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# PDD XML Validation and Testing Tool (VTT) User Manual

U.S. Department of Housing and Urban  
Development (HUD)

Ginnie Mae, Office of Securities Operations (OSO)

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## Application Details

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Ginnie Mae SVP, Owner	John Daugherty, SVP OSO
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# 1 INTRODUCTION

This manual is written for users looking to use Ginnie Mae's Validation and Testing Tool (VTT) in the MyGinnieMae portal. **The purpose of this document is to familiarize you with the VTT and show how users can leverage this tool to efficiently develop and test their business data before submitting to Ginnie Mae.**

A core function of Ginnie Mae's business is the process for Issuers to submit pool and loan data to be assembled and issued as a Ginnie Mae Mortgage-Backed Security (MBS). This process is currently initiated by Issuers utilizing the GinnieNET application to electronically submit required information. Pool and loan data are currently submitted through the use of flat files or manual data entry; however, Ginnie Mae seeks to align with the mortgage industry for submission of its pool and loan data. Accordingly, Ginnie Mae has identified an opportunity to move towards a standardized, industry-accepted format for data submission, initially focusing on its single family at issuance pool delivery data.

The Mortgage Industry Standards Maintenance Organization (MISMO), an industry-supported standards development body, has developed a data standard using Extensible Markup Language (XML) for the exchange of mortgage servicing data from loan delivery to investor reporting, thereby creating a holistic view of loan and pool delivery data. Through the integration of MISMO standards into their business processes, Ginnie Mae seeks to promote a common platform for data exchange between its business partners while using these standards as guidance to improve the accuracy, consistency, and quality of the data using a common set of business terms and definitions.

Ginnie Mae has leveraged the MISMO standard to create the Pool Delivery Dataset (PDD). The PDD is based on the MISMO Version 3.3 Residential Specifications Reference Model. This dataset currently only encompasses data submitted for single family forward pools at issuance, a core function of Ginnie Mae's business for Issuers to submit pool and loan data to be assembled and issued as a Ginnie Mae MBS. Another key aspect of implementing the PDD using the MISMO standard requires a technical transition from the use of flat files for Single Family PDD data transmission in the GinnieNET web application to the use of XML files via the new Single Family Pool Delivery Module (SFPDM).

The PDD XML Validation and Testing Tool (VTT) is a component of the SFPDM that allows earlier and independent validation of the PDD. The VTT provides a user with the opportunity to upload the PDD, perform validations, and view the results.

Please note that successfully submitting a PDD through VTT is not required before submitting pools through SFPDM. However, VTT will help as users begin to adopt and create the new PDD file format, better positioning users to be successful in using the SFPDM.

## 1.1 Application Overview

### 1.1.1 Features

The VTT provides a series of validation checks to provide user valuable feedback on the state of their PDD. The tool provides errors and warnings to ensure the user is aware of any current issues their file contains. A series of validations will be run to test the structural validation and Business Rule validation of submission files.

The validations are separated into two steps: structural validations and Business Rule validations. The data submitted in the PDD to the VTT will not be automatically migrated to SFPDM for pool delivery, to submit your PDD through SFPDM, the user will need to upload or enter pool details directly in to SFPDM. Upon completion of the validation in VTT, all pool and loan data are purged. The core validation steps the VTT performs are shown in Table 1.1 below.

Component	Input	Process Description	Output / Post-Condition
<b>Step 1:</b> XML Structural Validation	User Submitted ZIP file	Validate PDD against XML Schema Definition (XSD) as noted in the PDD Implementation Guide Appendix E	Alert to User for successful completion OR Table of Structural Validation results (exportable)
<b>Step 2:</b> Business Rule Validation	XML Schema/Structural Validated PDD File	Validate PDD data against Ginnie Mae's Business Rules / Edits	Alert to User for successful completion OR Table of Business Rule Validation results (exportable) OR Alert to User for successful completion with Warnings (exportable table available)

**Table 1.1 Core Validation and Testing Tool Features**

Please Note: The VTT does not perform cross-checks on business data (i.e., assigned or available Pool Identifier, Issuer ID, Document Custodian ID, Bank Account information, Subservicer information, Pool Employer Identification Number, Consolidated Pool Identifier, Consolidated Pool UPB, and Consolidated Pool Security Interest Rate). This could result in slightly different results when uploading files to the SFPDM than are displayed as part of testing in this application.

### 1.1.2 Configuration

The VTT is a web-based application and can be accessed through the MyGinnieMae Portal. The user will need to meet the minimum system and browser requirements necessary to access the MyGinnieMae Portal as well as log-in credentials with the appropriate user role to access the VTT.

### 1.1.3 Data Flows

The high-level flow of the VTT is shown in the figure below. The flow begins with a user uploading data. Next, XML structural validations are performed on the file, and the initial validation results are shown. If the file passes the first set of validations, Business Rule validations are performed. Once the results are available, the user is notified and can view the results.

