

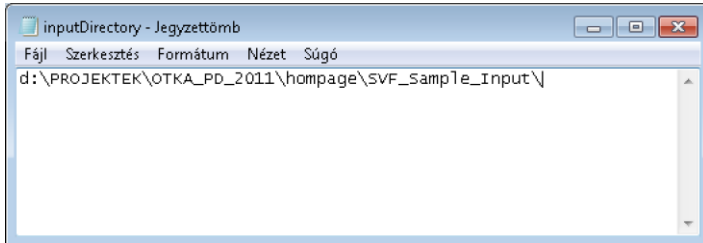
SVF mapping tool – Users Guide

The method is described in Gál and Unger 2014. It is free to use for any purpose, but please cite Gál and Unger 2014 if you used it.

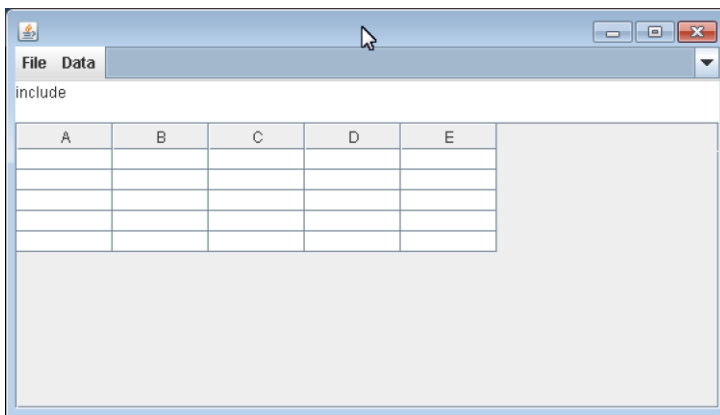
The program do not needs installing, but it needs Java runtime environment to run:

<http://www.oracle.com/technetwork/java/javase/downloads/java-se-jre-7-download-432155.html>

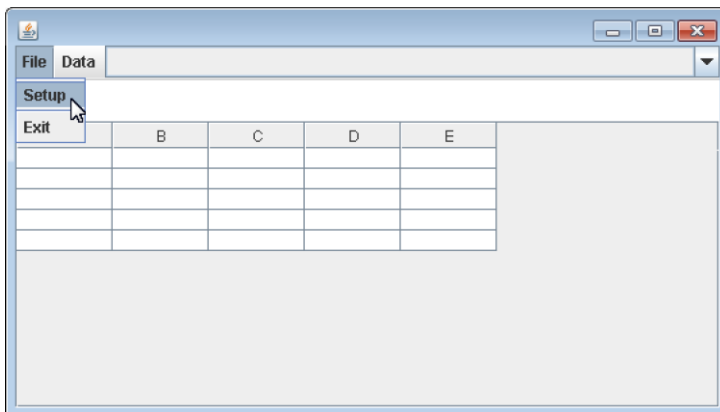
The place of the input and output files can be defined in inputDirectory.txt.



