

# PTV xSequence Server

## Sequence optimisation

*PTV xSequence Server identifies the ideal sequence for stopping-off points in a particular trip. The calculations are based in part on vehicle capacity, time restrictions, and legal guidelines on driving times and rest periods.*



### Functions

PTV xSequence Server solves the kind of sequencing problems typically encountered in sales force and transport planning.

- Shortest / fastest trip: the stopping-off points are completed in a specially optimised sequence that minimises the overall driving distance or travel time (travelling salesman problem).
- Maximum number of stop-off points: The PTV xSequence Server selects orders or customer appointments and optimises the sequence of calls, so that as many stop-offs as possible can be made. The maximum trip length or duration is specified in this scenario (orienteeing problem).
- Maximum revenues: this version of the orienteeing problem plays an important role in sales force planning. All stopping-off points are assigned a particular

revenue level. PTV xSequence Server selects the stopping-off points and optimises their sequence in order to maximise revenues from the trip.

- Minimal financial penalties: the same method can be used to sequence service calls by technicians in order to minimise financial penalties due to delays in after-sales service.

PTV xSequence Server can be used to plan a new trip and to validate existing trips. Planning and optimisation are performed on the basis of exact routes or driving times.

### Applied restrictions

PTV xSequence Server optimises trip sequences based on the following restrictions:

- Time restrictions: required driving times and rest periods, customer opening hours, specified visit hours, no overnight stays
- Vehicle capacities / loading capacities
- Transport times / expiry times (product's maximum residence time on the vehicle)

**Settings**

The following settings can be configured in PTV xSequence Server:

- Vehicle type (e.g. car, truck)
- Speed per road class
- Heavier weighting for either travel time or road distance (results in faster or shorter trips)

**Data basis**

PTV xSequence Server uses PTV's standard maps. PTV offers a wide range of regularly updated maps. For decades, PTV has been working closely with NAVTEQ, Tele Atlas and AND – all leading suppliers of map data.

**Hardware requirements**

- At least 1 GB RAM (1 GB RAM recommended for each CPU in use)
- Pentium 4 (1 GHz) or better
- Hard drive space: depends on map in use. Example – Europe map: 10 GB

**Operating system**

PTV xSequence Server runs on the following Windows platforms:

- Windows 2000
  - Windows 2003
  - Windows XP
  - Windows Vista
- (Linux support under development)

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**PTV xSequence Server at a glance:**

- ▶ Optimise trip sequence
  - ▶ Optimisation goals: shortest trip, fastest trip, highest number of stopping-off points
  - ▶ Travelling salesman and orienteering problems
  - ▶ Take vehicle capacities and time limitations into account
  - ▶ Integrate the component easily using standardised interfaces (XML/SOAP)
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