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# Fannie Mae and Freddie Mac Uniform Appraisal Dataset Specification

## Document Version 1.2

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*This specification relates to the Uniform Mortgage Data Program, an effort undertaken jointly by Freddie Mac and Fannie Mae at the direction of their regulator, the Federal Housing Finance Agency.*

## Document Updates

The Uniform Appraisal Dataset (UAD) Specification is co-authored by Fannie Mae and Freddie Mac, the government-sponsored enterprises (the GSEs). This document addresses the property appraisal process associated with loans delivered to the GSEs and is intended for lenders, appraisers, and other industry participants, such as appraisal management companies and software providers. The UAD Specification will be updated as needed. To learn about future updates to the UAD Specification, visit:

	
<p>For more information about Fannie Mae's single-family mortgage business solutions and doing business with us, visit <a href="https://www.fanniemae.com">FannieMae.com</a>.</p> <p>Fannie Mae provides the latest single-family mortgage business news via e-mail. To receive notification of future document updates, sign up for Fannie Mae's single-family alerts at <a href="https://www.fanniemae.com/s/profile/notification">https://www.fanniemae.com/s/profile/notification</a>.</p>	<p>To review recent UAD updates, visit <a href="http://www.FreddieMac.com/sell/secmktg/uniform_mortgage.html">www.FreddieMac.com/sell/secmktg/uniform_mortgage.html</a>.</p> <p>For recent news and communications relating to Freddie Mac's Single-Family business, visit our Single-Family News Center at <a href="http://www.FreddieMac.com/singlefamily/news/">www.FreddieMac.com/singlefamily/news/</a>.</p>

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## Document Version and Revision History

Date	Version #	Description
December 16, 2010	1.0	Initial version
February 18, 2011	1.1	<ul style="list-style-type: none"><li>• Section 4.1 - removed reference to cardinality</li><li>• Entire document – corrected references to MISMO and GSE Extended schemas</li><li>• Section 4.4 – added note requiring “UAD Version 9/2011”</li></ul>
August 11, 2011	1.2	<ul style="list-style-type: none"><li>• Updated the Table Column Name Description of Field Length on pg. 9</li><li>• Clarified truncation and formatting requirements on pgs. 12 &amp; 14</li></ul>

# 1. Introduction and Purpose

Under the direction of the Federal Housing Finance Agency (FHFA), the GSEs have defined the Uniform Appraisal Dataset (UAD) that includes all required data points for a complete appraisal report form and standardizes key appraisal data for a subset of fields on the Fannie Mae and Freddie Mac uniform residential appraisal report forms.

For conventional loans delivered to the GSEs on or after March 19, 2012 (and with application dates on or after December 1, 2011), Fannie Mae and Freddie Mac will require lenders to deliver electronic appraisal data prior to the loan delivery date. The appraisal data must conform to the UAD and be delivered through the Uniform Collateral Data Portal<sup>®</sup> (UCDP<sup>®</sup>). The UAD and UCDP will help lenders, the GSEs, and other industry participants manage collateral risk through efficient collection and use of high-quality appraisal data.

The UAD supports improved quality and accuracy of the appraisal data while preserving each GSE's ability to determine what the data means to loan performance and loan quality. The GSEs will each continue to exercise independent business judgment in evaluating and maintaining business terms, credit policies, and analytics. Differences in the assessment and use of the appraisal data will remain due to each GSE's unique and separate business policies, mortgage products, and processes.

This document provides business and technical requirements for the GSEs common implementation and usage of the Mortgage Industry Standards Maintenance Organization's (MISMO<sup>®</sup>) Property Valuation Response v2.6 Errata 1 schema.

## 2. Specification Overview

The UAD Specification provides a framework for identifying the data that will be required for the delivery of an electronic appraisal file to the UCDP.

This document serves as a guide to assist with:

- Data mapping and instructions, field formats, and XML container structure that is applicable to the UAD.
- Creation of a well-formed XML file in accordance with the Property Information Valuation Response v2.6 GSE Extension Schema, as extended for the UAD.
- Implementation of the UAD to submit appraisal data to either or both of the GSEs through UCDP.
- Understanding the requirements and definitions for implementation of the UAD.

