The Ongoing Development of Survey2GIS and the potential of Free and Open Source GIS for Data Collection and Analysis on Excavation

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The potential of Free and Open Source Software (FOSS) is still to become fully recognised in archaeology. In one area, GIS, FOSS is readily available for productive use. Recently, the high costs of replacing outdated commercial software, hardware and operating systems used for basic and essential archaeological recording and surveying and changes in proprietary licensing models have become a catalyst for the movement toward FOSS. So in the case of the Landesamt für Denkmalpflege Baden-Württemberg (State Cultural Heritage Department, Baden-Württemberg) and the ongoing development of Survey2GIS, a light-weight FOSS tool for use in field documentation and surveying, a sustainable program for transferring survey data into GIS.

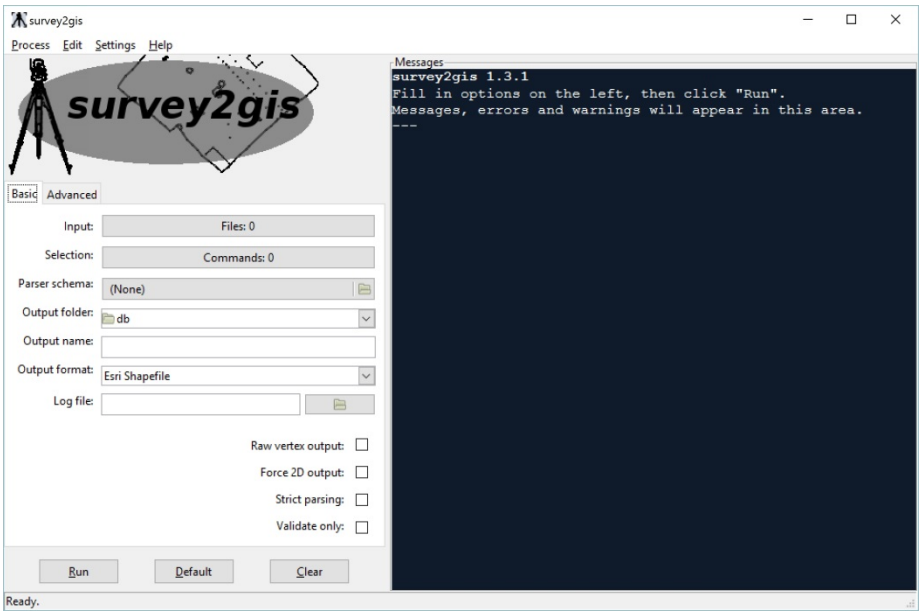

Fig. 1. Survey2GIS GUI

Survey2GIS is a flexible and user-friendly, cross-platform open-source tool, capable of processing raw survey data and converting the latter into topologically cleaned GIS datasets. At this point of development it is a fully developed, compact and flexible solution for handling topographic survey data. It is capable of processing 2D or 3D point measurements into complex geometrical objects (points, lines and polygons), including multipart features and incomplete polygons. The output generated by Survey2GIS is ideal for direct use in GIS (at present QGIS is in wide use in the Landesamt für Denkmalpflege Baden-Württemberg). Input data consist of one or more survey data files with coded coordinates. These data can come from a variety of sources: data collected in the field using, for example, a total station or GPS device, lists of coordinates or even pre-existing cadastral files. Output data is in the form of the widely used ESRI(tm) Shapefile format (2D or 3D), according to geometry type and with complete automatically created attribute data.

