



Postal Address DTD/Schema

Status: The HR-XML Consortium approved this DTD on 10/17/00.

Version: v1.0

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Date Written: 08/02/2000

Last Revision Date: 11/05/2000

HR-XML Postal Address v1.0 Schema/DTD

Table of Contents

Table of Contents.....	2
Objective.....	3
Scope	4
Design Requirements.....	4
Relationship to Business Processes	4
Mail Delivery Process.....	5
Schema/DTD Design	6
Schema/DTD Elements Explained	7
Reference Examples	8
Implementation Considerations	14
Appendix A – Schema/DTD Source.....	15
Appendix B - Schema/DTD Revision History.....	16
Appendix C – Mailing label transformation reference table.....	17
Appendix D – Sample XSL template	18

HR-XML Postal Address v1.0 Schema/DTD

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HR-XML Postal Address v1.0 Schema/DTD

Objective

Create a DTD design for a postal address that is flexible enough to be a global standard and which may be used within other HR-XML Consortium DTD's.

Scope

Within Scope

- The project will define the Postal Address, which may be used to globally send mail to individuals or companies.
- The deliverable will be a schema, which may be transformed by a system to a format required for mailing.
- Internal routing will not be defined as separate elements. Information such as mail stop will be included as part of Recipient.

Outside of Scope

- This project will not define a location or geo code. These codes typically define latitude and longitude locations.
- Effective Dating will not be addressed within this proposal. When effective dating is resolved, this proposal will be re-evaluated to assess the impact.
- This proposal does not recommend nor imply how an address should be stored in a database. It also does not address sorting or reporting formats for an address.
- Some countries can validate an address number within a street if they are separate elements. Version 01.00 will not provide for this feature due to time constraints. However, the current DTD has been designed to allow for this feature in a future release.

Design Requirements

- Syntax must be self-documenting.
- Must have enough information to be used for global mail delivery.

Relationship to Business Processes

The Postal Address schema attempts to create a generalized container that will allow business processes to pass address information reliably and completely, and in a format that can be efficiently processed.

To this end, the container is to be designed to clearly house the various sections that make up a postal address as it is used from country to country, while allowing the country code to indicate to the business process how the address is to be formatted, according to local postal rules.

