



INSPIRE

Infrastructure for Spatial Information in Europe

Draft Implementing Rules for Discovery Services (IR3)

Drafting Team “Network Services”

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1 Introduction

This document contains the draft proposal for Implementing Rules (IRs) on Discovery services as required by the INSPIRE Directive (2007/2/EC). This document is published on the INSPIRE web site¹ and will be submitted to the Regulatory Committee as required by the Directive.

This version has passed a review by the SDICs and LMOs. The comment resolution process included a workshop with their representatives and an open workshop during the INSPIRE 2008 conference. Based on the discussions, the Drafting Team "Network Services" resolved the comments in this version. The table containing the comments and the resolution is available on the INSPIRE web-site.

The document is organized as follows: Chapter 1 is introductory to help readers understand the background and requirements without need to reference other documents. Chapter 2 describes the Discovery Services abstract model with the Discovery service functions, their parameters and search criteria. Chapter 3 outlines the Quality of Service criteria for the Discovery services. Chapter 4 offers the reference to the guidelines and instructions for implementation (Technical Guidance). The Technical Guidance document² explains how a technology standard must be used to implement the INSPIRE Discovery services defined in Chapter 2 of this document. Annex A defines key terms used in the text. Annex B offers fact and figures underlying the Discovery service Quality of Service criteria requirements.

1.1 Background

INSPIRE is a Directive (2007/2/EC) of the European Parliament and of the Council establishing an Infrastructure for Spatial Information in the European Community³. The purpose of such an infrastructure is to assist policy-making in relation to policies and activities that may have a direct or indirect impact on the environment. The Directive came into force on the 15th May 2007.

INSPIRE should be based on the infrastructures for spatial information that are created by the Member States. Such infrastructures should be designed to ensure that spatial data are stored, made available and maintained at the most appropriate level; that it is possible to combine spatial data from different sources across the Community in a consistent way and share them between several users and applications; that it is possible for spatial data collected at one level of public authority to be shared between other public authorities; that spatial data are made available under conditions which do not unduly restrict their extensive use; that it is easy to discover available spatial data, to evaluate their suitability for the purpose and to know the conditions applicable to their use.

To achieve these aims, the Directive focuses in particular on five key areas: metadata, the interoperability and harmonisation of spatial data and services for selected themes (as described in Annexes I, II, III of the Directive); network services and technologies; measures on sharing spatial data and services; and coordination and monitoring measures.

Member States are required to bring into force national legislation, regulations, and administrative procedures necessary to comply with the Directive by the 15th May 2009.

To ensure that the spatial data infrastructures of the Member States are compatible and usable in a Community and trans-boundary context, the Directive requires that common Implementing Rules (IRs) are adopted in a number of specific areas. These IRs will be adopted as Commission Regulations or Decisions, and will be binding in their entirety. The Commission is assisted in the process of adopting

¹ INSPIRE Website: <http://www.ec-gis.org/inspire/>

² Technical Guidance document to implement INSPIRE Discovery Services at <http://...>

³ The text of the Directive in multiple languages is available at <http://eur-lex.europa.eu/JOHtml.do?uri=OJ:L:2007:108:SOM:EN:HTML>

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such rules by a Regulatory Committee composed by representatives of the Member States and chaired by a representative of the Commission (this is known as the Comitology procedure⁴).

The requirements of the Directive in relation to Discovery services are detailed below.

1.2 The Directive's Requirements for Discovery services

The scope of this document is to detail the INSPIRE technical requirements for Discovery services into Implementing Rules, such that these services can be implemented consistently across Europe.

These Implementing Rules are, as much as possible, in conformance with European and international standards, current practices in stakeholder communities and relevant European initiatives such as e-Government, and the EU interoperability framework.

In the context of INSPIRE Discovery Services, the following articles from the Directive (PE-CONS 3685/2006) are of major relevance and are quoted here for convenience reasons:

Article 11 (1)

shall establish and operate a network of the following services for the spatial data sets and services for which metadata have been created in accordance with this Directive:

(1) discovery services making it possible to search for spatial data sets and services on the basis of the content of the corresponding metadata and to display the content of the metadata;

...