The UAD will apply to the following four uniform residential appraisal report forms:

Appraisal Form Name	Fannie Mae Form Number	Freddie Mac Form Number
Uniform Residential Appraisal Report	1004	70
Individual Condominium Unit Appraisal Report	1073	465
Exterior-Only Inspection Individual Condominium Appraisal Report	1075	466
Exterior-Only Inspection Residential Appraisal Report	2055	2055

Lenders are accountable for the quality of the appraisals and the appraisal data they submit. Lenders must comply with the requirements of the UAD and must ensure these requirements are met when the appraisal data is prepared by a third party.

This document is *not* intended to:

- Be a comprehensive developer’s guide.
- Explain how systems need to electronically transmit appraisal data to UCDP.
- Provide a comprehensive tutorial about XML. However, there are certain aspects of XML that are important for the proper implementation of the UAD that are reviewed in this document.

### 3. Introduction to MISMO Property Valuation Response v2.6 Errata 1

MISMO, the leading technology standards development body for the residential and commercial real estate finance industries, is a wholly owned subsidiary of the Mortgage Bankers Association. The MISMO standards are grounded in an open process to develop, promote, and maintain voluntary electronic commerce procedures and standards that allow mortgage lenders, investors in real estate and mortgages, servicers, industry vendors, borrowers, and other parties to exchange real estate finance–related information and eMortgages more securely, efficiently, and economically.<sup>1</sup>

The MISMO Property Valuation Response v2.6 Errata 1 schema and MISMO Logical Data Dictionary (LDD) were used by the GSEs to define the UAD. Several MISMO data points and corresponding definitions did not meet the requirements of the GSEs to capture specific data points on the appraisal forms. There are several appraisal form fields that require a new GSE data point, either as a single data point entry or when combined with other data points. Therefore, the GSEs created custom data points known as “extensions.” These extensions either define a new use for an existing data point or create a new one. The data points are in the

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<sup>1</sup> <http://www.mismo.org/about-mismo.html>

EXTENSION container and begin with “GSE.” Refer to the table below for an example of an extension associated with a new GSE data point.

Form Reference Number	Form Section	Form Field Label	Data Point Name	Data Point Definition
11	SUBJECT	Owner of Public Record	GSE Property Owner Name	The unparsed name of the property owner(s)

Source: Appendix A: GSE Appraisal Forms Mapping

The new GSE data points contain an “e” at the beginning of the form reference number. Refer to the table below for an example of the extensions associated with the new GSE data point.

Form Reference Number	Form Section	Form Field Label	Data Point Name	Data Point Definition
e-2	SUBJECT	Report data source(s) used, offering price(s), and date(s)	GSE Days On Market Description	The number of days the property was listed on the market from the most recent listing.

Source: Appendix A: GSE Appraisal Forms Mapping

Refer to *Figure 1 Example of the 1004/70 Uniform Residential Appraisal Report* in Section 4.2 below for an example of how the new GSE data points will be presented on the appraisal forms.

## 4. Appendices Overview

The information presented in the Appendices, which are provided as separate documents, is intended to be used by a variety of audiences obtaining requirements for populating and parsing the appraisal forms, or implementing the UAD.

The following subsections provide details about the Appendices, which are key implementation documents.

### 4.1 Appendix A and Appendix B: GSE Appraisal Forms Mapping

Appendix A and Appendix B are the same appraisal form mapping documents. Both documents illustrate how the appraisal data is supported within the corresponding appraisal XML file by providing field-level data mapping instructions for the four supported GSE appraisal forms. They also contain a matrix that presents the appraisal data in container hierarchy order. The matrix provides a holistic view to show how the data

point is replicated and leveraged across the four appraisal forms. The mapping documents are differentiated in the following ways:

- **Appendix A: GSE Appraisal Forms Mapping (PDF version)** is the true and preserved source of the UAD. Technology systems must support all of the data points defined in Appendix A.
- **Appendix B: GSE Appraisal Forms Mapping (Microsoft Excel® version)** provides a flexible format for viewing and sorting the appraisal data in a spreadsheet.