HR-XML Postal Address v1.0 Schema/DTD

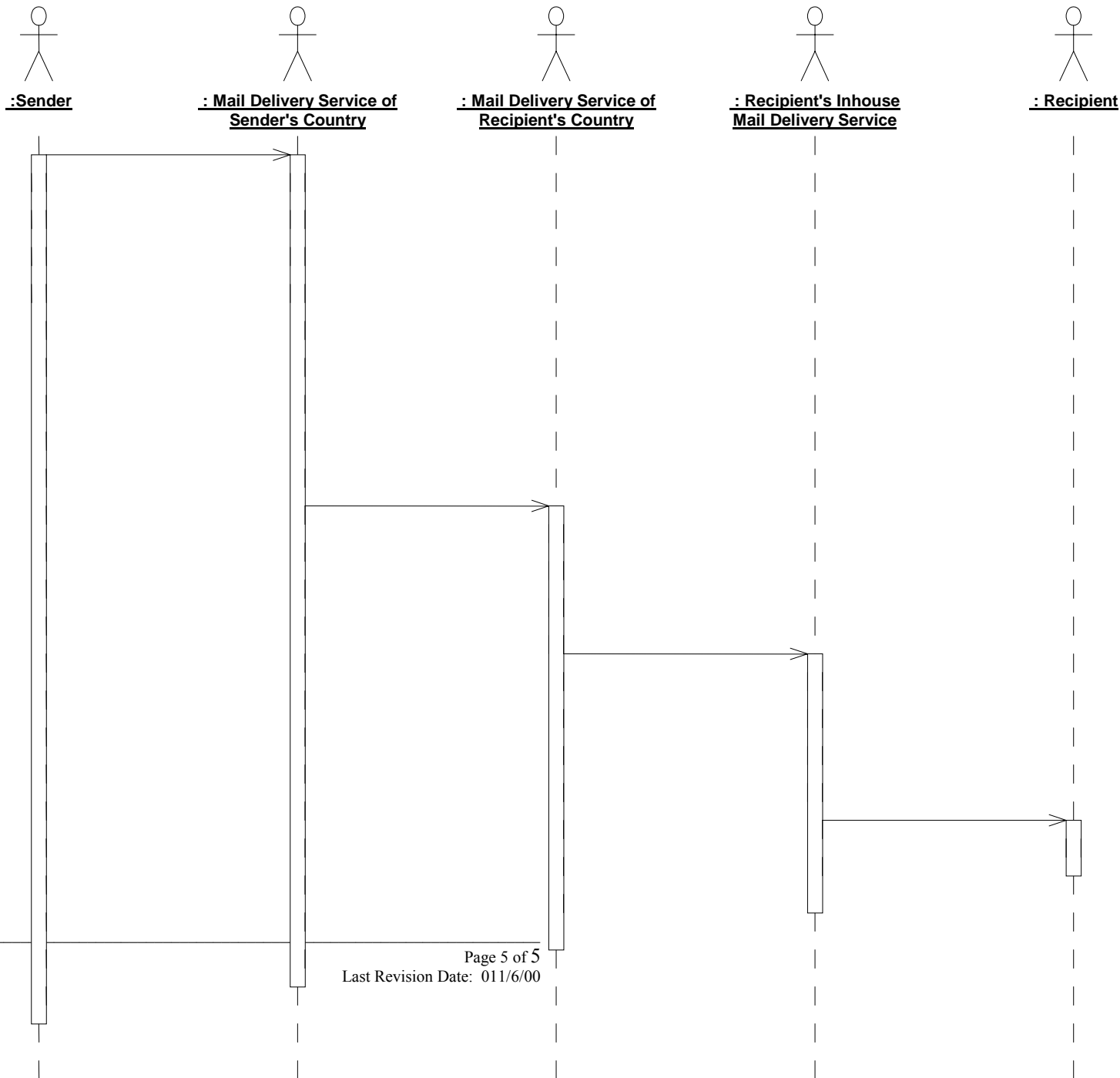
Mail Delivery Process

The sender formats the address according to the rules of the sender's and the recipient's country. Local rules are used to represent the recipient's country (e.g. recipient's country printed in local language or transformed to a postal code prefix). The rules of the recipient's country are used to format the rest of the address (e.g. order of city and postal code). For this part, the recipient's language (if given) should be used for city names, street names...

The mail delivery service of the sender's country uses the recipient's country to determine the delivery service of the recipient's country. It delivers the mail to that service.

