsMD> has to be available according to the METS specification, it is not linked from the ADMID attribute of the <div> element.

The corresponding rights metadata has to be saved within the <mdWrap> element. Referencing of the metadata is not permissible. The MDTYPE attribute of the <mdWrap> element must have the value "OTHER". This type is specified specifically in the attribute OTHERMDTYPE. This attribute must have the value "DVRIGHTS".

Within the <mdWrap> element an independent rights schema, which writes its content into a wrapping <dv:rights> element is used. This element comprises the following three sub-elements which may and must occur exactly once only in each case.

owner — The author of the digital representation.

logo — A URL of the author's logo; this logo is displayed accordingly by the DFG Viewer and by the zvdd portal.

homepage — A URL of the author's homepage.

Further information on rights can be saved in separate <rightsMD> elements within the same administrative metadata section. However, these have to use other rights schemas and document these in the MDTYPE and OTHERMDTYPE attributes of the <mdWrap> element.

Example 4: Metadata regarding the holder of rights and the author

```

<mets:mets>
  <mets:amdSec ID="ex04__AMD_00">
    <!-- rightsMD section -->
    <mets:rightsMD ID="ex04__RIGHTSMD_00">
      <mets:mdWrap MDTYPE="OTHER" OTHERMDTYPE="DVRIGHTS">
        <mets:xmlData>

```

```

<!-- The DFG namespace is defined here;
      at the moment, there is not yet a schema for this -->
<dv:rights xmlns:dv="http://dfg-viewer.de/">
  <dv:owner>Digitalisierungszentrum der Niedersächsischen Staats- und
    Universitätsbibliothek Göttingen</dv:owner>
  <dv:ownerLogo>http://gdz.sub.uni-goettingen.de/logo_gdz_dfgv.png</dv:ownerLogo>
  <dv:ownerSiteURL>http://gdz.sub.uni-goettingen.de</dv:ownerSiteURL>
</dv:rights>
</mets:xmlData>
</mets:mdWrap>
</mets:rightsMD>
<!-- digiprovMD section see below -->
</mets:amdSec>

<!-- Logical Struct-Map -->
<mets:structMap TYPE="LOGICAL">
  <mets:div ADMID="ex04__AMD_00" TYPE="Monograph" />
</mets:structMap>
</mets:mets>

```

amdSec requirement 2: Metadata on origin and online presentation

Information on the origin and presentation of the digital representation is saved within a <digiprovMD> element in the <amdSec>.

As in the case of the metadata regarding the holder of rights and the author the corresponding metadata regarding the origin have to be saved within the <mdWrap> element. Referencing of the metadata is also not permissible. The MDTYPE attribute of the <mdWrap> element must have the value "OTHER". This type is specified specifically in the attribute OTHERMDTYPE. In this case, it must have the value "DVLINKS".

A specific schema regarding the origin, which writes its content into a wrapping <dv:links> element, is used within the <mdWrap> element. Within this element there are the following two sub-elements, which may and must occur exactly once only in each case.

reference — A URL regarding the catalogue entry of the digital representation.

presentation — A URL for the online presentation of the digital representation.

Further information on the origin can be saved in separate <digiprovMD> elements within the same Administrative Metadata Section. However, these must use different link schemas and document these in the MDTYPE and OTHERMDTYPE attributes of the <mdWrap> element.

Example 5: Metadata on origin and online presentation




```

<mets:mets>
  <mets:amdSec ID="ex05__AMD_00">
    <!-- rightsMD Section see above -->
    <!-- digiprovMD Section -->
    <mets:digiprovMD ID="ex05__DIGIPROVMD_00">
      <mets:mdWrap MDTYPE="OTHER" MIMETYPE="text/xml" OTHERMDTYPE="DVLINKS">
        <mets:xmlData>
          <!-- The DFG namespace is defined here;
               at the moment, there is not yet a schema for this -->
          <dv:links xmlns:dv="http://dfg-viewer.de/">
            <dv:reference>http://opac.sub.uni-goettingen.de/DB=1/PPN?PPN=394930762</dv:reference>
            <dv:presentation>http://resolver.sub.uni-goettingen.de/purl?PPN394930762</dv:presentation>
          </dv:links>
        </mets:xmlData>
      </mets:mdWrap>
    </mets:digiprovMD>
  </mets:amdSec>

  <!-- Logical Struct-Map -->
  <mets:structMap TYPE="LOGICAL">
    <mets:div ADMID="ex05__AMD_00" TYPE="Periodical" />
  </mets:structMap>
</mets:mets>

```

File section

fileSec requirement 1: File Section

The file section <fileSec> lists all content files of which the document consists. Content files are files comprising the semantic content of the resource. Links to files, which e.g. contain metadata regarding the document, are not established from within the file section.

fileSec requirement 2: File Groups

The files themselves can be divided into different groups. Each group comprises files of a similar type for similar purposes. In one METS document there must be at least one group. The number of groups is not restricted. However, at least two of the file groups below have to be implemented for the use of the METS file in the DFG Viewer.

Each file group is declared by a <fileGrp> element and is directly subordinate to the <fileSec>. Subgroups are not possible, this means a <fileGrp> element must not contain any further <fileGrp> elements.

If there are several file groups, each <fileGrp> element has to be equipped with a USE attribute containing information regarding its use.

fileSec requirement 3: Files

Each file is declared by a <file> element. This <file> element is a child element of a <fileGrp> element, which means each file must belong to exactly one group. However, no file can belong to more than one group.

