

Core Reference Dataset – Prototype

Sonja Werhahn, BKG, 25.09.2018

Webinar 1: Technical requirements contributing to CRD and the status of first contributions



CRD – the initial idea

**Reference Data set at Master Level of Detail for Europe
make use of INSPIRE- / ELS-Data provided by NMCA**

but:

- Easy to use
- Simplified data model
- Limited content
- Harmonised at International boundaries
- Centralised data production

CRD content (Prototype)

Themes

- **Hydrography:** Watercourse, StandingWater, LandWaterBoundary
- **Transport Network:** Road Network, Railway Network including RailwayStationNode

Scale, positional accuracy

- **Multiscale approach:** data from 1:10.000 to 1:50.000 will be accepted
- **Positional accuracy:** about 5-15m (or better)

Coverage

- Priority 1: EU28
- Priority 2: other EEA 39
- Priority 3: other European countries

Data model: Based on INSPIRE but flattend data model (I)

1.) INSPIRE properties defined as data type

For CRD:

- Data types are resolved into a list of attributes
 - geographicalNames
 - width
- Data types are concatenated into a single attribute delimited by hash (#)
 - inspireId (namespace#localId)
 - hydroid (namespace#localId#ClassificationScheme)

2.) INSPIRE transport networks consist of Links, LinkSequences and LinkSets as linear feature types

For CRD:

- CRD uses only Links
- Some Attributes of LinkSets are transferred to the Links
 - railwayLineCode from RailwayLine to RailwayLink

Data model: Based on INSPIRE but flattend data model (II)

3.) INSPIRE transport properties are own feature types which are associated to the transport links by linear referencing

For CRD:

- The transport properties are assigned as attributes to the transport links
- If a transport property is defined only for a part of the transport link in the source data, it will be split accordingly

4.) Some INSPIRE attributes have multiplicity greater than 1 (e.g. [0.;*] or [1.;*]).

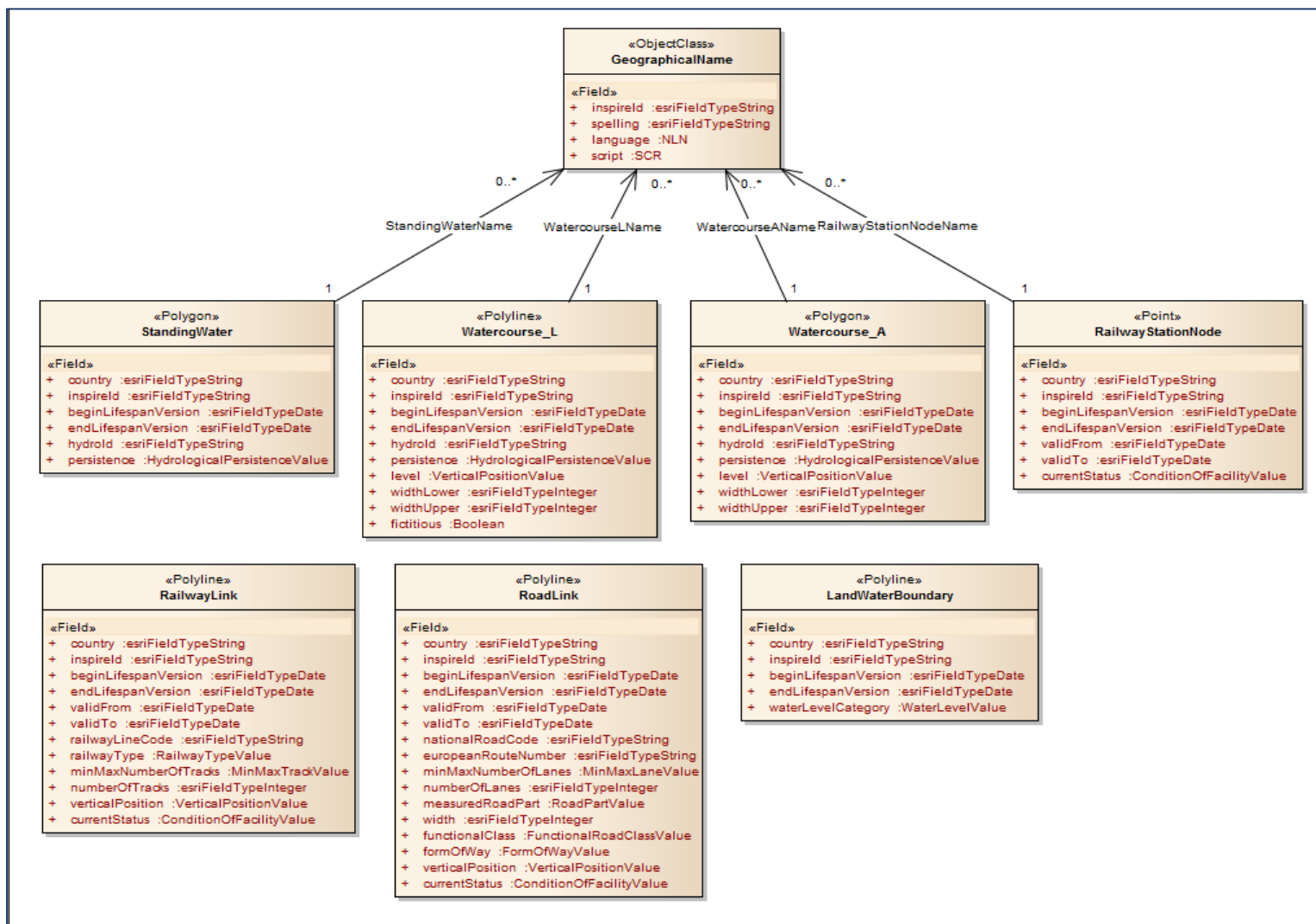
For CRD:

