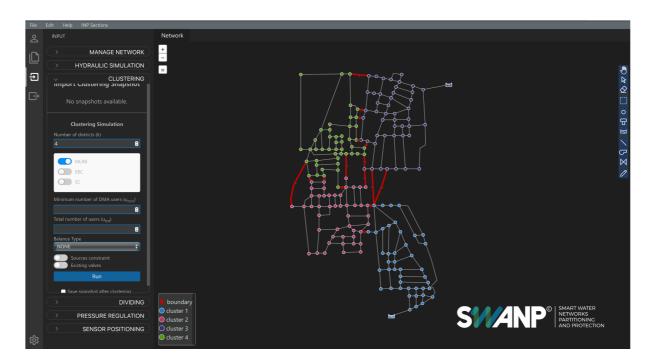


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# **Smart Water Network Partitioning and Protection**

Software solution



### **Description**

**SWANP** (Smart Water Network Partitioning and Protection) is an advanced decision-support software designed to perform hydraulic simulations and automatically divide water distribution systems into optimal District Metered Areas (DMAs). It combines graph theory, hydraulic simulation, and multi-objective optimization to identify the best locations for flow meters, valves,, and sensors, all within a GIS-based web platform.

SWANP supports both **topological clustering** and **hydraulic dividing**, enabling utilities to design district-based management strategies that enhance operational efficiency, reduce water losses, improve pressure control, and facilitate water quality monitoring.

The tool includes pre-configured performance indicators to compare districts layout alternatives and offers editable reports to support transparent decision-making and regulatory compliance.

#### Target audience

Water utility operators, Hydraulic engineers and consultants, Municipalities and infrastructure managers, Research groups and academic institutions

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#### Actors, their roles and interactions

SWANP is primarily targeted at:

- · Water utility operators
- · Hydraulic engineers and consultants
- · Municipalities and infrastructure managers
- Research groups and academic institutions

It is particularly useful during:

- 1. Design of water distribution systems or implementation of DMAs in existing WDNs
- Water safety planning, EU innovation projects focusing on smart and sustainable water management and pressure management programs
- 3. WDNs resilience assessment and evaluation of the benefits of implementing DMAs

## Unique selling points

- · Fully automatic clustering and dividing of water networks
- Integrated placement of flow meters, PRVs, and quality sensors
- Supports Demand-Driven and Pressure-Driven hydraulic simulations
- Web-based GIS interface no installation required
- Option to georeferenciate the WDNs
- Editable, ready-to-export technical reports
- · Validated on real-world networks, including large-scale systems
- Regulatory alignment: supports D.M. 99/1997 (Italy) and EU WSP principles

#### **Technical requirements**

#### **Operating environment:**

- Web-based application (no installation required)
- Compatible with all major browsers (Chrome, Firefox, Edge)
- User credentials provided upon subscription

#### Data input:

- EPANET .INP files (network model)
- For clustering and dividing: number of desired clusters/districts to create
- For sensor positioning: number of sensors

#### Software data

- Operating environments:
  - SaaS Web application



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# Technologies applied by the product

- Civil and Environmental Engineering
- Hydraulic Engineering
- Hydraulic Systems Optimization
- Optimisation

# **Related tags**

water network water dis DMA Hydraulic Simulation

# **Downloads**

The following file can be downloaded from the online page of the product:  $\frac{\text{https://mp.watereurope.eu/d/product/190}}{\text{https://mp.watereurope.eu/d/product/190}} = \frac{1}{2} \frac{1}{2$ 

• Brochure