



MIWP 2021-2014 – Action 2.3.2 Data-service linking sub-group results and way forward

JRC INSPIRE Team



67th MIG-T meeting – October 07-08, 2021

Context & issue

- The current level of accessibility of INSPIRE data sets through view and download services is low.
 - One reason for this are problems with implementing data-service linking.
 - The approach currently described in the TGs for metadata and network services is considered complicated and partly ambiguous.
 - Many organizations are therefore facing difficulties to provide implementations in line with these requirements.

MIWP Sub-group 2.3.2 Activity

- 16 experts from 13 Member States:
AT, CZ, DE, DK, EL, ES, FR, IT, LT, NL, PL, SE, SK
- Starting point - Discussion Paper from Action 2019.2
- 4 proposals for technical approaches – in line with the Discussion Paper
- 4 meetings held
- Final proposal in preparation

Scope of work

- Elaboration and submission of an **INSPIRE Good Practice**
- Consensus-based **simplified** approach for **data and service linkages**
- **Proven** to be **implementable** by de facto standard web applications
- An **alternative** to the current approach, to be used in **parallel**

Outside the scope (should happen at a later stage):

- Update of the current TGs
- Abstract and Executable test suites of INSPIRE Reference Validator
- “Service simplification” (e.g. removal of the extended capabilities section)

GitHub space

<https://github.com/INSPIRE-MIF/gp-data-service-linking-simplification>

The screenshot shows the GitHub interface for the repository 'INSPIRE-MIF / gp-data-service-linking-simplification'. The repository is public and has 19 watchers, 3 stars, and 5 forks. The main branch is 'main' with 1 branch and 0 tags. The repository contains several files and folders: 'meetings', 'proposals', 'resources', and 'README.md'. The 'README.md' file is selected, showing its content. The content of the README includes a title 'Good Practice: Data and Service Linking Simplification', a description of the repository's purpose, and a section titled 'Context & issue'.

INSPIRE-MIF / gp-data-service-linking-simplification Public

Unwatch 19 Star 3 Fork 5

<> Code Issues 14 Pull requests Actions Projects Wiki Security Insights

main 1 branch 0 tags

Go to file Add file Code

File/Folder	Commit Message	Commit Hash	Author	Date	Commits
ukiz	Update MIWP Sub-group 2.3.2 Simplification 2021-07-19 summary.md	e43de92	on 7 Sep		63
meetings	Update MIWP Sub-group 2.3.2 Simplification 2021-07-19 summary.md			last month	
proposals	Updated slide with 2 solutions for mixed catalogue contents			3 months ago	
resources	add group description			7 months ago	
README.md	Update README.md			3 months ago	

README.md

Good Practice: Data and Service Linking Simplification

This repository includes the output of the work of the temporary sub-group of the INSPIRE MIG, aimed to create a Good Practice for a consensus-based simplified approach for INSPIRE data-service linkages.

Context & issue

The current level of accessibility of INSPIRE data sets through view and download services is low. One of the reasons are problems with implementing the data-service linking approach currently described in the TIGs for metadata and

About

Good Practice on a consensus-based simplified approach for INSPIRE data and service linkages

Readme

Releases

No releases published
[Create a new release](#)

Packages

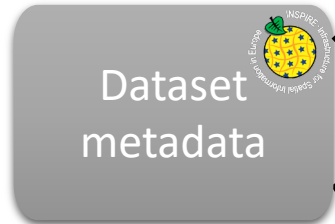
No packages published
[Publish your first package](#)

Contributors 11

Contributor avatars: ukiz, and others.

Data-service linking simplified approach

Starting point: Dataset metadata



```
ResourceLocator 1
<gmd:protocol>
http://inspire.ec.europa.eu/metadata-codelist/ProtocolValue
<gmd:applicationProfile>
http://inspire.ec.europa.eu/metadata-codelist/SpatialDataServiceType/view
```

```
ResourceLocator 2
<gmd:protocol>
http://inspire.ec.europa.eu/metadata-codelist/ProtocolValue
<gmd:applicationProfile>
http://inspire.ec.europa.eu/metadata-codelist/SpatialDataServiceType/download
```

1.4. Resource locator

The resource locator defines the link(s) to the resource and/or the link to additional information about the resource.

The value domain of this metadata element is a character string, commonly expressed as uniform resource locator (URL).

The multiplicity of this element as defined in [Regulation 1205/2008], Part C, Table 1 is zero or more, and it is "mandatory if a URL is available to obtain more information on the resource, and/or access related services."

TG Requirement 1.8: metadata/2.0/req/datasets-and-series/resource-locator

A Resource locator linking to the service(s) providing online access to the described data set or data set series shall be given, if such online access is available.

