

eMortgage Technical Requirements Version 1.1

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Preface

This document is intended as a companion to the *Guide to Delivering eMortgage Loans to Fannie Mae* and replaces the *Technical Appendix*. The purpose of this document is to provide detailed technical specifications and samples to assist developers and managers in creating and delivering eMortgage loans to Fannie Mae.

This document covers the following topics:

- Creating SMART Doc® eNotes
- Registering eNotes
- Packaging eNotes for Delivery to Fannie Mae
- Delivering eNotes to Fannie Mae
- Appendix A: eMortgage Delivery Error Code Listing


Creating SMART Doc[®] eNotes

eNotes and Addenda delivered to Fannie Mae in SMART Doc format must be in Category One SMART Doc format as specified by MISMO's *SMART Document Implementation Guide V. 1.0* or later version, including Errata Notes, available for download at www.mismo.org. SMART Doc eNotes must be created to the SMART Doc V. 1.0.2 specification using the Closing DTD 2.3.1 and meet all MERS[®] eRegistry requirements, including having a unique MIN (Mortgage Identification Number).

In addition, the following requirements apply to SMART Doc eNotes delivered to Fannie Mae:

- The SMART Doc eNote must contain the following elements:
 - //SMART_DOCUMENT/SIGNATURES
 - //SMART_DOCUMENT/DATA/MAIN
 - //SMART_DOCUMENT/VIEW
- The SMART Doc eNote must not contain more than one View; that is, the file must not contain more than one //SMART_DOCUMENT/VIEW element.
- A SMART Doc View must contain only one of the following:
 - An externally referenced HREF; or
 - Element content only
- The SMART Doc _Name must include the .xml extension.
- For every required data point within the DATA element of the SMART Doc eNote, an ARC must be present that validates the corresponding data point in the VIEW element.
- Fannie Mae does NOT allow a Social Security Number inside the SMART Doc eNote. (Information on how to provide the Social Security Number to the MERS eRegistry for eNote registration can be obtained from the MERS eRegistry technical support team.)
- If the signature used is a digitized signature, such as a holographic signature created with a signing pad, the signature must be attached as an external file, which may be either .jpg or .gif, and referenced by the tamper-evident seal.
- The SMART Doc attribute _StateType must be: "Signed," "Recordable," or "Recorded."
- All eNotes must conform to one of the following character encodings:
 - UTF-8
 - UTF-16LE
 - UTF-16BE
 - UTF-8 with BOM
 - UTF-16LE with BOM
 - UTF-16BE with BOM
- Document Type Declaration

Per MISMO standard definitions, the SMART Doc eNote uses the 1.02 Document Type Definition, which needs to be indicated before the header section within the Document Type Declaration (see next page). In addition, a "RegistryOperator" attribute needs to be included in the declaration as an extension to the 1.02 DTD, and this attribute must be present in both the "View" and "Data" sections of the SMART Doc eNote, identifying the registry operator as "MERSCORP Holdings, Inc., a Delaware corporation."



```
<!DOCTYPE SMART_DOCUMENT SYSTEM "SMART_DOCUMENT_V_1_02.dtd" [<!ENTITY %  
CUSTOM.ANY "| RegistryOperator">  
  <!ELEMENT RegistryOperator EMPTY>  
  <!ATTLIST RegistryOperator Name CDATA #REQUIRED>]>
```

Registering eNotes

All eNotes delivered to Fannie Mae must first be registered in the MERS® eRegistry within one (1) business day of signing. The record in the MERS eRegistry must reflect the originating lender – the lender whose name is on the eNote – as the first Controller. Fannie Mae requires that SMART Doc® eNotes be registered by using eMortgage Package Registration, which requires an eMortgage Package to be presented at time of registration in the format specified by MISMO. The package must include a version 1.02 SMART Doc eNote that is Base64 encoded in the EMBEDDED_FILE element of the eMortgage Package.

Detailed documentation on MERS' registration requirements is available at www.mersinc.org.