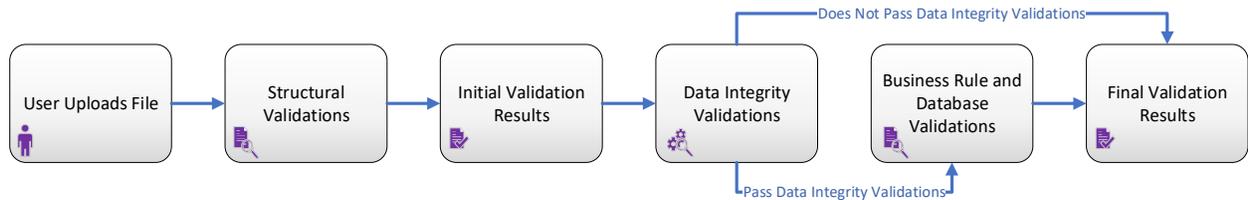


Figure 1.1 High Level Data Flow

A more detailed flow of the data can be seen in Figure 1.2 below. This figure further depicts the process if there are errors found during validations. Specifically, it outlines the route that the user takes to fix the errors after a validation results report is generated. After the user receives the results report and fixes necessary errors, the corrected XML file must be uploaded into the system again from the initial screen, regardless of the validation step at which the errors were found. The detailed data flow illustrates each of the paths that the user may follow as determined by the validation step at which errors are found. The user steps, shown in blue and requiring user input, are defined below:

- **User Uploads File:** The user uploads the file to the initial VTT screen as explained in Structural Validation of Submission Files.
- **User Fixes Structural Errors:** After receiving the validation results report for file structure, the user fixes the given errors as explained in Structural Validation .
- **Decision—“Proceed to Business Rule Validations?”:** The user decides if there is a need to continue to Business Rule validations or if it is only necessary to successfully complete structural validations at this point.
- **User Fixes Business Rule or Data Integrity Errors:** After receiving the validation results report for Business Rule or Data Integrity validations, the user fixes the given errors as explained in Business Rule Validation .

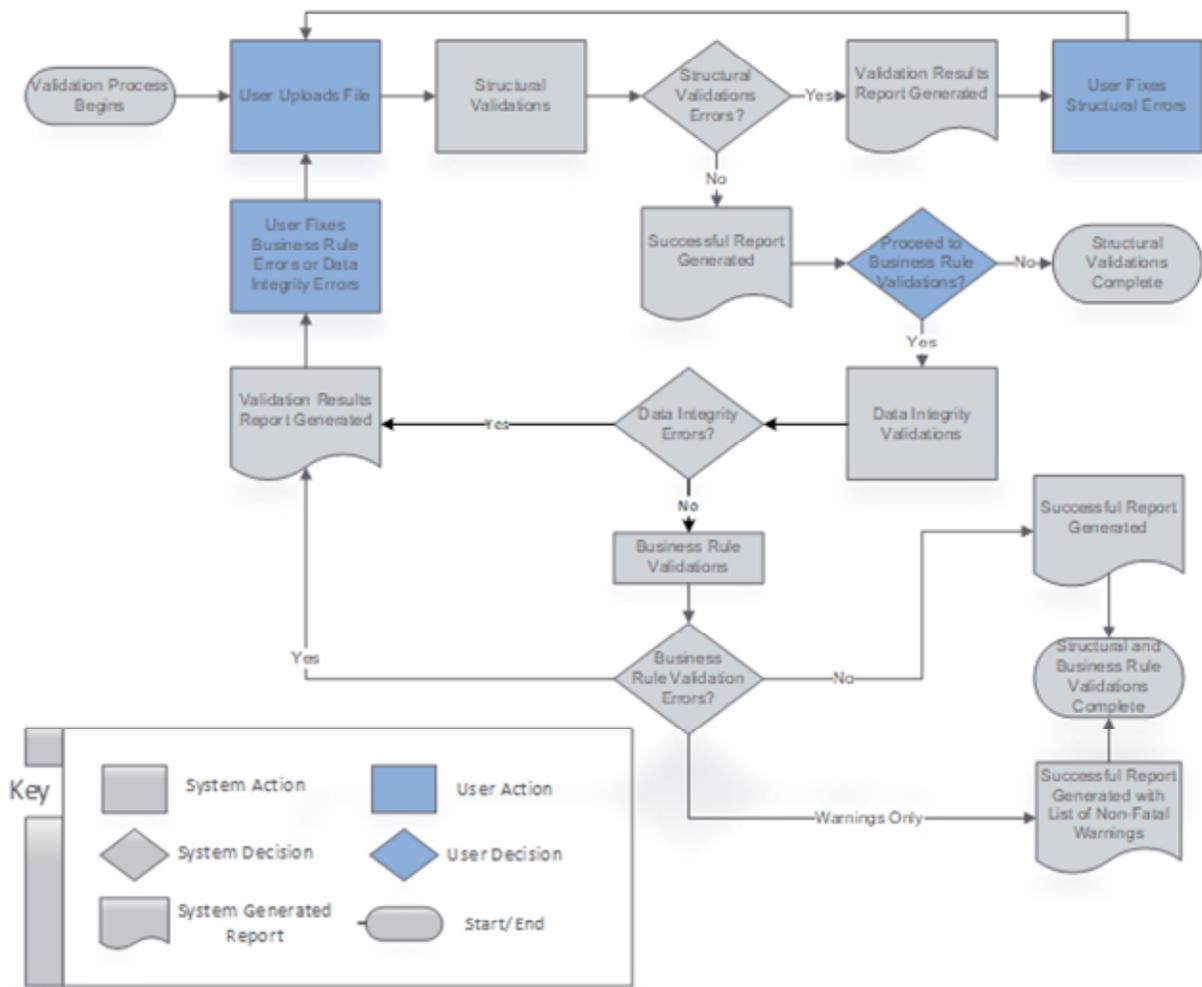


Figure 1.2 Detailed Data Flow

## 1.2 Contingencies and Alternate Modes of Operation

The web and content servers in the production environment are replicated on the Disaster Recovery Environment. If an alternate mode of operation is necessary, the Disaster Recovery Environment can be designated as an interim Production Environment.

