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Joint Research Centre

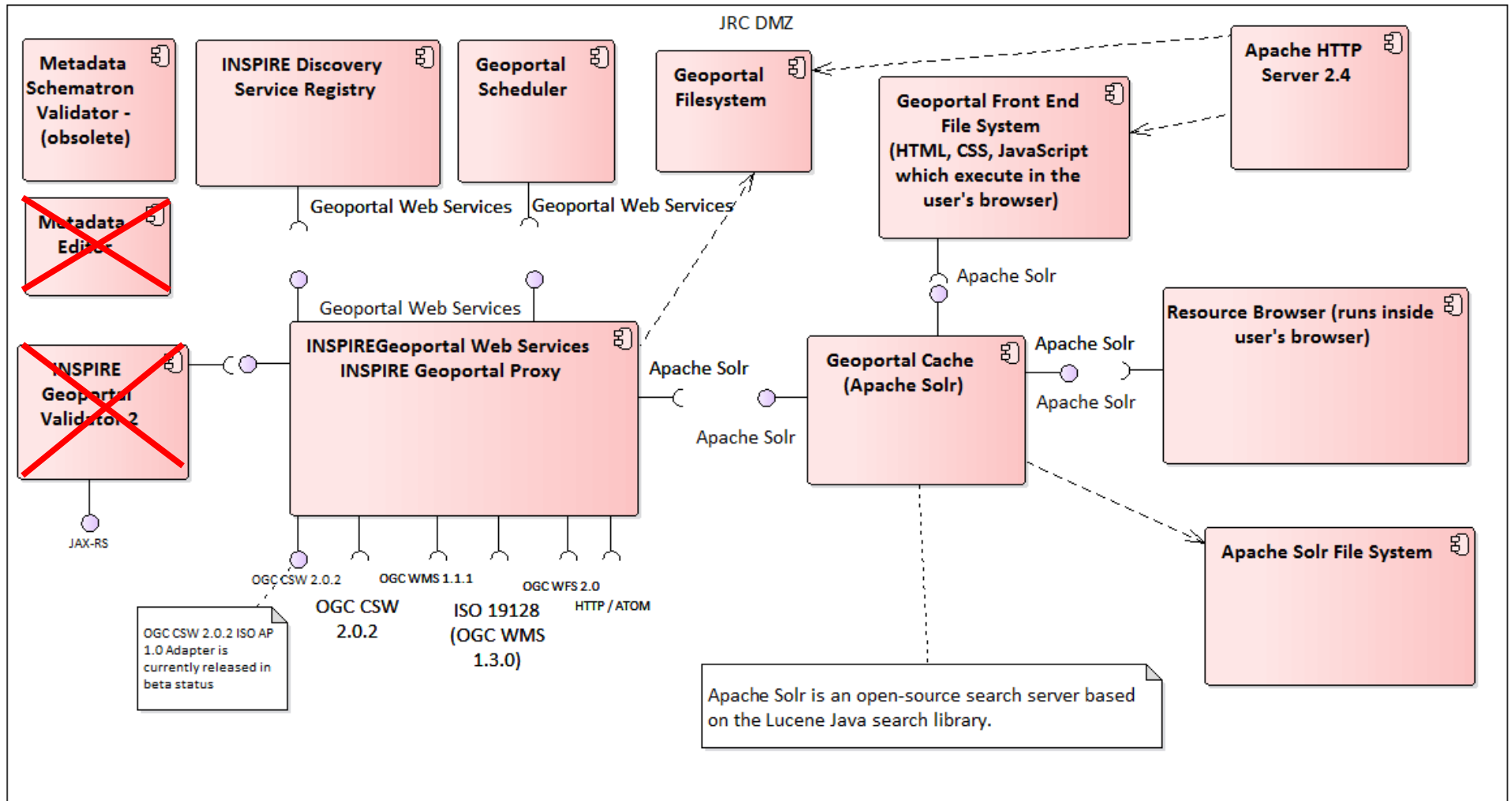
# INSPIRE Geoportal Back-end Overview

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INSPIRE Geoportal Workshop, Ispra, 23-24 January 2019

# Contents

- Overview of the INSPIRE Geoportal back-end system
- How linkages between INSPIRE resources are established



# Contents

- Metadata Editor deprecated because:
  - superseded technology
  - missing functionality
- INSPIRE Validator 2 deprecated as a standalone service because:
  - the Reference Validator is available
  - establishing resource linkages requires a full harvest or at least of all related resources

# The INSPIRE Geoportal back-end system

## Overview of the INSPIRE Geoportal back-end system

- The software has been designed, implemented and is actively maintained by the JRC
- Initially born as a Pilot has evolved to become the back-end of the new INSPIRE Geoportal User Interface
- Continuous Development with Continuous Integration have made it robust and adaptable

# INSPIRE Geoportal Back-end

Pulls metadata from:  
38 Discovery Services (\*)  
registered in the INSPIRE  
Geoportal Discovery Service  
Register.

