INSPIRE Data Specification Example: Administrative Units

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Data Specification Template

- Based on DT Deliverables
  - "Generic Conceptual Model" (D2.5)
  - "Methodology for the development of data specifications" (D2.6)
  - ISO 19131 "Data Product Specifications"
- Goals:
  - Implement requirements and recommendations from D2.5 and D2.6
  - Harmonize INSPIRE data specifications created by the TWGs
- Administrative Units examples shown like this
  - **work in progress!**

Content

2. Overview

- Informal description
  - Definition (from the Directive)
    - Units of administration, dividing areas where Member States have and/or exercise jurisdictional rights, for local, regional and national governance, separated by administrative boundaries.
  - Description (from the Overview Description)
    - Each national territory is divided into administrative units. The administrative units are separated by administrative boundaries.
    - Administrative units and administrative boundaries form a partition of space.
    - (…) it will be distinguished between land and (coastal) water parts of administrative units. (…) units at the cadastral parcel level are excluded as well as territorial waters (…)
    - It does not include related systems such as census districts, post office regions and other sector-specific regions, but it will contain a reference to national statistical units at local level (LAU) and to the Nomenclature of Territorial Units for Statistics (NUTS) established by Eurostat.
- Other basic information, e.g. normative references, document metadata, Terms and definitions, acronyms

3. Specification scopes

- This data specification has only one scope, the general scope.

- Different scopes might be required when a theme involves several levels of detail
  - e.g. transport networks (?)

