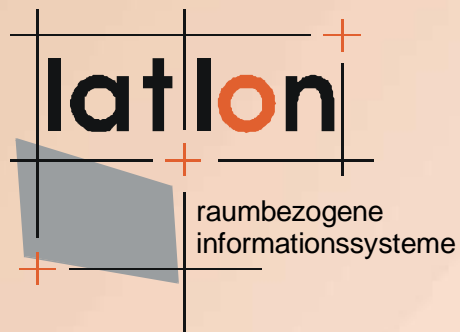


Interoperable Gazetteers

- State of the art -

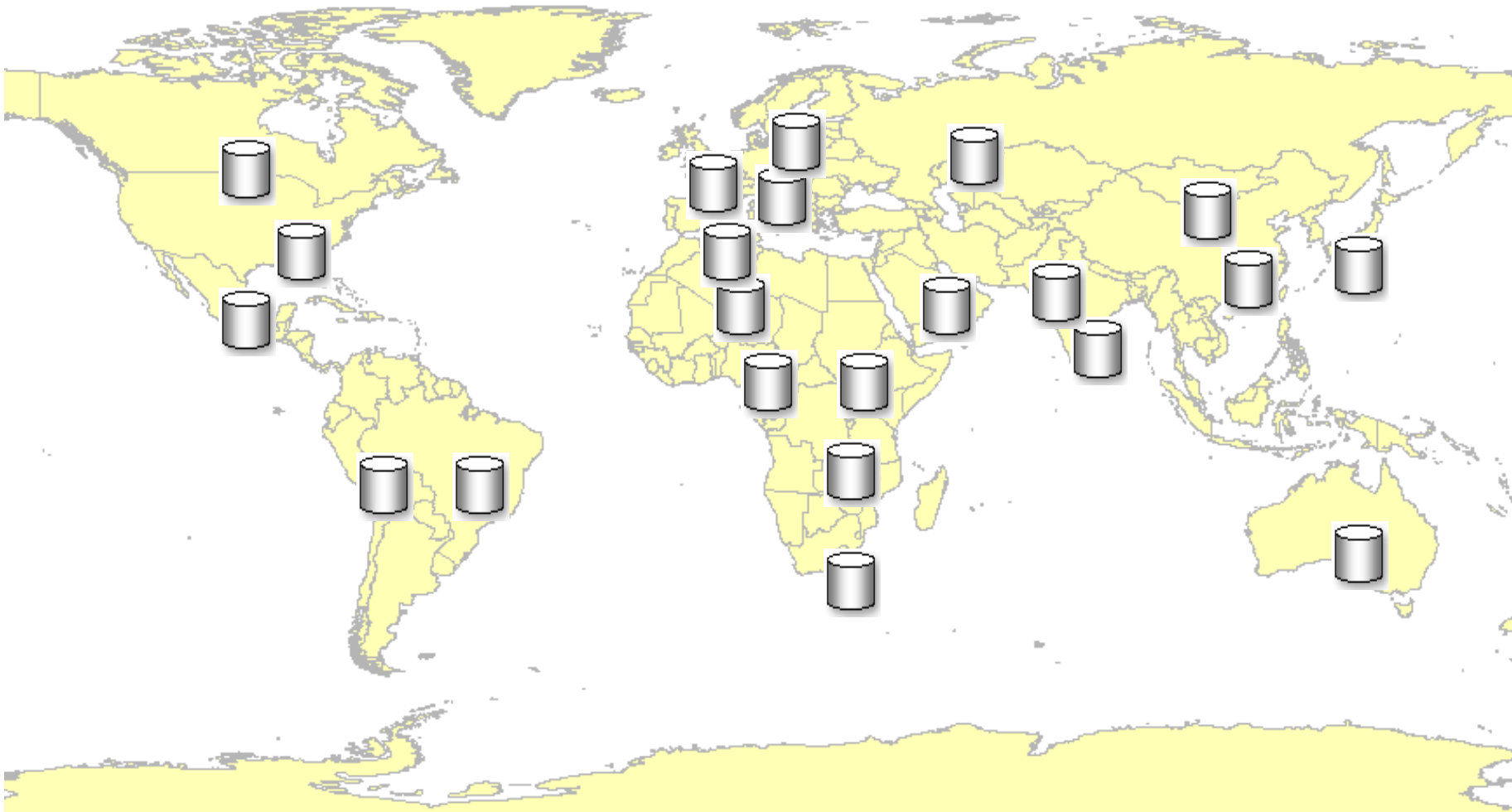


Dipl.-Geograph **Jens Fitzke**
fitzke@lat-lon.de
<http://www.lat-lon.de/>

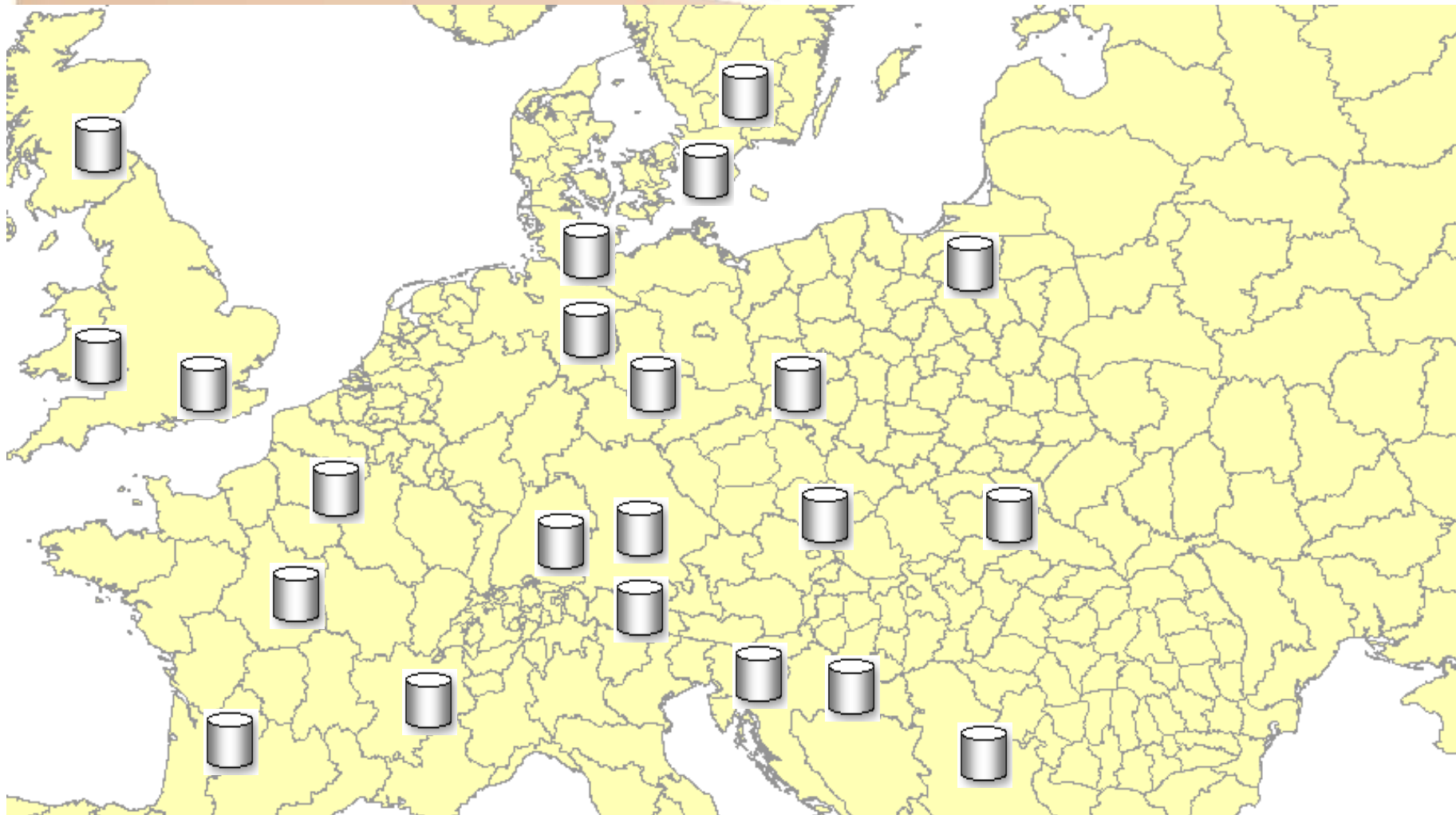
Hintergrund

- Uni Bonn --> spin-off (11/2000)
- OGC/ISO-Kompetenz + Freie Software
- Projekt: deegree ("Framework")
--> Produkte (insb. OGC Services)
- OGC WMS Referenzimplementierung
- OGC Specs (Entwürfe): WCTS, WFS-G
- GeoMis.Bund, MISLux, GDI NRW Catalog,
HUIS/UmweltInfo.online Hamburg (UDK)
- OGC Catalog RWG