Those services shall take into account relevant user requirements and shall be easy to use, available to the public and accessible via the Internet or any other appropriate means of telecommunication.

Article 11 (2)

For the purposes of the services referred to in point (a) of paragraph 1, as a minimum the following combination of search criteria shall be implemented:

- (a) keywords;
- (b) classification of spatial data and services;
- (c) the quality and validity of spatial data sets;
- (d) degree of conformity with the implementing rules provided for in Article 7(1);
- (e) geographical location;
- (f) conditions applying to the access to and use of spatial data sets and services;
- (g) the public authorities responsible for the establishment, management, maintenance and distribution of spatial data sets and services.

(Article 12)

- *shall ensure that public authorities are given the technical possibility to link their spatial data sets and services to the network referred to in Article 11.*

Article 15(2):

Member States shall provide access to the services referred to in Article 11(1) through the Inspire geo-portal referred to in paragraph 1. Member States may also provide access to those services through their own access points.

The arrangements for the exchange of spatial data and the INSPIRE geo-portal are not formally part of the Network Services Implementing Rules development, but will nevertheless play an important role. Following the INSPIRE proposal, the arrangements for the exchange of spatial data depends on the harmonized data specifications implementation rules for its technical content. In addition, the INSPIRE geo-portal will not be part of the Network Services Implementing Rules as it is for Commission internal development.

⁴ An explanation of the process for the development and adoption of the Implementing Rules is contained in Section 3 of the Work Programme 2007-09 see http://inspire.jrc.it/reports/transposition/INSPIRE_IR_WP2007_2009_en.pdf

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Performance criteria for INSPIRE Network Services are required in Article 16 of the INSPIRE Directive :

(Article 16)

- *Rules for implementation designed to amend non-essential elements of this Chapter by supplementing it, shall be adopted in accordance with the regulatory procedure with scrutiny referred to in Article 22(3), and shall in particular lay down the following :*
 - (a) *technical specifications for the services referred to in Articles 11 and 12 and minimum performance criteria for those services, taking account of existing reporting requirements and recommendations adopted within the framework of Community environmental legislation, existing e-commerce services and technological progress ;*

And in Recital 17:

Network services are necessary for sharing spatial data between the various levels of public authority in the Community. Those network services should make it possible to discover, transform, view and download spatial data and to invoke spatial data and e-commerce services. The services of the network should work in accordance with commonly agreed specifications and minimum performance criteria in order to ensure the interoperability of the infrastructures established by the Member States. The network of services should also include the technical possibility to enable public authorities to make their spatial data sets and services available.

Article 20:

Where organisations established under international law have adopted relevant standards to ensure interoperability or harmonization of spatial datasets and services, these standards shall be integrated, and the existing technical means shall be referred to, if appropriate, in the implementing rules mentioned in this paragraph.

The INSPIRE Directive refers to e-commerce services,:

- *by way of derogation from Article 11(1), Member States may limit public access to spatial data sets and services through the services (Article 13-1);*
- *Member States shall ensure that e-commerce services are available. Such services may be covered by disclaimers, click-licences or, where necessary, licences (Article 14-4); and*
- *technical specifications for the services ... , taking account of existing reporting requirements and recommendations adopted within the framework of Community environmental legislation, existing e-commerce services and technological progress (Article 16-a).*

E-commerce services specifications and Implementing Rules may refer to existing European/National legal frameworks and relevant technical documents whenever applicable. For example, the Directive 2000/31/EC of the European Parliament and of the Council of 8 June 2000 defines legal aspects of information society services, in particular electronic commerce, in the Internal Market ('Directive on electronic commerce'). Particular attention will be required on Digital Rights Management and its relationship to e-commerce services.

