



Freddie Mac
Implementation Guide for Loan Delivery Data

Selling System[®] MISMO XML
Technical Specification

Document Version 2.0.1

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November 7, 2017	2.0.1	<ul style="list-style-type: none"> ▪ Updated the MISMO Reference Model Identifier value in Section 3.1.2 How to invoke the ULDD extension
March 28, 2017	2.0.0	<ul style="list-style-type: none"> ▪ Updated document contents to align with ULDD Appendix D ▪ Updated references to ULDD Phase 3 ▪ Added best practice methodology to invoke and specify the MISMO extension containers
January 31, 2012	1.0.4	<ul style="list-style-type: none"> ▪ Updated effective dates, acronyms and URLs ▪ Removed references to retired Appendices B and C ▪ Updated contents to align with Appendix A v1.0.4 dated January 31, 2012 ▪ Updated CTE section
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August 3, 2010	1.0.02	Added diagrams to help depict the XML hierarchy
June 28, 2010	1.0.01	Initial version

1. Introduction and Purpose

Under the direction of the Federal Housing Finance Agency (FHFA), the GSEs have defined and agreed upon a common set of loan delivery data requirements applicable to each GSE's loan delivery process and business policies, the Uniform Loan Delivery Data (ULDD) specification. This Freddie Mac Implementation Guide for Loan Delivery Data is based on the ULDD and provides the necessary information for a developer building an interface to the Freddie Mac Selling System®.

The Implementation Guide is intended for use by a Freddie Mac-approved seller or vendor to facilitate the development of the interface between their product and Freddie Mac's Selling System. Freddie Mac is providing this interface to meet the needs of our customers by offering an efficient means to import loans into the Freddie Mac Selling System.

Uniform data requirements support improved quality and accuracy of the data while preserving each GSE's ability to determine what the data means to loan performance and loan quality in their individual businesses. The GSEs continue to exercise independent business judgment in evaluating, adopting, and maintaining business terms, credit policies, and analytics that are part of our individual customer relationships. Differences remain due to our unique business policies, mortgage products, and processes. The existence of the Uniform Loan Delivery Dataset helps both sellers and the GSEs manage risk through efficient collection and use of consistent information about loan terms, collateral, and borrowers.

2. Implementation Guide Overview

This Implementation Guide is designed to help sellers implement the MISMO Version 3.0 (v3.0) Reference Model in their loan delivery applications to meet the requirements for submitting loan delivery data to the Selling System in a MISMO eXtensible Markup Language (XML) file format. The document provides a framework for organizations to identify the set of data elements they will use during the Selling System loan delivery process.

Each GSE maintains GSE specific Implementation Guides. This Implementation Guide is specific to Freddie Mac's implementation of the ULDD and requirements for submitting loan delivery data in the MISMO file format to Freddie Mac's Selling System application.

This document includes the following Freddie Mac specific requirements and provides guidance on:

- Implementing a subset of the MISMO v3.0 Reference Model used in the Freddie Mac Selling System.
- Creating a well-formed XML file in accordance with the MISMO v3.0 Reference Model.
- Creating the MISMO extension containers that support ULDD Phase 3 data.
- Freddie Mac supported enumerations for the corresponding MISMO data points when the field format is listed as enumerated.
- Data mapping, field formats, valid values, and the hierarchical container structure applicable to the Selling System's usage of the loan delivery XML file.
 - The Freddie Mac conditionality for the associated data point as Required (R), Conditionally Required (CR), and Optional (O).

3. Introduction to MISMO Version 3.0

The Mortgage Industry Standards Maintenance Organization® (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 (MBA). 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.¹

In May 2010, the MISMO Residential Governance Committee approved the publication of the MISMO v3.0 Reference Model. MISMO v3.0 is designed to facilitate one data model, which promotes data transparency and strengthens data validation. The XML-based MISMO v3.0 uses the full World Wide Web Consortium (W3C®) schema standard. It uses a common architecture and logical model, which results in the same format for any origination process and between processes (for example, between loan origination, secondary market, and loan servicing). This approach results in a consistent data structure with greater interoperability and efficiency of reuse.

The ULDD identified in Appendix D: Freddie Mac XML Data Requirements Reference Tool, is a subset of the complete MISMO v3.0 Reference Model, that is used for the GSE loan delivery applications. The data is obtained from the MISMO v3.0 XML Schema published in May 2010. Updates to Appendix D include an identification of the MISMO version and date of the schema used during our data mapping process.

Freddie Mac actively participates in the MISMO Workgroups that defined the MISMO v3.x standards. MISMO Workgroup membership includes technical and business representation from key mortgage industry lenders and vendors. The use of industry-standard documents and data is recognized as a critical component for industry automation, streamlining, and interoperability.

There are several key differences between the MISMO v3.0 Reference Model and previous MISMO versions that may be significant to those who are already familiar with MISMO data standards and technical specifications. Among the differences, MISMO v3.0:

- Is based on the W3C XML Schema standard instead of an XML Document Type Definition (DTD).
- Uses a single data repository and reference model representing the complete loan life cycle.
- Has a consistent message structure (Loan, Collateral, and Party).
- Is **not** backward compatible with previous MISMO versions.

The ULDD is only compatible with the MISMO version 3.0 Candidate Recommendation 2010-05 Reference Model. As MISMO continues to publish newer versions of the Reference Model, Freddie Mac will work with Fannie Mae to evaluate the Model to determine whether to implement the newer version.

ULDD Phase 3 requires the use of an additional XML schema file, the extension schema, to properly use the ULDD extensions in your loan delivery XML output file. The extension schema includes the additional constructs that are needed to properly validate the usage of any data included in the extension locations in your loan delivery XML file.

¹ <http://www.mismo.org/AboutMISMO>

3.1 Supporting Extensions in the MISMO Version 3.0 Reference Model

With the new reporting requirements presented in ULDD Phase 3, some of the data points and structures that are not in the MISMO Version 3.0 Reference Model have been included in later versions of the MISMO Reference Model. In order to incorporate these new data points and structures, extension containers are used as part of our specification using the MISMO Version 3.0 Reference Model. This provides ULDD customers the flexibility to extend their XML documents with data points and structures that meet the HMDA reporting requirements that are not specified by the current MISMO v3.0 Reference Model.

