Address Auto Complete

Address AutoComplete APIs

Address AutoComplete is a software component for searching address information with dynamic autocomplete support.

Based on text input of the end-user, the component presents a list of max 5 suggested matches which are limited and ordered by a search model.

The service features a web service which retrieves suggestions and internally a user interface to analyze the suggestions returned by the AddressAutoComplete Service in order to improve the search model.

An API for this service was delivered in July 2014 and was extended afterwards with additional features and an angularJS front-end module (Address Search Bar).

The AutoComplete uses the same classification module and SOLR (Apache Foundation) back-end which was built for AddressBlockParser (Block Lines).

Address AutoComplete Widget

bpAddressAutoComplete is an AngularJS implementation of the Address Auto Complete Service, which is a a webservice which offers suggestions of addresses based on user input which may be incorrect or incomplete.

When typing in the autocomplete field, the widget starts searching for entries that match and displays a list of values to choose from.

By entering more characters, the user can filter down the list to better matches.

The component can be used internally by Bpost services and externally by the public.

Overview of features

API features

The AddressAutoComplete service offers:

- **Up to 5 top suggestions for a query string of words**
- ‘Typo search’ (also known as fuzzy searching), input words do no need to be exactly correct (example: *bruselles* instead of *bruxelles*).
- Search for incomplete words (example: *bru* instead of *bruxelles*)

- Provide a message when the user has searched for a submunicipality and a suggestion is returned with the fused municipality. (Example: *Blanden is a submunicipality of Oud-Heverlee*).
- For addresses which have multiple address translations (such as *Bruxelles*), all address translations are returned.
- Only returns addresses with house numbers or box numbers when the user has provided a house number or box number.
- Returns municipality suggestions.
- Search for the detail number instead of the concatenated civic number (Example: Search for *19* and return a house with civic number *17-21*). In case of 'Gantoise Numbering', the detail number is returned as the civic number.
- Automatic daily index updates from the Bpost Address database (RoMa).
- Support for abbreviations (*Ch->Chemin* or *Chaussee*) and special characters (-, /, …)
- Treat le,la,les,du,des as synonyms, as a mistake is often made against these words.
- Support for searching and confirming compound words as street names (Rue de la loi)
- Support for landmarks (Example: *Muntcentrum*)
- Support for special postal codes, whatever if they have underlying addresses or not (examples: 7010 SHAPE, *1043 VRT*)
- Support for PO Boxes
- Extract numerical words from the following type of words: #15, B-3000 and N13
- Support for searching for box numbers
- **General Options**
    - Environment: To configure st/dv/ac/pr endpoints.

API Limitations

- Only Belgian addresses can be validated
- Only Legal/Official addresses can be validated - Synonyms / Aliases cannot be validated (eg. 2000 Anvers vs 2000 Antwerpen)

API KPIs

- Availability: 99,9% - Free tool (Win-win Customer / Bpost - since 6 years, it was down only few times during < 4 hours)
- Response Time: Average between 200ms and 400ms (depending on load, autoscaling is ON). When user is typing, he's not feeling the delay.
- Usage recommendation: No limit foreseen until now.
  However, if we notice intensive usage which cannot be related to a Web application (eg. detecting DoS), the flow is monitored and the IP address(es) may be blocked + client contacted to understand the situation.

Widget features (A front-end AngularJS Module which uses the AddressAutoComplete API)

- Possibility to include only bar, or also add text above and search button.
- Detection of service unavailability

- Properly manage each char typing and order of responses
- validation level (municipality, street, streetNumber, boxNumber)
- Word completion (Type-ahead)
- Bold word matching suggestion with user input
- IsComplete logic (generate event once address is complete)
- Cursor placeholder mgt (Always place cursor when user needs to input data)
- Messages logic (eg. submunicipality message)
- Language logic (3 languages: French - Dutch - German, coming from WEB UI or default settings)
- Clear input with and without focus option
- Pre-filling option
- Flexibility of URLs regarding environment + Internal/External world
- CSS that can be changed by consuming web application (translation property file)
- Some shortcut keys (like CTRL+DELETE to clean bar)
- ...

Others

- A senior DEV should take ½ to 1 day to integrate this widget in a web application

- Widget is aimed for Web applications, not for native apps. However, as a consumer you may create your own widget and at least enjoy all back-end features.
  If you try to use the autocomplete rest API from your own home-made widget, pay attention to some specific behaviors. Otherwise you will meet unexpected cases.
  You may also start from the widget and enrich it, by example with an extra “not-in-list” suggestion, like some consumers did.
  Some tips / use cases:
  - Multi-lan : https://webservices-pub.bpost.be/ws/ExternalMailingAddressProofingCSREST_v1/address/autocomplete?id=1&q=ta%201000

    Address bloc is always present, corresponding to the default language if you don’t match any language with the user language.

  - Messages (submunicipalities): https://webservices-pub.bpost.be/ws/ExternalMailingAddressProofingCSREST_v1/address/autocomplete?id=2&q=neufv
  - Id = sequence_number (mais d’autres moyens d’ordonnancement des réponses existent)
  - isComplete (address is complete and valid): https://webservices-pub.bpost.be/ws/ExternalMailingAddressProofingCSREST_v1/address/autocomplete?id=2&q=dekoster%206
  - Use field **string for listing suggestions, not field searchBarString**, which is used to add “box” word in case of boxNumber validation and suggestion is selected by user.