bpost address services

Web Services API Manual

Version 1

bpost, limited company under public law | Centre Monnaie, 1000 Brussels
VAT BE 0214.596.464 | Legal Entities Register Brussels | Postal Current Account
IBAN BE94 0000 0000 1414 | BIC BPOTBEB1

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1. Introduction

This document describes in detail the bpost address validation services and how to set them up for use in your business.

Required Knowledge

In order to use this manual you need knowledge of the following topics:

- XML
- SOAP web services

XML stands for eXtensible Markup Language. For an introduction, go the W3 Schools XML Tutorial at http://w3schools.com/xml/default.asp.

A Web service is defined by the W3C as "a software system designed to support interoperable machine-to-machine interaction over a network. It has an interface described in a machine-processable format (specifically WSDL). Other systems interact with the Web service in a manner prescribed by its description using SOAP-messages, typically conveyed using HTTP with an XML serialization in conjunction with other Web-related standards." For an introduction, go to the W3 Schools Web Services Tutorial at http://w3schools.com/webservices/default.asp.

bpost Address Validation Services

Address standards for Belgium have been published (http://bpost.be/adressage, http://bpost.be/adressering and http://www.upu.int/fileadmin/documentsFiles/activities/addressingUnit/belEn.pdf) and individual address validation is available as an interactive service (http://bpost.be/validationadresse and http://bpost.be/adressvalidatie). With this webservice API, bpost introduces a machine-to-machine interface to allow automated validation and formatting services.

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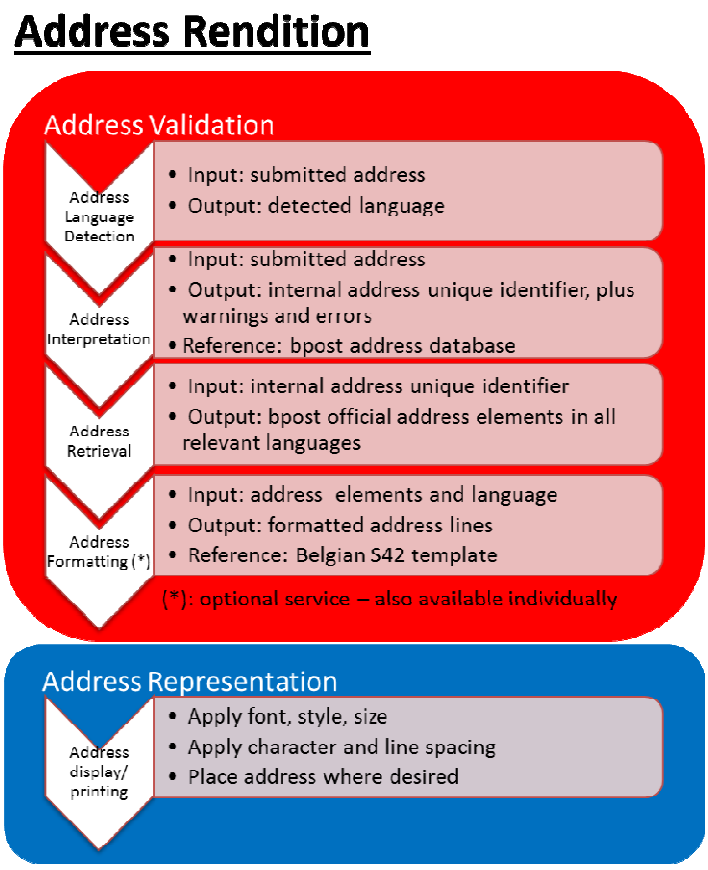
Address rendition

Address rendition is the process of properly displaying or printing a valid address. This includes several concepts that may seem trivial, yet become critical when one enters an address into a GPS, dictates an address to emergency services, or delivers a package or letter to an address. Every detail ends up counting: the address content, the language, the postal code, the spelling of the street and the city, the house number and the letterbox number, the name of the recipient, the structure and sequence of the lines, the way the address is printed, etc… This rendition process includes several sub-processes:



- address validation: sequence of bpost processes all executed when called
    1. language detection: process to detect the language of the submitted address. This is useful to return address in proper language when the municipality is multi-lingual (Brussels plus facilities).
    2. address interpretation: process to recognize the submitted address via bpost proprietary algorithms, using bpost master address database as reference, and detect anomalies
    3. official bpost address retrieval: process to fetch the official bpost version of the address in its reference database
    4. address formatting: process to properly assemble and format the address lines according to the Belgian Addressing Standard registered with UPU (Universal Postal Union) and CEN (Centre Européen de Normalisation). Only this process is also available separately.
- address representation: client process to apply to the address lines: font, style, size, character and line spacing, placement on screen page, letter, envelope, etc

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Available interfaces

bpost currently offers the following Address Validation services:

- formatAddresses: this interface takes address components as input, and returns address lines as output. Both Structured or Semi-structured inputfields are allowed.
- validateAddresses: this interface takes addresses (in a structured or semi-structured or address block lines) as input, and returns feedback about each address submitted: whether or not it was recognized, warnings and errors if detected, and a corrected version of the address if available

Address formatting

This service is available either packaged in the validation process, or individually to properly order and format the components of a previously validated address. It may be used either for individual addresses, or in batches of up to 100 addresses at a time[1].

Formatting seems again to be a negligible aspect, but it is essential in proper addressing. Each country, including Belgium, has its own standard to facilitate the efficient processing of mail and parcels by machines and postmen. For example, the standard in Belgium specifies that the house number comes after the street name (whereas in France for example, the house number precedes the street name), and that an apartment building letterbox number is preceded by the key words 'bus' or 'bte' (and not the punctuation signs '/', '#' or letter 'b', etc…). Also, the address starts with the most specific information (addressee name) and ends with the most general information (postcode and town for domestic mail, or country name for cross-border mail).

The address formatting webservice expects as input all the individual components of an address. It returns properly assembled address lines that can be used on a label, an envelope or a screen.

Example:

Request	**Address Formatting**	**Response**
Individual address fields		*Properly ordered and formatted address lines according to standards*
Durand SA		
Monsieur		
Dupont		Monsieur Alain Dupont
Alain		Durand SA
7C		Rue du Vivier 7C bte 5
Rue du Vivier		1000 Bruxelles
5		
Bruxelles		

[1] The single-address process is optimized for time-critical applications and have a higher processing priority than batch submissions. If an abuse is detected on the single-address submissions (by submitting large numbers of consecutive single-addresses), the service may be shut down for the originating system.

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1000		

Address validation

This service is available either for individual addresses, or in batches of up to 100 addresses at a time[2]. It validates whether an address is precise and unambiguous.

bpost has compiled a database of all the addresses in Belgium where mail or parcels may be delivered. This database does not include roads without postal delivery point. Also, this database is constantly updated according to what bpost employees can observe in the field, and this database may vary from time to time or be different from other public or private databases.

Example:

Request	**Address Validation and Formatting**	**Response**	**Errors**
Individual address fields		*Corrected fields*	*Message*
Charles		*People and companies are not validated by service*	
Michel			
Avenue de la Loi	→	Rue de la Loi	anomaly
16		16	
		1000	missing
Bruxeles		Bruxelles	anomaly
		Properly ordered and formatted address lines according to standards	
	→		
		Charles Michel	
		Rue de la Loi 16	
		1000 Bruxelles	

Submitted addresses are validated against this reference database using a library of sophisticated algorithms. The validation process is tolerant of some imperfections. Below are different validation use cases. You may also try them out interactively at http://bpost.be/validationadresse or http://bpost.be/adresvalidatie

[2] The single-address process is optimized for time-critical applications and have a higher processing priority than batch submissions. If an abuse is detected on the single-address submissions (by submitting large numbers of consecutive single-addresses), the service may be shut down for the originating system.

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Exact match

Address submitted: Rue de la Loi 16
1000 Bruxelles

Feedback : no warnings or errors are returned as the submitted address is perfect

Match but anomalies found

Address submitted: Avenue de la Loi 16
1000 Bruxelles

Feedback : warning returned on the street name field ('Avenue' is not correct) and bpost's version of the address is returned: Rue de la Loi 16
1000 Bruxelles

To ensure that bpost machines and postman can best handle postal items, it would be ideal for the client to integrate this feedback to update the source database with the bpost address returned.

IMPORTANT NOTE: In some cases, the address submitted is so ambiguous that the interpretation does not provide the expected result. This interpretation depends on the system's ability to resolve the ambiguities. It most often works well, but not always. The feedback returned by the bpost service should be reviewed before being integrated.

No match found

Address submitted: Zwaluwenlaan 1
2610 Namur

Feedback: there are too many incoherences with this address for the system to interpret any address, or to pinpoint any particular cause.

These addresses require the most attention, because no bpost machine, and probably no human either, will be able to resolve them. They would most likely result in a 'return to sender', if not corrected by the client before mailing.

Partial match found

Address submitted: Rue du Faleau 12
6200 Châtelet

Feedback: error returned on the house number field as number 12 does not exist in this street, according to the bpost reference data.

These addresses should also require attention, because even though they may attempt to deliver the item, postmen may encounter much difficulty finding the right mailbox. No correction or suggestion can be provided.

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Multiple matches found

Address submitted: Kerkstraat 6
Dilbeek

Feedback: error returned on the missing postal code. Multiple alternatives are returned as they all are possible solutions for the submitted address:

Kerkstraat 6
1700 Sint-Ulriks-Kapelle

Kerkstraat 6
1701 Itterbeek

Kerkstraat 6
1703 Schepdaal

As even a human could not arbitrate between these multiple valid solutions, these addresses should be reviewed and adjusted.

No match found but suggestions returned

Address submitted: Bredabaan 1
1800 Vilvoorde

Feedback: the address cannot be resolved. The system returns a number of possible suggestions with a pertinence level calculated by the algorithm, e.g.: Arendlaan, Medialaan, Streekbaan, etc…

These suggestions may or may not be relevant, and the addresses should be reviewed and adjusted.