Appendix A provides details about the four appraisal forms and data mapping in appraisal form order (which is different from Schema order). The Appendix A mapping table consists of the following columns:

<b>Table Column Name</b>	<b>Table Column Name Description</b>
<b>Sort ID</b>	Represents a unique number assigned to the data point name that provides the ability to sort and display the data back in the original order.
<b>Form Page</b>	Represents the page number(s) assigned to the specific field on the appraisal form.
<b>Form Reference Number</b>	Represents the form reference number on the appraisal form. Refer to Figure 1 in Section 4.2 for an example.
<b>Form Section</b>	Represents the form section on the appraisal form. Refer to Figure 1 in Section 4.2 for an example.
<b>Form Field Label</b>	Represents the form field label on the appraisal form. Refer to Figure 1 in Section 4.2 for an example.
<b>Data Point Name</b>	Represents the name for a given data point. <ul style="list-style-type: none"> <li>• MISMO data point names were obtained from the MISMO Logical Data Dictionary.</li> <li>• Several data points are captured in extensions. The extension data point names were defined by and are considered proprietary to the GSEs, and will not be available in the MISMO Logical Data Dictionary.</li> </ul>
<b>Data Point Definition</b>	Represents the definition for the corresponding data point name. <ul style="list-style-type: none"> <li>• MISMO data point definitions were obtained from the MISMO Logical Data Dictionary.</li> <li>• The extension data point definitions were defined by the GSEs and are considered proprietary to the GSEs, and will not be available in the MISMO Logical Data Dictionary.</li> </ul>
<b>XPath</b>	Represents the XPath used to navigate through elements and attributes in an XML document (refer to Section 5.3 for an

Table Column Name	Table Column Name Description
	example of an XPath). The XPath includes the supported enumerated value for the corresponding data point when applicable.
<b>Field Length</b>	Represents the allocated field length for the data points within the XML. This is not the form field length. The form field length for PDF rendering must not exceed the allocated field length for the XML.
<b>Format</b>	Represents the required format for the field, the field types supported are: <ul style="list-style-type: none"> <li>• Boolean</li> <li>• Date/Time</li> <li>• Enumerated</li> <li>• Money</li> <li>• Numeric</li> <li>• String</li> </ul> Refer to Section 5.4, Data Format Type, for additional information about the supported data value formats.
<b>Implementation Notes</b>	Provides instructions or clarification for supporting the data point.
<b>Conditionality Description</b>	Represents the criteria for the conditionality of the data points.
<b>Conditionality</b>	Represents the conditionality of the data point. The conditionality column will contain one of the three indicators: <ul style="list-style-type: none"> <li>• <b>Required (R)</b>: The data point must be included in the appraisal XML file.</li> <li>• <b>Conditionally Required (CR)</b>: The data point must be included in the appraisal XML file when a defined business condition exists. The conditionally required parameters are provided in the Conditionality Description column.</li> <li>• <b>Transmit (T)</b>: The data point must be supported. If populated by the appraiser, then the value must be included in the appraisal XML file.</li> </ul>

#### 4.2 Appendix C: Appraisal Forms with Numbered Fields

The GSEs have numbered the data fields in the four supported appraisal forms so every field label has a corresponding form reference number. Appendix C provides a standardized appraisal form template containing the field label and corresponding form reference number for the four supported appraisal forms. The form reference number

provides an easy way to map the form field label to the applicable XML data point name in Appendix A. The form reference numbers are not in consecutive order on the appraisal forms.

**The PDF version of the appraisal form must not contain data for which there is no form field reference number as shown in Appendix C. For example, grayed-out fields must not be populated on the appraisal form because there is no corresponding data point in the electronic appraisal XML file.**

Several of the column names provided in the Appendix A mapping table correspond to sections of the appraisal forms (which may be found in Appendix C). Figure 1 illustrates which column names correlate to the applicable section on the print appraisal form.