Packaging eNotes and Documents for Delivery to Fannie Mae

All electronic mortgage documents must be enclosed in an eMortgage Package for delivery to Fannie Mae, as described by MISMO and MERS® eRegistry specifications. The following requirements apply to all eMortgage Packages submitted to Fannie Mae:

- eNotes and other electronic documents delivered to Fannie Mae must be contained in a MISMO eMortgage Package utilizing either version 1.02 or 2.4 of the eMortgage Package.
- Fannie Mae will only accept SMART Docs for vaulting. Other formats such as PDF are only permissible if referenced from within a SMART Doc.
- An eMortgage Package must contain an optional KEY element and the required EMBEDDED_FILE and SIGNATURE elements.
- References from the SMART Doc® eNote's XHTML View and Digital Signature to EMBEDDED_FILE elements must be relative URLs. No protocol or absolute URLs will be accepted.
- An eMortgage package must contain no more than one eNote. If an eMortgage Package does not contain a note, the KEY element must contain the MERS_MIN for documents.
- An eMortgage Package must NOT contain a SMART_DOCUMENT or nested EMORTGAGE_PACKAGE element.
- Each file in the package must be identified with a unique _ID.
- The eMortgage package must be signed using “envelope” signing by a valid digital certificate. Fannie Mae will validate upon delivery of an eMortgage Package that the certificate used to sign the package was issued by a certificate authority accredited by the Secure Identity Services Accreditation Corporation (SISAC) and that the certificate has not expired or been revoked.
- Each SMART Doc eNote in the eMortgage Package must be tampersealed.
- All eMortgage Packages must conform to one of the following character encodings:
 - UTF-8
 - UTF-16LE
 - UTF-16BE
 - UTF-8 with BOM
 - UTF-16LE with BOM
 - UTF-16BE with BOM

Package Sample:

```
<?xml version="1.0" encoding="UTF-8"?>
<!DOCTYPE EMORTGAGE_PACKAGE SYSTEM "eMortgage_Package_V_1_02.dtd">
<EMORTGAGE_PACKAGE MISMOVersionIdentifier="1.02" _ID="PKG_ID_X973"><EMBEDDED_FILE
_EncodingType="Base64" _ID="FILE_ID_0"
_Name="Dev001_3200_FxdRate_Multistate_ValidENote_Signable.xml"><DOCUMENT>PD94bWwgdMvY
c2lrbj0iMS4wliBlbmNvZGluZz0iVVRGLTgiPz4KPCFET0NUWVBFIFNNQVJUX0RPVNRU5UIFNZU1RFTS
AiU01BUIRfRE9DVU1FTIRfVI8xXzAyLmR0ZClgWzwhRU5USVRZICUgQ1VTNLkFOWSAnfCBSZWdpc3R
yeU9wZXJhdG9yJz4KPCFFTEVNRU5UIFJIZ2IzdHJ5T3BlcmF0b3IlgQVfK+CjwhQVRUTEITVCBSZWdpc3
RyeU9wZXJhdG9yIE
[WE HAVE TRUNCATED THE BASE64 ENCODED DOCUMENT]
</DOCUMENT></EMBEDDED_FILE>
<Signature Id="EnvelopeSealer01" xmlns="http://www.w3.org/2000/09/xmldsig#">
  <SignedInfo>
    <CanonicalizationMethod Algorithm="http://www.w3.org/2001/10/xml-exc-c14n#" />
    <SignatureMethod Algorithm="http://www.w3.org/2000/09/xmldsig#rsa-sha1" />
    <Reference URI="">
      <Transforms>
        <Transform Algorithm="http://www.w3.org/2000/09/xmldsig#enveloped-signature" />
      </Transforms>
      <DigestMethod Algorithm="http://www.w3.org/2000/09/xmldsig#sha1" />
      <DigestValue>jWflXcCXT9aZuIRmJCSgBMspu8=</DigestValue>
    </Reference>
  </SignedInfo>
  <SignatureValue>
    CL76z5EGiKcFGoxw6E4mT60DWT5eMioP2Ooyf2+eu9sc3KWsvz5ozIWNGQqdeb/T
    bPKADFWz24SMqOFGfTU1ZciVjOIFIPS2uv60sgo749DtQ5gUm3u6pKReKVEKCxa1
    xZVDJ2hVWu4RqqGyOYYO/N4HFxGmvhXGIAJM8bmEuYs=
  </SignatureValue>
  <KeyInfo>
    <X509Data>
      <X509SubjectName>
        EMAILADDRESS=tamper_sealer@fanniemae.com, CN=Tamper Sealer, OU=E-mail Address Not
        Validated, OU=MBA SISAC Medium Assurance Individual Certificate, OU=Terms of use at
        www.verisign.com/repository/rpa-mba, O=Fannie Mae, L=Washington, ST=District of Columbia, C=US
      </X509SubjectName>
      <X509Certificate>
        MIIFgTCCBGmgAwIBAgIQ9Ax+nfnlqyg0SsVGtsV4TANBqkqhkiG9w0BAQUFADCB
        xDELMaKGA1UEBhMCMVVMxZz4VbG9uVBAoTDZlcmIaWduLCBjbmuMR8wHQYDVQQLExZWZXJpU2
        InbiBUcnVzdCBOZXR3b3JrMUQwQgYDVQQLEztUZXMJtcyBvZiB1c2UgYXQgaHR0cHM6Ly93d3cudmVya
        XNpZ24uY29tL3JlcG9zaXRvcnkvcnBhLW1iYTE1
        [WE HAVE TRUNCATED THE CERTIFICATE VALUE]
      </X509Certificate>
    </X509Data>
  </KeyInfo>
</Signature></EMORTGAGE_PACKAGE>
```


