

Validation and documentation of END e-reporting GPKG data

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Outline

- Encoding of END reporting spatial data
 - Validation of INSPIRE datasets in Alternative Encoding
 - Validation of END GPKG data
 - Proposal for documentation of (END) GPKG data in the INSPIRE metadata
-

Encoding of the END reporting spatial data

The encoding of spatial data of the European Noise Directive (END) implements the Good Practice on the “*GeoPackage encoding of INSPIRE datasets*” (endorsed by 16th MIG meeting, Nov 2022)

END spatial datasets are provided according to pre-defined GPKG templates and contain all the information required:

- for Noise Reporting
- to derive INSPIRE compliant GML datasets (AM, TN, HH data themes)

INSPIRE Good Practice: GeoPackage encoding of INSPIRE datasets

Name of the GP

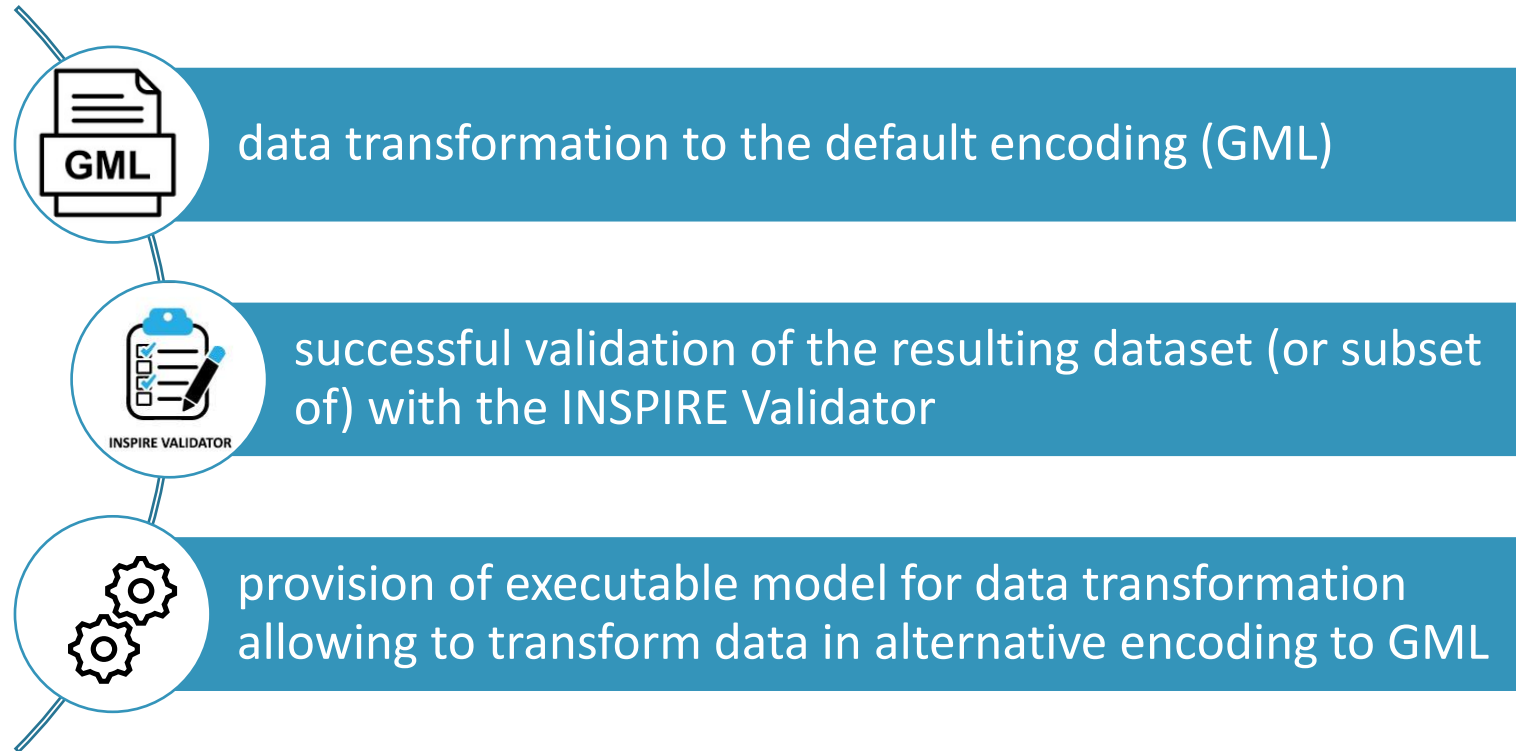
GeoPackage encoding of INSPIRE datasets

Description of the GP

This Good Practice (GP) describes a mechanism to create INSPIRE data sets encoded using the OGC GeoPackage encoding standard. These data sets will be compliant with the INSPIRE Implementing Rules (IR), and technical compliance can be shown through transformation to the default encoding (GML). In this perspective, the GeoPackage can be used both as an additional and an alternative encoding for INSPIRE data sets.

Validation of INSPIRE datasets in Alternative Encoding

Technical compliance with the INSPIRE Implementing Rules



Executable models can be ETL workbenches (e.g., hale studio or FME project), standalone programs, data transformation services...

Validation of END GPKG data - Workflow

Transform to GML encoding

Create GPKG-to-GML executable data transformation projects
(using hale studio)



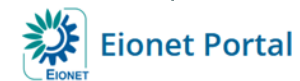
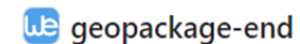
Validate GML data

Validate the derived GMLs (sample datasets) with the INSPIRE
Reference Validator



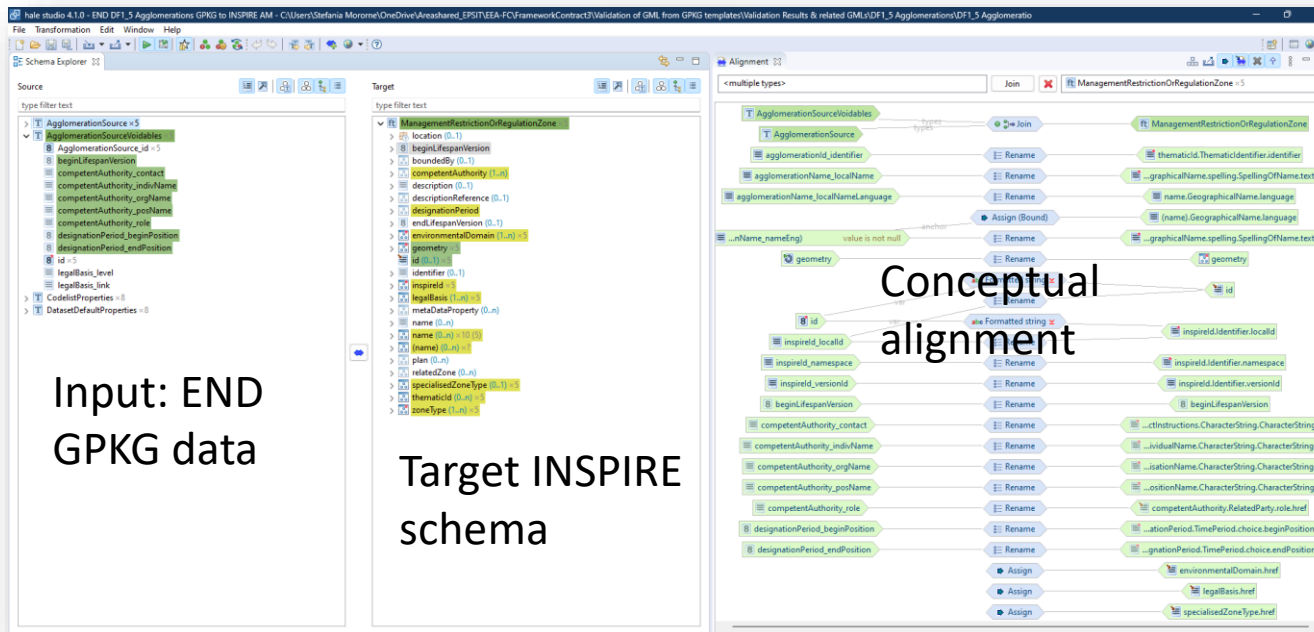
Publish documentation

- Executable data transformation projects in [GitHub repository](#)
- Complete documentation on the [EEA/Eionet Noise repository](#)



GPKG-to-GML executable data transformation

For all END spatial dataflows, GPKG-to-GML hale studio data transformation projects have been created.



