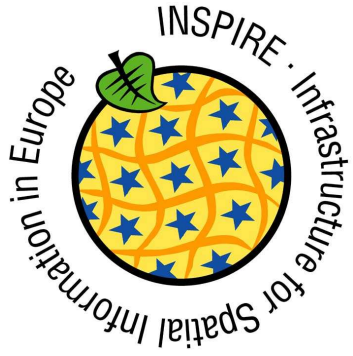


INSPIRE DT on Network Services, Status and work plan

Jean-Jacques Serrano

INSPIRE Conference – Maribor – Slovenia – June 2008

Content

Network services Drafting team

- 1 - Scope
- 2 - Organisation
- 3 - Progress
- 4 - Technical overview
- 5 - Next steps

1 - Objective

To draft Implementing rules for INSPIRE network services:

- **Discovery** services: to search for spatial data sets and services using metadata
- **View** services: to display spatial data sets, legend information and metadata
- **Download** services: to download copies of spatial data sets, or parts of such sets
- **Transformation** services: to transform spatial data sets for achieving interoperability
- "**Invoke** services": to invoke spatial data services (chaining services)

- The possibility to link spatial data sets and services to the network (art.12)

2 – Organisation

DT Members:

Active members	
Olaf Østensen	NO
Markus Müller	DE
Didier Richard	FR
Tapani Sarjakoski	FI
Jean-Jacques Serrano (Chair)	FR
Graham Vowles (Co-Chair)	UK
Dominique Flandroit	BE
Michel Grothe	NL
Roland Wagner	DE
Lars Bernard	DE
Marek Brylski	PL
Lassi Lehto	FI
Christian Elfers	DE

One sub-group for each service

Facilitators :
- Michel Millot – JRC
- Ioannis Kanellopoulos - JRC

Additional members	
Yves Coene	BE
Wernher Hoffmann	AT
Corrado Iannucci	IT
Pedro J. Álvarez Párez-Aradros	ES
Martin Tuchyna	SK

3 – Progress – Architecture & Discovery, View services

- Documents available for comments by SDIC/LMOs Dec. 2007:
  - Network Services Architecture.
  - Draft Discovery and View services IR.
- Documents commented by SDIC/LMOs => Feb. 2008
  - Architecture: ~ 200 comments.
  - Discovery and View services: ~ 800 comments.
- Comments resolution => May 2008
  - NS DT Meeting March 2008 (Munster).
  - Comment resolution workshop with SDIC/LMOs May 2008 (Ispra).
- Update of Network Services Architecture => June 2008
- Rewrite Draft Discovery and View services IR => June 2008
  - Draft IR document: abstract point of view, technology independent.
  - Technical Guidance: implementation point of view, link with standards, lifecycle adapted to technology changes and MS feedback.

3 – Progress – Download, Transformation services

- Download services
  - Draft IR available (NS DT internal document)
  - Technical Guidance
    - Based on WFS and FE (Filter Encoding)
    - Depends on current ISO projects for WFS and FE (in progress)

  => Download: item for the NS DT meeting (Maribor, 27&28 June)

- Transformation services
  - Draft IR available (NS DT internal document)
  - Technical Guidance available (NS DT internal document)

  => Transformation: item for the NS DT meeting (Maribor, 27&28 June)

