# Semantic enrichment processor API

The semantic enrichment processor web API enables to enrich trajectories with aspects, i.e., semantic dimensions. The semantic enrichment processor implements a semantic enrichment process which consists of *three steps*, each exposed via a specific endpoint.   
  
The web API documentation is available at: <http://semantic.westeurope.cloudapp.azure.com:8000/docs>

General information concerning the processor and the data formats it expects are available at: <https://github.com/MobiDataLab/mdl-semantic-enrichment>

A complete set of example requests made to the various endpoint are provided at: <https://github.com/MobiDataLab/mdl-semantic-enrichment/blob/main/examples_api_request.py>.

In the following we provide the main information concerning the three steps.

**Preprocessing**: this step takes in input a dataset of trajectories, and filters out noisy or unusable data to facilitate the activities of the other steps. The output consists of a dataset of preprocessed trajectories. This step is exposed by the web API via the [http://semantic.westeurope.cloudapp.azure.com:8000/semantic/Preprocessing](http://semantic.westeurope.cloudapp.azure.com:8000/) endpoint.

Note that this step is optional and can be executed just once. The endpoint accepts two types of requests: a POST request, which specifies the dataset to be pre-processed and the parameters that should be used during the preprocessing, and a GET request, which can be used to get the preprocessed dataset once the preprocessing execution has terminated. For more information on the input parameters and output to be expected from the POST and GET requests, please look at the web API documentation and the examples.

**Segmentation**: this step takes in input a dataset of trajectories, and partitions every trajectory into stop (the object is not moving) and move (the object is moving from one point to the other) segments (i.e., sub-trajectories). The output of this step consists of two datasets, one containing information on the stop segments, while the other one on the move segments.

This step is exposed by the web API via the [http://semantic.westeurope.cloudapp.azure.com:8000/semantic/Segmentation](http://semantic.westeurope.cloudapp.azure.com:8000/) endpoint.

The endpoint accepts POST and GET requests, with the same semantics seen in the Preprocessing case. For more information on how to make requests to this endpoint, and which input parameters and output are to be expected, we refer the reader to the web API documentation and the examples.

**Enrichment**: this step takes in input a dataset of trajectories, two datasets of stop and move segments previously detected from the trajectories, a POI dataset containing the POIs present in the area in which the trajectories move, a weather dataset, and a social media dataset, and enriches the trajectory segments with four aspects, i.e., *move*, *regularity*, *weather*, and *social media*. The end result is a RDF knowledge graph containing the enriched trajectories. Such graph is returned according to the Turtle format, hence it can be subsequently imported in some triplestore of choice (e.g., GraphDB) for further analyses.

This step is exposed by the semantic enrichment processor web API via the [http://semantic.westeurope.cloudapp.azure.com:8000/semantic/Enrichment](http://semantic.westeurope.cloudapp.azure.com:8000/) endpoint.

The endpoint accepts POST and GET requests, with the same semantics seen in the previous cases. For more information on how to make requests to this endpoint, and which input parameters and output are to be expected, we refer the reader to the web API documentation and the examples.