Input: END GPKG data

Target INSPIRE schema

Conceptual alignment

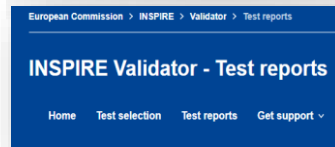


Output: INSPIRE GML for END data

```
<?xml version="1.0" ?>
<gml:FeatureCollection xmlns:sc="http://www.interactive-instruments.de/ShapeChange/AppInfo" xmlns:base2="http://inspire.ec.europa.eu/
xmlns:gn="http://inspire.ec.europa.eu/schemas/gn/4.0" xmlns:am="http://inspire.ec.europa.eu/schemas/am/4.0" xmlns:base="http://inspi
xmlns:xlink="http://www.w3.org/1999/xlink" xmlns:gco="http://www.isotc211.org/2005/gco" xmlns:ns1="http://www.w3.org/1999/xhtml" xmli
xmlns:gs="http://www.isotc211.org/2005/gsr" xmlns:gts="http://www.isotc211.org/2005/gts" xmlns:ad="http://inspire.ec.europa.eu/sche
xmlns:bu-base="http://inspire.ec.europa.eu/schemas/bu-base/4.0" xmlns:tn="http://inspire.ec.europa.eu/schemas/tn/4.0" xmlns:cp="http
xmlns:net="http://inspire.ec.europa.eu/schemas/net/4.0" xmlns:hfp="http://www.w3.org/2001/XMLSchema-hasFacetAndProperty" xmlns:xsi="h
xsi:schemaLocation="http://inspire.ec.europa.eu/schemas/net/4.0 http://www.w3.org/2001/XMLSchema-hasFacetAndProperty" xmlns:xsi="h
http://schemas.opengis.net/gml/3.2.1/deprecatedTypes.xsd">
  <gml:featureMembers>
    <am:ManagementRestrictionOrRegulationZone gml:id="AG_AT_00_1">
      <am:inspireId>
        <base:Identifier>
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          <base:namespace>end_agglomeration_AT</base:namespace>
          <base:versionId>2020</base:versionId>
        </base:Identifier>
      </am:inspireId>
      <am:thematicId>
        <base2:ThematicIdentifier>
          <base2:identifier>AG_AT_00_1</base2:identifier>
          <base2:identifierScheme>http://dd.eionet.europa.eu/vocabulary/inspire/IdentifierScheme/EUENDCode</base2:identifierScheme>
        </base2:ThematicIdentifier>
      </am:thematicId>
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          <gn:nameStatus xsi:nil="true"/>
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          <gn:pronunciation xsi:nil="true"/>
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              <gn:script xsi:nil="true"/>
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          </gn:spelling>
        </gn:GeographicalName>
      </am:name>
      <am:name>
        <gn:GeographicalName>
          <gn:language>deu</gn:language>
          <gn:nativeness xsi:nil="true"/>
          <gn:sourceOfName xsi:nil="true"/>
          <gn:pronunciation xsi:nil="true"/>
          <gn:spelling>
            <gn:SpellingOfName>
              <gn:text>Wien</gn:text>
              <gn:script xsi:nil="true"/>
            </gn:SpellingOfName>
          </gn:spelling>
        </gn:GeographicalName>
      </am:name>
      <am:geometry>
        <gml:Polygon srsName="http://www.opengis.net/def/crs/EPSG/0/31466" >
          <gml:exteriorRing srsName="http://www.opengis.net/def/crs/EPSG/0/31466" >
            <gml:LinearRing srsName="http://www.opengis.net/def/crs/EPSG/0/31466" >
              <gml:posList>
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                <gml:pos>48.208222 15.835111</gml:pos>
              </gml:posList>
            </gml:LinearRing>
          </gml:exteriorRing>
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            <gml:LinearRing srsName="http://www.opengis.net/def/crs/EPSG/0/31466" >
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                <gml:pos>48.208222 15.835111</gml:pos>
