

PTV OPTIMA

the mind of movement

An aerial photograph of the Parisian skyline, showing the dense arrangement of buildings and a major avenue with green trees and heavy traffic. A large, solid red diagonal stripe cuts across the lower half of the image from the bottom left.

**CAN ROADS BE
ONE STEP AHEAD?**

MODEL-BASED SOLUTION FOR REAL-TIME TRAFFIC FORECASTS



PTV Optima is the key to successful traffic management. This model-based solution offers precise, real-time traffic information for the entire traffic network and produces reliable forecasts for the next 60 minutes.

Thanks to PTV Optima, traffic management centres can provide current and future traffic information to their teams and road users automatically. To achieve this, PTV Optima combines proven offline traffic modelling with real-time data and algorithms.

This process is based on a transport model created in PTV Visum which represents each „typical day“ (e.g. working days or weekends) for the transport area of interest. It models transport services and travel demand using demand matrices. PTV Visum uses dynamic traffic assignment to calculate the time-related traffic flows and turn rates in networks based on travel demand and it transfers this information to PTV Optima. In PTV Optima, this data is combined with the online data in order to adjust capacity, speed and volume from PTV Visum’s base model to the current local flow and road conditions.

As PTV Optima explicitly includes the network structure, traffic flow dynamics and the route choice behaviour of road users, it also covers the traffic condition for roads without detectors (spatial distribution), predicts the impacts of unforeseen incidents (temporal distribution) and it can predict the consequences of even unexpected events. The tool can also be used to assess and compare different strategic actions.

5 REASONS FOR PTV OPTIMA

BENEFITS



REAL-TIME TRAFFIC FORECASTS

Managing traffic conceals increasingly complex challenges. Set up your traffic management in future-oriented fashion and rely on a solution which reacts to your network. Monitor your entire network despite a small number of measurement data and receive reliable traffic forecasts for a period of up to 60 minutes – even for unforeseeable situations.



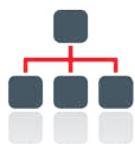
RELIABLE DECISION-TAKING AID

Create different traffic management strategies offline using your individual KPIs and test these in a virtual environment. This creates trust in the measures formulated and provides your team with planning reliability in case of emergency. You are therefore able to get the most out of the resources at your disposal and open up new perspectives.



USER-FRIENDLY WORK ENVIRONMENT

See the weak points in the network at a glance, thanks to map displays, link-by-link level of service colouring and meaningful charts. PTV Optima's modern user interface also allows you to create, edit and manage objects and events intuitively. Standard technology and communication protocols such as WMS and WFS enable quick expansion to include and the incorporation of new external functionalities as well as of data to be visualized.



INTEGRATION INTO EXISTING STRUCTURES

Select software which fits into your existing IT infrastructure. PTV Optima can be connected optimally to your traffic computers as well as to tools for traffic observation and control. In addition, open interfaces allow seamless integration into larger software solutions.



STRONG SERVICE

Become a member of our large international user community. Benefit from our skilled and dedicated support team, our professional services, and user group meetings, ensuring a high level of knowledge exchange.

THE APPLICATIONS

AT A GLANCE

CURRENT TRAFFIC STATE

Floating Car Data (FDC), Automatic Number Plate Recognition (ANPR), detector information, accident and construction site information – the „recipe“ for modern traffic management is long. PTV Optima enables you to collect, compare, validate and combine data from various sources. In addition, thanks to the model-based approach, data for roads on the network for which there are no detector measurements and FCD information can be completed. This produces a coherent and detailed picture of the current traffic condition.

REAL-TIME TRAFFIC FORECASTS

PTV Optima delivers traffic forecasts for a time period of up to 60 minutes. congestions can be detected using local measurements of speed, traffic flow and volume or derived from speeds resulting from route-related travel times (e.g. FCD, ANPR). The congestions detected have both temporal and spatial effects on the surrounding traffic. The special feature: even unexpected events such as accidents can be analysed this way. PTV Optima's model-based approach makes this possible.

In contrast to a purely statistical approach, which compares time profiles observed with historical samples, the model-based simulation approach relies on a physical interpretation of the traffic network and conditions. The underlying model which describes these relationships allows a simulation for the calculation of information whose measurement is not possible or is only possible with difficulty. This allows the simulation of the future traffic condition and the effects of various combinations of traffic management measures and disturbances.

SUPPORT FOR THE DECISION-TAKING PROCESS

For incident management, traffic management centres set different objectives which can be measured using key performance indicators (KPIs). KPIs provide aggregated information about the overall situation in the network and they offer a good basis for quick decision-taking. KPIs can be set flexibly in PTV Optima – regardless of whether the user's goal is to prevent jams and emissions, improve the reliability of the traffic network, minimise travel times or reduce the negative effects of planned and unforeseeable events. It is also possible to calculate key safety indicators (KSIs) thanks to seamless integration with PTV Visum Safety.