- Scopes allow different quality requirements for different spatial objects

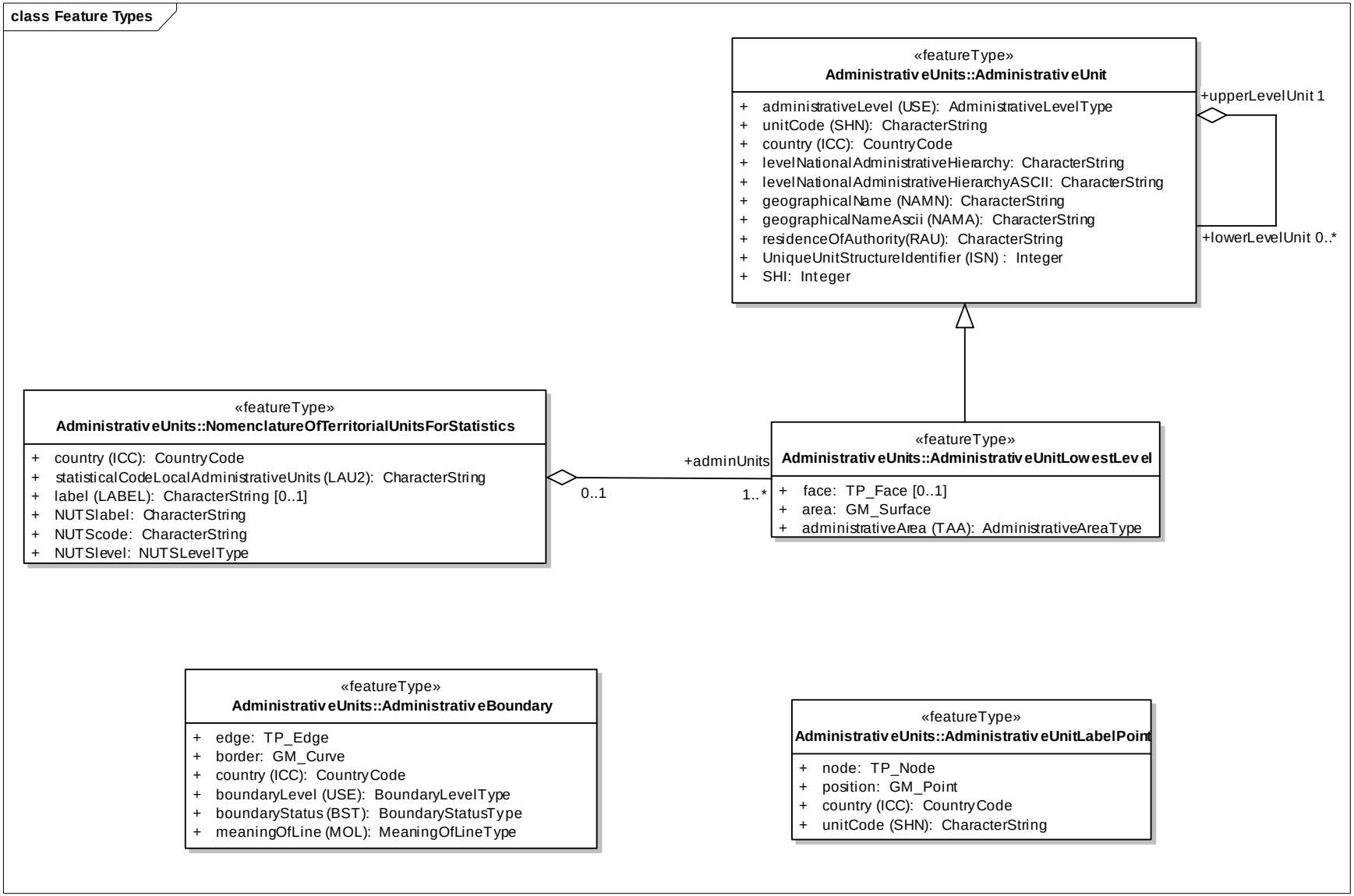
4. Data product identification

- Title, Abstract (from the Overview Description), Topic category (boundaries)
- Geographic description
  - (…) covers spatial data sets which relate to an area where a Member State has and/or exercises jurisdictional rights
- Purpose (⇒ Use cases, user requirements)
  - **Filtering data** (…) The geometry of a selected administrative units is used in a query filter when retrieving geographic information (…) or metadata (…)
  - **Linking thematic information**. (…) data providers link their information to the administrative units.
  - **Disaster management.** The administrative units that are affected by an environmental phenomenon or disaster are selected.
- Spatial representation type
  - vector

5. Data content and structure

- Narrative description
  - Informal description
  - Consistency between spatial data sets
  - Identifier management
  - Modelling of object references (Optional)
  - Profiles of spatial and temporal schema (Optional)
- Application schema & Feature catalogue
  - derived from UML model in shared repository

Application Schema



Feature Catalogue

«featureType» AdministrativeUnit	
Definition:	Area controlled by an administrative authority
Subtype of:	
Status:	Proposed
Stereotypes:	«featureType»
Attribute: administrativeLevel (USE)	
Value type:	AdministrativeLevelType
Cardinality:	1..1
Definition:	USE Level of administration in the national administrative hierarchy.
Stereotypes:	
Association:	
Type:	Aggregation
Source Role:	lowerLevelUnit
Value type:	AdministrativeUnits::AdministrativeUnit
Cardinality:	0..*
Definition:	
Target Role:	upperLevelUnit
Value type:	AdministrativeUnits::AdministrativeUnit
Cardinality:	1
Definition:	
Constraint:	
Type:	OCL
Constraint:	inv: self.administrativeLevel < self.lowerLevelUnit.administrativeLevel

6. Reference systems

- Spatial reference system:
  - Horizontal coordinate reference system: ETRS89, geodetic coordinates as defined in the INSPIRE Data Specification for "Coordinate Reference Systems".
  - Vertical coordinate reference system: EVRF2000, normal heights as defined in the INSPIRE Data Specification for "Coordinate Reference Systems".

7. Data quality

- Data quality (sub-)elements for data set metadata for evaluation and use
  - in accordance with ISO 19113, e.g.
    - completeness
    - logical consistency
    - positional accuracy
    - temporal accuracy
    - thematic accuracy
  - include applicable data quality measures ISO 19138
- Minimum data quality requirements may be recommended
  - when justified by the user requirements
  - introduce conformity levels for metadata
  - allow deviations

Example: Topological consistency

- curves do not overlap or touch interior, i.e. curves only touch at their ends and do not intersect or overlap

7.2.2.1.1 Number of faulty point-curve connections

Name	number of faulty point-curve connections
Alternative name	extraneous nodes
Data quality element	logical consistency
Data quality subelement	topological consistency
Data quality basic measure	Error count
Definition	number of faulty point-curve connections in the dataset |
Description	A point-curve connection exists where different curves touch. These curves have an intrinsic topological relationship that has to reflect the true constellation. If the point-curve connecion contradicts the universe of discourse, the point-curve connection is faulty with respect to this data quality measure. The data quality measure counts the number of errors of this kind.
Parameter	-
Data quality value type	Integer
Data quality value structure	-
Source reference	-
Example	-
Measure identifier	9

Positional accuracy

- All spatial objects shall ideally have a positional accuracy of 100 meters or better

7.2.3.1.1 mean value of positional uncertainties (1D, 2D and 3D)