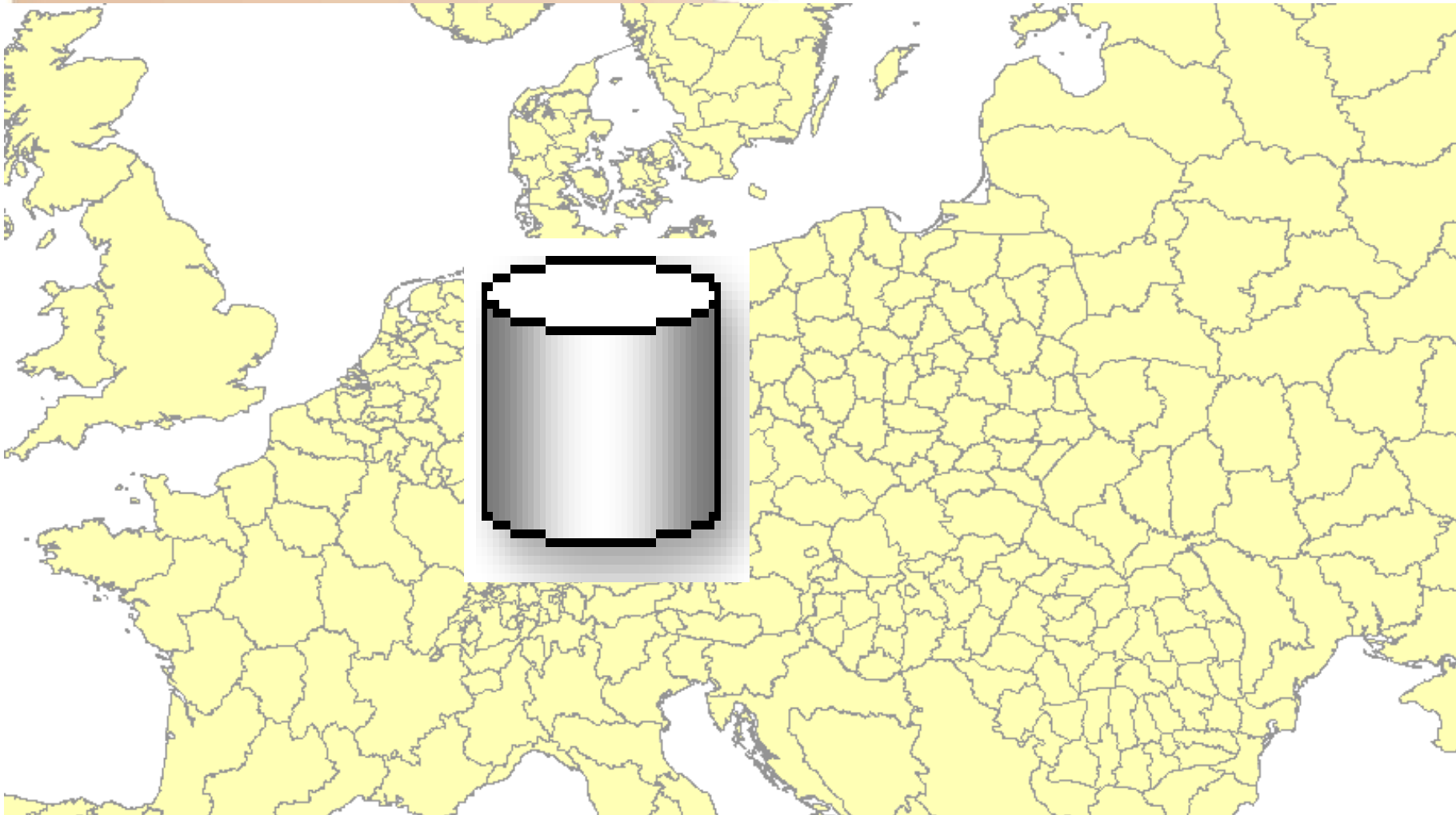
Why Gazetteer Interoperability?



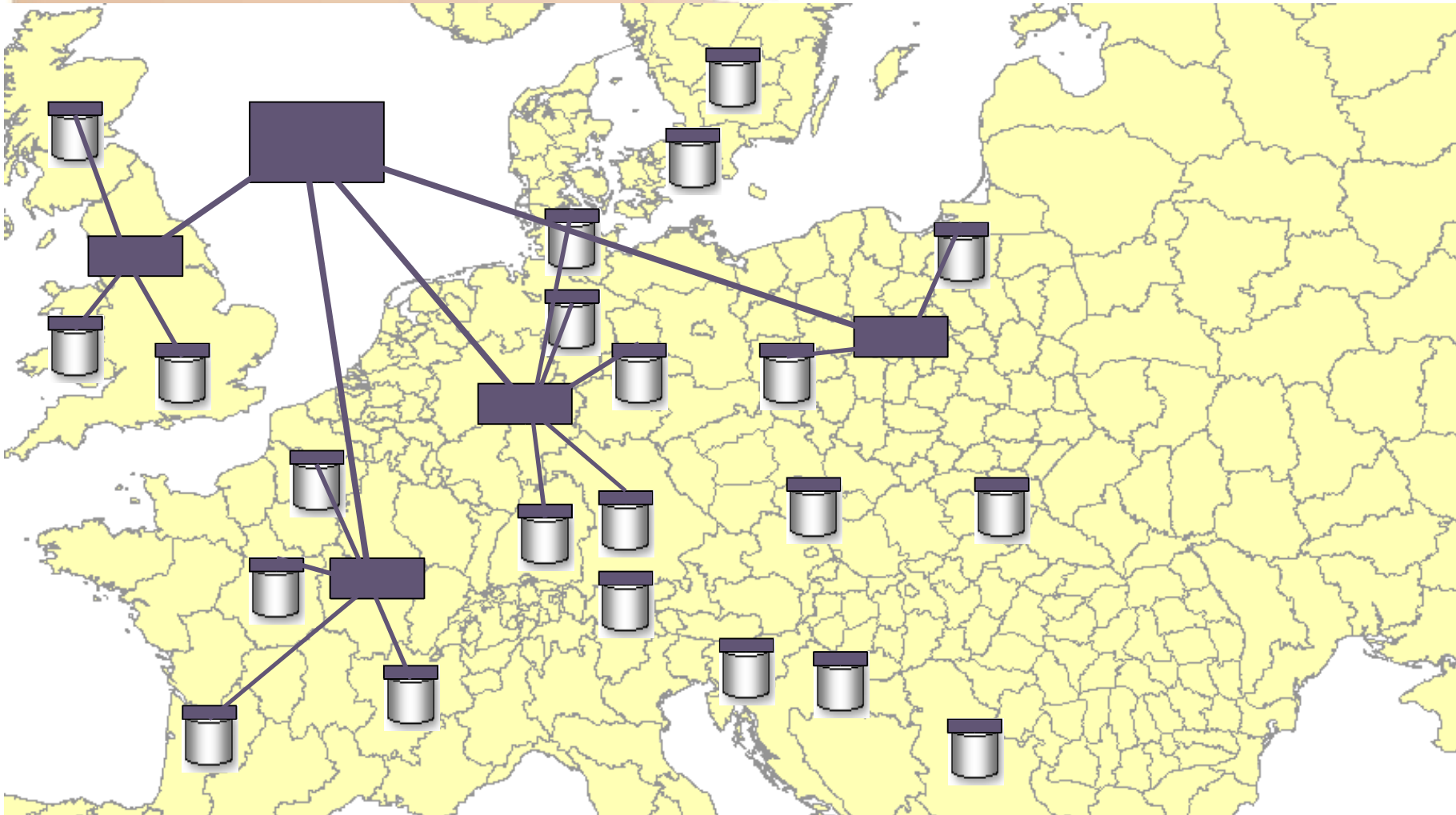
Why Gazetteer Interoperability?