## 1.3 Security Protocols

Refer to Section 1.2: Security Protocols of the [MyGinnieMae Portal Getting Started Manual](#) for descriptions of several security features in MyGinnieMae including Multifactor Authentication, Single Sign-On, SecurID Token, Automatic Logout and more.

## 1.4 Authorized Use/Permission

Refer to Section 1.3: Authorized Use/Permission of the [MyGinnieMae Portal Getting Started Manual](#) for descriptions of MyGinnieMae User Types, including Operations Administrator, Organization Administrator, and End User.

## 2 SYSTEM PREREQUISITES

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Before being granted access to the MyGinnieMae Portal to use the VTT, the user must complete the registration process. Organization Administrators facilitate the registration and access provisioning process within each organization.

Refer to Section 2: System Prerequisites of the [MyGinnieMae Portal Getting Started Manual](#) for information on web browser compatibility and descriptions of each MyGinnieMae Functional Role.

## 3 GETTING STARTED

The VTT is available for use through the MyGinnieMae Portal. The sections below outline the necessary information to access MyGinnieMae and begin using the VTT.

### 3.1 Access Information

Issuer access to the MyGinnieMae portal affords a user with access to the VTT and SFPDM. There are multiple application roles within the SFPDM; however, all users that are granted access to the SFPDM will have the ability to upload and test files in the VTT.

### 3.2 Logging On to MyGinnieMae

Refer to the [Logging into MyGinnieMae & Accessing Business Applications QRC](#) for step-by-step instructions on how to log into the portal or the section on Logging into MyGinnieMae in the [MyGinnieMae Portal Getting Started Manual](#).

### 3.3 Accessing the Validation and Testing Tool

1. The VTT can be processed from the banner at the top of the page by selecting the “Tools” drop down, selecting “Applications” and choosing: “VTT”. This path can be seen in **Figure 2.3**.

**Note:** The MyGinnieMae Portal team is responsible for the creation of the drop-down menu; the figure will be updated upon completion of the menu.



Figure 3.1 Locating the VTT

2. The VTT Home Screen will appear as shown in **Figure 2.4**.

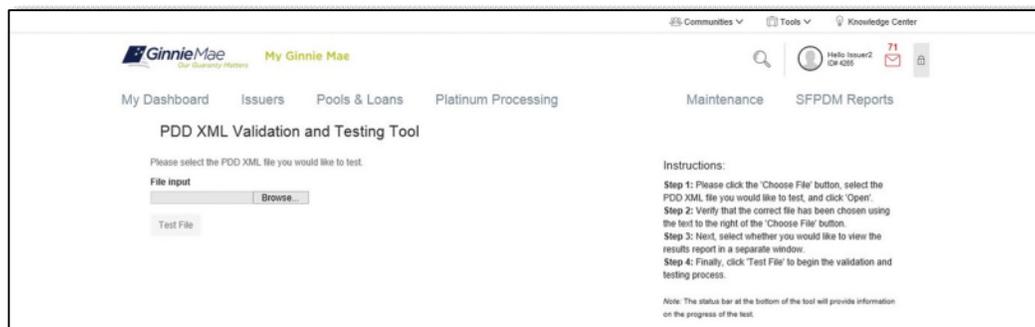


Figure 3.2 VTT Appearance

### 3.4 Exiting the Validation and Testing Tool

When exiting the VTT, you may choose to either leave the portal completely or return to My Dashboard in the MyGinnieMae portal to continue working in other Ginnie Mae business applications. To exit the MyGinnieMae Portal at any point during the process, select the small lock icon in the corner of the screen as displayed in 2.7.

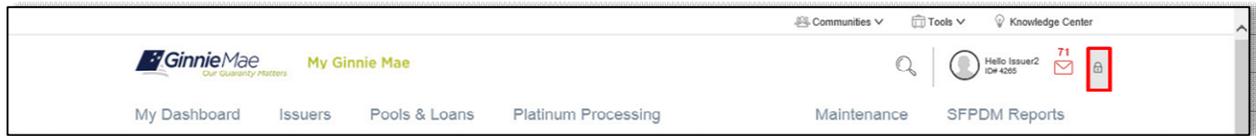


Figure 3.3 Selecting the Lock Icon

After selecting the lock icon, click "LOGOUT" to end the session, as displayed in Figure 2.8.