                <gml:pos>48.208222 15.835111</gml:pos>
              </gml:posList>
            </gml:LinearRing>
          </gml:interiorRing>
        </gml:Polygon>
      </am:geometry>
      <am:id>
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          <base:namespace>end_agglomeration_AT</base:namespace>
          <base:versionId>2020</base:versionId>
        </base:Identifier>
      </am:id>
      <am:beginLifeSpanVersion>
        <base:Identifier>
          <base:localId>AG_AT_00_1</base:localId>
          <base:namespace>end_agglomeration_AT</base:namespace>
          <base:versionId>2020</base:versionId>
        </base:Identifier>
      </am:beginLifeSpanVersion>
      <am:competentAuthority_contact>
        <base:Identifier>
          <base:localId>AG_AT_00_1</base:localId>
          <base:namespace>end_agglomeration_AT</base:namespace>
          <base:versionId>2020</base:versionId>
        </base:Identifier>
      </am:competentAuthority_contact>
      <am:individualName>
        <base:Identifier>
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          <base:namespace>end_agglomeration_AT</base:namespace>
          <base:versionId>2020</base:versionId>
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      </am:individualName>
      <am:locationName>
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          <base:versionId>2020</base:versionId>
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      </am:locationName>
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          <base:versionId>2020</base:versionId>
        </base:Identifier>
      </am:positionName>
      <am:competentAuthority_role>
        <base:Identifier>
          <base:localId>AG_AT_00_1</base:localId>
          <base:namespace>end_agglomeration_AT</base:namespace>
          <base:versionId>2020</base:versionId>
        </base:Identifier>
      </am:competentAuthority_role>
      <am:designationPeriod_beginPosition>
        <base:Identifier>
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          <base:namespace>end_agglomeration_AT</base:namespace>
          <base:versionId>2020</base:versionId>
        </base:Identifier>
      </am:designationPeriod_beginPosition>
      <am:designationPeriod_endPosition>
        <base:Identifier>
          <base:localId>AG_AT_00_1</base:localId>
          <base:namespace>end_agglomeration_AT</base:namespace>
          <base:versionId>2020</base:versionId>
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      <am:environmentalDomain>
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          <base:namespace>end_agglomeration_AT</base:namespace>
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        </base:Identifier>
      </am:environmentalDomain>
      <am:legalBasis>
        <base:Identifier>
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          <base:namespace>end_agglomeration_AT</base:namespace>
          <base:versionId>2020</base:versionId>
        </base:Identifier>
      </am:legalBasis>
      <am:specialisedZoneType>
        <base:Identifier>
          <base:localId>AG_AT_00_1</base:localId>
          <base:namespace>end_agglomeration_AT</base:namespace>
          <base:versionId>2020</base:versionId>
        </base:Identifier>
      </am:specialisedZoneType>
    </am:ManagementRestrictionOrRegulationZone>
  </gml:featureMembers>
</gml:FeatureCollection>
```

