

GeoDjango and LADM II: from Conceptual Model to Implementation

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SUMMARY

The Land Administration Domain Model (LADM) is a platform independent, conceptual information model describing the classes, attributes and associations related to administration of rights, responsibilities and restrictions affecting land and their geometrical (geospatial) properties. The (automatic) conversion and implementation of this conceptual model into a platform specific model, i.e. a relational database, is faced with many challenges. The LADM is currently under development as a multipart International Standard (i.e. LADM Edition II), and one of its parts is proposed to be dedicated to the implementation of the LADM.

An experiment with the conversion of the LADM to an implementation in the open source database PostgreSQL has been executed with Django and its extension GeoDjango. Django is an open-source web development framework with an Object-Relational Mapper (ORM) which has been utilised for this implementation. The primary goal of an ORM is to transmit data between the object-oriented platform independent model and the underlying database. GeoDjango extends the ORM regarding querying and manipulating spatial data.

With the GeoDjango ORM, a substantial part of the LADM could, relatively straightforward, be implemented in the database, with support for most of the LADM classes, attributes, associations and constraints. An operational web framework was automatically generated, as a basis for future web application development, in which the data manipulation (create, retrieve, update, delete) is fully handled by the ORM based on LADM similar classes. As part of this framework, a web-based graphical user interface can be generated to support user interaction with the data.