

# Data and Service Linking Simplification

## *Introduction*

Country: *Lithuania*

Short description: We are sharing the method we use of datasets and services linking.

## Proposal body

Firstly, we create metadata for a data set and services, and only then we do publishing of the services. We do so because we need to insert the dataset and view service metadata URL to the network capabilities.

Our INSPIRE metadata and Atom download services are developed, configured using open-source Geonetwork software. Following the Geonetwork INSPIRE configuration instructions, it is possible to configure INSPIRE validators and install the required glossaries, to make associations between the metadata of a dataset and metadata of view and download services.

For data set metadata, we specify Unique resource identifiers (e.g Theme abbreviation (BU) view service layer name (BU.Building, from <https://inspire.ec.europa.eu/layer> and Codespace (LT.GC.GRPK)) as these elements will be provided in the network capabilities and ATOM feed as Identifiers for dataset metadata and network service linking. Also, in network capabilities, the CSW service URL of the dataset is inserted.

## Examples of scenarios and metadata (XML encoded)

Dataset metadata xml	View service capabilities
<a href="https://www.inspire-geoportal.it/geonetwork/srv/eng/csw?service=CSW&amp;request=GetRecordById&amp;version=2.0.2&amp;outputSchema=http://www.isotc211.org/2005/gmd&amp;elementSetName=full&amp;id=3722b45f-5fa0-4f60-8c6f-c27f69619b1e">https://www.inspire-geoportal.it/geonetwork/srv/eng/csw?service=CSW&amp;request=GetRecordById&amp;version=2.0.2&amp;outputSchema=http://www.isotc211.org/2005/gmd&amp;elementSetName=full&amp;id=3722b45f-5fa0-4f60-8c6f-c27f69619b1e</a>	<a href="https://www.geoportal.it/inspire-geoserver/bu/wms?service=WMS&amp;version=1.3.0&amp;request=GetCapabilities">https://www.geoportal.it/inspire-geoserver/bu/wms?service=WMS&amp;version=1.3.0&amp;request=GetCapabilities</a>
<pre>... &lt;gmd:identifier&gt; &lt;gmd:RS_Identifier&gt; &lt;gmd:code&gt; &lt;gco:CharacterString&gt;BU&lt;/gco:CharacterString&gt; &lt;/gmd:code&gt; &lt;gmd:codeSpace&gt; &lt;gco:CharacterString&gt;LT.GC.GRPK&lt;/gco:CharacterString&gt; &lt;/gmd:codeSpace&gt; &lt;/gmd:RS_Identifier&gt; &lt;/gmd:identifier&gt; &lt;gmd:identifier&gt; &lt;gmd:RS_Identifier&gt; &lt;gmd:code&gt; &lt;gco:CharacterString&gt;BU.Building&lt;/gco:CharacterString&gt; &lt;/gmd:code&gt; &lt;gmd:codeSpace&gt; &lt;gco:CharacterString&gt;LT.GC.GRPK&lt;/gco:CharacterString&gt; &lt;/gmd:codeSpace&gt; &lt;/gmd:RS_Identifier&gt; &lt;/gmd:identifier&gt; &lt;gmd:identifier&gt; &lt;gmd:MD_Identifier&gt; &lt;gmd:code&gt; &lt;gco:CharacterString&gt;3722b45f-5fa0-4f60-8c6f- c27f69619b1e&lt;/gco:CharacterString&gt; &lt;/gmd:code&gt; &lt;/gmd:MD_Identifier&gt; &lt;/gmd:identifier&gt; ...</pre>	<pre>... &lt;Identifier authority="LT.GC.GRPK"&gt;BU.Building&lt;/Identifier&gt; &lt;MetadataURL type="ISO19115:2003"&gt; &lt;Format&gt;text/plain&lt;/Format&gt; &lt;OnlineResource xlink:type="simple" xlink:href="https://www.geoportal.it/geonetwork/srv/eng/csw?serv ice=CSW&amp;request=GetRecordById&amp;version=2.0.2&amp;outputSchema=http:// www.isotc211.org/2005/gmd&amp;elementSetName=full&amp;id=3722b45f-5fa0- 4f60-8c6f-c27f69619b1e"/&gt; &lt;/MetadataURL&gt; ...</pre>