The Directive does not mandate the use of any particular natural language for the metadata content. The Directive recognizes the importance of multi-lingual aspects and mandates the use of multi-lingual thesauri in the context of interoperability of spatial datasets and services (Art. 8-2 (c)).

2 The Discovery Service Implementing Rules

2.1 Discovery Service – abstract model

In the following Discovery Service is defined only on abstract level. Instructions to implement such a service according to the current technology and existing standards are given in a separate document named "Technical Guidance"⁵.

⁵ Technical Guidance document to implement the INSPIRE Discovery Services at <http://...>

Name: INSPIRE Discovery Service

Description:

The INSPIRE Directive asks Member States to establish and operate a network of services for the discovery of spatial data sets and services for which metadata have been created. Discovery services making it possible to search for spatial data sets and services on the basis of the content of the corresponding metadata and the display of the content of the metadata. Within the geographic community various names have been assigned to instruments for discovering spatial data and services through the metadata properties; examples are Catalogue Services, Spatial Data Directory, Clearinghouse, Geographic Catalogue and Geodata Discovery Service. In INSPIRE these services are referred to as Discovery Services.

The goal of discovery is to support discovery, evaluation and use of spatial data and services through their metadata properties. Metadata is the information and documentation, which makes these resources understandable and sharable for users over time. INSPIRE Discovery Services shall provide the functionality for users both to manage and search catalogues for the purpose of discovery and evaluation within the context of the INSPIRE Directive.

Functions:

An INSPIRE Discovery Service must implement six functions.

This Discovery Service doesn't cover any client application using a Discovery Service. Client application definition is out of scope.

The Discovery service shall provide the following mandatory (M) or optional (O) functions.

Table 2: Discovery service functions for discovery of spatial data sets and services

Function	Description	M/O
Get Discovery Service Metadata	Provides all necessary information about the service to a user (service provider, content, query language, access constraints ...) and describes service capabilities to enable a client application to use the service (list of supported operations).	M
Discover Metadata	The Discover Metadata operation allows to request for all or a predefined set of metadata (record) elements of spatial resources based on a query statement to be retrieved from the target Discovery Service datastore.	M
Get Metadata	The Get Metadata operation allows to retrieve metadata for specific resources from a result set based on the resource unique Identification (ID). This operation is additional to the Discover Metadata operation. The Discover Metadata operation is to discover a set of resources based on a specific query, repetitively the Get Metadata operation is intended to retrieve additional metadata of (some) of the resources in the result set.	M

M = Mandatory, O = Optional

According to Article 12, the Discovery service shall provide the following functions to link spatial data sets and services to the network to the INSPIRE network. The INSPIRE Discovery service shall offer either the Publish Metadata operation **or** the Collect Metadata operation (**one of both**).

Table 2: Discovery service functions for linking spatial data sets and services to the network

Function	Description	M/O
Publish Metadata	The Publish Metadata operation allows to create, delete or update (set) metadata (record) elements of spatial resources in the Discovery Service datastore (push metadata mechanism).	M,O

Collect Metadata	The Collect Metadata operation allows to pull metadata (record) elements of spatial resources from a source Discovery Service datastore and allows to create, delete or update (set) the metadata (record) elements of these spatial resources in the target Discovery Service datastore (pull metadata mechanism).	M,O
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M,O = either Mandatory or Optional (one of both)

2.2 Metadata – abstract model

According to Article 11, for the Discovery service two kinds of metadata must be available:

- Metadata for the INSPIRE services
- Metadata for INSPIRE spatial data sets

These metadata must be defined according to the INSPIRE Metadata Implementing Rules and are represented in the Discovery Service data store.

2.3 Query – abstract model

The starting point for the Query abstract model is article 11 (2) of the Directive: “the Discovery service shall implemented as a minimum the following combination of search criteria:

- (a) keywords;
- (b) classification of spatial data and services;
- (c) the quality and validity of spatial data sets;
- (d) degree of conformity with the implementing rules provided for in Article 7(1);
- (e) geographical location;
- (f) conditions applying to the access to and use of spatial data sets and services;
- (g) the public authorities responsible for the establishment, management, maintenance and distribution of spatial data sets and services.”

