



GEO TOOLKIT

Data Quality Tools

WHAT IS IT?

Geo Toolkit is a **set of data quality tools**. They were developed for customers who need to **adjust users' geographic data** in case their existing geographic base layer had changed (e.g. orthophoto base layer). In GIS solutions, a large number of users' data are snapped to an orthophoto base data layer. Whenever a base data layer is improved by reaching a higher precision, the users' data no longer match it.

The Geo Toolkit package provides **three** tools, which help users solve such inadequacies:

- **GeoCheck:** is a spatial data verifying tool which helps to identify and correct any data errors. An output dataset is produced, containing locations of errors and their descriptions.
- **GeoMorph:** the automated tool for shifting polygons is a »quick-fix« tool which adopts user data, e.g. graphic polygons, in relation to the changed base data layer.
- **GeoClone:** : improves the results of the process of checking and adjusting polygons created by GeoMorph.

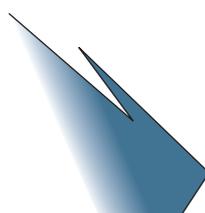
AUTOMATIC TOPOLOGY CHECKING

Error Code	Description	Count
101 LOOPBACK	Loop backs - self intersections (Termed 'Butterfly' polygons).	0
104 DUPLICATED_POINTS	A point that duplicates exactly the same X,Y coordinates as another point.	0
105 KICKBACKS	Digitizing error leading to an inconsistency in the line.	2236
106 SPIKES	Digitizing error leading to a spike inconsistency in the line. Similar to kick backs.	27232
108 SLIVER	Very small gaps between the boundaries of adjacent polygon features.	16415
109 OVERLAP	An overlap of one polygon or line feature onto another.	0
111 SHORT_SEGMENTS	A very short distance between two nodes or vertices. This distance is specified and would be expected to be the same as the cluster tolerance on the dataset.	1936
115 NEAR_POINT	A very short distance between two points.	10
119 SHORT_LINE	Length of a linear feature is smaller than a specified length.	0

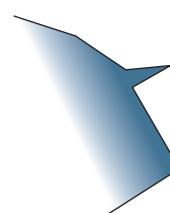
ANOMALIES



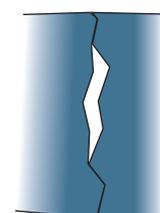
LOOPBACK



KICKBACK



SPIKE



SLIVER



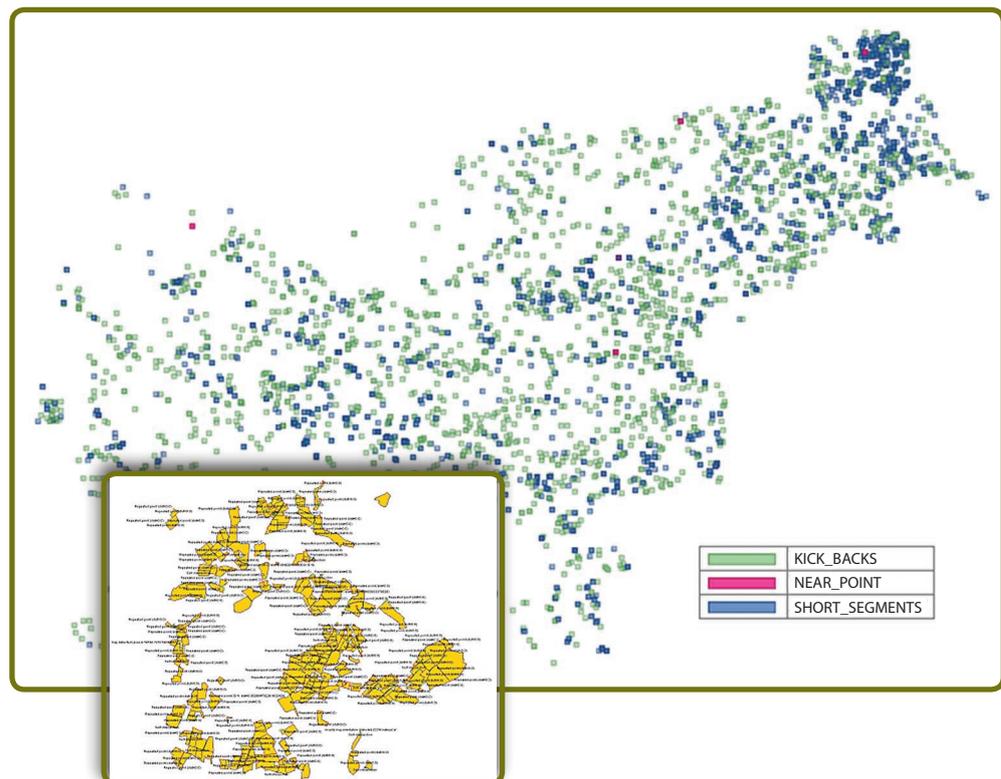
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Data Quality Tools

- ADVANTAGES
- Simultaneous processing of a **large number** of inter-connected data entries.
 - **Time optimization:** similar tools require several weeks for the same amount of data, however Geo Toolkit **reduces** such a procedure to a **few hours**.
 - Effective processing and handling of topological errors in the data.

RESULTS OF A TOPOLOGY CHECK

Error locations are calculated and are displayed on a map along with detailed descriptions of the type of error.



CORRECTING THE ERROR

Several possibilities of correcting the errors found by Geo Toolkit package, automatically and manually.