If no online access for the data set or data set series is available, but there is a publicly available online resource providing additional information about the described data set or data set series, the URL pointing to this resource shall be given instead.

These links shall be encoded using `gmd:transferOptions/gmd:MD_DigitalTransferOptions/gmd:online/gmd:CI_OnlineResource/gmd:linkage/gmd:URL` element.

The multiplicity of this element is 0..n.

A Resource Locator encoded using the `gmd:CI_OnlineResource` element may also include `gmd:name`, `gmd:description`, and `gmd:function` properties.

Data-service linking simplified approach

ResourceLocator element

ResourceLocator

<gmd:protocol>

<http://inspire.ec.europa.eu/metadata-codelist/ProtocolValue>

<gmd:applicationProfile>

<http://inspire.ec.europa.eu/metadata-codelist/SpatialDataServiceType>







Label: **INSPIRE Protocol values**

Definition: Set of OGC and RFC services that are in the scope of INSPIRE. This list aims at the better identification of the network services described within the metadata records.

Description: This code list is the result of the 'simplification of data-service linkages' activity performed in the context of the MIG-T data simplification action(2019.2).








Governance level: eu-technical

Status: Valid

Other formats:  XML Registry  XML ISO 19135  RDF/XML  JSON  Atom  CSV

Metadata code list values

Show only valid items

Filter Label	Filter Governance level	Filter Status
Label	Governance level	Status
ATOM Syndication Format 	eu-technical	Valid
OGC Catalogue Service for the Web 	eu-technical	Valid
OGC Sensor Observation Service 	eu-technical	Valid
OGC Web Coverage Service 	eu-technical	Valid
OGC Web Feature Service 	eu-technical	Valid
OGC Web Map Service 	eu-technical	Valid
OGC Web Map Tile Service 	eu-technical	Valid

Items per page: 50 Showing 1 to 7 of 7 entries

First Previous 1 Next Last

Data-service linking simplified approach

ResourceLocator element

ResourceLocator

```
<gmd:protocol>  
http://inspire.ec.europa.eu/metadata-codelist/ProtocolValue  
<gmd:applicationProfile>  
http://inspire.ec.europa.eu/metadata-codelist/SpatialDataServiceType
```

```
<gmd:protocol>  
  <gmx:Anchor  
    xlink:href="http://www.opengis.net/def/serviceType/ogc/wfs">OGC:WFS</gmx:Anchor>  
</gmd:protocol>
```

```
<gmd:protocol>  
  <gco:CharacterString>???</gmd:protocol>
```

The screenshot shows the OGC INSPIRE Protocol values page. The page title is "INSPIRE Protocol values". The OGC logo is at the top left, with the tagline "Making location count.". Navigation links include "ABOUT", "MEMBERSHIP", "STANDARDS & RESOURCES", "INNOVATION", and "NEWS & EVENTS". Below the navigation is a search bar and links for "Vocabularies", "Search", "System Home", and "About the OGC Definition Server". The main content area shows the breadcrumb "System Home / Vocabularies / Service Types register / wfs" and the heading "Concept". Under "Preferred Label", the label "wfs" is shown. The "URI" field is circled in red and contains the value "http://www.opengis.net/def/serviceType/ogc/wfs ?". Below this, the "Within Vocab" section shows "Service Types register". The "Preferred Label" section shows "wfs". The "Definition" section states: "This is the non-version specific service type. It should be used to designate a service that will perform version negotiation. Specific versions may also be used to designate the supported versions".

Data-service linking simplified approach

ResourceLocator element

ResourceLocator

```
<gmd:protocol>
http://inspire.ec.europa.eu/metadata-codelist/ProtocolValue
</gmd:protocol>
<gmd:applicationProfile>
http://inspire.ec.europa.eu/metadata-codelist/SpatialDataServiceType
</gmd:applicationProfile>
```



```
<gmd:applicationProfile>
  <gmx:Anchor
    xlink:href="http://inspire.ec.europa.eu/metadata-codelist/SpatialDataServiceType/download"
    >download</gmx:Anchor>
  </gmd:applicationProfile>
```

```
<gmd:applicationProfile >
  <gco:CharacterString>???
```

Label: **Spatial data service type**

Governance level: eu-legal

Status: Valid

Other formats: XML XML RDF/XML JSON CSV

Metadata code list values

Show only valid items

Filter Label	Filter Governance level	Filter Status
		^Valid(?:Invalid.)*\$
Label	Governance level	Status
Discovery Service	eu-legal	Valid

Items per page: 50

Download Service

Help us improving the Re3gistry software! Please fill our quick survey at <http://europa.eu/!Bn84Ct>

ID: <http://inspire.ec.europa.eu/metadata-codelist/SpatialDataServiceType/download>

This version: <http://inspire.ec.europa.eu/metadata-codelist/SpatialDataServiceType/download:1>

Latest version: <http://inspire.ec.europa.eu/metadata-codelist/SpatialDataServiceType/download>

Label: **Download Service**

Definition: Service that enables copies of spatial data sets, or parts of such sets, to be downloaded and, where practicable, accessed directly.