<b>SUBJECT</b>	Property Address	6		City	
	Borrower	10	Owner of Public Record	11	
	Legal Description	13			
	Assessor's Parcel #	14		Tax Year	
	Neighborhood Name	17		Map Referen	
	Occupant	<input type="checkbox"/> 20 Owner <input type="checkbox"/> 21 Tenant <input type="checkbox"/> 22 Vacant		Special Assessments \$	23
	Property Rights Appraised	<input type="checkbox"/> 28 Fee Simple <input type="checkbox"/> 29 Leasehold			
	Assignment Type	<input type="checkbox"/> 32 Purchase Transaction <input type="checkbox"/> 33 Refinance Tr			scribe) 35
	Lender/Client	36		Address	37
	Is the subject property currently offered for sale or has it been offered for sale in the twelve months prior t				
Report data source(s) used, offering price(s), and date(s). e-2: 40					

Figure 1. Example of the 1004/70 Uniform Residential Appraisal Report

### 4.3 Appendix D: Field-Specific Standardization Requirements

The GSEs provide additional business requirements and instructions in Appendix D: Field-Specific Standardization Requirements for certain appraisal form fields. When additional business *requirements* exist, the implementation notes column of Appendix A will state “UAD Requirement – See Appendix D”. When additional business *instructions* exist, the implementation notes column of Appendix A will state “UAD Instruction – See Appendix D”.

The use of the UAD provides a new level of consistent reporting regardless of geographic location of the property or any localized conventions. It is important to note that these standards are in addition to existing reporting requirements already published in either or both GSEs’ appraisal-related policies and guidelines. Conforming to the UAD does not relieve appraisers of their development and reporting responsibilities as required by the Uniform Standards of Professional Appraisal Practice (USPAP).

#### 4.4 Appendix E: PDF Rendering and Parsing Instructions

The GSEs standardized many data fields on the four GSE appraisal forms referenced in Appendix A. In certain cases more than one data value will be populated in the appraisal form field. For the purpose of appraisal form readability and PDF data parsing, Appendix E provides instructions for rendering and parsing the following appraisal form fields.

- Report Data Source(s) Used, Offering Price(s), and Date(s)
- Explain the results of the analysis of the contract for sale or why the analysis was not performed
- If Yes, report the total dollar amount and describe the items to be paid
- View
- Year Built
- Describe the condition of the property (including needed repairs, deterioration, renovations, remodeling, etc.)
- Address (line 2) / Company Address (line 2)
- Location
- Actual Age
- Basement and Finished Rooms Below Grade
- (Sales Comparison Approach) Date Source(s)
- (Sales Comparison Approach) Sale or Financing Concessions
- Date of Sale/Time
- Is there any commercial space in the project?

The order in which the data is printed on the appraisal form is very important. Data will not be captured properly in the appraisal XML file or for PDF extraction if the order does not comply with instructions outlined in Appendix E.

For appraisal reports prepared using the Uniform Appraisal Dataset (UAD) specification, the PDF must be noted with the UAD version that was utilized in the preparation. The following notation “UAD Version 9/2011” must appear at the bottom of each page in the bottom margin with placement to the left of the page number. For example:

#### 4.5 Appendix F: Property Information Valuation Response v2.6 GSE Extension Schema

Appendix F is the GSE XML schema and best viewed in XML Editor Software. The GSE schema is based on the MISMO REAL\_ESTATE\_PROPERTY\_INFORMATION\_VALUATION\_RESPONSE\_v2\_6\_Errata1.xsd (schema) and includes the GSE data point extensions. Refer to Figure 2 (below) for an example of the extension section:

```

<!-- Added Extension for the UNIFORM APPRAISAL DATASET -->
  <xs:element name="OVERALL_CONDITION_RATING">
    <xs:complexType>
      <xs:attribute name="GSEOverallConditionType">
        <xs:simpleType>
          <xs:restriction base="xs:token">
            <xs:enumeration value="C1"/>
            <xs:enumeration value="C2"/>
            <xs:enumeration value="C3"/>
            <xs:enumeration value="C4"/>
            <xs:enumeration value="C5"/>
            <xs:enumeration value="C6"/>
          </xs:restriction>
        </xs:simpleType>
      </xs:attribute>
      <xs:attribute name="GSEUpdateLastFifteenYearIndicator">
        <xs:simpleType>
          <xs:restriction base="xs:token">
            <xs:enumeration value="Y"/>
            <xs:enumeration value="N"/>
          </xs:restriction>
        </xs:simpleType>
      </xs:attribute>
    </xs:complexType>
  </xs:element>
<!-- Added Extension for the UNIFORM APPRAISAL DATASET -->

```

**Figure 2. Example of the XML extension section from the Property Information Valuation Response v2.6 GSE Extension Schema**

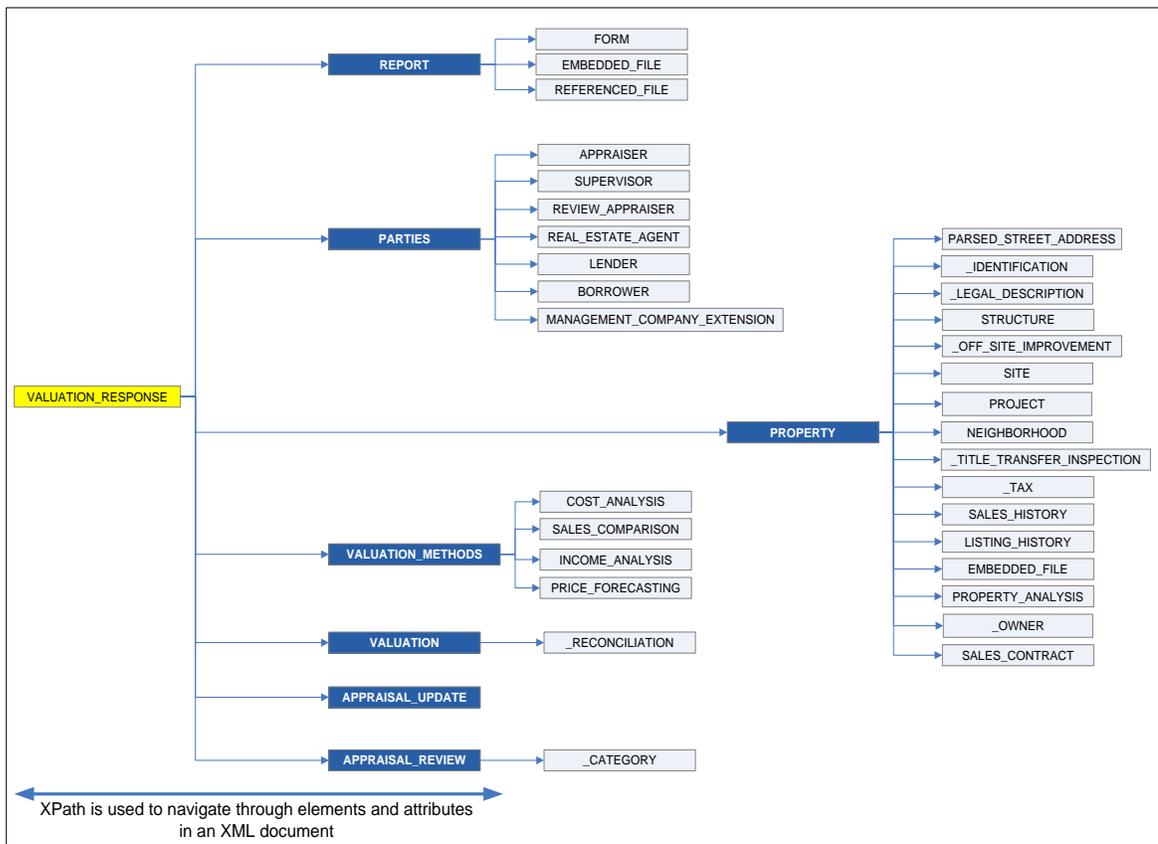
Lenders and industry participants implementing the appraisal XML file must use the Property Information Valuation Response v2.6 GSE Extensions Schema (available on the GSEs’ websites).