Collection Approach



Services Approach



History



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TITLE: Gazetteer Service Specification

DOCUMENT: 01-036

VERSION 0.84

DATE: March 15, 2001

**TYPE: OGC-IP
Discussion**

This version

Implementation Specification,

[members/archive/arch01/01-036.pdf](#)

[members/archive/arch01/01-036.pdf](#)

Editor:

Rob Atkinson, Social Change Online rob@socialchange.net.au

latlon



GDI NRW SIG Geokodierung 2003-06-23

History

Open GIS Consortium Inc.

Date: yy

Reference number of this OpenGIS® project document

0.0.43

mentation Specification

Rob Atkinson, Jens Fitzke

Geospatial Data Infrastructure of Northrhine Westphalia (GDI NRW)

er Service Draft-Implementation Specification

Northrhine-Westphalian Geospatial Data Infrastructure (GDI NRW)

Project Document



latlon

GDI NRW SIG Geokodierung 2003-06-23

History

Open GIS Consortium Inc.

Date: 2002-09-03

Reference number of this OpenGIS® project

OGC 02-076r2

Version: 0.0.9

Category: OpenGIS® Implementation Specification

Editors: Rob Atkinson, Jens Fitzke

Pending Document 02-076r2

Gazetteer Service Profile of the Web Feature Service Implementation Specification

lat/lon



GDI NRW SIG Geokodierung 2003-06-23

WFS-G Basics

"Gazetteer services are considered as a specialisation or application profile of the Web Feature Server (WFS-G). Services conformant to this specification shall provide Feature Types derived by extension from the family of well-known Feature Types SI_LocationInstance (SI_LocationInstance, SI_LocationInstance_Brief). In Addition, they may support queries based on the (parent/child) relationships of feature instances, as defined in ISO DIS 19112."

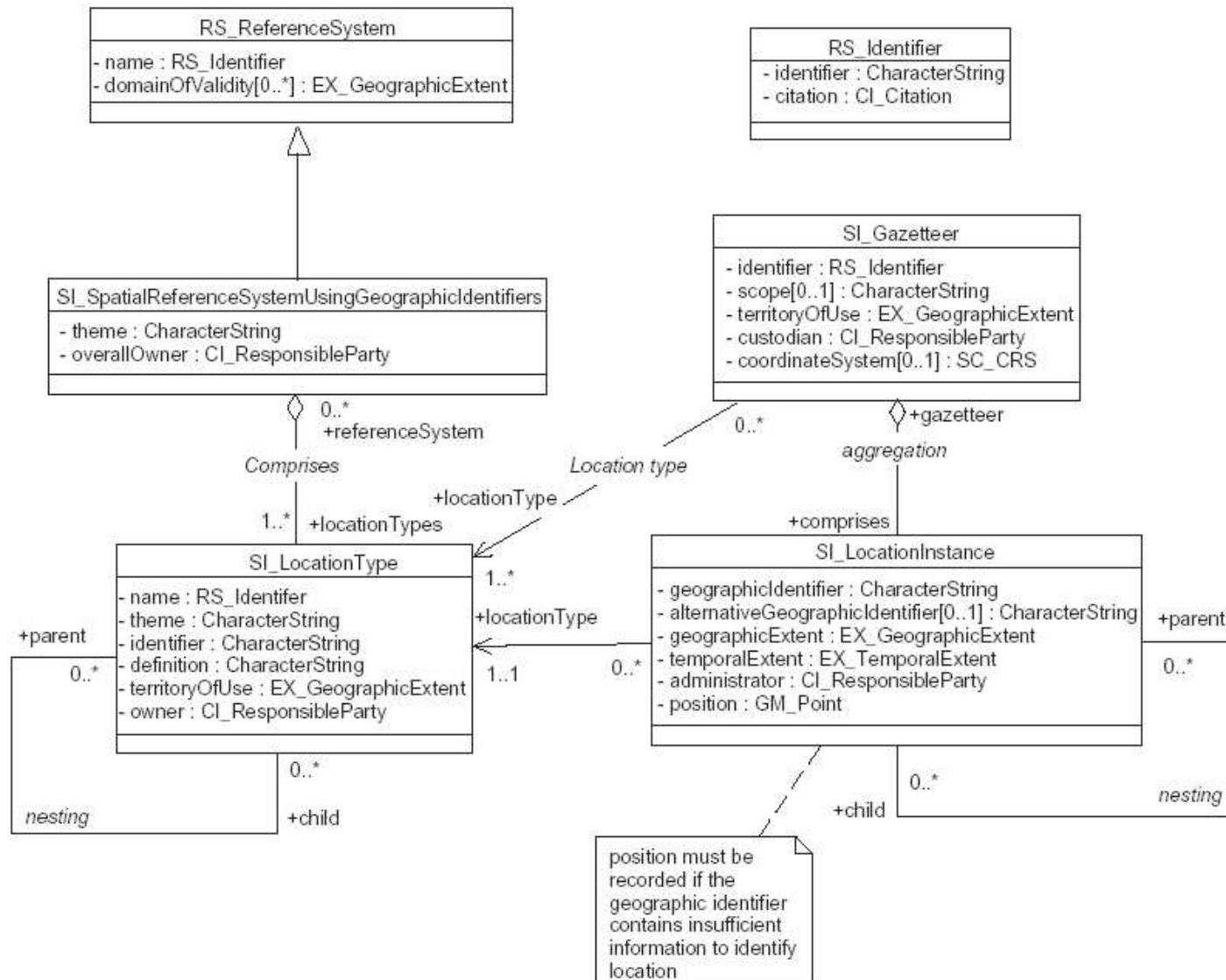
OGC WFS-G concept

- WFS-G is a special WFS ("a WFS profile")
- WFS is adopted technology for feature access (query, update, delete) via XML/HTTP
- Powerful query language: Filter encoding
- Standard output format is GML, others are allowed