3.1.1 Actions Taken by the GSEs

A common solution that aligns with the configuration in the latest version of the MISMO Reference Model was developed jointly between Fannie Mae and Freddie Mac to accommodate the new HMDA reporting data requirements. An XML schema that meets the MISMO extension specifications was created to facilitate the transition of the new requirements for ULDD customers. The XML schema extension file is called ULDD_Phase_3_Extension.xsd

The ULDD_Phase_3_Extension file contains four new Extension containers:

- GOVERNMENT_MONITORING_DETAIL_EXTENSION
- GOVERNMENT_MONITORING_EXTENSION
- HMDA_RACE_EXTENSION
- LOAN_IDENTIFIER_EXTENSION

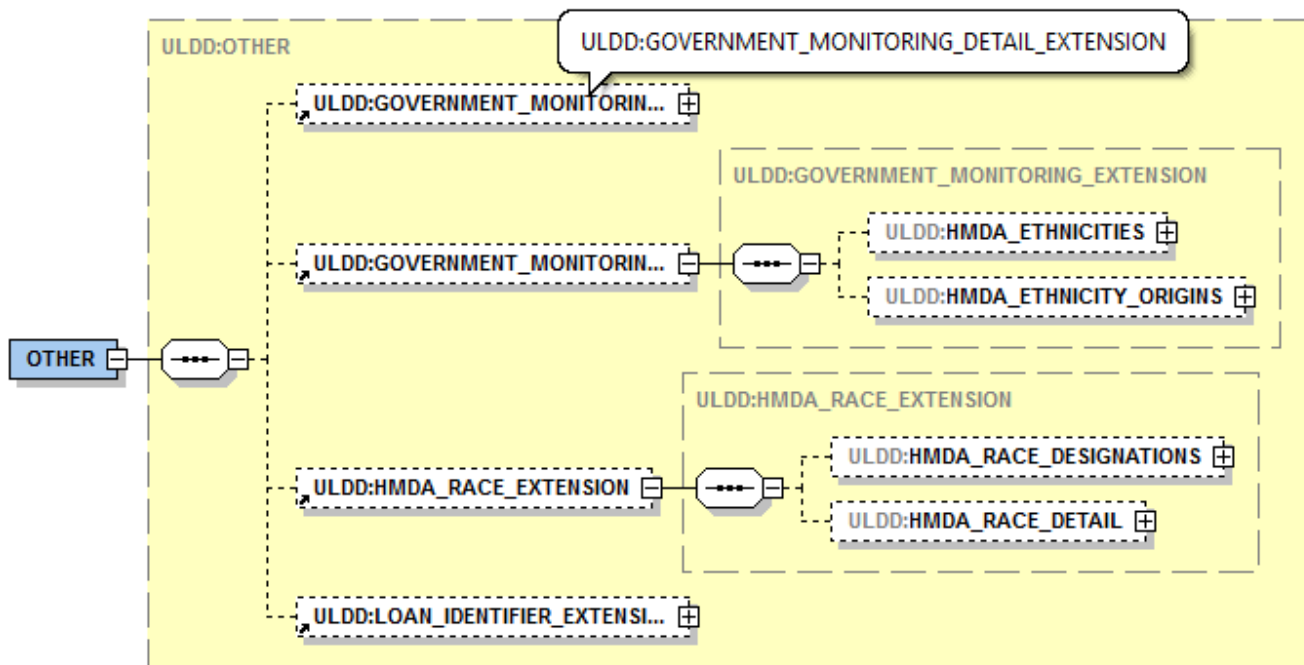


Figure 1 - Extension Containers that leverage the Other container

3.1.2 How to invoke the ULDD extension

To incorporate the use of the XML schema extension data points and structures in your data file you must modify the header record in your ULDD XML data file. You will need to include the line **xmlns:ULDD=<http://www.datamodeextension.org/Schema/ULDD>** which specifies the ULDD namespace as well as modify the schema location to

xsi:schemaLocation="http://www.datamodeextension.org/Schema/ULDD.

The example file location, **file:\ULDD_Phase_3_Extension.xsd**, is an example only, and will need to be setup according to your system requirements. This solution will not impact current ULDD customers until they are ready to use the new data points included in the extension elements. We have included an example of a header record to illustrate the above point, in Figure 2 (below). Implementers will need to modify the submission file prolog as needed:

```
<?xml version="1.0" encoding="UTF-8"?>
<MESSAGE xmlns="http://www.mismo.org/residential/2009/schemas"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xmlns:ULDD="http://www.datamodeextension.org/Schema/ULDD"
MISMOReferenceModelIdentifier="3.0.0.263.12"
xsi:schemaLocation="http://www.datamodeextension.org/Schema/ULDD
file:\ULDD_Phase_3_Extension.xsd">
```

Figure 2 – Updated header to include in data file (XML) using the ULDD XML schema extension.

3.1.3 Declaring Data Points from Extended Containers

In order to invoke the data points or enumerations within the extended containers, customers will incorporate the new, extended structures under the appropriate EXTENSION structure in their data file using the ULDD namespace. In the example below new HMDA Race and HMDA Race Designation data requirements are included under the EXTENSION structure for HMDA_RACE. The containers and data points under the OTHER structure will follow a hierarchy in alphabetical order that is consistent across the MISMO model.


```

<GOVERNMENT_MONITORING>
  <HMDA_RACES>
    <HMDA_RACE>
      <EXTENSION>
        <ULDD:OTHER>
          <ULDD:HMDA_RACE_EXTENSION>
            <ULDD:HMDA_RACE_DESIGNATIONS>
              <ULDD:HMDA_RACE_DESIGNATION>
                <ULDD:HMDARaceDesignationType>Korean</ULDD:HMDARaceDesignationType>
              </ULDD:HMDA_RACE_DESIGNATION>
              <ULDD:HMDA_RACE_DESIGNATION>
                <ULDD:HMDARaceDesignationType>Chinese</ULDD:HMDARaceDesignationType>
              </ULDD:HMDA_RACE_DESIGNATION>
            </ULDD:HMDA_RACE_DESIGNATIONS>
            <ULDD:HMDA_RACE_DETAIL>
              <ULDD:HMDARaceType>Asian</ULDD:HMDARaceType>
            </ULDD:HMDA_RACE_DETAIL>
          </ULDD:HMDA_RACE_EXTENSION>
        </ULDD:OTHER>
      </EXTENSION>
    </HMDA_RACE>
  </HMDA_RACES>

```

Figure 3 - Example of data point usage under the HMDA_RACE_EXTENSION container

3.1.4 Universal Loan Identifier

The Universal Loan Identifier is a unique identifier associated with the loan throughout the life of the loan transaction, starting at submission of the loan application. The number is composed of 45 alphanumeric characters and is located under the LOAN_IDENTIFIER_EXTENSION container.

The following example illustrates a sample ULI in the XML code:

```

<LOAN_IDENTIFIER>
  <EXTENSION>
    <ULDD:OTHER>
      <ULDD:LOAN_IDENTIFIER_EXTENSION>
        <ULDD:LoanIdentifier>10Bx939c5543TqA1144M999143X38</ULDD:LoanIdentifier>
        <ULDD:LoanIdentifierType>UniversalLoan</ULDD:LoanIdentifierType>
      </ULDD:LOAN_IDENTIFIER_EXTENSION>
    </ULDD:OTHER>
  </EXTENSION>
</LOAN_IDENTIFIER>

```

Figure 4 - Example of a Universal Loan Identifier in an XML file

4. Technical Overview

The Implementation Guide is designed to be used in combination with the following documents to properly create a loan delivery XML file. Refer to the following appendices and tools (which are provided as separate documents on Freddie Mac's ULDD web page). Descriptions of each appendix are provided below:

- Appendix A – Freddie Mac XML Data Requirements
- Appendix B – Freddie Mac Test Case Scenarios
- Appendix C - Freddie Mac XML Samples
- Appendix D – Freddie Mac XML Data Requirements Reference Tool
- Appendix E - MISMO v3.0 Reference Model and ULDD Phase 3 Extension Schema (.zip)

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

4.1 *Appendix A – Freddie Mac XML Data Requirements*

Appendix A is a protected static view of Appendix D in PDF format. This is provided as a convenience for users with a fixed view of the data. Refer to the Appendix D section below for additional details and context.

