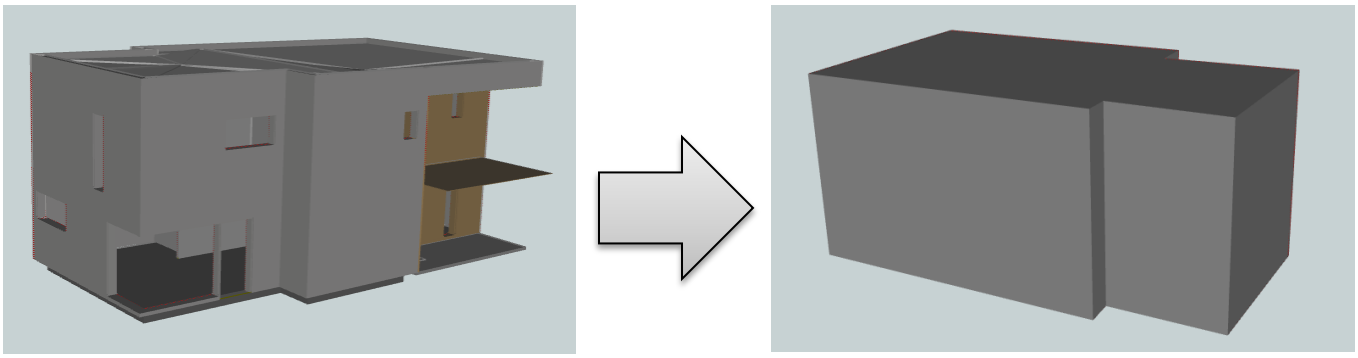
Description and usage - SGP 3.0 Solid LOD1/2

This document describes the use of the script converting a BIM (building information model) in IFC format to SGP 3.0(Svensk Geoprocess) in the GitHub repository *Testbed_BIM_GIS*. The scripts are developed in the software FME (Feature Manipulation Engine) version 2017.1.

Contents



History

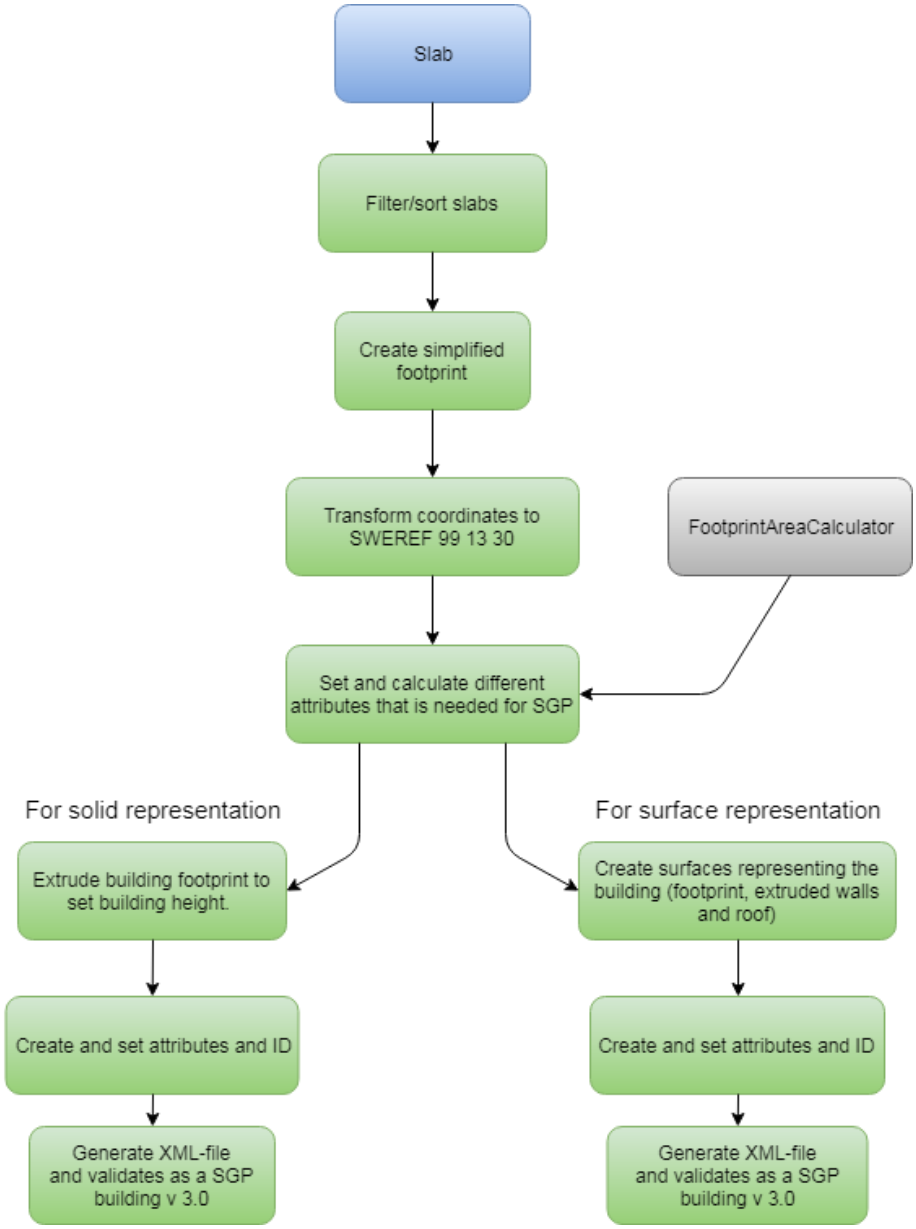
Version	Date	Comments	Person
1.0	2018-07-4	First version of this document that describes the script	Josefine Axelsson

