

2 Overview

2.1 Name

INSPIRE data specification for the theme *Utility and Government Services*.

2.2 Informal description

Definition:

“Includes utility facilities such as sewage, waste management, energy supply and water supply, administrative and social governmental services such as public administrations, civil protection sites, schools and hospitals.” [Directive 2007/2/EC]

2.2.1 Utility networks

Comprehension of the scope

Utility services and networks include the physical constructions for transport of defined utility products (namely pipelines for transport of oil, gas, chemicals, water, sewage and thermal products), transmission lines and cables (included those for transmission of electricity, phone and cable-TV signals) and other network elements for encasing pipes and cases (e.g. ducts, poles and towers).

All kinds of transmission utility systems have nodes (e.g. pump stations), and they are linked to facilities for production and treatment of different kinds of utility products. These major production and treatment sites are described in the theme production and industrial facilities (Annex.III – PF).

Six important types of utility networks are distinguished, namely Electricity Network, Oil, Gas & Chemicals Network, Sewer Network, Telecommunications Network, Thermal Network and Water Network.

All these networks use the node-arc-node model, as defined in the Generic Network Model. Especially designed for a structured modelization of utility networks that allows its business use (estimation of propagation, calculation of capacities, etc.), the use of this node-arc-node model is also adapted for non-topological data, since the relation between nodes and arcs is optional.

Different organizations have different responsibilities and this will influence the kind of data they collect, manage and use. Some organizations will use simple models while other will have more complex data models. This data specification is a basic framework that user can adopt and, if necessary, adapt and extend for themselves. The specification is focused on the core spatial objects required by networks, i.e. network centerlines etc.

In the utility services and networks there are “ducts”, which are utility links used to protect and guide cable and pipes via an encasing construction. A duct may contain other duct(s), pipes and cables. “Duct” contains information about the position and characteristics of ducts as seen from a manhole, vault, or a cross section of a trench and duct.

The nodes of the networks include poles. Poles represent node objects that support utility devices and cables. “Pole” is a container to other utility objects. Other important nodes are manholes, towers and cabinets. A “Manhole” is the top openings to an underground public utility or service. A “Tower” is a vertical tower object that carries utility cables or pipes. A “Cabinet” is container for utility node objects (e.g. appurtenances). Poles, manholes, towers and cabinets represent containers for other network elements belonging to one or more utility networks.

Overlaps / links with other themes

This sub-theme might overlap with themes:

- Hydrography (A-I.8)
- Buildings (A-III.2)
- Land use (A-III.4)
- Environmental monitoring facilities (like treatment plants/pumping stations) (A-III.7)
- Production and industrial facilities (A-III.8)
- Energy resources (A-III.20)

Current sub-theme holds potential dependencies with the following themes:

- Annex I
 - Coordinate reference systems (geo-referencing of the point)
 - Geographical grid systems (geo-referencing of the point)
 - Geographical names (Identification of the point and of the place where it is located)
 - Administrative units (that contain the point)
 - Addresses (referencing of the point)
 - Cadastral parcels (that contain the given service and from which the service is provided)
 - Transport networks (that provide access to/from the services)
 - Protected sites (that may contain services or being potential receptors of these)
- Annex II
 - Elevation (referencing of the point)
- Annex III
 - Statistical units (that contain the point)
 - Buildings (that contain the given service and from which the service is provided)
 - Population distribution – demography (potential service “clients”)
 - Utilities (that the service make use/depend on)

2.2.2 Administrative and social governmental services

Comprehension of the scope

According to the INSPIRE Directive, the scope of the sub-theme comprises “... administrative and social governmental services such as public administrations, civil protection sites, schools and hospitals. [Annex III].”

On another hand, INSPIRE document “Definition of Annex Themes and Scope v3.0 (D 2.3)” details governmental services as those fitting the following description:

“Administrative and social governmental services such as public administrations, civil protection sites, schools, hospitals. The kind of sites that are commonly presented in governmental and municipal portals and map systems as “points of interest”-data (POI), and may be point-based location of a variety of categories of municipal and governmental services and social infrastructure”.

Given this description and, very specially, the concrete mention to the use of this type of data as POI, a wide interpretation of what “administrative and social governmental services” should be done.

In this same sense, the following words from the manual of the Spanish EIEL (Spanish acronym for Enquiry on Local Infrastructures and Services) database, which does also contain information on public services, may be considered as highly relevant: “(...)The variety of ways how public services are provided and the correspondent variety in facilities management, as well as the concurrent activity of different Public Administration bodies, do recommend having in mind a broad scope on what are the utilities and services that are collectively facing the same needs”.

