Cabinet Office
Office of the e-Envoy

Towards e - government

UK Online – Information Architecture – Address and Personal Details Fragment

Document Type: Specification

Version: 1.1
Status: Under Test

1 March, 2002

Document Control

Abstract

The UK Government is establishing the means for citizens and businesses to be able to transact business with the Government electronically. This will use a variety of delivery mechanisms such as the Internet, public 'kiosks', mobile equipment, and interactive television. This series of documents specifies the general information architecture for the overall system. This document specifies that part of this information architecture that is relevant to services and transactions, which involve change of address details for a citizen, and any others that require postal address, contact details and / or some of the common identifiers used by government departments and agencies and local authorities.

Current Version

Date	Version	Status	Editor/ Author	Comment
1 March 2002	1.1	Under Test	Adrian Kent, Office of the e-Envoy	Minor amendments made see section 3.3

Change History

Date	Version	Status	Editor/ Author	Comment
1 August 2000	0.1a	Draft	A Fletcher, BT	First draft
5 September 2000	0.1b	Draft	A Fletcher, BT	Edited according comments received from the first round of public comment.
7 February 2001	0.1c	Draft	A Fletcher, BT	Changed UML to be syntax neutral and added BS 7666 style address.
12 March 2001	0.1d	Draft	A Fletcher, BT	Changes incorporated to the UML, XML plus minor editorial changes as agreed at the Schema group meeting 6 March 01.
19 March 2001	0.1e	Draft	A Fletcher, BT	Changes incorporated to the XML to reflect the revised UML.
29 March 2001	0.2f	Draft	A Fletcher, BT	Changes incorporated to address comments made by Mike Burston and Martin Bryan. Resulted in change of title from Change of Address to Address and Personal details.
2 May 2001	*0.2g*	Draft	A Fletcher, BT	'Final' group edits following meeting 9 April 01
4 June 2001	*0.2h*	Draft	A Fletcher, BT	Further 'Final' group edits
4 December 2001	1.0	Under Test	Adrian Kent, Office of the e-Envoy	Document approved by Schema Group for a 6 month 'industrial' test period. During this time the Schemas can be used in projects, feedback on their correctness is welcomed. These Schema may change at the end of this trial period as the result of feedback..

Contents

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1. Requirement Definition

1.1. Source of Requirement

This document begins to address the requirement that UK Government Online systems can make use of an information architecture to support the life-episode based services they aim to provide. An architecture overview document has been produced called UK Online Information Architecture [2]. A Top Level Structures Fragment [14] is planned which will specify the top level data structures, which act as the 'parents' of the address & personal details data structured specified in this document.

1.2. Definition Statement

The Information Architecture Fragment defined here covers a Citizen's address and some basic personal details. Historically, it has been designed to specifically support a transaction in the life episode 'Moving House' called 'Change of Residence'. It may be used by one or more messages in that transaction. Also, some or the entire architecture fragment may be re-used in transactions relating to other life-episodes, and may be extended or updated to achieve this.
This includes new residence, e.g. first time buyers, people moving to the UK from abroad and people giving up their homes, without any new address. Change of Residence details emanating from other sources, e.g. from line of business transactions within government, are not yet covered by this architecture.

1.3. Structure

The notational basis for the schemas used for the UK Government's UK Online information architecture is given directly, and by reference, in the introductory document to this series [2]. It recommends the use of UML [3] to represent the data and its relations, and the use of a mapping to the W3C XML Schema Definition Language (XSDL) [4, 5 & 6]. These XML schemas are used in turn for the representation of this information architecture in a syntactical form that can be used in the specification of messages that realise the interchange of data. This document complies with the guidelines and constraints given in [2].

1.4. Usage

This fragment of the overall Information Architecture includes data structures for address, name, email and other contact details, plus some of the identifiers used by government departments such as unique tax reference, National Insurance number and several others. It is, therefore, expected to be widely used in the construction of messages for use within the UK Online system (plus any other systems that adopt the e-Government Information Architecture). It should be referenced and the data structures imported into messages wherever the data items covered in this fragment are required.

1.5. Compliance

This specification complies with the provisions in the introductory document to this series [2]. Other specifications that form part of the UK Online document set, particularly those specifying messages for the interchange of information, shall comply with this specification. This specification provides specifications for the data items relevant to Change of Residence, and some other types of transaction, in UML and XML Schema format. The UML class diagrams in the UK Online message specification documents shall be copies of the classes and structures specified in this document, with any restrictions applied as appropriate. (Rules for allowable restrictions and constraints are given in [2].) The XML schema equivalents shall be direct copies, or valid imports or includes, of XML schema fragments from this document.