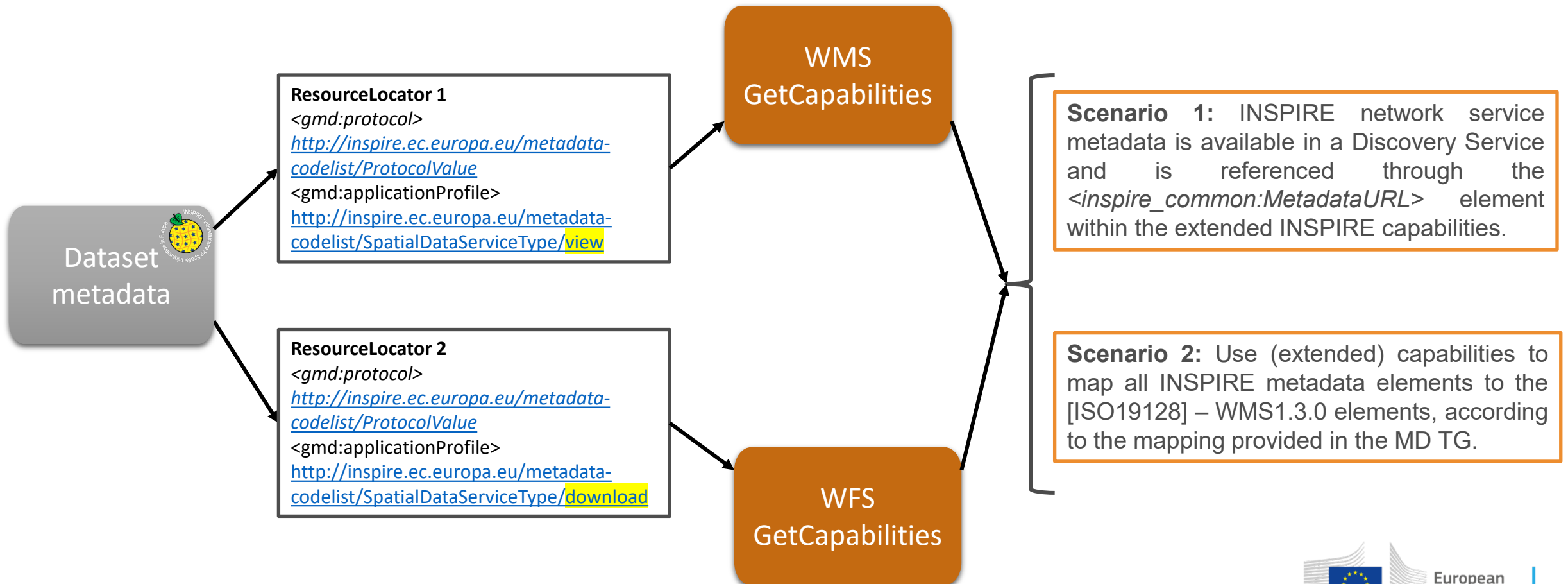
Governance level: eu-legal

Status: Valid

Other formats: XML XML RDF/XML Atom

Data-service linking simplified approach

Dataset metadata → Network services Capabilities → Service metadata



Data-service linking simplified approach

Service metadata (external metadata file or “embedded” in the capabilities)

4.1.2.4 Linking to provided data sets using coupled resource

This metadata element refers to, where relevant, the target spatial data set(s) of the described service. It is implemented by reference, i.e. through a URL that points to the metadata record of the data on which the service operates. It helps therefore linking services to the relevant datasets.

The element for giving this information is described in [Regulation 1205/2008], Part B 1.6:

1.6. Coupled resource

If the resource is a spatial data service, this metadata element identifies, where relevant, the target spatial data set(s) of the service through their unique resource identifiers (URI).

The value domain of this metadata element is a mandatory character string code, generally assigned by the data owner, and a character string namespace uniquely identifying the context of the identifier code (for example, the data owner).

The multiplicity of this element as defined in [Regulation 1205/2008], Part C, Table 2 is zero or more, with the following condition: "Mandatory if linkage to data sets on which the service operates are available". According to [ISO 19119] the coupled resource is encoded using `operatesOn` property and its value is the `MD_DataIdentification` element of the data set.

TG Requirement 3.6: metadata/2.0/req/sds/coupled-resource

Links pointing to the online metadata descriptions of data sets provided by the described service shall be given using `srv:operatesOn` element.