Validation of GML sample datasets

GML (sample) datasets validated with the INSPIRE Reference Validator, selecting **theme-specific conformance classes**



DF1_5_agglomerations - Area management / restriction / regulation zones & reporting units (AM)

Status Passed, manual checks required
Started 14/06/2023 08:07:56 GMT
Duration 8 s

	Total	Count	Skipped	Failed	Warnings	Manual
Test suites	10	0	0	0	0	4
Test cases	20	0	0	0	0	4
Assertions	47	0	0	0	0	6

Test run on 12:28 -14.06.2023- Transport networks (TN)

Status Passed, manual checks required
Started 14/06/2023 10:28:47 GMT
Duration 3 s

	Total	Count	Skipped	Failed	Warnings	Manual
Test suites	11	0	0	0	0	4
Test cases	25	0	0	0	0	6
Assertions	84	0	0	0	0	11

Conformance class: INSPIRE GML encoding (1)

Conformance class: Reference systems, General requirements (2)

Conformance class: Reference systems, Area Management, Restriction (1)

Conformance class: Information accessibility, General requirements (1)

Conformance class: Information accessibility, Area Management, Restriction (2)

Conformance class: Data consistency, General requirements (2)

Conformance class: Data consistency, Area Management, Restriction (1)

Conformance class: INSPIRE GML application schemas, General requirements (6)

Conformance class: GML application schemas, Area Management, Restriction (2)

Conformance class: Application Schema, Area Management, Restriction (5)

Conformance class: INSPIRE GML encoding (1)

Conformance class: Reference systems, General requirements (2)

Conformance class: Reference systems, Transport Networks (1)

Conformance class: Information accessibility, General requirements (1)

Conformance class: Information accessibility, Transport Networks (2)

Conformance class: Data consistency, General requirements (2)

Conformance class: Data consistency, Transport Networks (1)

Conformance class: INSPIRE GML application schemas, General requirements (6)

Conformance class: GML application schemas, Transport Networks (2)

Conformance class: Application schema, Transport Networks Common (5)

Conformance class: Application schema, Air Transport Networks (2)

Report generated by ETF

Documentation on INSPIRE validation of END data

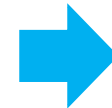
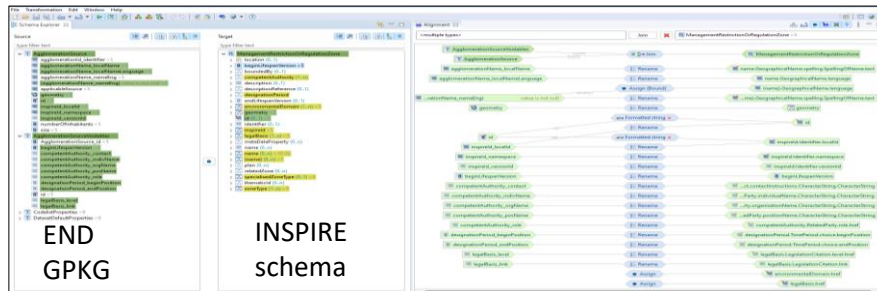


A dedicated Noise repository will provide one-off documentation on INSPIRE validation of END datasets:

- 1) [executable data transformation projects](#) GPKG-to-GML (hale studio *.halex* archives, including the source GPKG data)
 - 2) [mapping tables](#) from GPKG templates to INSPIRE data model
 - 3) [sample GML datasets](#) derived by running the GPKG-to-GML hale projects
 - 4) [successful reports of the INSPIRE Validator](#) for the sample GML datasets
-

Validation of END GPKG data

INSPIRE implementers must prove their END GPKG data compliance!
Documentation in the EEA Noise repository could be handy...



They can run the hale projects with their own GPKG data.



Implementers may wish to add the optional elements of INSPIRE models not relevant to END reporting and therefore not included in these sample projects.

Source Type	Source properties	Source property conditions	Target type	Target properties	Relation name	Call explanation
AgglomerationSourceVoidables AgglomerationSource			ManagementRestrictionOfRegulationZone		Join	Join the types 'AgglomerationSource', 'AgglomerationSourceVoidables' based on the following conditions: 'AgglomerationSource'.'id' = 'AgglomerationSourceVoidables'.'AgglomerationSource_id'
AgglomerationSourceVoidables	beginLifespanVersion		ManagementRestrictionOfRegulationZone	beginLifespanVersion	Rename	For each value in 'beginLifespanVersion' adds the same value to the 'beginLifespanVersion' property. If necessary a conversion is applied.
AgglomerationSourceVoidables	competentAuthority_contact		ManagementRestrictionOfRegulationZone	competentAuthority_RelatedParty contact Contact contactInstructions CharacterString	Rename	For each value in 'competentAuthority_contact' adds the same value to the 'CharacterString' property. If necessary a conversion is applied.
AgglomerationSourceVoidables	competentAuthority_indivName		ManagementRestrictionOfRegulationZone	competentAuthority_RelatedParty individualName CharacterString	Rename	For each value in 'competentAuthority_indivName' adds the same value to the 'CharacterString' property. If necessary a conversion is applied.
AgglomerationSourceVoidables	competentAuthority_orgName		ManagementRestrictionOfRegulationZone	competentAuthority_RelatedParty organizationName CharacterString	Rename	For each value in 'competentAuthority_orgName' adds the same value to the 'CharacterString' property. If necessary a conversion is applied.
AgglomerationSourceVoidables	competentAuthority_posName		ManagementRestrictionOfRegulationZone	competentAuthority_RelatedParty positionName CharacterString	Rename	For each value in 'competentAuthority_posName' adds the same value to the 'CharacterString' property. If necessary a conversion is applied.