(\*) as of 18<sup>th</sup> Jan 2019

## INSPIRE Service Register All Submissions

Active			
Resource Title	Member State	Service Type	Last Updated Date
<a href="#">INSPIRE Geo-Portal Katalogservice BMNT/Österreich</a>	AT	discovery	14-Jun-18
<a href="#">Metawal - Catalogue pour l'information géographique de Wallonie</a>	BE	discovery	06-Jul-15
<a href="#">GeoCatalogue de la Région de Bruxelles-Capitale</a>	BE	discovery	19-Apr-18
<a href="#">Federal CSW Service</a>	BE	discovery	03-May-18
<a href="#">Geopunt-Metadacentre zoekdienst</a>	BE	discovery	09-Jan-19
<a href="#">Услуга за откриване</a>	BG	discovery	18-May-16
<a href="#">geocat.ch</a>	CH	discovery	04-Apr-17
<a href="#">This is a geoportal exposing INSPIRE Discovery service metadata capabilities</a>	CY	discovery	16-Sep-16
<a href="#">Katalog metadat ČR - INSPIRE</a>	CZ	discovery	22-Feb-17
<a href="#">GeoDatenKatalog.De</a>	DE	discovery	09-Jul-13
<a href="#">Geodata-info søgjetjeneste</a>	DK	discovery	02-Feb-18
<a href="#">Estonia Discovery Service</a>	EE	discovery	17-Feb-15
<a href="#">Greek geospatial data catalog</a>	EL	discovery	19-Nov-18
<a href="#">Servicio de Catálogo Oficial de Datos y Servicios Inspire de España</a>	ES	discovery	19-Mar-18
<a href="#">Paikkatietohakemisto CSW</a>	FI	discovery	28-Aug-18
<a href="#">Geocatalogue Catalogue Server INSPIRE</a>	FR	discovery	22-May-15
<a href="#">Pilot kataložskog servera</a>	HR	discovery	21-Feb-14
<a href="#">HU Service</a>	HU	discovery	17-Mar-17
<a href="#">Geoportal IE - INSPIRE Discovery Service</a>	IE	discovery	12-Sep-13
<a href="#">Iceland Service</a>	IS	discovery	13-Mar-17
<a href="#">RNDT - Repertorio Nazionale dei Dati Territoriali - Servizio di ricerca</a>	IT	discovery	02-May-18
<a href="#">geocat.ch</a>	LI	discovery	26-Nov-18
<a href="#">This is a geoportal exposing INSPIRE Discovery service metadata capabilities</a>	LT	discovery	11-May-15
<a href="#">INSPIRE Discovery Service</a>	LU	discovery	10-Apr-17
<a href="#">Latvian metadata catalogue_GDC (Geospatial data connector)</a>	LV	discovery	12-Feb-16
<a href="#">Latvian Geospatial Information Agency metadata catalogue</a>	LV	discovery	12-Feb-16
<a href="#">Malta CSW</a>	MT	discovery	26-Mar-18
<a href="#">CSW endpoint Nationaal Georegister</a>	NL	discovery	03-May-18
<a href="#">Geonorge - National CSW service for Norway</a>	NO	discovery	07-Feb-14
<a href="#">Geoportal - Polska Usługa Wyszukiwania INSPIRE</a>	PL	discovery	22-May-18
<a href="#">Serviço de Catálogo do Sistema Nacional de Informação Geográfica (Geoportal 1.2.4 - OGC CSW 2.0.2 ISO AP)</a>	PT	discovery	20-Apr-18
<a href="#">Serviciul de căutare al geo-portalului INSPIRE al României</a>	RO	discovery	08-Apr-15
<a href="#">Nationell svensk metadatakatalog</a>	SE	discovery	11-Jan-19
<a href="#">Inspire (SI)</a>	SI	discovery	25-May-16
<a href="#">Národná vyhľadávacia služba</a>	SK	discovery	19-Sep-17
<a href="#">UK Service</a>	UK	discovery	03-Nov-11

# The INSPIRE Geoportal back-end system

237,760 metadata documents  
as of 18<sup>th</sup> Jan 2019

dataset(153560) series(3051) service(79556)

Available options at Discovery Service level:

- Metadata batch size, OGC Filter, maximum number of parallel threads allowed, collect all metadata first, then process
- Maximum size of downloaded data files, maximum number of tested spatial objects, allow multiple network service endpoints per single service metadata
- Time window when to start the harvesting



# The INSPIRE Geoportal resources

Creates individual resources  
for each resource type:

- metadata
- network service
- layer
- download service dataset
- spatial object)

## ▼ Geoportal Resource Types

---

dataset(155027) downloadservicedataset(53123)  
layer(191681) series(3070)  
service(144730)  
spatialobject(17946)

As of 18<sup>th</sup> Jan 2019  
565,577 resources  
available online in the  
Resource Browser

# Service metadata vs Network Service

Spatial Data Service metadata

= > resourceLocator 1

= > Network Service 1

(= > resourceLocator 2

= > Network Service 2)

## ▼ Network Service Implementation Specification

csw 2.0.2 ap iso 1.0.0(178) ietf rfc 4287/atom(14208)

iso 19128:2005(20243) iso 19142/wfs 2.0(15787)

ogc sos 2.0.0(2) ogc wcs 2.0.1(31)

ogc wms 1.1.1(14514) ogc wmts 1.0.0(45)

# Service metadata vs Network Service

**Current selection criteria (after applying the filter)**


- remove all
- (x) spatialDataServiceType:view
- (x) memberStateCountryCode:dk
- (x) "INSPIRE View Service "

< 1 > 1 to 2 of 2 - 10 per page

 (service - view) WMS for INSPIRE AM Coastal protection and forest preservation (Agency for Data Supply and Efficiency )

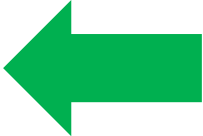
[Inspire Metadata](#) [Evaluation Report](#)

*INSPIRE View service for data from feature types from Cadastral data base mapped to Area Management Zones.*

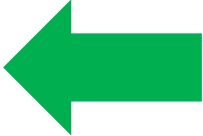
 (service - view) WMS for INSPIRE AM Coastal protection and forest preservation (Agency for Data Supply and Efficiency )

[Inspire Metadata](#) [Original Metadata](#) [Evaluation Report](#)

*INSPIRE View service for data from feature types from Cadastral data base mapped to Area Management Zones.*



Network Service



Service Metadata

# The INSPIRE Geoportal resource representations

Each resource is transformed into a representation in which the names of the properties are based on the INSPIRE Regulations (metadata, network services, data specifications).

Such representation also allows to store additional information like linkages between resources.

Examples in the next two slides.

# INSPIRE Geoportal Data Model

```
<ns9:Resource xmlns="http://inspire.ec.europa.eu/schemas/common/1.0" xmlns:
  <ns9:SpatialDataSetResource remoteIdentifier="50f84f74-a55a-5ca2-e30
    <ResourceTitle>DK INSPIRE Administrative units</ResourceTitle>
    <ResourceAbstract>Data includes the official boundaries of the
    <ResourceType>dataset</ResourceType>
    <ResourceLocator originalEncodingReference="gmd:transferOptions
      |   <URL>http://kortforsyningen.kms.dk/service?request=GetCapab
    </ResourceLocator>
    <ResourceLocator originalEncodingReference="gmd:transferOptions
      |   <URL>https://download.kortforsyningen.dk/sites/default/file
    </ResourceLocator>
```