4.2 *Appendix B – Freddie Mac Test Case Scenarios*

Several scenarios are provided for mortgage loan products that capture fictitious data to illustrate how the loan delivery data is populated within the corresponding loan delivery XML file.

We are providing Freddie Mac specific common usage scenarios to include the specific MISMO data points that are applicable to the ULDD Phase 2 and Phase 3 Freddie Mac loan deliveries. The Freddie Mac test case for Scenario 1 represents a complete loan delivery. Scenarios 2 through 5 depict those loan features that are highlighted within the test case and it should be noted that they correspond to the full loan delivery detailed in Scenario 1.

- Scenario 1- Freddie Mac Refinance 30-Year Mortgage - Joint Test Case
(Joint Scenario with Fannie Mae)
 - Scenario 1A - Narrative
 - Scenario 1B - Data
- Scenario 2 – Freddie Mac Condominium Loan Test Case
- Scenario 3 – Freddie Mac Living Trust Test Case
- Scenario 4 – Freddie Mac Native American Tribal Organization Test Case
- Scenario 5 – Freddie Mac Multiple Borrowers Test Case

4.3 *Appendix C – Freddie Mac XML Samples*

In support of the usage scenarios and to illustrate how the loan delivery data is populated within the loan delivery XML file, several XML file samples are provided. The XML samples only reflect the data captured in usage scenarios applicable to Freddie Mac's loan delivery application. Sample XML files are provided for the following usage scenarios:

- Scenario 1 – Freddie Mac Phase 3 Refinance 30-Year Mortgage – Joint Test Case
- Scenario 2 – Freddie Mac Phase 3 Condominium Test Case
- Scenario 3 – Freddie Mac Phase 3 Living Trust Test Case
- Scenario 4 – Freddie Mac Phase 3 Native American Tribal Organization Test Case
- Scenario 5 – Freddie Mac Phase 3 Multiple Borrowers Test Case

4.4 Appendix D - Freddie Mac XML Data Requirements Reference Tool

This reference tool is an Excel spreadsheet created to enable an easy merge between the Freddie Mac and Fannie Mae Implementation Guide for Loan Delivery Data updates. Lenders and vendors can cut and paste into their working versions of these documents created from previously published materials. Using the Sort ID column can assist customers in reconciling the accuracy of the changes they make.

The format of Appendix D, Phase 3 requirements issued 3/28/17 follows the following column sequence:

Column Name	Column Name Description
ULDDS Sort ID	This column lists the unique number assigned to the MISMO data point, which provides the ability to sort and display the data in the original order.
Data Point Revision Effective Date	This column lists the Freddie Mac effective date for the data point revision.
Data Point Revision Description	This column contains a description of whether the data point is new to the Freddie Mac ULDD specification, or if it is an existing data point that requires an update and which column or columns contain the change.
MISMO v3.0 XPath	This column lists the XPath used to navigate through the XML document to the corresponding MISMO data point.
MISMO v3.0 Parent Container	This column lists the parent container name of the corresponding MISMO data point.
MISMO v3.0 Data Point Name	This column lists the MISMO term name for a corresponding data element or attribute.
MISMO v3.0 Data Point Definition	This column lists the MISMO definition for the data point.
Loan Role Type	This column only applies to MISMO data points in the LOAN container and lists the following Loan Role Type values: <ul style="list-style-type: none"> • SubjectLoan • RelatedLoan The cell is blank when the data point is not in the LOAN container.
Loan State Type	This column only applies to MISMO data points in the LOAN container and lists the following Loan State Type values: <ul style="list-style-type: none"> • AtClosing (Non-Mods) OR AtModification • AtClosing (Non-Mods) • AtClosing (Mods)

	<ul style="list-style-type: none"> • AtConversion • AtReset • Current <p>The cell is blank (N/A) when the data point is not in the LOAN container.</p>
Party Role Type	<p>This column only applies to MISMO data points in the PARTY container and lists the following Party Role Type values:</p> <ul style="list-style-type: none"> • Appraiser • AppraiserSupervisor • Borrower • DocumentCustodian • HomeownersAssociation • LoanDeliveryFilePreparer • LoanOriginationCompany • LoanOriginator • LoanSeller • NotePayTo • Other • Payee • Servicer • WarehouseLender <p>The cell is blank (N/A) when the data point is not in the PARTY container.</p>
ULDDS Conditionality (this column appears in the Phase 3 and Addenda tab)	<p>This column lists the GSE conditionality of the corresponding MISMO data point as originally defined in the ULDDS. The conditionality column lists contains one of three indicators:</p> <ul style="list-style-type: none"> • Required (R): The corresponding data point must be included in the loan delivery XML file on all loan delivery transactions. • Conditionally Required (CR): The corresponding data point must be included in the loan delivery XML file on all loan delivery transactions when a defined business condition exists. These conditions are consistent for each of the GSEs' loan delivery applications. • Conditionally Independent (CI): The corresponding data point must be included in the loan delivery XML file on all loan delivery transactions when a defined business condition exists. These conditions are NOT consistent for both of the GSEs' loan delivery applications. Refer to the GSE's Conditionality column to determine the appropriate usage of the data point.
FRE Conditionality	<p>This column lists the Freddie Mac conditionality of the corresponding MISMO data point. The column lists one of two conditionality indicators:</p> <ul style="list-style-type: none"> • Required (R): The data point must be included in the loan delivery XML file on all loan delivery transactions. • Conditionally Required (CR): The corresponding data point must be included in the loan delivery

	XML file on all loan delivery transactions when a defined business condition exists. These conditions are consistent for each of the GSEs' loan delivery applications. The conditionally required parameters are provided as well.
FRE Conditionality Details	This column provides the criteria for the Freddie Mac conditionality of the corresponding MISMO data point.
FRE Implementation Notes	This column provides additional instructions or clarification for supporting the corresponding MISMO data point.
ULDDS Format	This column lists the data format types supported by the ULDD: <ul style="list-style-type: none"> • Amount • Boolean • Date • Datetime • Day • Enumerated • Numeric • Percent • String Refer to section 5.10, Data Format Type, for additional information about the supported data value formats.
FRE-Supported Enumerations	This column only applies to MISMO data points with enumerated indicator and lists the Freddie Mac supported MISMO enumerations (valid values) for the corresponding MISMO data point. The cell is blank when the MISMO data point does not have associated valid values.
Required to Save file in Selling System	This column is blank unless the associated data point must be present in a partial loan file before it can be saved in the Selling System.
Selling System Screen Name	The Selling System screen headings and sub-headings appear in bold type. Sub-headings are preceded by periods (.). Screen names are in regular type and are followed by an asterisk (*) if they must be present to save the file.