They can use the mapping tables to support data transformation with tools different than hale studio

Proposal for documentation of (END) GPKG data in INSPIRE metadata

Noise Reporting guidelines include recommendations and examples for INSPIRE metadata of Noise spatial datasets:

- Resource title
- Resource abstract (reference to ROD, reporting year)
- Keywords:
 - INSPIRE spatial data theme
 - INSPIRE priority data sets
 - additional thematic keywords (related to END)
- Lineage
- Conformity:
 - to the INSPIRE Implementing rules on interoperability
 - to the END Implementing decision and END data model



Proposal for documentation of (END) GPKG data in INSPIRE metadata (1)



Metadata about the alternative encoding #25

Open idevisser opened this issue on Jan 16 · 5 comments

sMorrone commented last month · edited · Member

Dear @idevisser, @heidivanparys
find below a proposal for documentation of the END (specifically for the DF1_5 Agglomeration source). This proposal includes documentation of both the distribution format (gmd:distributionFormat) and the procedure used to evaluate the conformity - i.e. the executable transformation project (gmd:evaluationProcedure).
What do you think? Could this be an example that we can propose to add to the TG metadata?

```
<gmd:distributionFormat>
  <gmd:MD_Format>
    <gmd:name>
      <gmx:Anchor xlink:href="https://www.eionet.europa.eu/reportnet/docs/noise/templates/df1_5/agglomerati
    </gmd:name>
    <gmd:version>
      <gco:CharacterString>1.0</gco:CharacterString>
    </gmd:version>
    <gmd:specification>
      <gmx:Anchor xlink:href="https://www.eionet.europa.eu/reportnet/docs/noise/guidelines/geopackage-encod
    </gmd:specification>
  </gmd:MD_Format>
</gmd:distributionFormat>

.....
<gmd:report>
  <gmd:DQ_DomainConsistency>
    <gmd:evaluationProcedure>
      <!-- reference to the procedure information.
      Insert here the link to the online document that contains the description of the executable data transform
    <gmd:CI_Citation>
      <gmd:title>
        <gmx:Anchor xlink:href="Link to the document with the executable GPKG-to-GML transformation project">GPKG
      </gmd:title>
      <gmd:date>
        <gmd:CI_Date>
          <gmd:date>
            <!-- Insert below the reference date(s) of the document -->
            <gco:Date>2023-03-04</gco:Date>
          </gmd:date>
          <gmd:dateType>
            <gmd:CI_DateTypeCode codeList="http://standards.iso.org/iso/19139/resources/gmxCodeLists.xml#CI_DateType
          </gmd:dateType>
        </gmd:CI_Date>
      </gmd:date>
    </gmd:CI_Citation>
  </gmd:evaluationProcedure>
  <gmd:result>
    <gmd:DQ_ConformanceResult>
      <gmd:specification>
        <gmd:CI_Citation>
          <gmd:title>
            <gmx:Anchor xlink:href="http://data.europa.eu/eli/reg/2018/1089">Commission Regulation (EU) No 1089/2
          </gmd:title>
        </gmd:CI_Citation>
      </gmd:specification>
    </gmd:DQ_ConformanceResult>
  </gmd:result>
</gmd:report>
.....
```