Name	mean value of positional uncertainties (1D, 2D and 3D)
Alternative name	-
Data quality element	positional accuracy
Data quality subelement	absolute or external accuracy
Data quality basic measure	not applicable
Definition	Mean value of the positional uncertainties for a set of positions where the positional uncertainties are defined as the distance between a measured position and what is considered as the corresponding true position
Description	See ISO 19138..
Parameter	-
Data quality value type	Measure
Data quality value structure	-
Source reference	-
Example	-
Measure identifier	28

9. Delivery

- Delivery medium
  - Data will be made available through Download Services
    - providing access to a pre-defined (part of a) dataset
    - providing direct access to data and streaming data
- Delivery format
  - Every encoding rule in INSPIRE shall conform to ISO 19118
    - ISO 19136 for spatial objects
    - ISO/TS 19139 for metadata elements, feature catalogue and feature concept dictionary information
  - GML application schema shall be specified as part of delivery information

11. Portrayal

- View service defines a simple default style
  - black points, lines or polygons on a transparent background
  - for coverage/raster data to be defined
  - Default mapping: One layer per spatial object type
- Other default style can be specified

Portrayal example

Element	Description
Layer Title	Adminstrative Boundary
Layer Name	AdminstrativeUnits.AdminstrativeBoundary
Content	Spatial object type: AdminstrativeBoundary
Keywords	administrative boundaries, borders
Style (including name, title, abstract and legend)	<?xml version="1.0" encoding="ISO-8859-1"?> <FeatureTypeStyle version="1.1.0" xsi:schemaLocation="(...)" (...)> <Name>AdminstrativeBoundaryStyle</Name> <Description> <Title>Adminstrative Boundary Style</Title> <Abstract>This style uses red lines for all boundaries and different stroke widths depending on the value of the boundaryLevel property: 4 px for level 1, 3 px for level 2, 2 px for level 3, and 1 px for all other levels.</Abstract> </Description> <FeatureTypeName>AdministrativeBoundary</FeatureTypeName> <Rule> <Name>Level1</Name> <ogc:Filter> <ogc:PropertyIsEqualTo> <ogc:PropertyName>boundaryLevel</ogc:PropertyName> <ogc:Literal>1</ogc:Literal> </ogc:PropertyIsEqualTo> </ogc:Filter> <LineSymbolizer> <Geometry> <ogc:PropertyName>border</ogc:PropertyName> </Geometry> <Stroke> <SvgParameter name="stroke">#ff0000</SvgParameter> <SvgParameter name="stroke-width">4</SvgParameter> </Stroke> </LineSymbolizer> </Rule> <Rule> (...) </Rule> </FeatureTypeStyle>

OpenGIS Symbology Encoding Implementation Specification

?

- Questions?
- Data specification is still under work!

Data specification

INSPIRE
Infrastructure for Spatial Information in Europe

INSPIRE Data Specification Administrative Units

Title	INSPIRE Data Specification Administrative Units
Creator	INSPIRE Thematic Working Group Administrative Units
Date	2008-06-17
Subject	INSPIRE Data Specification for the theme Administrative Units
Publisher	INSPIRE Thematic Working Group Administrative Units
Type	Text
Description	Draft example data specification for the theme Administrative Units
Contributor	Members of the INSPIRE Thematic Working Group Administrative Units
Format	MS Word (doc)
Source	
Rights	Restricted to TWG members, DT DS and CT
Identifier	DataProductSpecification_Template_v4.doc
Language	En
Relation	n/a
Coverage	Project duration

8. Metadata

- Metadata elements for evaluation that should be made mandatory (by condition)
  - based on theme specific requirements and practises
  - in addition to core mandatory elements for discovery

Metadata element name	…
ISO definition	…
ISO 19115 number and name	…
ISO/TS 19139 path	…
INSPIRE obligation / condition	…
INSPIRE multiplicity	…
Data type	…
Domain	…
Implementing instructions	…
Example	…
Comment	…

No metadata elements for evaluation defined

12. Additional information (optional)

- No additional information defined so far

10. Data Capture (optional)

- Selection criteria (rules) for which spatial objects are part of spatial data sets
  - minimum area or length
  - functional characteristics like the class of a road
- Different level of detail require different rules
  - European level 1:1000000
  - Local level 1:10000
- The data capturing processes used by a data provider is not relevant for this component

No data capture rules defined for DS Adm units

Abstract test suite

1. Test Purpose: Verify that a dataset is conformant with the INSPIRE data specification Administrative Units

2. Test Method: Inspect the data specification and check it against the following requirements:

   Conceptual consistency – does the dataset adhere to the application schema

   ....

3. References:

   INSPIRE Data specification Administrative Units

4. Test Type: Basic Test