1.6. Conformance

This specification does not contain any provisions that implementations are required to conform to directly. Implementations shall conform to the relevant corresponding message specifications.

2. UML

2.1. Commentary on the UML for address and personal details

The UML that follows consists of linked class diagrams including data type classes.

2.1.1. The Package diagram

Figure 1 shows the UML packages that are currently specified in this document. The IA-APD Personal details structures package and the Address data structures package are the main ones for this specification. The Personal details package has dependencies on the Citizen Identification and Contact Types Package. The Address data structures package has dependencies on the BS 7666 Address package and the Common data types package. A separate document [13] details BS7666 Address structures. The IA-Common data types package contains all the data types that are likely to be used by other Information Architecture specifications as well.

2.1.2. Address data structures package

Figure 2 shows *InternationalAddress,* which is composed of 2 to 5 address lines (*IntAddressLine*) plus an optional *Country* line and/or an optional international postcode (*AddressPostCodeInternational*).

Figure 3 shows the structure for *UKAddress*. This is composed of the alternatives of a *BS7666Address* [13] and a simplified 5 line address (*5LineAddress*) plus an optional unique property reference number (*UPRN*) and an optional choice of sort codes, *ChoiceSortCodes,* which are *MailSort* or *WalkSort*.

(Note: a Mailsort code is a code that aims to ensure that items are properly addressed and offers discounts to organisations using it, and a Walksort provides more detail (and higher discounts). Local authorities extensively use both. The Post Office issues files that are used by the sending organisations to manage the processes of correct addressing and sorting of mail items.) The simplified 5 line address (*5LineAddress*) is composed of 2 to 5 lines of address plus an optional postcode.

BS7666 [10, 11, & 12] is a British standard comprising four parts covering Street Gazetteers, Land and Property Gazetteers, Addresses and Rights of Way. It describes the data to be held in a Gazetteer and the form of this data, thereby facilitating the sharing of land and property information. The NLPG is the aggregation of Local Land and Property Gazetteers (LLPG) which collectively provide an unambiguous identification of land and property and hence provide access to associated information (see also http://www.nlpg.org.uk/).

It should be noted that in many instances, it will be essential that a message carries unambiguous identification of the address which is, or forms part of, the subject of the transaction. The BS7666 address, including UPRN, is designed to provide this. However, where the message recipient requires a different form of address identification, then this can be derived from the BS7666 address. For example, a Style Sheet (XSL) which generates a simplified 5-line address from the BS7666 address can be found in the "BS7666 Address and Geographic Location Structures Fragment" [13].

In principle, once the service provider has correctly identified/ validated an address against the NLPG then it will suffice for the message to carry only the Unique Property Reference Number (UPRN) since this will enable the message recipient to reference or re-generate the address identification in the form best suited to their needs.

2.1.3. Citizen details structures package

Figure 4 shows *CitizenDetails*. These are composed of one *CitizenName* structure (see figure 5), *CitizenRegistration* information (see figure 6), an optional sequence of *PreferredLanguage*, a set of *ContactDetails* (see figure 7), and optional indications of the sex of the Citizen, marital status, and birth date of the Citizen. The preferred language is that for contact with the Citizen. Several can be offered and the sequence should be taken as significant. Currently the only allowed choices are English and Welsh, but it is expected that further languages will be added in the future. A birth date provided by a citizen will initially be signalled as 'not verified'. If verification is offered then this can be indicated in the 'verifiedby' field. The values are currently examples based on current Department of Work and Pensions practice (note that the applicable values are still

under discussion within the DWP and other departments and the values in this document will be updated when they are agreed).

Figure 5 shows *CitizenName* structure. This consists of single surname, plus optional titles, forenames, suffixes and a requested name. The requested name is used, if the way the Citizen wants to be addressed differs from their formal names. For example, 'Screaming Lord Sutch' whose formal name was David Sutch.

Figure 6 shows the *CitizenIdentification* information structure. This consists of a number of identifiers used by local and central government departments and agencies. The ones currently covered include National Insurance number, unique tax reference, driving licence number, English national health number, passport number, and electoral roll number. It is anticipated that further identifiers will be added, as the need arises. Note that the pattern for the latest (red) passport type being issued differs from the earlier (blue) passports.