The actual content of the file (the byte stream) is saved outside the METS document; however, it is linked to the METS file in such a persistent manner by means of <FLocat> that the DFG Viewer can load and display the file from the original repository if required. To that end, the <file> element has to comprise an <FLocat> element, which is referenced with the help of a URL saved in the link xlink:href as the only child element. For this reason, the LOCTYPE attribute must have the value "URL". The repository which has generated and circulated the METS file, is responsible for the validity of the URL contained in the METS file. Content embedded in the METS file by using the <FContent> element is not supported.

Each <file> element contains an attribute ID, which serves as a clear reference within the METS document. These IDs are referenced by the <fptr> elements in <structMap> and assign the corresponding <file> element to the <div> elements.

Each <file> must comprise a MIMETYPE attribute containing the mime type of the content file. CHECKSUM, CHECKSUMTYPE and SIZE should be available as further technical metadata. It contains a hash value of the content file and/ or corresponding information on the algorithm used as well as the length of the file in bytes. This information is particularly helpful for the DFG Viewer in order to assess the authenticity of the content files supplied prior to their display.

Currently, technical metadata for individual files is not supported. If this is requested, such data can be saved in a separate administrative metadata section (admSec) and linked with the help of the ADMID attribute of the <file> element. Hence, the use of technical metadata is optional.

Example 6: Definition of content files in various file groups

```
<mets:mets xmlns:xlink="http://www.w3.org/1999/xlink">
  <mets:fileSec>

    <!-- Contains all images in the version displayed upon the start of the Viewer -->
    <mets:fileGrp USE="DEFAULT">
      <mets:file ID="ex06__FILE00_DEF" MIMETYPE="image/tiff" SIZE="43630">
        <mets:FLocat LOCTYPE="URL" xlink:href="http://link/to/default/image/00.tif" />
      </mets:file>
      <mets:file ID="ex06__FILE01_DEF" MIMETYPE="image/tiff" SIZE="63235">
        <mets:FLocat LOCTYPE="URL" xlink:href="http://link/to/default/image/01.tif" />
      </mets:file>
      <mets:file ID="ex06__FILE02_DEF" MIMETYPE="image/tiff" SIZE="225434">
        <mets:FLocat LOCTYPE="URL" xlink:href="http://link/to/default/image/02.tif" />
      </mets:file>
    </mets:fileGrp>

    <!-- Contains all images in a smaller version. This fileGrp must contain exactly
         the same number of images as all other fileGrps -->
    <mets:fileGrp USE="MIN">
```

```

<mets:file ID="ex06__FILE00_MIN" MIMETYPE="image/png" SIZE="2356">
  <mets:FLocat LOCTYPE="URL" xlink:href="http://link/to/smaller/image/00.png" />
</mets:file>
<mets:file ID="ex06__FILE01_MIN" MIMETYPE="image/png" SIZE="3976">
  <mets:FLocat LOCTYPE="URL" xlink:href="http://link/to/smaller/image/01.png" />
</mets:file>
<mets:file ID="ex06__FILE02_MIN" MIMETYPE="image/png" SIZE="6472">
  <mets:FLocat LOCTYPE="URL" xlink:href="http://link/to/smaller/image/02.png" />
</mets:file>
</mets:fileGrp>

<!-- The further (optional) fileGrps follow here -->
</mets:fileSec>

<!-- Physical Struct-Map -->
<mets:structMap TYPE="PHYSICAL">
  <mets:div TYPE="physSequence" />
</mets:structMap>
</mets:mets>

```

fileSec requirement 4: File Groups

The use of different file groups has the purpose of summarising files with similar characteristics under the aspect of identical use. With regard to the DFG Viewer this means that image data with an identical image width is included in one group. In this context, the fact that all files of this group are derivatives of the original files, which were calculated for displaying in various sizes, has to be taken into account. For this reason, one file group always has to contain a full set of image data – there must be exactly one image for every page in every file group.

The DFG Viewer can sort these different derivatives according to their image width. The DFG Viewer displays the images in different zoom stages in line with the existing image width. To that end, the attribute USE of the <fileGrp> element specifies the pixel width of the images contained. The possible values of the USE attribute are standardised for the DFG Viewer. File groups with deviating values are ignored by the DFG Viewer and can e.g. contain references to full text data or local files as a result. The possible values for the DFG Viewer are:

DEFAULT — contains image files with a width of between 1000 and 1500 pixels. This is the size of the image displayed upon the first retrieval of the document in the DFG Viewer.

MIN — contains image files with a width between 600 and 1000 pixels. This size of the image is displayed upon zooming-out from the document in the DFG Viewer.

MAX — contains image files with the highest possible resolution which is available online. This image size is displayed upon zooming-in into document in the DFG Viewer.

THUMBS — contains all the pages as a small overview with a width of exactly 150 pixels or a height of exactly 150 pixels. This means that the height is restricted to 150 pixels in the case of upright images, while, on the other hand, the width is restricted in the case of broadsize

images. The respective other dimension should be selected in such a way that the proportions are preserved. The image format for the thumbnails must either be PNG or JPG. In the future, the DFG Viewer will create an overview of all pages from this. For this reason, it is important that this <fileGrp> contains a derivative of each page image which is reduced in size accordingly.

DOWNLOAD — contains files which are intended for downloading. In this context, the correct specification of the corresponding MIMETYPE attribute of the <file> elements has to be taken into account, for example the value "application/pdf" must be specified in a PDF file. The individual files can be allocated to both physical and logical structural elements.

The corresponding file groups for the resolutions "MIN" and "DEFAULT" must at least be contained in the METS file, all further file groups are optional.