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2. Input addresses

Address formatting service

Only addresses intended for Belgium are supported currently, whether the mail originates from Belgium or not. The webservice expects input structured as seen below. Calling applications with a different structure should map their available fields to these appropriate elements:

	National Elements	CEN/UPU Address Elements		
	Address Element	**Title**	**Code**	**Comment**
Addressee Individual Identification	Greeting	Form of Address	10.05.0.0.0	Mandatory if addressed mail
	First Name	Given Name	10.06.0.0.0	
	Last Name	Surname	10.08.0.0.0	
	Customer Number	Suppl Dispatch Info	30.33.0.0.0	Only if bpack 24/7
Mailee Individual Identification		Role Descriptor	20.11.0.0.0	If applicable
		Form of Address	20.05.0.0.0	
		Given Name	20.06.0.0.0	
		Surname	20.08.0.0.0	
Mailee Organization Identification	Title	Function	20.03.0.0.0	If applicable
	Department	Organizational Unit	20.02.0.0.0	
	Company Name	Organization Name	20.00.0.0.0	
		Legal Status	20.01.0.0.0	
Mail Recipient Dispatching Information	Building	Wing Type	30.29.0.0.1	Optional, but preferable for Registered mail and Parcels
		Wing Indicator	30.29.0.0.2	
		Stairwell Type	30.30.0.0.1	
		Stairwell Indicator	30.30.0.0.2	
		Floor Type	30.31.0.0.1	
		Floor Indicator	30.31.0.0.2	
		Door Type	30.32.0.0.1	
		Door Indicator	30.32.0.0.2	
		Building/Construction Level 1	30.26.1.0.0	Complex of buildings -- used to reference industrial zones
Other Delivery Information	PO Box Number or "bpack 24/7" name	Delivery Service Type	40.19.0.0.1	Possible values: 'Postbus' or 'Boite Postale' or 'PB' or 'BP' or 'bpack'
		Delivery Service Indicator	40.19.0.0.2	PO Box number or bpack station name
Delivery Point Location	Street Name	Thoroughfare Name	40.21.0.0.0	Mandatory
	House Number	Street Number or Plot	40.24.0.0.0	
	Box Number	Extension Designation	40.28.0.0.0	If not null, and must be preceded in representation by literal 'bus' or 'bte', or 'box'

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Postcode / Town	Postal Code	Postcode	40.13.0.0.0	Mandatory
	City	Town	40.16.0.0.0	
		Delivery Service Qualifier	40.35.0.0.0	When PO Box
Country	Country Name	Country	40.14.0.0.0	Only for cross-border mail
Encoding		Address Parameter Script	50.50.0.0.0	Always 'Latn'
Language		Address Parameter Language	50.51.0.0.0	Possible values: 'de', 'en', 'fr', 'nl'
Despatching Country	Country of origin		50.53.0.0.0	If not 'BE', will force 'BELGIUM' in Country Name
Delivering Country			50.54.0.0.0	Always 'BE'

Fictitious address examples

EXAMPLE 1	*Private address of a person living in a house* *Formatted address* Monsieur Alain Dupont Rue du Vivier 7 1000 Bruxelles	*Address elements* 10.05.0.0.0 Monsieur 10.06.0.0.0 Alain 10.08.0.0.0 Dupont 40.21.0.0.0 Rue du Vivier 40.24.0.0.0 7 40.13.0.0.0 1000 40.16.0.0.0 Bruxelles
EXAMPLE 2	*Private address, care of a person living in a house* *Formatted address* Monsieur Alain Dupont Chez Madame Charlotte Durant Rue du Vivier 15 1000 Bruxelles	*Address elements* 10.05.0.0.0 Monsieur 10.06.0.0.0 Alain 10.08.0.0.0 Dupont 20.11.0.0.0 Chez 20.05.0.0.0 Madame 20.06.0.0.0 Charlotte 20.08.0.0.0 Durant 40.21.0.0.0 Rue du Vivier 40.24.0.0.0 15 40.13.0.0.0 1000 40.16.0.0.0 Bruxelles
EXAMPLE 3	*Private address of a person living in a block of flats* *Formatted address* Dhr Paul Janssens Kortijkstraat 37 bus 1	*Address elements* 10.05.0.0.0 Dhr 10.06.0.0.0 Paul 10.08.0.0.0 Janssens

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	9800 Deinze	40.21.0.0.0 Kortijkstraat 40.24.0.0.0 37 40.28.0.0.0 1 40.13.0.0.0 9800 40.16.0.0.0 Deinze
EXAMPLE 4	*Private address with delivery to a PO Box* *Formatted address* Dhr Paul Janssens Postbus 24 9000 Gent Centrum	*Address elements* 10.05.0.0.0 Dhr 10.06.0.0.0 Paul 10.08.0.0.0 Janssens 40.19.0.0.1 Postbus 40.19.0.0.2 24 40.13.0.0.0 9000 40.35.0.0.0 Gent Centrum
EXAMPLE 5	*"bpack 24/7" address* *Formatted address* Mr Alain Dupont RC 123456789 bpack De Brouckère 1000 Bruxelles	*Address elements* 10.05.0.0.0 Mr 10.06.0.0.0 Alain 10.08.0.0.0 Dupont 30.33.0.0.0 RC 123-456-789 40.19.0.0.1 bpack 40.19.0.0.2 De Brouckère 40.13.0.0.0 1000 40.16.0.0.0 Bruxelles
EXAMPLE 6	*Private address of a person living in a block of flats with spatial information* *Formatted address* Dhr Paul Janssens Gebouw A - Verdieping 3 - Kamer 8 Volklorenlaan 81-83 bus 15 2610 Wilrijk	*Address elements* 10.05.0.0.0 Dhr 10.06.0.0.0 Paul 10.08.0.0.0 Janssens 30.29.0.0.1 Gebouw 30.29.0.0.2 A 30.31.0.0.1 Verdieping 30.31.0.0.2 3 30.32.0.0.1 Kamer 30.32.0.0.2 8 40.21.0.0.0 Volklorenlaan 40.24.0.0.0 81-83 40.28.0.0.0 15 40.13.0.0.0 2610 40.16.0.0.0 Wilrijk
EXAMPLE 7	*Company address* *Formatted address* Monsieur Alain Dupont Service Achats Durand SA Rue du Vivier 7C bte 5 1000 Bruxelles	*Address elements* 10.05.0.0.0 Monsieur 10.06.0.0.0 Alain 10.08.0.0.0 Dupont 20.02.0.0.0 Service Achats 20.00.0.0.0 Durand 20.01.0.0.0 SA

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		40.21.0.0.0 Rue du Vivier 40.24.0.0.0 7C 40.28.0.0.0 5 40.13.0.0.0 1000 40.16.0.0.0 Bruxelles
EXAMPLE 8	*Company address with function & department, and with industrial zone* *Formatted address* Monsieur Alain Dupont Manager Service Achats Durand SA Parc d'Entreprises B Rue du Vivier 7C bte 5 1000 Bruxelles	*Address elements* 10.05.0.0.0 Monsieur 10.06.0.0.0 Alain 10.08.0.0.0 Dupont 20.03.0.0.0 Manager 20.02.0.0.0 Service Achats 20.00.0.0.0 Durand 20.01.0.0.0 SA 30.26.1.0.0 Parc d'Entreprises B 40.21.0.0.0 Rue du Vivier 40.24.0.0.0 7C 40.28.0.0.0 5 40.13.0.0.0 1000 40.16.0.0.0 Bruxelles
EXAMPLE 9	*Company address with spatial information* *Formatted address* Dhr Paul Janssens Accounting Acme NV Building West - Verdieping 4 Bloemendalelaan 62/3 bus 47 9990 Maldegem	*Address elements* 10.05.0.0.0 Dhr 10.06.0.0.0 Paul 10.08.0.0.0 Janssens 20.02.0.0.0 Accounting 20.00.0.0.0 Acme 20.01.0.0.0 NV 30.29.0.0.1 Building 30.29.0.0.2 West 30.31.0.0.1 Verdieping 30.31.0.0.2 4 40.21.0.0.0 Bloemendalelaan 40.24.0.0.0 62/3 40.28.0.0.0 47 40.13.0.0.0 9990 40.16.0.0.0 Maldegem

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Address validation service

Only addresses in Belgium can currently be validated.

1. Structured Address Input fields

Just like the address formatting service, this webservice expects input structured as seen below. Calling applications with a different structure should map their available fields to these appropriate elements:

	National Elements	CEN/UPU Address Elements		
	Address Element	**Title**	**Code**	**Comment**
Addressee Individual Identification	Greeting	Form of Address	10.05.0.0.0	Mandatory if addressed mail
	First Name	Given Name	10.06.0.0.0	
	Last Name	Surname	10.08.0.0.0	
	Customer Number	Suppl Dispatch Info	30.33.0.0.0	Only if bpack 24/7
Mailee Individual Identification		Role Descriptor	20.11.0.0.0	If applicable
		Form of Address	20.05.0.0.0	
		Given Name	20.06.0.0.0	
		Surname	20.08.0.0.0	
Mailee Organization Identification	Title	Function	20.03.0.0.0	If applicable
	Department	Organizational Unit	20.02.0.0.0	
	Company Name	Organization Name	20.00.0.0.0	
		Legal Status	20.01.0.0.0	
Mail Recipient Dispatching Information	Building	Wing Type	30.29.0.0.1	Optional, but preferable for Registered mail and Parcels
		Wing Indicator	30.29.0.0.2	
		Stairwell Type	30.30.0.0.1	
		Stairwell Indicator	30.30.0.0.2	
		Floor Type	30.31.0.0.1	
		Floor Indicator	30.31.0.0.2	
		Door Type	30.32.0.0.1	
		Door Indicator	30.32.0.0.2	
		Building/Construction Level 1	30.26.1.0.0	Complex of buildings -- used to reference industrial zones
Other Delivery Information	PO Box Number or "bpack 24/7" name	Delivery Service Type	40.19.0.0.1	Possible values: 'Postbus' or 'Boite Postale' or 'PB' or 'BP' or 'bpack'
		Delivery Service Indicator	40.19.0.0.2	PO Box number or bpack station name
Delivery Point Location	Street Name	Thoroughfare Name	40.21.0.0.0	Mandatory
	House Number	Street Number or Plot	40.24.0.0.0	
	Box Number	Extension Designation	40.28.0.0.0	If not null, and must be preceded in representation by literal 'bus' or

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				'bte', or 'box'
Postcode / Town	Postal Code	Postcode	40.13.0.0.0	Mandatory
	City	Town	40.16.0.0.0	
		Delivery Service Qualifier	40.35.0.0.0	When PO Box
Country	Country Name	Country	40.14.0.0.0	Only for cross-border mail
Encoding		Address Parameter Script	50.50.0.0.0	Always 'Latn'
Language		Address Parameter Language	50.51.0.0.0	Possible values: 'de', 'en', 'fr', 'nl'
Despatching Country	Country of origin		50.53.0.0.0	Not used for validation. If not 'BE', will force 'BELGIUM' in Country Name
Delivering Country			50.54.0.0.0	Always 'BE'

2. Semi-structured Address input-fields:

Alternatively, addresses may be submitted in a semi-structured way where, for address each line, several elements are combined. While it is authorized to submit some lines structured and others semi-structured, it is not authorized to submit some elements of a line structured while other elements are semi-structured.