Eligibility criteria

To identify the relevant service types, legal requirements (mainly the wording of the INSPIRE directive itself) as well as requirements based on use cases have to be considered. In detail a list of relevant criteria has been defined. Thus service types are within the scope, when they are

- explicitly mentioned in the INSPIRE directive Annex III (“such as public administrations, civil protection sites, schools and hospitals”) or

- in a common understanding covered by the general scope of the annex theme (“administrative and social governmental services”) and which are similar to the explicitly mentioned ones (e.g. kindergarten) or
- covered by the general scope of the annex theme (partly in a broader sense of “public” service) and which obviously address environmental issues (e.g. environmental education center) or
- generally considered as “social governmental services” (e.g. specialized service for the disabled) or
- in a common understanding covered by the general scope of the annex theme and whose main purpose is to provide services for environmental risk/disaster assessment/management (e.g. civil protection sites) or
- in a common understanding covered by the general scope of the annex theme and which are the most important means of governments to manage (environmental) disaster events (e.g. police services).

Aside, there are a lot of public services (in a broader sense), whose main purpose is not to provide services in environmental disaster events but can be used in these situations, like sports halls or fair venues. For example, thousands of people took shelter in the New Orleans’ Superdome during the hurricane Katrina. Despite this, these sites are neither seen first and foremost as “administrative and social governmental services” nor do they have an environmental context. Therefore, they are not considered to be within the scope of this data specification.

Furthermore, some “administrative and social governmental services” can be regarded as especially “vulnerable” to environmental disasters. This aspect is covered by the “Natural risk zones” theme and therefore out of scope of this data specification.

In opposite to the criteria listed above, the fact whether the service is provided by a Public Administration Body (PAB) or by private institutions is not a relevant criterion. Very often, administrative and social governmental services are not provided by the PAB itself but by a private institution as a matter of public interest. In many cases, this varies from Member State to Member State, from region to region and from municipality to municipality.

Overlaps / links with other themes

Overlaps: This sub-theme overlaps the following ones:

- Buildings (A-III.2), e.g. use of buildings
- Human health and safety (A-III.5), e.g. hospitals
- Natural risk zones (A-III.12), e.g. a number of governmental services can be considered as vulnerable elements too (e.g. schools)

Links and dependencies: The sub-theme holds potential dependencies with the following themes, primarily in order to provide the spatial reference of the services respectively the (spatial) area of responsibility of the service

- Annex I
 - Coordinate reference systems
 - Geographical names
 - Administrative units
 - Addresses
- Annex III
 - Buildings

2.2.3 Environmental management facilities

Comprehension of the scope

The INSPIRE Directive “Definition of Annex Themes and Scope v3.0 (D 2.3)” states that this sub-theme comprises several categories in order to identify the environmental protection facilities. Categories such as waste treatment sites, waste treatment facilities, regulated and illegal areas for

dumping, mining waste and sewage sludge are mentioned as categories to be included. The use cases also indicate the need for providing information on waste treatment, storage and disposal.

The sub-theme scope therefore includes all the facilities involved or/and requested by law to be registered on the management of all kind of wastes of the “European Waste Catalogue and Hazardous Waste List”. Locations of the facilities are given by point or polygon. The waste management facilities are referred to either as installations or sites, where an installation is understood as a stationary unit where one or more waste management activities are carried out, or any other directly associated activities. The site is understood as a single location, in which certain infrastructure and facilities are shared, and where waste management activities take place.

All of the following is considered relevant for the scope: The function of the environmental facility, expressed as economic activity (typically as waste management activity), permissions, inputs and outputs. In addition, information on service hours and capacities are also linked to facility, as well as operators, owners, contacts, and competent authorities.

Waste management activities are distinguished by categories such as storage, recovery, and/or disposal of waste. Economic activities can be categorized by entries of the NACE catalogue (Classification of Economic Activities in the European Community), particularly those under the ‘E’-Group “Water supply; sewerage; waste management and remediation activities”. The Eurostat CPA list of products (Annex to Regulation (EC) n. 451/2008) is used for the classification of output products.

The Environmental Management Facilities Model is based on the Generic Activity Complex Model and in the Data Types described on it as potential extensions.

Organization of information

The following types of data are within the scope of the TWG-US sub-theme. They are provided with links to reference documents that illustrate which user requirements the type of data originate from.