Delivering eNotes to Fannie Mae

Fannie Mae requires lenders to utilize MERS® eDelivery to deliver eNotes and related electronic documents. MERS eDelivery provides a secure method for distributing eMortgage packages from one MERS® eRegistry member to another using the MERS eRegistry infrastructure and transaction security requirements.

Prior to delivering eMortgages to Fannie Mae, the lender's MERS Org ID (unique organization identifier issued by MERS) must be set up by Fannie Mae in our delivery system. This will be done once the lender has completed required testing with MERS and Fannie Mae, and is approved by Fannie Mae to deliver eMortgages.

To deliver an eMortgage loan in SMART Doc® format to Fannie Mae, the lender must perform the following steps in this sequence:

- 1) Using MERS eDelivery, transmit to the Fannie Mae repository an eMortgage Package that contains, at a minimum, the unaltered, tampersealed eNote, as well as any other documents that will be delivered in electronic format, such as an Addendum.

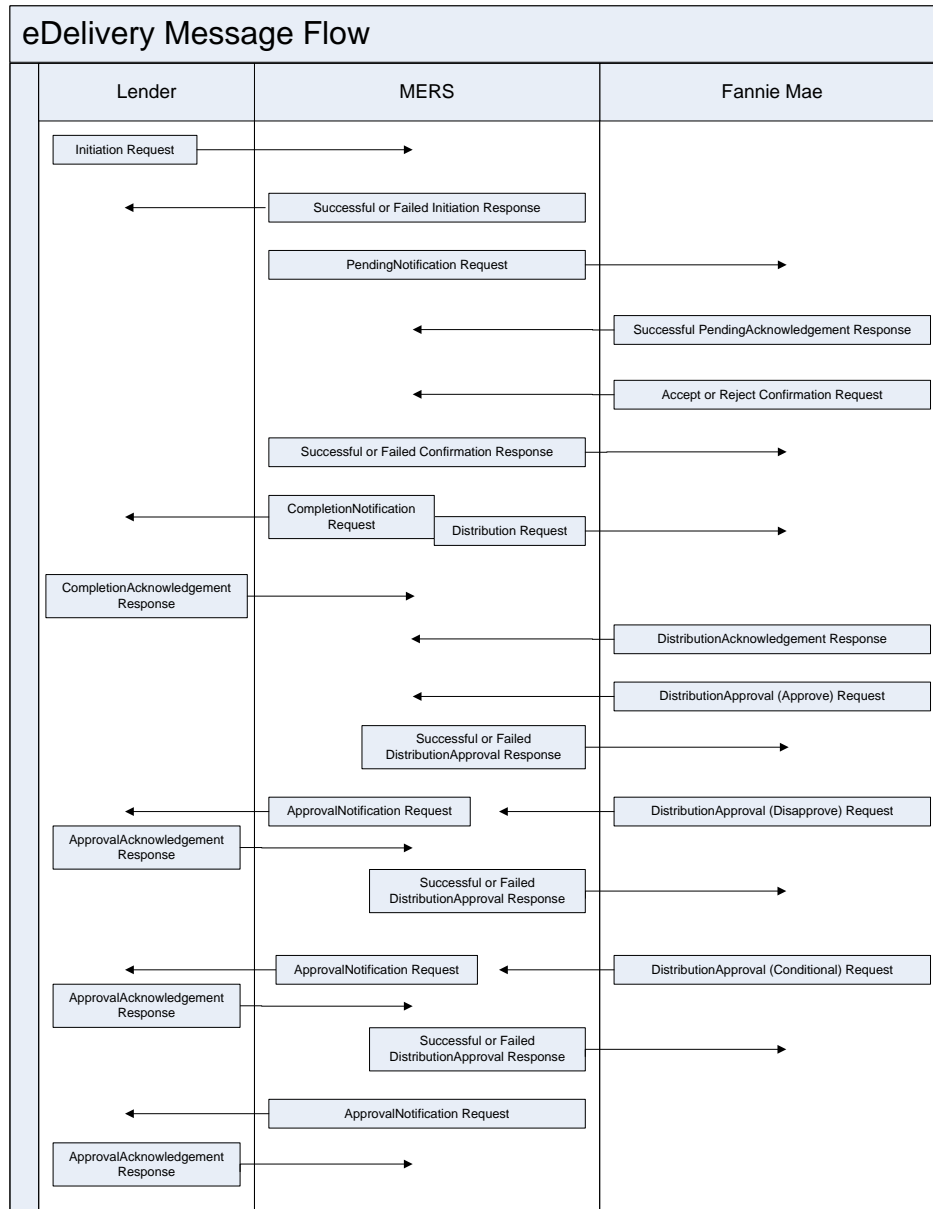
After successful receipt of a delivery, Fannie Mae's eMortgage Delivery system will perform a number of validations on the documents in each eMortgage Package. Once all eMortgage Packages in the delivery have been inspected, Fannie Mae will return Distribution Approval message(s) to the lender with the results of the inspection.