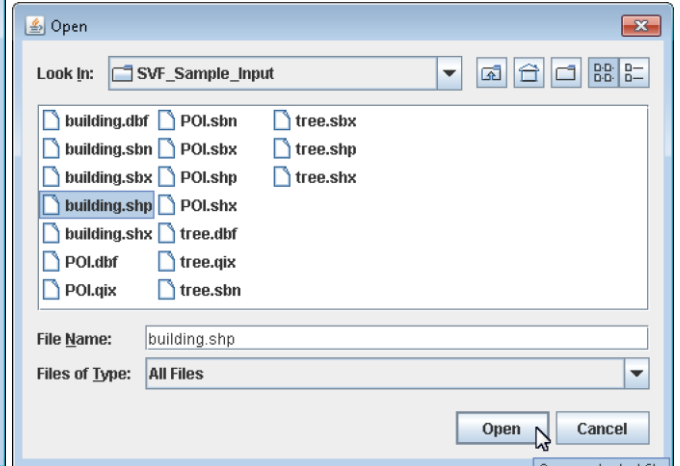
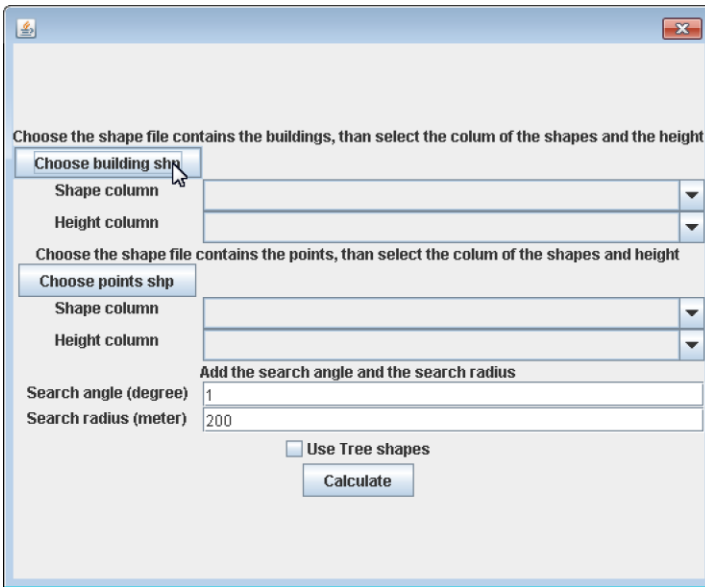
After the modification of the inputDirectory.txt the program can be started with SVFCalc.jar.



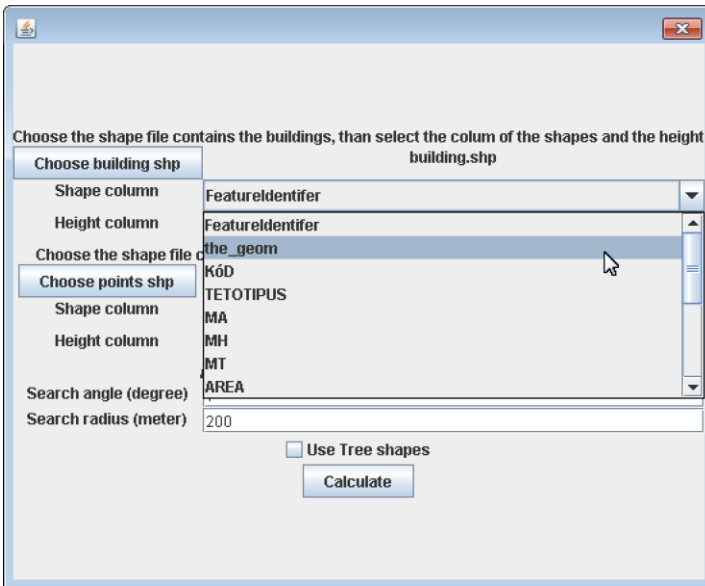
First the input files have to be defined.



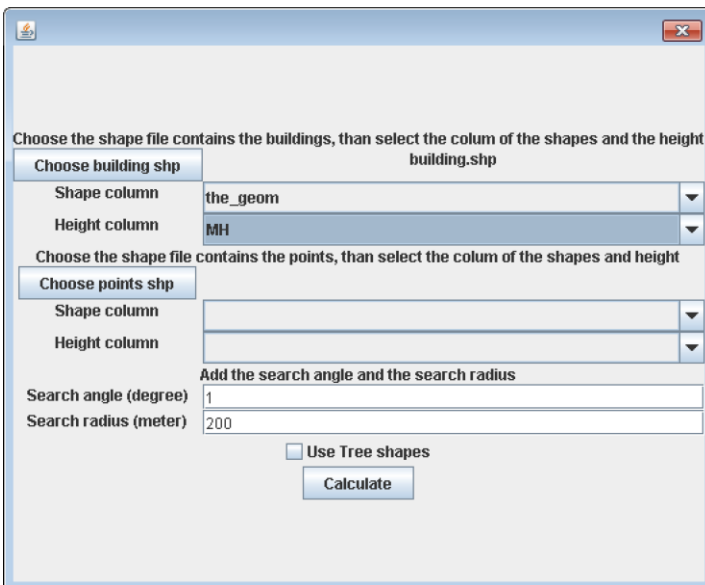
Building footprints with height in ESRI Shapefile format.