Dataset metadata xml	ATOM service feed
<pre>... &lt;gmd:identifier&gt; &lt;gmd:RS_Identifier&gt; &lt;gmd:code&gt; &lt;gco:CharacterString&gt;BU&lt;/gco:CharacterString&gt; &lt;/gmd:code&gt; &lt;gmd:codeSpace&gt; &lt;gco:CharacterString&gt;LT.GC.GRPK&lt;/gco:CharacterString&gt; &lt;/gmd:codeSpace&gt; &lt;/gmd:RS_Identifier&gt; &lt;/gmd:identifier&gt; &lt;gmd:identifier&gt; &lt;gmd:RS_Identifier&gt; &lt;gmd:code&gt; &lt;gco:CharacterString&gt;BU.Building&lt;/gco:CharacterString&gt; &lt;/gmd:code&gt; &lt;gmd:codeSpace&gt; &lt;gco:CharacterString&gt;LT.GC.GRPK&lt;/gco:CharacterString&gt; &lt;/gmd:codeSpace&gt; &lt;/gmd:RS_Identifier&gt; &lt;/gmd:identifier&gt; &lt;gmd:identifier&gt; &lt;gmd:MD_Identifier&gt; &lt;gmd:code&gt; &lt;gco:CharacterString&gt;3722b45f-5fa0-4f60-8c6f- c27f69619b1e&lt;/gco:CharacterString&gt; &lt;/gmd:code&gt; &lt;/gmd:MD_Identifier&gt; &lt;/gmd:identifier&gt; ...</pre>	<pre>... &lt;id&gt;https://www.inspire- geoportal.lt/geonetwork/srv/atom/describe/dataset?spatial_dat aset_identifier_code=BU&amp;spatial_dataset_identifier_namespa ce=LT.GC.GRPK&amp;language=en&lt;/id&gt; &lt;link rel="describedby" type="application/xml" href="https://www.inspire- geoportal.lt/geonetwork/srv/eng/csw?service=CSW&amp;version=2 .0.2&amp;request=GetRecordById&amp;outputschema=http://www.iso tc211.org/2005/gmd&amp;elementSetName=full&amp;id=3722b45f- 5fa0-4f60-8c6f-c27f69619b1e" /&gt; &lt;link type="application/atom+xml" rel="alternate" hreflang="en" title="INSPIRE Dataset ATOM feed: Annex III. INSPIRE Dataset for Buildings Theme" href="https://www.inspire- geoportal.lt/geonetwork/srv/atom/describe/dataset?spatial_dat aset_identifier_code=BU&amp;spatial_dataset_identifier_namespa ce=LT.GC.GRPK&amp;language=en" /&gt; &lt;rights&gt;otherRestrictions.&lt;/rights&gt; &lt;summary&gt;INSPIRE dataset for Buildings theme represents information about buildings located in the territory of Lithuania. The objects are shown at a scale of 50:25 000 through the view service.&lt;/summary&gt; &lt;title&gt;Annex III. INSPIRE Dataset for Buildings Theme&lt;/title&gt; &lt;updated&gt;2021-03-29T07:08:36Z&lt;/updated&gt; &lt;georss:polygon xmlns:georss="http://www.georss.org/georss"&gt;53.84835 20.59123 56.45108 20.59123 56.45108 26.83282 53.84835 26.83282 53.84835 20.59123&lt;/georss:polygon&gt; &lt;/entry&gt; &lt;/feed&gt;</pre>

After we create all datasets and service metadata, we do service publishing. We add network services to the metadata through the Geonetwork „Link to online resource“ function and reference network services like this:

## Download service reference

```
<gmd:distributionInfo>
<gmd:MD_Distribution>
<gmd:distributionFormat>
<gmd:MD_Format>
<gmd:name>
<gco:CharacterString>GML</gco:CharacterString>
</gmd:name>
<gmd:version>
<gco:CharacterString>3.2.1</gco:CharacterString>
</gmd:version>
</gmd:MD_Format>
</gmd:distributionFormat>
<gmd:transferOptions>
<gmd:MD_DigitalTransferOptions>
<gmd:onLine>
<gmd:CI_OnlineResource>
<gmd:linkage>
<gmd:URL>https://inspire-geoportal.lt/resources/atom/bu/data/BU_INSPIRE2.zip</gmd:URL>
</gmd:linkage>
<gmd:protocol>
<gco:CharacterString>WWW:DOWNLOAD-1.0-http--download</gco:CharacterString>
</gmd:protocol>
<gmd:applicationProfile>
<gco:CharacterString>INSPIRE-ATOM</gco:CharacterString>
</gmd:applicationProfile>
<gmd:name>
<gco:CharacterString>INSPIRE Dataset for Buildings Theme</gco:CharacterString>
</gmd:name>
<gmd:description>
<gco:CharacterString>INSPIRE Dataset for Buildings Theme in ETRS89 - GML file</gco:CharacterString>
</gmd:description>
<gmd:function>
<gmd:CI_OnLineFunctionCode codeList="http://standards.iso.org/iso/19139/resources/gmxCodelists.xml#CI_OnLineFunctionCode" codeListValue="download"/>
</gmd:function>
</gmd:CI_OnlineResource>
</gmd:onLine>
```

CI\_OnLineFunctionCode **download** is is required for the Atom service to work.

view service reference

```
<gmd:onLine>
<gmd:CI_OnlineResource>
<gmd:linkage>
<gmd:URL>https://www.inspire-geoportal.lt/geoserver/bu/wms?service=WMS&version=1.3.0&request=GetCapabilities</gmd:URL>
</gmd:linkage>
<gmd:protocol>
<gco:CharacterString>OGC:WMS-1.3.0-http-get-capabilities</gco:CharacterString>
</gmd:protocol>
<gmd:applicationProfile>
<gco:CharacterString>INSPIRE-VIEW</gco:CharacterString>
</gmd:applicationProfile>
<gmd:name>
<gco:CharacterString>BU.Building</gco:CharacterString>
</gmd:name>
<gmd:description>
<gco:CharacterString>Building</gco:CharacterString>
</gmd:description>
<gmd:function>
<gmd:CI_OnLineFunctionCode codeList="http://standards.iso.org/iso/19139/resources/gmxCodelists.xml#CI_OnLineFunctionCode" codeListValue="information"/>
</gmd:function>
</gmd:CI_OnlineResource>
</gmd:onLine>
```

In the end we associate service metadata with data set metadata via Add → Link to a dataset.

▼
 
 Associated resources

+ Add ▼

Link an online resource

Link metadata

Link to parent

Link to a dataset

Link to a source dataset

Link to a feature catalog

Link to other resources

## **Advantages/disadvantages of the proposed approach**

Creating metadata and connecting services with this method, it is important to be consistent: first, the metadata is created, then the network services are published, then the metadata is supplemented with network service links, and service metadata is associated with dataset metadata.