Each Distribution Approval message received from Fannie Mae will indicate a "_DistributionApprovalType" that applies to each MIN listed in the Distribution Approval message. In addition, each MIN may have one or more specific error codes and descriptive messages detailing validation results. Because there are three potential _DistributionApprovalType values, a lender may receive up to three separate Distribution Approval messages after an eDelivery if loans exist for each value. Following are the possible values for _DistributionApprovalType (Note: MIN level error codes can be found in *Appendix A*).

- **Approve** – The eNotes have been accepted with no errors noted and are ready for transfer of control. Each MIN listed in this message will receive a DISTRIBUTION_APPROVAL_DETAIL _Code="36" and _Description=MERS eDelivery Distribution contains valid document.
- **Conditional** – The eNotes have been accepted with one or more errors noted on each eNote. Distribution Approval messages with a *Conditional* status will include one or more DISTRIBUTION_APPROVAL_DETAIL _Code and _Description identifying the specific error(s) detected during validation. This status will not prevent transfer of control to Fannie Mae; however, lenders should investigate the cause of any errors and make corrections to ensure that additional eNotes are not created with similar errors. Acceptance of eNotes with a Conditional status does not relieve lender of any representations and warranties with respect to such error.
- **Disapprove** – eNotes that receive this Distribution Approval status contain fatal errors that will prevent completing delivery to Fannie Mae. Each MIN in this message will contain one or more DISTRIBUTION_APPROVAL_DETAIL _Code and _Description identifying the specific error(s) detected during validation. Any transfer of control requested for a loan with a Distribution Approval status of *Disapprove* will be rejected by Fannie Mae.

Figure 1 illustrates the message flow of an eDelivery from a lender to Fannie Mae.

Figure 1. eDelivery Message Flow from Lender to Fannie Mae



- 2) Once the eNote has been successfully delivered to Fannie Mae (with a Distribution Approval status of *Approve* or *Conditional*), lenders should transmit a request to the MERS eRegistry to begin the process of transferring control of the eNote to Fannie Mae. Lenders should transmit a “Transfer of Control and Location” request to MERS to initiate the transfer of ownership and to update MERS to show Fannie Mae as the Controller and Location of the Authoritative Copy of the eNote.