Figure 7 shows the *ContactDetails* information structure. This consists of structures for e-mail address, and telephone / fax number. Optionally data items can be used to indicate which is preferred out of several, and whether the phone or fax number is home or office, and whether it is a mobile number. For the *TelephoneStructure* the *TelNationalNumber* must be present and contains the full national telephone number with <u>no</u> leading access digit(s) (usually a single '0') or spaces. Note that the *TelCountryCode* data item carries the telephone country code as defined by the International Telecommunications Union with <u>no</u> access digits (usually '00'). This can differ from the apparent geographical designation and the way that numbers are sometimes presented in telephone books. For instance St. Lucia is given as 00 1 758. The international access digits '00' are omitted, the telephone country code is the single digit '1' (which actually designates North America) and the '758' are the first three digits of the full national telephone number.

2.1.4. Additional specific data types

Figure 8 shows the data types referred to as data types of attributes in the other classes specified in this document and only likely to be used in this document. Where the data type is an enumeration type the allowed values are shown explicitly. These are:

- Verified by Type, showing different means by which a citizen has been verified e.g. Birth Certificate
- Address Qualifier, for example, showing whether an address is residential, or purely for correspondence.
- Address Validation, showing whether an address has been validated successfully or not and against which data source.
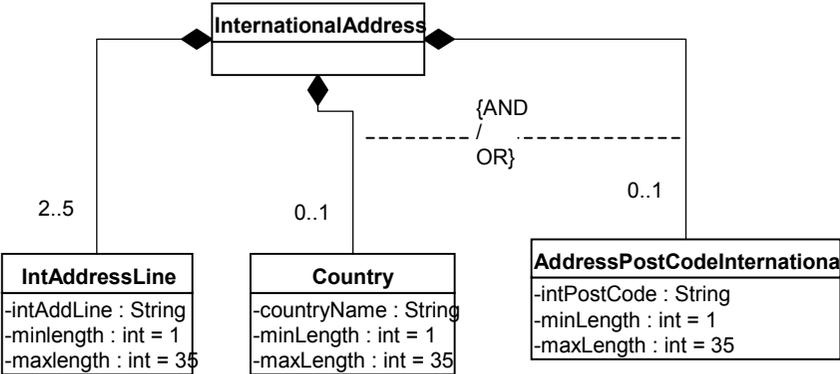
2.2. UML Class diagrams for Address and Personal Details Fragment of the Information Architecture

2.2.1. The Package diagram

Figure 1   Packages used for Address and Personal Details

Figure 2   International Address UML structure
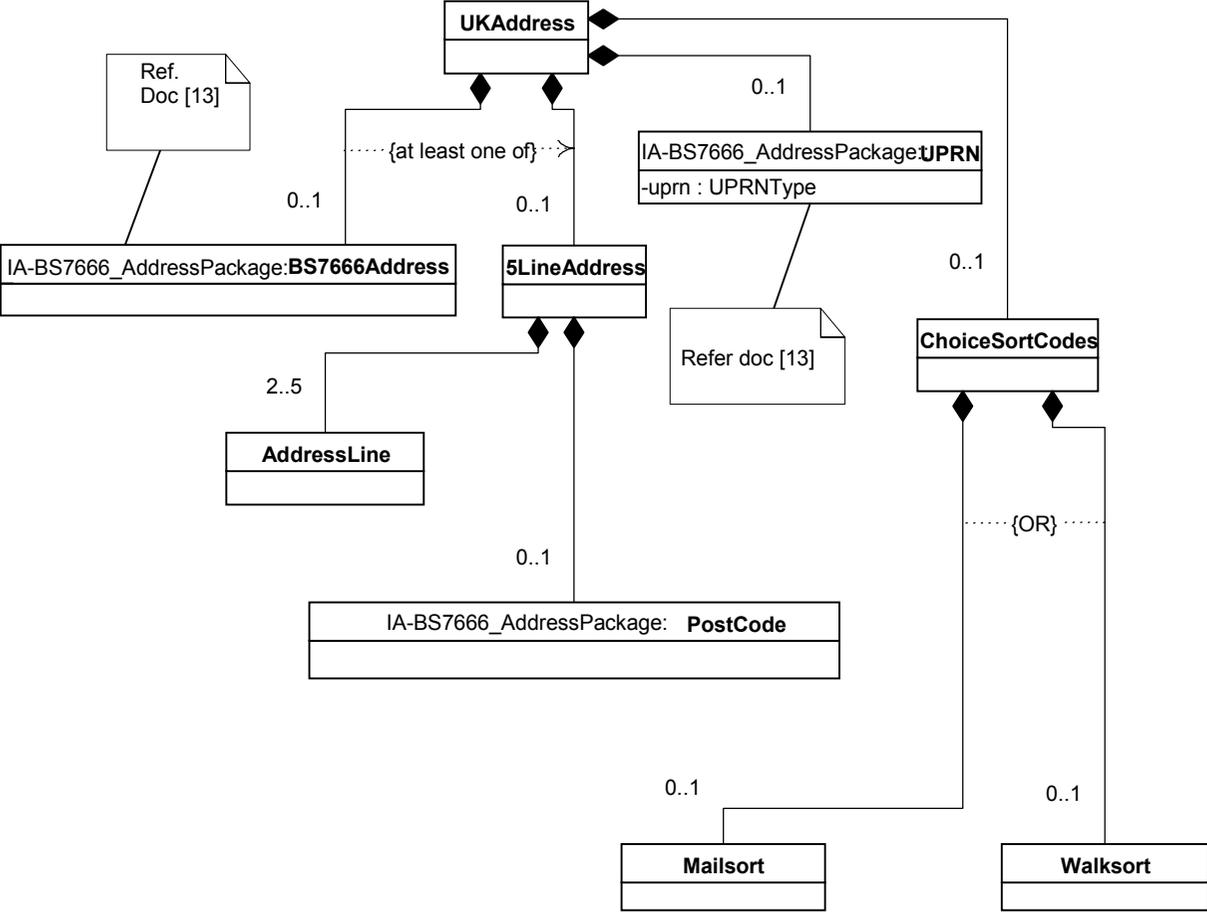
Figure 3   UK Address UML structure

