

Validating INTERLIS 2 Transfer Files



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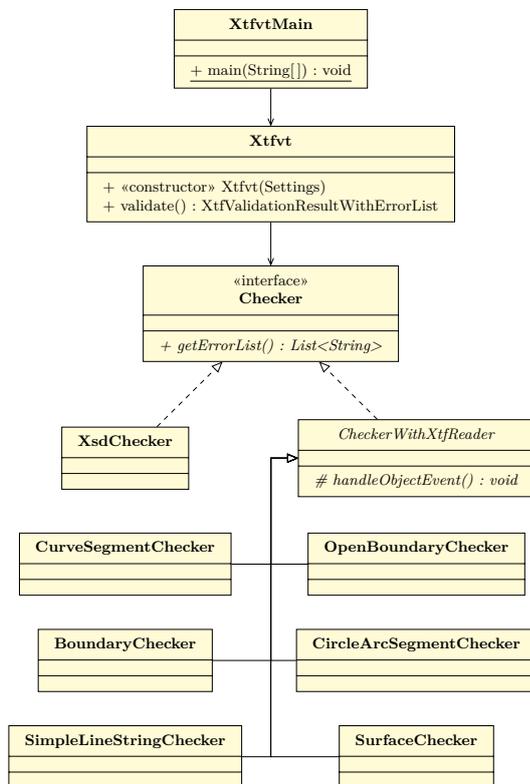


Figure 1: Class diagram of important classes in xtfvt

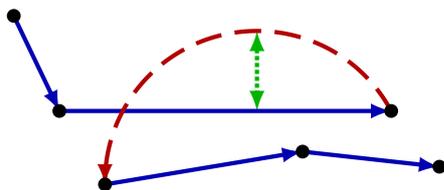


Figure 2: A line string consisting of straight segments and a circle arc segment (dashed). The arc segment is intersecting with the the directly connected previous straight. The sagitta (arc depth) of the intersection is shown as dotted arrow.

INTERLIS 2 is a generic Swiss standard for describing and exchanging geodata. For cadastral survey in Switzerland its usage is required by law. INTERLIS 2 datasets consist on one hand of textual data model files that describe the kind of geodata, similar in style to UML. On the other hand they consist of transfer files in XML format, which can be thought of as instances of the models described in the forementioned model files and can carry amongst others geometrical forms such as points, line strings and surfaces.

Currently, only proprietary or incomplete solutions to validate the correctness of transfer files exist. This thesis presents the LGPLv3 software library *xtfvt* (*XML Transfer File Validation Tool*), written in Java, for the validation of INTERLIS 2 transfer files. The scope of validation lies in geometrical and topological checks. There are two ways of using xtfvt (Figure 1): 1. As a stand-alone application (by using *XtfvtMain*) 2. As a library in one's own application (by using *Xtfvt*).

INTERLIS allows line strings and surfaces to consist not only of straight segments, but also of circle arc segments (Figure 2). Checking if a line string is valid or not is demanding due to complex geometric definitions and dependencies in the model files. For example, the line string in Figure 2 may be valid or not depending on the definition of the maximum allowed sagitta in the model file.

The usage of xtfvt is demonstrated on JHOVE2, a framework for characterization and validation of digital objects used in digital preservation.

The thesis concludes with a list of recommendations to the INTERLIS standards body concerning the upcoming INTERLIS 2.4 standard, e.g. clarifying how arc segments are to be used on ellipsoid-based coordinate reference systems.

xtfvt is available at: <https://github.com/ltog/xtfvt>