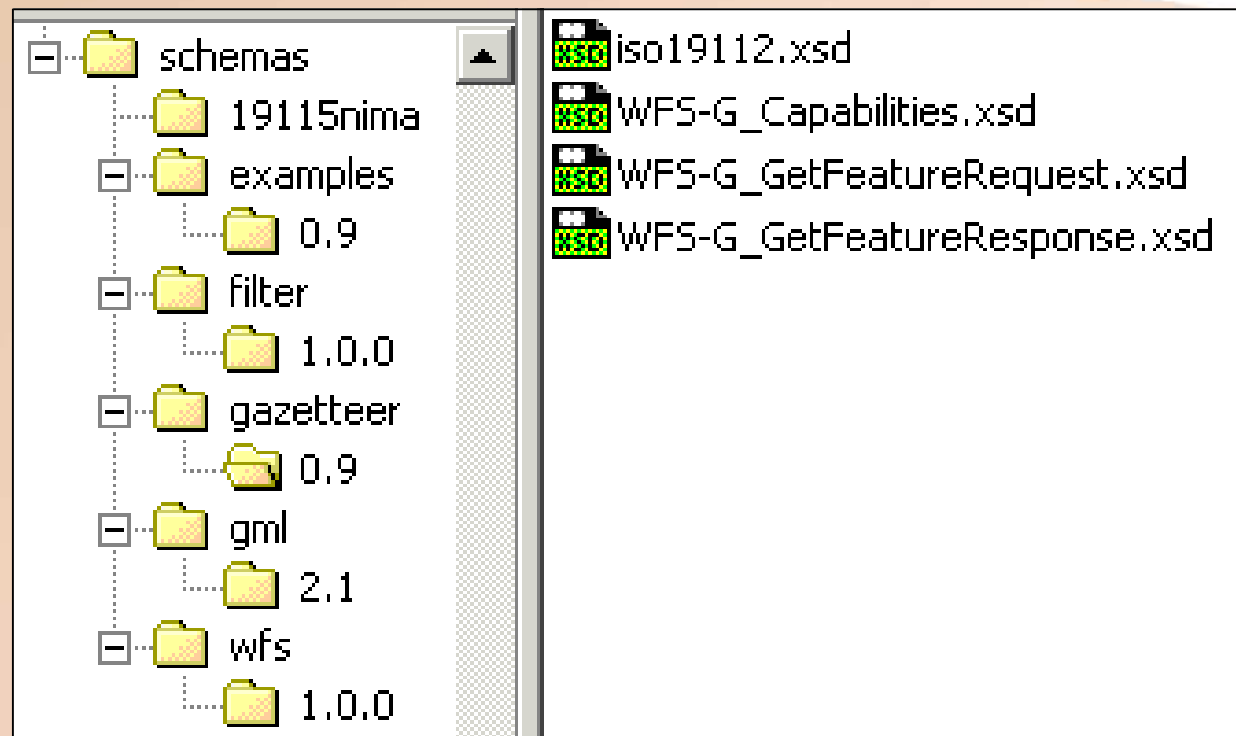
WFS-G Basics

- GetCapabilities
- DescribeFeatureType
- GetFeature

ISO DIS 19112



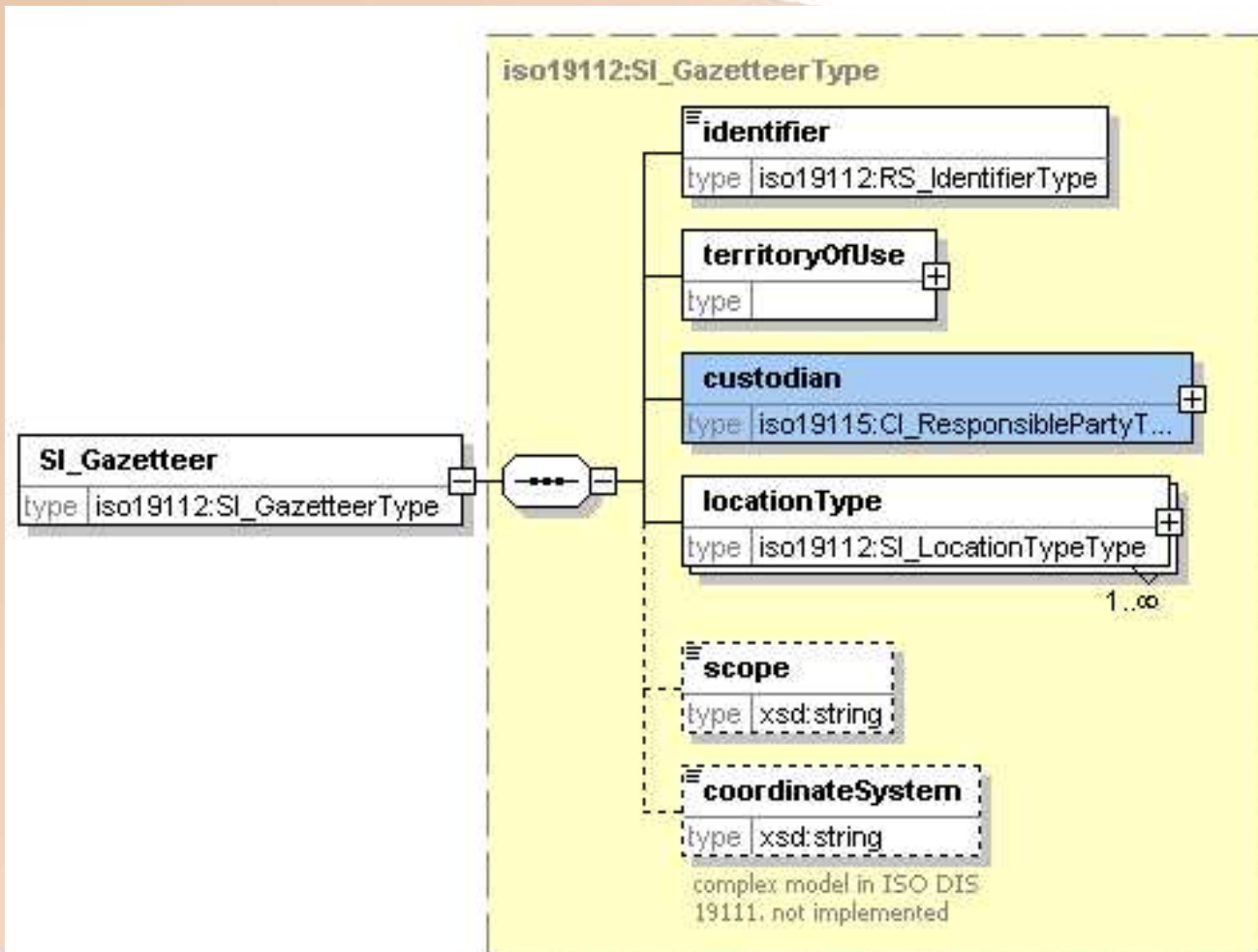
XML Schema Overview



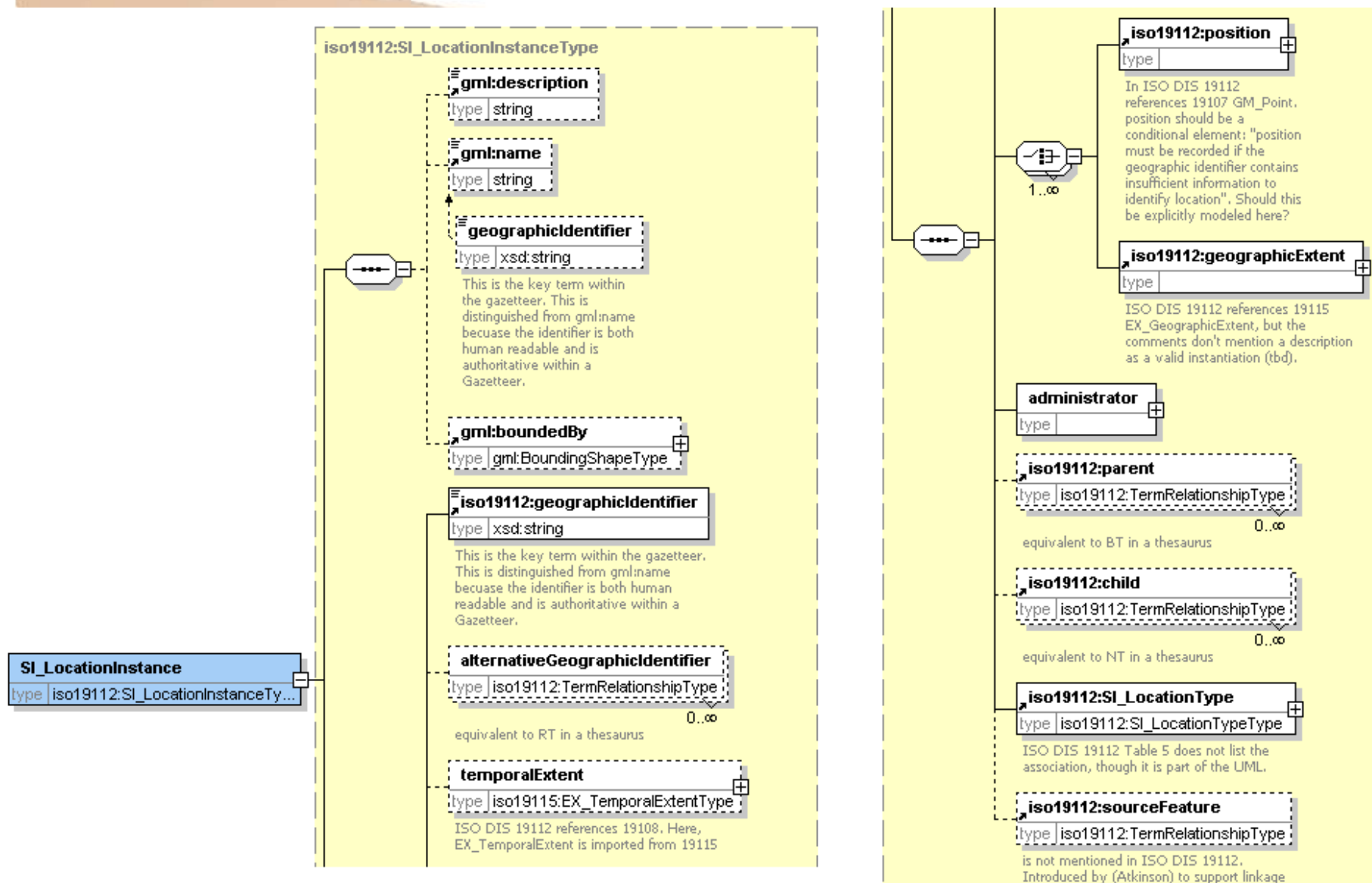
iso19112.xsd

```
<?xml version="1.0" encoding="UTF-8"?>
<!-- File: iso19112.xsd -->
<xsd:schema targetNamespace="http://www.opengis.net/iso19112" xmlns:iso19112="http://www.opengis.net/iso19112" xmlns:iso19115="http://www.isotc211.org/iso19115/" xmlns:xsd="http://www.w3.org/2001/XMLSchema" xmlns:gml="http://www.opengis.net/gml" xmlns:xlink="http://www.w3.org/1999/xlink" elementFormDefault="qualified" attributeFormDefault="unqualified" version="2.02">
  <!-- import constructs from the GML Feature and ISO TC 211 Metadata schemas -->
  <xsd:import namespace="http://www.opengis.net/gml" schemaLocation="../../gml/2.1/feature.xsd"/>
  <xsd:import namespace="http://www.isotc211.org/iso19115/" schemaLocation="../../19115nima/iso19115.xsd"/>
  <!-- =====
  global element declarations
  ===== -->
  <xsd:element name="SI_Gazetteer" type="iso19112:SI_GazetteerType"/>
  <xsd:element name="SI_LocationInstance" type="iso19112:SI_LocationInstanceType" substitutionGroup="gml:_Feature"/>
  <xsd:element name="SI_LocationInstance_Brief" type="iso19112:SI_LocationInstance_BriefType" substitutionGroup="gml:_Feature"/>
  <xsd:element name="SI_LocationType" type="iso19112:SI_LocationTypeType"/>
  <xsd:element name="SI_SpatialReferenceSystem" type="iso19112:SI_SpatialReferenceSystemType"/>
```