In the table 3 the INSPIRE search criteria as outlined in the Directive article 11 (2) are mapped to the abstract metadata elements.

Table 3: INSPIRE search criteria

INSPIRE Directive search criteria Article 11 (2)	INSPIRE queryable metadata elements	Mandatory search criteria for INSPIRE Discovery Service⁶
(a) keywords	Keyword value	Yes
(b) classification of spatial data and services;	Topic category	Yes, if resources of type 'dataset' or 'series' are supported by the discovery service instance
(b) classification of spatial data and services	Spatial data services type	Yes, if resources of type 'service' are supported by the discovery service instance.
(c) the quality and validity of spatial data sets	Lineage	Yes
(c) the quality and validity of spatial data sets	Spatial resolution	Yes, if resources of type 'dataset' or 'series' are supported by the discovery service instance
(d) degree of conformity with the implementing rules provided for in Article 7(1)	Degree	Yes
(d) degree of conformity with the implementing rules provided for in Article 7(1)	Specification	Yes
(e) geographical location	Geographic bounding box	Yes, if resources of type 'dataset' or 'series' are supported by the discovery service instance
(f) conditions applying to the access to and use of spatial data sets and services	LimitationsOnPublicAccess	Yes
(f) conditions applying to the access to and use of spatial data sets and services	ConditionApplyingToAccessAndUse	Yes
(g) the public authorities responsible for the establishment, management, maintenance and distribution of spatial data sets and services	Responsible party	Yes

The mandatory metadata elements in Table 3 are the minimum set of search criteria. The Discovery service shall implement as well a combination of search criteria. Combination means that a filter is used to identify a subset of resources based on a combination of search criteria from a collection of resources whose property values satisfy a set of logically connected predicates. If the property values of a resource satisfy all the predicates in a filter then that resource is considered to be part of the resulting subset.

For the Discovery service a combination of search criteria is expressed through the filter capabilities, that are included in the service metadata to describe which elements of the predicate language are supported. The filter capabilities shall support at least the following filter operators to offer queries as a combination of search criteria:

- Logical operators: And, Or, Not

⁶ See Article 11 (2) of the directive.

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- Comparison operators: PropertyIsEqualTo, PropertyIsNotEqualTo, PropertyIsLessThan, PropertyIsGreaterThan, PropertyIsLessThanOrEqualTo, PropertyIsGreaterThanOrEqualTo, PropertyIsLike
- Spatial operator: BBOX.

2.4 Discovery service functions

2.4.1 Get Discovery Service Metadata

The mandatory Get Service Metadata operation allows clients to request a service metadata document describing a Discovery service. The operation provides all necessary information about the Discovery service to a user (man or machine) and describes service capabilities to enable a client application to use the service. Includes information about the service provider, specific capabilities (list of supported operations) of the Discovery service, containing information about structure of metadata information model and according query languages and supported metadata elements languages.

GetDiscoveryServiceMetadataRequest

The **GetDiscoveryServiceMetadataRequest** requests for a service specific metadata document of the Discovery Service.

GetDiscoveryServiceMetadataResponse

The response document contains the following metadata sections:

- 1) Service identification or service type metadata
- 2) Service provider metadata
- 3) Operations metadata
- 4) Query (language) metadata
- 5) Supported metadata languages.

ServiceType metadata parameter

The **ServiceType** metadata parameter provides information about the type of Discovery service.

ServiceProvider metadata parameter

The service provider metadata parameter provides metadata about the organization offering the Discovery service.

OperationsMetadata parameter

The operations metadata section provides metadata about the operations implemented by the Discovery service. All mandatory and optional operations that a Discovery service implements shall be listed in the operation metadata section. This metadata includes constraints for the service and for each operation.