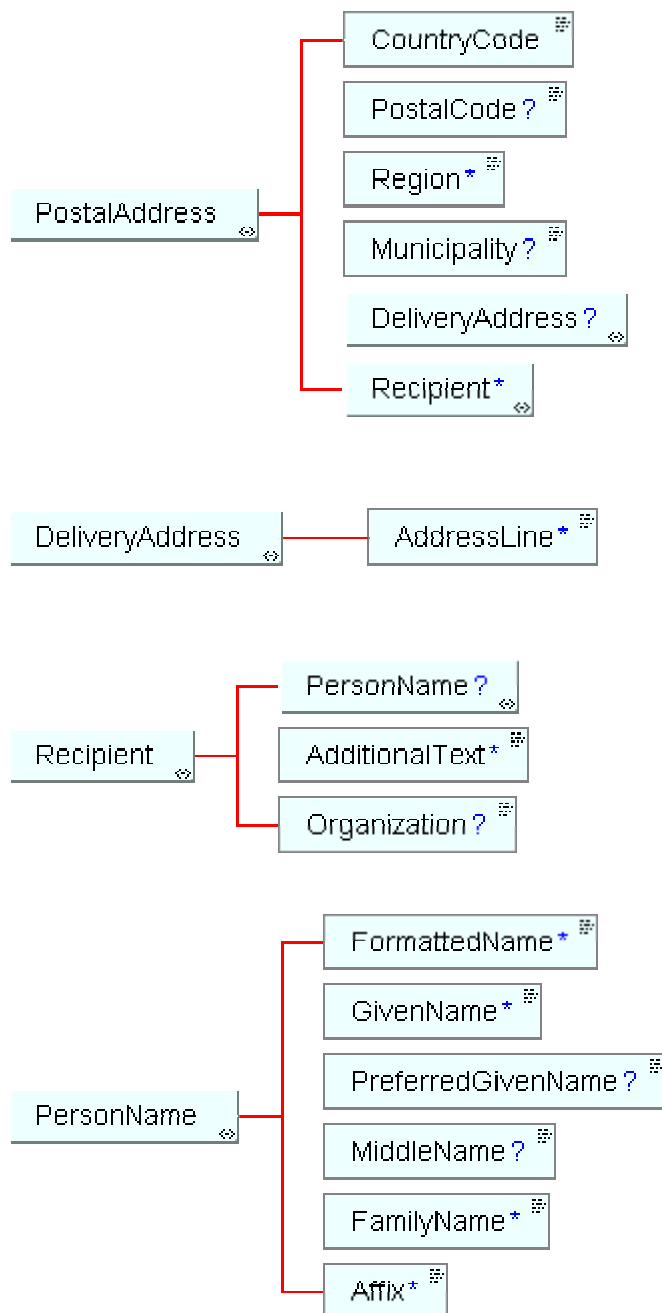
The mail delivery service of the recipient's country uses postal code, region, municipality, and delivery address to deliver the mail to the inhouse mail delivery service at the recipient's address.

The inhouse mail delivery service uses the recipient information to deliver the mail to the recipient.



HR-XML Postal Address v1.0 Schema/DTD

Schema/DTD Design



HR-XML Postal Address v1.0 Schema/DTD

Schema/DTD Elements Explained

Element / Attribute	Content Model	Description
PostalAddress	Root element	Describes a postal address used for delivery of mail.
PostalAddress type =	Defaulted attribute.	Defines if the postal address is a street address or post office box. type = postOfficeBoxAddress type = streetAddress type = undefined (default)
PostalAddress CountryCode	Required element. 1 occurrence	Contains the ISO 3166-1 two-character country code. See Implementation Considerations for additional information.
PostalAddress PostalCode	Optional element. 0 to 1 occurrence.	Determines how mail is sorted and delivered.
PostalAddress Region	Optional element. 0 to many occurrences.	Represents the State, Province, and/or County.
PostalAddress Municipality	Optional element. 0 to 1 occurrence.	Represents the city, town, village, or hamlet.
PostalAddress DeliveryAddress	Optional element. 0 to 1 occurrence.	Root element for delivery address lines.
PostalAddress DeliveryAddress AddressLine	Optional element. 0 to many occurrences.	Contains one formatted address line with all of its pieces in their proper place. This includes all of the necessary punctuation. This de-normalized form of the delivery address cannot be easily parsed. May contain the name or number of the building, house, and/or street. Examples may include: Hancock Building; 5223 Oak Street; 213; East 23rd Avenue; P.O. Box 241; Suite 200.
PostalAddress Recipient	Optional element. 0 to many occurrences.	Contains information about the recipient. This may include a person's name, an organization, and/or additional information.
PostalAddress Recipient PersonName	Optional element. 0 or 1 occurrence.	<u>See Hr-xml.org personName object</u> Contains the element PersonName. This may include additional unformatted elements, or a formatted string.
PostalAddress Recipient AdditionalText	Optional element. 0 to many occurrences.	May contain other recipient routing information in addition to organization and person name, such as mailstop.
PostalAddress Recipient Organization	Optional element. 0 to 1 occurrences.	Contains the Organization Name of the recipient.

