



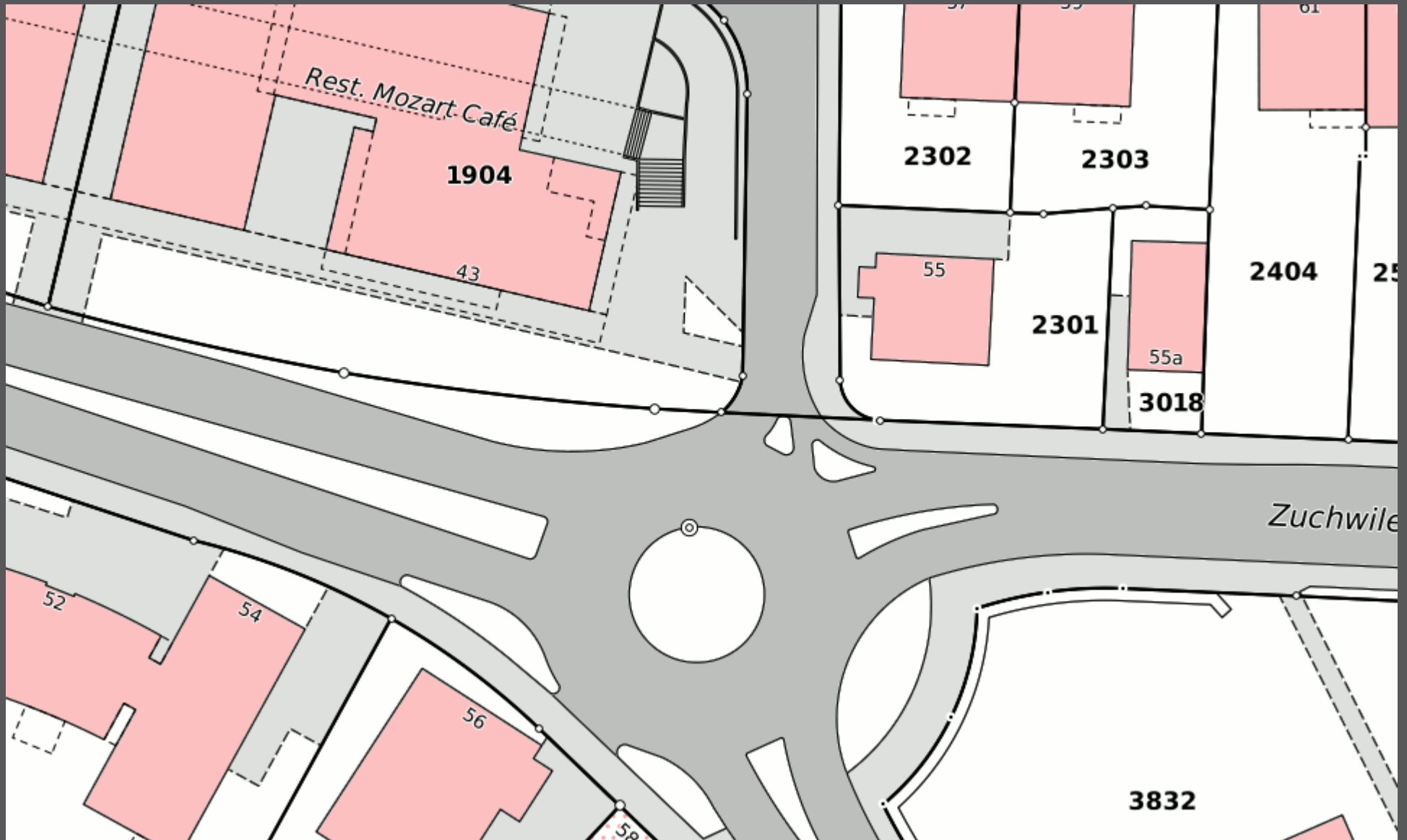
Curved geometries / Interlis with OGR & QGIS

