DDM – description by example

The DDM-schema specifies a metadata-format for describing datasets. There are three container-elements: *profile*, *dcmiMetadata* and *additional-metadata*.

The ***profile*** container is mandatory and is essential for profiling the dataset in the Easy application.

DCMI Metadata Terms (properties from the */elements/1.1/* and */terms/* namespace) can be specified in ***dcmiMetadata***, which acts as a "dcterms:elementOrRefinementContainer". Format, structure and values of contained DCMI-elements can be refined by using plugins.

Any other valid xml can be placed in the container ***additional-metadata***.

Below is an example of a minimal, but valid, xml-instance based on DDM.

```
<?xml version="1.0" encoding="UTF-8"?>
<ddm:DDM xmlns:ddm="http://easy.dans.knaw.nl/schemas/md/ddm/"
    xmlns:dc="http://purl.org/dc/elements/1.1/"
    xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
    xsi:schemaLocation="http://easy.dans.knaw.nl/schemas/md/ddm/
     http://eof12.dans.knaw.nl/schemas/md/2012/10/ddm.xsd">

    <ddm:profile>
        <dc:title></dc:title>
        <dc:description></dc:description>
        <dc:creator></dc:creator>
        <ddm:created>2012</ddm:created>
        <ddm:audience>D32000</ddm:audience>
        <ddm:accessRights>OPEN_ACCESS</ddm:accessRights>
    </ddm:profile>

</ddm:DDM>
```

In descriptions and usage examples we will refer to the following namespaces by prefix:

ddm	http://easy.dans.knaw.nl/schemas/md/ddm/
dc	http://purl.org/dc/elements/1.1/
dcterms	http://purl.org/dc/terms/
dcx-dai	http://easy.dans.knaw.nl/schemas/dcx/dai/
narcis	http://easy.dans.knaw.nl/schemas/vocab/narcis-type

Table of Contents

1 DDM elements

ddm:DDM

Root element of DANS Dataset Metadata. DDM-instances MUST have one ddm:profile element and MAY have one ddm:dcmiMetadata element and one ddm:additional-metadata element.

/ddm:profile (Required) {1, 1}

Container for Easy-specific information. The information in this group is essential for profiling the dataset in the Easy application.

/ddm:profile/dc:title (Required) {1, many}

URI: http://purl.org/dc/elements/1.1/title

Substitutions: dcterms:title, dcterms:alternative
Usage of the xml:lang attribute is optional.

Examples:

```
<dc:title xml:lang="nl">Patronen in het gebruik van metadata</dc:title>
<dc:title xml:lang="en">Usage patterns of metadata</dc:title>
<dcterms:title xml:lang="en">Another title</dcterms:title>
<dcterms:alternative xml:lang="en">A study in DDM</dcterms:alternative>
```

/ddm:profile/dc:description (Required) {1, many}

URI: http://purl.org/dc/elements/1.1/description

Substitutions: dcterms:description, dcterms:abstract, dcterms:tableOfContents
Usage of the xml:lang attribute is optional.

Examples:

```
<dc:description xml:lang="la">Lorem ipsum dolor sit amet</dc:description>
<dcterms:description xml:lang="la">Ut enim ad minim veniam</dcterms:description>
<dcterms:abstract xml:lang="la">Duis aute irure dolor</dcterms:abstract>
<dcterms:tableOfContents xml:lang="en">
    1 The Curious Incident of the Dog in the Night-Time;
    2 His face was drawn but the curtains were real
</dcterms:tableOfContents>
```

/ddm:profile/dc:creator (Required) {1, many}

URI: http://purl.org/dc/elements/1.1/creator

Substitutions: dcterms:creator, dcx-dai:creator, dcx-dai:creatorDetails

If you have unstructured information on creators and there is no distinction between persons and organizations, use dc:creator or dcterms:creator.

```
<dc:creator>Marcel van Tilburg</dc:creator>
<dc:creator>Universiteit van Tilburg</dc:creator>
```

Digital Author IDs and structured information on creators can be supplied if you use the *dcx-dai* plugin. In order to do so it may be convenient to declare a prefix for the *http://easy.dans.knaw.nl/schemas/dcx/dai/* namespace in the root element *DDM*.

```
...
xmlns:dcx-dai="http://easy.dans.knaw.nl/schemas/dcx/dai/"
...
```

If you have unstructured information on authors and their Digital Author ID (DAI) is available, use dcx-dai:creator.

```
<dcx-dai:creator DAI="123456789">Jansen, J</dcx-dai:creator>
<dcx-dai:creator DAI="info:eu-repo/dai/nl/123456789">Os, P</dcx-dai:creator>
```

