# Best XSD v24: description of changes versus v23.3

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This document describes the changes that have been made to XSD v23 resulting in the new XSD v24. The changes include some enhancements required for the harmonised mutations processing as well as a number of changes aimed at rationalising and simplifying the XSD.

**δ24.1**

Changes between V24 and V24.1 are indicated with the symbol

**δ24.2**

Changes between 24.1 and 24.2 are indicated with

These changes are made after first feedback from our partners.

# Uniformization for Best XSD

With this new version, we made some severe changes

1. We reduced the number of support files from 100+ to 1. This has consequences for all prefixes: there is only 1 left “com:”
2. We removed some unused levels and unused sub elements
3. We renamed some inconsistent namings
4. We used “camelCase” naming convention for all names

With exception of the highest level, all modifications are taken place in the elements who’s xml path starts with “mutationsResponseBySource/mutations”. We do not repeat these in the xml paths to gain better readability.

# Structure changes

## Change for the information fields at the highest level

**δ24.1**

Bosa will combine the 3 mutation files from the regions into 1 big mutation file by adding them simply together. That is why the “Mutations” where multiple by design.

But this gives problems for the 3 information fields “deltaBeginDateTime”, “deltaEndDateTime” and “source” at the top of the XML.

Graphical user interface, diagram

Description automatically generated

Figure : Old main structure

BoSa will not alter data! therefore, these 3 fields are moved inside the “mutations”:

Diagram

Description automatically generated

Figure : new main structure

## Delete

There are no longer “Delete” mutations present. An element is set to retired.

Diagram

Description automatically generated

Figure : removal of delete elements

## remove Link Type , distinguish mandatory or optional VersionIdentifier

**δ24.1**

The link type, containing all data to reference another record, is identical to the identifier type. This duality is solved by removing the link type: everywhere, we use the identifier Type.

Diagram

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Figure 4: Link type

**δ24.2**

At the same time, we make the versionIdentifier mandatory. Now this is not demanded for all objects. So we introduce the IdentifierOptionalVersionType as an alternative.

Diagram

Description automatically generated

Figure 5: identifier Type with Mandatory versionIdentifier

Graphical user interface, text, application

Description automatically generated

Figure 6: identifierOptionalVersionType with optional versionIdentifier

Where is which used?

All references to addresses and / or its components (Municipality, PostalInfo, PartOfMunicipality and StreetName) must contain the version.

They use the IdentifierType. This also includes all predecessors and successors… They reference these elements.

But for Street.IsAssignedTo.RoadObject, the version is optional and we use the IdentifyOptionalVersionType.

Graphical user interface, text, application

Description automatically generated

Figure 7: RoadObject of a street

And also Address.isAssignedToAddressableObject, the version is optional and we use the IdentifyOptionalVersionType.

Diagram, text

Description automatically generated

Figure 8: Addressable object for address

## Municipality name

**δ24.1**

The name of a municipality was optional, this has become mandatory

Diagram

Description automatically generated

Figure : Municipality

## Municipality for a street

**δ24.2**

The reference to a municipality was optional for a street, this has become mandatory

Text

Description automatically generated with low confidence

Figure 10: IsAssignedByMunicipality for street

## Useless level Successor / Predecessor

Some element had an additional “useless” level. These are removed

Graphical user interface, diagram, text

Description automatically generated with medium confidence

Figure : old successor structure

Becomes

Diagram

Description automatically generated

Figure : the new successor structure

mutationsResponseBySource/mutations/Upd/UpdateMunicipalityVersion contains a MunicipalitySuccessor, which contains a Successor. Clearly, these 2 levels have the same content and 1 level is unnecessary. Therefore, we remove 1 level and standardize them.

Combined with the removal of the predecessor: we get:

|  |  |
| --- | --- |
| mutationsResponseBySource/mutations/add/addMunicipalityVersion/MunicipalityPredecessor | Is reduced to 1 level |
| mutationsResponseBySource/mutations/add/addMunicipalityVersion/MunicipalityPredecessor/predecessor | mutationsResponseBySource/mutations/add/addMunicipalityVersion/predecessor |
| mutationsResponseBySource/mutations/add/addPartOfMunicipalityVersion/PartOfMunicipalityPredecessor | Is reduced to 1 level |
| mutationsResponseBySource/mutations/add/addPartOfMunicipalityVersion/PartOfMunicipalityPredecessor/predecessor | mutationsResponseBySource/mutations/add/addPartOfMunicipalityVersion/predecessor |
| mutationsResponseBySource/mutations/add/addPostalInfoVersion/PostalInfoPredecessor | Is reduced to 1 level |
| mutationsResponseBySource/mutations/add/addPostalInfoVersion/PostalInfoPredecessor/predecessor | mutationsResponseBySource/mutations/add/addPostalInfoVersion/predecessor |
| mutationsResponseBySource/mutations/add/addStreetNameVersion/StreetPredecessor | Is reduced to 1 level |
| mutationsResponseBySource/mutations/add/addStreetNameVersion/StreetPredecessor/predecessor | mutationsResponseBySource/mutations/add/addStreetNameVersion/predecessor |
| mutationsResponseBySource/mutations/add/addAddressVersion/AddressPredecessor | Is reduced to 1 level |
| mutationsResponseBySource/mutations/add/addAddressVersion/AddressPredecessor/predecessor | mutationsResponseBySource/mutations/add/addAddressVersion/predecessor |
| mutationsResponseBySource/mutations/update/updateMunicipalityVersion/MunicipalityPredecessor | Is reduced to 1 level |
| mutationsResponseBySource/mutations/update/updateMunicipalityVersion/MunicipalityPredecessor/predecessor | mutationsResponseBySource/mutations/update/updateMunicipalityVersion/predecessor |
| mutationsResponseBySource/mutations/update/updatePartOfMunicipalityVersion/PartOfMunicipalityPredecessor | Is reduced to 1 level |
| mutationsResponseBySource/mutations/update/updatePartOfMunicipalityVersion/PartOfMunicipalityPredecessor/predecessor | mutationsResponseBySource/mutations/update/updatePartOfMunicipalityVersion/predecessor |
| mutationsResponseBySource/mutations/update/updatePostalInfoVersion/PostalInfoPredecessor | Is reduced to 1 level |
| mutationsResponseBySource/mutations/update/updatePostalInfoVersion/PostalInfoPredecessor/predecessor | mutationsResponseBySource/mutations/update/updatePostalInfoVersion/predecessor |
| mutationsResponseBySource/mutations/update/updateStreetNameVersion/StreetPredecessor | Is reduced to 1 level |
| mutationsResponseBySource/mutations/update/updateStreetNameVersion/StreetPredecessor/predecessor | mutationsResponseBySource/mutations/update/updateStreetNameVersion/predecessor |
| mutationsResponseBySource/mutations/update/updateAddressVersion/updateressPredecessor | Is reduced to 1 level |
| mutationsResponseBySource/mutations/update/updateAddressVersion/updateressPredecessor/predecessor | mutationsResponseBySource/mutations/update/updateAddressVersion/predecessor |
| mutationsResponseBySource/mutations/update/updateMunicipalityVersion/MunicipalitySuccessor | Is reduced to 1 level |
| mutationsResponseBySource/mutations/update/updateMunicipalityVersion/MunicipalitySuccessor/successor | mutationsResponseBySource/mutations/update/updateMunicipalityVersion/successor |
| mutationsResponseBySource/mutations/update/updatePartOfMunicipalityVersion/PartOfMunicipalitySuccessor | Is reduced to 1 level |
| mutationsResponseBySource/mutations/update/updatePartOfMunicipalityVersion/PartOfMunicipalitySuccessor/successor | mutationsResponseBySource/mutations/update/updatePartOfMunicipalityVersion/successor |
| mutationsResponseBySource/mutations/update/updatePostalInfoVersion/PostalInfoSuccessor | Is reduced to 1 level |
| mutationsResponseBySource/mutations/update/updatePostalInfoVersion/PostalInfoSuccessor/successor | mutationsResponseBySource/mutations/update/updatePostalInfoVersion/successor |
| mutationsResponseBySource/mutations/update/updateStreetNameVersion/StreetSuccessor | Is reduced to 1 level |
| mutationsResponseBySource/mutations/update/updateStreetNameVersion/StreetSuccessor/successor | mutationsResponseBySource/mutations/update/updateStreetNameVersion/successor |
| mutationsResponseBySource/mutations/update/updateAddressVersion/updateressSuccessor | Is reduced to 1 level |
| mutationsResponseBySource/mutations/update/updateAddressVersion/updateressSuccessor/successor | mutationsResponseBySource/mutations/update/updateAddressVersion/successor |