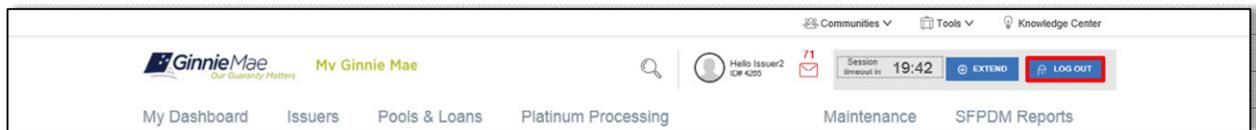


Figure 3.4 Logging off of MyGinnieMae

Additionally, clicking any other Global header items will take the user to that respective module while still maintaining the user's current MyGinnieMae Portal session. To return to the VTT, the user will need to go through the process defined in the Accessing the Validation and Testing Tool section.

## 4 USING THE APPLICATION

### 4.1 Application Menu

After successfully logging into the MyGinnieMae Portal, the user will be able to interface with the VTT in two ways, which are detailed in the sections below.

#### 4.1.1 PDD Testing in the Validation and Testing Tool

Users can directly access the VTT as outlined in [Accessing the Validation and Testing Tool](#) to test new or updated PDD files prior to processing in the SFPDM. The first step in this process involves choosing the pool and loan file for testing, selecting the “Test File” button, and then viewing the initial structural validation results. After the file has been successfully verified for technical competency, the validation process will continue to ensure the file adheres to Ginnie Mae’s Business Rules. Once Business Rule validations are complete, a message indicator will appear on the screen. Detailed instructions on how to test the file and successfully complete these steps are available in the detailed [PDD Testing in the Validation and Testing Tool](#) section.

#### 4.1.2 Reviewing Previous Business Rule Validation Attempts

Previous Business Rule validation results, both successful and unsuccessful, can be accessed via the MyGinnieMae Portal Message Center. Further information on how to access the Message Center can be located in the detailed Reviewing Previous Business Rule Validation Attempts section.

**Note:** Structural validation results cannot be accessed with this functionality. To view instructions on preserving structural validation results, please refer to the [Standard Reports](#) section.

### 4.2 PDD Testing in the Validation and Testing Tool

The VTT is available for Issuers to test PDD files prior to processing by the SFPDM. Before submitting test files to VTT, note the following prerequisite criteria for your PDD to ensure your test data is properly uploaded:

1. PDD data must be stored in XML format, stored in a .zip file. Each .zip file can only contain **one** PDD XML file.
2. Only one .zip file can be uploaded at a time, and each .zip file can only contain **one** PDD XML file.

The VTT validates your uploaded PDD files in a two-step process: first for XML **Structural Validation** and second for Ginnie Mae’s **Business Rule Validation**. These validations are completed in chronological order and walkthroughs for each are provided in the subsections below.

#### 4.2.2 Structural Validation of Submission Files

This section provides a walkthrough of structural validations beginning with how to select the file through viewing the initial results. The first step begins with the initial VTT home screen shown below. For detailed instructions on how to get to this page, please refer to the Accessing the Validation and Testing Tool section.

1. Select Choose File on the Initial Screen.

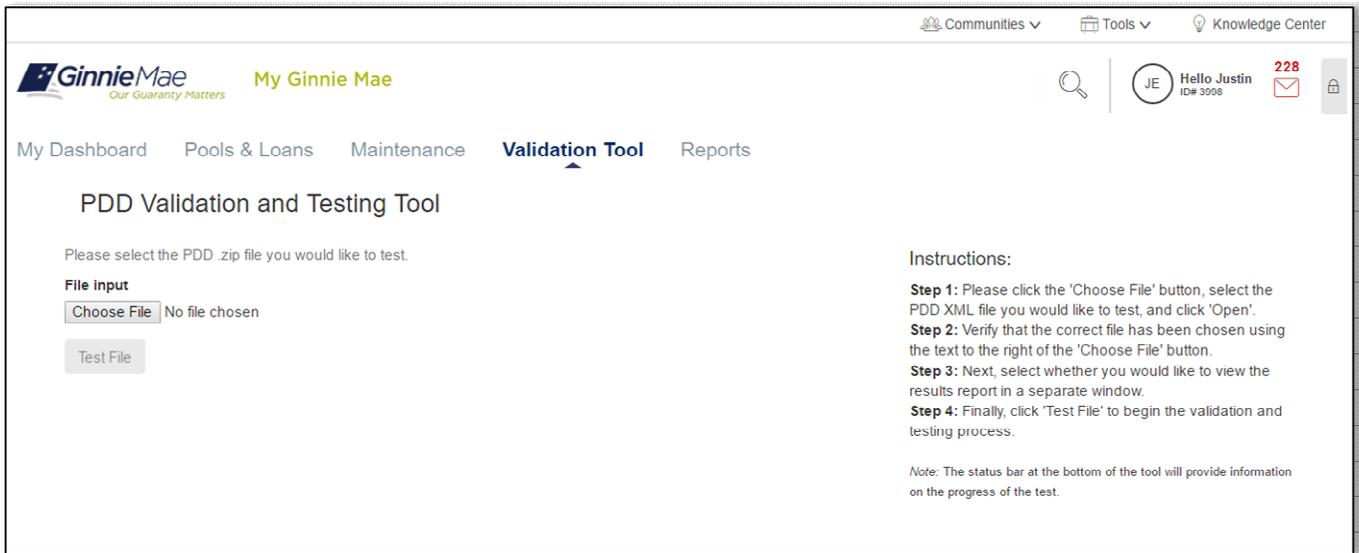


Figure 4.1 Selecting Choose File

2. Select the appropriate zipped PDD XML file to test and select “Open” as shown.

**Note:** XML files must be properly prepared in order to successfully submit to the PDD. Multiple pools may be submitted simultaneously, but they must be submitted within a single XML file compressed into one zip file. Only one zip file can be uploaded at one time.

