# Analyzer

The Analyzer extracts travel times form matched GPX files, analyzes them and estimates travel times.

## Usage

analyzer [OPTIONS]+  
 Options:  
 --db=VALUE path to the travel times database  
 --add adds specified tracks to the DB  
 --track=VALUE path to the matched GPS track to process or   
 to the directory to process  
 --map=VALUE path to the routable map  
 -a, --analyze analyzes travel times from the database  
 -o, --output=VALUE path to the output directory  
 -h, -?, --help

To extract travel times from the matched GPX tracks use

analyzer --db=PATH\_TO\_TRAVELTIMES\_DB   
 --add --track=PATH\_TO\_MATCHED\_GPS\_TRACK(S)

To analyze travel times use

analyzer --db=PATH\_TO\_TRAVELTIMES\_DB --map=PATH\_TO\_ROUTABLE\_MAP   
 --output=OUTPUT\_PATH –-analyze

## Config

Several constants, that affect algorithm behavior, are defined in the "Analyzer.exe.config" file.

ModelResolution [minutes]  
Time resolution of the model

MinimalModelDelayDifference [%]  
Minimal difference between adjacent traffic delays. If the difference is lower, the delays are considered the same.

MinimalClusterSize [-]  
Minimal number of travel times in the cluster during traffic delay estimation.

ClusterSizePercentage [%]  
Percentage of travel times in the cluster during traffic delay estimation. Actual number of travel times, that form a cluster, is MAX(MinimalClusterSize, ClusterSizePercentage \* TravelTimesCount)

ClusterAnalysisStopPercentage [%]  
Cluster analysis runs more times with several settings - from the specialized ones to more generic. If number of travel times in clusters reaches the ClusterAnalysisStopPercentage the analysis stops and more generic settings aren't used.

MaximalAllowedStopLength [minutes]  
Maximal allowed stop length. If any stop in travel time exceeded this value, travel time isn't used in analysis.

FreeflowMinimalCount [-]  
Minimal number of travel times used to estimate free-flow time. If segment hasn't enough travel times, model isn't created.

FreeflowPercentage [%]  
Percentage of travel times to estimate free-flow time. Actual number of travel times used is MAX(FreeflowMinimalCount, FreeflowPercentage \* TravelTimesCount)

## Output

Analyzer creates a model for each road segment that describes travel time. Model is time dependent - .

Travel time on segment at the time

Free flow travel time

Delay caused by congestion / heavy traffic at the time

Delay caused by traffic signals that occurs with probability *p*

## Sample Output

<model node-from="322596181" node-to="322596171" way="29322860"  
 freeflow="60.1" avg-delay="9.3"  
 signals-delay="53.3" signals-prob="0.75">  
 <traffic-delay from="04:30:00" to="05:30:00" day="Any" delay="8.8" />  
 <traffic-delay from="05:30:00" to="08:45:00"   
 day="Monday,Tuesday,Wednesday,Friday,Weekend" delay="8" />  
 <traffic-delay from="05:30:00" to="08:45:00" day="Thursday" delay="18" />  
 <traffic-delay from="08:45:00" to="11:45:00" day="Any" delay="6" />  
 <traffic-delay from="13:45:00" to="21:15:00" day="Any" delay="10.2" />  
</model>