Convert a BIM in IFC to SGP 3.0 Solid LOD1/2

The difference between a LOD 1 and a LOD2 solid of the test model *KTHDemohouse* are attributes set in the transformer *XMLTemplater_4*. Due *KTHDemohouse* flat roof, there is no visual difference between LOD1 and LOD2.

Description

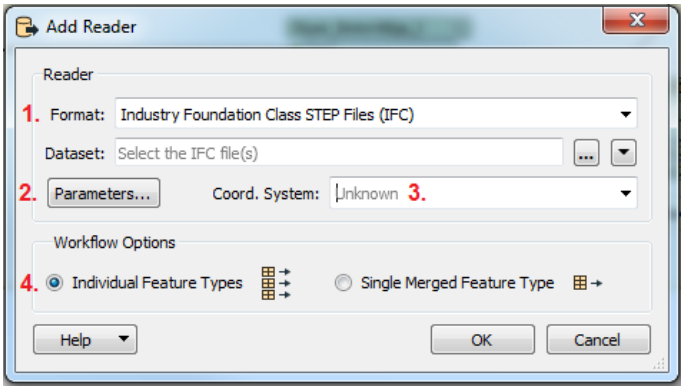
This script converts a BIM to SGP 3.0 LOD 1. From the footprint of the bottom floor a solid is created by extruding the area to the building height. The custom transformer *FootprintAreaCalculator* calculates the area and the area is stored in the SGP/XML file as an attribute.



StoreyIndexFinder

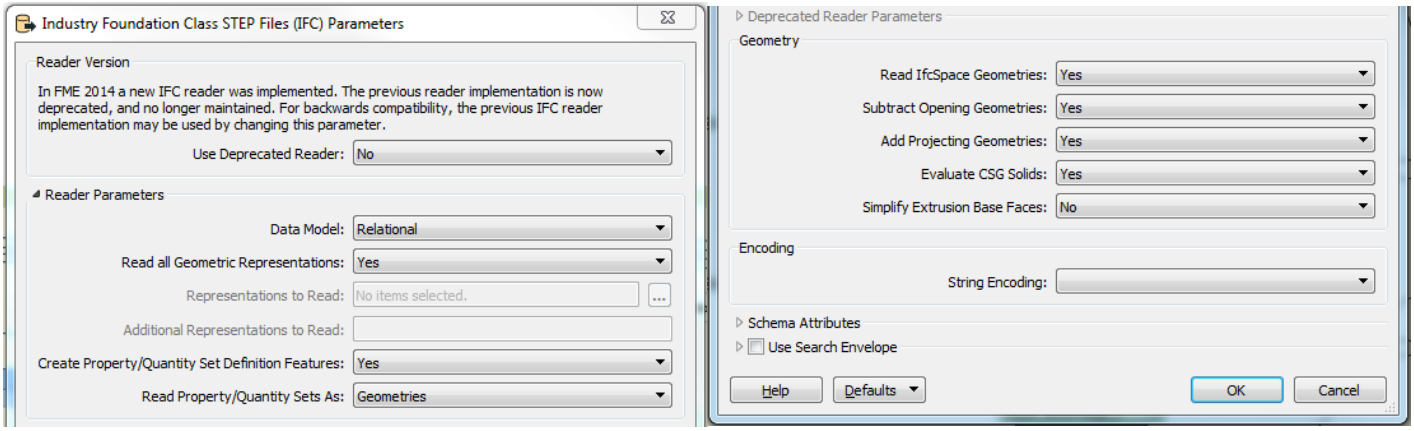
Find/sort *IfcSlab* objects based on the building storey.