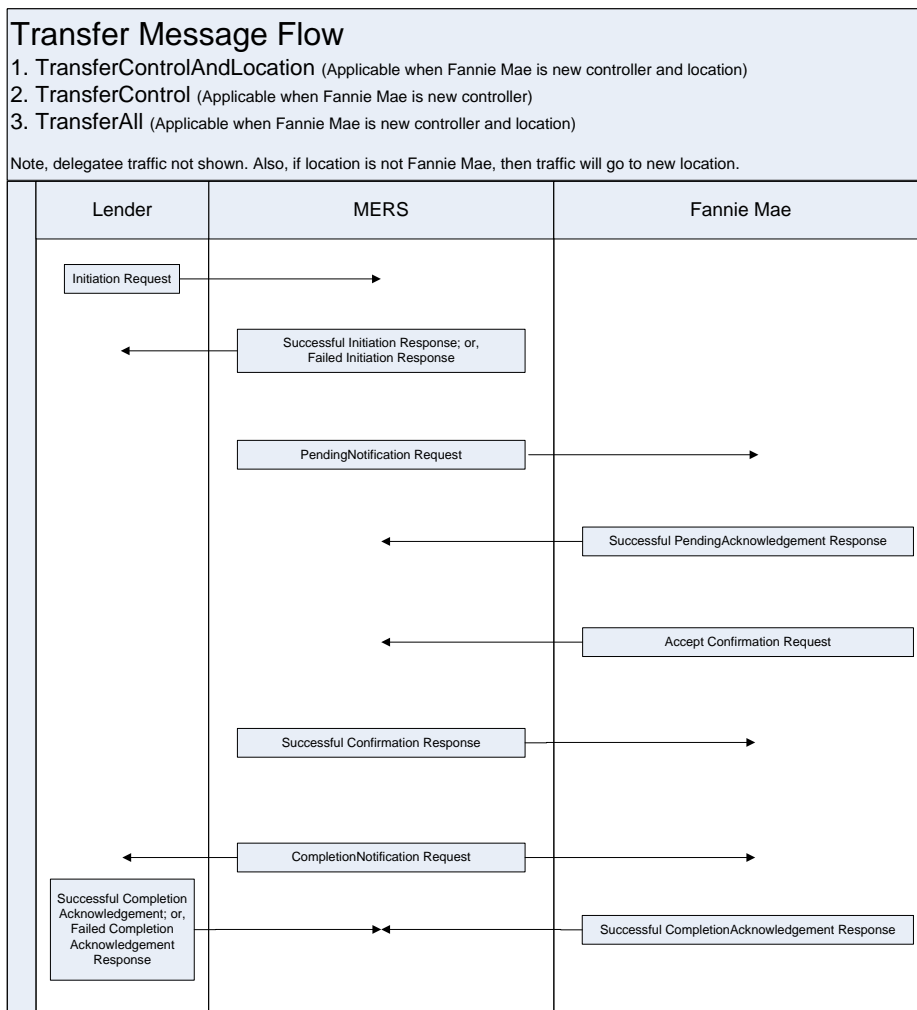
If a lender has requested and Fannie Mae has approved a Custodian to hold the Authoritative Copy on our behalf, the lender should initiate a “Transfer of Control Only” request (if the Location of the Authoritative Copy is not changing) or a “Transfer of Control and Location” request (which specifies the new Location) to initiate the transfer process. Lenders are expected

to monitor the status of transfer requests to ensure they have completed successfully. The Transfer Request must include an “Effective Date” of the same day as the request. The Effective Date is used by MERS to denote the date that the transfer should be completed.

- 3) Fannie Mae requires that MERS’ records for loans transferred to Fannie Mae contain the Servicer’s Org ID as Servicer (an entity authorized by the Investor to perform certain transactions within the MERS eRegistry). Upon Fannie Mae’s receipt of the “Pending Transfer Request” message from the MERS eRegistry, Fannie Mae’s eMortgage Delivery system will seek to match the transfer request against eNotes delivered to the application. If the application finds a match, it will perform some validations including comparing the hash value of the eNote registered on MERS with the one presented for delivery. Once the eNote is verified, Fannie Mae will accept the transfer request submitted by MERS. If Fannie Mae receives a transfer request for a MIN for which the eNote has not yet been delivered, the request will be held in queue awaiting delivery of the note for the remainder of the calendar day. If the eNote is not received by Fannie Mae by the end of the Effective Date specified in the transfer, the MERS eRegistry will automatically cancel the transfer and return a Failed Completion Notification to the lender and Fannie Mae. In such a case, the lender should repeat steps one and two above.