- all attributes have multiplicity [0...1] except GeographicalName

5.) Features may be of different geometric types (point, curve, surface)

For CRD:

- the feature type is split (e.g. WaterCourse_L and WaterCourse_A) or only one option is kept (only surface for StandingWater)



Themes - Hydrography

Application Schema	Feature Type / Data Type	Geometry type
PhysicalWaters	StandingWater	Surface
	Watercourse	Curve and surface
	LandWaterBoundary	Curve

The feature type Watercourse can be provided as curve and surface geometry.

- mandatory to provide watercourses as curves
- provide as surfaces, if the watercourse has a significant width
- to establish a topological network → include **fictitious** lines

Themes – Transport Network - Road

Application Schema	Feature Type / Data Type	Geometry type
RoadTransport Network	RoadLink	Curve
	Road	attribute
	ERoad	attribute
	NumberOfLanes	attribute
	RoadWidth	attribute
	FunctionalRoadClass	attribute
	FormOfWay	attribute
	ConditionOfFacility	attribute
CommonTransportElements	VerticalPosition	attribute

Themes – Transport Network - Railway

Application Schema	Feature Type / Data Type	Geometry type
RailwayTransport Network	RailwayLink	Curve
	RailwayStationNode	Node
	RailwayLine	attribute
	RailwayType	attribute
	NumberOfTracks	attribute
	ConditionOfFacility	attribute
CommonTransportElements	VerticalPosition	attribute

Production steps:

- Data delivery by NMCAAs
- Quality checks
- Edge matching
- Final assembly of CRD