2.2.2. Citizen details structures package
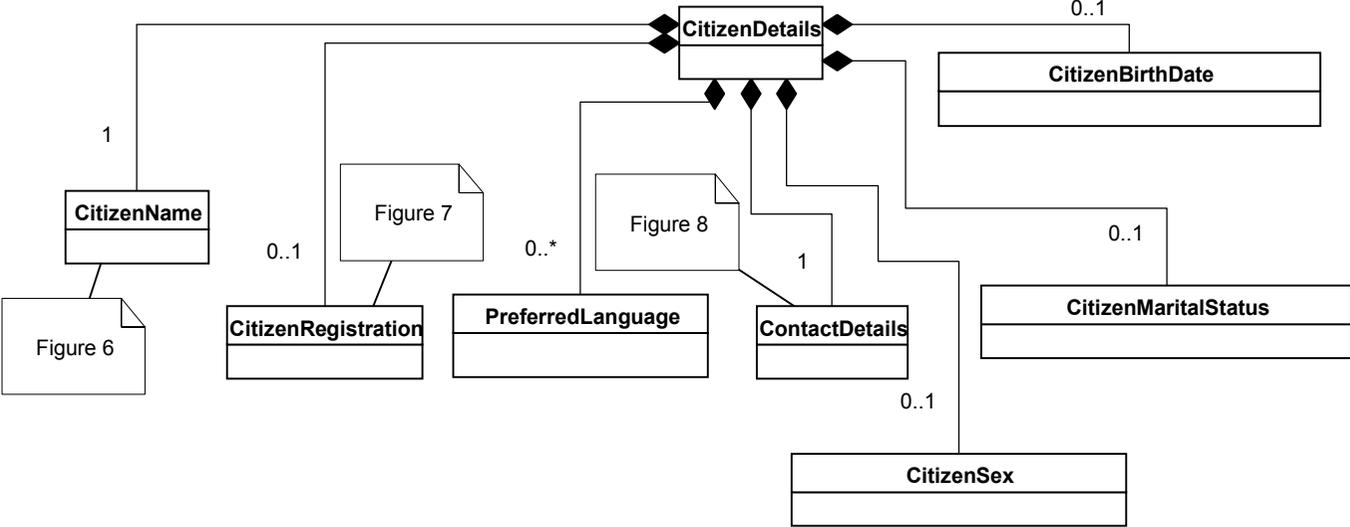

Figure 4   Citizen Details UML structure