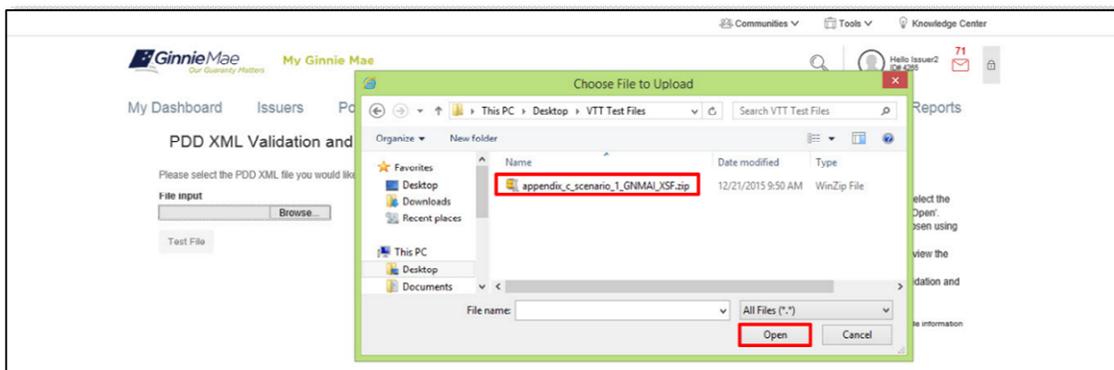


Figure 4.2 Selecting the File

3. Verify that the correct file has been chosen using the text next to the “Browse” button as shown.

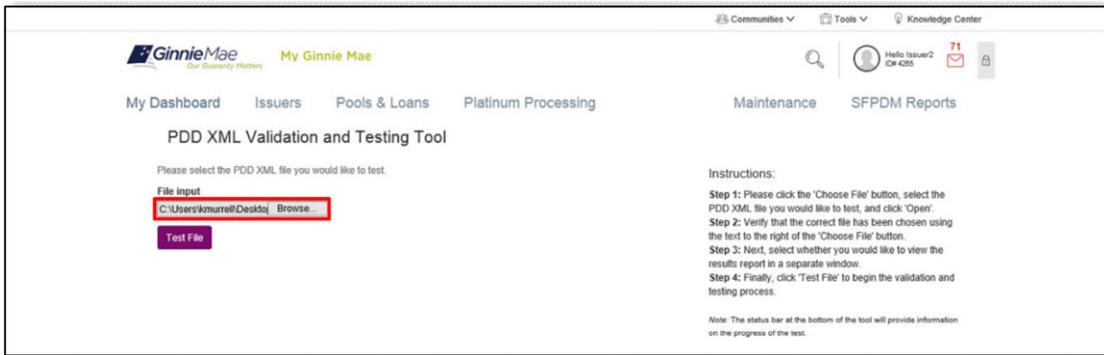


Figure 4.3 Verification of the File

4. Select the purple “Test File” button to begin the validation and testing process.

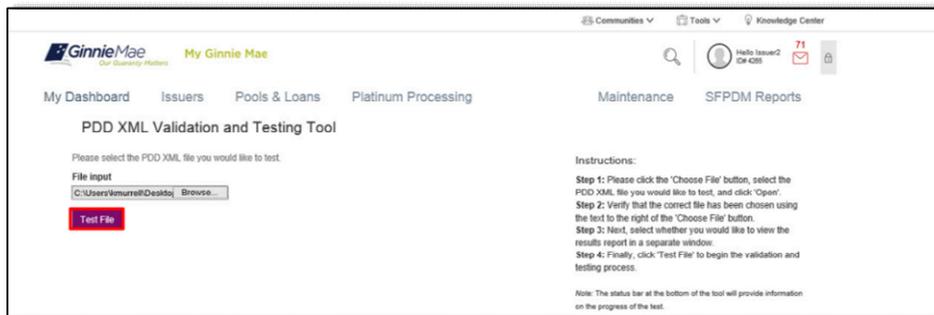


Figure 4.4 Testing the File

5. View the current progress of the file by looking at the status bar displayed on the screen.

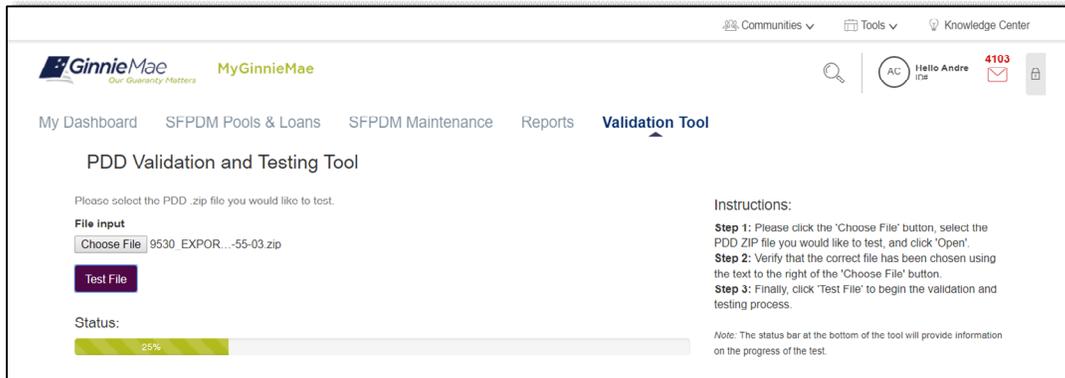
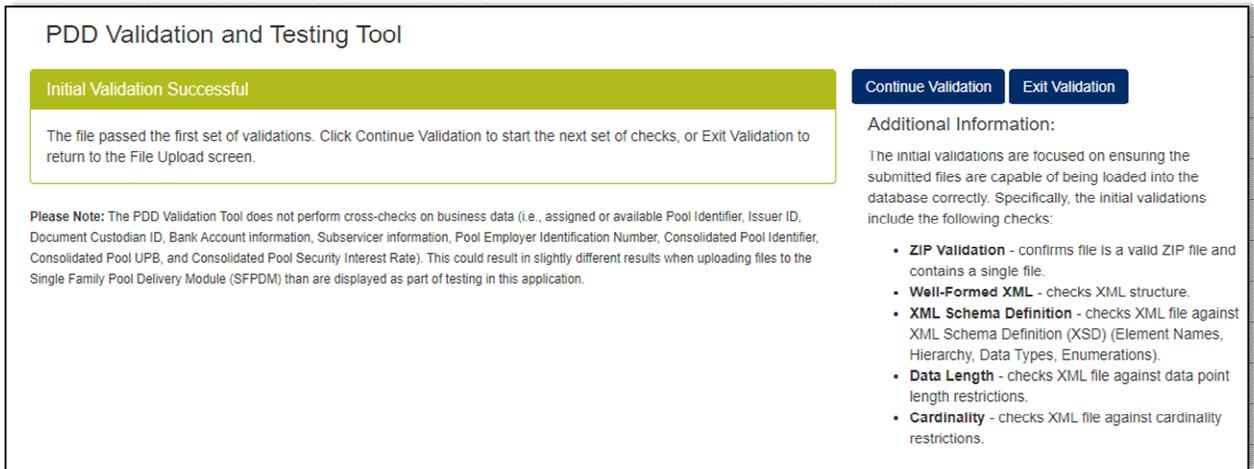


Figure 4.5 Viewing Structural Validation Status