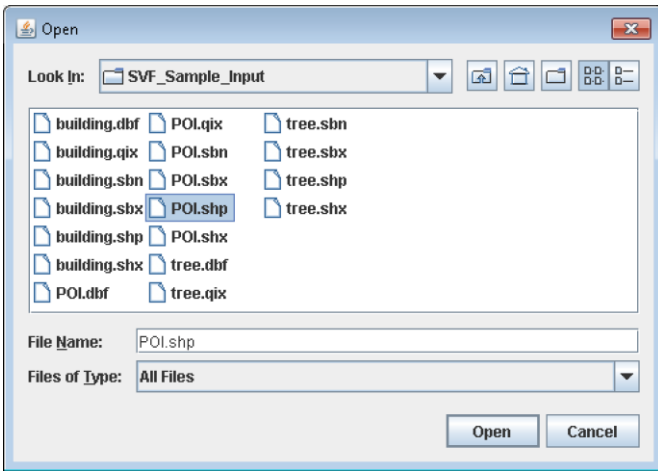
Shape column means the geometry. The name is always the_geom.



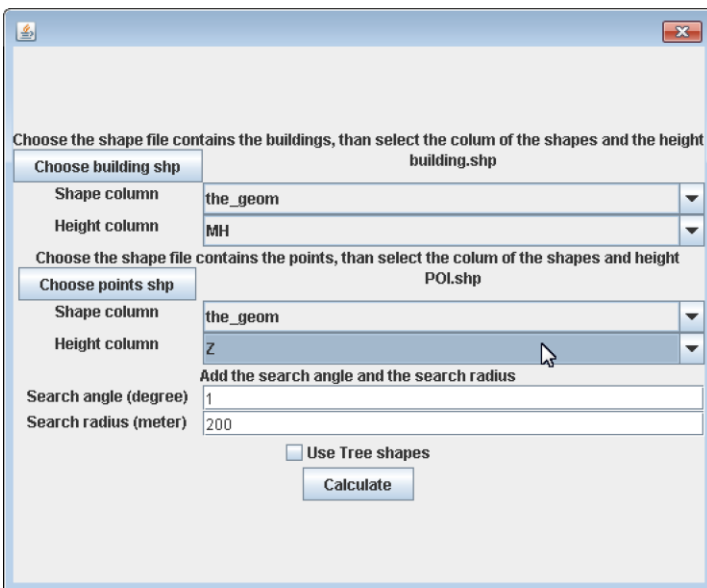
Height column is the height or elevation of the buildings. It can be metres above sea level or meters above ground.



Points is the point type shapefile what contains the places where we want to calculate the SVF. It can be regular grid or random points also.

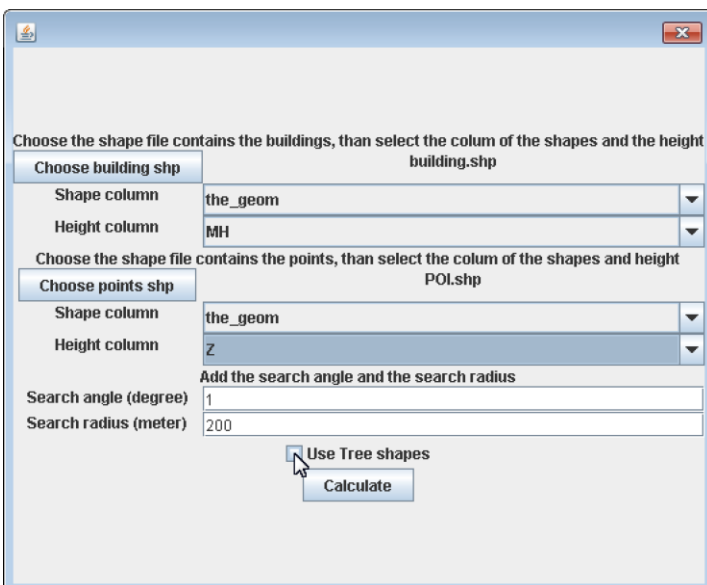


Shape column is again the `_geom`. Height column is the height of the points where we want to calculate the SVF. It have to be meters above sea level if we use meters above sea level for buildings, or it have to be a column with 0 in each lines if we use meters above ground in the building heights.