Example 7: The <FileGrp> elements supported by the DFG Viewer

```
<mets:mets xmlns:xlink="http://www.w3.org/1999/xlink">
  <mets:fileSec>

    <!-- Contains all images in the version displayed upon the start of the
         DFG Viewer -->
    <mets:fileGrp USE="DEFAULT">
      <mets:file ID="ex07__FILE00_DEF" MIMETYPE="image/jpeg" SIZE="51654">
        <mets:FLocat LOCTYPE="URL" xlink:href="http://link/to/default/image/00.jpg" />
      </mets:file>
      <mets:file ID="ex07__FILE01_DEF" MIMETYPE="image/jpeg" SIZE="46566">
        <mets:FLocat LOCTYPE="URL" xlink:href="http://link/to/default/image/01.jpg" />
      </mets:file>
    </mets:fileGrp>

    <!-- Contains all images in a smaller version -->
    <mets:fileGrp USE="MIN">
      <mets:file ID="ex07__FILE00_MIN" MIMETYPE="image/jpeg" SIZE="23630">
        <mets:FLocat LOCTYPE="URL" xlink:href="http://link/to/smaller/image/00.jpg" />
      </mets:file>
      <mets:file ID="ex07__FILE01_MIN" MIMETYPE="image/jpeg" SIZE="19233">
        <mets:FLocat LOCTYPE="URL" xlink:href="http://link/to/smaller/image/01.jpg" />
      </mets:file>
    </mets:fileGrp>

    <!-- Contains ALL images in the biggest possible version -->
    <mets:fileGrp USE="MAX">
      <mets:file ID="ex07__FILE00_MAX" MIMETYPE="image/jpeg" SIZE="643630">
        <mets:FLocat LOCTYPE="URL" xlink:href="http://link/to/bigger/image/00.jpg" />
      </mets:file>
      <mets:file ID="ex07__FILE01_MAX" MIMETYPE="image/jpeg" SIZE="591244">
        <mets:FLocat LOCTYPE="URL" xlink:href="http://link/to/bigger/image/01.jpg" />
      </mets:file>
    </mets:fileGrp>
  </mets:fileSec>
</mets:mets>
```

```

</mets:fileGrp>

<!-- Contains all images in a small preview version -->
<mets:fileGrp USE="THUMBS">
  <mets:file ID="ex07__FILE00_THB" MIMETYPE="image/png" SIZE="8234">
    <mets:FLocat LOCTYPE="URL" xlink:href="http://link/to/thumb/image/00.png" />
  </mets:file>
  <mets:file ID="ex07__FILE01_THB" MIMETYPE="image/png" SIZE="8775">
    <mets:FLocat LOCTYPE="URL" xlink:href="http://link/to/thumb/image/01.png" />
  </mets:file>
</mets:fileGrp>

<!-- Contains all the files offered for downloading, e.g. PDF or TIFF files -->
<mets:fileGrp USE="DOWNLOAD">
  <mets:file ID="ex07__FILE00_DWL" MIMETYPE="application/pdf" SIZE="12057">
    <mets:FLocat LOCTYPE="URL" xlink:href="http://link/to/pdf/00.pdf" />
  </mets:file>
  <mets:file ID="ex07__FILE01_DWL" MIMETYPE="application/pdf" SIZE="13001">
    <mets:FLocat LOCTYPE="URL" xlink:href="http://link/to/pdf/01.pdf" />
  </mets:file>
</mets:fileGrp>
</mets:fileSec>

<!-- Physical Struct-Map -->
<mets:structMap TYPE="PHYSICAL">
  <mets:div TYPE="physSequence" />
</mets:structMap>
</mets:mets>

```

Structural map

structMap requirement 1: Bibliographic document model

If a document is recorded according to the bibliographic document model, there is only a logical <structMap>. For this reason, the TYPE attribute of the only <structMap> element needs to have the value "LOGICAL". In the case of monographs, the logical <structMap> only contains a single <div> element, which then represents the respective work. There are no <div> elements as child elements whatsoever under this model.

As a result of this, at least one MODS metadata set is assigned to the <div>. The DMDID attribute of the <div> element has one entry accordingly. The TYPE attribute must contain a value from the zvdd structural data typology.

Since no corresponding pages are defined, this model is NOT suited for the DFG Viewer. It only exists as a provisional solution for the zvdd portal in order to be able to include documents, which are only available as PDF files and with regard to which there is rudimentary metadata, into the portal and to be able to index such there.

Example 8: <structMap> under the Bibliographic Document Model

```
<mets:mets>
  <mets:structMap TYPE="LOGICAL">
    <mets:div DMDID="DMD_00" TYPE="Monograph" />
  </mets:structMap>
</mets:mets>
```

structMap requirement 2: Page-based document model

The page-based document model is a minimal model which is supported by the DFG Viewer. It defines individual pages which can be displayed by the DFG Viewer. There must be at least two corresponding file references regarding each of these pages (one to the file group "DEFAULT" and one to the file group "MIN").

The page-based document model is characterised by two <structMap> elements. One <structMap> element contains the logical structure, its TYPE attribute has the value "LOGICAL". The other <structMap> element contains the physical structure, the TYPE attribute has the value "PHYSICAL". There must not be any further <structMap> elements. In this model, the <structLink> section must be available and link corresponding logical and physical structures. In this context, every <div> element from the physical structure must be directly or indirectly assigned to at least one <div> element from the logical structure. Only the first logical <div> element of a multivolume work or journal is considered an exception to this, since it designates the superior work and since there is no physical structural element for this. Further information on linking of the logical and physical structure is provided in the section <structLink>.