6. Upon successful structural validation of the file, the screen shown below will appear. If an error screen appears, please reference the Structural Validation Results section for further instructions.



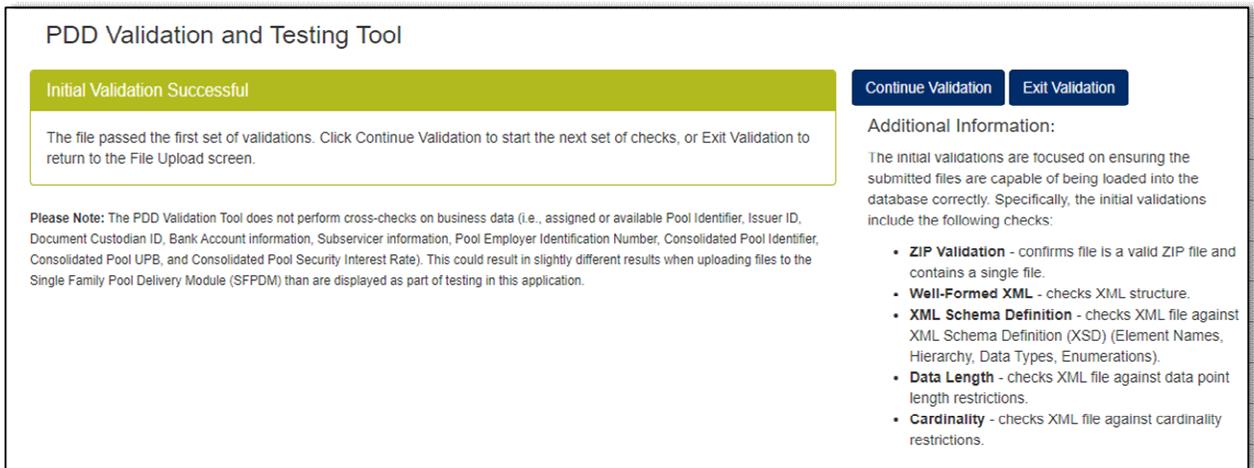
**Figure 4.6 Successful Structural Validation Results**

7. To continue to Business Rule validations, select “Continue Validation.” Instructions to complete these validations will be continued in Business Rule Validation of Submission Files. The user can also choose to end the validation process after structural validations have been completed by selecting “Exit Validation “.