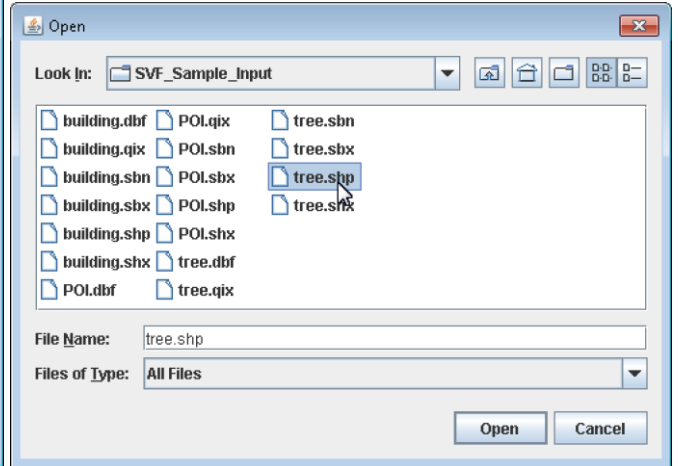
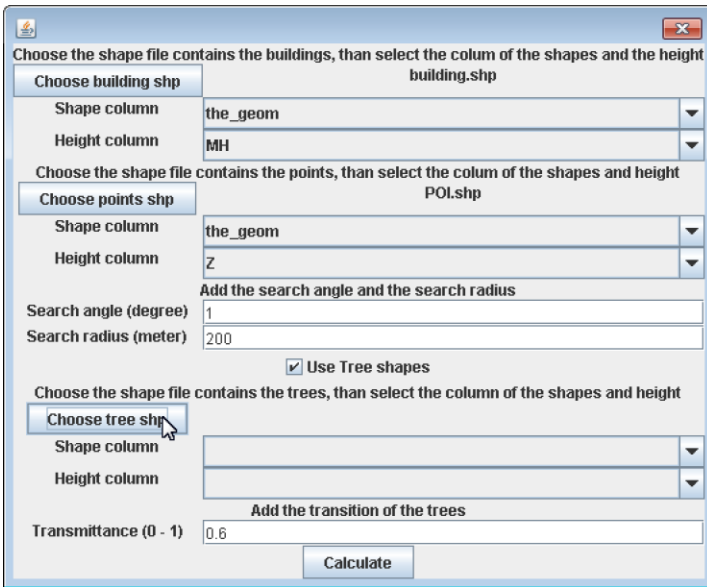


Search angle and radius can be changed, but these two values are optimal for the calculation time and precision. For further information about these values see Unger (2009).

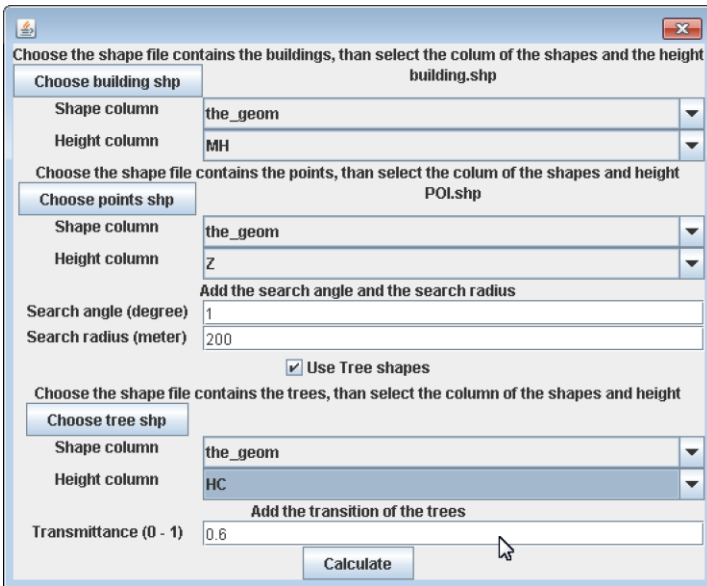
Next step is the setup of the tree dataset. This is optional.