4.5 Appendix E – MISMO version 3.0 Reference Model and ULDD Phase 3 Extension Schema

The MISMO version 3.0 Reference Model contains the elements and attributes that constitute the formation of the loan delivery file. In ULDD Phase 3, the file contains extension containers to support the delivery of HMDA data points.

5. XML File Creation

The loan delivery XML file must be created using the XML format described in Appendix A (or D): Freddie Mac XML Data Requirements, which is based on the Uniform Loan Delivery Dataset and MISMO v3.0 Reference Model schema.

The MISMO Version 3.0 Reference Model provides all the data elements, attributes, and enumerated values. A subset of the elements, attribute and valid values are supported by Freddie Mac. Refer to Appendix A (or D): Freddie Mac XML Data Requirements for details on the elements, attributes and valid values that are supported by the Selling System, as well as the conditionality rules for each ULDDS data point.

If a seller's loan delivery XML file contains elements, attributes or values specified in the MISMO v3.0 Reference Model but are not supported by Appendix A, that data will be dropped by the Selling System during the import process.

In some cases, Freddie Mac's business processes require a data point value not currently in the MISMO v3.0 Reference Model. In those cases, Freddie Mac will define the necessary value and associate it with the data point's partner data point ending in "OtherDescription". Values provided for the "OtherDescription" data point must match the values defined by Freddie Mac, or the value will be dropped on import and a purchase edit may result. Free-form text is not supported. When appropriate, Freddie Mac will work with MISMO to define new data values and incorporate them into a future version of the MISMO Reference Model.

The order of the data elements within the loan delivery XML file is very important and must match the order outlined in the MISMO v3.0 Reference Model. It is highly recommended that systems support a parser that complies with the W3C XML specifications. The loan delivery XML file must be well-formed and fully validated, and it must adhere to the MISMO v3.0 Reference Model schema. The following two files are available as part of the Reference Model, and are required to validate the loan delivery XML file using a parser: MISMO_3_0.xsd and xlink.xsd.

5.1 XML Container Hierarchy

There are many containers within the full MISMO v 3.0 Reference Model, structured in a hierarchical order. Initially, the Selling System will utilize only a subset of the defined containers. It is important that the XML file is built according to the hierarchy defined in the schema, which is also depicted in Appendix A. If this defined hierarchy is not followed, the XML file will not be valid and will fail when parsed against the schema.

Figure 5 below provides a high-level overview of the MISMO v3.0 Reference Model and container hierarchy structure as described in this document.

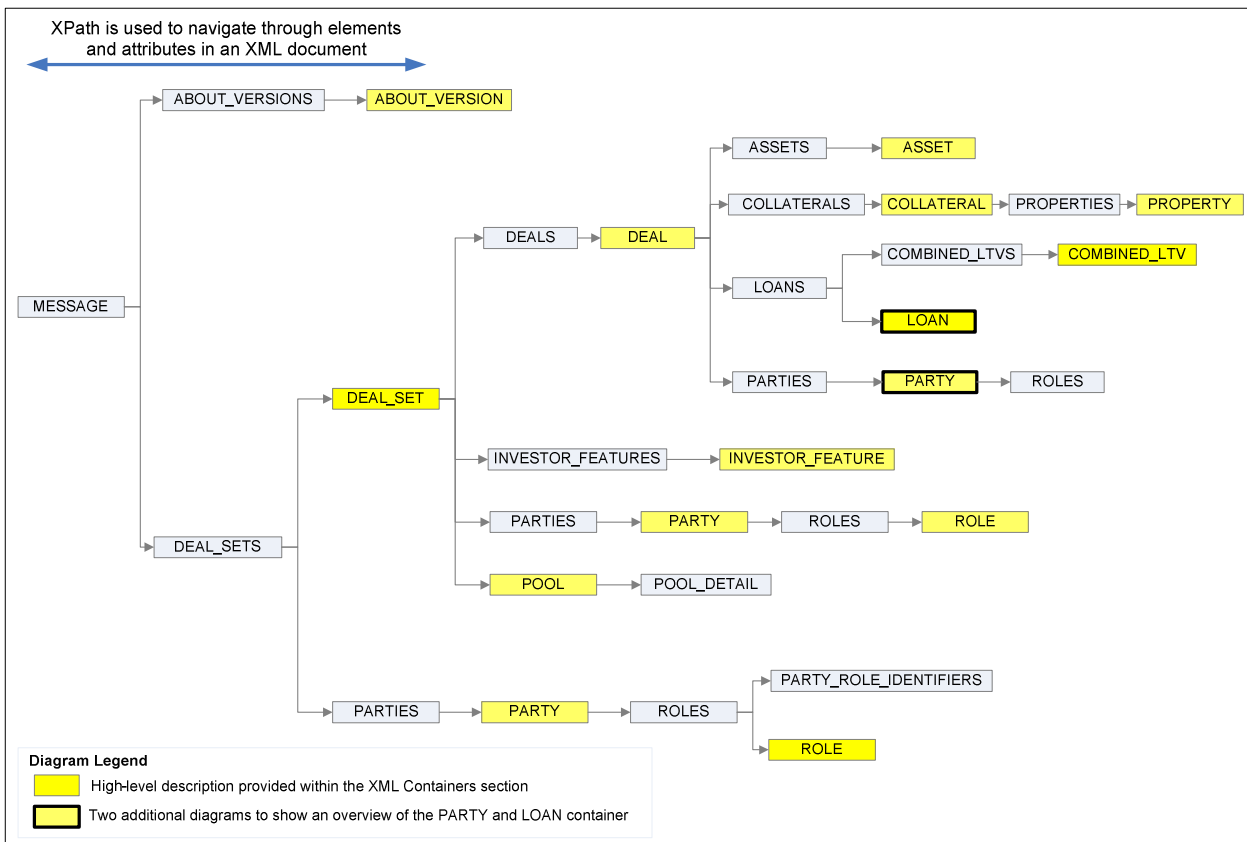


Figure 5 - MISMO Version 3.0 Reference Model – High-Level Container Hierarchy Overview

Figure 6 below shows the PARTY container hierarchy.