	Title	**Comment**
Addressee Individual Identification	Form of Address +Given Name + Surname	Mandatory if addressed mail
Mailee Individual Identification	Role Descriptor + Form of Address + Given Name + Surname	Not used for validation
Mailee Organization Identification	Organization Name + Legal Status	If applicable
Mail Recipient Dispatching Information	Wing Type + Wing Indicator + Stairwell Type + Stairwell Indicator + Floor Type + Floor Indicator + Door Type + Door Indicator	Optional, but preferable for Registered mail and Parcels. Each pair separated by ` – `
	Building/Construction Level 1	Complex of buildings -- used to reference industrial zones

Other Delivery Information	Delivery Service Type + Delivery Service Indicator	Possible values: 'Postbus' or 'Boite Postale' or 'PB' or 'BP' or 'bpack' + PO Box number or bpack station name
Delivery Point Location	Thoroughfare Name + Street Number or Plot + Extension Designation	If Extension Designation, must be preceded by literal 'bus' or 'bte', or 'box'
Postcode / Town	Postcode + Town + (in case of PO Box) Delivery Service Qualifier	
Country	Country	Only for cross-border mail
Encoding	Address Parameter Script	Always 'Latn'
Language	Address Parameter Language	Possible values: 'de', 'en', 'fr', 'nl'
Despatching Country		Not used for validation
Delivering Country		Always 'BE'

3. Address block input lines:

Addresses may also be submitted as a block of undefined lines. Our system will attempt to parse the lines into elements that can be validated. Up to 7 lines can be submitted in one request.

	Title	**Comment**
L1	Contains a part of the address or is empty	
L2	Contains a part of the address is empty	
L3	Contains a part of the address is empty	
L4	Contains a part of the address is empty	
L5	Contains a part of the address is empty	
L6	Contains a part of the address is empty	
L7	Contains a part of the address is empty	
Encoding	Address Parameter Script	Always 'Latn'
Language	Address Parameter Language	Possible values: 'de', 'en', 'fr', 'nl'
Despatching Country		Not used for validation
Delivering Country		Always 'BE'

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4. Other input fields

In all 3 cases, whether you submit an address in a structured , semi-structured or address block request, extra service and information can be returned by the address validation service , when asked for.

Following flags (true/false) can be submitted together within the request.

- Formatting flag : when the flag is true, the system will also return in the XML response the formatted address lines of the validated address.
- Formattedsubmitted address flag: this flag indicates whether one wants his submitted address components to be sent back in correctly formatted address lines. This is not supposed to be a valid address, it is just the result of the formatting webservice on your submitted address components.

When you do not provide this information in your request, the system will make following suppositions:

- Formatting flag: is by default true, the system shall always return the formatted address lines when no formatting flag was indicated in the request.

- Formattedsubmitted address flag : is by default false, the system shall never return the formatted-submitted-address lines when no flag was indicated in the request.

5. Output fields / response of the address validation webservice

- Validated address components
  The validated address components will be returned by the system in a structured way, indicating the type of validated address component (eg. Streetname, housenumber, boxnumber, Postalcode, Locality, …)

- Warnings and Errors
  Errors and warnings will be returned by the system (when applicable), indicating the address component on which the error or warning was applicable. For more information on Errors and Warnings we would like to refer to chapter 4.Warnings and Errors.

- Formatted address lines
  The validated address can be returned as formatted address lines. The formatted address lines are returned in the order in which the address information should be displayed on a letter or on a screen.

- Formattedsubmitted address
  When a user wants his originally submitted address components to be formatted, independently of the outcome of the address validation of its address components, he can set this flag to true. The system will format the submitted address qnd return the formatted lines in the response.

- Detected language
  The language that was detected from the address components will be retured in the response.

- Language to use
  The language in which the address components should be used will be returned in the response (e.g. “Rue des hirondelles” should be called “zwaluwenlaan” in the Flemish region)

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- Transaction ID
  ID which identifies the address validation response (on address level). The transaction ID is used to link the feedback you want to provide on an address as result of the address validation operation. The feedback you want to provide can be provided using another webservice as explained in the next topic: Address feedback service.

Address feedback service

As one can see on the bpost website when validating an address (http://bpost.be/validationadresse and http://bpost.be/adressvalidatie) , that a feedbackmessage (comment) can be sent to bpost regarding the outcome of the address validation by bpost on the submitted address. The same functionality is provided when calling the Address feedback service, where a feedback message can be provided (free text) by submitting this "free text" into the request indicating the Transaction ID (see above). Our system will than store the feedback that was provided on this address, and will be used for study and internal improvement purposes.

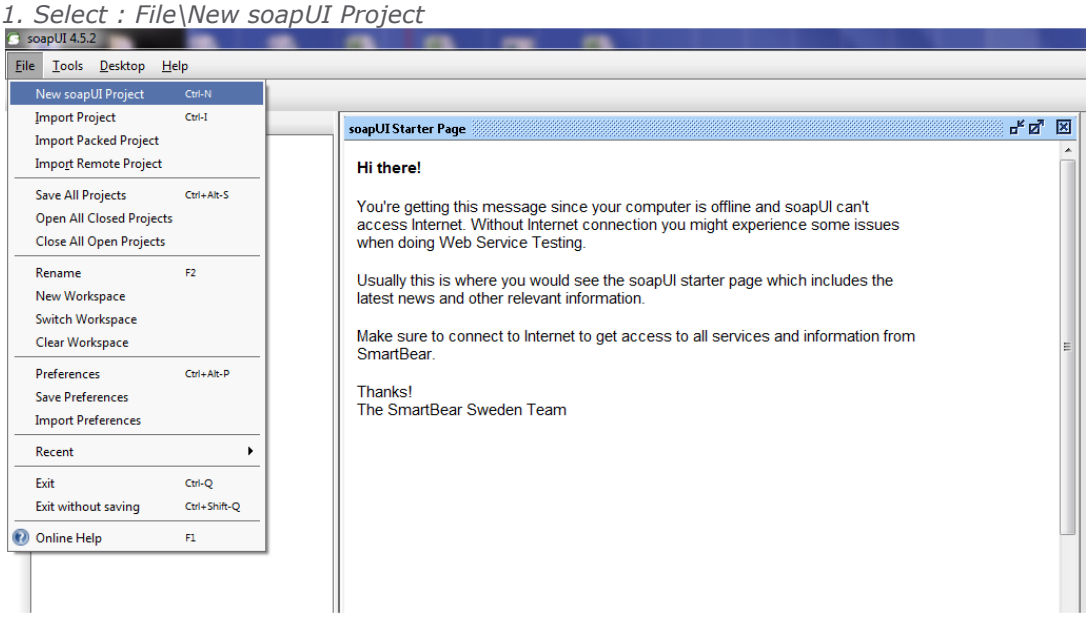
3. Calling the webservice via SOAP UI

To facilitate testing and validation of the web services integration, it is possible to use a simple tool i.e. SOAP UI. SoapUI is a free and open source cross-platform Functional Testing solution. For more information on SoapUI we refer to:
http://www.soapui.org/About-SoapUI/what-is-soapui.html
Download SoapUI from http://sourceforge.net/projects/soapui/files/ and install it.

Creating a new project

Once you have successfully installed SoapUI you must create a new project as shown below:

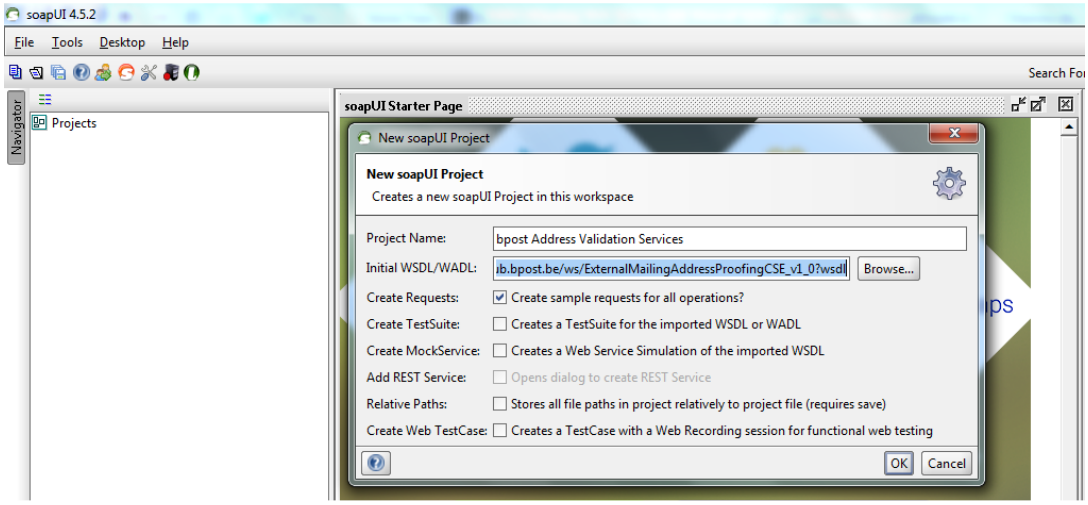
1. Select : File\New soapUI Project



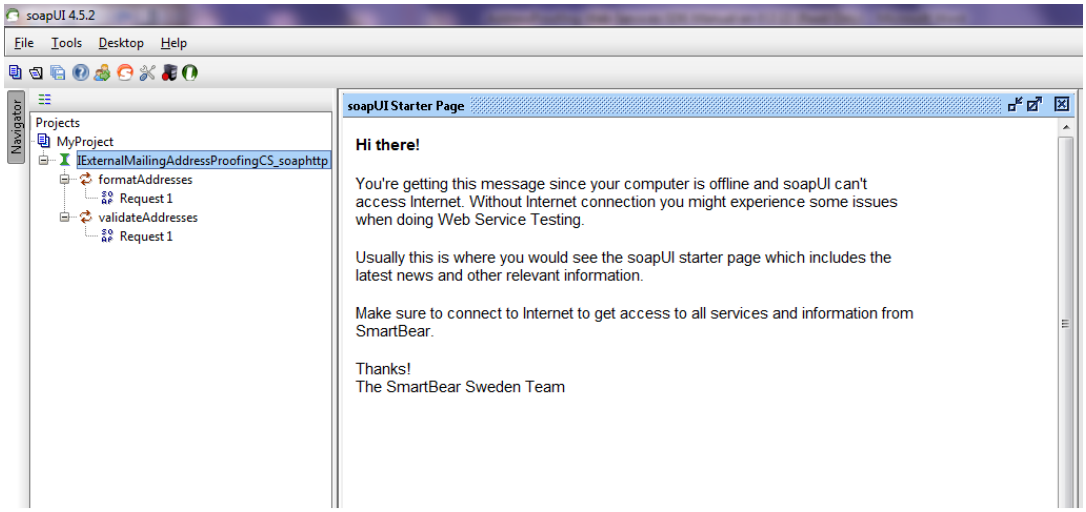
2. Fill in a Project Name field(e.g. 'bpost Address Validation Services'), and the 'wsdl' into the Initial WSDL/WADL field.

