



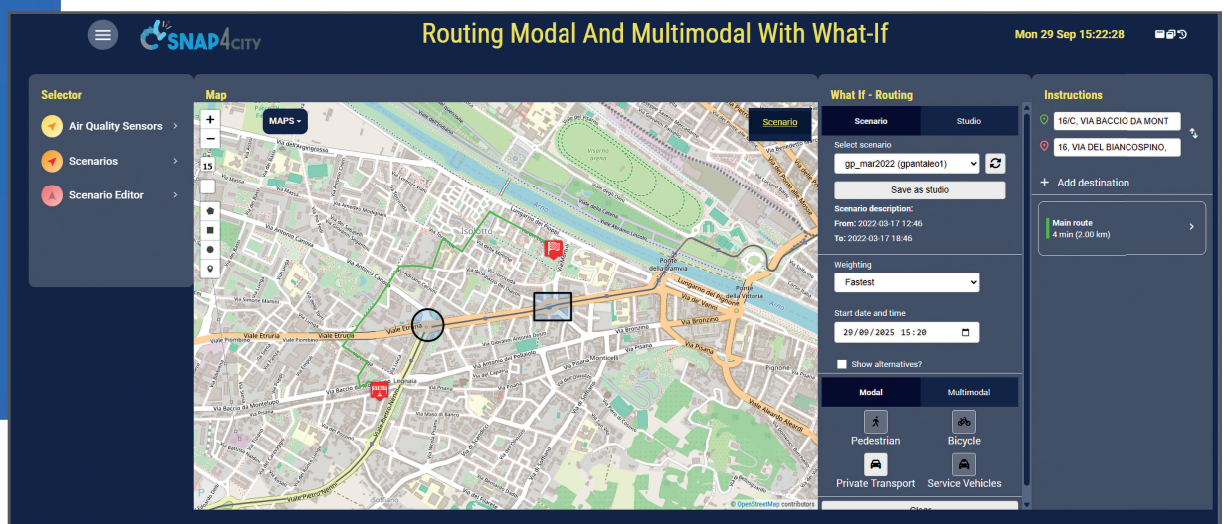
## Snap4City: Advanced Routing

**Snap4City** provides an Advanced Router with What-if functionality as a versatile and easy-to-use tool for finding routes among points on map. It also let users to study possible outcomes of making some changes in “real-life scenarios” context, trying to respond to the answer “What if ... ?”. It's based on Graphhopper v7.0-pre2 with additional aspects provided by Snap4City.

The main functionalities of Snap4City routing solutions are:

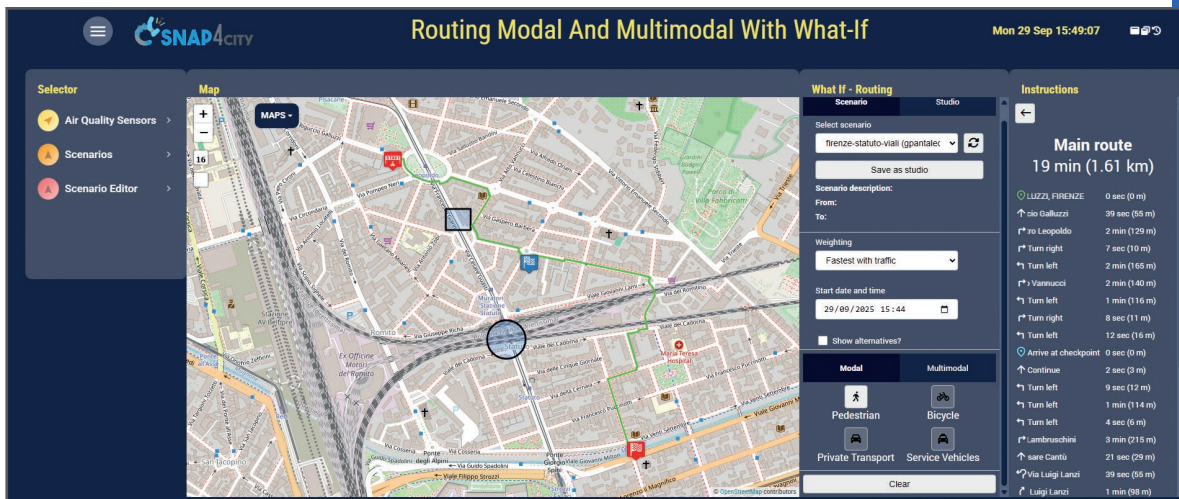
- **modal routing**: private vehicles, bikes, pedestrian
  - with start, end and multiple intermediate points;
  - selecting: shorter, faster, quitter, less polluted, etc.; taking into account of traffic, pollution, etc.;
  - dynamic conditional routing taking into account the effective traffic flow status, defining a date and accessing to traffic flow data, or typical traffic flow status;
  - dynamic conditional routing taking into account eventual blocked areas (by scenario) for example for street working, restoring, etc. (what-if cases and analysis in real time).
- **multimodal routing** for the city users to walk and take the public collective transport;
- **modal routing for public administrations** (ambulance, fire brigade, police, busses, etc.) exploiting the reserved lanes, restricted traffic zones, taking into account their restrictions if any as geometry, etc.;
- **a combination of the above** cases.

In the figure, a screenshot of a Snap4City router demonstrated on a dashboard/application that let the users to interact with the tool. A map is used as benchwork while on the left and right sides of the map are placed interactive panels and buttons to activate the routing.



The **Snap4City Router** Router is grounded on geographical graph road and GTFS data, or similar sources regarding the public transportation offer and services. Users needs only to pay attention to use the same context of that data to make things work. (e.g., if router works with Florence map and public transport, users should search routes inside that area). Scenarios can be loaded from the corresponding panel and the router can be used on it, the scenario can be based on multiple connected areas. Scenario and router can be saved and loaded as studio for future use, and can be shared among users.

Smart applications on the platform can exploit the Snap4City routing capabilities via full API for the exploitation of your applications: <https://www.snap4city.org/1107>



Routing tool is typically massively used by simulations and by generative AI exploited on optimisation processes, on what-if analysis, for waste collection optimisation, by the city users to reach the selected parking, by city operators to move in the city exploiting reserved area and roads since most of the3 commercial and free of charge router does not provide this feature.

In some Snap4City installations, the router can be deployed in multiple instances as a cluster by exploiting a parallel architecture which can work on multiple areas as well. A classic usage of the Snap4City router is its adoption as a router on Reinforced Learning, on simulator such as SUMO or DORAM, DORAM2, MODOM, for the match of the offer of transportation with respect to the mobility demand, and other AI tools.

**Extended version accessible from:** <https://www.snap4city.org/1106>  
**API:** <https://www.snap4city.org/1107>  
**AI tools:** <https://www.snap4city.org/997>  
**Contact:** <https://www.snap4city.org>