- Invoke spatial data service services
  - No progress

4 – Technical overview

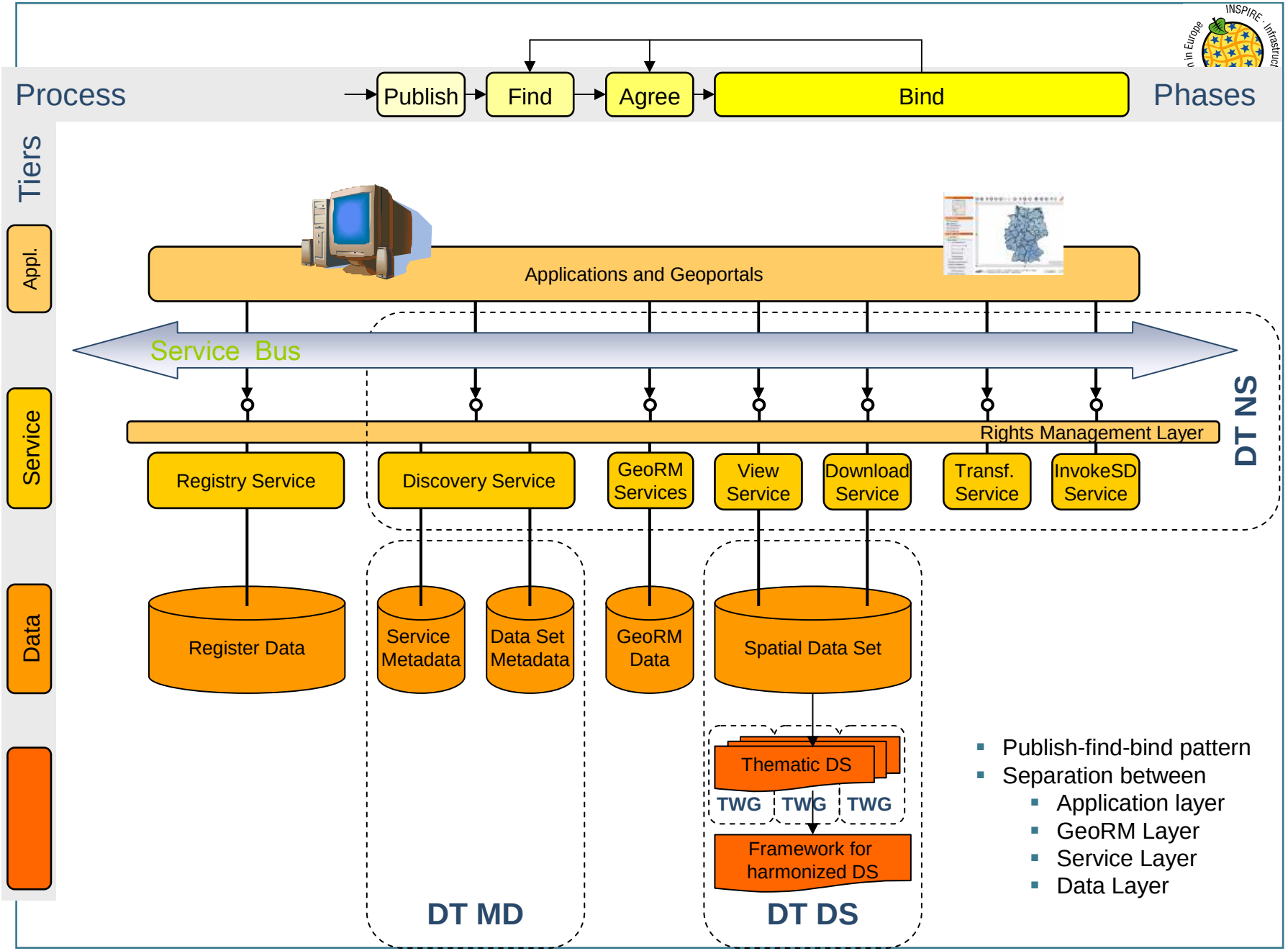
- Architecture
- Discovery services
- View services
- Download services
- Transformation services

⇒ More technical details Tuesday 24, 14:30 in the NS Workshop:

  - Architecture
  - Discovery services
  - View services

4 – Technical overview - Architecture

- Architecture diagram (next slide):
  - Publish-find-bind pattern
  - Separation between 4 layers: Application, GeoRM, Service, Data
- INSPIRE services shall be Web Services (W3C):
  - SOAP protocol to be used for INSPIRE services
- Transport of a Rights Management Key
  - No standards available for managing licences
  - GeoRM is a conceptual model, with some test implementations
- Multiligualism: rules for each service, language parameter mandatory
- Performance requirements => 6 criteria selected
  - Performance, Capacity, Avaibility (shall be monitored)
  - Reliability, Security, Compliance


Process
Publish
Find
Agree
Bind
Phases
Tiers
Appl.
Service
Data
Applications and Geoportals
Service Bus
Rights Management Layer
DT NS
Registry Service
Discovery Service
GeoRM Services
View Service
Download Service
Transf. Service
InvokeSD Service
Register Data
Service Metadata
Data Set Metadata
GeoRM Data
Spatial Data Set
Thematic DS
TWG
TWG
TWG
Framework for harmonized DS
DT MD
DT DS
Publish-find-bind pattern
Separation between
Application layer
GeoRM Layer
Service Layer
Data Layer

4 – Technical overview – Discovery Services

- Name: INSPIRE Discovery Service
- Role: to support discovery, evaluation and use of datasets and services through their metadata properties
- The Metadata model is defined by the Metadata IR.
- The Query model defines search criteria and filter operators.

Functions		
Get Service Metadata	Provides information about the service	M
Get Information Model Metadata	Provides description of the information model supported by the Discovery service	M
Discover metadata	Requests metadata based on a query statement	M
Get Metadata	Retrieves metadata from a result set, based on ID	M
Get Domain Metadata	Provides the domain value of a metadata element	O
Publish Metadata	To push metadata into a discovery service datastore	(1)
Collect Metadata	To pull metadata from a discovery service datastore	(1)

(1) One of these two functions is mandatory

4 – Technical overview – Discovery Services

- Performance requirements:
  - Performance: to send one metadata record within 3 s
  - Availability: service up by 99% of the time, no more 15 mn downtime per day during working hours
  - Capacity: 30 simultaneous service requests within 1 s