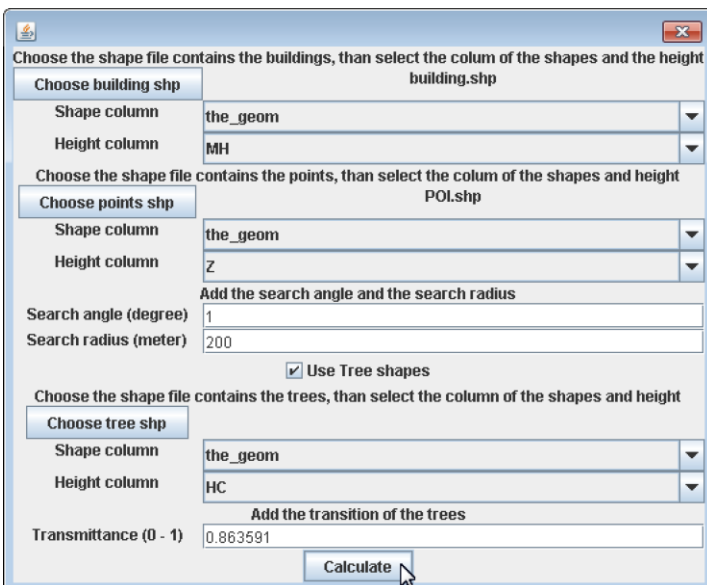
The process is similar to the building input.



Height is similar to buildings also. If we use meters above sea level for buildings, than we have to use the same here.



Transmittance represents that how high amount of the radiation can get trough the tree-crown. It should be 0.863591 according to Gál and Unger 2014.



Than press calculate. After it, the program reads the input files. The calculation starts with Data -> Calculate

The screenshot shows a software window titled 'building'. The menu bar includes 'File', 'Data', and 'building'. A dropdown menu is open under 'building', showing options: 'Get features', 'Count', 'Geometry', and 'Calculate'. The 'Calculate' option is highlighted with a mouse cursor. Below the menu is a table with the following data:

Feat	Geometry	om	KóD	TETOTIPUS	MA	MH	MT	
build	DL...	21280001	2	81.6	88.7	91.7	4	
build	DL...	21280004	3	81.6	84.7	85.8	3	
building.3	MULTIPOL...	21280005	3	81.6	85.1	88.1	8	
building.4	MULTIPOL...	21280007	2	81.6	94.1	100.8	2	
building.5	MULTIPOL...	21280008	2	81.5	97.2	101.8	4	
building.6	MULTIPOL...	21280010	2	81.5	97.9	101.7	4	
building.7	MULTIPOL...	21280011	1	81.5	90.2	0.0	8	
building.8	MULTIPOL...	21280013	1	81.6	83.1	0.0	7	
building.9	MULTIPOL...	21280014	3	81.6	83.7	87.5	8	
building.10	MULTIPOL...	21280015	2	81.6	86.5	92.2	2	
building.11	MULTIPOL...	21280017	2	81.6	87.6	90.4	1	
building.12	MULTIPOL...	21280018	1	80.9	84.9	0.0	4	

When the calculation is ready, the program asks the destination of the output file. The calculation may take time (minutes, hours, days depends on the size of the input files and number of points), and there is no feedback about the progress. Be patient and wait.

Gál T, Unger J, 2014: A new software tool for SVF calculations using building and tree-crown databases. Urban Climate, DOI: 10.1016/j.uclim.2014.05.004

Unger J, 2009: Connection between urban heat island and sky view factor approximated by a software tool on a 3D urban database. *International Journal of Environment and Pollution*, Vol. 36, 59-80.