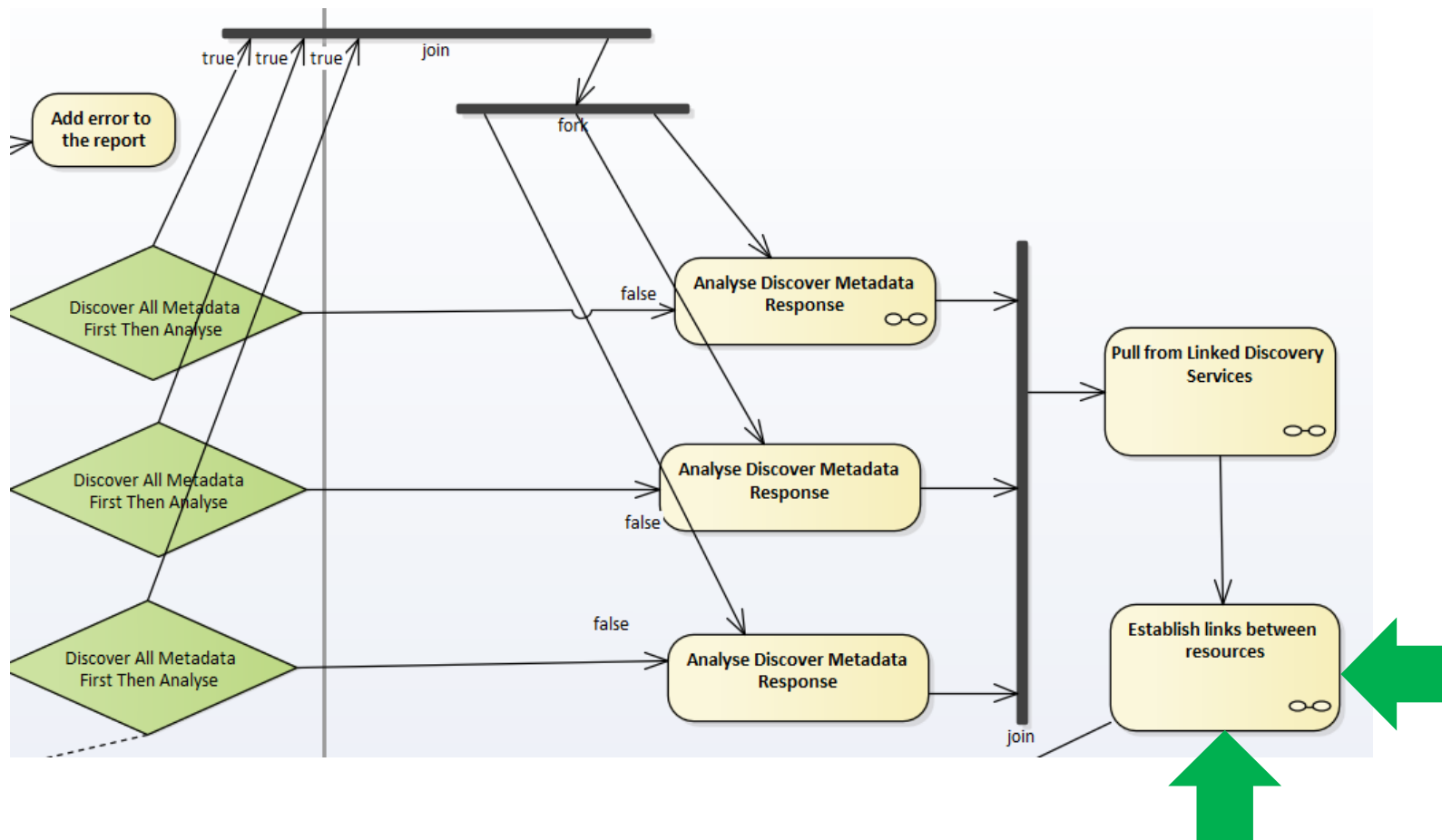
# INSPIRE Geoportal Data Model

```
<ns9:RelatedResourceLocator completenessIndicator="80.0" interoperabilityIndic
  <URL>../../../../services/9/resourceLocator1/view/services/1/layers/1</URL>
  <MediaType>application/vnd.eu.europa.ec.inspire.geoportal.resource.service
  <LinkDescription>Administrative boundary</LinkDescription>
  <LinkDescription metadataLanguage="eng">Administrative boundary</LinkDescr
</ns9:RelatedResourceLocator>
<ns9:RelatedResourceLocator completenessIndicator="88.88888888888889" interope
  <URL>../../../../221-232/services/1/resourceLocator1/download/services/1/down
  <MediaType>application/vnd.eu.europa.ec.inspire.resource.service.network.c
  <LinkDescription metadataLanguage="eng">DK INSPIRE Administrative units</l
  <LinkDescription metadataLanguage="eng">DK INSPIRE Administrative units</l
</ns9:RelatedResourceLocator>
<ns9:MemberStateCountryCode>DK</ns9:MemberStateCountryCode>
```

