



Design. Protect. Optimize.

A powerful decision support tool for the automatic **partitioning of water distribution systems** into District Meter Areas (DMAs)
Hydraulic and water quality simulation integrated

The challenge

Modern water utilities face increasing pressure from:



Water scarcity



Growing consumption



Climate change



Aging infrastructures

Traditional tools rely on manual design and trial-and-error methods, often leading to:

- High costs
- Difficult monitoring and control
- Inefficient layouts
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The software SWANP

SWANP is a complete platform for automated sectorization and network protection featuring:



Graph theory & social network analysis

Hydraulic & topological performance indices



Multi-objective optimization algorithms

With SWANP, you can:

- Automatically define DMAs
- Optimize placement of flow meters and valves
- Plan pressure regulation valves settings
- Find the best positions for quality and hydraulic sensors
- Compare layouts based on performance indices

Key Benefits

- ✓ Smart positioning of flow meters and pressure regulation valves
- ✓ Integration of topological and hydraulic criteria
- ✓ Reduction of design time and human error
- ✓ Tailored layouts based on real network constraints



GIS-based web interface



Validated on real, large-scale networks



Based on over 20 years of research

Designed for

- **Water utility operators**
- **Researchers and engineers**
- **Public administrators and consultants**

No programming skills required – only your water distribution network model and a few configuration parameters.



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