QueryLanguage parameter

The **QueryLanguage** metadata parameter contains metadata about the supported query languages and supported query abilities.

Query parameter

The **Query** parameter contains the query or filter capabilities of the Discovery service.

SupportedMetadataLanguages parameter

This parameter contains the supported metadata languages.

2.4.2 Discover Metadata

The mandatory Discover Metadata operation allows to request for all or a predefined set of metadata (record) elements of spatial resources based on a query statement to be retrieved from the target Discovery Service datastore. The Discover Metadata operation (request and response) contains the following parameters.

DiscoverMetadataRequest

This **DiscoverMetadataRequest** operation contains the following parameters:

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- QueryLanguage
- Query
- SortSpec
- SortOrder
- SearchType

QueryLanguage parameter

The **QueryLanguage** parameter contains the supported query languages of the Discovery Service.

Query parameter

The **Query parameter** contains the queryables of the Discovery service.

SortSpec parameter

Specifications of sorting instructions while performing a search.

SortOrder parameter

Ascending or descending sort order.

SearchType parameter

Two different types of search can be performed:

- *Hits* – the search just counts the number of matching results. No actual result identifier is returned.
- *Results* – that's the default search type: identifiers of matching results are returned by the operation.

DiscoverMetadataResponse

Response that is returned by the Discover metadata operation. The **DiscoverMetadataResponse** contains the following parameters:

1. RequestValidity
2. ResultCount
3. MetadataElementIDList

RequestValidity

Boolean indicating if the request is valid (returned for all types of search)

ResultCount

The **ResultCount** parameter is used to count the number of record position the catalogue should start generating output.

MetadataElementIDList

The **MetadataElementIDList** parameter contains the list of metadata(record) element identifiers.

2.4.3 Get Metadata

The mandatory Get Metadata operation allows to retrieve metadata for specific resources from a result set based on the resource unique Identification (ID). This operation is additional to the Discover Metadata operation. The Discover Metadata operation is to discover a set of resources based on a specific query, repetitively the Get Metadata operation is intended to retrieve additional metadata of (some) of the resources in the result set. The Get Metadata operation (request and response) contains the following parameters:

GetMetadataRequest

The mandatory **GetMetadataRequest** retrieves allows to retrieve metadata elements from a result set based on the resource unique Identification (ID).

CoreMetadataList

List of core metadata entries to be returned via the search response.

MetadataIdList

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The **MetadataIdList** parameter is a list of metadata record identifiers for those records that metadata information shall be retrieved for.

GetMetadataOutputSchema parameter

The **GetMetadataOutputSchema** parameter references the a document that defines the structure of the resource being collected. This resource should be an XML document and the parameter string value should be a URI that references the structure of that XML document (i.e., its XML Schema namespace identifier URI). If a server can collect resources in the schema of an information model it supports, the GetMetadataOutputSchema parameter URI should be the same as the CollectMetadataResourceType URI defined for the CollectMetadata operation.

GetMetadataResponse

The **GetMetadataResponse** returns a list of the metadata information for each metadata (record) element identifier. The capabilities of a discovery service instance gives the information which meta information types are handled by the discovery services.

2.4.4 Publish Metadata

The Publish Metadata operation allows to insert, delete or update (set) metadata (record) elements of spatial resources in the Discovery Service datastore (push metadata mechanism).

The Publish Metadata operation (request and response) contains of three types of requests:

1. Insert metadata
2. Update metadata
3. Delete metadata

InsertMetadataRequest

This request contains the set of metadata which is going to be inserted into the Discovery Service datastore. It contains the **Insert** parameter.

Insert parameter

Set of metadata (record) elements to be inserted into Discovery Service datastore.

InsertMetadataResponse

Response after the insert of the (record) elements content in the Discovery Service datastore. Contains the inserted, updated or deleted metadata (record) elements.

- InsertedMetadataElements
- DeletedMetadataElements
- UpdatedMetadataElements

MetadataElementID parameter

Contains the id of Discovery Service datastore entry.