Production URL :

https://webservices-pub.bpost.be/ws/ExternalMailingAddressProofingCS_v1?wsdl



3. After clicking OK in the previous step, and being connected to the Internet, the following structure will be created, and two sample requests will be generated.



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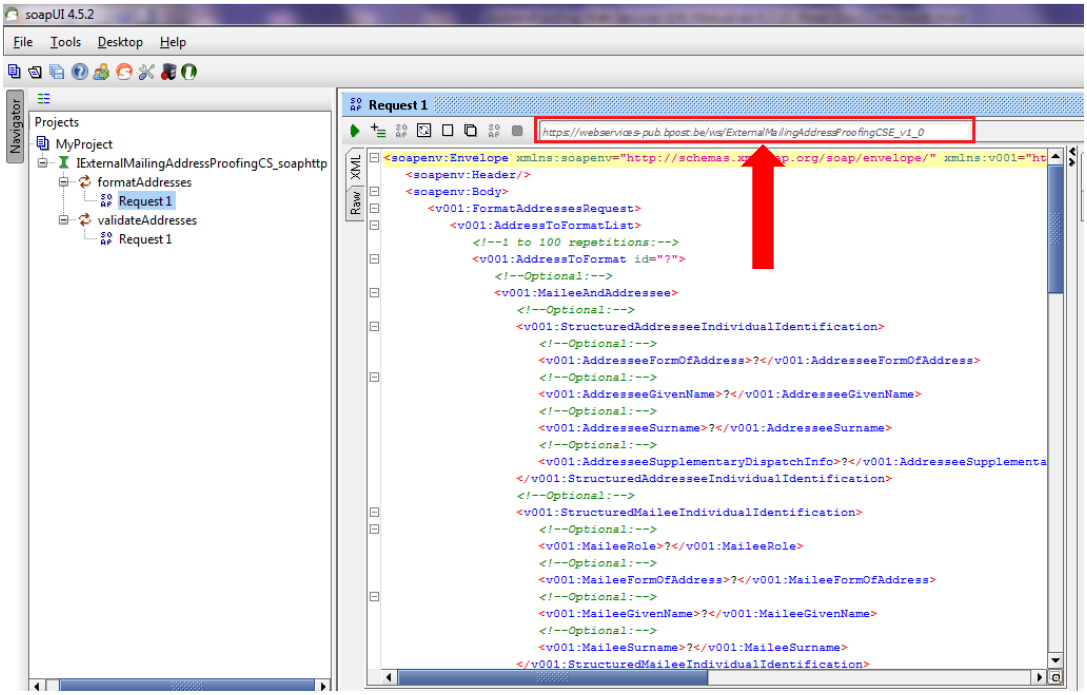
4. *Open Request 1 within the formatAddresses service by double clicking on it, and maximize the window.*



! Verify that the information in the red rectangle is equal to the endpoint as mentioned in 3.2. If this is not the case, edit it by clicking on it.

A sample request is filled with question marks in the place where a value should appear (mandatory = value / not mandatory = value *or* empty). Verify that a request you send out does not contain any question mark as value. You'll find below how to generate a valid request.

The same is applicable for Request 1 in the validateAddresses webservice.

Generating a valid request

Here are 3 basic XML tools to help create testcases by generating the XML requestfile, for respectively:

1. formatAddress webservice call

formatAddress
webservice call (struc

2. validateAddress webservice call (structured input fields)

validateAddress
webservice call (struc

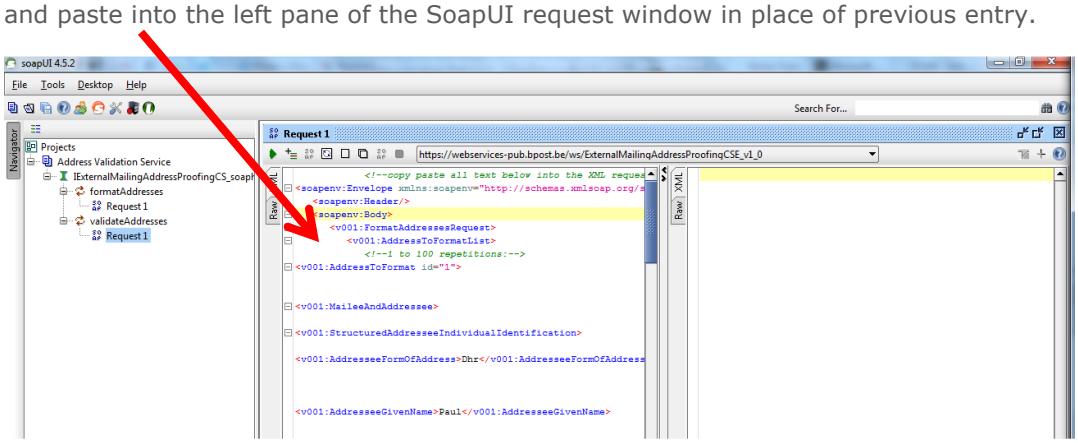
3. validateAddress webservice call (semi-structured input fields)

EXT -
validateAddress webs

4. validateAddress webservice call (address block)

validateAddress
webservice call (addr

Just fill in the red fields as desired. Then click on the button *"copy XML to clipboard"* and paste into the left pane of the SoapUI request window in place of previous entry.



Validate the request against the XSD prior to submission, by pressing Alt+V

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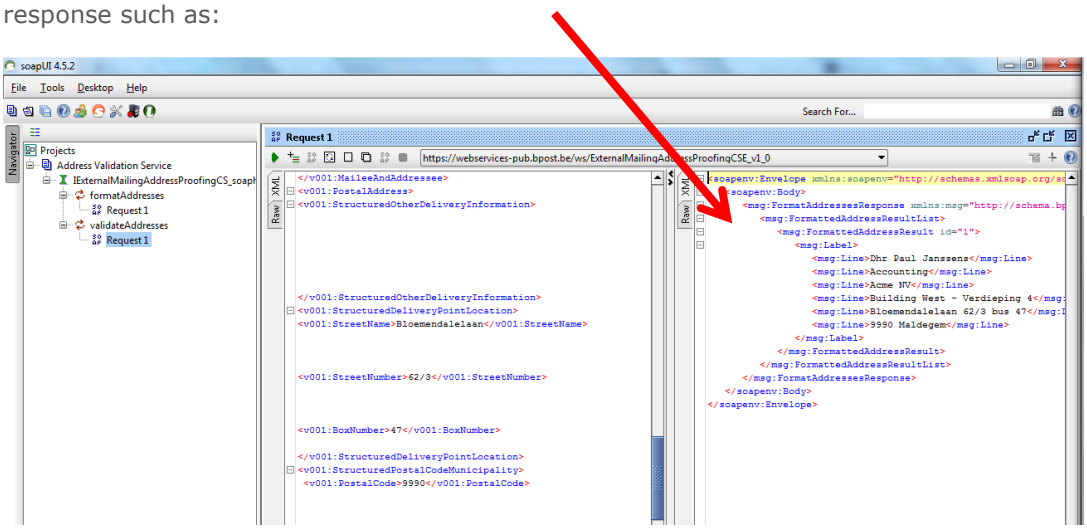
Then run the request by clicking the green arrow 

This should run the request across the Internet to the bpost system which will return a response such as:



4. Warnings and Errors

A 'validated address' does not mean that the address is valid. It merely means that the address submitted has gone through the process of validation, whether the process was successful or not.

The webservice may return technical or functional messages.
Severity 'warning' means that a match could be found even though anomalies were founds or some information was missing. The impacted component(s) is(are) identified and a corrected version of the address is provided in the feedback.
Severity 'error' means that issues in the input prevented the interpretation of the submitted address. If the cause of the error could be identified, the component is indicated.

The table below lists the different functional errors that may be returned as part of the webservice response:

Nr.	When does the error occur? Case scenario	Webservice returning the error	Error Code	Error Severity	Error Level in XML response
1	Only Belgian address can be formatted for the moment by the webservice.	Formatting	delivering_country_not_supported	error	Formatted address result
2	When multiple addresses are submitted to the service, whether for formatting or validation, each address ID in the request needs to be unique. The webservice will not even try to validate/format the addresses in the request.	Formatting and Validation	ids_not_unique	error	General error
3	The submitted address is successfully interpreted, but an anomaly was detected in one or more of the submitted address fields.	Validation	anomaly_in_field	warning	Validated address result
4	The submitted address is successfully interpreted despite one or more missing address fields.	Validation	missing_field	warning	Validated address result
5	The submitted address could not be interpreted because one or more of the submitted address fields could be recognized.	Validation	field_not_recognized	error	Validated address result
6	The submitted address could not be interpreted because one or more required fields were missing.	Validation	missing_field	error	Validated address result
7	The submitted address could not be interpreted. No specific cause could be identified.	Validation	address_not_recognized	error	Validated address result
8	Only Belgian address can be validated for the moment by the webservice.	Validation	valdiation_for_country_not_supported	error	Validated address result
9	The submitted address is ambiguous and leads to more than one valid solution. The different alternatives are returned.	Validation	multiple_matches	error	Validated address result

And the following flow charts describe the message generation logic.