Within the physical <structMap> element the page structure is represented by <div> elements, which are subordinate to a highest <div> element. This highest <div> element comprises the pages which represent the bibliographic unit. For this reason, its TYPE attribute always has to have the value "physSequence".

The structural elements below that represent the pages and/ or the cover. The cover and the pages are arranged on the same hierarchical level. In the case of a page representation, the respective <div> element gets the value "page" in the TYPE attribute. Further nesting, e.g. for displaying parts of pages such as columns, etc. is also conceivable and could be implemented as <div> elements subordinate to the pages. However, the DFG Viewer does not take corresponding <div> elements below the level of the pages into account.

Each <div> element within the physical structure must have an ID attribute which has an unambiguous value. The unambiguousness of this value applies with regard to the entire METS document.

Even though it appears sensible to arrange the <div> elements in the same sequence in which the pages are arranged in the bound version on the level of the pages, this sequence needs to be specified explicitly in the ORDER attribute of each <div> element on the level of the pages. The ORDER attribute may only contain an integer value, which needs to be clear on the level of the pages. With regard to the sequence of the pages the value of the ORDER attributes alone is decisive, the sequence of the <div> elements is not taken into account. The use of the ORDER attribute is also recommended with regard to the structural elements subordinate to the pages.

In case a page has a page number printed on it, this has to be saved in the form of a label in the ORDERLABEL attribute of the <div> element. Pages which are not taken into account in pagination (pages not counted) do not require any ORDERLABEL attribute. Filling-in of the LABEL attribute is possible as an option. The DFG Viewer uses the value of the ORDERLABEL attribute for displaying and navigation (targeted selection of pages) provided the attribute is available.

The attribute CONTENTIDS specifies one (or several) persistent identifier(s) for each individual page of the document and consists of a URI or a list of URIs. These are displayed as persistent IDs for the respective page by the DFG Viewer and can be used as a permanent link for quotations directly on the corresponding page.

Files can be referenced for downloading with the help of the file pointer <fptr>. In the physical Struct-Map, this is only possible for individual pages, see also section "References to Files – Physical Structure". One file of the entire work can be referenced in the logical Struct-Map, see section "References to Files – Logical Structure".

Example 9: <structMap> of the physical structure

```
<mets:mets>
  <!-- Logical Struct-Map -->
  <mets:structMap TYPE="LOGICAL">
    <mets:div DMDID="DMD_00" ID="ex09__LOG_00" TYPE="Monograph" />
  </mets:structMap>

  <!-- Physical Struct-Map -->
  <mets:structMap TYPE="PHYSICAL">
    <mets:div ID="ex09__PHYS_00" TYPE="physSequence">
      <mets:div CONTENTIDS="urn:nbn:de:gbv-7-gdz-12345678-ex10__PHYS_01" ID="ex09__PHYS_01" ORDER="1" ORDERLABEL="I"
TYPE="page" />
      <mets:div CONTENTIDS="urn:nbn:de:gbv-7-gdz-12345678-ex10__PHYS_02" ID="ex09__PHYS_02" ORDER="2" ORDERLABEL="II"
TYPE="page" />
      <mets:div CONTENTIDS="urn:nbn:de:gbv-7-gdz-12345678-ex10__PHYS_03" ID="ex09__PHYS_03" ORDER="3"
ORDERLABEL="III" TYPE="page" />
      <mets:div CONTENTIDS="urn:nbn:de:gbv-7-gdz-12345678-ex10__PHYS_04" ID="ex09__PHYS_04" ORDER="4" ORDERLABEL="1"
TYPE="page" />
      <mets:div CONTENTIDS="urn:nbn:de:gbv-7-gdz-12345678-ex10__PHYS_05" ID="ex09__PHYS_05" ORDER="5" ORDERLABEL="2"
TYPE="page" />
    </mets:div>
  </mets:structMap>
</mets:mets>
```

structMap requirement 3: Complex document model

The complex document model expands the page-based model with further structural information on the logical level. With regard to the

physical structure (<structMap TYPE="PHYSICAL">) everything that has already been described above regarding the page-based model also applies in the complex document model.

The DFG Viewer uses the additional structural information to generate the table of contents and facilitates navigation within the structure. The zvdd portal processes the logical structural data and uses it for indexing and the search function.

The highest logical structural unit is the <div> element, which has already been mentioned in the bibliographic document model and represents the bibliographic unit. Further <div> elements are subordinated to this <div> so that the logical structure of the document is represented by the nested elements. The depth of nesting is not restricted. In the logical structure the sequence of the <div> elements reflects the actual sequence of the structures to be represented. The ORDER or ORDERLABEL attribute does not have to be used; its values are ignored in the context of the DFG Viewer and of the zvdd portal.

Each <div> element within the logical structure must also have an ID attribute which has a clear value. The unambiguousness of this value is valid for the entire METS document.

Furthermore, each <div> element within the logical structure must have a TYPE attribute. For zvdd its content has to correspond to a type of the zvdd structural data typology. If the types of structures of the DFG Viewer structural data set are used, these structures are also displayed in a translated version – depending on the language selected by the user. If there is a LABEL attribute, it is used to display the respective type of structure in the overview.

With the help of the attribute CONTENTIDS persistent identifiers for all logical elements, such as for the entire monograph or for individual chapters can also be specified in this model. These are also displayed by the DFG Viewer as persistent IDs for citations.