## Point

Diagram

Description automatically generated

Figure : old point structure

The Address contains an addressposition. This is a point. Currently, a lot of non filled info is provided by the StandardObjectProperties. This is completely removed.

|  |
| --- |
| mutationsResponseBySource/mutations/add/addAddressVersion/addAddress/AddressPosition/pointGeometry/point/ StandardObjectProperties |
| mutationsResponseBySource/mutations/add/updateAddressVersion/updateAddress/AddressPosition/pointGeometry/point/ StandardObjectProperties |

Further, the point has at least 1 position and there is place for 2 ( intended for Lambert 72 and Lambert 08 notation) and can have coordinates (WGS84 notation) . Now we can have them all at the same time.

Diagram

Description automatically generated

Figure : new point structure

## IsAssignedBy

Diagram

Description automatically generated

Figure : old “assigned by” reference

Again, we have an unnecessary level. This is reduced to :

Diagram

Description automatically generated

Figure : new “is assigned by municipality” reference

All “streetName/isAssignedBy” becomes “streetName/isAssignedByMunicipality” and the additional level is removed.

## Address

### “has”

In address, there are references to street, postalinfo, municipality and part of municipality.

Each time, there is an additional level.

Diagram

Description automatically generated

Figure : Address references

These additional levels are removed and the names are synchronized. ‘isSituatedIn’ is changed in ‘hasPartOfMunicipality’. (See also chapter Name changes)

Graphical user interface, text, application, email

Description automatically generated

Figure :Part of municipality reference

### isAssignedTo

Same situation here:

Diagram

Description automatically generated

Figure : old addressable object reference

This will be reduced to 1 level: isAssignedToAddressableObject. There is more than 1 addressable object possible.

See Figure 8: Addressable object for address

## Event

**δ24.1**

### Reduction number of dates and types

The event itself can be repeated as much times as needed inside the add and update records. That does not change.

But the event itself has only 1 date and 1 optional type anymore. (Because there is no list of events agreed upon that everybody can use, the type will remain optional.)

Diagram

Description automatically generated

Figure : Event structure inside an update of an address

### Event becomes mandatory

**δ24.1**

But an event will be mandatory at each level: Add and Update. There is always 1 event “why” the record is in the mutation list.

I refer to the Figure 12: the new successor structure to show the new structure in all add records and Figure 20: Event structure inside an update of an address as an example of the event in an update record.

## NameSpace in IdentifierSearchType

**δ24.1**

The namespace in the IdentifierSearchType was of type NameSpaceType. This was used to do a check on the namespace values: this should be an existing value. Considering these can change (e.g. 25/1/2022 Brussels changes his namespaces) this check was removed. Every element in the identifierSearchType is now of type CharStringType.

<xs:complexType name="IdentifierSearchType">

<xs:sequence minOccurs="0">

<xs:element name="nameSpace" type="com:CharStringType" minOccurs="0"/>

<xs:element name="objectIdentifier" type="com:CharStringType" minOccurs="0"/>

<xs:element name="versionIdentifier" type="com:CharStringType" minOccurs="0"/>

</xs:sequence>

<!-- Copied from BeStIntegration.xsd -->

</xs:complexType>

# Name changes

Some times changes are happening many times (e.g. sub elements of all Events), some are specific. For the specific, we add the full xml path (without mutationsResponseBySource/mutations); for the general, we do not repeat it over and over again. We indicate them with “…/”

## Repeating names

Sometimes names are repeated while it is clear to what element it belongs:

AddMunicipalityVersion/MunicipalityEvent is the same as the AddAddressVersion/AddressEvent. In both cases, we could limit ourselves to the name “event”. They have exactly the same meaning and the structure (found in the XML path) indicates clearly to which element this “event” belongs.