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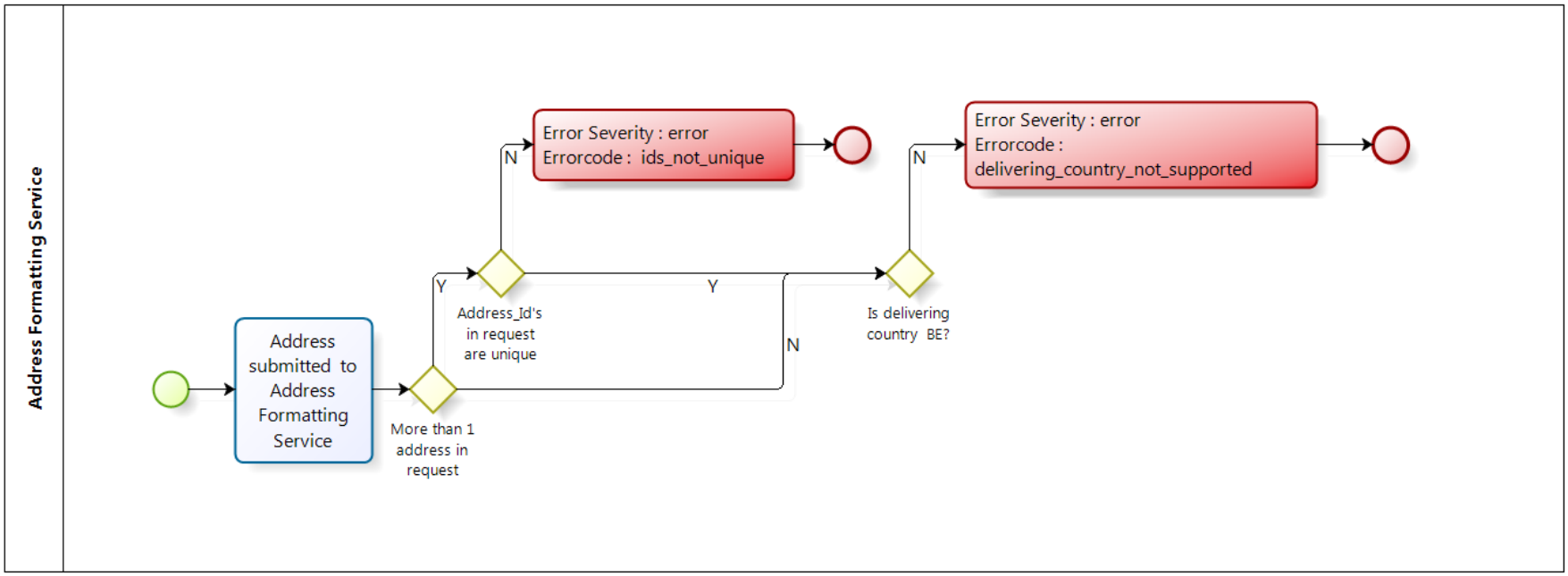

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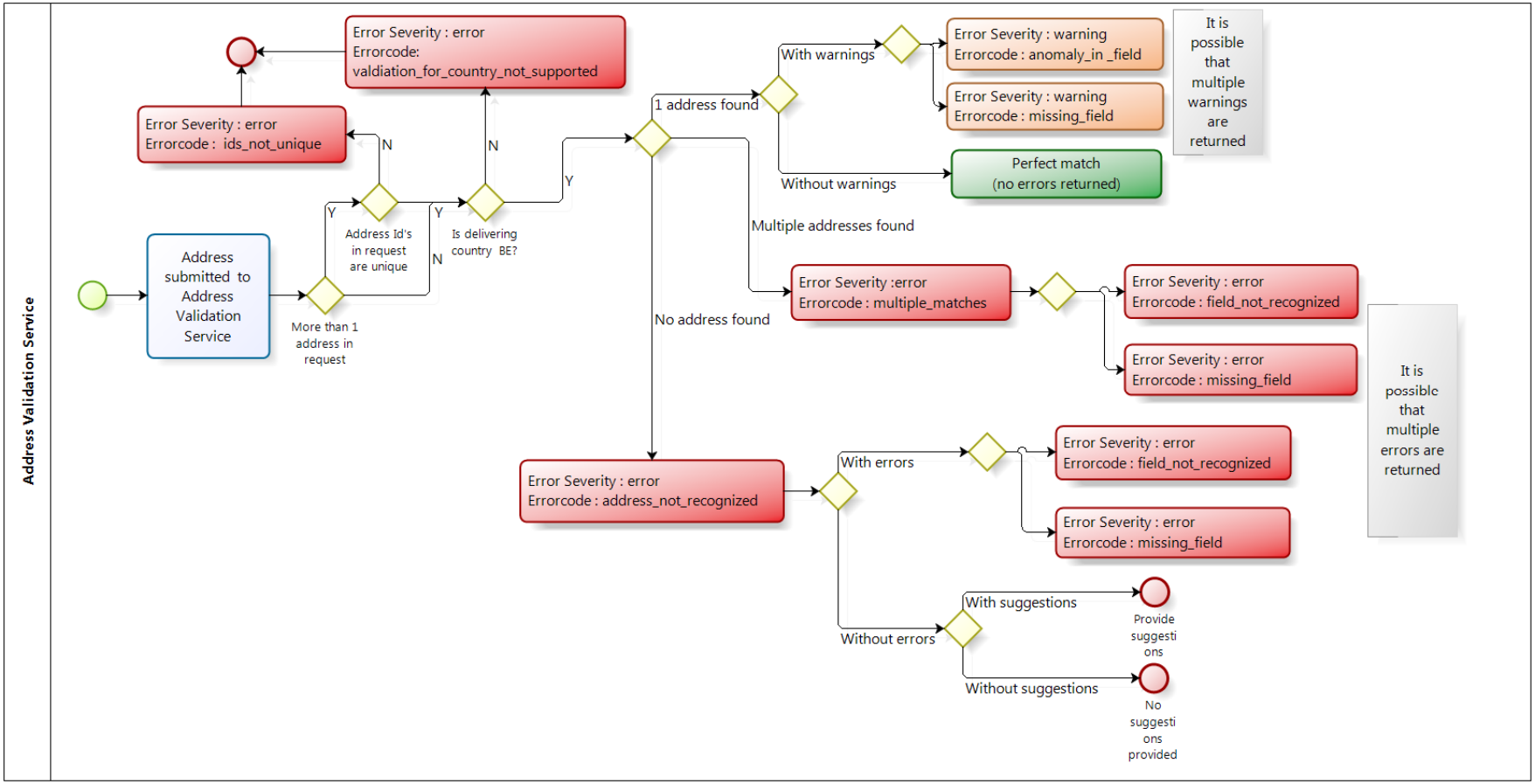

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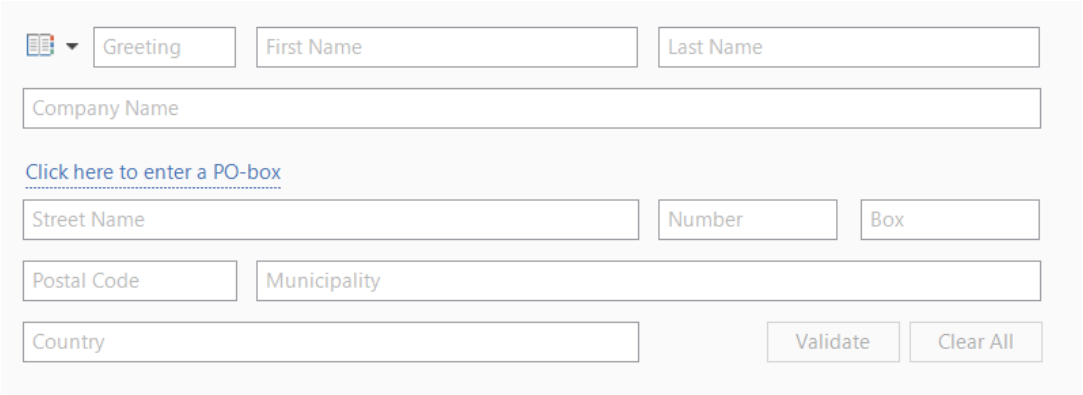
5. Use cases and example of implementation

This section shows a theoretical example of how to integrate the bpost address validation webservice within your business process, such as an e-commerce checkout or a personal information capture. The following uses cases and screen mockups are only indicative. Each implementation will require rigorous analysis to integrate the functions and fit your precise business needs.

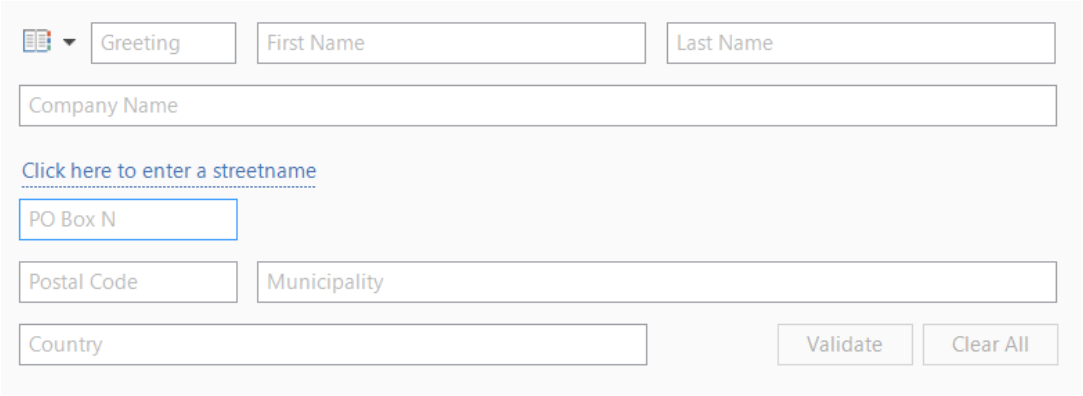
Capturing and submitting an address

To request bpost feedback on the address entered, you have first to capture it, then submit it for validation.

USE CASE 1.1 – Capture a structured address with a streetname



USE CASE 1.2 – Capture a structured address with a PO box number



When the user clicks on the 'Clear' button, all input fields are emptied. When the user clicks on the the 'Validate' button, the input is mapped according to the specification herein (see the elements mapping table here) and submitted to the bpost webservice.

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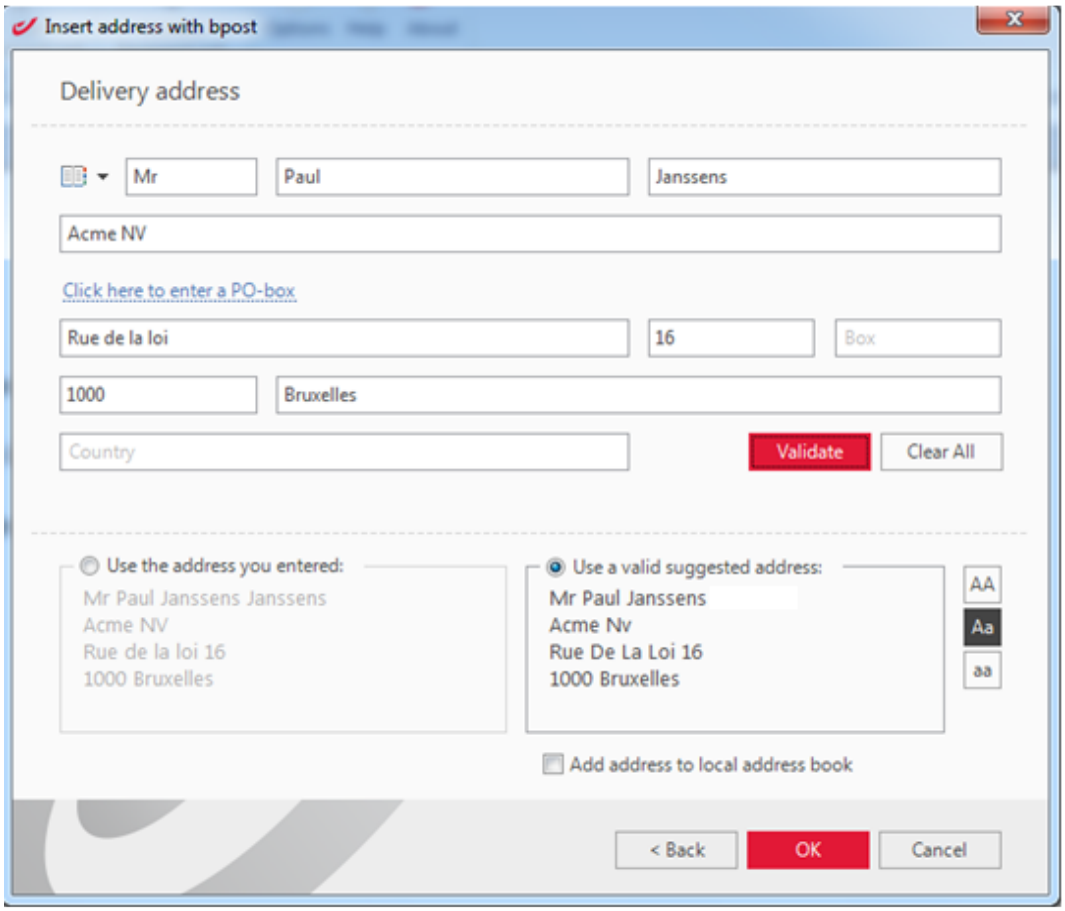
Receiving a response from the address validation & formatting webservice

The responses of the address validation webservice can be classified in one of the following use cases. The processflow and logic describing the use cases and the interactions with the system can be found at the end of this chapter.