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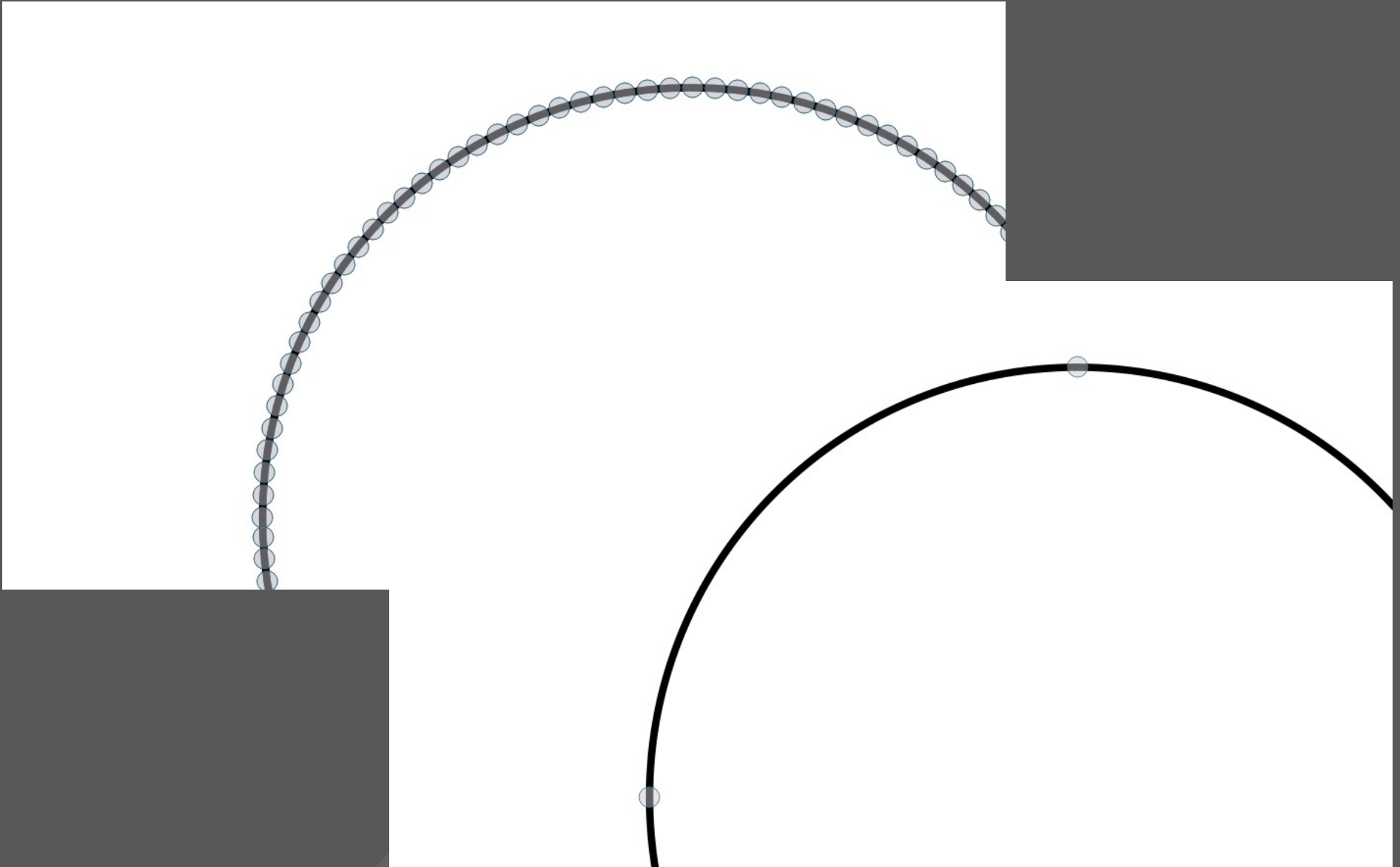