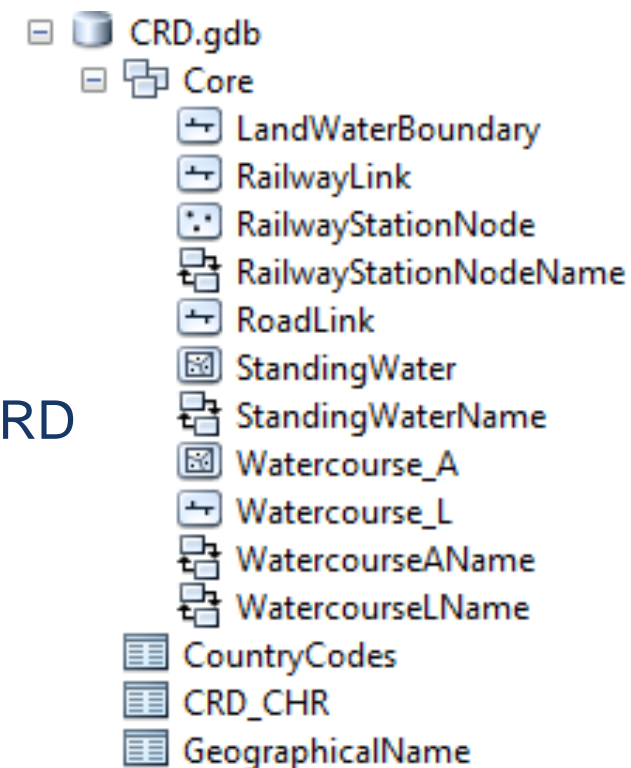
Production steps: Data delivery by NMCAAs

- INSPIRE data → transformation to CRD done by BKG

OR:

- NMCAAs transform national data to CRD → delivery to BKG as CRD data

BKG provides template → ESRI gdb



Production steps: Data delivery by NMCAAs

Focus is on:

- **current features** (beginLifespanVersion, endLifespanVersion)
- **functional features** (currentStatus)

In order to achieve a consistent data set please provide as many feature types/ data types / attributes as possible!

Production steps: Quality checks

CRD relies on the quality checks done by NMCAs for the original data

- Focus on topology checks
- Basic Consistency checks
- But only minor corrections can be amended

Corrections / errors found will be reported back to NMCA after final data assembly

Production steps: Edge matching

For Prototype: Will be done by BKG

- Create Connecting Features → Edge matching tool ERM
- The defined Connecting Features will be communicated to NMCAs after the edge-matching
- No validation with each individual NMCA, but changes communicated back to NMCAs

Where Connecting Features are available (FR-BE):