In addition to the download references in the physical Struct-Map, files, such as PDF files of the complete work, of articles or chapters, can be referenced by means of <fptr> in the logical Struct-Map. At the moment, the DFG Viewer only analyses the reference to the complete work, see also Section “References to files – logical structure”.

Example 10: Nesting of the <structMap> elements of the logical document structure

```
<mets:mets>
  <mets:structMap TYPE="LOGICAL">
    <!-- Logical structural element for the monograph -->
    <mets:div CONTENTIDS="urn:nbn:de:gbv-7-gdz-12345678-" DMDID="DMD_00" ID="ex10__LOG_00" LABEL="Monographie"
TYPE="Monograph">

      <!-- Logical structural element for the first chapter with classification -->
      <mets:div CONTENTIDS="urn:nbn:de:gbv-7-gdz-12345678-ex10__LOG_01" DMDID="DMD_01" ID="ex10__LOG_01"
LABEL="Erstes Kapitel" TYPE="Chapter">
        <!-- Logical structural element for a table of contents -->
        <mets:div CONTENTIDS="urn:nbn:de:gbv-7-gdz-12345678-ex10__LOG_02" ID="ex10__LOG_02" LABEL="Illustration"
TYPE="Illustration" />
        <!-- Logical structural element for a text passage -->
        <mets:div CONTENTIDS="urn:nbn:de:gbv-7-gdz-12345678-ex10__LOG_03" ID="ex10__LOG_03" LABEL="Textabschnitt"
```



```

TYPE="TextSection" />
</mets:div>

<!-- Logical structural elements for two further chapters without further
classification -->
<mets:div CONTENTIDS="urn:nbn:de:gbv-7-gdz-12345678-ex10__LOG_04" DMDID="DMD_02" ID="ex10__LOG_04"
LABEL="Zweites Kapitel" TYPE="Chapter" />
<mets:div CONTENTIDS="urn:nbn:de:gbv-7-gdz-12345678-ex10__LOG_05" ID="ex10__LOG_05" LABEL="Drittes Kapitel"
TYPE="Chapter" />
</mets:div>
</mets:structMap>
</mets:mets>

```

structMap requirement 4: Treatment of journals and multivolume works in the DFG Viewer

Navigation across volumes in the DFG Viewer is made possible by linking the volumes and their superior structure among each other with the help of METS points. This is effected via a further METS file which only describes the journal or the multivolume work. Only the metadata of the journal as well as a logical <structMap> in which all <div> elements of the volumes are recorded are contained here. The sequence of the <div> elements corresponds to the sequence of the volumes. Content files are not linked from this file.

individual <div> elements. A METS pointer points to the METS file of the journal from the METS file of the volume and one METS Pointer each points to the appertaining METS file of each volume from the METS file of the journal.

Example 11: Logical Struct-Map for one volume and a superior journal (without CONTENTIDS for the sake of clarity)

```

<!-- Logical Struct-Map for a volume -->
<mets:mets xmlns:xlink="http://www.w3.org/1999/xlink">
  <mets:structMap TYPE="LOGICAL">
    <mets:div LABEL="Zeitschrift" TYPE="Periodical">
      <!-- The METS Pointer references the METS file of the journal / the
multivolume work -->
      <mets:mptr LOCTYPE="URL" xlink:href="http://link/to/mets/file/periodical" />

      <!-- The description of the individual volume discussed above begins here -->
      <mets:div DMDID="DMD_00" ID="ex11__LOG_00" LABEL="Zeitschriftenband" TYPE="Volume">
        <mets:div DMDID="DMD_01" ID="ex11__LOG_01" LABEL="Erstes Zeitschriftenheft" TYPE="Issue">
          <mets:div ID="ex11__LOG_02" LABEL="Erster Artikel" TYPE="Article" />
          <mets:div ID="ex11__LOG_03" LABEL="Zweiter Artikel" TYPE="Article" />
        </mets:div>
        <mets:div DMDID="DMD_01" ID="ex11__LOG_04" LABEL="Zweites Zeitschriftenheft" TYPE="Issue" />
        <mets:div ID="ex11__LOG_05" LABEL="Drittes Zeitschriftenheft" TYPE="Issue" />
      </mets:div>
    </mets:div>
  </mets:structMap>
</mets:mets>

```

```

    </mets:div>
  </mets:structMap>
</mets:mets>

<!-- Logical Struct-Map for a superior journal -->
<mets:mets xmlns:xlink="http://www.w3.org/1999/xlink">
  <mets:structMap TYPE="LOGICAL">
    <mets:div DMDID="DMD_00" ID="ex11__LOG0_00" LABEL="Zeitschrift" TYPE="Periodical">
      <mets:div LABEL="Erster Zeitschriftenband" TYPE="Volume">
        <!-- A METS Pointer to the first volume of the journal -->
        <mets:mptr LOCTYPE="URL" xlink:href="http://link/to/mets/file/1st/volume/mets.xml" />
      </mets:div>
      <mets:div LABEL="Zweiter Zeitschriftenband" TYPE="Volume">
        <!-- A METS Pointer to the second volume of the journal -->
        <mets:mptr LOCTYPE="URL" xlink:href="http://link/to/mets/file/2nd/volume/mets.xml" />
      </mets:div>
      <mets:div LABEL="Dritter Zeitschriftenband" TYPE="Volume">
        <!-- A METS Pointer to the third volume of the journal -->
        <mets:mptr LOCTYPE="URL" xlink:href="http://link/to/mets/file/3rd/volume/metx.xml" />
      </mets:div>
    </mets:div>
  </mets:structMap>
</mets:mets>

```

structMap requirement 5: Metadata for structural elements

On principle, one or several metadata sections can be assigned to every <div> element. This is independent of whether the element is located in a logical or a physical structure. However, both the zvdd portal and the DFG Viewer only use descriptive metadata according to the conditions specified in the section “Descriptive Metadata” (see MODS Metadata Schema), which is referenced from the logical <structMap>. Other metadata sections are ignored.

structMap requirement 6: Reference to files – physical structure

The file pointer element <fptr> is used to point from a <div> element to the appertaining files. For this reason, this element is a child element of the <div> element for which it links the files in any case. Each <div> element can have one or several file pointers.

