

GeoPackage for INSPIRE

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XML schemas based on GML are the default encoding for all INSPIRE spatial data themes. However, many existing web and desktop applications and tools have difficulties in consuming and/or fully making use of data shared according to these schemas because most of them, including popular application and libraries, consume and write flat data structures. This means that simple use of INSPIRE data encoded in XML is difficult in standard GIS clients. There are proposals for alternative encodings of INSPIRE data (simplified XML schemas, ESRI geodatabases, GeoJSON, etc.). The Art. 7 of the Implementing Rules on data interoperability mandates that these alternative encodings can be used if an associated encoding rule that specifies for all spatial object types and all attributes and association roles the output data structure used is publicly available.

The GeoPackage Encoding Standard is an open format for Geospatial Information developed by OGC that describes a set of conventions for storing within an SQLite database vector features, imagery, non-spatial data, metadata, etc. Since a GeoPackage is an SQLite file, applications and libraries can access and update the data in a GeoPackage without intermediate format translations. GeoPackage is already a successful format for storing geographic information on mobile devices in communications environments where there is limited connectivity and bandwidth. This has made it very appreciated for its use in military on-field systems. Initiatives such as OGC Testbed-16 are exploring other uses such as the distribution of large vector datasets.

GeoPackage is open, standards-based, platform-independent, portable, self-describing, compact, already supported by most popular application and libraries due to its success for mobile devices, that can be used for the distribution of large vector datasets. These characteristics make GeoPackage a real alternative to XML for transferring INSPIRE and non-INSPIRE datasets.

This work presents an encoding rule that specifies how to encode them in a GeoPackage intended for INSPIRE data compliance (complex data structure), and next how to derive a GeoPackage intended for INSPIRE data dissemination and simple use (flat data structure). The presentation will also introduce a GeoPackage schema generation tool, GeoPackage schemas ready for use for most of the INSPIRE themes, examples of how to populate them with INSPIRE datasets and a desktop tool for exploring complex GeoPackage files.

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