- Discharge [9] (of waste water)
- Disposal [1] (of waste)
- Dumping [1] (of waste at sea)
- Facility [3] (of waste production, treatment, storage)
- Hazardous waste [1]
- Incineration [8] (of waste)
- Installation [3]
- Landfill [13] (of waste)
- Non-hazardous waste [1]
- Plant [8] (of waste production, treatment, storage)
- Radioactive waste [14]
- Recovery [1] (of waste)
- Site [3] (of waste production, treatment, storage)
- Storage [8] (of waste)
- Treatment [1] (of waste or waste water)
- Transfer [3],[4] (of waste)
- Waste [1]
- Waste water [9]

Data out of scope:

- Emissions [2]
- Exhaust gas [8]
- Flooding
- Pollutants [3]

Dependencies and Overlaps

The following overlaps with other Feature Types have been identified:

- Buildings: Certain environmental management facilities may be regarded as buildings (and vice versa).

- Production and Industrial Facilities: A production facility may be an environmental management facility, for instance in cases where waste is used as fuel.
- Land use: Dumping of waste onto land and landfills may be seen as overlapping with land use

Reference documents

- [1] Directive 2008/98/EC of the European Parliament and of the Council of 19 November 2008 on waste
- [2] Directive 2008/1/EC of the European Parliament and of the Council of 15 January 2008 concerning integrated pollution prevention and control
- [3] Regulation (EC) No 166/2006 of the European Parliament and of the Council of 18 January 2006 concerning the establishment of a European Pollutant Release and Transfer Register
- [4] Regulation (EC) No 1013/2006 of the European Parliament and of the Council of 14 June 2006 on shipments of waste
- [5] Directive 2006/66/EC of the European Parliament and of the Council of 6 September 2006 on batteries and accumulators and waste batteries and accumulators
- [6] Directive 2006/21/EC of the European Parliament and of the Council of 15 March 2006 on the management of waste from extractive industries and amending Directive 2004/35/EC - Statement by the European Parliament, the Council and the Commission
- [7] Regulation (EC) No 2150/2002 of the European Parliament and of the Council of 25 November 2002 on waste statistics
- [8] Directive 2002/96/EC of the European Parliament and of the Council of 27 January 2003 on waste electrical and electronic equipment (WEEE)
- [9] 2000/532/EC: Commission Decision of 3 May 2000 replacing Decision 94/3/EC establishing a list of wastes pursuant to Article 1(a) of Council Directive 75/442/EEC on waste and Council Decision 94/904/EC establishing a list of hazardous waste pursuant to Article 1(4) of Council Directive 91/689/EEC on hazardous waste (notified under document number C(2000) 1147) (Text with EEA relevance)
- [10] Directive 2000/76/EC of the European Parliament and of the Council of 4 December 2000 on the incineration of waste
- [11] Directive 2000/60/EC of the European Parliament and of the Council of 23 October 2000 establishing a framework for Community action in the field of water policy
- [12] Directive 2000/53/EC of the European Parliament and of the Council of 18 September 2000 on end-of life vehicles
- [13] Council Regulation (EEC) No 696/93 of 15 March 1993 on the statistical units for the observation and analysis of the production system in the Community
- [14] European Parliament and Council Directive 94/62/EC of 20 December 1994 on packaging and packaging waste
- [15] Council Directive 1999/31/EC of 26 April 1999 on the landfill of waste
- [16] Council Directive 92/3/Euratom of 3 February 1992 on the supervision and control of shipments of radioactive waste between Member States and into and out of the Community
- [17] Council Directive 91/271/EEC of 21 May 1991 concerning urban waste-water treatment

Definition:

“Includes utility facilities such as sewage, waste management, energy supply and water supply, administrative and social governmental services such as public administrations, civil protection sites, schools and hospitals.” [Directive 2007/2/EC]

Description:

The theme *Utility and Government Services* provides basic information (e.g. the location, basic technical characteristics or involved parties) on a wide range of administrative and social services of public interest.

The theme is split in the following subthemes:

- Utility Networks: Node-link-node structured networks for collection, transmission and distribution, including electricity, oil/gas and chemicals, sewer, thermal, water or (not mandatory) telecommunications networks;

- Administrative and social governmental services: Local and governmental services and social infrastructures, selected with respect to the INSPIRE scope (focused on public & environmental aspects), represented as "points of interest";
- Environmental management facilities: Generic facility descriptions for waste management sites, water treatment plants and regulated or illegal areas for dumping.