Curved geometries in QGIS





Curved geometries in QGIS





Motivation

- › **Curved geometries in public data in Switzerland (Interlis format)**
- › **ISO SQL/MM standard has other properties not supported by QGIS (z-Values, m-Values, nested types)**
- › **Supporting those properties might motivate people to write innovative 3D plugins**
- › **Current QgsGeometry works fine, but difficult to extend with new types**



ISO SQL/MM for spatial DBs

- Supported by proprietary DBs and PostGIS
- New types with circular arcs:
 - CircularString
 - CompoundCurve
 - CurvePolygon
 - MultiCurve
 - MultiSurface





Curved geometries in OGR

- › Support in OGR core library, GDAL version 2.0
- › Implemented by Even Rouault and Pirmin Kalberer (Interlis driver)
- › Funded by Swiss OGIS User Group
- › Drivers: PostGIS, GML, GPKG, Interlis





OGR/Interlis history

- **OGR 1.3.0 (2005)**
 - First Interlis support
- **OGR 1.10**
 - Last version based on IOM library (Java interpreter needed)
 - Support for multiple geometries per layer
- **OGR 1.11**
 - Based on IlisMeta model
 - Use model info for writing
 - Contains bugs, fixed in 2.0





GDAL/OGR 2.0

- **Unified raster/vector driver model (e.g. PDF driver)**
- **6 new GDAL and 5 new OGR drivers**
 - **GPKG driver with vector and raster support**
- **Major improvements: CSV, GPKG, GTiff, JPEG2000, MapInfo, PG, SQLite**
- **64bit integer fields and FID support**
- **Curve geometries (PostGIS, GML, Interlis, ...)**
- **Current version: 2.0 rc1**
- **Release: June 2015**



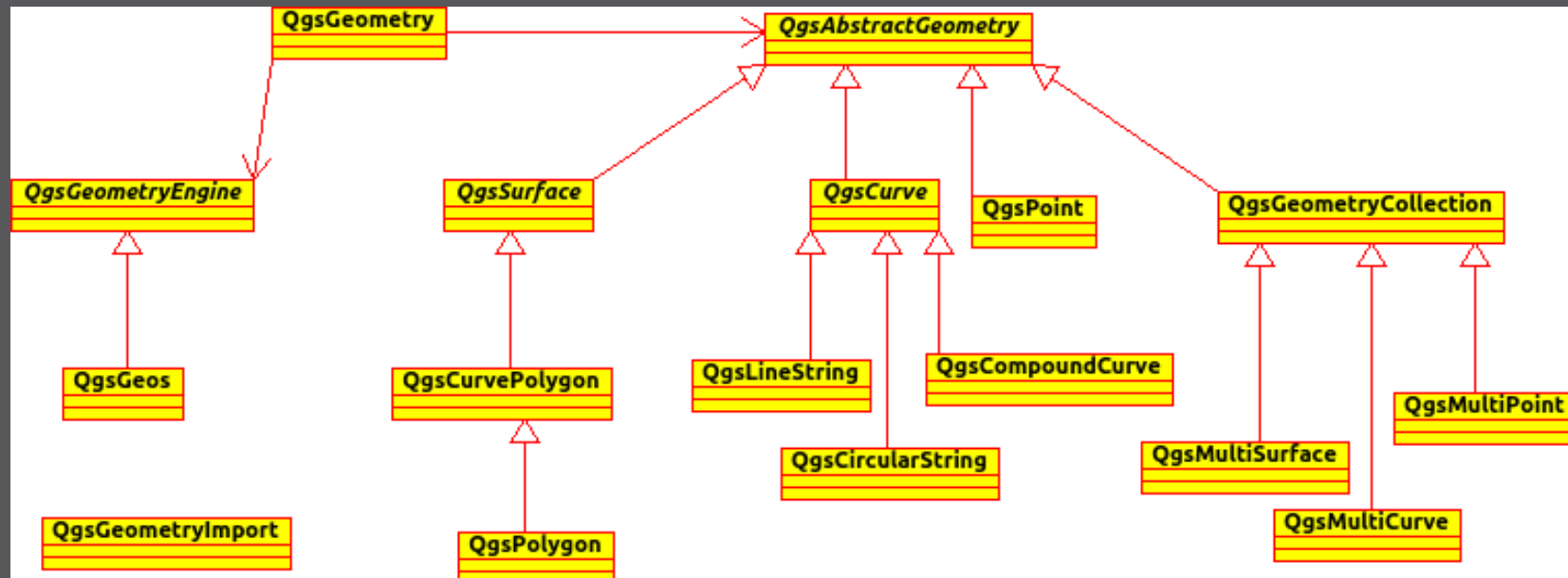
Implementation goals (QGIS)