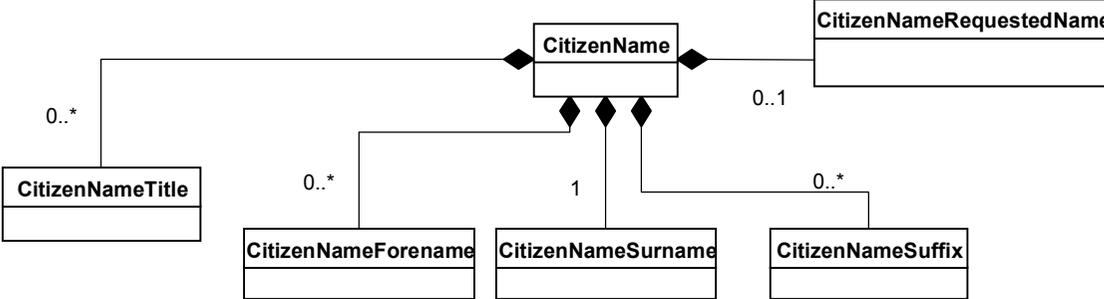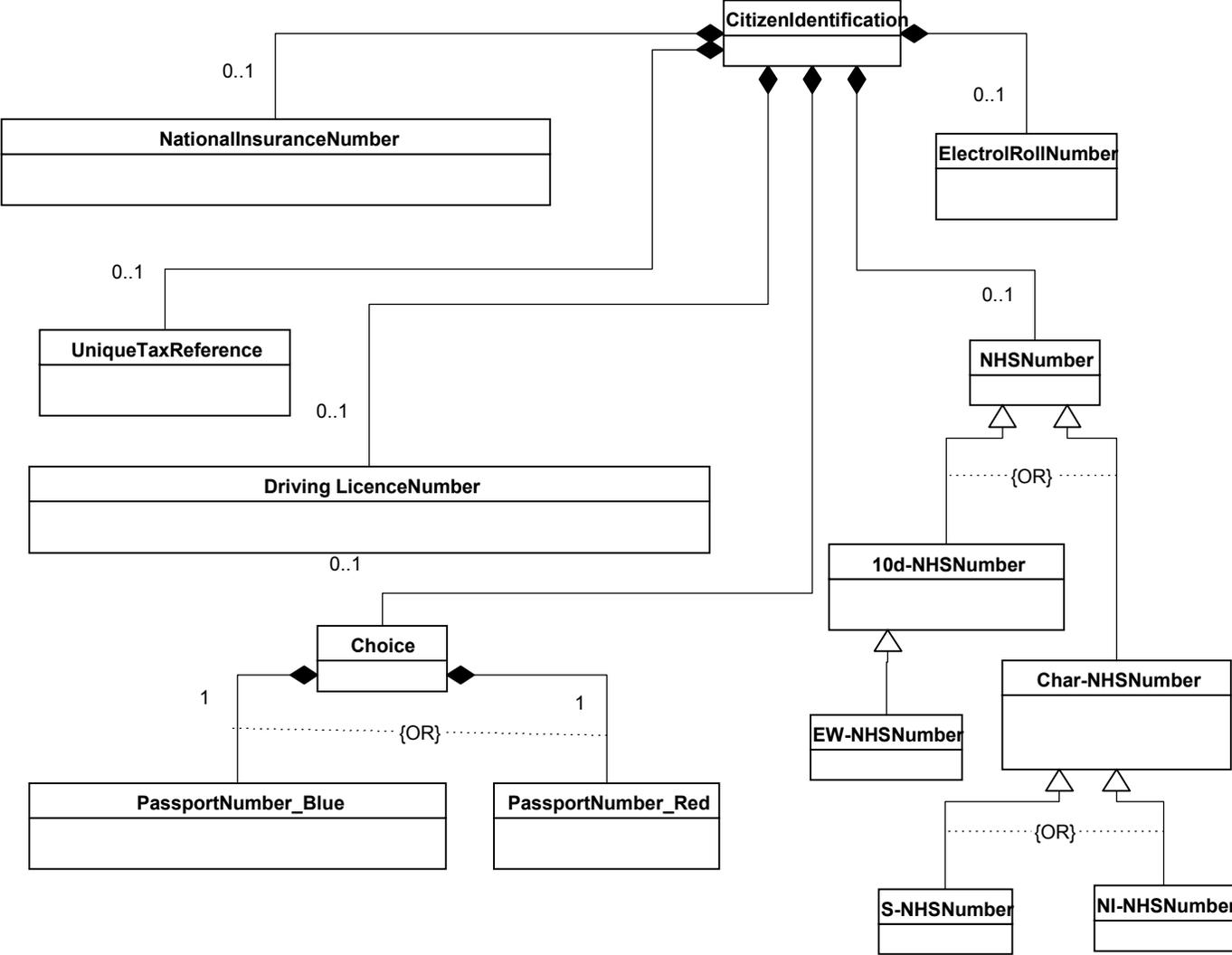
Figure 5   Citizen Name UML structure