Entry in the INSPIRE registry: <http://inspire.ec.europa.eu/theme/us/>

2.3 Normative References

- [Directive 2007/2/EC] Directive 2007/2/EC of the European Parliament and of the Council of 14 March 2007 establishing an Infrastructure for Spatial Information in the European Community (INSPIRE)
- [Directive 2008/98/EC] Directive 2008/98/EC of the European Parliament and of the Council of 19 November 2008 on waste and repealing certain Directives
- [ISO 19107] EN ISO 19107:2005, Geographic Information – Spatial Schema
- [ISO 19108] EN ISO 19108:2005, Geographic Information – Temporal Schema
- [ISO 19108-c] ISO 19108:2002/Cor 1:2006, Geographic Information – Temporal Schema, Technical Corrigendum 1
- [ISO 19111] EN ISO 19111:2007 Geographic information - Spatial referencing by coordinates (ISO 19111:2007)
- [ISO 19113] EN ISO 19113:2005, Geographic Information – Quality principles
- [ISO 19115] EN ISO 19115:2005, Geographic information – Metadata (ISO 19115:2003)
- [ISO 19118] EN ISO 19118:2006, Geographic information – Encoding (ISO 19118:2005)
- [ISO 19123] EN ISO 19123:2007, Geographic Information – Schema for coverage geometry and functions
- [ISO 19125-1] EN ISO 19125-1:2004, Geographic Information – Simple feature access – Part 1: Common architecture
- [ISO 19135] EN ISO 19135:2007 Geographic information – Procedures for item registration (ISO 19135:2005)
- [ISO 19138] ISO/TS 19138:2006, Geographic Information – Data quality measures
- [ISO 19139] ISO/TS 19139:2007, Geographic information – Metadata – XML schema implementation
- [ISO 19157] ISO/DIS 19157, Geographic information – Data quality
- [OGC 06-103r4] Implementation Specification for Geographic Information - Simple feature access – Part 1: Common Architecture v1.2.1
- NOTE This is an updated version of "EN ISO 19125-1:2004, Geographic information – Simple feature access – Part 1: Common architecture".
- [Regulation 1205/2008/EC] Regulation 1205/2008/EC implementing Directive 2007/2/EC of the European Parliament and of the Council as regards metadata

| | |
|---------------------------|---|
| [Regulation 976/2009/EC] | Commission Regulation (EC) No 976/2009 of 19 October 2009 implementing Directive 2007/2/EC of the European Parliament and of the Council as regards the Network Services |
| [Regulation 1089/2010/EC] | Commission Regulation (EU) No 1089/2010 of 23 November 2010 implementing Directive 2007/2/EC of the European Parliament and of the Council as regards interoperability of spatial data sets and services |
| [Regulation 166/2006/EC] | Regulation (EC) No 166/2006 of the European Parliament and of the Council of 18 January 2006 concerning the establishment of a European Pollutant Release and Transfer Register and amending Council Directives 91/689/EEC and 96/61/EC |

2.4 Terms and definitions

General terms and definitions helpful for understanding the INSPIRE data specification documents are defined in the INSPIRE Glossary¹⁴.

2.5 Symbols and abbreviations

2.6 How the Technical Guidelines map to the Implementing Rules

The schematic diagram in Figure 1 gives an overview of the relationships between the INSPIRE legal acts (the INSPIRE Directive and Implementing Rules) and the INSPIRE Technical Guidelines. The INSPIRE Directive and Implementing Rules include legally binding requirements that describe, usually on an abstract level, *what* Member States must implement.

In contrast, the Technical Guidelines define *how* Member States might implement the requirements included in the INSPIRE Implementing Rules. As such, they may include non-binding technical requirements that must be satisfied if a Member State data provider chooses to conform to the Technical Guidelines. Implementing these Technical Guidelines will maximise the interoperability of INSPIRE spatial data sets.