So the names are no longer repeated in the underlaying element unless this has a reason (Status is the exception: status can have a different validation for each type in the future and is kept seperatly).

|  |  |
| --- | --- |
| add/addMunicipalityversion/MunicipalityEvent | add/addMunicipalityversion/event |
| add/addMunicipalityversion/MunicipalityPredecessor/predecessor | add/addMunicipalityversion/predecessor |
| ../Municipality/MunicipalityCode | ../Municipality/code |
| ../Municipality/MunicipalityName | ../Municipality/name |
| …/event/eventDate | …/event/date |
| …/event/eventType | …/event/type |
| add/addPartofMunicipalityVersion/AddPartofMunicipality | add/addPartOfMunicipalityVersion/partOfMunicipality |
| add/addPartofMunicipalityVersion/PartofMunicipalityEvent | add/addPartOfMunicipalityVersion/event |
| add/addPartofMunicipalityVersion/PartofMunicipalityPredecessor/predecessor | add/addPartOfMunicipalityVersion/predecessor |
| …/partofMunicipality/partofMunicipalityCode | …/partOfMunicipality/code |
| …/partofMunicipality/partofMunicipalityName | …/partOfMunicipality/name |
| Add/AddPostalInfoVersion/addPostalInfo/addPostalInfo | add/addPostalInfoVersion/addPostalInfo/postalInfo |
| Add/AddPostalInfoVersion/addPostalInfo/PostalInfoEvent | add/addPostalInfoVersion/addPostalInfo/event |
| Add/AddPostalInfoVersion/addPostalInfo/PostalInfoPredecessor/predecessor | add/addPostalInfoVersion/addPostalInfo/predecessor |
| …/postalInfo/postCode | …/postalInfo/code |
| …/postalInfo/postname | …/postalInfo/name |
| …/postalInfo/postStatus | …/postalInfo/postalInfoStatus |
| Add/AddStreetNameVersion/AddUpdStreetname | add/addStreetNameVersion/streetName |
| Add/AddStreetNameVersion/StreetEvent | add/addStreetNameVersion/event |
| Add/AddStreetNameVersion/StreetPredecessor/Predecessor | add/addStreetNameVersion/predecessor |
| …/streetName/streetNameCode | ../streetName/code |
| .../streetName/streetname | ../streetName/name |
| ../streetName/streetnametype | ../streetName/type |
| ../streetName/isAssignedBy | ../streetName/ isAssignedByMunicipality |
| Add/AddAddressVersion/AddUpdAddress | add/addAddressVersion/address |
| Add/AddAddressVersion/AddressEvent | add/addAddressVersion/event |
| Add/AddAddressVersion/AddressPredecessor/predecessor | add/addAddressVersion/predecessor |
| …/address/addressCode | …/address/addressCode |
| …/address/addressPosition | …/address/addressPosition |
| …/address/addressSortField | …/address/addressSortField |
| …/address/isAssignedTo | …/address/isAssignedToAddressableObject |
| …/address/isSituatedIn | …/address/hasPartOfMunicipality |
| Update/UpdateAddressVersion/AddUpdAddress | update/updateAddressVersion/address |
| Update/UpdateAddressVersion/AddressEvent | update/updateAddressVersion/event |
| Update/UpdateAddressVersion/AddressSuccessor/successor | update/updateAddressVersion/successor |
| Update/UpdateAddressVersion/AddressPredecessor/predecessor | update/updateAddressVersion/predecessor |
| Update/UpdateStreetnameVersion/Streetname | update/updateStreetnameVersion/streetName |
| Update/UpdateStreetnameVersion/StreetEvent | update/updateStreetnameVersion/event |
| Update/UpdateStreetnameVersion/StreetSuccessor/successor | update/updateStreetnameVersion/successor |
| Update/UpdateStreetnameVersion/StreetPredecessor/predecessor | update/updateStreetnameVersion/predecessor |
| Update/UpdatePostalInfoVersion/PostalInfo | update/updatePostalInfoVersion/postalInfo |
| Update/UpdatePostalInfoVersion/PostalInfoEvent | update/updatePostalInfoVersion/event |
| Update/UpdatePostalInfoVersion/PostalInfoSuccessor | update/updatePostalInfoVersion/successor |
| Update/UpdatePostalInfoVersion/PostalInfoPredecessor | update/updatePostalInfoVersion/predecessor |
| Update/UpdatePartofMunicipality/PartofMunicipality | update/updatePartOfMunicipality/partOfMunicipality |
| Update/UpdatePartofMunicipality/PartofMunicipalityEvent | update/updatePartOfMunicipality/event |
| Update/UpdatePartofMunicipality/PartofMunicipalitySuccessor/successor | update/updatePartOfMunicipality/successor |
| Update/UpdatePartofMunicipality/PartofMunicipalityPredecessor/predecessor | update/updatePartOfMunicipality/predecessor |
| Update/UpdateMunicipality/Municipality | update/updateMunicipality/municipality |
| Update/UpdateMunicipality/MunicipalityEvent | update/updateMunicipality/event |
| Update/UpdateMunicipality/MunicipalitySuccessor/successor | update/updateMunicipality/ successor |
| Update/UpdateMunicipality/MunicipalityPredecessor/predecessor | update/updateMunicipality/predecessor |

## “camelCase” Changes

Currently, there is no standard usage of how the naming of elements is done. Therefore, we decided to use the camelCase standard for elements and the PascalCase for types and Groups.