A file pointer always points to a file which is listed at a random point in the file section; this means files can be contained in different file groups. Linking is effected via the FILEID attribute. Each <fptr> element must have a FILEID attribute.

Links to files which only display the content of a page (e.g. pages) are only established from the physical document structure – specifically: only from those <div> elements representing the respective page. A linking of the files assigned to the pages (page images) to the bound unit is expressed implicitly through the hierarchical structure. Files assigned to the underlying structures (e.g. pages) must not be assigned to the superior structures explicitly again.

Generally, only <file> elements may be linked, links to <fileGrp> elements are inadmissible. There must be at least two links for every <div> of the “page” type so that the DFG Viewer can display corresponding pages. Linking has to be effected to one file each from the two mandatory file groups "DEFAULT" and "MIN" in each case. In case there are further file groups, these are also linked.

For the DFG Viewer references to files for downloading of individual pages can be referenced in the physical Struct-Map; such a single page download is then offered accordingly in the DFG Viewer. A reference to a total download in the highest <div> is only displayed if there is no corresponding reference in the logical Struct-Map. See also section "References to files – logical structure".

Example 12: <structMap> of the physical structure

```
<mets:mets xmlns:xlink="http://www.w3.org/1999/xlink">
  <!-- Physical Struct-Map -->
  <mets:structMap TYPE="PHYSICAL">
    <mets:div TYPE="physSequence">
      <!-- The different resolutions/ formats of each file are
           referenced from every file group -->
      <mets:div ID="ex12__PHY_00" ORDER="1" ORDERLABEL="I" TYPE="page">
        <mets:fptr FILEID="ex07__FILE00_DEF" />
        <mets:fptr FILEID="ex07__FILE00_MIN" />
        <mets:fptr FILEID="ex07__FILE00_MAX" />
        <mets:fptr FILEID="ex07__FILE00_THB" />
        <mets:fptr FILEID="ex07__FILE00_DWL" />
      </mets:div>
      <mets:div ID="PHYS09_01" ORDER="2" ORDERLABEL="II" TYPE="page">
        <mets:fptr FILEID="ex07__FILE01_DEF" />
        <mets:fptr FILEID="ex07__FILE01_MIN" />
        <mets:fptr FILEID="ex07__FILE01_MAX" />
        <mets:fptr FILEID="ex07__FILE01_THB" />
        <mets:fptr FILEID="ex07__FILE01_DWL" />
      </mets:div>
    </mets:div>
  </mets:structMap>
</mets:mets>
```

structMap requirement 7: Reference to files – logical structure

Links to files can also be established from the logical structure just like from the physical structure. However, a file to which a link is established from the logical structure must contain the entire content of the corresponding logical document structure. For example a PDF file containing a full monograph or a single chapter thereof can constitute an example of such a link. Establishing references to several files which only reflect the entire content of the logical structure as a sequence is not permitted for this <div> element.

Such a reference is always sensible in case the linked file cannot be addressed granularly enough in order to link it from the physical structure; e.g. if the file does not contain any corresponding paginations or in case it permits downloading of entire logical structures.

The DFG Viewer targetedly uses the links of logical structural elements to files of the file group of the DOWNLOAD type in order to permit downloading of individual chapters and entire works. In case there is a reference to the complete work at this point, it is preferred by the DFG Viewer as a link for downloading the entire document. The corresponding files have to be defined within the <fileSec> and its <file> elements have to have corresponding MIMETYPE attributes. Only one – the first – link with a file is supported for each logical structural unit. Such a link is optional for the DFG Viewer if the document implements the page-based or complex document model. If the bibliographic document model is implemented, such a link is mandatory since it constitutes the only link to the content.

Contents may be linked either directly from the logical structure or indirectly via a link of the logical structure with the physical structure. Any redundancy of the link to a file from both structures is to be avoided in any case. Linking to individual page images for a logical <div> is not permitted in case a reference to the same page image has already been established from a physical structural element (and/ or a page). The logical <div> element has to be linked to the page via the <structLink> section and a reference from the page to the corresponding image has to be established instead. A corresponding link is not relevant for browsing the pages in the DFG Viewer. However, the DFG Viewer might provide a link to the PDF in the original repository to the user.