For structured information on authors or organizations, use dcx-dai:creatorDetails.

```
<dcx-dai:creatorDetails>
    <dcx-dai:author>
        <dcx-dai:titles>Dr.</dcx-dai:titles>
        <dcx-dai:initials>ABC</dcx-dai:initials>
        <dcx-dai:insertions>van den</dcx-dai:insertions>
        <dcx-dai:surname>Akker</dcx-dai:surname>
        <dcx-dai:DAI>123456789</dcx-dai:DAI>
        <dcx-dai:organization>
            <dcx-dai:name>Instituut voor Vraagstukken</dcx-dai:name>
        </dcx-dai:organization>
    </dcx-dai:author>
</dcx-dai:creatorDetails>
```

```
<dcx-dai:creatorDetails>
    <dcx-dai:organization>
        <dcx-dai:name xml:lang="en">NATO</dcx-dai:name>
    </dcx-dai:organization>
</dcx-dai:creatorDetails>
```

/ddm:profile/ddm:created (Required) {1, 1}

Substitution for dcterms:created
URI: http://purl.org/dc/terms/created

The format should comply to dcterms:W3CDTF. Examples:

```
<ddm:created>2012</ddm:created>
```

```
<ddm:created>2012-10</ddm:created>
```

```
<ddm:created>2012-10-31</ddm:created>
```

```
<ddm:created>2012-10-31Z</ddm:created>
```

```
<ddm:created>2012-10-31+06:00</ddm:created>
```

```
<ddm:created>2012-10-31T09:00:00</ddm:created>
```

The type is implicitly implied but may be specified:

```
<ddm:created xsi:type="dcterms:W3CDTF">2012-10-31</ddm:created>
```

/ddm:profile/ddm:available (Optional) {0, 1}

Substitution for dcterms:available
URI: http://purl.org/dc/terms/available

The format should comply to dcterms:W3CDTF.
See also: /ddm:profile/ddm:created

/ddm:profile/ddm:audience (Required) {1, many}

Substitution for dcterms:audience
URI: http://purl.org/dc/terms/audience

The value should be one of narcis:Discipline.

Example:

```
<ddm:audience>D31000</ddm:audience>
```

/ddm:profile/ddm:accessRights (Required) {1, 1}

Substitution for dcterms:accessRights
URI: http://purl.org/dc/terms/accessRights

The value should be one of ddm:EasyAccessCategoryType.

Example:

```
<ddm:accessRights>OPEN_ACCESS</ddm:accessRights>
```

/ddm:dcmiMetadata (Optional) {0, 1}

Container for DCMI-metadata. All ellements of the dc- en dcterms-namespace and their substitutions may be used. If applicable use strong typing with the various types defined by DCMI:

```
<dcterms:dateAccepted xsi:type="dcterms:W3CDTF">2012</dcterms:dateAccepted>
```

```
<dc:language xsi:type="dcterms:ISO639-3">eng</dc:language>
```

Where applicable use the xml:lang attribute:

```
<dcterms:temporal xml:lang="fr">Moyen Âge</dcterms:temporal>
```

/ddm:additional-xml (Optional) {0, 1}

Any valid xml-element will do as a child of this element, as long as its namespace is *#other*. If a schemaLocation is provided on the element, validating agents will validate the provided xml against that schema. The element may be complex.

2 Plugins

Format, structure and values of supplied DCMI-metadata may be enhanced by pluggable types. Either by specifying special *xsi:type*s on DCMI-elements or by importing typed or structured elements that are substitutions for DCMI-elements.

2.1 Controlled vocabularies

The use of the *xsi:type* attribute on DCMI-elements is encouraged by the Dublin Core Metadata Initiative.

2.1.1 Archeologisch-Basisregister (ABR)

See: http://www.cultureelerfgoed.nl/sites/default/files/u4/ABR_website2.pdf
See: http://eof12.dans.knaw.nl/schemas/docs/abr-type/abr-type.html

Namespace and schemaLocation have to be declared in the root of the xml-instance:

```
...
xmlns:abr="http://www.den.nl/standaard/166/Archeologisch-Basisregister/"
xsi:schemaLocation="http://www.den.nl/standaard/166/Archeologisch-Basisregister/
    http://eof12.dans.knaw.nl/schemas/vocab/2012/10/abr-type.xsd">
```

Tabel 5: complex

Use on dc:subject, dcterms:subject

Example for "Economie – Veenwinning":

```
<dc:subject xsi:type="abr:ABRcomplex">EGVW</dc:subject>
```

Tabel 9: periode

Use on dcterms:temporal

Example for "Paleolithicum laat B: 18000 C14 -8800 vC":

```
<dcterms:temporal xsi:type="abr:ABRperiode">PALEOLB</dcterms:temporal>
```

2.2 Structural extensions

With structural extension on DCMI-elements multi-valued properties can be supplied.