HR-XML Postal Address v1.0 Schema/DTD

Reference Examples

Contains examples for sending mail within the same country or sending from country to country. When sending mail from one country to another, the country must be written in the sender's language. All other parts of the postal address may be written in the receiver's language. When sending mail within the same country, the country name may or may not be used.

United States	<p>Mary Barber Mailstop: B1-210 Market Surveyors 2455 University Blvd Denver, CO 80237 USA</p> <pre> <PostalAddress> <CountryCode>US</CountryCode> <PostalCode>80237 </PostalCode> <Region>CO</Region> <Municipality>Denver</Municipality> <DeliveryAddress> <AddressLine>2455 University Blvd</AddressLine> </DeliveryAddress> <Recipient> <PersonName> <FormattedName>Mary Barber</FormattedName> </PersonName> <AdditionalText>Mailstop: B1-210</AdditionalText> <Organization>Market Surveyors</Organization> </Recipient> </PostalAddress> </pre>
Germany	<p>Ringstr. 25 D-80395 Frankfurt am Main</p> <pre> <PostalAddress type="streetAddress"> <CountryCode>DE</CountryCode> <PostalCode>80395 </PostalCode> <Municipality>Frankfurt am Main</Municipality> <DeliveryAddress> <AddressLine>Ringstr. 25</AddressLine> </DeliveryAddress> </PostalAddress> </pre> <p><i>Note. The 'D-' is a European country code prefix that is added in front of the postal code and is not part of the postal code.</i></p>
Finland	<p>From outside of Finland: Hallituskatu 6 B 27 FIN-33200 TAMPERE FINLAND</p> <p>From within Finland: Hallituskatu 6 B 27 33200 TAMPERE</p>

HR-XML Postal Address v1.0 Schema/DTD

	<PostalAddress> <CountryCode>FI</CountryCode> <PostalCode>33200</PostalCode> <Municipality>TAMPERE </Municipality> <DeliveryAddress> <AddressLine>Hallituskatu 6 B 27</AddressLine> </DeliveryAddress> </PostalAddress>
Japan	456-0042 Tokyo-to Shibuya-ku Shibuya 4-5-5 <PostalAddress> <CountryCode>JP</CountryCode> <PostalCode> 456-0042</PostalCode> <Region>Tokyo-to</Region> <Region>Shibuya-ku</Region> <Region>Shibuya</Region> <DeliveryAddress> <AddressLine>4-5-5</AddressLine> </DeliveryAddress> </PostalAddress>
France	Paul Dupont 66, rue de l'église 750026 Paris (France) <PostalAddress> <CountryCode>FR</CountryCode> <PostalCode>750026</PostalCode> <Municipality>Paris </Municipality> <DeliveryAddress> <AddressLine>66, rue de l'église</AddressLine> </DeliveryAddress> <Recipient> <PersonName> <FormattedName>Paul Dupont</FormattedName> </PersonName> </Recipient> </PostalAddress>
Switzerland	Georges Dupuis Route des Clos 7 2012 Auvernier (Suisse) <PostalAddress> <CountryCode>CH</CountryCode> <PostalCode>2012</PostalCode> <Municipality>Auvernier </Municipality> <DeliveryAddress> <AddressLine>Route des Clos 7 </AddressLine> </DeliveryAddress> <Recipient>

