

# Developing Tachy2GIS – Result and Perspective

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The Hamburg Archaeological Museum maintains the development of basic components of “Tachy2GIS” (which is a real implementation of the “TachyGIS” idea). The existing prototype now is consolidated and extended due to basic requirements. By providing direct communication between a total station and the open source geographic information system QGIS, Tachy2GIS connects the well understood tool of the hand drawn map with the abilities of modern measuring equipment and geographic information systems. Drawing an excavation plan on a computer screen with a total station as stylus allows survey results to be reviewed and corrected in situ and immediately.



Fig. 1. “TachyGIS” discussion at the workshop “Digitale Grabungsdokumentation – objektiv und nachhaltig” (© R. Goeldner)

Geographic information systems are first and foremost map making software and Tachy2GIS is aimed at the archaeological community, which has special requirements towards said systems: Archaeological data is inherently very three-dimensional. There are almost always features on top of each other and also such that are much more vertical than flat. Both cannot be satisfactorily represented in a 2D top down view. Thus the next step is to add 3D interactive capabilities beyond the scope provided by QGIS in its current state.

Through the widespread use of CAD software expectations are to that effect that the user wants to view and edit his data, both of surfaces and sections, in one single window and with the same tools most suitable without rotation or transformation of coordinate systems.

Right now we are researching how to achieve this, while keeping in mind that the typical laptop in the field will lack powerful graphics hardware. This is of great importance because the projected 3D viewer/editor is not supposed to handle vector graphics only but resources greedy raster graphics as well. Progress is being made and we are looking forward to show off some implementation details. With this on the way, our eyes are set on extending the data acquisition side of Tachy2GIS to support a wider base of input hardware, which poses a new set of technological and financial challenges, as we need access to a variety of expensive devices which may use undocumented proprietary protocols.

So the development is highly oriented on requirements of real archaeological excavations. It also follows principles of Free and Open Source Software to reduce overall expenses of the archaeological community.

The short presentation will show results and perspectives of the Tachy2GIS developing project.

## **References**

[Workshop „Digitale Grabungsdokumentation – objektiv und nachhaltig“, Dresden 2018-02](#)

[J. Räther, C. Schubert: Werkstatt-Resümee TachyGIS](#)

[C. Trapp: Tachy2GIS – mit der Totalstation zeichnen](#)

[GitHub Tachy2GIS](#)