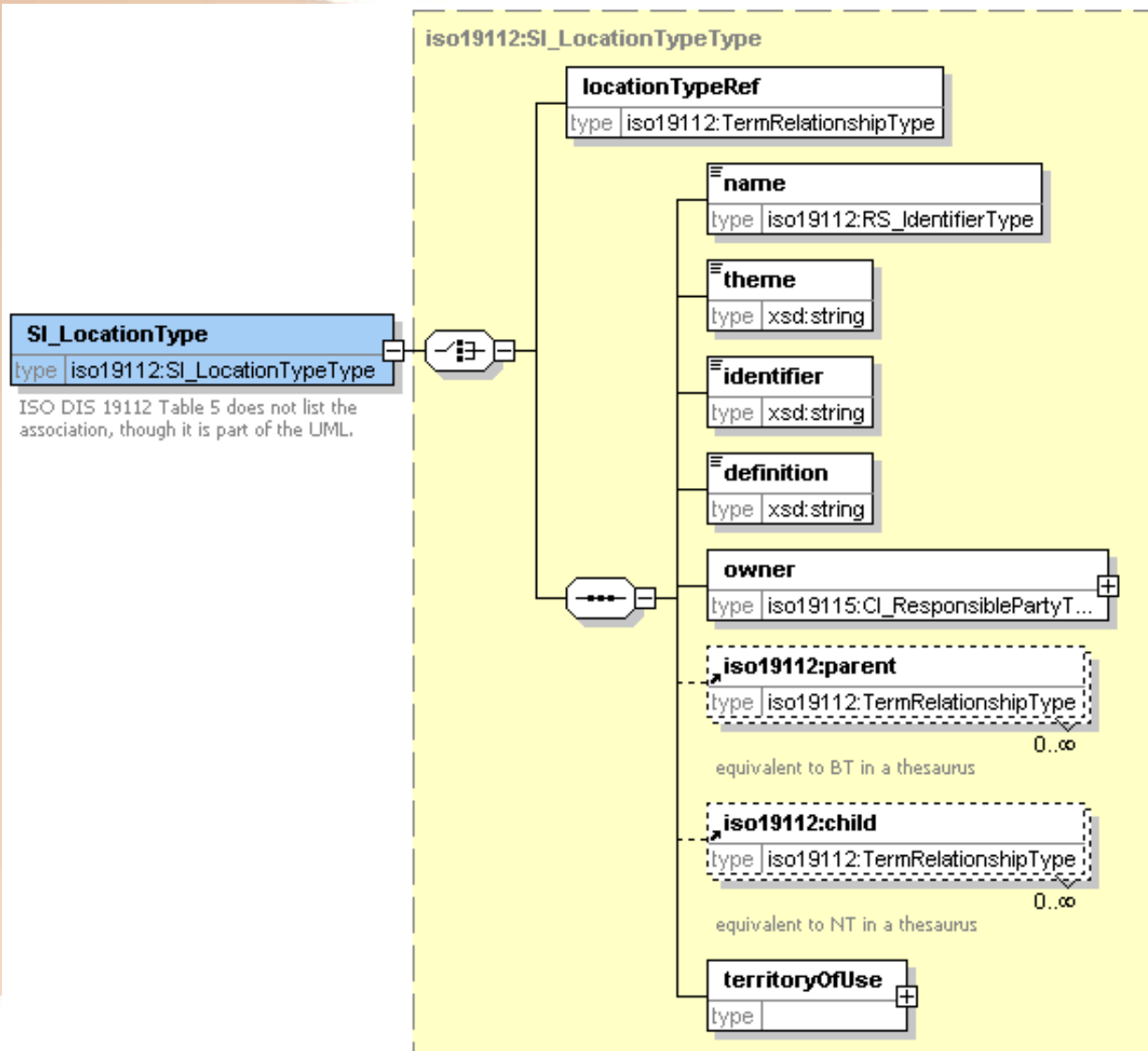
iso19112.xsd: SI_Gazetteer



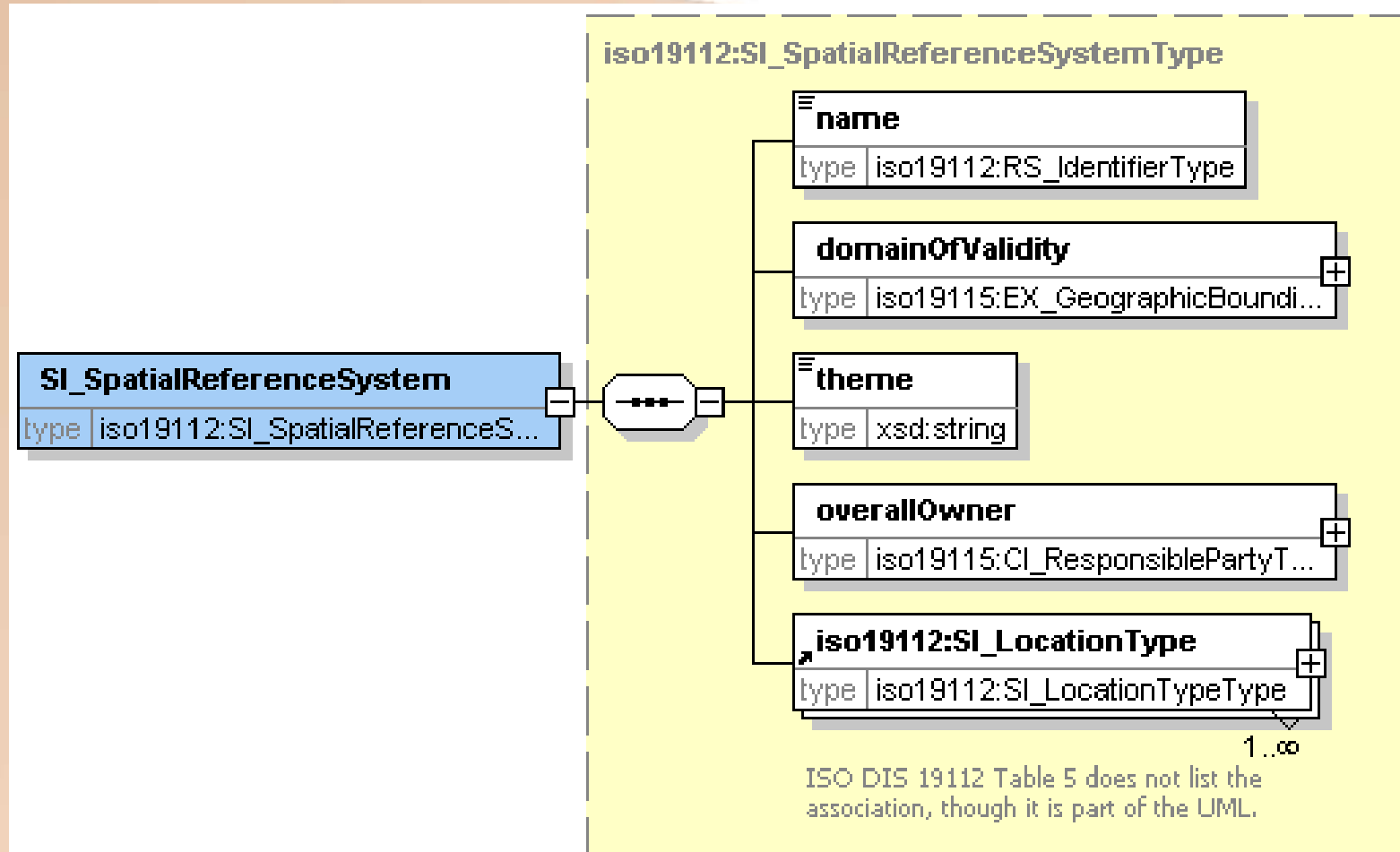
iso19112.xsd: SI_LocationInstance



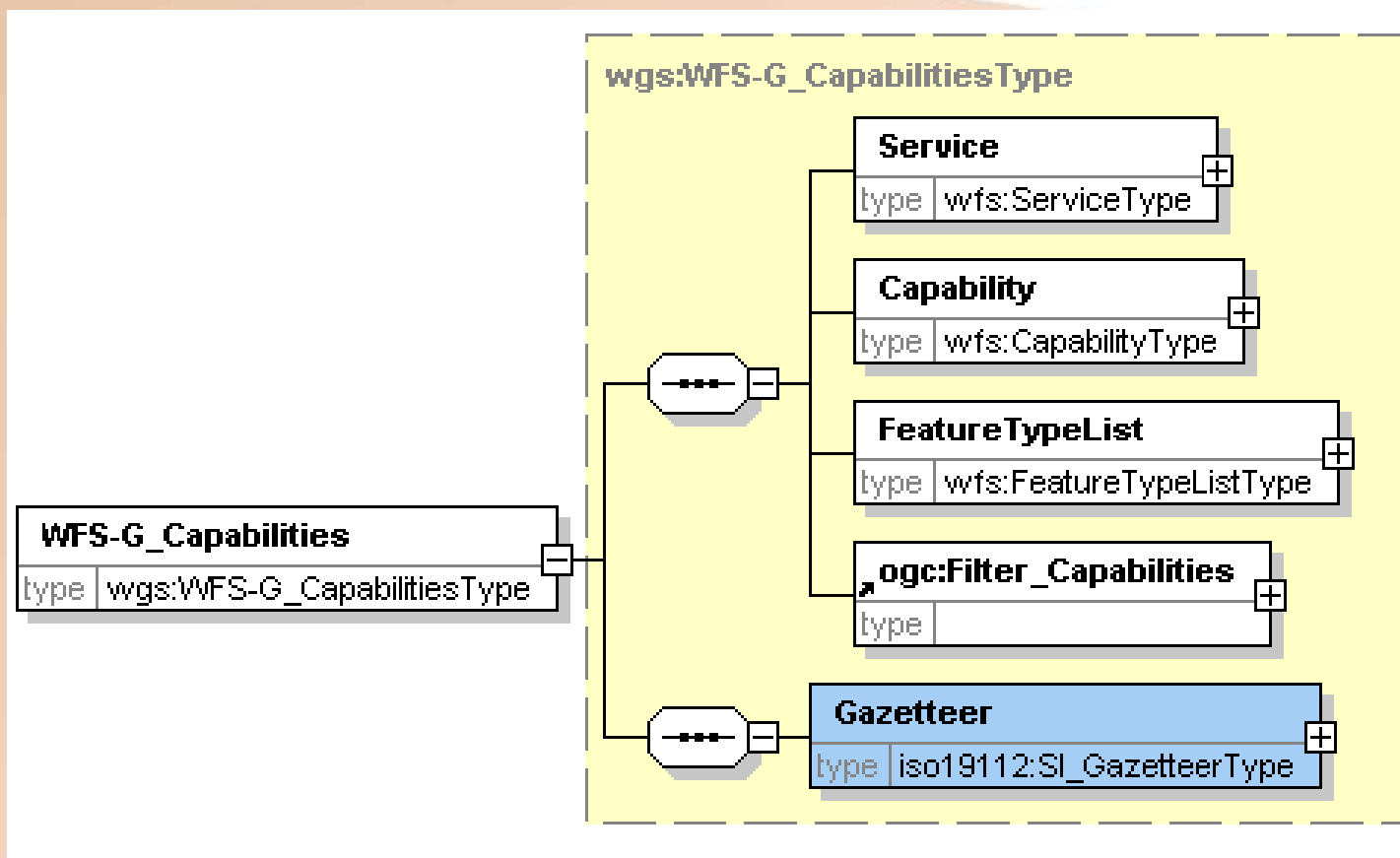
iso19112.xsd: SI_LocationType



iso19112.xsd: SI_SpatialReferenceSystem

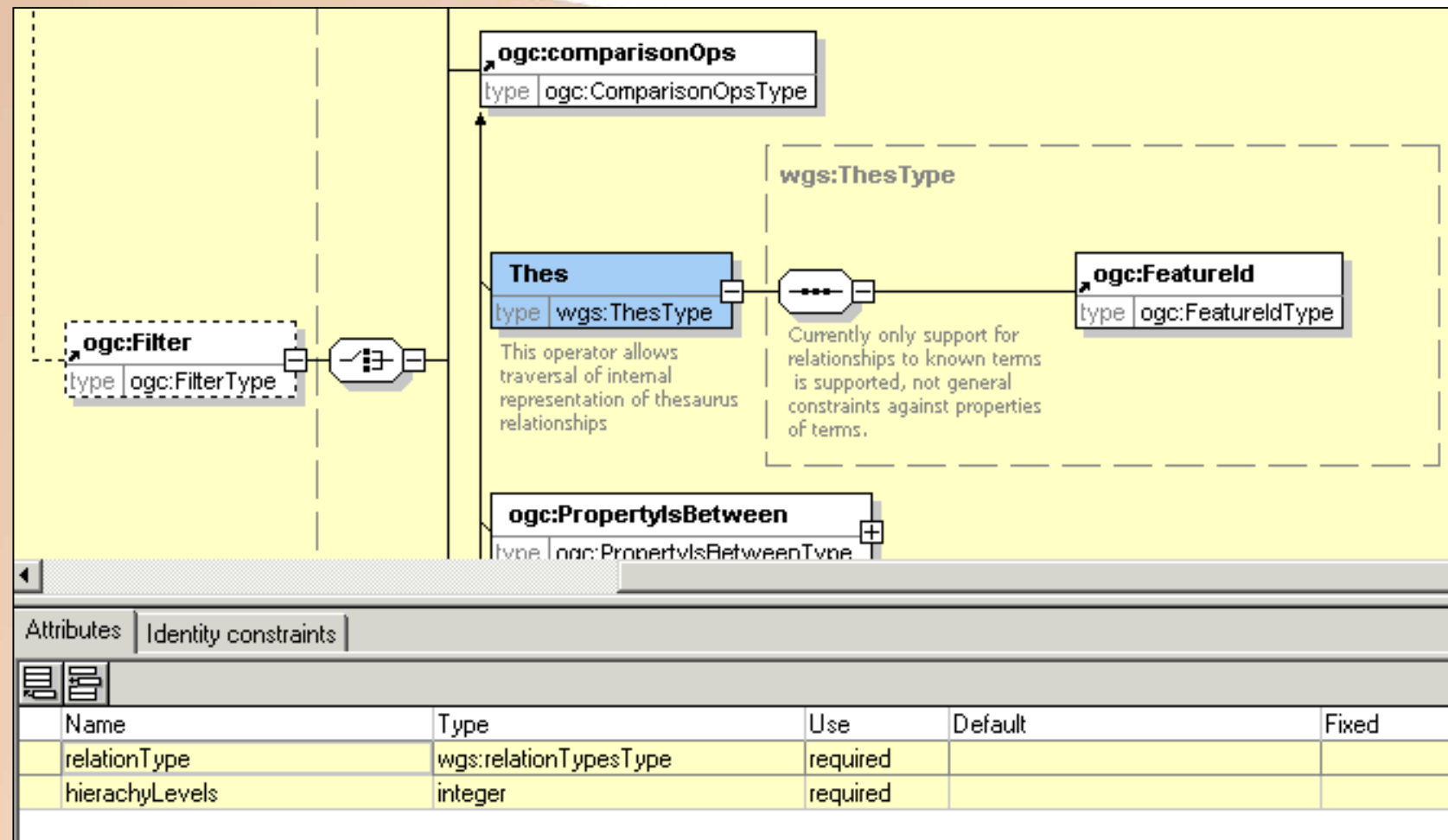


WFS-G Capabilities Response



example: `wfs-g_extensions_to_wfs_capabilities.xml`

WFS-G GetFeature Request



GetFeature Request Example

```
<?xml version="1.0" encoding="UTF-8"?>
<wgs:GetFeatureRequest xmlns:wgs="http://www.opengis.net/wgs" xmlns:ogc="http://www.opengis.net/ogc" xmlns:gml="http://www.opengis.net/gml" xmlns:wfs="http://www.opengis.net/wfs" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xsi:schemaLocation="http://www.opengis.net/wfs http://schemas.opengis.net/wfs/1.0.0/wfs.xsd http://www.opengis.net/ogc http://schemas.opengis.net/ogc/1.1.0/ogc.xsd http://www.opengis.net/gml http://schemas.opengis.net/gml/3.1.1/gml.xsd" version="1.0.0" service="WFS">
  <wfs:Query typeName="NIMA_GNS">
    <ogc:Filter>
      <ogc:And>
        <ogc:PropertyIsLike wildCard="*" singleChar="?" escape="\">>
          <ogc:PropertyName>iso19112:geographicIdentifier</ogc:PropertyName>
          <ogc:Literal>Bonn*</ogc:Literal>
        </ogc:PropertyIsLike>
        <ogc:PropertyIsEqualTo>
          <ogc:PropertyName>iso19112:SI_LocationType/iso19112:identifier</ogc:PropertyName>
          <ogc:Literal>PPL</ogc:Literal>
        </ogc:PropertyIsEqualTo>
        <ogc:BBOX>
          <ogc:PropertyName>iso19112:geographicExtent</ogc:PropertyName>
          <gml:Box>
            <gml:coordinates>6.8,50 7.5,51</gml:coordinates>