# INSPIRE Geoportal file system structure

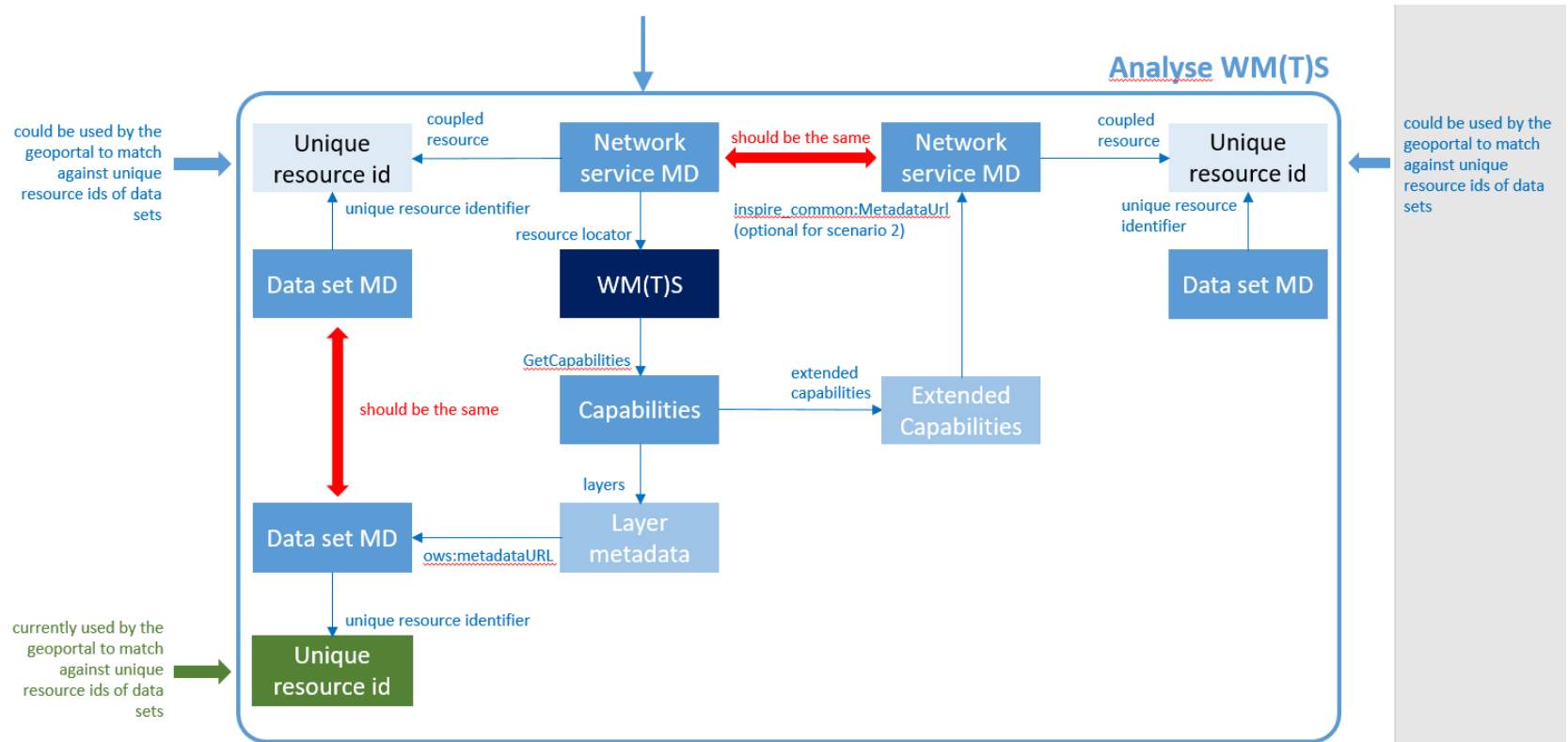
```
resourceLocator1
├── download
│   ├── downloaded
│   ├── downloaded.xml
│   ├── PROBE-OGC_WFS200
│   │   ├── downloaded
│   │   └── downloaded.xml
│   └── services
│       └── 1
│           ├── downloadDatasets
│           │   ├── 0
│           │   │   ├── index.var
│           │   │   ├── inspire.geoportal.resource.download.dataset.en.html
│           │   │   ├── inspire.geoportal.resource.download.dataset.json
│           │   │   ├── inspire.geoportal.resource.download.dataset.jsonp
│           │   │   ├── inspire.geoportal.resource.download.dataset.solr.xml
│           │   │   ├── inspire.geoportal.resource.download.dataset.xml
│           │   │   └── testPredefinedStoredQuery
│           │   └── 0
│           │       └── eng
│           │           ├── 10.spatialobject.xml
│           │           └── 1.spatialobject.xml
```