## 5. Creating an XML File

The appraisal XML file must be created using the requirements described in Appendix A. Appendix D includes additional information about expected responses to a subset of key fields. The GSEs require the appraisal XML file to contain all data populated in the PDF version of the appraisal report. **Data may not be truncated within the XML file.** There are several instances when the XML allowable value in the transmitted file will be different than the value displayed in the PDF due to the use of proprietary extensions by the GSEs and the data formatting requirements of the Property Information Valuation Response v2.6 GSE Extension Schema. In these situations, the appraisal XML file must contain the corresponding full allowable value as defined in Appendix A. Refer to Appendix A for a list of the XML allowable values and corresponding PDF display values.

### 5.1 XML Container Hierarchy

There are many containers within the full MISMO Property Valuation Response Version 2.6 Errata 1 schema. The GSEs utilize only a subset of the defined MISMO containers. Figure 3 (below) provides a high-level overview of the Property Information Valuation Response v2.6 GSE Extension Schema and container hierarchy structure documented in Appendix A.



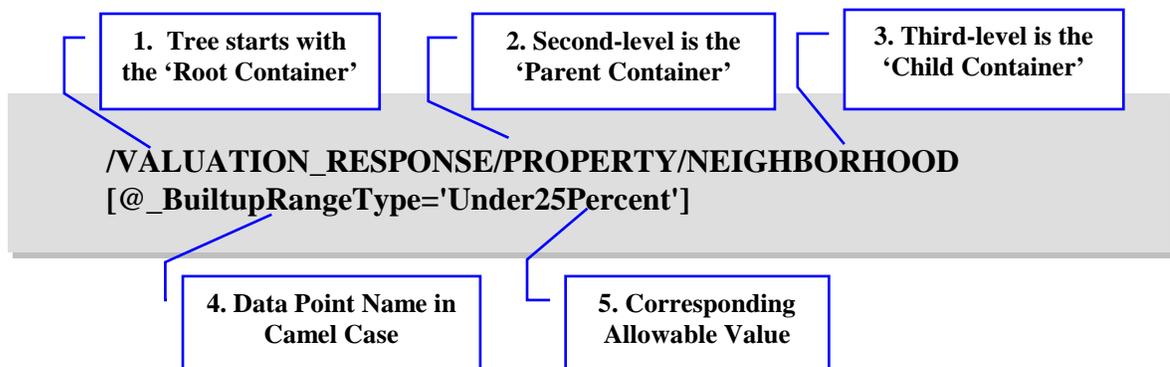
**Figure 3. Property Information Valuation Response v2.6 GSE Extension Schema - High-Level Container Hierarchy Overview**

## 5.2 Appraisal XML File Validation

The appraisal XML file must be well formed and contain the supported data points in the order specified. The data points must be spelled correctly and must be of the correct data format type. A system’s appraisal XML file must be fully validated and adhere to Appendix F: Property Information Valuation Response v2.6 GSE Extension Schema.

## 5.3 XPath

The XPath is an XML Path language that describes how to navigate and locate specific elements and attributes within an XML document. The XPath treats an XML document as a logical ordered tree. The container name is always capitalized and the data point name is shown in camel case. Refer to the XPath example below.



For more technical information pertaining to XPaths, refer to the World Wide Web Consortium (W3C<sup>®</sup>) website.

