THE LADM BASED ON INTERLIS

Michael Germann[1], Jürg Kaufmann[1,*], Daniel Steudler[1], Christiaan Lemmen[2], Peter Van Oosterom[2], Kees De Zeeuw[2]

[1] Swiss Land Management
[2] Cadaster International
[*] Corresponding Author jkcons@hotmail.ch

Both the conceptual schema language INTERLIS and the land administration domain model (LADM) share the same model driven architecture (MDA) principles. In this paper we explore how INTERLIS and LADM complement each other in actual implementation of land administration system based on the LADM using INTERLIS tools. In Switzerland, the requirement for a clearly defined data model that can be adapted in flexible ways resulted in a conceptual schema and object oriented language INTERLIS. The cadastral core data model and many other models (ie. utility services, urban planning, etc.) have been defined with INTERLIS in Switzerland. The concept of the data description language INTERLIS is compatible with international standards like UML or GML/XML. The language is widely used in the country. Constraints for comprehensive data quality checking can be formulated easily. This is one of the main reasons to keep INTERLIS. INTERLIS tools are available for QGIS, FME and other systems. There is also an INTERLIS aware graphic UML editor, GML can be generated, web services (WMS) are supported, etc. The Land Administration Domain Model (LADM, ISO 19152) has been formulated in INTERLIS now. The result is a layered INTERLIS model description: ISO191xx base model, generic LADM and finally country model specific model expressed in INTERLIS. From this, using INTERLIS tools database schema's (Oracle, PostgreSQL) can be generated and also a foundation for data exchange format (XML) of the specific LADM country profile is available. Specific attention will be paid to expressing the LADM constrains (expressed with pseudo OCL in ISO 19152) into INTERLIS. The paper first introduces the INTERLIS concepts and supporting documentation. Some examples are included. Then the integration of LADM is expressed. Pro's and con's are analyzed (compared to not using INTERLIS and applying just standard UML, OCL, XML). Finally, future work is presented: support of volumetric 3D primitives, more advanced constraints, etc. The INTERLIS brings one more option to implement LADM (e.g. with support from Switzerland) in an efficient manner, and supporting a range of actual target platforms (GIS, DBMS, etc.).

Keywords LADM, INTERLIS, MDA, GML/XML, Databases, Constraint Languages