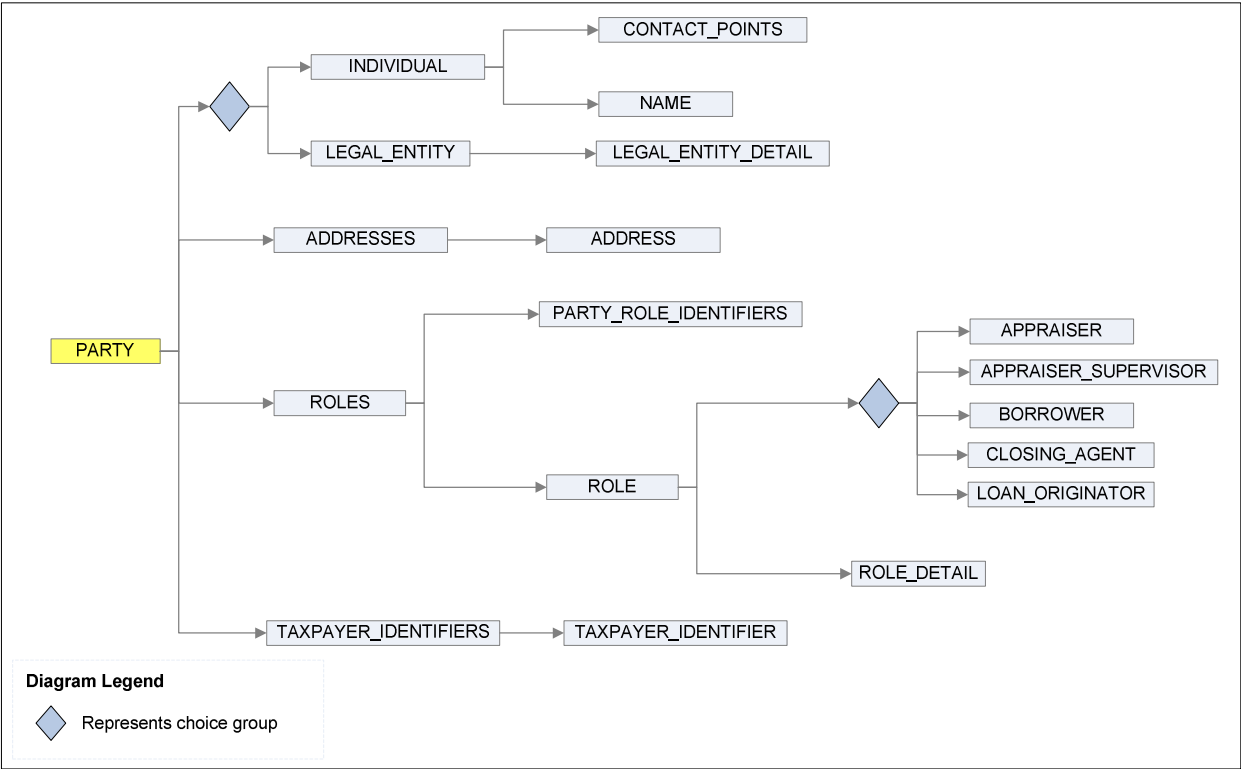


Figure 6 - MISMO Version 3.0 Reference Model – PARTY Container Hierarchy

Figure 7 below illustrates the many containers within the LOAN container hierarchy being used by each GSE in their respective implementations of the MISMO v3.0 Reference Model.

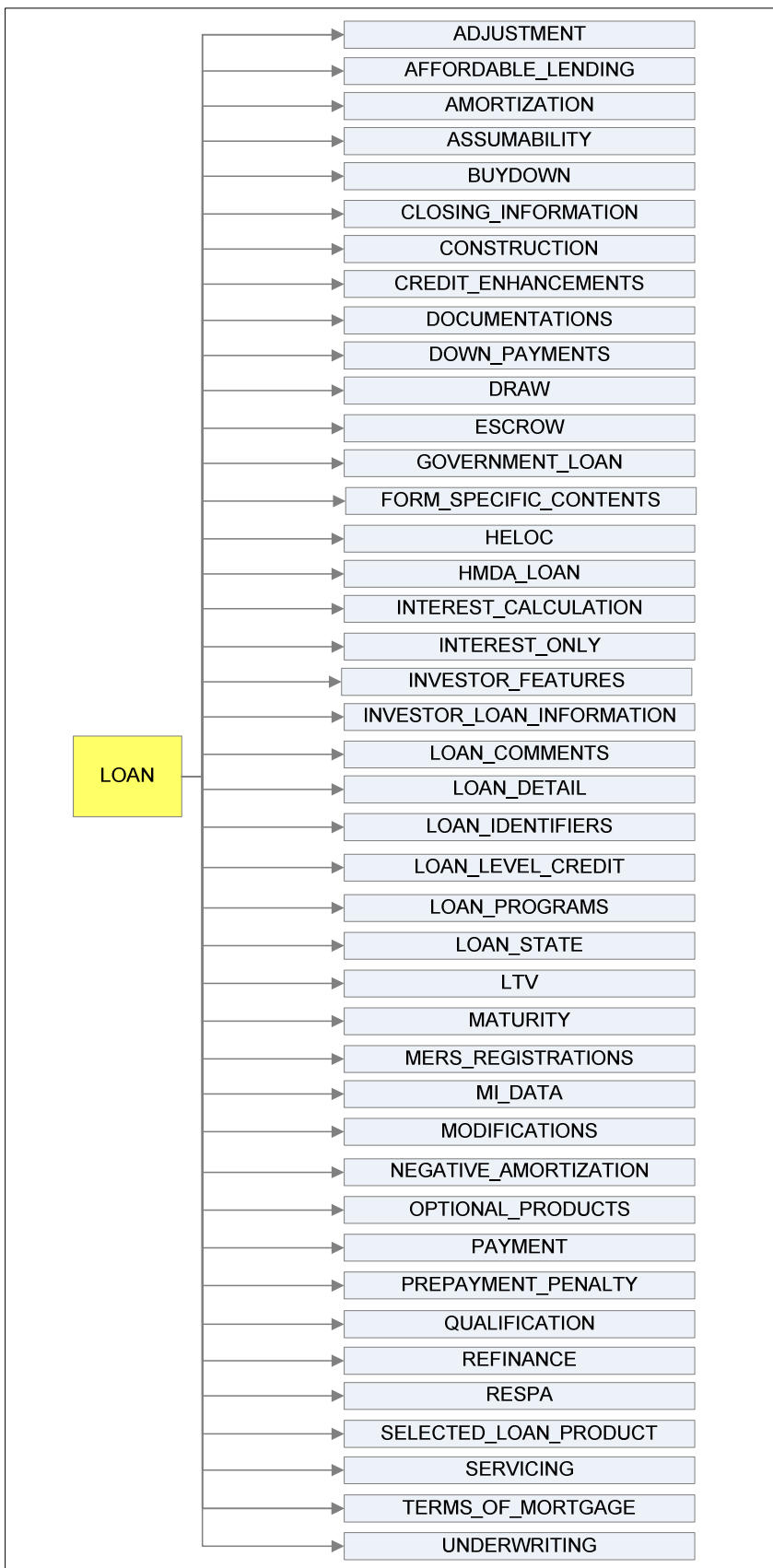


Figure 7 - MISMO Version 3.0 Reference Model – LOAN Container Hierarchy

5.2 XML Container Descriptions

The MISMO v3.0 Reference Model utilizes a hierarchical container structure as shown in Figure 1. The loan delivery XML file referenced in this *Implementation Guide* is contained within the root element of MESSAGE. To explain the difference between plural and singular container names, plural MISMO container names (e.g., LOANS) indicate that the singular container name (e.g., LOAN) is a repeatable container within the plural container. For example, there may be multiple LOAN containers within a single LOANS container.