          </gml:Box>
        </ogc:BBOX>
      </ogc:And>
    </ogc:Filter>
  </wfs:Query>

```

GetFeature Request Example (2)

`<!--` This example shows a thesaurus query to find the parent of an identified term (in this case "Bonn") `-->`

```
<wfs:Query typeName="NIMA_GNS">
  <ogc:Filter>
    <wgs:Thes relationType="BT" hierachyLevels="1">
      <ogc:FeatureId fid="NIMA_GNS.-2447933"/>
    </wgs:Thes>
  </ogc:Filter>
</wfs:Query>
```

GetFeature Response Example

```
<?xml version="1.0" encoding="UTF-8"?>
<!-- Sample XML file generated by XML Spy v4.4 U (http://www.xmlspy.com)-->
<wgs:GazetteerResponse xmlns:wgs="http://www.giub.uni-bonn.de/gazetteer" xmlns:gml="http://www.opengis.net/gml" xmlns:iso19112="http://www.giub.uni-bonn.de/iso19112" xmlns:iso19115="http://www.iso19115.org/iso19115/impl_schema" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xsi:schemaLocation="http://www.giub.uni-bonn.de/wgs_getFeatureResponse.xsd" fid="ID0000000">
  <gml:description>String</gml:description>
  <gml:name>String</gml:name>
  <gml:boundedBy>
    <gml:Box srsName="EPSG:4326">
      <gml:coordinates>7 50.5 7.2 51.2</gml:coordinates>
    </gml:Box>
  </gml:boundedBy>
  <gml:featureMember>
    <iso19112:SI_LocationInstance>
      <gml:description>sample location instance from NIMA GNS</gml:description>
      <iso19112:geographicIdentifier>Bonn</iso19112:geographicIdentifier>
      <iso19112:geographicExtent>
        <EX_GeographicBoundingBox>
          <westBoundLongitude>7</westBoundLongitude>
          <eastBoundLongitude>7.2</eastBoundLongitude>
          <southBoundLatitude>50.5</southBoundLatitude>