HR-XML Postal Address v1.0 Schema/DTD

	<p> <PersonName> <FormattedName>Georges Dupuis</FormattedName> </PersonName> </Recipient> </PostalAddress> </p> <p><i>If the letter is mailed from French speaking countries, add Suisse on the last line. If sending from English speaking countries, add Switzerland on the last line.</i></p>
Belgium	<p> Albert Dupontel Avenue Lebon 112 boîte 7 1160 Bruxelles (Belgique) </p> <p> <PostalAddress> <CountryCode>BE</CountryCode> <PostalCode>1160</PostalCode> <Municipality>Bruxelles</Municipality> <DeliveryAddress> <AddressLine>Avenue Lebon 112 boîte 7 </AddressLine> </DeliveryAddress> <Recipient> <PersonName> <FormattedName>Albert Dupontel</FormattedName> </PersonName> </Recipient> </PostalAddress> </p> <p><i>If the letter is mailed from French-speaking countries, add Belgique on the last line. If sending from English speaking countries, add Belgium on the last line.</i></p>
China	<p>In Roman alphabet:</p> <p> Mr. Wang, Tai-sheng 4th Floor, #6, lane 15, Alley 283, Section 1, Hsin Sheng South Rd., Taipei, ROC 12345 </p> <p> <PostalAddress> <CountryCode>CN</CountryCode> <PostalCode>12345</PostalCode> <Municipality>Taipei</Municipality> <DeliveryAddress> <AddressLine>4th Floor, #6, lane 15, Alley 283,</AddressLine> <AddressLine>Section 1, Hsin Sheng South Rd.,</AddressLine> </DeliveryAddress> <Recipient> <PersonName> <FormattedName>Mr. Wang, Tai-sheng</FormattedName> </PersonName> </Recipient> </PostalAddress> </p>

HR-XML Postal Address v1.0 Schema/DTD

South Korea	<p>Outside of South Korea:</p> <p>345 Bomun-Dong Sungbuk-Gu Seoul, Korea 136-086</p> <pre> <PostalAddress> <CountryCode>KR</CountryCode> <PostalCode>136-086</PostalCode> <Region>Seoul</Region> <Region>Sungbuk-Gu </Region> <DeliveryAddress> <AddressLine>345 Bomun-Dong </AddressLine> </DeliveryAddress> </PostalAddress> </pre>
Mexico	<p>Hacienda de Corralejo N° 5 Bosques de Echegaray 13355 Naucalpan, Edo de México</p> <pre> <PostalAddress> <CountryCode>MX </CountryCode> <PostalCode>13355</PostalCode> <Municipality>Naucalpan</Municipality> <DeliveryAddress> <AddressLine>Hacienda de Corralejo N° 5 </AddressLine> <AddressLine>Bosques de Echegaray </AddressLine> </DeliveryAddress> </PostalAddress> </pre>
Spain	<p>28 C/*Alameda 28034 Colmenar, Madrid</p> <pre> <PostalAddress> <CountryCode>ES</CountryCode> <PostalCode>28034</PostalCode> <Region>Colmenar</Region > <Municipality>Madrid</Municipality> <DeliveryAddress> <AddressLine>28 C/*Alameda </<AddressLine> </DeliveryAddress> </PostalAddress> </pre> <p><i>These abbreviations stand for:</i> Avenue = Avda Boulevard = Blvr Street = C Paseo = Pº Should be written in front of the name, followed by /.</p>
Argentina	<p>Las Heras 1045 piso 3 departamento A 1181 Buenos Aires Argentina</p> <pre> <PostalAddress> <CountryCode>AR</CountryCode> <PostalCode>1181</PostalCode> <Municipality>Buenos Aires</Municipality> </pre>

