



Interfaces for leading
network calculation programs

Network calculations
directly in Smallworld GIS

Network calculation in Smallworld GIS

- Planning and analysis of electricity, gas and water networks
- Optimisation of the networks under economical and technical conditions
- Use of existing GIS data and integration of network planning into the IT environment
- Operation Analyser calculation model and interfaces in Smallworld GIS



System integration creates synergies

Modern network calculation systems make it possible to analyse and optimise electricity networks of all voltage levels as well as gas and water supply networks. This is where the GIS provides invaluable help by preparing network and asset data for the planning process.

Initial situation

The supply systems are undergoing radical change. Requirements from the liberalisation of the energy market, the integration of decentralised generators and the conversion and deconstruction of networks demand fast decisions. Embrace the synergy of network calculation and the GIS to solve your tasks in network planning and network operations.

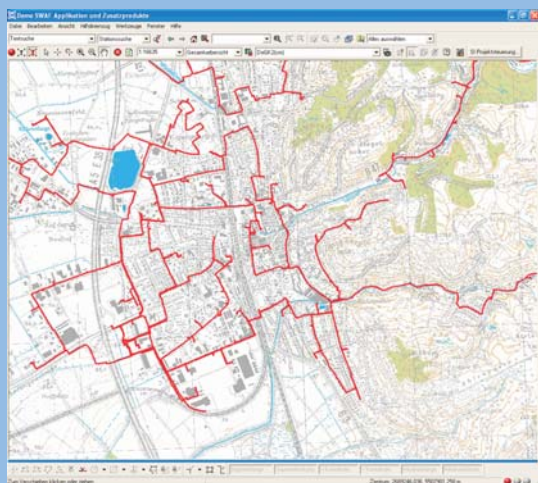
Integration of GIS and network calculation program

The acquisition and maintenance of network data is simplified considerably by an integrated memory in the GIS. A GIS data resource that is coherently structured throughout forms the basis for a seamless, topological reproduction of the network, from the feeder to the points of consumption. The network and asset data and even the loads illustrated in the GIS are prepared and made available to support the calculations in the planning process. The objective of integration is to activate synergy effects that have so far been impossible to achieve:

- All of the data for the calculation is contained in the central GIS database. Data maintenance takes place in the customary system. Divergences between databases in respect of last updated states are avoided.
- Planning operations can be carried out on the basis of the actual network state and are therefore ultracurrent. In addition, planning states can be constantly updated and modified (alternative concept). For costings, the planning data can be transferred to further special systems.
- The analysis and presentation tools of the network calculation program and the calculation results are directly available to the GIS user.
- Thanks to prepared data selection variants, information is, for example, compiled automatically into full and plausible network data and the data preparation process is automated with a minimum of effort for the user.

Efficient data maintenance

Ultracurrent planning results



Smallworld's GIS data model forms the basis for the network calculation program (here: PSS/SINICAL).

Network calculations directly in Smallworld GIS

Interfaces with Smallworld GIS

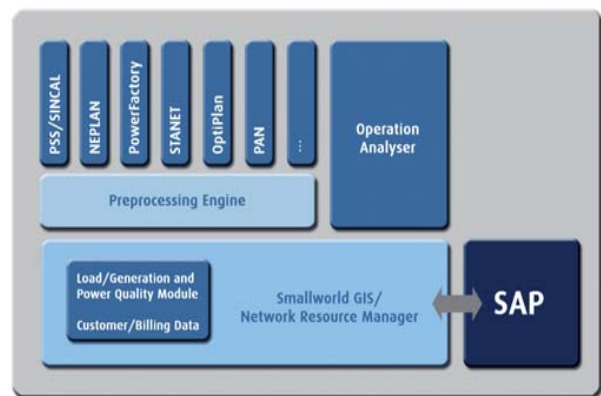
Mettenmeier offers interfaces and exchange formats for the leading network calculation programs such as NEPLAN, PSS/SINCAL or PowerFactory. The central component of the interface concept is the Preprocessing Engine. It supports the transfer of data between GIS and network calculation programs and fulfils important functions, such as automatic network tracing, filtering of the information relevant to the calculation or the creation of geometries for the network elements. In this way, all the GIS data necessary for the network calculation are prepared without the need for time-consuming data processing at a later stage. The interfaces are freely configurable; adaptations are possible without the involvement of programming.

Operation Analyser

The Operation Analyser is the optimum extension to the network calculation program and specifically supports, directly in Smallworld GIS, the operational assessment of networks and rapid decision-making in the day-to-day activities. It determines whether certain modifications to the network are possible. For example, it can test whether the power of a distant connection is guaranteed to be maintained, whether an additional load is being borne at a defined point in the network or whether the transformer used is adequately dimensioned.