MetaInformationSet parameter

Array of entries to be included in the Discovery Service datastore.

UpdateMetaDataRequest

This request contains the set of metadata (record) elements which is going to be updated in the Discovery Service datastore.

- Update metadata
- IdsForUpdate

UpdateMetadata parameter

Set of metadata (record) elements to be updated into the Discovery Service datastore.

IdsForUpdate parameter

Identifiers for the metadata (record) elements or Discovery Service datastore entries to be updated.

DeleteMetaDataRequest

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This request contains the information to delete metadata (record) elements from the Discovery Service datastore. It contains the **DeleteMetadata** parameter.

DeleteMetadata parameter

Constraint to decide, which entries are going to be removed from the Discovery Service datastore.

2.4.5 Collect Metadata

The Collect Metadata operation allows to pull metadata (record) elements of spatial resources from a source Discovery Service datastore and allows to create, delete or update (set) the metadata (record) elements of these spatial resources in the target Discovery Service datastore (pull metadata mechanism). The Collect Metadata operation (request and response) contains the following parameters.

CollectMetadataRequest

Request that is sent to collect meta information. Consist of the following elements:

- SourceReference parameter
- CollectMetadataResourceType parameter
- CollectMetadataResourceFormat parameter
- CollectMetadataResponseHandler parameter
- Interval parameter
- StopDate parameter

SourceReference parameter

The (mandatory) **SourceReference parameter** gives the reference to a source of meta information. This can be either a source system holding data or a service.

CollectMetadataResourceType parameter

The **CollectMetadataResourceType parameter** references the a document that defines the structure of the resource being collected. This resource should be an XML document and the **CollectMetadataResourceType** parameter string value should be a URI that references the structure of that XML document (i.e., its XML Schema namespace identifier URI). If a server can harvest resources in the schema of an information model it supports, the **CollectMetadataResourceType** URI should be the same as the **GetMetadataOutputSchema** parameter URI defined for the **GetMetadata** operation.

CollectMetadataResourceFormat parameter

The **CollectMetadataResourceFormat parameter** is used to indicate the encoding used for the resource being harvested. This parameter is included to support the harvesting of metadata resources available in various formats such as plain text, XML or HTML.

CollectMetadataResponseHandler parameter

The **CollectMetadataResponseHandler** parameter is a flag that indicates how the **CollectMetadata** operation should be processed by the Discovery service. If the parameter is not present, then the **CollectMetadata** operation is processed synchronously meaning that the client sends the **CollectMetadata** request to a Discovery service and then waits to receive a **CollectMetadataResponse** (or exception message). The service immediately processes the **Harvest** request, while the client waits for a response. If the parameter is present, the **CollectMetadata** operation is processed asynchronously. In this case, the server responds immediately to a client's request with an acknowledgement message. The acknowledgement message tells the client that the request has been received and notification of completion will be send to the URL specified as the value of the **CollectMetadataResponseHandler** parameter. The **Harvest** request may then be processed at some later time taking as much time as is required to complete the operation. When the operation is completed, a **CollectMetadataResponse** message (or exception message if a problem was encountered) is sent to the URL specified as the value of the **CollectMetadataResponseHandler** parameter.

Interval parameter

The (mandatory) **Interval parameter** defines an interval for the repeated collection of meta information. The interval between two collection events is defined with two time stamps.

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StopDate parameter

The (mandatory) **StopDate parameter** offers a date for stopping the periodic execution of collectMetaInformationRequest.

CollectMetadataResponse

The **CollectMetadataRequest** results in a response to the waiting client with a **CollectMetadataResponse** message. If the **CollectMetadataRequest** is successful, the response may include summary representations of the newly created or modified catalogue object(s). The response is the same as the **TransactionResponse**.

3 Quality of Service

The following three Quality of Service criteria shall be monitored and reported as part of the INSPIRE directive:

- Performance;
- Availability;
- Capacity.