Usage



1. The IFC model is read to the program with a *Reader* choosing the file format *Industry Foundation Class STEP Files (IFC)*.

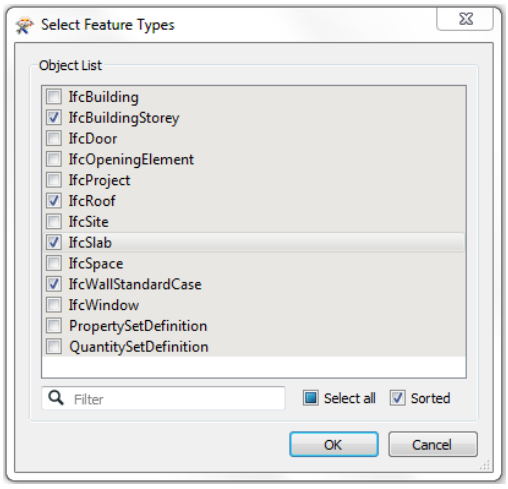
2. Reader parameters are chosen as the shown in figure below.



3. Coordinate system is not needed to be set.

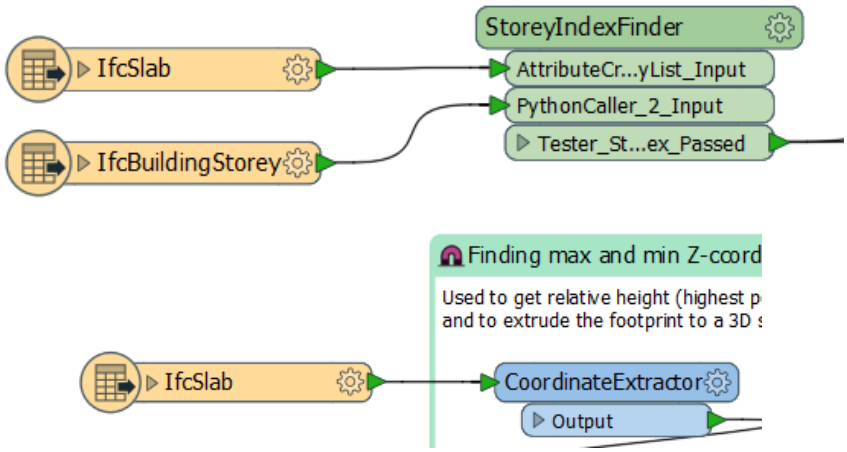
4. To be able to handle different element *Individual Feature Types* is chosen.

5. Chose elements/features. Elements *IfcSlab*, *IfcBuildingStorey* and elements representing walls and (if existing) roof element.



Connecting element and transformers

IfcSlab and *IfcBuildingStorey* are connected to *StoreyIndexFinder. IfcSlab* is also connected to a *CoordinateExtractor.*



IfcSlab and *IfcBuildingstorey* are also connected to *FootprintAreaCalculator*. To calculate the footprint area wall elements are needed (*IfcWall*/*IfcStandardWallCase*) and if the model contains a roof element *IfcRoof* is connected as well (connections to *FootprintAreaCalculator* is described in Description and usage – Building footprint area).

Parameters

To be able to create a valid SGP v3.0 building some parameters is required. Public parameters that are compulsory and is set manually (from Lantmäteriet):

- uttagDatum
- namnDatamängd
- dimension
- koordinatsystemPlan
- koordinatsystemPlanIdentifier

The parameters can be set in the main script in the navigation tree under *User Parameters > Published Parameters*.

Links attributes from input data to Svensk geoprocess attributes. Details about the Svensk geoprocess attributes are included in the UML Model for Building:
ftp://ftp.lantmateriet.se/pub/svensk_geoprocess/UML-modell/SvenskGeoprocess_HTML_modell/index.htm

Building heights are hard coded in this version since the ground elevation is not known with high accuracy. The height attributes is set in transformer *AttributeCreator_BuildingHeight.*