Figure 6   Citizen Identification UML structure
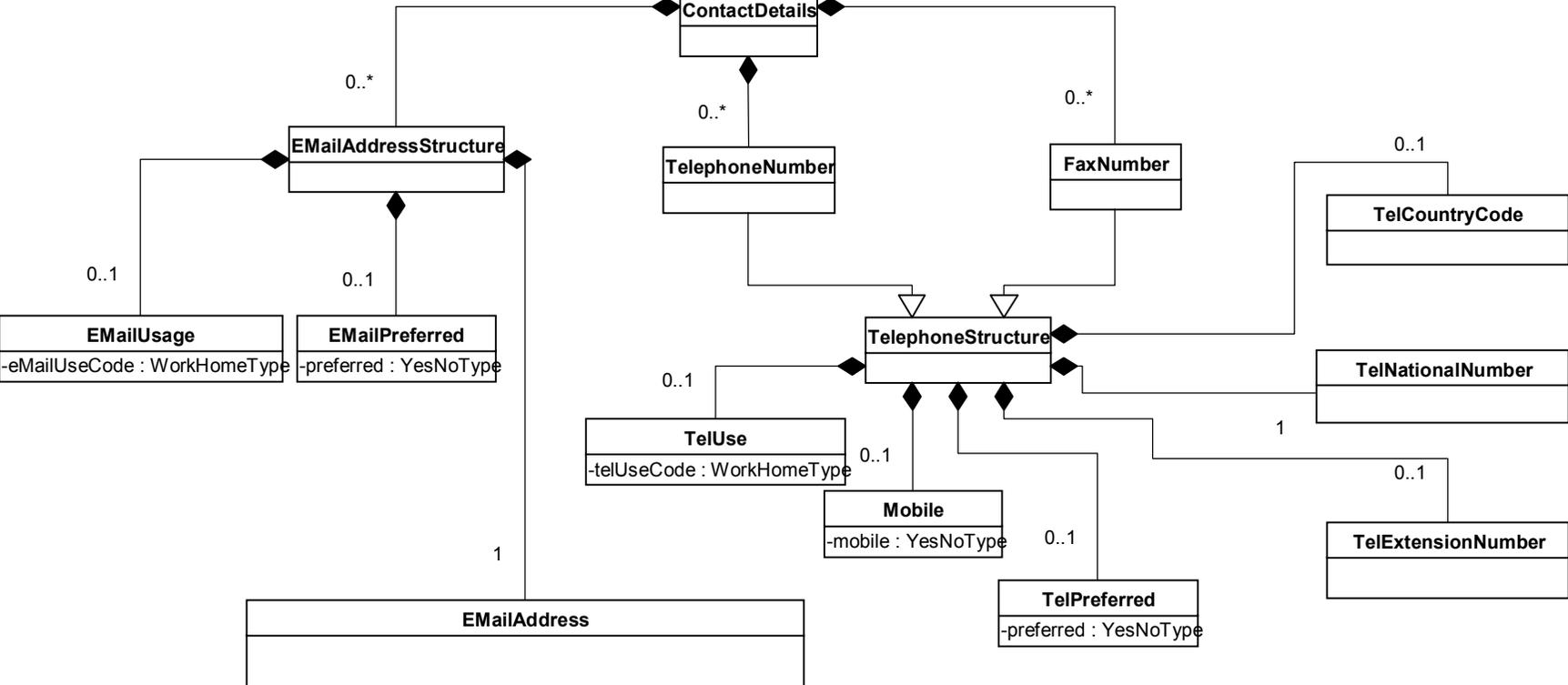
Figure 7   Contact Details UML structure

2.2.3. Additional specific data types

«enumeration» **VerifiedByType**
-Not Verified
-Accepted on balance of probabilities
-Secondary certificate
-Certified copy of birth certificate
-Short form birth certificate
-Birth certificate

«enumeration» **AddressQualifierEnumType**
-residential-address
-correspondence-address
-Self-emloyed-business-address
-business-address