# Establishing links between resources

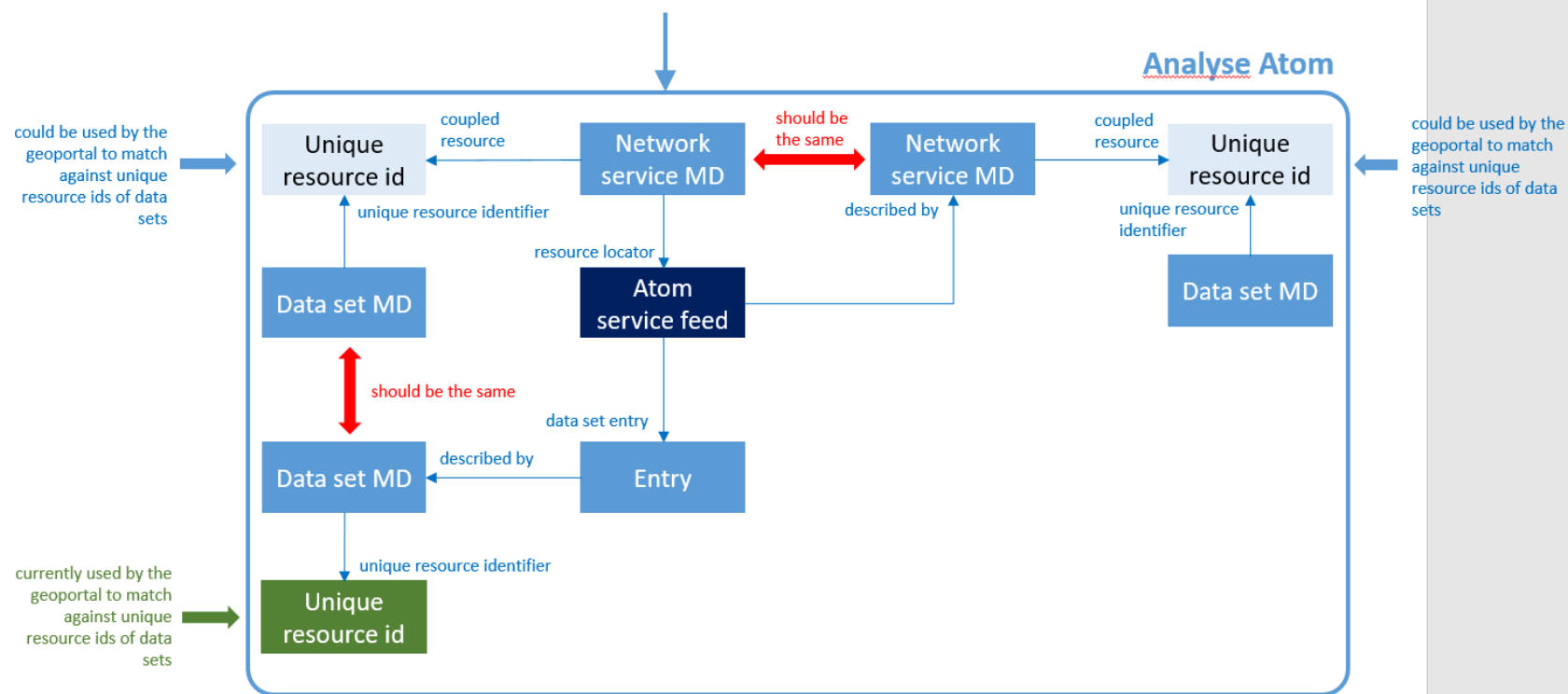




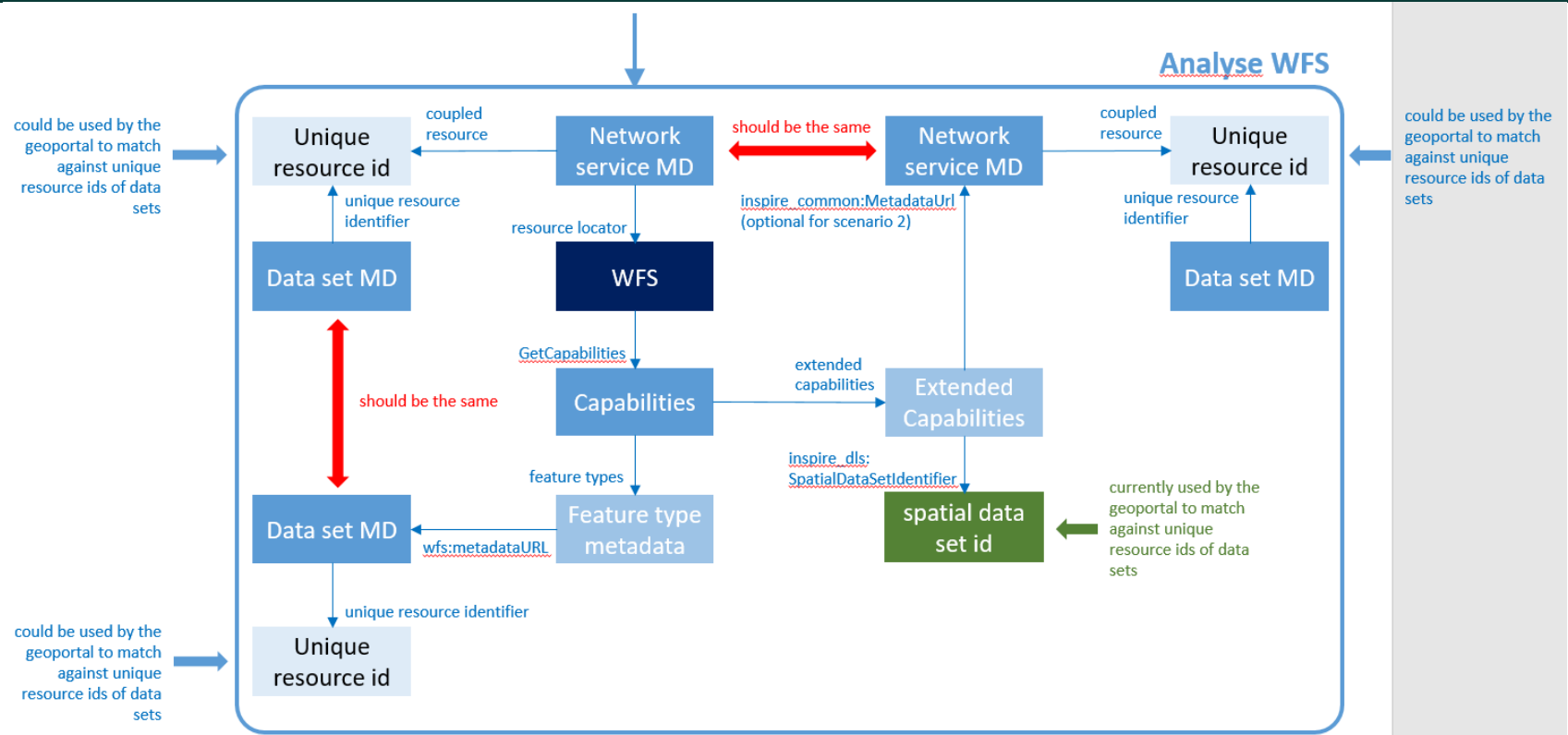
# Establishing links between resources



# Establishing links