

Recommendation of the National Council for Geographic Information regarding the public administration's interfaces for geospatial information

Background

Since the 1990s, interoperability of geospatial data has been systematically developed in Finland. International standards for geospatial information interfaces (OGC/ISO WMS, WFS etc.) were mostly published and implemented in early 2000s. The number of geospatial information interface services increased in the 2010s in Europe as the INSPIRE directive entered into force. The above-mentioned standards are based on XML queries and XML/GML responses. However, since 2015, the OpenAPI Specification has become popular in web-based information processing applications (<https://www.openapis.org/>).

Recommendation

We recommend that all public administration's new interface services primarily use open and well-documented API specifications (<https://www.openapis.org/>). Efficient processing and ease of use should be considered and special attention paid to data models, harmonisation of information and documentation.

Geospatial information interfaces should use and produce services in accordance with the OGC (<https://www.ogc.org>) and OGC API (<http://www.ogcapi.org/>) standards whenever possible. The GeoJSON, JSON, GML or PBF formats, among others, can be used to encode simple geospatial datasets.

For more complex data (e.g. 3D datasets, building information modelling, data used for travel), such formats as i3s, 3D Tiles, LAS, IFC, Revit, SketchUp, GML, GeoPackage and GTFS can be used to transmit data.

Grounds

The use of open APIs (<https://www.openapis.org/>) (such as OGC API) has increased in the last few years. Their popularity is partly due to the fact that developing and deploying them is easy and simple. In addition, modern software development tools facilitate using APIs.

Well-identified resources (HTTP URI) are easier to index, and web search engines (such as Google) make the information easier to find. Using URIs also enables linking data in accordance with the Linked Data principles.

Many open APIs compile data into JSON files. JSON, GeoJSON and PBF are simple file formats and, as such, highly suitable for general data distribution. Using these formats is easy and simple in terms of technology as well. Providing geospatial information as JSON, GeoJSON or PBF files is a good solution for most cases.

More complex geospatial datasets can be encoded in the format most suitable for their intended use in terms of processing efficiency and ease of use. Several options to use complex data are required, since it can be used in a variety of fast-developing applications and each application has its own special characteristics.

Ensuring information is easy to find, general-purpose file formats and support for modern software development tools all assist in providing geospatial data via APIs.