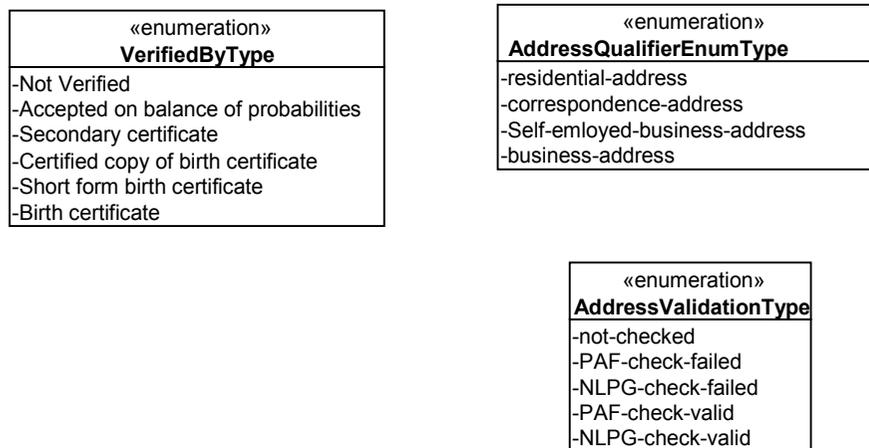| «enumeration» **AddressValidationType** |
|---|
| -not-checked |
| -PAF-check-failed |
| -NLPG-check-failed |
| -PAF-check-valid |
| -NLPG-check-valid |

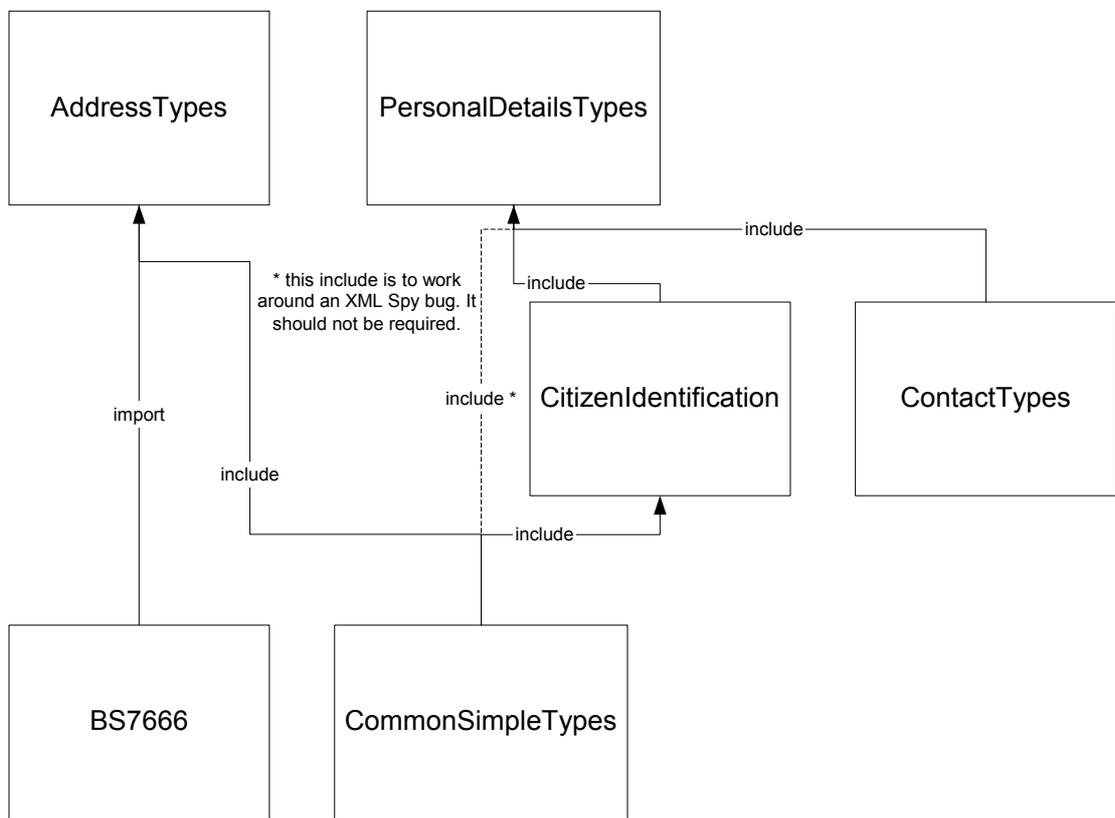Figure 8   Additional specific data types

3. XML Script

3.1. Files

The XML Schema can be found in files separate to this document. The have undergone a quality assurance check in accordance with the "Schema Guideline – Best Practice Advice" document [15].
Metadata has been included in these Schema between the <appinfo> tags.