          <northBoundLatitude>51.2</northBoundLatitude>
        </EX_GeographicBoundingBox>
      </iso19112:geographicExtent>
      <iso19112:position>
        <gml:Point>
          <gml:coordinates>7.1 50.7333333</gml:coordinates>
        </gml:Point>
      </iso19112:position>
      <iso19112:administrator>
        <CI_ResponsibleParty organisationName="NIMA">
          <role>
            <CI_RoleCode_CodeList>owner</CI_RoleCode_CodeList>
          </role>
        </CI_ResponsibleParty>
      </iso19112:administrator>
    </iso19112:SI_LocationInstance>
  </gml:featureMember>
</wgs:GazetteerResponse>
```

GetFeature Response Example (2)

```
<iso19112:administrator>
  <CI_ResponsibleParty organisationName="NIMA">
    <role>
      <CI_RoleCode_CodeList>owner</CI_RoleCode_CodeList>
    </role>
  </CI_ResponsibleParty>
</iso19112:administrator>
<iso19112:SI_LocationType>
  <iso19112:name>Populated Place</iso19112:name>
  <iso19112:theme>Populated Place Features</iso19112:theme>
  <iso19112:identifier>GNS:PPL</iso19112:identifier>
  <iso19112:definition/>
  <iso19112:owner organisationName="NIMA">
    <role>
      <CI_RoleCode_CodeList>owner</CI_RoleCode_CodeList>
    </role>
  </iso19112:owner>
  <iso19112:territoryOfUse>
    <EX_GeographicBoundingBox>
      <westBoundLongitude>-180</westBoundLongitude>
      <eastBoundLongitude>180</eastBoundLongitude>
      <southBoundLatitude>-90</southBoundLatitude>
      <northBoundLatitude>90</northBoundLatitude>
    </EX_GeographicBoundingBox>
  </iso19112:territoryOfUse>
</iso19112:SI_LocationType>
</iso19112:SI_LocationInstance>
</gml:featureMember>
</wgs:GazetteerResponse>
```