USE CASE 2.1 – The submitted address is valid, and no warning or error was detected

The system retrieves the webservice reponse and displays it to the user. The address submitted perfectly matches an address in the reference database of bpost.



The validated address returned by bpost will always be in UPPERCASE. You could foresee buttons to let the user reformat the returned address in UpperLower or in lowercase. You could also let the user choose to use his original address (possibly formatted through the formatting webservice), though this option defeats a little bit the purpose of using the validation service. But it provides maximum flexibility in case the user strongly disagrees with the output of the validation service.

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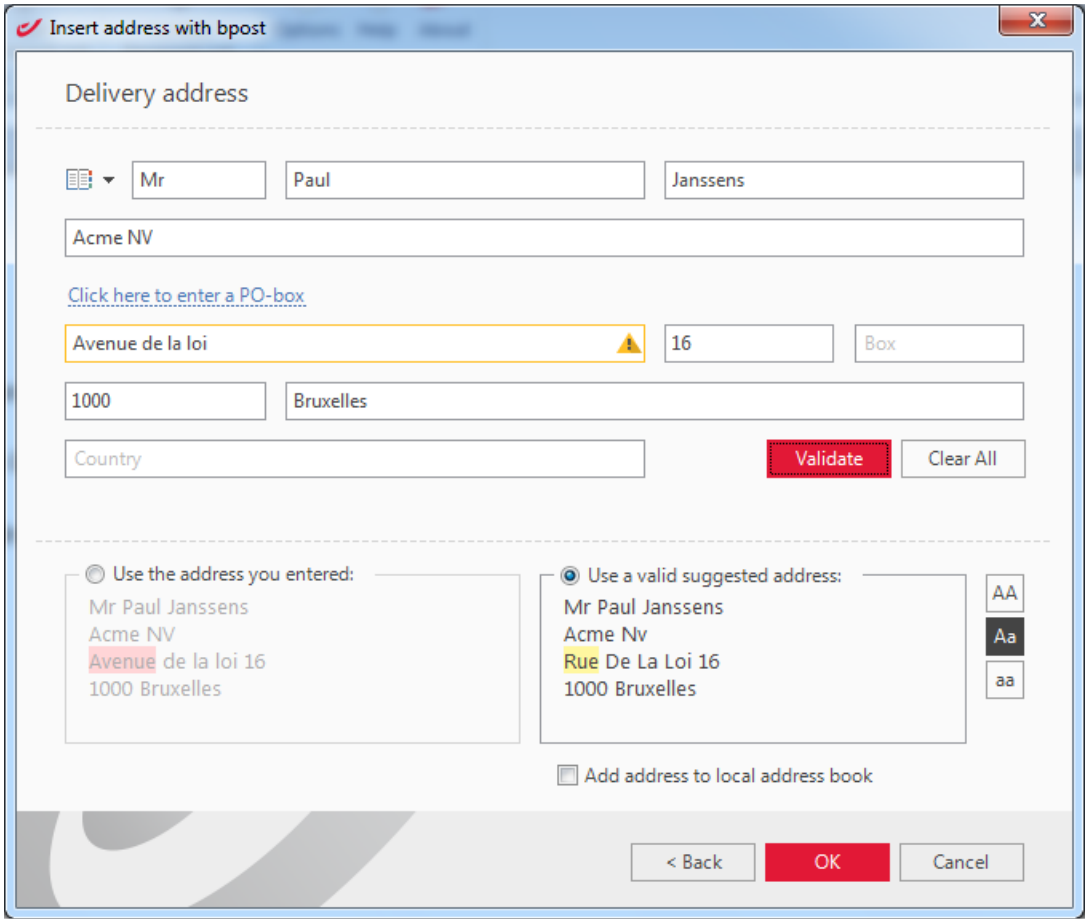
USE CASE 2.2 – The submitted address is valid, but one or more anomalies were detected.

In this case, the bpost validation service was able to find a match for the submitted address, but proposes another version of the address. Anomalies could be found in one or more fields of the address, and it is recommended to use the bpost version when using the address on mail and parcels for optimal processing by bpost. It may be interesting to display a signal of a non-fatal anomaly (⚠, possibly with a tooltip providing more information and guidance) next to the appropriate field, as indicated by the webservice response, to draw the user's attention to the fact that an anomaly was detected.



The validated address returned by bpost will always be in UPPERCASE. You could foresee buttons to let the user reformat the returned address in UpperLower or in lowercase. You could also let the user choose to use his original address (possibly formatted through the formatting webservice), though this option defeats a little bit the purpose of using the validation service. But it provides maximum flexibility in case the user strongly disagrees with the output of the validation service.

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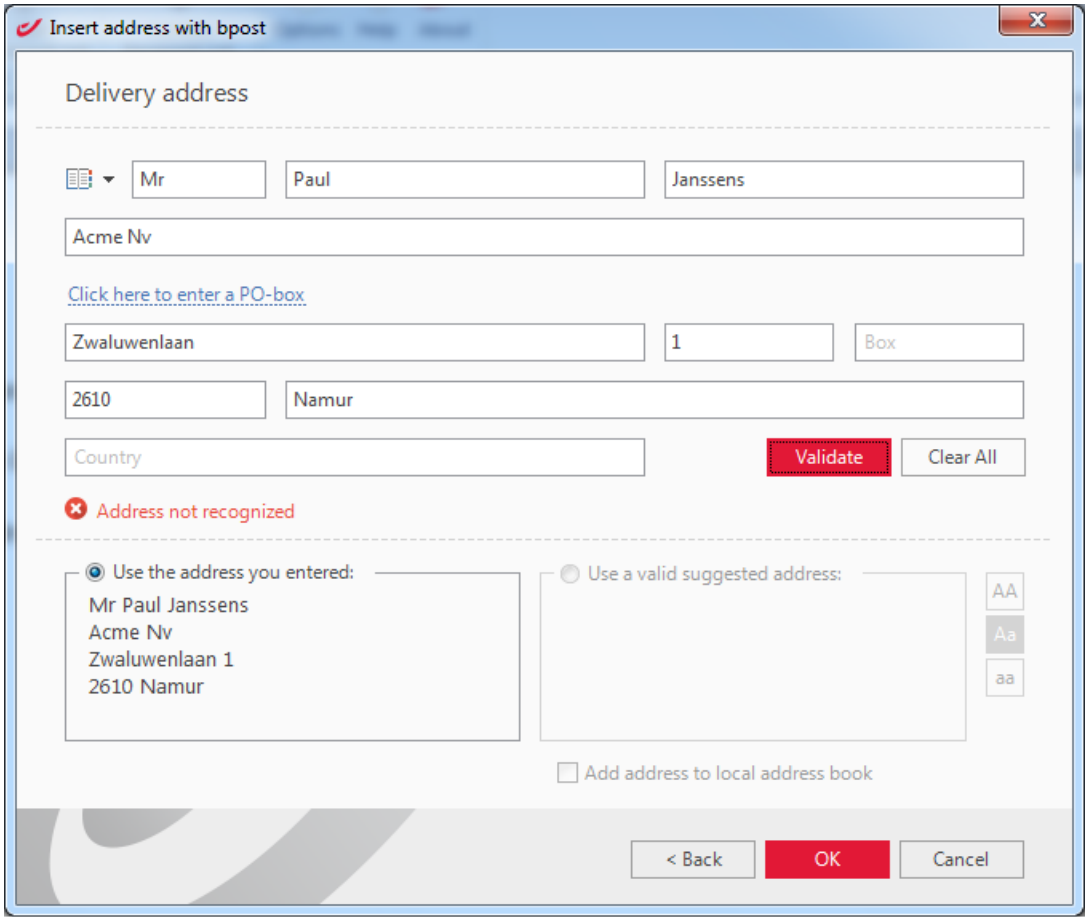
USE CASE 2.3 – The submitted address cannot be recognized, and bpost has no alternative nor suggestion to propose.

The submitted address is incoherent when compared to the addresses in bpost's reference database. As a result, the service is not able to return the field(s) causing the confusion.



It is possible that the address is missing from bpost's reference database, maybe because it is totally new. For such extreme cases, the system should still let the user choose to use the original address.