File	Namespace	Content
AddressTypes_v1_0.xsd	APD	Non-BS7666 and compound addresses
PersonalDetailsTypes_v1_0.xsd	APD	General data types relating to a citizen
CitizenIdentificationTypes_v1_0.xsd	APD	The various citizen references (such as electoral roll number) used in the public sector
BS7666_v1_0.xsd	BS7666	BS7666 address types
CommonSimpleTypes_v1_0.xsd	None	General types with relevance across the public sector. This Schema will in time become a core of re-usable types across e-government
ContactTypes_v1_0.xsd	None	Phone, email and fax data types

APD: http://www.govtalk.gov.uk/people/AddressAndPersonalDetails
BS7666: http://www.govtalk.gov.uk/people/bs7666

3.2. Structure

3.3. Changes made to version 1.0

3.3.1. BS7666

file: BS7666-v1.xsd	old version: 1.0	new version 1.1

- `Postcode` element changed to `PostCode`
- `PostcodeType` and `PosttownType` changed to `PostCodeType` and `PostTownType`
- `PostCodeType` pattern changed to match GDSC. The pattern has been relaxed slightly to not exclude `[CIKMOV]` in one part since testing found postcodes with these patterns. It is still to be determined whether these are valid postcodes.
- `StreetDescriptiveIdentifierStructure` has been made unambiguous (deterministic)

3.3.2. Address Types

file: AddressTypes-v1.xsd	old version: 1.0	new version 1.1

- UK postcode now uses the data type defined in the BS7666 schema
- International addresses now allow a choice of postcode and/or country in either order
- UKAddressStructure simplified and made unambiguous (but still allowing same combinations of BS7666 and 5 line addresses)

3.3.3. Common Simple Types

file: CommonSimpleTypes-v1.xsd	old version: 1.0	new version 1.1

- Pattern for `RestrictedStringType` corrected (there was a superfluous line feed)

4. Abbreviations

Abb	Definition
DSC	Data Standards Catalogue
eGIF	Electronic Government Interoperability Framework
FTP	File Transfer Protocol (an Internet protocol for managing and transferring files)
HTTP	Hypertext Transfer Protocol
OeE	Office of the E-Envoy (a part of the Cabinet Office)
OMG	Object management Group
UML	Unified Modelling Language
URL	Uniform Resource Locator
W3C	World Wide Web Consortium
XML	Extensible Markup Language
XSDL	XML Schema Definition Language

5. References

	Document References
[1]	The eGovernment Interoperability Framework
[2]	UK Online – Information Architecture - Overview, draft 0.2, 14 December 2000
[3]	OMG Unified Modelling Language Specification, Version 1.3, June 1999 ftp://ftp.omg.org/pub/docs/ad/99-06-08.pdf
[4]	XML Schema Part 0: Primer, W3C Recommendation, 2 May 2001 http://www.w3.org/TR/xmlschema-0/
[5]	XML Schema Part 1: Structures, W3C Recommendation, 2 May 2001 http://www.w3.org/TR/xmlschema-1/
[6]	XML Schema Part 2: Datatypes, W3C Recommendation, 2 May 2001 http://www.w3.org/TR/xmlschema-2/
[7]	e-Government Interoperability Framework (e-GIF), Government Data Standards Catalogue, Volume 1 - General Principles, Issue 1.0, 29 August 2001
[8]	e-Government Interoperability Framework (e-GIF), Government Data Standards Catalogue, Volume 2 - Data Types Standards, Issue 1.0b, 6 September 2001
[9]	e-Government Interoperability Framework (e-GIF), Government Data Standards Catalogue, Volume 3 - Data Items Standards, Issue 1.0, 4 December 2001
[10]	BS 7666-1:2000 Spatial data-sets for geographical referencing. Specification for a street gazetteer.
[11]	BS 7666-2:2000 Spatial data-sets for geographical referencing. Specification for a land and property gazetteer.
[12]	BS 7666-3:2000 Spatial data-sets for geographical referencing. Specification for addresses
[13]	UK Online – Information Architecture – BS7666 Address and Geographic Location Structures Fragment
[14]	UK Online – Information Architecture – Top Level Structures Fragment
[15]	Schema Guidelines –Best Practice Advice V. 2a

END OF DOCUMENT