- Support circular arcs and compound geometry types (display and editing)
- Z- / M- coordinates are queriable for plugins and preserved during editing
- System should be extensible with new types (e.g. Bézier-Splines in future)
- The interface of the current QgsGeometry needs to stay for compatibility
- For now segmentation will be used for intersection/union/difference etc.
- Area and length calculated directly (no segmentation)





Architecture





Included in QGIS 2.10

- **New geometry kernel (XYZM/Curves)**
- **QGSGeometry compatibility class**
- **Automatic conversion (GEOS, WKB/WKT/JSON)**
 - Segmentation for geometry processing (intersection, buffering, etc.)
- **PostGIS provider**
- **Python bindings**
- **Funded by Canton of Solothurn**

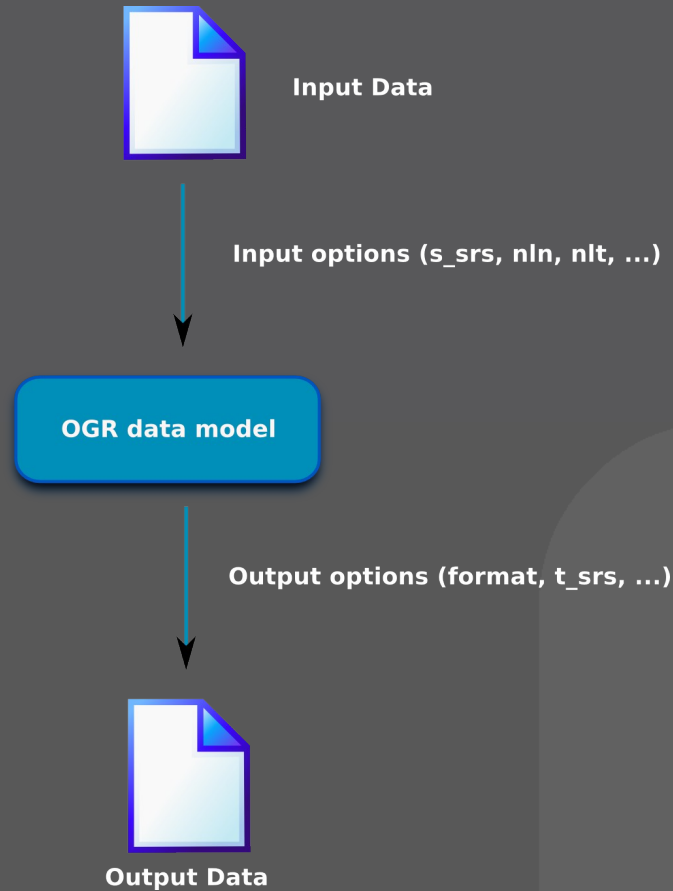


Plans / Future

- › **Editing tools to create circular arcs (2.12)**
- › **Node tool for curved geometries and Z-/M-values (2.12)**
- › **Length and Area directly from geometry (2.12)**
- › **Configurable segmentation settings**
- › **OGR provider**