- Connecting Features are provided by NMCAs, used for edge matching in CRD

International boundary will not be provided in CRD, only the connecting features

Production steps: Final data assembly

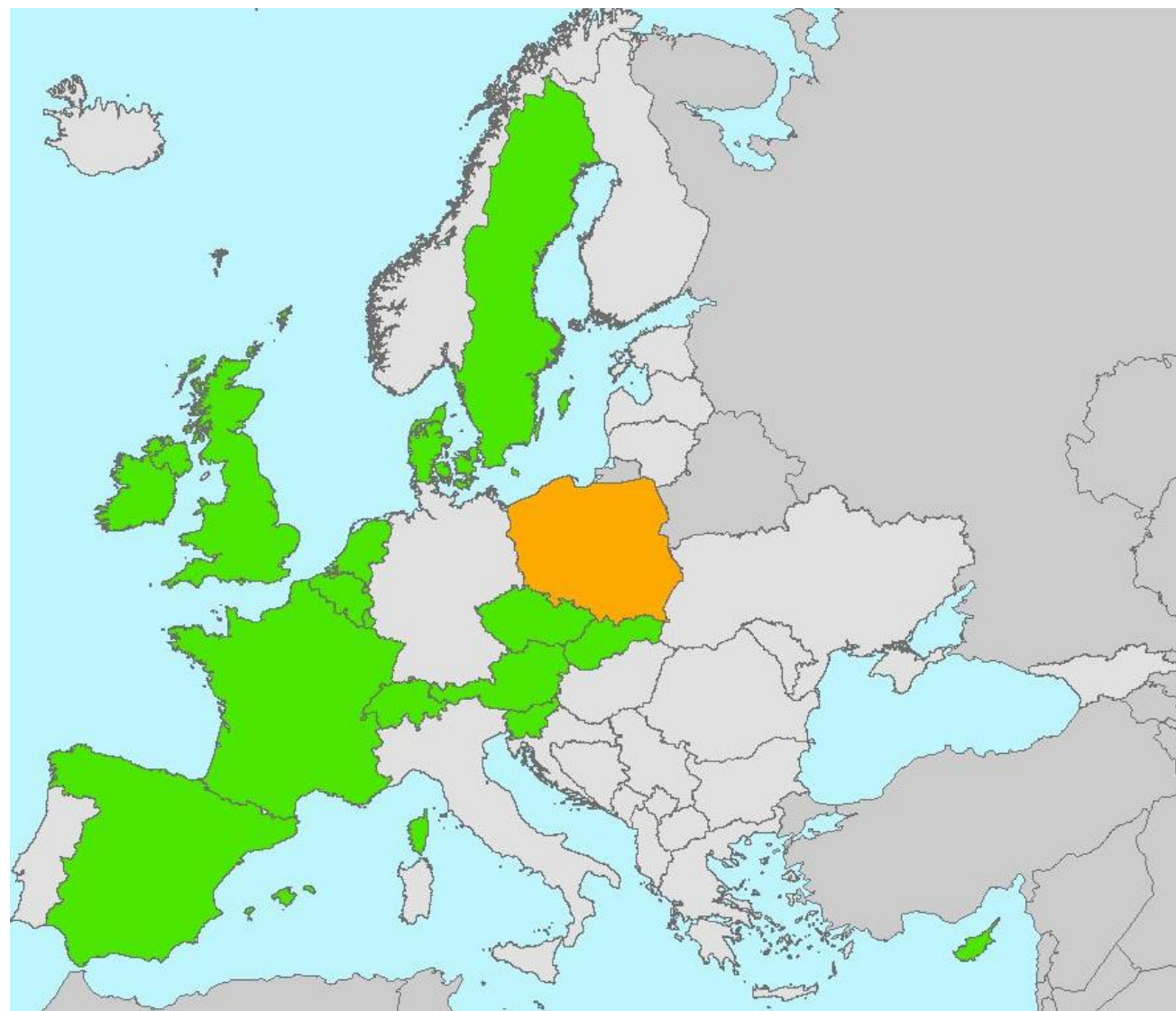
- All countries in one data base
- Last basic quality checks
- Metadata
- Documentation

Contributions to date

Status of contributions:

17 countries have delivered data
(green: delivered whole country /
orange: test data)

- HY: 16
- Road: 17
- Rail: 15



What are we doing at the moment?

- Evaluation of data deliveries → come back to NMCAs for questions if necessary
 - About half of NMCAs have delivered INSPIRE, other half has delivered CRD
 - Not all feature types delivered by all NMCAs
 - Watercourse_A (Watercourse surface features) missing for some
 - RailwayLinks missing for one
 - Attributes missing
- Define quality rules
- Test edge matching
- Define Metadata content → come back to NMCAs when ready

What comes next?

- Prototype available by end of October 2018
- Final product ready by end of April 2019

Evaluation of production process / lessons learned

- From data delivery by NMCAAs
- From production process
- Feedback / requirements from (potential) users

Plans for the future

- Additional themes
- Additional coverage
- Regular updates of all themes

Link to CRD base camp

<https://launchpad.37signals.com/basecamp/1899592/signin>

Includes

- CRD data specifications
- CRD producer guidelines
- Template for CRD data set (ESRI gdb)

Thank you for your attention

Contacts

EuroGeographics:

Primary contact: saulius.urbanas@eurogeographics.org

Pricing and Licensing: angela.baker@eurogeographics.org

BKG

CRD Production team: sonja.werhahn@bkg.bund.de