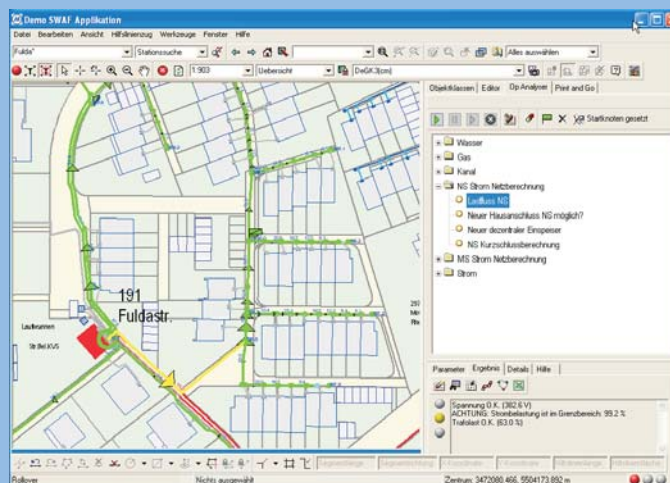
The user is notified by user prompt whether the calculation is permissible or not or whether detailed analyses are necessary. In the service domain, the product supports field services by analysing network objects. For example, it gives the engineer information as to whether and where it is possible to isolate or shut down the network or whether potential hazards exist, e.g. network feedback from decentralised generators.

Network calculations of various programs are supported by the data of Smallworld GIS. The Operation Analyser also makes it possible for calculations to take place directly in the GIS.



Flexible interface concept

Everything from one source



Operation Analyser: In addition to electricity supply calculations (here: low-voltage load-flow calculation), a multitude of analyses for different utilities can be carried out directly in the GIS.

Network calculation in Smallworld GIS

Our range of services

In partnership with consulting firm, System&Dynamik, Mettenmeier offers you a seamless technological consultation service. We are there to support you in case of any technical questions – together with the manufacturers of the network calculation products.

System&Dynamik

Introduction of network calculation programs

- Determination of requirements and workshops
- System selection
- Optimisation of data structure
- Introduction and installation

System integration

- Adaptation and configuration of the interface
- Support with the GIS data import
- Preparation of the load and consumption data, e.g. from SAP IS/U

Planning process

- Modelling of an efficient planning process
- Optimisation of the process with GIS data
- Integration of SAP PM and IS/U

"SIEMENS AG and Mettenmeier GmbH have agreed to make available a SIEMENS-certified interface between the Smallworld standard Network Resource Managers and PSS/SINCAL. Through the technical participation of SIEMENS, the interface will be optimised both for PSS/SINCAL as well as for the Smallworld NRMs for electricity, gas, water and district heating".
Ulrike Sachs, SIEMENS AG



"In the scope of an exclusive development and marketing agreement with Mettenmeier, the NRM manufacturer, ABB is making available a standard interface which is optimised for both the NEPLAN product as well as the Smallworld Network Resource Managers for coupling the NEPLAN network calculation program with Smallworld GIS. ABB recommends the NEPLAN interface of Mettenmeier GmbH as the standard integration solution worldwide. With this solution, we are convinced that the extensive operating resource databases of the NEPLAN product can continue to be used and maintained to their full extent".
Manfred Mathis, ABB AG



"Here at DlgSILENT GmbH, we are, together with Mettenmeier, providing a standardised interface between PowerFactory and Smallworld. We are convinced that we are able to offer the best possible support for our customers in network planning and analysis even from an energy efficiency legislation point of view. The integrated data maintenance in the GIS results in a simplification in the procurement and maintenance of the available, extensive network data".
Dr. Martin E. Schmiege, DlgSILENT GmbH



"The new Smallworld interface with STANET yields a high degree of flexibility. In close co-ordination with Mettenmeier GmbH, we now have for the first time an integration solution that makes direct use of the SDF/CSV format of STANET and offers optimum support for STANET concepts, e.g. in the transfer of home connection data. The interface is to a great extent configurable and can even be adapted to the individual requirements of customers. We have found the general functions of the Preprocessing Engine of Mettenmeier which support data exchange to be very helpful here. In particular, it was possible to significantly improve exchange functions, such as the handover of gas pressure regulating stations with the pressure regulators or of the inner workings of power stations as well as the transfer of home connection data with location information for assigning load data".
Friedrich Fischer-Uhrig, Ingenieurbüro Fischer-Uhrig