between resources



# Establishing links between resources



# The INSPIRE Geoportal back-end system

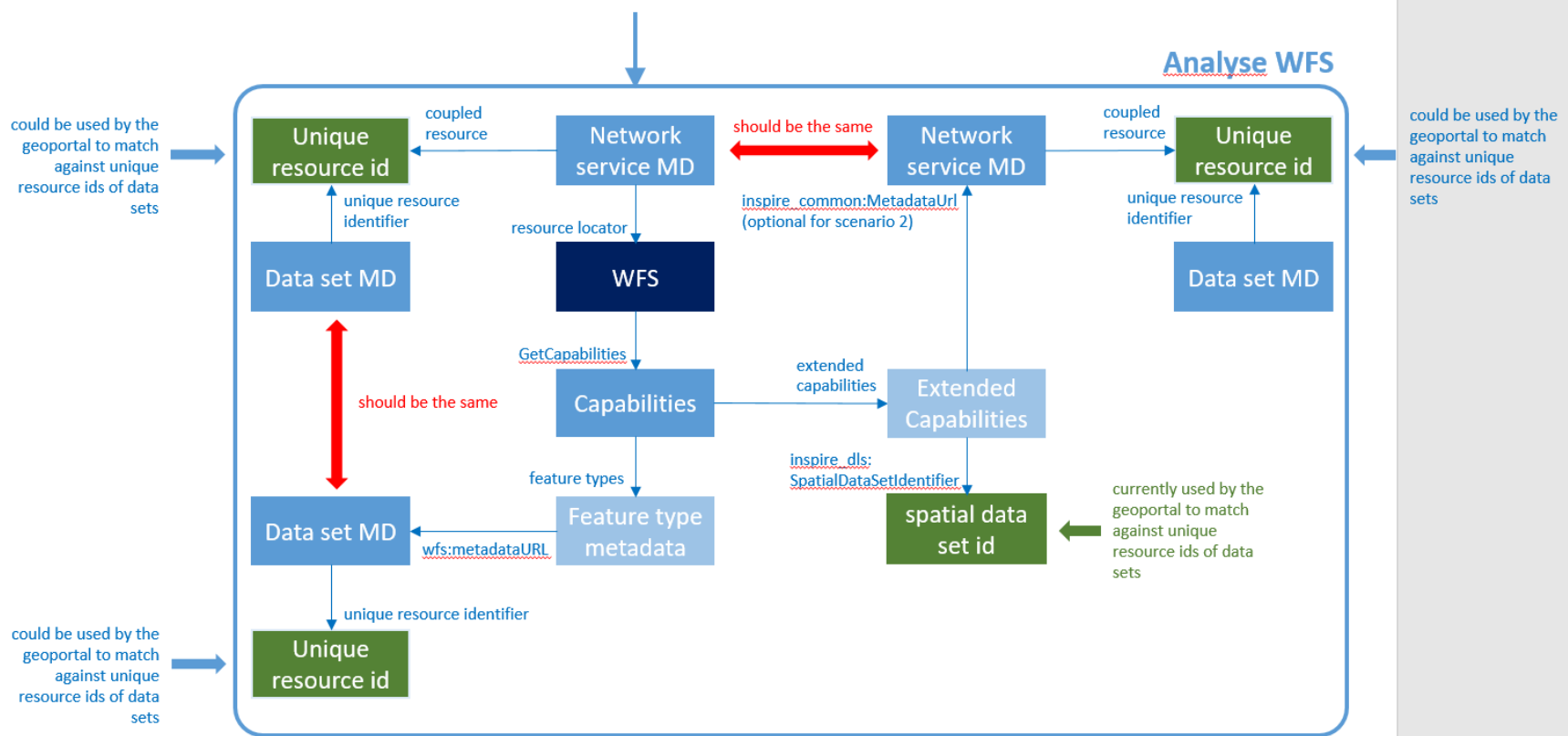
Overview of the INSPIRE Geoportal back-end system

