Navitia ABC's

Navitia.io is an **open-source**, **open-service** API suite based on **open-data**, offering advanced features **dedicated to mobility**. Navitia provides the following services:

- *Multi-modal journeys computation*
- *Line schedules*
- *Next departures*
- *Exploration of public transport data*
- *Search & autocomplete on places*
- *Isochrones*

Technically, Navitia is a HATEOAS API that returns JSON formatted result.

Navitia offers **unified APIs *(x4)*** for easy handling:

1) **Passenger Information** API
   Offer the best intermodal routes, taking account of traffic information.

2) **Search** API
   Help passengers find their way around by geolocating and displaying points of interest around them.

3) **Autocomplete** API
   Improve passenger experience when entering searches with a powerful, comprehensive autocomplete feature.

4) **Isochrone** API
   Offer the innovative search by travel time with the isochrone feature.

Within each unified API, a set of features can be found

❖ Journey planning

- It allows you to compute the best routes from point A to point B using all available means of travel, including: bus, train, subway, bike, public bike, walking, car, etc.
- List of API concerned: Places, Journeys

❖ Next departures and arrivals

- It provides the next scheduled departures or arrivals for a specific mode of public transport (bus, tram, metro, train) at your selected stop, near coordinates, etc.
- List of API concerned: Public transportation objects, Stop Schedules, Terminus Schedules , Departures & Arrivals

❖ Timetables

- It gives you access to line schedules on public transport, allowing you to find the times public transport is expected at specific stops.
- List of API concerned: Public transportation objects, Routes Schedules and Stop Schedules

❖ Places nearby

- It displays the different transport options around a location - a GPS coordinate, or an address, for example.
- List of API concerned: Coverage, Public transportation objects, Place nearby, Stop Schedules, Departures & Arrivals

❖ Explort transport

- It lets you explore places, coordinates, bus stops, subway stations, etc. to navigate all the data available on the API (collection service).
- List of API concerned: Coverage, Public transportation objects, Places & PT objects

❖ Isochrones

- Whether using a specific set of coordinates or a general location, you can find places within your reach at a given time and their corresponding travel times, using a variety of transportation options.
- List of API concerned: Places, Journeys, Isochrones

As you can observe, **some API are used for different features**. Please find below **the API catalog** below along with their definitions.

- Places: autocomplete on geographical data to find the departure and destination points from an input text.
- Journeys: compute journeys from and to coordinates, stops, stations or administrative region
- Public transportation objects: List of the public transport objects of a region
- Stop Schedules: Compute time tables for a given resource
- Terminus Schedules: Compute time tables for a given resource
- Departures : Compute time tables for a given resource
- Arrivals: Compute time tables for a given resource
- Routes Schedules: Compute time tables for a given resource
- Coverage: List of the region covered by navitia
- Place nearby: List of objects near an object or using longitude and latitude
- PT objects: Search for data using autocomplete input.
- Isochrones: Compute all journeys from a departure point at a given time to every reachable point, and returns multiple geoJson ready to be displayed on map. This service is currently in beta.

Please find some usage examples:

Basics on the API request

- How is a Navitia query structured?
- You will find an explanation of the 4 parts (Root url, Path, Endpoint, Parameters), which compose a Navitia query.

A quick exploration

- A short overview of simple querries such as the public transport lines available on the New York coverage.
- Other possible & accessible explorations are:
    - *Where am I?*
    - *Services/Network available on a specific coverage?*

- *Are there any metro lines or network?*
- *What services are close to me?*

Seek and search

- What places have a name that start with “eiff”?
  - *The/ places API finds any object whoe name matches the first letters of the query.*
  - *The / places nearby API finds any object within a certain radisu as a crow flies.*
- What places are within 1000 meters ?

About itineary

- A simple route computation
  - *Let’s find out how to get from point A to point B. You need to use the journeys API for that.*
- What stations can be reached in the next 20 minutes?
  - *The API can computes all the reachable stop points from an origin within a given maximum travel duration. That’s what we call an isochrone.*

If you want to deep-dive into it, feel free to consult and play with the Navitia Playground. It will guide you through each steps.

Wish you all a best tour on our mobility service!