Example 13: Struct-Map of the logical structure with reference to a PDF file of an article

```
<mets:mets xmlns:xlink="http://www.w3.org/1999/xlink">
  <!-- File Group as an example of the file pointer in the logical Struct-Map -->
  <mets:fileSec>
    <mets:fileGrp USE="DOWNLOAD">
      <!-- Reference to the PDF file of the volume -->
      <mets:file ID="ex13__FILE00_Monograph" MIMETYPE="application/pdf" SIZE="1643630">
        <mets:FLocat LOCTYPE="URL" xlink:href="http://link/to/monograph.pdf" />
      </mets:file>
      <!-- Reference to the PDF file of the chapter -->
      <mets:file ID="ex13__FILE01_Chapter" MIMETYPE="application/pdf" SIZE="47676">
        <mets:FLocat LOCTYPE="URL" xlink:href="http://link/to/chapter/01.pdf" />
      </mets:file>
    </mets:fileGrp>
  </mets:fileSec>

  <!-- Logical Struct-Map -->
  <mets:structMap TYPE="LOGICAL">
    <mets:div TYPE="Periodical">
      <!-- The METS pointer references the METS file of the journal / the
      multivolume work -->
      <mets:mptr LOCTYPE="URL" xlink:href="http://link/to/mets/file/periodical" />

      <!-- The description of the individual volume described above starts here -->
      <mets:div DMDID="DMD_00" ID="ex13__LOG_00" TYPE="Volume">
```

```

<!-- File Pointer to the PDF of the volume -->
<mets:fptr FILEID="ex13__FILE00_Monograph" />

<mets:div DMDID="DMD_01" ID="ex13__LOG_01" TYPE="Issue">
  <mets:div ID="ex13__LOG_02" TYPE="Article">
    <!-- File pointer to the PDF of a chapter -->
    <mets:fptr FILEID="ex13__FILE01_Chapter" />
  </mets:div>
  <mets:div ID="ex13__LOG_03" TYPE="Article" />
</mets:div>
<mets:div DMDID="DMD_01" ID="ex13__LOG_04" TYPE="Issue" />
<mets:div ID="ex13__LOG_05" TYPE="Issue" />
</mets:div>
</mets:div>
</mets:structMap>
</mets:mets>

```

structMap requirement 8: Multiple links from a <div> section

In case several files are linked from one <div> element, the files have to comprise the same semantic content. However, the presentation form can be different. To that end, the linked files have to be located in different file groups. As a result, various resolutions of one and the same page can be saved in different <file> elements and assigned to that page for one <div>.

Files which can be shown in parallel or in a sequence are not supported, this means that the METS file must not contain any <par> and <seq> elements.

structMap requirement 9: Links in files

The granularity of the document partly differs from the granularity of the individual content files. As a result, it can be reasonable to record documents in the logical or physical structure with a higher granularity than is reasonable for saving the contents. In this context, saving of full texts can be cited as an example. Usually, full texts are saved entirely for one document in an XML file according to the TEI specifications, this means the full text comprises several pages which are marked within the text. For this reason, METS provides possibilities of referring directly into such a file to mark the beginning and the end of the respective content of the <div> element in the content file.

With the help of such a granular link the zvdd portal can index full text in a page-based manner and assign corresponding structural elements (<div>s) to the full text. In later versions, the DFG Viewer might be able to show full text in a page-based manner in addition to pure images or to mark search hits in the images with the help of such information. Generally, full text support is optional both in the DFG Viewer and in the zvdd portal.

Such a link is established via the <area> element, which exists as a child element of the respective file pointer (<fptr> element). If there is an <area> element, the reference to the content file is established by this element with the help of the FILEID attribute. In this case, the

<fptr> element itself must not have a FILEID element.

The reference into image areas is supported as the first type of reference. In this context, the reference contains pixel co-ordinates in order to mark an area reflecting the content of the respective <div> within the referenced image. Such a reference must contain the following attribute for the <area>:

SHAPE — The shape of the area: "RECT", "CIRCLE" or "POLY".

COORDS — The coordinate information for the area according to HTML 4.0.

The reference into XML files is supported as a second type of reference. Such a reference is carried out with the help of ID attributes. This means there must be XML elements in the target file which have ID attributes with the specified values. In this case, the <area> element must contain the attributes BETYPE with the value "IDREF", while the attributes BEGIN and END must contain the respective values of the ID attributes of the full text file. In case reference is to be made to a single element only, the attributes BEGIN and END contain the same value.

There must be no other types of references, such as via time codes or binary offsets, in the METS file.

Example 14: Reference into a file with <mets:area>

```
<mets:mets xmlns:xlink="http://www.w3.org/1999/xlink">
  <mets:fileSec>
    <!-- An exemplary fileGrp for using <mets:area> -->
    <mets:fileGrp USE="AREA">
      <mets:file ID="ex14__FILE00_ARE" MIMETYPE="text/xml" SIZE="6523">
        <mets:FLocat LOCTYPE="URL" xlink:href="http://link/to/xml/tei/file" />
      </mets:file>
    </mets:fileGrp>
  </mets:fileSec>

  <!-- Physical Struct-Map -->
  <mets:structMap TYPE="PHYSICAL">
    <mets:div TYPE="physSequence">
      <mets:div ID="ex14__PHY_00" ORDER="3" ORDERLABEL="III" TYPE="page">
        <!-- Reference into a file. In this process, the actual content is
              defined via the IDRef values in the attributes BEGIN and
              END. -->
        <mets:fptr>
          <mets:area BEGIN="TEIID_24" BETYPE="IDREF" END="TEIID_63" FILEID="ex14__FILE00_ARE" />
        </mets:fptr>
      </mets:div>
    </mets:div>
  </mets:structMap>
</mets:mets>
```

Structural links

structLink requirement 1: Linking of logical and physical structure

Every METS document which has both a logical and a physical <structMap> must have a <structLink> section. This, hence, concerns all METS documents generated according to the page-based and complex document model.

The <structLink> section saves links between the logical and the physical structure. An <smLink> element of its own is used for each individual link. Each of these elements has xlink:from and xlink:to attributes, which comprise the values of the ID attributes of the respective <div> elements from the logical and physical structure.