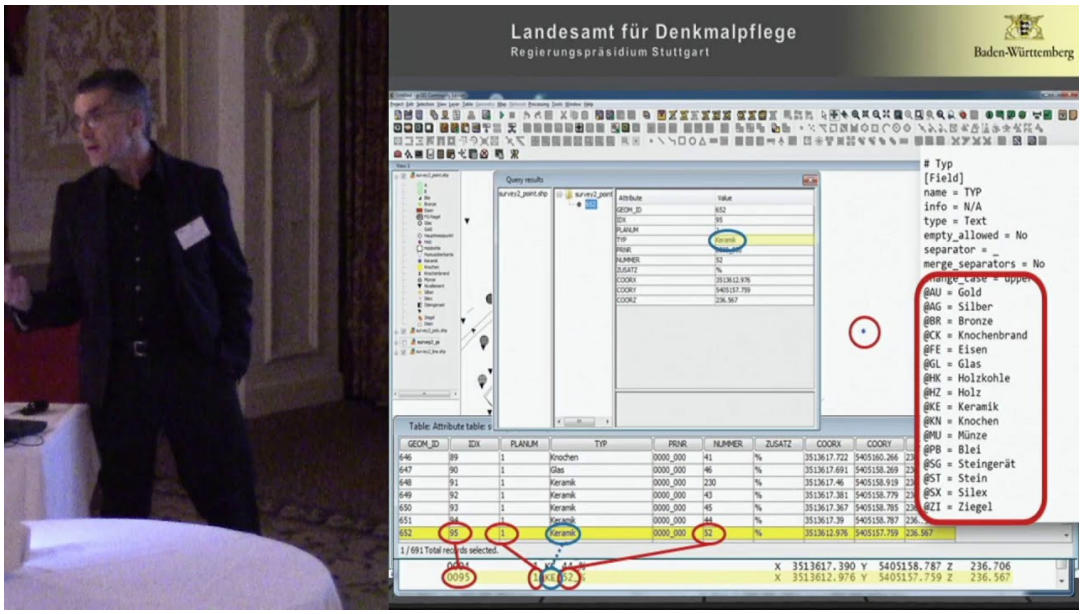

Fig. 2. The creation of Attribute Data with Survey2GIS-Thesauri.

This process can be fully controlled by the user, thus allowing flexible adaptation to individual survey workflows and data structures. The software is user friendly, easy to learn and feature-rich, with detailed procedures to support quality assurance and consistent documentation of all processed data. Special attention has been given to the needs of archaeologists in the field: For instance, Survey2GIS enables the “misuse” of GIS to create sections as well as automatically creating section lines in the plan.

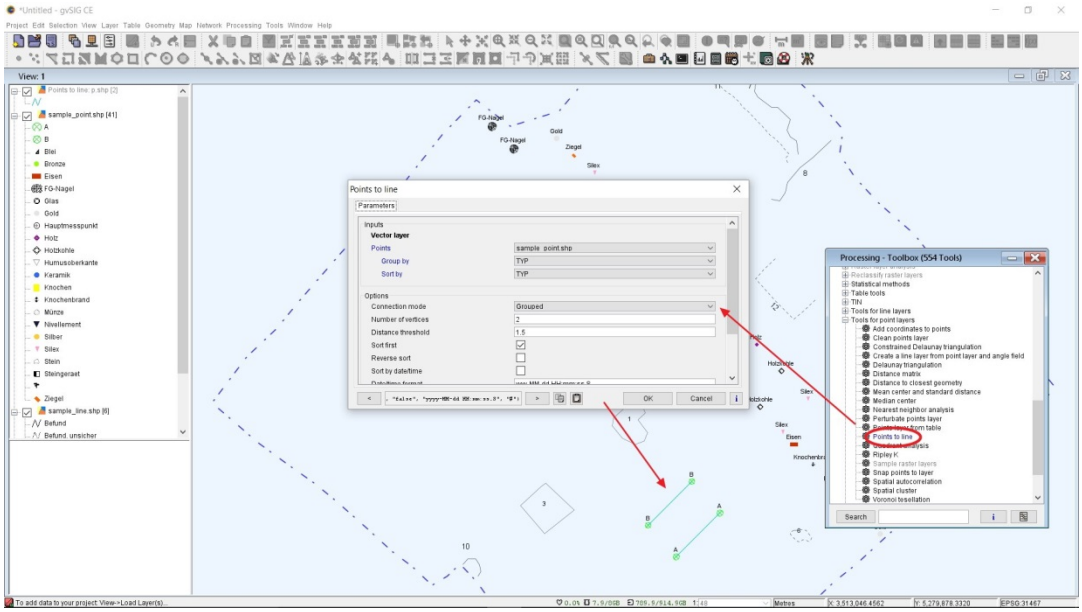

Fig. 3 Automatic section line creation

The most exciting development of the last twelve months has been increasing exploitation of survey2GIS’s simple scripting system allowing data-driven, rather than program-driven, input and output. Input and output formats can be adapted to fit the requirements and constraints of virtually any project. During its development, high priority has been given to the generation of topologically correct output, suitable for quantitative analysis in GIS. It was important from the outset that Survey2GIS should not depend on other programs in order to run. Therefore, Survey2GIS is fully functional as a cross-platform, independent stand-alone .For the moment, development funding continues to be sustained by the Landesamt für Denkmalpflege. This, however, will not be feasible indefinitely. Possibilities for continuing development

funding might be a collaborative platform on the Internet, paid-for support and subscription models, actively advertised at specialist meetings and conventions. One of the most intriguing aspects of the Survey2GIS project is its ability to show how FOSS can unlock innovation potential. Prior to the inception of Survey2GIS, the Landesamt für Denkmalpflege's field workflows had orientated themselves along the lines defined by user interfaces and functionalities of proprietary software, such as various proprietary CAD-systems. With the freedom to create new, customised software, however, also came the freedom to reassess and modify existing workflows in order to make them more efficient.

Then object of this technical presentation is to make Survey2GIS more widely known to the international community, show survey2GIS in action with special emphasis on the building“one button solutions” for specific projects or systems and to (hopefully) gain partners for the continued development of Survey2GIS.

References

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