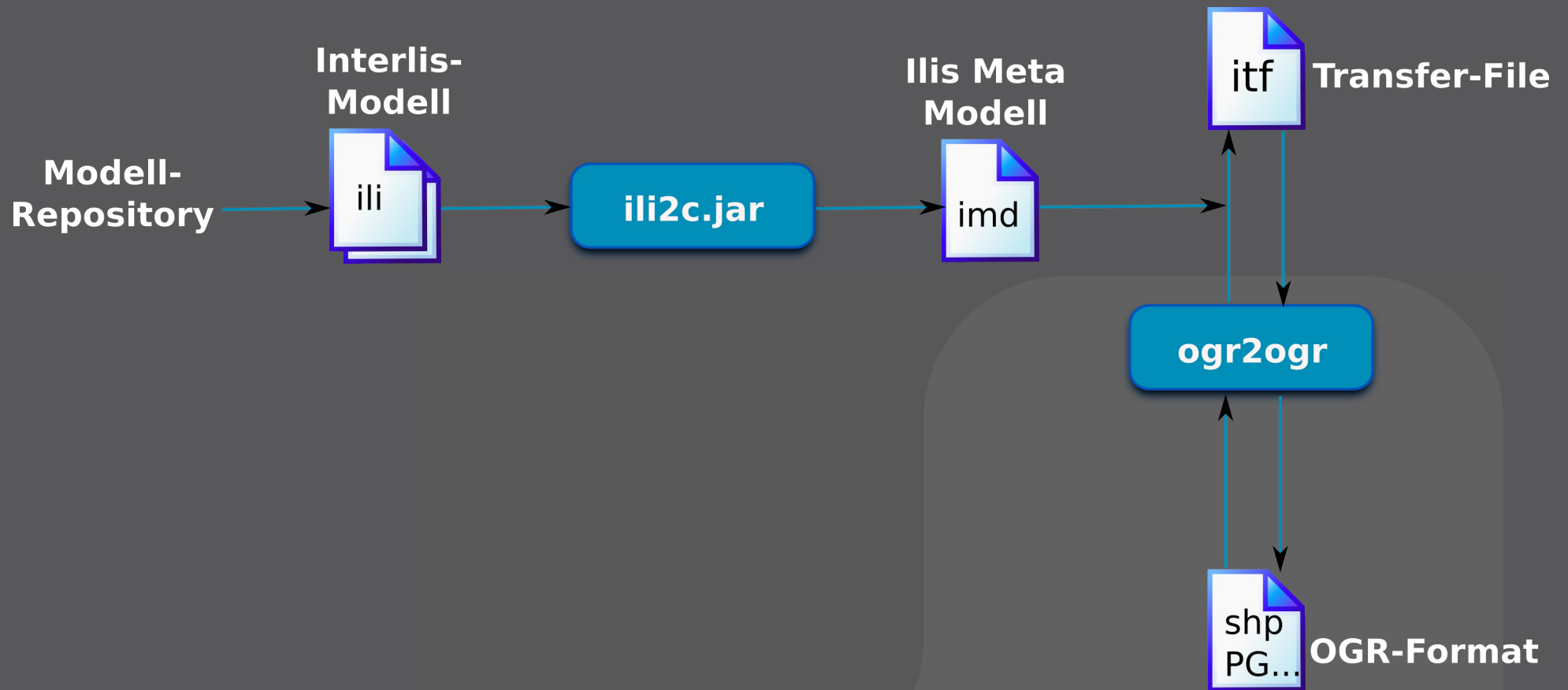
Importing curves: ogr2ogr



<http://www.gdal.org/ogr2ogr.html>



GDAL/OGR Interlis driver



http://www.gdal.org/drv_ili.html

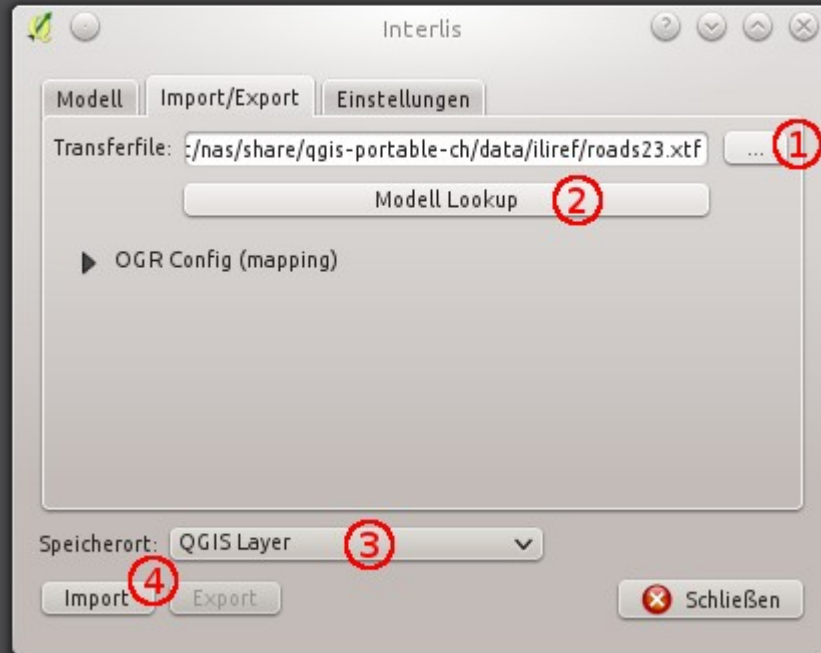


Interlis plugin for QGIS

- › QGIS 2.8 or 2.10 recommended
- › QGIS Plugin repository
- › Current version requires GDAL 2.0
- › **Portable QGIS Swiss Edition**
 - › QGIS 2.8 with GDAL 2.0 for Windows
 - › www.sourcepole.ch/produkte/interlis/
 - › Executable without setup (also from USB flash drive)