Figure 2 illustrates the message flow of a transfer to Fannie Mae (where Fannie Mae is both the new Controller and the new Location).

Figure 2. Message Flow of Transfer of Control and Location to Fannie Mae



Appendix A: eMortgage Delivery Error Code Listing

eMortgage Delivery Error Code Listing*

MERS eDelivery distribution contains valid document(s). (Note: Not an error but returned on all valid eDeliveries)
MERS Transaction- New Controller is not Fannie Mae
MERS Transaction- Current Controller is not an approved Lender
MERS Transaction- New Location is not an approved Location
MERS Transaction- ENote not presented at registration time
MERS Transaction- SMART Document must be version 1.02
MERS Transaction- Action effective date must be today
MERS Transaction- ENote signature value in MERS message and delivered eNote do not match
MERS Transaction- ENote signature value is missing from MERS message
Note Signature Value does not match previous Transfer's Note Signature Value.
Organization of requesting party or requestor does not exist in Organization table!
MERS eDelivery contained a missing or blank EDELIVERY_DATA/MIN/@MERS_MINNumber
Digital signature- Null validity event
Digital signature- Failure while validating tamperseal
SMARTDoc creation error- SAXException
SMARTDoc creation error- IOException
SMARTDoc creation error- ParserConfigurationException
SMARTDoc signature value event
SignatureValue did not decrypt to SignedInfo digest
MISMO eMortgage Package not envelope signed - Reference URI is not =""
Saving package failed
Package contains more than one eNote
ENote has missing or invalid MERS MIN
Could not find eNote
More than 1 VIEW is not allowed
VIEW may not contain both Href and content.
XML enveloped signature has more than one <Reference> element
XML enveloped signature has more than one <Transform> element
XML not envelope signed - Transform Algorithm is not = http://www.w3.org/2000/09/xmldsig#enveloped-signature
XML not envelope signed - Invalid (null) Signature element
XML not envelope signed - Invalid Signature element
XML Signature DN is not in list of trusted DNs
XML Signature contains more than one X509SubjectName element
MERS Transaction- Unsupported transfer flavor received
Invalid eMortgagePackage format found
The SMARTDoc package contains more than one note
Missing MERS MIN or XML parsing problem
MERS MIN are different in KEY element and eNote
SMART_DOCUMENT and nested EMORTGAGE_PACKAGE elements not supported in eMortgagePackages
Only Base64 encoding is supported for EMBEDDED_FILE elements
Only TEXT nodes are supported under EMBEDDED_FILE
Multiple MERS MIN KEY elements found
eMortgagePackage does not contain any files that can be vaulted
eMortgagePackage is signed with an expired certificate