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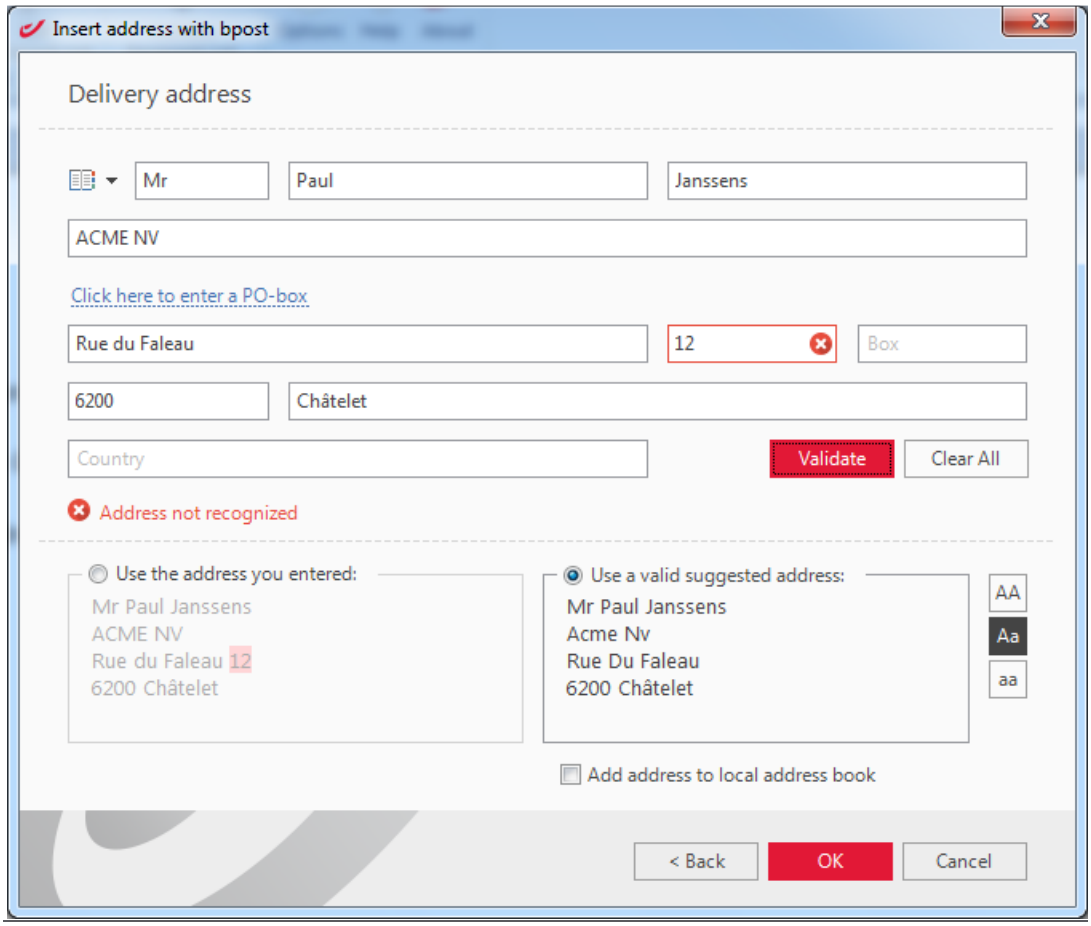
USE CASE 2.4 – The submitted address cannot be matched fully

The service can match part of the address, but not all of it.

It may be interesting to display a signal of a fatal anomaly (, possibly with more information and guidance) next to the appropriate field, as indicated by the webservice response, to draw the user's attention to the fact that an anomaly was detected.



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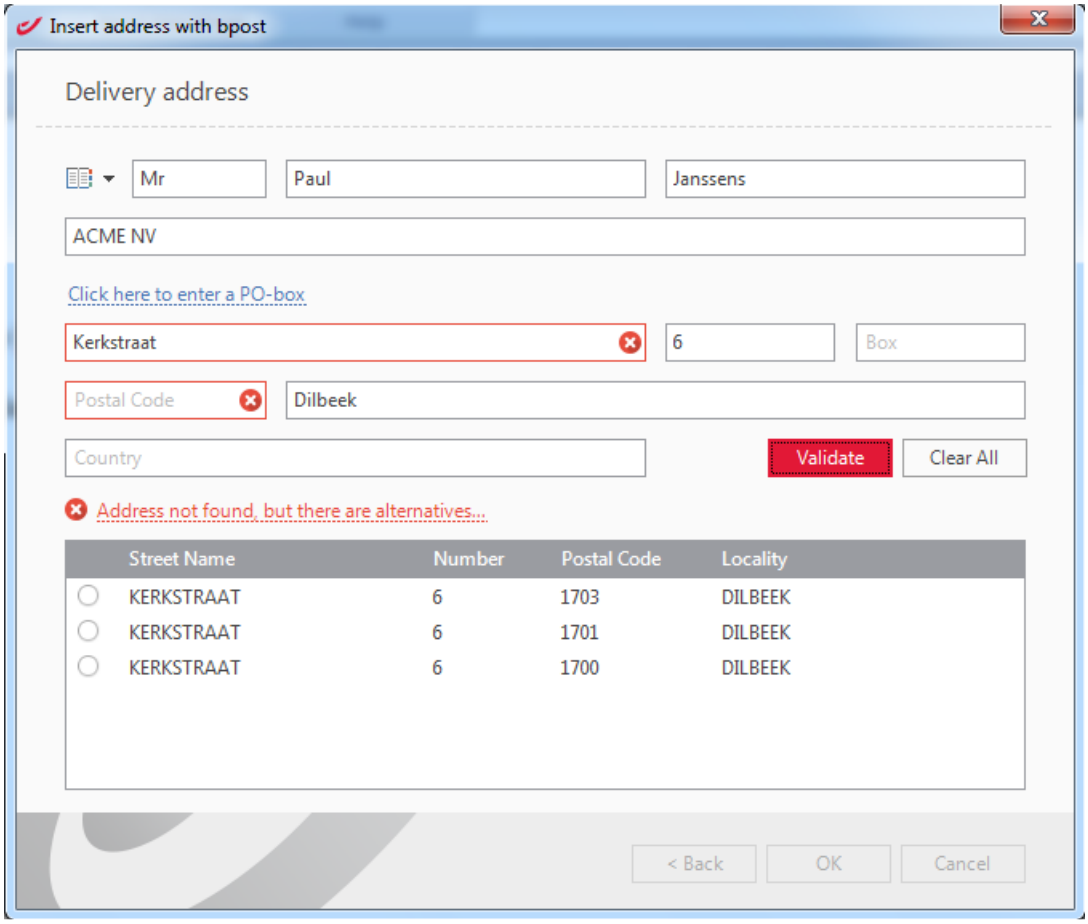
USE CASE 2.5 – The submitted address can be matched with multiple valid addresses

The issue here is that there is an ambiguity preventing the service from choosing one and only one valid solution for the submitted address. The input needs to be adapted by the user in order to clear this ambiguity.

The service returns all these possible solutions. The system should display them to the user, so the appropriate one is chosen.



The validated address returned by bpost will always be in UPPERCASE. You could foresee buttons to let the user reformat the returned address in UpperLower or in lowercase. You could also let the user choose to use his original address (possibly formatted through the formatting webservice), though this option defeats a little bit the purpose of using the validation service. But it provides maximum flexibility in case the user strongly disagrees with the output of the validation service.

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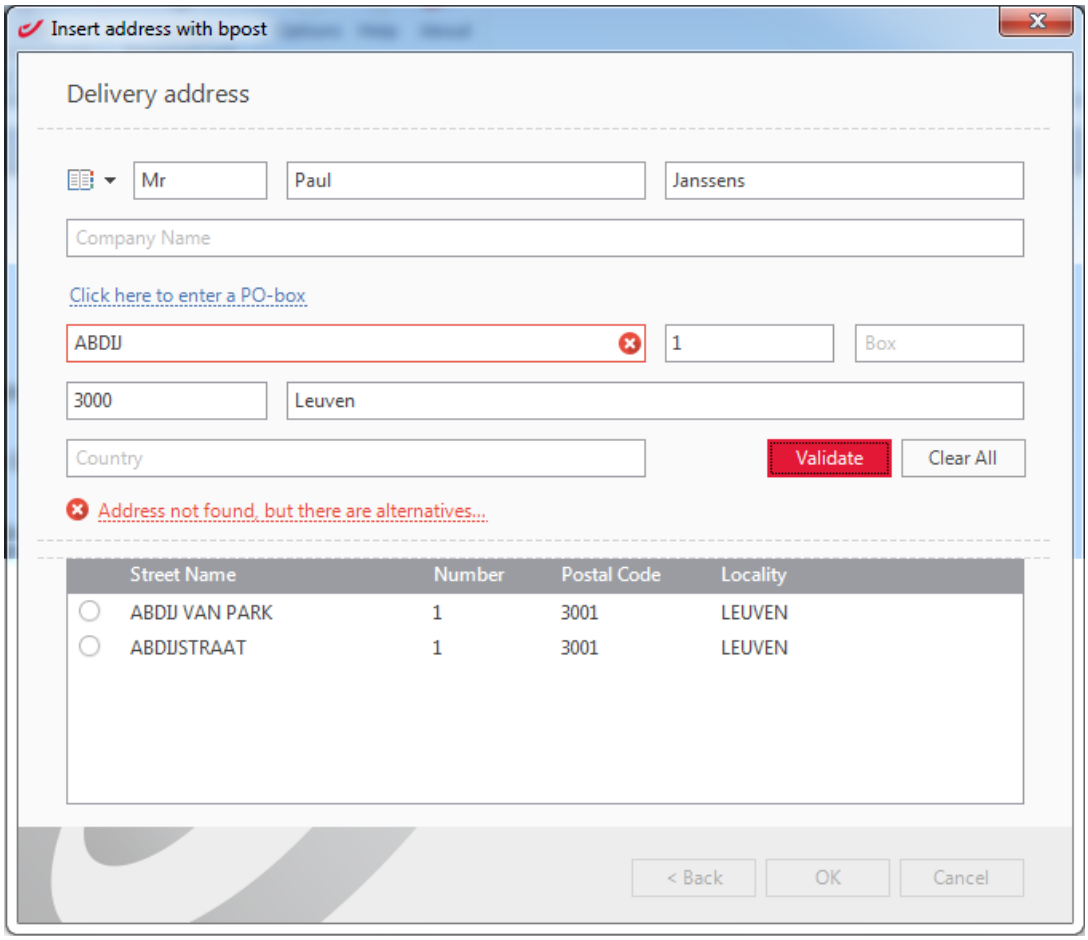
USE CASE 2.6 – The submitted address cannot be recognized, but bpost found some suggestions to help transform the original address into a valid address

The user may retry with one of the suggestions, or clear and enter a totally different address. The system goes back to a use case above.