HR-XML Postal Address v1.0 Schema/DTD

	<DeliveryAddress> <AddressLine> Las Heras 1045 piso 3 departamento A </AddressLine> </DeliveryAddress> </PostalAddress>
Brazil	Rua Francisco Deslandes, nº 470 apto. 201. Bairro Anchieta. Belo Horizonte, Minas Gerais. Brasil. 30320-500 <PostalAddress> <CountryCode> BR </CountryCode> <PostalCode> 30320-500 </PostalCode> <Region> Minas Gerais. </Region> <Municipality> Belo Horizonte </Municipality> <DeliveryAddress> <AddressLine> Rua Francisco Deslandes, nº 470 </AddressLine> <AddressLine> apto. 201. Bairro Anchieta. </AddressLine> </DeliveryAddress> </PostalAddress>
Italy	Via Trento 34 43036 Fidenza (PR) Italy <PostalAddress> <CountryCode> IT </CountryCode> <PostalCode> 43036 </PostalCode> <Region> PR </Region> <Municipality> Fidenza </Municipality> <DeliveryAddress> <AddressLine> Via Trento 34 </AddressLine> </DeliveryAddress> </PostalAddress> <i>First line contains the street address (name and number)</i> <i>Second line contains the C.A.P (postal code), City, and province (in parenthesis).</i> <i>Third line contains country, if mailed outside of country.</i>
Canada	Paul Mercier 101, rue des Pins, app.10 BEAUPORT, Québec G1E 1K3 (Canada) <PostalAddress> <CountryCode> CA </CountryCode> <PostalCode> G1E 1K3 </PostalCode> <Region> Québec </Region> <Municipality> BEAUPORT </Municipality> <DeliveryAddress> <AddressLine> 101, rue des Pins, app.10 </AddressLine> </DeliveryAddress> <Recipient>

HR-XML Postal Address v1.0 Schema/DTD

	<p> <PersonName> <FormattedName>Paul Mercier</FormattedName> </PersonName> </Recipient> </PostalAddress> </p> <p> <i>Canadian postal codes are always listed in the same format: The sequence is always Alphabetical character/Number/Alpha (full space) Number/Alpha/Number. Each code represents a specific geographic location, ranging from one side of a city block to a specific company, which receives large volumes of mail.</i> </p>
Russia	<p> 308061, Belgorod A.Я. 495 </p> <p> <PostalAddress type="postOfficeBoxAddress"> <CountryCode>RU</CountryCode> <PostalCode>308061</PostalCode> <Municipality>Belgorod</Municipality> <DeliveryAddress> <AddressLine> A.Я. 495</AddressLine> </DeliveryAddress> </PostalAddress> </p> <p> <i>In the example above, "A.Я." stands for "abonentny yashik" which is Russian for "Post Office Box". The format is inverted – postal code and municipality are on the first lines, followed by the street address and finally by the recipient. The above example is for a delivery address – in a return address the city comes before the postal code.</i> </p>
Simplified Chinese (Mainland China)	<p> Typical Chinese envelopes have zip code (six digits) boxes at the left upper corner. You should fill them out with recipient's zip code. Address can consist of three lines or four lines, depending upon your need. First line contains country, city and company (or "unit" as most Chinese would call it). Second line consists of street and number. The third line prints the recipient's name. There should always be one or two space between name and the address. </p> <p> The sender's address should always be printed at the right lower corner on the envelope. The format is the same as above except that the zip code appears at the end of the address and there is no space needed between the name and address </p>

HR-XML Postal Address v1.0 Schema/DTD

Implementation Considerations

- When generating a mailing label, the country code may be translated into a country name based upon the language of the postal sender.
- Recipient is optional because many business processes store the intended recipient name separately from postal address. If your schema handles the recipient information elsewhere, avoid redundancy by not populating Recipient in PostalAddress elements.
- The order of the elements within PostalAddress often matters when transforming elements for presentation purposes. For example, multiple AddressLine elements typically will be rendered on separate lines in the order that they were given in the XML.
- If the PostalAddress includes the name of a person, that information should always be within the Recipient/PersonName element and sub elements, never in the DeliveryAddress element or Recipient/AdditionalText element. The Recipient/PersonName/FormattedName element may be used if the XML sender cannot break out individual recipient name parts. Although not preferable, all other recipient information may be sent in AddressLine elements when the XML sender does not have enough information to build recipient elements or chooses not to use the Recipient/PersonName/FormattedName element. This allows parties receiving XML to safely determine whether or not an address includes the name of the recipient simply by checking for the presence of a Recipient/PersonName element.
- The country names are inferred from the ISO 3166 country code standards. It is up to the implementer to provide the cross-reference between the ISO country code and the country name.
- Some shipping companies will not deliver to post office boxes. The PostalAddress type is used to differentiate mail sent to a post office box address versus mail sent to a street address. This should assist the sender in selecting the appropriate shipping company for delivery to the different types of addresses.
- If a company has a street and a post office box address, use multiple postal address elements.
- Formatting characters should be left out of the postal codes.