The multiplicity of this element is 0..n.

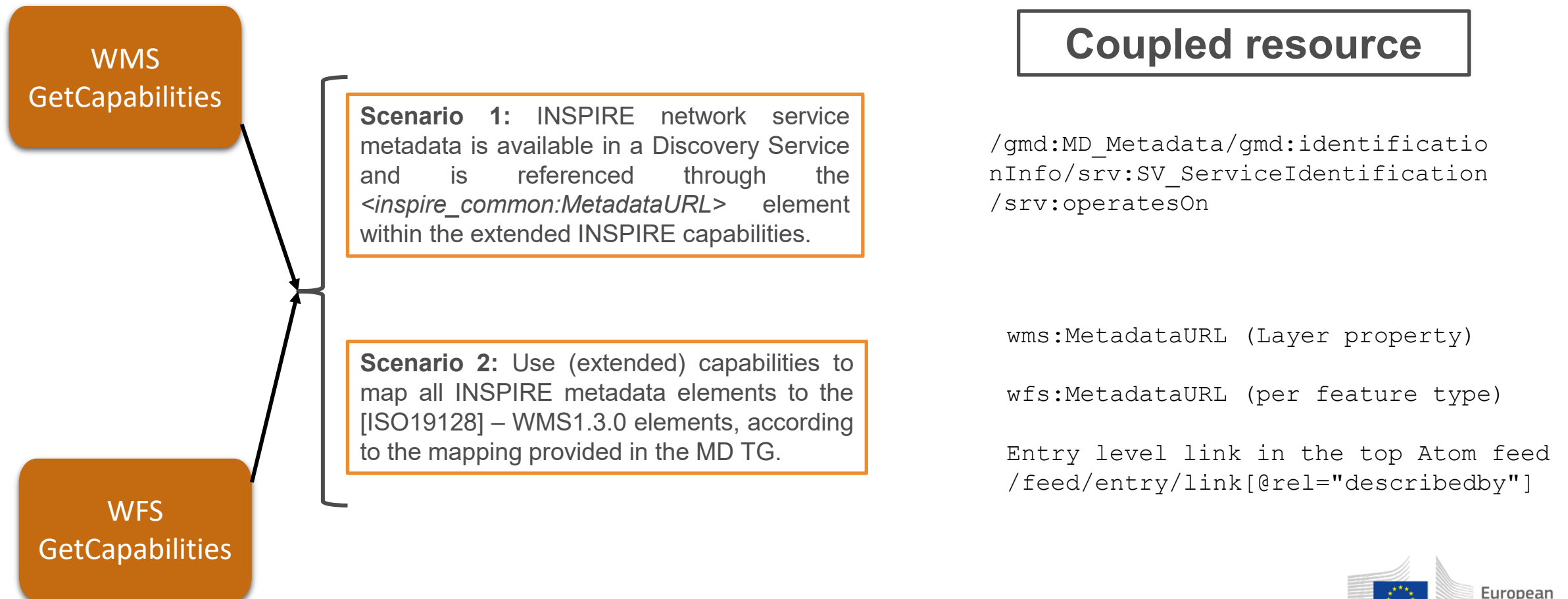
This property shall be implemented by reference. The `xlink:href` attribute of each of the `srv:operatesOn` elements shall contain a URI pointing to the `gmd:MD_DataIdentification` element of the metadata record of the provided the data set or data set series.

Simplification

Simple use of the dataset metadata URL (e.g., CSW request) for the “Coupled resource” element

Data-service linking simplified approach

Service metadata (external metadata file or “embedded” in the capabilities)



Data-service linking simplified approach

Service metadata → Coupled resource → Dataset metadata

Coupled resource

```
/gmd:MD_Metadata/gmd:identificationInfo/srv:SV_ServiceIdentification/srv:operatesOn
```

```
wms:MetadataURL (Layer property)  
wfs:MetadataURL (per feature type)  
Entry level link in the top Atom feed  
/feed/entry/link[@rel="describedby"]
```

Dataset
metadata



Data-service linking simplified approach

Pro/cons of the proposed approach

- Pro:
 - The relation between data and service is clear and easy to manage.
 - Similar to what is already used in many countries.
 - It uses the existing codelists and metadata elements included in the INSPIRE TG
 - There is no need to use the service metadata file and the *<inspire_vs:ExtendedCapabilities>* element within the GetCapabilities response
- Cons:
 - The “Unique resource identifier” is not used as it should be

Next steps

- Updating the consolidated proposal for next week's meeting.
- **Approving** the proposal during the meeting.
- Setting up a **showcase implementation** and testing it.
- Adding the corresponding **tests** to the INSPIRE Reference Validator.

Thank you!



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