- In the **Technical Guidance**, the proposal for INSPIRE Discovery services is:
  - OGC CSW : OGC Catalogue Service for the Web
  - According to requirements from Metadata IR, the proposal is to use the ISO 19115/19119 Information Model for the catalogue:

    => standard : OGC CSW 2.0.2 AP ISO 1.0
  - Query language: OGC Filter Encoding

4 – Technical overview – View Services

- Name: INSPIRE View Service
- Role: to provide a visual representation of geographic and thematic information.
- Metadata: metadata of datasets represented in layers defined by the metadata IR.
- Temporal data dimension: for data themes with temporal dimension, the view service uses the timeline to display 2D snapshots allowing time slices representation.
- Dataset and layers: a layer is a structure of a view service used to display data. Layer elements must be defined: title, name, keywords, legend, …

Functions		
Get Service Metadata	Provides information about the service	M
Get Map	Provides a map (image spatially referenced) containing information coming from the datasets	M
Get Feature Information	Provides information about features at a selected point	O

4 – Technical overview – View Services

- Performance requirements:
  - Performance: to send a 470 Kb image (800x600, 8bits) within 5 s
  - Availability: service up by 99% of the time, no more 15 mn downtime per day during working hours
  - Capacity: 20 simultaneous service requests per second

- In the **Technical Guidance**, the proposal for INSPIRE View services is:
  => ISO 19128 : WMS (Web Map Service) 1.3

  - Contact Information: address, email, phone (email preferred)
  - Layer name & title: mandatory
  - Coordinate Reference Systems: list of CRS provided, one is mandatory
  - Legend: legend URL mandatory, format PNG or HTML
  - Language parameter mandatory
  - Styling: default style shall be defined, possibility to use various styles
  - Metadata: metadata URL, format text/xml (ISO19139)
  - Useful scale range: min and max scale denominators recommended (related to themes and also to CRS)

4 – Technical overview – Download Services

- Name: INSPIRE Download Service
- Role: to provide access to geographic and thematic information in datasets of INSPIRE themes
- Two types of Download services:
  - A. access to pre-defined datasets
  - B. direct access to data based upon user defined criteria (filter)

Functions		A	B	
Get Service Metadata	Provides information about the service	X	X	M
Get Features	Retrieves all feature instances in the dataset	X		M
Get Feature	Retrieves all feature instances according to user queries		X	M
Describe Feature Type	Provides the description of feature types and/or filter models offered by the service		X	M
Get Feature Attribute Value	Provides the values of selected feature properties		X	M

4 – Technical overview – Download Services

- Performance requirements (proposals, to be reviewed):
  - Performance: initial response 3 s, then > 0.5 MB/s
  - Availability: service up by 99% of the time, no more 15 mn downtime per day during working hours
  - Capacity: 100 simultaneous service requests within 3 s

- In the **Technical Guidance**, the proposal for INSPIRE Download services should be:
  - Pre-defined data sets => standard Internet protocols (like FTP)
  - Direct access data with queries =>
    - Web Feature Service: OGC WFS / ISO 19142 (project)
    - Filter Encoding: OGC Filter Encoding / ISO 19143 (project)

4 – Technical overview – Transformation Services

- Name: INSPIRE Transformation Service
- Role: to transform data content from native data forms to INSPIRE compliants forms
- High relation with “direct access” Download service

Functions		
Get Service Metadata	Provides information about the service	M
Transform	Carries out the current transformation process	M
Get Transformation	Retrieves the definition of a specific transformation	O
Put Transformation	Stores a transformation definition into the service	O

Transform Parameters: Input data, Source Model, Target Model, Model Mapping

Main transformation types: format transformations, language translations, geometric transformations, and schemas translations.

4 – Technical overview – Transformation Services

- Performance requirements: not yet assessed

- In the **Technical Guidance**, the proposal for INSPIRE Coordinate Transformation service should be:
  - An Application Profile of the Web Processing service (WPS) based on the Web Coordinate Transformation Service (WCTS)
  - WPS is an OGC standard specification. Specific processes can be specified as Application Profiles of the WPS.

A mapping is defined between INSPIRE Transformation Service and WPS:

ex: Transform operation => Execute (TransformCoordinate)

4 – Next steps (proposal)

Description	Milestone	Who
Discovery and View services		
SDIC/LMO Consultation	2007 – 12	DT
Final Draft IR	2008 – 06	CT
Adoption of IR	2008 – 11	Comitology
Download services		
SDIC/LMO Consultation	2008 – tbd	DT
Final Draft IR	2009 – tbd	CT
Adoption of IR	2009 – tbd	Comitology
Coordinates Transformation Services		
SDIC/LMO Consultation	2008 – tbd	DT
Final Draft IR	2009 – tbd	CT
Adoption of IR	2009 – tbd	Comitology

Thank you for your attention

More technical details Tuesday 24, 14:30 in the NS Workshop:

- Architecture
- Discovery services
- View services