Descriptions of the XML containers used by Freddie Mac's loan delivery process are provided below:

Container Name	Container Description
ABOUT_VERSION	Captures the version number of Freddie Mac's Implementation Guide that was used to create the loan delivery XML file and the date and time that the loan delivery file was created. There is only one ABOUT_VERSION container per delivered loan.
DEAL_SET	Freddie Mac expects one DEAL_SETS container per submission, which may contain several DEAL_SET containers.
DEAL	Represents a single loan delivery transaction. Contains multiple instances of LOAN containers that together provide all the data points needed to define the delivered loan and any supporting information from associated related loans.
COLLATERAL	Contains the PROPERTY container that holds information about the property that secures the delivered loan. Only one COLLATERAL container is delivered per loan.
PROPERTY	Captures information about the property that secures the delivered loan. The data submitted should be the most up-to-date data known about the subject property at the time of delivery. Only one PROPERTY container is delivered per loan.
ASSET	Captures borrower asset and asset documentation information. This container is optional at this time.
PARTY	Holds information about each person or entity that plays a role in the loan origination and delivery process. Every loan delivery (DEAL container) has a separate PARTY container for each party, such as: Borrower, Appraiser, Appraiser Supervisor, Loan Originator, and Loan Origination Company. The PARTY container is repeated for multiple borrowers. The PARTY container also appears under the DEAL_SETS containers to capture additional party information.
ROLE	Captures details about the role each party plays in the transaction.
INVESTOR_FEATURE	Exists in both the DEAL_SET and LOAN container, and holds special loan characteristics. The Selling System only uses the instance under the LOAN container, at this time.

COMBINED_LTV	Captures the total loan-to-value (TLTV) ratios for the delivered Mortgage.
LOAN	Represents a <i>portion</i> of the data that defines a single loan delivery. Each LOAN container holds data for one point in the loan life cycle. Together, the multiple LOAN containers within a DEAL fully define a single loan delivery (a DEAL).

5.3 Loan Container Repeatability

The MISMO v3.0 Reference Model indicates which containers can repeat by preceding repeatable container elements with a plural version of the element. For instance, the LOAN container can repeat because it is preceded in the schema by a plural of itself, LOANS. An example of a non-repeating container is the CONSTRUCTION container. CONSTRUCTION is not preceded by CONSTRUCTIONS, so it cannot repeat and is a single occurring container.

Appendix A, Cardinality tab indicates the maximum number of times a repeating container can be populated in a Selling System import file. Even if the MISMO v3.0 Reference Model allows a container to repeat, Appendix A specifies how many instances the Selling System will accept. If a container is repeating, the Selling System may only accept one instance of that container. An example of this is the COLLATERAL container. Even though the MISMO Schema allows for COLLATERAL to repeat, the Selling System accepts only one instance of COLLATERAL. This is defined in Appendix A in the following manner: “COLLATERAL – (MAX=1)”.

This designation indicates that COLLATERAL can be sent only once for each DEAL in the XML file. If more than one instance of COLLATERAL is sent for a given DEAL, only the first instance of COLLATERAL will be populated in the Selling System and the other instances will be dropped on import. This same logic applies to all containers in the loan delivery XML file.

Where the Selling System has the ability to accept multiple occurrences, Appendix A defines the maximum number of occurrences allowed. For example, INTEREST_RATE_PER_CHANGE_ADJUSTMENT_RULE can repeat per the MISMO Schema; however, the Selling System will accept only up to two occurrences per LOAN instance sent. This is defined in Appendix A as: “INTEREST_RATE_PER_CHANGE_ADJUSTMENT_RULE – (MAX=2)”

The MISMO v3.0 Reference Model supports multiple occurrences of the LOAN container. This provides the ability to capture loan characteristics of the delivered loan at different points in time, as well as the characteristics of loans associated with the delivered loan. Multiple LOAN containers are defined by two concepts – **Loan Role** and **Loan State** – which work together to identify the containers needed to capture required loan characteristics. Data points within the LOAN container have different conditionality depending on the Loan Role and Loan State (see Appendix A for details).

5.3.1 Loan Role

LoanRoleType is an attribute in the LOAN container. It is not an element. LoanRoleType identifies data for the delivered loan versus data for an associated loan.

- A LOAN container with LoanRoleType = **SubjectLoan** is always required. This identifies the LOAN container that holds characteristics of the loan being delivered.
- A LOAN container with LoanRoleType = **RelatedLoan** is used only when it is necessary to specify characteristics of a loan that is associated with the delivered loan.

The RelatedLoan container is used to capture information about a loan that is related to the subject loan. For example, the RelatedLoan container will capture information about the first lien associated with a delivered second lien. Refer to Appendix A for details about when to use RelatedLoan LOAN containers.

5.3.2 Loan State

The Loan State is represented by a type and date within the LOAN_STATE container. These elements, LoanStateType and LoanStateDate, identify the point in time for which all data points within that LOAN container apply. The LoanStateDate element identifies the date at which the specified elements in each LOAN container are applicable. Enumerated values for LoanStateType include the following:

- **AtClosing:** A snapshot of specific loan data at the completion of the closing process.
- **Current:** A snapshot of specific loan data as of the date retrieved from the submitter’s system.
- **AtConversion:** For loans with a conversion option, a snapshot of specific loan data at the time the conversion becomes effective.
- **AtModification:** For loans with modifications, a snapshot of specific loan data at the time the modification becomes effective.

Appendix A (or D): Freddie Mac XML Data Requirements describes under which Loan State each data point must be delivered. At a minimum, every delivered loan (LoanRoleType = SubjectLoan) will have at least two LOAN containers. LOAN containers with other Loan States may be required depending on the characteristics of the loan being delivered.

The tables below explain how each loan state is used for delivered (subject) loans and supporting (related) loans.