HR-XML Postal Address v1.0 Schema/DTD

Appendix A – Schema/DTD Source

Notice that V01.00 PersonName schema is used within this source.

```
<!-- Copyright 2000 The HR-XML Consortium (TM) -->
<!-- version 1.0  October 17 2000 -->
<!-- 11/05/2000 Changed all elements to UpperCamelCase -->

<!ELEMENT PostalAddress (CountryCode , PostalCode? , Region* , Municipality? , DeliveryAddress? ,
Recipient* )>
<!ATTLIST PostalAddress type (postOfficeBoxAddress | streetAddress | undefined ) 'undefined' >

<!ELEMENT PostalCode (#PCDATA )>

<!ELEMENT CountryCode (#PCDATA )>

<!ELEMENT Region (#PCDATA )>

<!ELEMENT Municipality (#PCDATA )>

<!ELEMENT DeliveryAddress (AddressLine* )>

<!ELEMENT AddressLine (#PCDATA )>

<!ELEMENT Recipient (PersonName? , AdditionalText* , Organization? )>

<!ELEMENT PersonName (FormattedName* , GivenName* , PreferredGivenName? , MiddleName? ,
FamilyName* , Affix* )>

<!ELEMENT FormattedName (#PCDATA )>
<!ATTLIST FormattedName type (presentation | legal | sortOrder ) 'presentation' >

<!ELEMENT GivenName (#PCDATA )>

<!ELEMENT PreferredGivenName (#PCDATA )>

<!ELEMENT MiddleName (#PCDATA )>

<!ELEMENT FamilyName (#PCDATA )>
<!ATTLIST FamilyName primary (true | false | undefined ) 'undefined' >

<!ELEMENT Affix (#PCDATA )>
<!ATTLIST Affix type (academicGrade |
aristocraticPrefix |
aristocraticTitle |
familyNamePrefix |
familyNameSuffix |
formOfAddress |
generation ) #REQUIRED >

<!ELEMENT AdditionalText (#PCDATA )>

<!ELEMENT Organization (#PCDATA )>
```

HR-XML Postal Address v1.0 Schema/DTD

Appendix B - Schema/DTD Revision History

Version	Date	Revisions
v00.01	7/27/2000	Initial Draft
v00.01.02	8/15/2000	Revised recipientInformation element contents, and replaced cityTownName with municipality.
V00.01.03	8/27/00	Modified document based on 8/17 meeting. Formatting, spelling corrections, removed redundant or unnecessary information.
V00.01.04	9/1/00	Removed formatted unformatted recipient information elements. Renamed 'other' element to displayLine and RecipientInformation to Recipient. Moved PersonName, organization, and displayLine elements directly under Recipient.
V00.01.05	9/09/00	Renamed country element to countryCode and displayLine to additionalText. Moved countryCode to before postalCode element.
V01.00	9/21/00	Added PostalAddressType. Made changes to attributes for consistency. Removed references to postal codes and formats from an unapproved source. This version will be presented to the TSC and CPO for review and approval. KB
v01	10/05/00	Expanded DeliveryAddress element to include multiple occurrences of an addressLine. This modification was made to allow for validation of addresses in a future release. This version will be presented to the full membership for approval. KB
V1.0	10/27/00	Added copyright information. This version is approved by the HR-XML Consortium.
V1.0	11/05/00	Changed all elements to UpperCamelCase.