WFS 2.0 implementation of resource linking is proving more difficult to implement with respect to WM(T)S and Atom apparently because it requires:

- the use of Extended Capabilities
- the indication of the Unique Resource Identifier of the Spatial Data Set

The INSPIRE Geoportal now considers, only for WFS services, all 4 sources of Unique Resource Identifiers and offers a detailed insight on where coupled resources were actually specified.

# Establishing links between resources



# WFS linkages

## France

### ▼ Verified Unique Resource Identifier Source

[DISCOVERY-SERVICE\\_METADATA\\_COUPLED\\_RESOURCES\(12935\)](#)  
[WFS\\_CAPABILITIES-FEATURE\\_TYPE\\_METADATA\\_URL\(237\)](#)  
[WFS\\_EXTENDED\\_CAPABILITIES-SPATIAL\\_DATASET\\_IDENTIFIER\(129\)](#)

[Scope of t](#)



[Download](#)

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### ▼ Missing Unique Resource Identifier Source

[DISCOVERY-SERVICE\\_METADATA\\_COUPLED\\_RESOURCES\(229\)](#)  
[WFS\\_CAPABILITIES-FEATURE\\_TYPE\\_METADATA\\_URL\(12927\)](#)  
[WFS\\_EXTENDED\\_CAPABILITIES-SERVICE\\_METADATA\\_COUPLED\\_RESOURCES\(13164\)](#)  
[WFS\\_EXTENDED\\_CAPABILITIES-SPATIAL\\_DATASET\\_IDENTIFIER\(13035\)](#)

# WFS linkages

## Norway

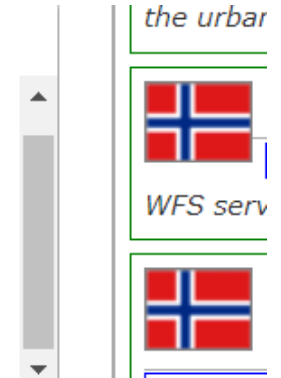
### ▼ Verified Unique Resource Identifier Source

DISCOVERY-SERVICE\_METADATA\_COUPLED\_RESOURCES(49)

WFS\_CAPABILITIES-FEATURE\_TYPE\_METADATA\_URL(12)

WFS\_EXTENDED\_CAPABILITIES-SERVICE\_METADATA\_COUPLED\_RESOURCES(12)

WFS\_EXTENDED\_CAPABILITIES-SPATIAL\_DATASET\_IDENTIFIER(9)



### ▼ Missing Unique Resource Identifier Source

DISCOVERY-SERVICE\_METADATA\_COUPLED\_RESOURCES(9)

WFS\_CAPABILITIES-FEATURE\_TYPE\_METADATA\_URL(46)

WFS\_EXTENDED\_CAPABILITIES-SERVICE\_METADATA\_COUPLED\_RESOURCES(46)

WFS\_EXTENDED\_CAPABILITIES-SPATIAL\_DATASET\_IDENTIFIER(49)

# WFS linkages

# All countries

## ▼ Verified Unique Resource Identifier Source

DISCOVERY-  
SERVICE\_METADATA\_COUPLED\_RESOURCES(25225)  
WFS\_CAPABILITIES-FEATURE\_TYPE\_METADATA\_URL(1621)  
WFS\_EXTENDED\_CAPABILITIES-  
SERVICE\_METADATA\_COUPLED\_RESOURCES(1383)  
WFS\_EXTENDED\_CAPABILITIES-  
SPATIAL\_DATASET\_IDENTIFIER(1590)

## ▼ Missing Unique Resource Identifier Source

DISCOVERY-SERVICE\_METADATA\_COUPLED\_RESOURCES(1316)  
WFS\_CAPABILITIES-  
FEATURE\_TYPE\_METADATA\_URL(24920)  
WFS\_EXTENDED\_CAPABILITIES-  
SERVICE\_METADATA\_COUPLED\_RESOURCES(25158)  
WFS\_EXTENDED\_CAPABILITIES-  
SPATIAL\_DATASET\_IDENTIFIER(24951)





# Any questions?

INSPIRE Geoportal Helpdesk

<https://ies-svn.jrc.ec.europa.eu/projects/geoportal/>