### 4.2.3 Business Rule Validation of Submission Files

This section provides a walkthrough of the Business Rule validations, which test your PDD XML file to determine if it meets Ginnie Mae’s Business Rule requirements.

1. After structural validations have been completed, select “Continue Validation” to continue Business Rule validations on the same file.



**Figure 4.7 Continue Business Rule Validations**

2. A banner will appear signifying that the file has been passed on for Business Rule validations. Once the file has continued to Business Rule validations, you can begin Structural Validations for a new file while awaiting Business Rule validation results.

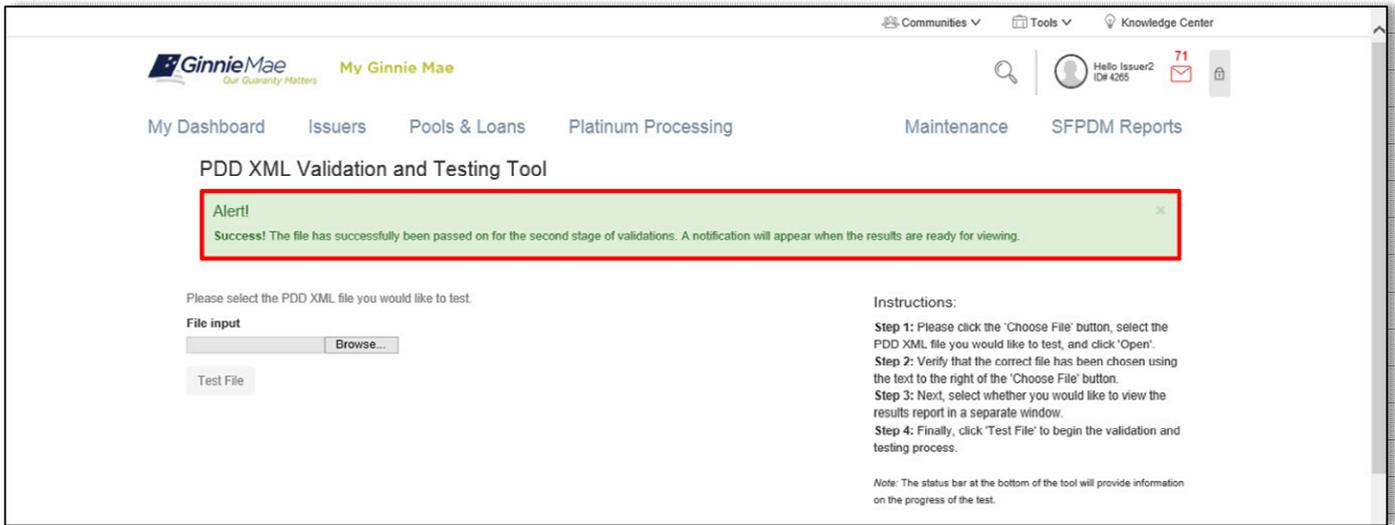


Figure 4.8 File Sent to Business Rule Processing

3. When processing is finished, a message will appear in the message center to signal that processing is complete. Click on the messages icon to access your MyGinnieMae notifications, which will contain your Business Rule Validation results.