Appendix C – Mailing label transformation reference table

This table provides implementation considerations on how to print the labels.

- ISO 3166-1 contains a two-letter code (Alpha-2-code), a three-letter code (Alpha-3-code) and a three-digit numeric code (Numeric-3-code) for every entry in its list of country names. The HR-XML standard will utilize the ISO 3166-1993 (E) two-letter alpha code.
- This table is a representative sample of mailing label transformations. For current and complete information, please refer to <http://www.oasis-open.org/cover/country3166.html>.

Country	ISO 3166-1
Argentina	AR
Australia	AU
Belgium	BE
Brazil	BR
Canada	CA
China	CN
Cuba	CU
Finland	FI
France	FR
Germany	DE
Hungary	HU
India	IN
Ireland	IE
Italy	IT
Japan	JP
Korea, South	KR
Mexico	MX
South Africa	ZA
Spain	ES
Switzerland	CH
United Kingdom	GB
United States of America	US

HR-XML Postal Address v1.0 Schema/DTD

Appendix D – Sample XSL template

This appendix contains some sample XSL, which might be used to generate envelope addresses for PostalAddress XML data being sent and received within the U.S.A.

For any given PostalAddress, the XSL sample generates lines for the recipient. It then generates delivery address lines, followed by a line containing city, state, and zip. The output is generated in HTML.

<p>For an XML input like this:</p> <pre><PostalAddress> <CountryCode>US</CountryCode> <PostalCode>07090</PostalCode> <Region>NJ</Region> <Municipality>Westfield</Municipality> <DeliveryAddress> <AddressLine>423 St. Marks Ave</AddressLine> </DeliveryAddress> <Recipient> <PersonName> <Affix type="FormOfAddress">Mr.</Affix> <GivenName>John</GivenName> <PreferredGivenName>Jack</PreferredGivenName> <MiddleName>Smith</MiddleName> <FamilyName primary="undefined">Major</FamilyName> </PersonName> <AdditionalText>Mailstop X37</AdditionalText> <Organization>Laptop Welders, Inc.</Organization> </Recipient> </PostalAddress></pre>	<p>The stylesheet generates:</p> <p>Mr. John Smith Major Mailstop X37 Laptop Welders, Inc. 423 St. Marks Ave. Westfield, NJ 07090</p>
--	---

Here is the stylesheet:

```
<?xml version='1.0'?>
<xsl:stylesheet xmlns:xsl="http://www.w3.org/TR/WD-xsl">

<xsl:template match="/">
  <xsl:apply-templates />
</xsl:template>

<xsl:template match="PostalAddress">
  <xsl:apply-templates select="Recipient" />
  <xsl:for-each select="DeliveryAddress/AddressLine">
    <xsl:value-of select="." /><br />
  </xsl:for-each>
  <xsl:value-of select="Municipality" />, <xsl:value-of select="Region" /> <xsl:value-of select="PostalCode" /><br />
</xsl:template>

<xsl:template match="Recipient">
  <xsl:apply-templates />
</xsl:template>

<xsl:template match="PersonName">
  <xsl:apply-templates /><br />
</xsl:template>
```

HR-XML Postal Address v1.0 Schema/DTD

```
<xsl:template match="FormattedName">
  <xsl:value-of select="." />
</xsl:template>

<xsl:template match="GivenName">
  <xsl:value-of select="." />
</xsl:template>

<xsl:template match="MiddleName">
  <xsl:value-of select="." />
</xsl:template>

<xsl:template match="FamilyName">
  <xsl:value-of select="." />
</xsl:template>

<xsl:template match="Affix">
  <xsl:value-of select="." />
</xsl:template>

<xsl:template match="AdditionalText">
  <xsl:value-of select="." /><br />
</xsl:template>

<xsl:template match="Organization">
  <xsl:value-of select="." /><br />
</xsl:template>

</xsl:stylesheet>
```