Subject Loan State Table

Loan State Type	Conditionality	Loan State Date	Comments
AtClosing	Applies to all subject loans and includes first and, if applicable, second lien loan deliveries.	Original/Note Date	For modified loans, the AtClosing Loan container will only contain a subset of data. Refer to Appendix A: Freddie Mac XML Data Requirements for the required MISMO data points in this scenario.
Current	Applies to all subject loans.	Date the data is retrieved from the lender’s delivery system.	A Current LOAN container is always required for all subject loans.
AtModification	Applies to subject loans when the loan has been modified.	Loan Modification Effective Date (data point in the delivery dataset).	Only required for modified loans; the loan delivery XML file also requires Current and AtClosing Loan containers – see AtClosing comment above.
AtConversion	Applies to subject loans at conversion.	Latest Conversion Effective Date	Only required for converted loans; the loan delivery XML file also requires

			AtClosing Loan containers with data about the original loan prior to conversion.
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Related Loan State Table

Loan State Type	Conditionality	Loan State Date	Comments
AtClosing	Captures first lien loan information for second lien loan deliveries.	Original/Note Date.	The loan delivery data must represent the original closing data at the time of closing or the data populated on the note associated with the specified mortgage loan.
Current	Captures first lien loan information for second lien loan deliveries. Captures second lien information if originating a first lien and second at the same time.	Date the data is retrieved from the lender's delivery system.	

5.4 UTF-8 Support

To allow use of special characters and symbols within the loan delivery XML file, seller's systems must support and apply Unicode Transformation Format-8 (UTF-8) encoding. Systems must specify the UTF-8 in the XML encoding attribute as follows: **<?xml version="1.0" encoding="UTF-8"?>**. Specifying UTF-8 encoding at the beginning of the loan delivery XML file denotes that the document character set is UTF-8-compliant.

5.5 MISMO Version 3.0 Reference Model

The MISMO v3.0 Reference Model defines each ULDDS data point and its structure. A system's loan delivery XML file should be validated against the MISMO v3.0 Reference Model (Schema) to ensure that the file is well formed and contains the supported data points in the expected order, and that the data points are spelled correctly and are of the correct MISMO data type.

The MISMO v3.0 Reference Model consists of two files that are both required to validate the XML file using a parser:

1. MISMO_3_0.xsd
2. xlink.xsd

Versions of MISMO 3.0 other than the Candidate Recommendation 2010-05 are not currently compatible with the ULDD implementation. To ensure a system's loan delivery XML file is validated against the correct version of the MISMO Version 3.0 Reference Model (Schema), download these two files from Appendix E.

For ULDD Phase 3, you will also need to download the ULDD_Phase_3_Extension.xsd schema file, also included in Appendix E.

5.6 Special Characters

Several reserved characters 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 for the loan delivery XML file to be valid. (This table does not contain a comprehensive list of all the reserved characters.)

Character	Properly Escaped	Description
&	&	Ampersand
<	<	Less-than sign
>	>	Greater-than sign
“	"	Quotation Mark
’	&apos	Apostrophe
/	&frasl	Fraction Slash

Most XML software automatically performs this function and inserts the properly escaped characters.

5.7 Data Format Types

The data in a loan delivery XML file must pass certain data integrity rules. For example, an invalid enumeration or non-numeric data in a numeric field could cause the loan delivery XML file to fail schema validation. The table below provides additional guidance regarding the data format and how to populate data in the loan delivery XML file. These may be more restrictive than the original MISMO data types:

Data Type	Format	Description
Amount <i>n</i>	999999999.99	The amount data type represents a number for the dollar amount.
Boolean	“false” or “true”	The term names ending with “Indicator” have values of true or false . The true or false values must be provided in lower case or the loan delivery XML file will fail schema validation. Values of 0 and 1 are not supported.
Date	YYYY-MM-DD	The date data type represents a specific date. The date must contain a dash (-) between the year, month, and day, for example, 2017-03-25 . The expected date format is documented in Appendix A.
Datetime	YYYY-MM-DDThh:mm:ss	The datetime data type represents both date and time. This data type can also be used to capture only the date. The date and time both must be provided unless directed otherwise. When provided, the date and time must be separated by the designator T , for example, 2017-03-25T15:21:47 . When only the date is

Data Type	Format	Description
		specified, the designator T and the time value should NOT be included, for example, 2017-03-25 .
Day	---DD	The day data type represents the day of a month only. The DD (day) value must include three dashes prior to the two-digit date. For example, the fifteenth day of the month must be sent as: ---15.
Enumerated	<list of predefined values>	The enumerated data type represents a list of predefined values, and applies always to MISMO terms ending in “Type” and “OtherDescription”, and sometimes to terms ending in “Description,” “Code,” and “Identifier”. Each valid value must be delivered exactly as printed, following all spacing and capitalization or the loan delivery XML file will fail schema validation.
Numeric	999999999	The numeric data type represents whole numbers only with <i>n</i> specifying the maximum number of digits allowed for the associated data point. The numeric value <u>must not</u> contain commas <i>n,n</i> or decimals <i>n.n</i> .
Percent	999.9999	The percent data type represents arbitrary precision decimal numbers. For each decimal field, the total and fraction digits are specified. For example, the designation 3.4 means that the number of total digits <i>N</i> may not exceed 3 and the number of fraction digits <i>n</i> may not exceed 4 . The following values are acceptable: 95.65 , 1.55 , .3601 , and 999 .
String		The string data type represents character strings in a loan delivery XML file. Each string field has a maximum character limit specified. There are several data points (e.g., PostalCode, ContactPoint TelephoneValue, and TaxpayerIdentifierValue) that should not contain (-) dashes in the data value. Refer to Appendix A.
Year	YYYY	The year data type represents the four-digit year only, for example, 2017.

5.8 Address Format Considerations

The address may be populated for various parties and may represent different address types. Systems are required to populate the complete unparsed street address (including unit, if applicable) in the AddressLineText data point. If the optional parsed street address MISMO data

points are implemented, systems are still required to populate the unparsed street address. The example below illustrates how a mailing address is populated in the unparsed data points allocated for the address.

Example of Unparsed Party Mailing Address		
Container Name	MISMO Data Point Name	Data Value
ADDRESS	AddressType	Mailing
	AddressLineText	123 East Main Street, Apt 250
	CityName	Anytown
	StateCode	VA
	PostalCode	20191
	CountryCode	US

The **Subject Property** address populated in the loan delivery XML file must accurately reflect the subject property address (including unit, if applicable) documented on the Note associated with the specified mortgage loan.

6. Importing the XML File into the Selling System®

The Import Loans option facilitates the ability to import loans into the Selling System. Systems must have the following capabilities for creating the import loan file:

- Ability to create well-formed XML import files in accordance with Appendix A of this document.
- Ability to generate the import loan file name. Using a system-generated file name will provide consistency in the file name format and will prevent duplicate file names from being imported.
- Ability to save the import loan file to a standard location and provide documentation of the location to users.

Appendix A provides all of the necessary guidance needed for creating data edits within a loan system. By utilizing the “Conditionality” and “Conditionality Details” columns in Appendix A, users can determine when a given field is needed as part of a loan submission to the Selling System. In order to provide the best user experience, and to ensure data integrity with the Selling System, it is recommended that these edits are incorporated into any system which will interface with the Selling System. By doing this, users will be able to make data corrections from the system of record rather than making them once the loan record has been imported and created in the Selling System.