**XPath Legend:**

Character Keys	Description
@	The @ sign indicates that the value is followed by an attribute name, not an element name.
/	The forward slash is the start of a location path for the root data element and is also used to separate the container name.
[ ]	The open and close bracket surrounds the attribute name and corresponding allowable value. For example, [ <code>@_BuiltupRangeType='Under25Percent'</code> ]

The data point name in Appendix A will not always match the schema element/attribute name, and there will be some slight differences with the naming convention. For example, the **“Property Tax Total Special Tax Amount”** MISMO Logical Data Dictionary data point name will be found in the schema as **“\_TotalSpecialTaxAmount”**. The developer will need to use the XPath to obtain the Property Tax Total Special Tax Amount corresponding to the XML data point name.

For more information about how to derive the MISMO Logical Data Dictionary entry, refer to the XML Implementation Guide: General Information – Version 2 available on MISMO’s website.

**5.4 Data Format Types**

The data in an appraisal XML file must pass certain data integrity rules. For example, an invalid enumeration or non-numeric data in a numeric field may cause the appraisal XML file to fail schema validation. Each field has a maximum character limit. Refer to Appendix A for the field length associated with the data type. Please note that the data in the appraisal XML file must include all data included within the PDF version of the appraisal report. Data may not be truncated within the XML file.

The table below provides additional instructions regarding the data format and how to populate data in the appraisal XML file. These may be more restrictive than the original MISMO data types:

Data Format	Data Value Format	Comments
Boolean	Y or N	The Boolean data type represents an attribute that always has the values of ‘Y’ or ‘N’ representing a ‘Yes’ or ‘No’ value. The <b>“Y”</b> or <b>“N”</b> values must be provided in upper case or the appraisal XML file will fail schema validation.

<b>Data Format</b>	<b>Data Value Format</b>	<b>Comments</b>
Date/Time	YYYY-MM-DD	The date/time data type represents a date only. The date must contain a dash (-) between the Year, Month, and Day – for example: <b>2010-03-25</b> .
Enumerated		The enumerated data type represents a list of predefined values.
Money	240000	The money data type represents whole numeric values only. The numeric value should not contain dollar signs (\$) or commas (,).
Numeric	999999999	The numeric data type represents a numeric value only and is used for ‘non-money’ data. The numeric value should not contain commas (,).
String		The string data type represents character strings and may contain a word, phrase, sentence or paragraph.

## 5.5 Special Characters

There are several reserved characters that cannot be included in the value of a data point unless they are properly “escaped.” The following table shows common characters and corresponding character encodings that must be properly escaped in the appraisal XML file for the file to be valid. (This table does not contain a comprehensive list of all the reserved characters.)

<b>Character</b>	<b>Properly Escaped</b>	<b>Description</b>
&	&amp	Ampersand
<	&lt	Less-than sign
>	&gt	Greater-than sign
“	&quot	Quotation Mark
‘	&apos	Apostrophe

## 5.6 Embedded PDF File

The appraisal XML file submission must also contain the first-generation Portable Document Format (.pdf) version of the appraisal form and corresponding addenda. The embedded file must be in a PDF format with Base64 encoding and must be located in the following XPath:

`/VALUATION_RESPONSE/REPORT/EMBEDDED_FILE/DOCUMENT.`

## 6. Additional Resources

Refer to the table below for additional resources and to access resources referenced in this specification.

<b>Document Name or Website</b>	<b>URL</b>
Fannie Mae Uniform Mortgage Data Program Information	<a href="https://www.fanniemae.com/singlefamily/uniform-mortgage-data-program">https://www.fanniemae.com/singlefamily/uniform-mortgage-data-program</a>
Freddie Mac Uniform Mortgage Data Program Information	<a href="http://www.FreddieMac.com/sell/secmktg/uniform_mortgage.html">http://www.FreddieMac.com/sell/secmktg/uniform_mortgage.html</a>
MISMO	<a href="http://www.mismo.org">http://www.mismo.org</a>
MISMO Property Valuation Response v2.6 Errata 1	<a href="http://www.mismo.org">http://www.mismo.org</a>
XML Implementation Guide: General Information – Version 2	<a href="http://www.mismo.org">http://www.mismo.org</a>
World Wide Web Consortium (W3C)	<a href="http://www.w3.org/">http://www.w3.org/</a>