In camelCase, the first word in a name of an element starts with a lowercase, and every additional word starts with a uppercase.

In PascalCase, all words starts with a capital.

Beside the elements who’s name change we already discussed in previous chapters (and who should all be in camelCase now) we have additional changes.

In this chapter, we mention all changes we found.

2 general corrections:

* Streetname becomes streetName
  + Name starts with Capital
* PartofMunicipality becomes PartOfMunicipality
  + Of starts with a capital

The first letter depends on the fact it is a simple element or a type or group….

Overview changed elements within main elements:

| Element / complex type /Group | Child Element | Correction |
| --- | --- | --- |
| File | MutationsResponseBySource | mutationsResponseBySource |
| MutationsResponseType | Add | add |
| MutationsResponseType | Update | update |
| AddPartOfMunicipalityType |  | AddPartOfMunicipalityType |
|  | partofMunicipality / PartofMunicipality | partOfMunicipality |
| AddressErrorType | Address | address |
| sortfield | CharstringType | CharStringType |
| boxNumber | CharstringType | CharStringType |
| houseNumber | CharstringType | CharStringType |
| IdentityGroup/namespace | CharstringType | CharStringType |
| IdentityGroup/ objectIdentifier | CharstringType | CharStringType |
| IdentityGroup/ versionIdentifier | CharstringType | CharStringType |
| StreetnameType/ homonymAddition | CharstringType | CharStringType |
| AddressType | Sortfield | sortField |
| AddressType | hasStreetname | hasStreetName |
| AddType | AddMunicipalityVersion | addMunicipalityVersion |
| AddType | AddPartofMunicipalityVersion | addPartOfMunicipalityVersion |
| AddType | AddPostalInfoVersion | addPostalInfoVersion |
| AddType | AddStreetNameVersion | addStreetNameVersion |
| AddType | AddAddressVersion | addAddressVersion |
| GeographicalNameSearchType | Language | language |
| GeographicalNameSearchType | SearchType | searchType |
| GeographicalNameSearchType | Spelling | Spelling |
| IdentifierSearchType | NameSpace | namespace |
| IdentifierSearchType | ObjectIdentifier | objectIdentifier |
| IdentifierSearchType | VersionIdentifier | versionIdentifier |
| MunicipalitiesType | Municipality | municipality |
| StreetNameErrorType | StreetName | streetName |
| StreetNameType | streetnameStatus | streetNameStatus |
| UpdateType | updatePartofMunicipalityVersion | updatePartOfMunicipalityVersion |
| UpdPartofMunicipalityType | PartofMunicipality | partOfMunicipality |
| UpdMunicipalityType | Municipality | municipality |
| UpdPostalInfoType | PostalInfo | postalInfo |
| UpdStreetNameType | Streetname | streetName |

Overview changed main elements. These elements are not found in the XML files, only in the XSD:

| Element / complex type /Group | Correction |
| --- | --- |
| AddPartOfMunicipalityType | AddPartOfMunicipalityType |
| CharstringType | CharStringType |
| lifeCycleInfo | LifeCycleInfoGroup |
| AddPartofMunicipalityType | AddPartOfMunicipalityType |
| doubleList | DoubleList |
| SRSReferenceGroup | SrsReferenceGroup |
| LanguagecodeValueType | languageCodeValueType |
| Point | point |
| NameSpace | NameSpaceType |
| MunicipalitiesType | MunicipalityErrorType |
| NCNameList | NcNameList |
| PostInfoStatusType | PostalInfoStatusType |
| PostStatusValueType | PostalInfoStatusValueType |
| StreetnameStatusType | StreetNameStatusType |
| StreetnameStatusValueType | StreetNameStatusValueType |
| StreetNamesType | StreetNameErrorType |
| StreetnameType | StreetNameType |
| StreetnameStatusType | StreetNameStatusType |
| StreetnametypeValueType | StreetNameTypeValueType |
| UpdPartofMunicipalityType | UpdPartOfMunicipalityType |