Document use of the GPKG format

```
<gmd:distributionFormat>
  <gmd:MD_Format>
    <gmd:name>
      <gmx:Anchor
xlink:href="https://www.eionet.europa.eu/reportnet/docs/noise/templates/df1_5/aggl
omerationSource.gpkg/@@download/file/AgglomerationSource.gpkg">END
GeoPackage Template DF1_5 AgglomerationSource</gmx:Anchor>
    </gmd:name>
    <gmd:version>
      <gco:CharacterString>1.0</gco:CharacterString>
    </gmd:version>
    <gmd:specification>
      <gmx:Anchor
xlink:href="https://www.eionet.europa.eu/reportnet/docs/noise/guidelines/geopackage
-encoding-rule-end.pdf">GeoPackage Encoding Rule for Environmental Noise Directive
Reporting Data
    </gmx:Anchor>
    </gmd:specification>
  </gmd:MD_Format>
</gmd:distributionFormat>
```

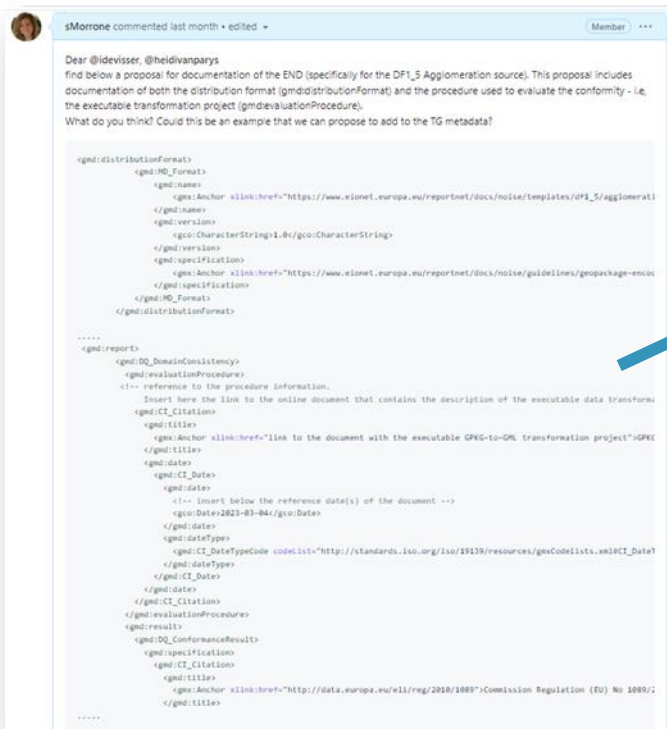
<https://github.com/INSPIRE-MIF/gp-geopackage-encodings/issues/25#issuecomment-1580380410>

Proposal for documentation of (END) GPKG data in INSPIRE metadata (2)



Metadata about the alternative encoding #25

Open idevisser opened this issue on Jan 16 - 5 comments



<https://github.com/INSPIRE-MIF/gp-geopackage-encodings/issues/25#issuecomment-1580380410>

Document conformance result

```
<gmd:report>
  <gmd:DQ_DomainConsistency>
    <gmd:evaluationProcedure>
      <!-- def.' reference to the procedure information'. Insert here the link to the online document that
      contains the description of the executable data transformation project and gives access to it. -->
      <gmd:CI_Citation>
        <gmd:title>
          <gmx:Anchor xlink:href="link to the document with the executable GPKG-to-GML transformation
          project">GPKG-to-GML executable transformation project from DF1_5 Agglomeration Source to INSPIRE
          AM</gmx:Anchor> </gmd:title> ...
      <!-- insert below the reference date(s) of the document -->
      <gmd:date>
        <gco>Date>2023-03-04</gco>Date>
      </gmd:date>
      <gmd:dateType>
        <gmd:CI_DateTypeCode
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          codeListValue="publication">Publication</gmd:CI_DateTypeCode>
        </gmd:dateType>
      </gmd:CI_Date>
      </gmd:CI_Citation>
    </gmd:evaluationProcedure>
  </gmd:result>
</gmd:DQ_DomainConsistency>
</gmd:report>
```

Thank you!