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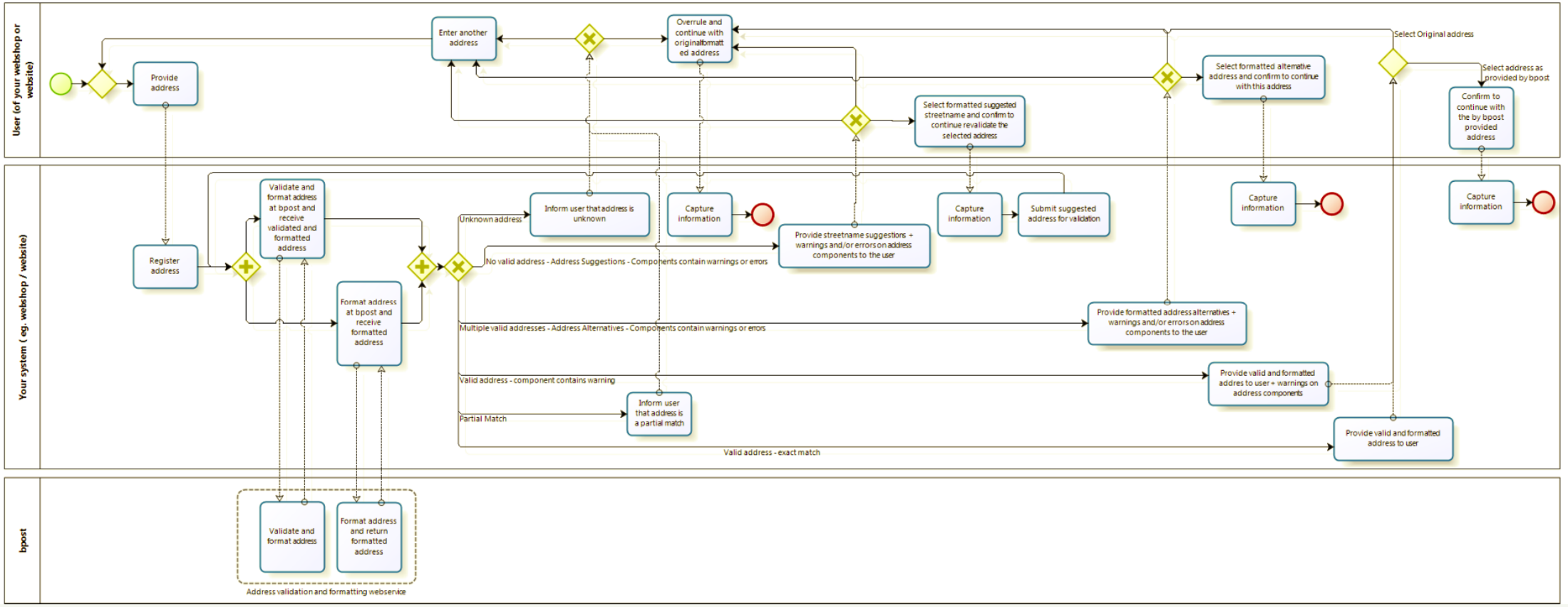
Annex to chapter 6 – Processflow and logic describing the use cases and the interactions between the different actors:



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6. Web Services

This chapter describes the Address Validation Web Services in detail, showing how to write XML code for the specific interface. The examples will show you how to use the required tags and how to fill in their values.

Web Services Implementation

REST

A REST protocol is available for this service, but is not documented in this manual yet. Please contact us for more information so that we can provide you with an example of a REST call, corresponding with the input fields used in your REST call.

SOAP

SOAP, originally defined as Simple Object Access Protocol, is a protocol specification for exchanging structured information in the implementation of Web Services in computer networks. It is used to expose Address Validation resources as services to the external parties of bpost.

Protocol

Web Services offered by Address Validation are then implemented by sending and/or receiving XML SOAP messages over the HTTP(s) Protocol.

Endpoint

The Address Formatting and Validation Web Service is accessible at the following URL:
https://webservices-pub.bpost.be/ws/ExternalMailingAddressProofingCS_v1
This URL will be referenced as **<service-endpoint>** in the rest of the document.

Versioning

The versioning of a web service is visible in the url of the WSDL and in the endpoint you invoke when you send a request:

ExternalMailingAddressProofingCSE_<version>

Where the version identifier is a "v" followed by a whole number for the major version followed by an underscore and then a whole number again for the minor version. The first version is v1_0, the next one is v1_1 followed by the major version v1.

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XML Validation

The structure of the XML request and response messages must be validated against a schema definition (XSD). The used XSD files are referenced in the provided WSDL.

For a request to be executed, the XML provided as input must be well formed and valid against the XSD.

Security

The Address Formatting and Validation service is an anonymous Web Service, which requires no authentication/authorization. But to protect your transaction exchange over the Internet, it may be submitted over HTTPS.

Operations

When you want to format ou validate an address, you need to send the information to the server using the HTTP POST operation on the URI

Client Request

Use the SOAP client request to send structi to the server.

The following listing shows a request example:

```
<!--copy paste all text below into the XML request which is send to the webservice:-->
<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
xmlns:v001="http://schema.bpost.be/services/common/address/ExternalMailingAddressProofingCSMessages/v001">
  <soapenv:Header/>
  <soapenv:Body>
    <v001:ValidateAddressesRequest>
      <v001:AddressToValidateList>
        <!--1 to 100 repetitions:-->
        <v001:AddressToValidate id="1">
          <v001:MaileeAndAddressee>
            <v001:AddresseeIndividualIdentification>
              <v001:StructuredAddresseeIndividualIdentification>
                <v001:AddresseeFormOfAddress>Mr</v001:AddresseeFormOfAddress>
                <v001:AddresseeGivenName>Jean</v001:AddresseeGivenName>
                <v001:AddresseeSurname>Dupont</v001:AddresseeSurname>
              </v001:StructuredAddresseeIndividualIdentification>
            </v001:AddresseeIndividualIdentification>
            <v001:MaileeIndividualIdentification>
              <v001:StructuredMaileeIndividualIdentification>
                <v001:MaileeRole/>
              </v001:StructuredMaileeIndividualIdentification>
            </v001:MaileeIndividualIdentification>
            <v001:MaileeOrganizationIdentification>
<v001:StructuredMaileeOrganizationIdentification></v001:StructuredMaileeOrganizationIdentification>
```


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```
            </v001:MaileeOrganizationIdentification>
            <v001:MailRecipientDispatchingInformation>
              <v001:StructuredMailRecipientDispatchingInformation>
                <v001:Wing></v001:Wing>
                <v001:Stairwell></v001:Stairwell>
                <v001:Floor></v001:Floor>
                <v001:Door></v001:Door>
              </v001:StructuredMailRecipientDispatchingInformation>
            </v001:MailRecipientDispatchingInformation>
          </v001:MaileeAndAddressee>
          <v001:PostalAddress>
            <v001:OtherDeliveryInformation>
<v001:StructuredOtherDeliveryInformation></v001:StructuredOtherDeliveryInformation>
            </v001:OtherDeliveryInformation>
            <v001:DeliveryPointLocation>
              <v001:StructuredDeliveryPointLocation>
                <v001:StreetName>Avenue Brugmann</v001:StreetName>
                <v001:StreetNumber>587</v001:StreetNumber>
                <v001:BoxNumber>2</v001:BoxNumber>
              </v001:StructuredDeliveryPointLocation>
            </v001:DeliveryPointLocation>
            <v001:PostalCodeMunicipality>
              <v001:StructuredPostalCodeMunicipality>
                <v001:PostalCode>1180</v001:PostalCode>
                <v001:MunicipalityName>Uccle</v001:MunicipalityName>
              </v001:StructuredPostalCodeMunicipality>
            </v001:PostalCodeMunicipality>
          </v001:PostalAddress>
          <v001:DispatchingCountryISOCode>BE</v001:DispatchingCountryISOCode>
          <v001:DeliveringCountryISOCode>BE</v001:DeliveringCountryISOCode>
        </v001:AddressToValidate>
      </v001:AddressToValidateList>
      <v001:ValidateAddressOptions>
        <v001:IncludeFormatting>true</v001:IncludeFormatting>
        <v001:IncludeSuggestions>true</v001:IncludeSuggestions>
        <v001:IncludeSubmittedAddress>false</v001:IncludeSubmittedAddress>
      </v001:ValidateAddressOptions>
      <v001:CallerIdentification>
        <v001:CallerName>customername</v001:CallerName>
      </v001:CallerIdentification>
    </v001:ValidateAddressesRequest>
  </soapenv:Body>
</soapenv:Envelope>
```

The request only contains the required parameters. The other parameters are described in the XSD and above in this document.

Server Response

If your request is successful, the server will respond with the following:

```
<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/">
  <soapenv:Body>
    <msg:ValidateAddressesResponse
xmlns:msg="http://schema.bpost.be/services/common/address/ExternalMailingAddressProo
fingCSMessages/v001">
      <msg:ValidatedAddressResultList>
        <msg:ValidatedAddressResult id="1">
          <msg:MaileeAndAddressee>
            <msg:AddresseeIndividualIdentification>
              <msg:StructuredAddresseeIndividualIdentification>
                <msg:AddresseeFormOfAddress>Mr</msg:AddresseeFormOfAddress>
                <msg:AddresseeGivenName>Jean</msg:AddresseeGivenName>
                <msg:AddresseeSurname>Dupont</msg:AddresseeSurname>
              </msg:StructuredAddresseeIndividualIdentification>
            </msg:AddresseeIndividualIdentification>
            <msg:MaileeIndividualIdentification>
              <msg:StructuredMaileeIndividualIdentification>
                <msg:MaileeRole/>
              </msg:StructuredMaileeIndividualIdentification>
            </msg:MaileeIndividualIdentification>
          </msg:MaileeAndAddressee>
          <msg:ValidatedAddressList>
            <msg:ValidatedAddress>
              <msg:PostalAddress>
                <msg:StructuredDeliveryPointLocation>
                  <msg:StreetName>AVENUE BRUGMANN</msg:StreetName>
                  <msg:StreetNumber>587</msg:StreetNumber>
                  <msg:BoxNumber>2</msg:BoxNumber>
                </msg:StructuredDeliveryPointLocation>
                <msg:StructuredPostalCodeMunicipality>
                  <msg:PostalCode>1180</msg:PostalCode>
                  <msg:MunicipalityName>UCCLE</msg:MunicipalityName>
                </msg:StructuredPostalCodeMunicipality>
              </msg:PostalAddress>
              <msg:AddressLanguage>fr</msg:AddressLanguage>
              <msg:Label>
                <msg:Line>Mr Jean Dupont</msg:Line>
                <msg:Line>AVENUE BRUGMANN 587 bte 2</msg:Line>
                <msg:Line>1180 UCCLE</msg:Line>
              </msg:Label>
            </msg:ValidatedAddress>
          </msg:ValidatedAddressList>
<msg:DetectedInputAddressLanguage>fr</msg:DetectedInputAddressLanguage>
          <msg:TransactionID>dc1a0434-d9d7-4378-92c6-
bea82f9f81e4</msg:TransactionID>
        </msg:ValidatedAddressResult>
      </msg:ValidatedAddressResultList>
    </msg:ValidateAddressesResponse>
  </soapenv:Body>
</soapenv:Envelope>
```


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ANNEX

For reference, here is the XSD, which can also be found in the WSDL

ExternalMailingAddre
ssProofingCSMessage

The following document provides the technical documentation for the XSD

ExternalMailingAddre
ssProofingCSMessage

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