2.2.1 Digital Author ID (DAI)

See: http://eof12.dans.knaw.nl/schemas/docs/abr-type/abr-type.html
Schema location: http://eof12.dans.knaw.nl/schemas/dcx/2012/10/dcx-dai.xsd

It is convenient to declare a prefix in the root of the xml-instance:

```
xmlns:dcx-dai=http://easy.dans.knaw.nl/schemas/dcx/dai/
```

SchemaLocation is already declared in ddm.xsd so you don't have to repeat it in the xml-instance.

Simple creator and contributor elements with DAI-attribute

dcx-dai:contributor	Substitution for dc:contributor, dcterms:contributor
dcx-dai:creator	Substitution for dc:creator, dcterms:creator

Specify DAI for creator and/or contributor:

```
<dcx-dai:contributor DAI="123456789">Jansen, J</dcx-dai:contributor>
<dcx-dai:creator DAI="info:eu-repo/dai/nl/123456789">Os, P</dcx-dai:creator>
```

You can use the DAI, which has 8 or 9 characters, or the 'urified' DAI, starting with `info:eu-repo/dai/nl/`.

Complex creator and contributor elements

dcx-dai:contributorDetails	Substitution for dc:contributor, dcterms:contributor
dcx-dai:creatorDetails	Substitution for dc:creator, dcterms:creator

Creator and contributor details can be supplied with the dcx-dai:creatorDetails and dcx-dai:contributorDetails elements.

```
<dcx-dai:contributorDetails>
    <dcx-dai:author>
        <dcx-dai:titles>Dr.</dcx-dai:titles>
        <dcx-dai:initials>ABC</dcx-dai:initials>
        <dcx-dai:insertions>van den</dcx-dai:insertions>
        <dcx-dai:surname>Akker</dcx-dai:surname>
        <dcx-dai:DAI>123456789</dcx-dai:DAI>
        <dcx-dai:organization>
            <dcx-dai:name>Instituut voor Vraagstukken</dcx-dai:name>
        </dcx-dai:organization>
    </dcx-dai:author>
</dcx-dai:contributorDetails>
```

```
<dcx-dai:creatorDetails>
    <dcx-dai:organization>
        <dcx-dai:name xml:lang="en">NATO</dcx-dai:name>
    </dcx-dai:organization>
</dcx-dai:creatorDetails>
```

There are forms for *author* and *organization*. For *author* the elements *initials* and *surname* are required; for *organization* the element *name* is required. Attribute *xml:lang* is optional for *author/titles* and *organization/name*.

2.2.2 GML 3.1.1 Simplified Features (GML)

See: http://www.ogcnetwork.net/gml-sf
See: http://eof12.dans.knaw.nl/schemas/docs/dcx-gml/dcx-gml.html
Schema location: http://eof12.dans.knaw.nl/schemas/dcx/2012/10/dcx-gml.xsd

Namespace and schemaLocation have to be declared in the root of the xml-instance:

```
...
xmlns:dcx-gml="http://easy.dans.knaw.nl/schemas/dcx/gml/"
xsi:schemaLocation="http://easy.dans.knaw.nl/schemas/dcx/gml/
    http://eof12.dans.knaw.nl/schemas/dcx/2012/10/dcx-gml.xsd">
```

GML-SF supports three-dimensional coordinates (location and elevation) on feature geometry.

Spatial element

dcx-gml:spatial Substitution for dcterms:spatial

Example, defining a Point in GML:

```
<dcx-gml:spatial srsName="http://www.opengis.net/def/crs/EPSG/0/4326">
    <Point xmlns="http://www.opengis.net/gml">
        <description>DANS building</description>
        <pos>52.08113 4.34510</pos>
    </Point>
</dcx-gml:spatial>
```

The attribute *srsName* has a default value of http://www.opengis.net/def/crs/EPSG/0/4326, also known as WGS84.

Supported geometries in GML-SF: Curve, LineString, LinearRing, MultiCurve, MultiPoint, MultiSurface, Point, Polygon and Surface.