Reference is always made from the logical structure to the physical structure. This means that the xlink:from attribute must contain the ID value of a <div> element from the logical structure; hence, xlink:to comprises the value of the ID attribute of a <div> from the physical structure.

Example 15: Linking of logical and physical structure

```
<mets:mets xmlns:xlink="http://www.w3.org/1999/xlink">
  <!-- Logical Struct-Map -->
  <mets:structMap TYPE="LOGICAL">
    <mets:div ID="ex15__LOG_00" TYPE="Monograph">
      <mets:div ID="ex15__LOG_01" TYPE="Chapter">
        <mets:div ID="ex15__LOG_02" TYPE="Chapter" />
        <mets:div ID="ex15__LOG_03" TYPE="Chapter" />
      </mets:div>
    </mets:div>
  </mets:structMap>

  <!-- Physical Struct-Map -->
  <mets:structMap TYPE="PHYSICAL">
    <mets:div ID="ex15__PHY_00" TYPE="physSequence">
      <mets:div ID="ex15__PHY_01" ORDER="1" ORDERLABEL="III" TYPE="page" />
      <mets:div ID="ex15__PHY_02" ORDER="2" ORDERLABEL="1" TYPE="page" />
      <mets:div ID="ex15__PHY_03" ORDER="3" ORDERLABEL="2" TYPE="page" />
      <mets:div ID="ex15__PHY_04" ORDER="4" ORDERLABEL="3" TYPE="page" />
      <mets:div ID="ex15__PHY_05" ORDER="5" ORDERLABEL="4" TYPE="page" />
    </mets:div>
  </mets:structMap>

  <!-- The logical and physical structural elements are linked here -->
  <mets:structLink>
```

```

<!-- Link between monograph and physical sequence -->
<mets:smLink xlink:from="ex15__LOG_00" xlink:to="ex17__PHY_00" />
<!-- Link between chapter one and pages -->
<mets:smLink xlink:from="ex15__LOG_01" xlink:to="ex15__PHY_02" />
<mets:smLink xlink:from="ex15__LOG_01" xlink:to="ex15__PHY_03" />
<mets:smLink xlink:from="ex15__LOG_01" xlink:to="ex15__PHY_04" />
<mets:smLink xlink:from="ex15__LOG_01" xlink:to="ex15__PHY_05" />
<!-- Link between chapter two and pages -->
<mets:smLink xlink:from="ex15__LOG_02" xlink:to="ex15__PHY_03" />
<mets:smLink xlink:from="ex15__LOG_02" xlink:to="ex15__PHY_04" />
<!-- Link between chapter three and pages -->
<mets:smLink xlink:from="ex15__LOG_03" xlink:to="ex15__PHY_04" />
<mets:smLink xlink:from="ex15__LOG_03" xlink:to="ex15__PHY_05" />
</mets:structLink>
</mets:mets>

```

structLink requirement 2: Inheritance of structural links

A link to a physical structure always refers to all underlying structural elements. Hence, a link from the highest logical structural unit (e.g. monograph) to the physical sequence (physSequence) also implies all links to the individual pages which are subordinate to the physical sequence. An explicit link between the monograph and the individual pages is not required.

Links to the logical structure, on the other hand, are NOT inherited. This means that all links have to be listed again for every logical <div> element. However, the entirety of all underlying <div> elements does not necessarily have to comprise all links of the superior <div> element.

This means that the page-based document model, which is implemented by the DFG Viewer, only requires a link from the highest logical document structure to the physSequence. The defined pages do not have to be linked from the logical structure. The DFG Viewer is able to follow the implicit links.

Example 16: Inheritance of the links to physical structures for the page-based document model

```

<mets:mets xmlns:xlink="http://www.w3.org/1999/xlink">
  <!-- Logical Struct-Map -->
  <mets:structMap TYPE="LOGICAL">
    <mets:div ID="ex16__LOG_00" TYPE="Monograph" />
  </mets:structMap>

  <!-- Physical Struct-Map -->
  <mets:structMap TYPE="PHYSICAL">
    <mets:div ID="ex16__PHYS_00" TYPE="physSequence">

```



```

<mets:div ID="ex16__PHYS_01" ORDER="1" ORDERLABEL="III" TYPE="page" />
<mets:div ID="ex16__PHYS_02" ORDER="2" ORDERLABEL="1" TYPE="page" />
<mets:div ID="ex16__PHYS_03" ORDER="3" ORDERLABEL="2" TYPE="page" />
<mets:div ID="ex16__PHYS_04" ORDER="4" ORDERLABEL="3" TYPE="page" />
<mets:div ID="ex16__PHYS_05" ORDER="5" ORDERLABEL="4" TYPE="page" />
</mets:div>
</mets:structMap>

<!-- The logical and physical structural elements are linked here -->
<mets:structLink>
  <!-- Link between monograph and physical sequence -->
  <mets:smLink xlink:from="ex16__LOG_00" xlink:to="ex18__PHY_00" />
</mets:structLink>
</mets:mets>

```

Technical requirements

Content files

Images

All images which are referenced as content files in the file groups used by the DFG Viewer have to be available in one format which can be displayed directly by a web browser. Currently, JPG, GIF and PNG are considered formats of this type. Other formats are not supported. All those files which are contained in the file group of the DOWNLOAD type constitute an exception. These are primarily files which are offered to the user for downloading, e.g. PDF files.

Full texts

So far, there is no description of a standardised format for the full text for presentation in the DFG Viewer or for indexing in the zvdd portal. As a result, full text is not considered by both applications in case it is referenced as a content file.