GDI NRW Gazetteer Service

<http://demo.deegree.org>

GDI NRW Gazetteer Service Look-Up - Mozilla {Build ID: 2002053012}

File Edit View Go Bookmarks Tools Window Help

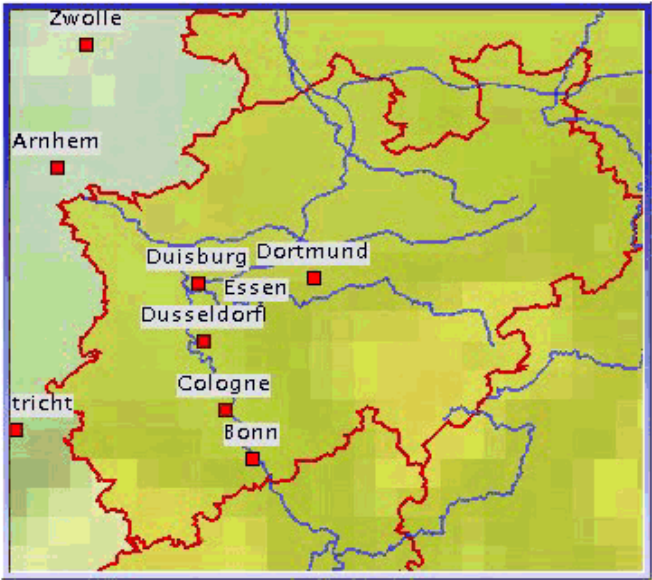
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deegree

[[HOME](#)] [[Web Map Service](#)] [[Web Feature Service](#)] [[Catalog Service](#)] [**[Gazetteer Service](#)**] [[Coordinate Transfor](#)]

Place-Name

Space ☒ Inside of map extent or ☐ anywhere



16 Matches for Bonn*

16 Matches
view: [Request](#) | [Response](#)

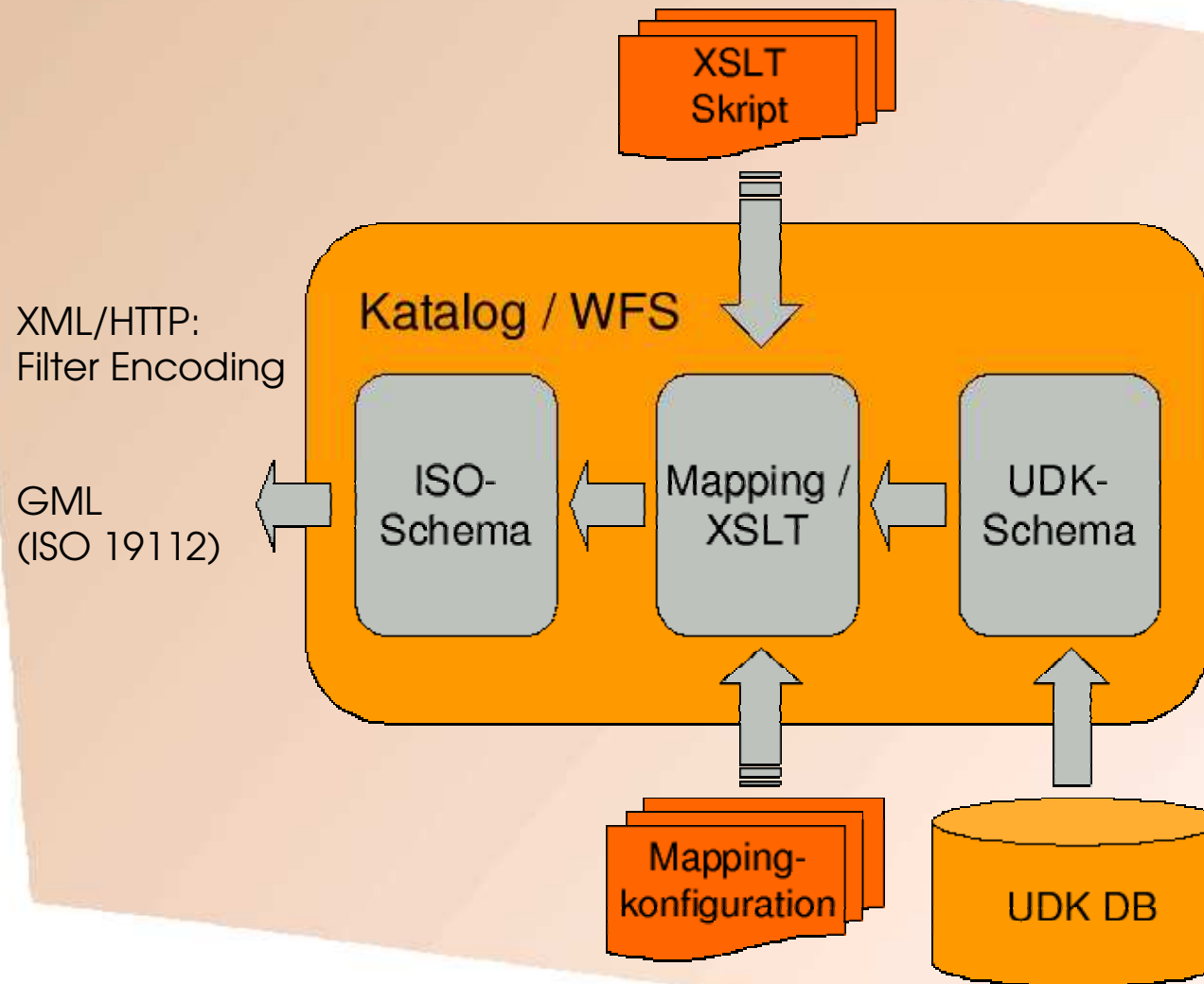
☒ zoomIn
☐ zoomOut
☐ recenter

| | |
|-----------------------------------|--|
| Bonn (BKG_VG250_BRIEF) | Bonninghausen (NIMA_GNS_BRIEF) |
| Bonninghausen (NIMA_GNS_BRIEF) | Bonninghardt (NIMA_GNS_BRIEF) |
| Bonninghardt (NIMA_GNS_BRIEF) | Bonning (NIMA_GNS_BRIEF) |
| Bonnes-Bach (NIMA_GNS_BRIEF) | Bonnenbroich (NIMA_GNS_BRIEF) |
| Bonnekoh (NIMA_GNS_BRIEF) | Bonneberg (NIMA_GNS_BRIEF) |
| Bonn-Beuel (NIMA_GNS_BRIEF) | Bonn-Bad Godesberg (NIMA_GNS_BRIEF) |
| Bonnacker (NIMA_GNS_BRIEF) | Bonn (NIMA_GNS_BRIEF) |
| Bonn-Hangelar (NIMA_GNS_BRIEF) | Bonn-Lengsdorf (NIMA_GNS_BRIEF) |

Document: Done (14.651 secs)

deegree Gazetteer Service

<http://deegree.sourceforge.net/>



UmweltInfo.online Hamburg

Hamburger Umweltinformationssystem - HUIS - Galeon

http://131.220.106.104/huis/control?action=gazetteer3&GAZETT

Datum (von) [yyyy-mm-dd] [] [] [] Datum (bis) [yyyy-mm-dd] [] [] []

räumliche Suchparameter

Bezirk ... auswählen Stadtteil ... auswählen

Bezirk ... auswählen Gemarkung ... auswählen

Strassen-Recherche

Strasse Billhorner Deich Hausnummer Billhorner Deich 128

DK5-Nummern

Flurstück

Selektierte Bounding Box: 10.042, 53.534, 10.047, 53.542

Suche starten zurücksetzen

Loading site...

Integration Gazetteer Service (OGC WFS-G)

Fragen?

Interoperable Gazetteers

- State of the art -



Dipl.-Geograph **Jens Fitzke**
fitzke@lat-lon.de
<http://www.lat-lon.de/>

latlon