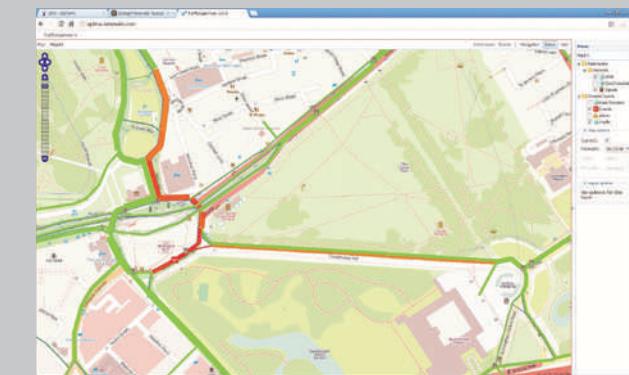
Traffic signals, hard shoulder running, variable message signs and traffic information broadcast via radio are typical tools for resolving congestions. To apply these optimally, they should be tested in a virtual environment ahead of time.

Strategies formulated offline, for example in PTV Visum, can be put into PTV Optima's online environment, assessed there based on the current traffic condition, compared and ranked before they hit the streets. Here PTV Optima is in a position to calculate several combinations of strategies simultaneously and faster than in real time, so that the best possible strategy can be implemented quickly.

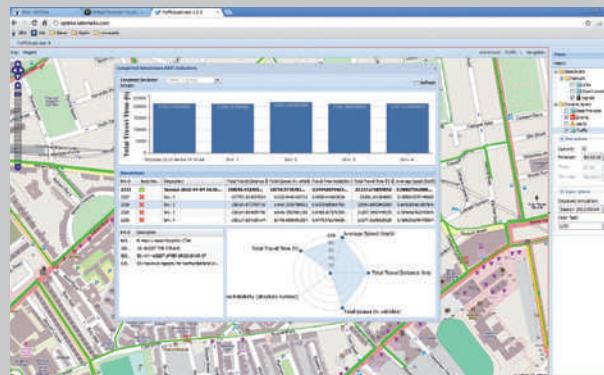
THE TRAFFIC SUPERVISOR

Traffic Supervisor is PTV Optima's web-based graphical user interface (GUI). It is structured intuitively and assists traffic managers optimally with their daily work. Traffic Supervisor allows:

- ▶ map-based monitoring of the current traffic state
- ▶ map- and list-based creation, editing and management of objects and events



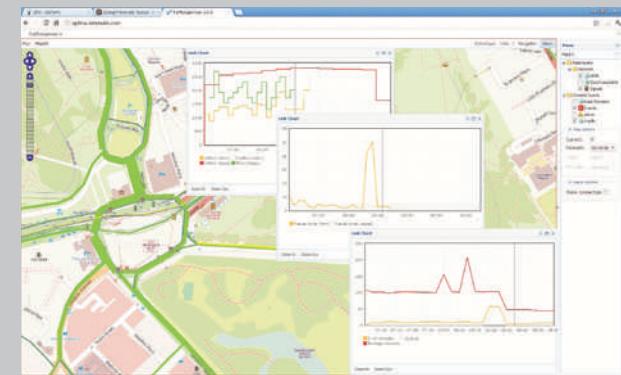
Thanks to the map-based user interface, jams which form due to an accident can be simulated and visualised.



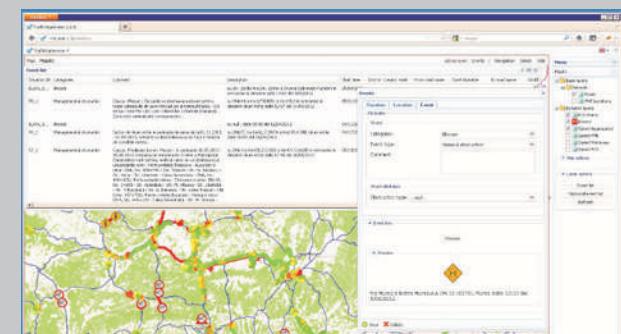
Various scenarios can be simulated in parallel and compared in real time. For this, key performance indicators can be defined individually.

Thanks to this process, the traffic manager has more experience from which to draw and can include the effects of various combinations of measures on unforeseeable events - without PTV Optima, only one combination can be applied to the roads; the question „what would happen if?“ is not answered. The traffic manager therefore gains trust in the various scenarios and can select measures from the ones recommended by PTV Optima in order to get traffic on the road network moving normally as quickly as possible.

- ▶ the evaluation of various scenarios
- ▶ the configuration of automatic warnings and notifications



Temporal profiles provide information about traffic flow and speeds on selected links.



Complex events can be inserted, managed and displayed.

PTV OPTIMA -

IN THE HEART OF TRAFFIC MANAGEMENT



PTV GROUP

Haid-und-Neu-Str. 15
76131 Karlsruhe
Germany

+49 (0) 721 96 51-300
info@vision.ptvgroup.com

vision-traffic.ptvgroup.com
youtube.com/ptvvision