3.1 Performance

The time for sending initial response to service request in normal situation shall be 3 seconds. This time includes sending Discovery service errors or exceptions.

For the Discovery Service, this time shall allow to send 1 metadata record.

Normal situation represents periods out of peak load. It is considered to be 90% of the time.

3.2 Availability

The probability of the Discovery Service to be up shall be 99% of the time, no more than 15 minutes downtime per day during working hours.

3.3 Capacity

The minimum number of simultaneous service requests served according to the performance requirement shall be 30 per second for the Discovery Service.

4 Instructions for implementation

The European Commission shall establish, in collaboration with stakeholders and relevant standardisation organisations, instructions for implementation to ensure interoperability of services. These will be contained in a Technical Guidance document on how to implement INSPIRE Discovery services.

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Annex A: Terms and definitions

availability

Probability that the INSPIRE service is up.

capacity

Limit of the number of simultaneous service requests which should be provided with guaranteed performance.

data

Reinterpretable representation of information in a formalised manner suitable for communication, interpretation or processing (ISO/IEC23821).

Note: Data can be any form of information. Data may refer to any electronic file, no matter what the format: e.g. a database or binary data, text, images. Everything read and written by a computer can be considered data except for instructions in a program that are executed (software).

datasets

Identifiable collection of data (ISO19101).

Note: A dataset may have a hierarchical structure. Theoretically, a dataset may be as small as a single feature or feature attribute contained within a larger dataset. A hardcopy map or chart may be considered a dataset.

discovery

The inquiry of the nature and content of a spatial resource.

discovery service

Distinct part of the functionality that is provided by an entity through interfaces for the inquiry of the nature and content of a spatial resource.

collect

allows to pull metadata (record) elements of spatial resources from a source Discovery Service datastore and allows to create, delete or update (set) the metadata (record) elements of these spatial resources in the target Discovery Service datastore (pull metadata mechanism).

interoperability

The possibility for spatial datasets to be combined, and for services to interact, without repetitive manual intervention, in such a way that the result is coherent and the added value of the datasets and services is enhanced (INSPIRE Directive).

performance

Performance is the minimal level by which an objective is considered to be attained. The performance of a web service represents how fast a service request can be completed.

publish

allows to insert, delete or update (set) metadata (record) elements of spatial resources in the Discovery Service datastore (push metadata mechanism)

quality

Totality of characteristics of a product that bear on its ability to satisfy stated and implied needs (ISO 19101).

regulatory

Quality aspect of the Web service in conformance with the rules, the law, compliance with standards, and the established service level agreement.

reliability

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Represents the ability of a web service to perform its required functions under stated conditions for a specified time interval.

resource

Asset or means that fulfils a requirement. Example: dataset, service, document, person or organisation.

security

Quality aspect of the Web service of providing confidentiality and non-repudiation by authenticating the parties involved, encrypting messages, and providing access control.

service

Distinct part of the functionality that is provided by an entity through interfaces (ISO19119). In computing terms, a service is an application that provides information and/or functionality to other applications. Services are typically non-human-interactive applications that run on servers and interact with applications via an interface.

Note: This distinct part of the functionality is a computation performed on one side of an interface in response to a request made on the other side of the interface.

Note: Some services may be not available via the network, where data may be on offline media.

service operation

Function offered by a service.

spatial data

Any data with a direct or indirect reference to a specific location or geographic area.

spatial resource

Asset or means that fulfils a requirement and has a direct or indirect reference to a specific location or geographic area. Example: dataset, dataset series, service.

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Annex B: Underlying facts for performance requirements

The facts underlying the performance requirements are based on the following best practices:

French GeoCatalogue

From the Discovery service of the French GeoCatalogue, a fully operational system with public access (with the Exalead search engine):

- Performance: mean value = 3 seconds
- Availability: 99 %
- Capacity: 30 simultaneous connections => 120 simultaneous connections with the 4 servers available (within the performance of 3 seconds)