MERS MIN in KEY/eNote differs from declared MIN in Delivery Package
No document content found
Package stream error
Castor failed to unmarshal posted XML
Castor utils failure
Content signer failure
eNote can not be accepted in the current state of the loan
eNote can not be accepted in the current state of the loan
Embedded XML document must be a SMART(tm) Document
Attempted operation on invalid signature
SMARTDoc is missing its signature
CategoryValidator: The eNote is not a Category One SMART Document
Invalid operation with invalid user
Package has no SMARTDocs
Content signer failure
The eNote is missing the //SMART_DOCUMENT/SIGNATURES/Signature element
The eNote is missing the //SMART_DOCUMENT/SIGNATURES element
eNote state is required to be either 'Signed', 'Recordable' or 'Recorded'
The Note's XML is not parsing correctly
ContentValidator: Value is not in range
ContentValidator: Value is blank
ContentValidator: Value is not a two character US State
ContentValidator: Postal Code is invalid
ContentValidator: Date format is invalid
ContentValidator: Value is not alphanumeric
ContentValidator: MERS MIN missing in the note
ContentValidator: Invalid or missing registry operator value
ContentValidator: Value is not a number
Field is blank or missing
ContentValidator: Invalid or missing registry operator value
ArcPresenceValidator: MORTGAGE_TERMS LenderLoanIdentifier ARC is missing
ArcPresenceValidator: MORTGAGE_TERMS NoteRatePercent ARC is missing
ArcPresenceValidator: MORTGAGE_TERMS OriginalLoanAmount ARC is missing
ArcPresenceValidator: Property Street ARC is missing
ArcPresenceValidator: Property City ARC is missing
ArcPresenceValidator: Property State ARC is missing
ArcPresenceValidator: Property PostalCode ARC is missing
ArcPresenceValidator: LOAN_FEATURES ScheduledFirstPaymentDate ARC is missing
ArcPresenceValidator: LOAN_FEATURES LoanMaturityDate ARC is missing
ArcPresenceValidator: LOAN_FEATURES OriginalPrincipalAndInterestPaymentAmount ARC is missing
ArcPresenceValidator: NOTE_PAY_TO _StreetAddress ARC is missing
ArcPresenceValidator: NOTE_PAY_TO _City ARC is missing
ArcPresenceValidator: NOTE_PAY_TO _State ARC is missing
ArcPresenceValidator: NOTE_PAY_TO _PostalCode ARC is missing
ArcPresenceValidator: LATE_CHARGE _GracePeriod ARC is missing
ArcPresenceValidator: LATE_CHARGE _Rate ARC is missing
ArcPresenceValidator: MORTGAGE_TERMS MERSNumber ARC is missing
ArcPresenceValidator: _CLOSING_DOCUMENTS LENDER _UnparsedName ARC is missing
ArcPresenceValidator: _CLOSING_DOCUMENTS EXECUTION _Date ARC is missing

ArcPresenceValidator: _CLOSING_DOCUMENTS EXECUTION _City ARC is missing
ArcPresenceValidator: _CLOSING_DOCUMENTS EXECUTION _State ARC is missing
ArcPresenceValidator: BORROWER _FirstName ARC is missing
ArcPresenceValidator: BORROWER _LastName ARC is missing
ArcPresenceValidator: BORROWER _MiddleName ARC is missing
ArcPresenceValidator: LOAN_FEATURES graduatedPaymentMultiplierFactor ARC is missing
ArcPresenceValidator: LOAN_FEATURES growingEquityLoanPayoffYearsCount ARC is missing
ArcPresenceValidator: LOAN_FEATURES LATE_CHARGE _MaximumAmount ARC is missing
ArcPresenceValidator: LOAN_PRODUCT_DATA INTEREST_ONLY _MonthlyPaymentAmount ARC is missing
ArcPresenceValidator: LOAN_PRODUCT_DATA INTEREST_ONLY _TermMonthsCount ARC is missing
ArcPresenceValidator: LOAN_PRODUCT_DATA PAYMENT_ADJUSTMENT FirstPaymentAdjustmentMonths ARC is missing
ArcPresenceValidator: LOAN_PRODUCT_DATA PAYMENT_ADJUSTMENT FirstPaymentAdjustmentDate ARC is missing
ArcPresenceValidator: MORTGAGE_TERMS PaymentRemittanceDay ARC is missing
ArcPresenceValidator: Multiple BORROWER _FirstName ARC are missing
ArcPresenceValidator: Multiple BORROWER _LastName ARC are missing
ArcPresenceValidator: Multiple BORROWER _MiddleName ARC are missing
ArcPresenceValidator: BORROWER _FirstName data is missing
ArcPresenceValidator: BORROWER _LastName data is missing
ArcPresenceValidator: BORROWER _MiddleName data is missing
ArcMatchingValidator
FormNumberValidator
SmartDoc Node missing/invalid - NO_MAIN
SmartDoc Node missing/invalid - NO_LOAN
SmartDoc Node missing/invalid - NO_PROPERTY
SmartDoc Node missing/invalid - NO_EXECUTION
SmartDoc Node missing/invalid - NO_MORTGAGE_TERMS
SmartDoc Node missing/invalid - NO_LOAN_PRODUCT_DATA
SmartDoc Node missing/invalid - NO_LOAN_FEATURES
SmartDoc Node missing/invalid - NO_FIRST_BORROWER

* Error codes subject to change.