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Unique identifiers for spatial data

▶ In Finland, a national recommendation of unique identifiers for spatial data is almost complete. The draft version of the JHS Public Administration Recommendation contains a description of the structure of the identifier and instructions on the formation of such identifiers. This also conforms to the demands of the INSPIRE directive.

The use of unique identifiers makes it possible to utilise and combine data from different sources and across organisational boundaries. Unique identifiers facilitate the reuse of data and make it possible to decrease data collection and the number of registers containing the same data.

According to the INSPIRE directive, unique identifiers must be applied to some datasets that fall within the framework of the directive. Uniform identifier practices ensure interoperability of spatial data not only nationally but also within Europe.

Structure of unique identifiers

INSPIRE practices have been defined in the Generic Conceptual Model (GCM). According to this document, identifiers must be unique, persistent, traceable and feasible. The format of the identifiers is HTTP URI (Uniform Resource Identifier).

Unique identifiers for spatial data are data system independent URIs published by the organisation that provided the data. The URI consists of a network identifier, identifier type, dataset identifier of the spatial object and the local identifier of the geographic feature.

In addition, the URI can contain a version number (voluntary) that is compliant with the life-cycle rules of the geographic feature in question.

The *network identifier* of the spatial data URIs is *http://paikkatiedot.fi*. A redirection service is located at paikkatiedot.fi. The service redirects URI queries to the data provider's service, which returns the actual data.

The *identifier type* identifies the type of information resource:
- 'id' – real-world object
- 'so' – spatial object
- 'def' – concept (definition)
- 'doc' – documentation describing the object or concept, different presentation formats, for example

The *dataset identifier* identifies the data source of a spatial object. The national discovery (metadata) service's dataset identifier is used as the dataset identifier of the URI.

The *local identifier* is unique in the namespace, that is, no other spatial object in the dataset has the same identifier. The local identifier can be an established identifier used in that specific dataset, for example a permanent building identifier or property identifier.

Changes in data items are managed with the help of the *version number*. Life-cycle rules are needed for handling different versions. These rules determine whether a change in a spatial object causes a change in its identity and unique identifier or merely a change in its version number.

The structure of a spatial object's URI is as follows:
http://paikkatiedot.fi/so/{dataset identifier}/{local identifier}[/{version number}]

The identifier type 'so' identifies the feature as a spatial object.

URIs will shortly be taken into use

The working group responsible for drafting the recommendation is currently finalising the draft and it is expected to be published in the autumn of 2015. The next step is to take the recommendation into use in the ICT systems of organisations.

At the National Land Survey of Finland the work started in spring 2015, as a project to renew the Finnish Topographic Database. One part of the project involves the creation of a system of unique identifiers for topographic data, a significant step forward for the interoperability of data. Similar projects are also to be expected in other areas of applications.

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