NAVA Interface

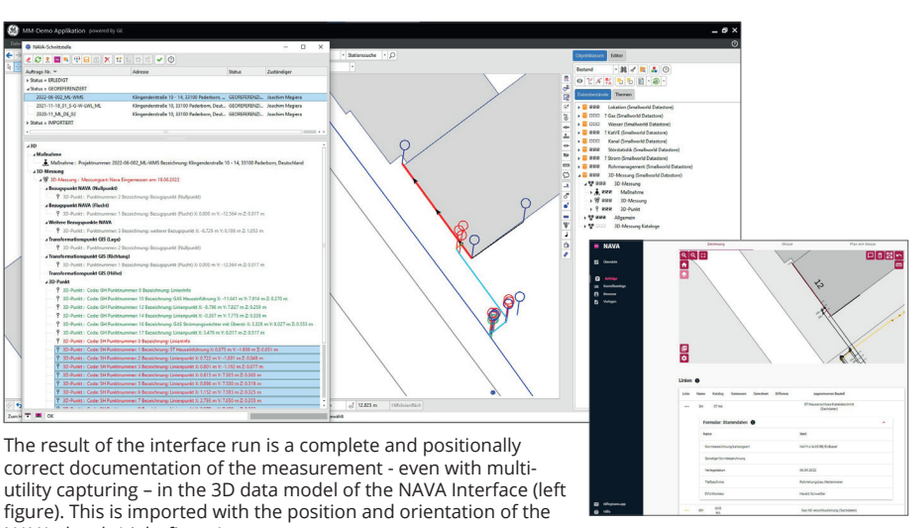
Transferring measurement data from house connections into the GIS in real time

The NAVA smartphone app revolutionises the measurement of house connections. While the trench is still open, the complete sketch with all components is transferred directly to the Smallworld GIS via an interface.

As a cloud solution, NAVA is automatically synchronised between the mobile application at the construction site and the web access from the office. In the GIS, a special task list with NAVA tasks is available with cloud access via the NAVA API. From this list, the user can display the position of the measurement in the main graphics window and import the result directly at the position defined in the NAVA app. When using a respective web map service in the NAVA app, the measurement is thus inserted directly at the relevant corner of the building in the Smallworld GIS with the correct orientation! The interface automatically creates a measure for each NAVA task and a 3D measurement for each survey sketch for which the PDF report with master data and form data as well as the PDF sketches are directly linked as related documents in the GIS.

All components of the measurements are also permanently saved with measured values and photo. The NAVA Interface directly addresses the data model delivered with the NAVA Interface with its object classes measure, 3D measurement and 3D point, which also belong to the standard of NRM Electricity, Gas, Water and Pipe Management with identical data model.

In an instant, the points can be georeferenced via other reference points if required. With one click, the house connection is then generated by means of an automatic snapping function on the net and house as auxiliary line. This provides the user with an optimal digitising basis for capturing the NRM objects. Via a status system, the entire documentation process is transparent and supports evaluations according to the GW 130 and S 130 regulations.



The result of the interface run is a complete and positionally correct documentation of the measurement - even with multi-utility capturing – in the 3D data model of the NAVA Interface (left figure). This is imported with the position and orientation of the NAVA sketch (right figure).

OVERVIEW

Keywords
Smallworld GIS, network documentation, capturing, updating, house connection, measurement via smartphone

Benefit

- Significant acceleration of the data flow from the measurement to the documentation in the GIS
- High transparency in the process of house connection measurement and georeferencing in the Smallworld GIS
- High data quality for evaluations, for example according to DVGW GW 130 and VDE|FNN S 130

NAVA Interface 5.3 R1

- Import of NAVA measurements with exactly two reference points
- Transfer of all photos and PDF documents to the NAVA job
- Temporary display of GPS points and direction vectors (camera lines) each between GNSS point and 3D point to the selected job (Prerequisite: Differential GNSS measurement with NAVA Android app as of 22.3 with corresponding hardware and additional license activation)

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NAVA Interface

The interface at a glance

Smallworld database with 3D model

The NAVA Interface contains the 3D model approved in the standard of NRM Electricity, Gas, Water and Pipe Management - and from 5.3 also additionally in NRM Wastewater - in its own Smallworld GIS database. In particular, the components that can be freely defined in the NAVA manager are saved with their object data and 3D coordinates to the associated measurements and tasks.

Coupling with the NAVA manager

Via the NAVA Interface, the selected task can be opened in the NAVA manager with one click, for example to check the task in advance before importing it into the Smallworld GIS.

Interim documentation via measure

To ensure an up-to-date and complete network documentation, an interim documentation can also be used after the import according to GW 120 or VDE-AR-N 4201. Via the measure, there is access to the PDF documents and the Excel file of the task as well as relationally linked objects.

3D measurement with survey sketch

The survey sketch of the measurement is saved as part of the network documentation in compliance with the regulations as a related document for the 3D measurement. The reference line of the measurement can be displayed graphically. The NAVA Interface documents the georeferencing carried out for the imported task data in a transparent and permanently traceable way.

Documentation of the components and line points as 3D points

All components and line points are documented with their 3D coordinates and object data as 3D points with photo as a related document. The network documentation is thus already aimed at the NRM standard, for example with the function of the route longitudinal section available therein for planning purposes. The 3D points are automatically classified and displayed in different colours according to the utilities.

In addition, the 3D points of the different lines are displayed in groups in the NAVA Interface during the multi-line capturing. In this way, the connection of a specific utility can be easily selected and generated as an auxiliary line, even in the case of a multi-utility capturing. The object data captured for each individual line is displayed in the line information of the NAVA Interface so that, for example, the material and nominal diameter of the connection can be transferred in a structured manner. In addition to the manual transfer, an automatic object creation in the NRM is also possible with the NRM Connector (separate extension to the NAVA Interface).

Status model for process transparency

Via an integrated status system of the NAVA Interface, which is always synchronised with NAVA, the processing time is automatically calculated in the Smallworld GIS. By this, the NAVA Interface also provides a key figure for the quality feature “up-to-dateness” of the network documentation according to GW 130 or S 130.

OVERVIEW

System information

Availability:
- for Smallworld GIS 4.3.0.8: 4.3.0.8 V1.4 (September 2021)
- for Smallworld GIS 5.2.x: 5.2 R3 (March 2022)
- for Smallworld GIS 5.3.x: 5.3 R1 (September 2022)

Currently with German user interface, on request also with English user interface

System requirement:
- Smallworld GIS capturing workstation of the 5.3.x,5.2.x or 4.3.0.8 version

Status as of 02/2024 – subject to technical modifications

Hint:
With the NRM Connector to the NAVA Interface (separate extension), an automatic transfer to the 3D model of the NRM with complete object formation of the connection objects can be carried out with one click from the result of the interface transfer.

The scope of services described in this flyer refers to the NAVA interface in Release 5.2 R3 as well as 5.3 R1; the new features of Release 5.3 R1 are described separately overleaf.

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