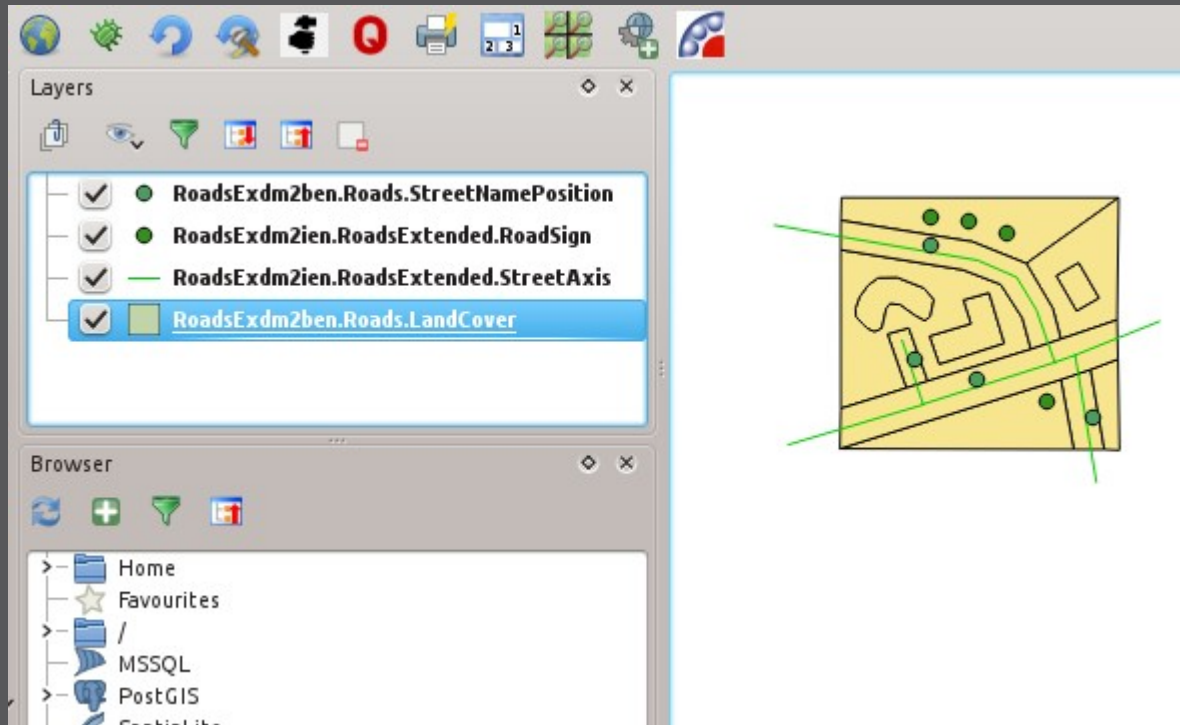
Import with model from repository



- Destination: QGIS layer or PostGIS connection

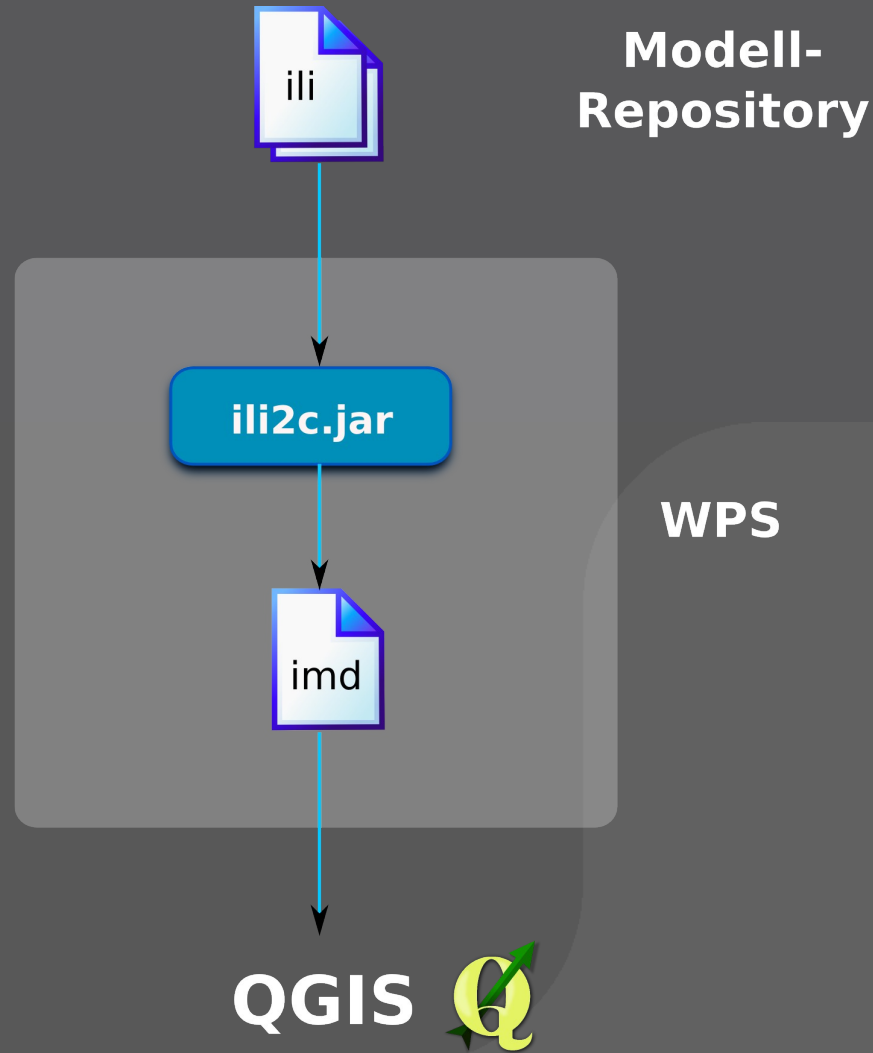


Import as QGIS layer





Model lookup in repository





More features

- › Import/Export with local IlisMeta model
- › Conversion from Ili model to IlisMeta
- › Creating DB schema from Interlis model
- › Importing enums from Interlis model
- › Configurable mapping (JSON format), e.g. for renaming columns
- › Alternative import/export software: ili2pg





Thank you! - Questions?



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Credits: Stefan Ziegler