¹⁴ The INSPIRE Glossary is available from <http://inspire-registry.jrc.ec.europa.eu/registers/GLOSSARY>

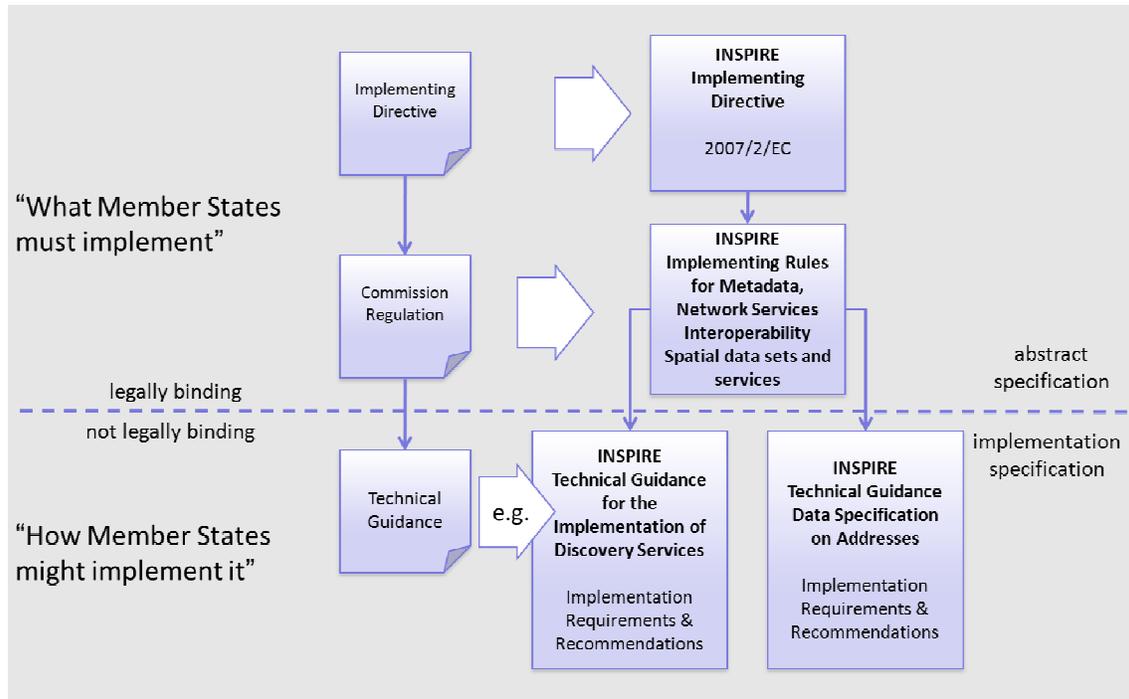


Figure 1 - Relationship between INSPIRE Implementing Rules and Technical Guidelines

2.6.1 Requirements

The purpose of these Technical Guidelines (Data specifications on *Utility and Government Services*) is to provide practical guidance for implementation that is guided by, and satisfies, the (legally binding) requirements included for the spatial data theme *Utility and Government Services* in the Regulation (Implementing Rules) on interoperability of spatial data sets and services. These requirements are highlighted in this document as follows:

IR Requirement
Article / Annex / Section no.
Title / Heading

This style is used for requirements contained in the Implementing Rules on interoperability of spatial data sets and services (Commission Regulation (EU) No 1089/2010).

For each of these IR requirements, these Technical Guidelines contain additional explanations and examples.

NOTE The Abstract Test Suite (ATS) in Annex A contains conformance tests that directly check conformance with these IR requirements.

Furthermore, these Technical Guidelines may propose a specific technical implementation for satisfying an IR requirement. In such cases, these Technical Guidelines may contain additional technical requirements that need to be met in order to be conformant with the corresponding IR requirement *when using this proposed implementation*. These technical requirements are highlighted as follows:

TG Requirement X This style is used for requirements for a specific technical solution proposed in these Technical Guidelines for an IR requirement.

NOTE 1 Conformance of a data set with the TG requirement(s) included in the ATS implies conformance with the corresponding IR requirement(s).

NOTE 2 In addition to the requirements included in the Implementing Rules on interoperability of spatial data sets and services, the INSPIRE Directive includes further legally binding obligations that put additional requirements on data providers. For example, Art. 10(2) requires that Member States shall, where appropriate, decide by mutual consent on the depiction and position of geographical features whose location spans the frontier between two or more Member States. General guidance for how to meet these obligations is provided in the INSPIRE framework documents.

2.6.2 Recommendations

In addition to IR and TG requirements, these Technical Guidelines may also include a number of recommendations for facilitating implementation or for further and coherent development of an interoperable infrastructure.

Recommendation X Recommendations are shown using this style.

NOTE The implementation of recommendations is not mandatory. Compliance with these Technical Guidelines or the legal obligation does not depend on the fulfilment of the recommendations.

2.6.3 Conformance

Annex A includes the abstract test suite for checking conformance with the requirements included in these Technical Guidelines and the corresponding parts of the Implementing Rules (Commission Regulation (EU) No 1089/2010).