In addition to providing the necessary information for creating edits, Appendix A also provides the list of data points and values that the Selling System accepts. If a data point or value included in the loan delivery XML file does not exist in the MISMO schema, that file will fail the parser validation and the entire file will be rejected and an error will be returned. All of the loans in a file that fails the parser validation will be rejected.

If a data point or value is included in the XML file that does exist in the MISMO schema but is not listed in Appendix A, that data point or value will be dropped on import. The remainder of the XML file will be accepted by the Selling System and the loan record(s) will be created in the Selling System. The only instance when the loan record will not be created in the Selling System is if an invalid value is provided for any data point that is required to save the file in the Selling System. This scenario will return an import error for that specific loan. All other loans will import if valid.

Appendix A groups the data points within their specific loan element containers. In addition, each repeating container specifies the maximum number of occurrences that the Selling System will accept. If the total number of occurrences provided in the XML file is greater than the maximum listed in Appendix A, then the occurrences that go beyond the maximum will be dropped on import. The conditionality of the data points within a container determine when that container will need to be provided. If a container has a data point which is required, then that container must be included in every loan submission.

7. Selling System[®] Import Functionality

Seller systems create the Import Loans file and place it in a location accessible to the user for import into the Selling System.

7.1 Importing the file into the Selling System

- User launches a browser session and accesses the Selling System URL.
- A sign-on screen prompts the user to provide his or her authentication user ID and authentication password. The user is prompted for this information only on the first transaction per day, provided that the user does not close down the browser window between transactions or the session does not time out.
- The user imports the loan data by selecting the “Import Loans” option from the left-hand navigation menu within the Selling System user interface.
- The user clicks on the “Browse” button and is prompted for the name and location of the Import Loans file. This location may be on a network drive or on the user’s local PC.
- The user clicks on the “Import Loans” button to initiate the file upload into the Selling System.
- Before the loans are imported into the Selling System, the files are validated as described in the next section to ensure that they meet the requirements specified in Appendix A.

7.2 Interpreting the Results

7.2.1 Parser Validation

Once imported into the Selling System, the loan delivery XML file is parsed against the MISMO v3.0 Schema to ensure that there are no format errors. If the XML file does not successfully parse against the Schema, the entire XML file will be rejected and an error describing why the file failed the parser check will be displayed.

7.2.2 Import Errors

Once the XML file has passed the parser validation, the Selling System will perform a second evaluation to make sure that the minimum required data set has been provided for each loan sent. This evaluation will be done at the loan level. Any loans sent that do not have the minimum required data to create a loan record will receive an import error and the loan record will not be created in the Selling System. Inclusion of a loan that does not have the required minimum data in an XML file will not cause other loans that do have the required minimum data to fail.

7.2.3 Import Status

The Selling System will display the following status for each import request:

- In Progress (File is processing imported records)

- Completed (All of the records in the import file have been processed) and any applicable messages will be provided
- Error (This will be displayed if the processing time exceeds 1 hour)

8. Testing and Verification

We will work with you to build a user-friendly and efficient interface. This section describes the support that Freddie Mac will provide and typical development milestones for the required verification process of the XML file format and loan import function.

8.1 Selling System Customer Test Environment

The Selling System has a test environment which can be used by approved external system developers and end users. This test environment is referred to as the “Customer Test Environment” or (CTE). The CTE previews the updated version of the ULDD Selling System and will allow external entities to perform testing of their loan delivery processes under the ULDD requirements, prior to production implementation. The URL and login for the CTE is different than the URL and login for the production environment. Freddie Mac will provide the instructions needed to gain access to the Selling System CTE to begin testing.

8.2 Development

After you have reviewed the technical specification, your Freddie Mac relationship manager will arrange a ‘design’ telephone call to introduce you to your Freddie Mac verification analyst. This also provides a forum to address your preliminary questions.

- You will develop the capability to create files in accordance with this technical specification.
- Freddie Mac will provide you with the Selling System Import Loans Verification Test Case Binder, which contains test case data needed to complete the verification process.
- You will provide your Freddie Mac Verification Analyst with your project plan, showing key milestones and timelines.

8.3 Developer Testing

Prior to verification testing with Freddie Mac, you will verify your ability to create a well-formed, XML import loan file. You will be able to access the Selling System Customer Test Environment (CTE) in order to validate that your files are well-formed and can be imported into the Selling System without errors.

8.4 Freddie Mac Verification Testing

- When you are nearing the point where you are ready to begin the verification process with us, your Freddie Mac relationship manager will arrange a ‘verification’ telephone call. During this call your Freddie Mac verification analyst will walk you through what will be required as part of the verification.
- You will e-mail your Freddie Mac Verification Analyst the XML import test files that your system generated.
- Your Freddie Mac Verification Analyst will validate your import files and communicate any corrections that need to be made to the import data or to your system’s design/mapping.
- This process is repeated until all test cases are successfully completed.

8.5 Freddie Mac Signoff

- Freddie Mac will provide a verification letter documenting that your system meets the requirements set forth in this technical specification.
- A typical life cycle schedule is presented below. If Freddie Mac implements new functionality, the testing process may change. You will be provided with a test binder with detailed instructions. A Freddie Mac Relationship Manager and verification analyst will be available to discuss the details of the test binder and assist you during the verification process. During the verification kickoff meeting, your Freddie Mac Relationship Manager will discuss deliverables. All developers are required to complete these deliverables as part of the verification process.

Project Planning and Deliverables	
Task	Description
Design Call	After you have reviewed the technical specification, your Freddie Mac representative will arrange a design call. This call is intended to explore architectural issues and to help you develop a robust design, maximum flexibility for the future and provide the best possible user experience.
Development	Your system should be developed in accordance with this technical specification document.
Developer Testing	Your system must be tested internally to confirm that it has been developed in accordance with this specification document. Freddie Mac will provide a suite of test cases with loan criteria that can be used to generate export files.
Verification Call	A Freddie Mac relationship manager will initiate a conference call with your Freddie Mac Verification Analyst who will guide you through the process.
Interface Verification	Freddie Mac will verify that your system is able to support all applicable Import Contract fields, i.e., that the export file is being built correctly. The files must be captured, and the data e-mailed to Freddie Mac for review.

9. Additional Resources

Refer to the table below for a list of Websites, documents, and URLs to access the additional documentation.

Document Name or Website	URL
ULDD Technical Resources	http://www.freddiemac.com/singlefamily/sell/uniform_delivery.html
Loan Delivery Job Aids	http://www.freddiemac.com/learn/deliver/sellingsystem.html
MISMO web site	http://www.mismo.org/
UTF-8 and Unicode Standards	http://www.utf-8.com/
W3C	http://www.w3.org/
State code - Use USPS list of two-character codes	Refer to USPS (Publication 28-Postal Addressing Standards) for guidance about state codes.
Country code - Use two-character codes from the ISO 3166 standard (International Organization for Standardization)	http://www.iso.org/iso/country_names_and_code_elements