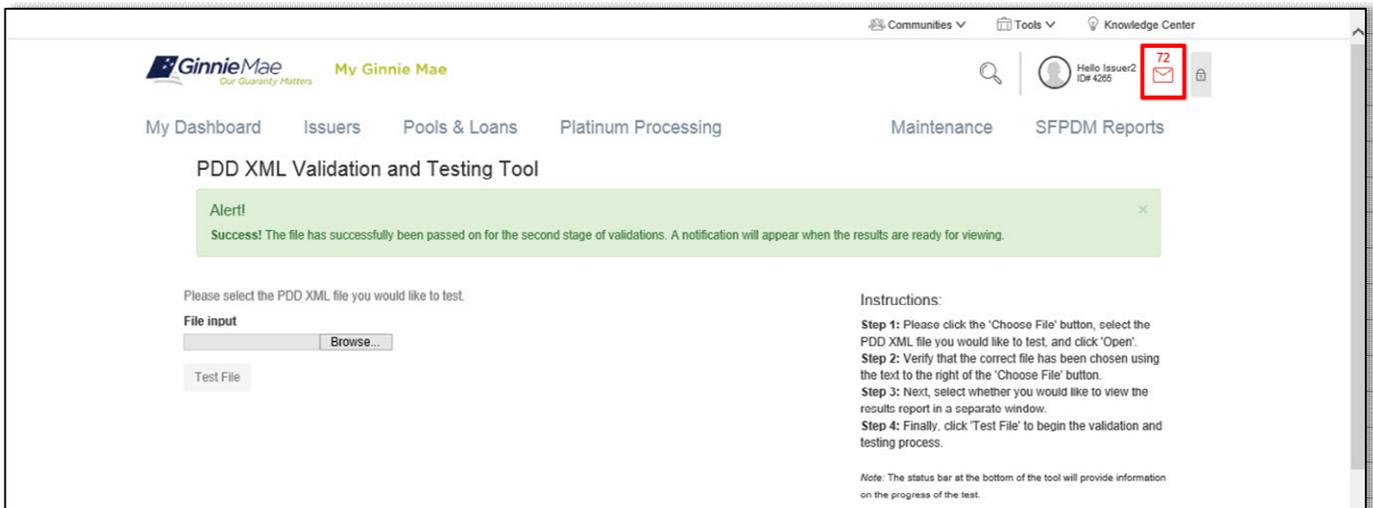


Figure 4.9 Message Indicating Completed Processing

4. Select the validation attempt from your MyGinnieMae notifications drop-down.

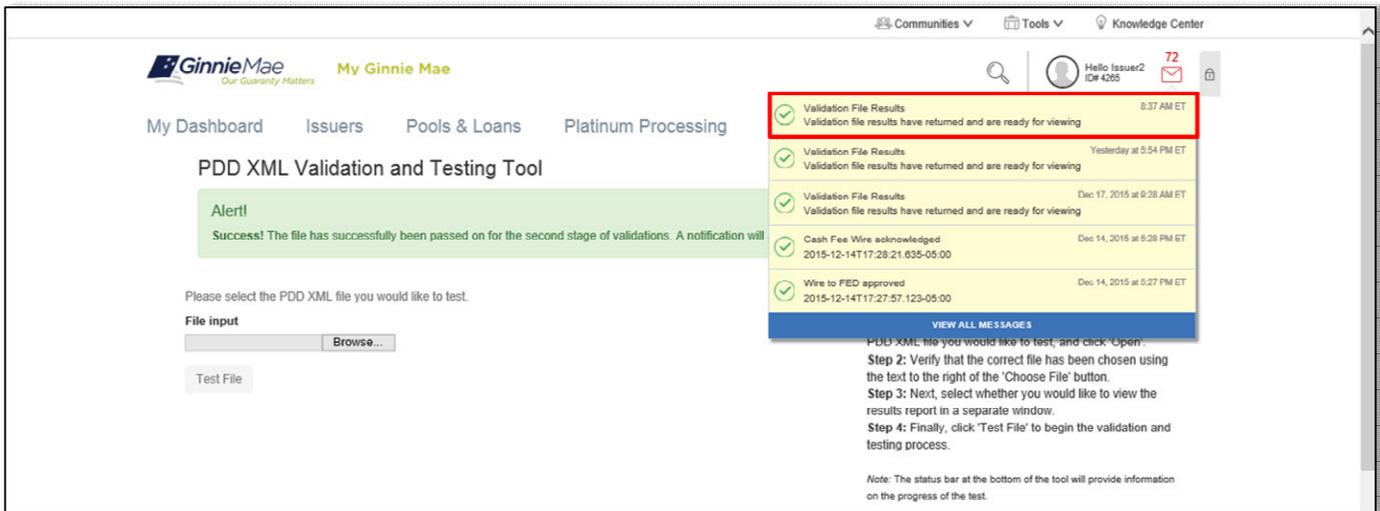


Figure 4.10 View Validation Attempt

**Note:** These results are for a file that passes Business Rule Validations with no Errors or Warnings. The Business Rule Validation Results section contains more information on scenarios in which files do not pass Business Rule Validations.

5. Final results of the validation attempt are displayed. This concludes the validation process for your PDD.

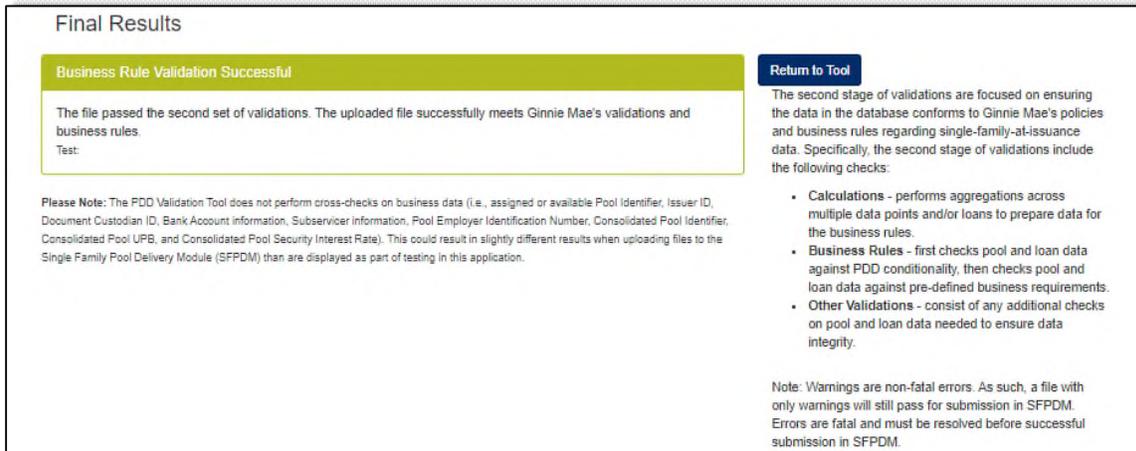


Figure 4.11 View Message Center/Inbox

### 4.3 Reviewing Previous Business Rule Validation Attempts

Results from all completed Business Rule Validations, both successful and unsuccessful, are accessible later from your MyGinnieMae Message Center to ensure any user can access both current and previous validation attempts. These messages can be located by selecting “VIEW ALL MESSAGES” from the message toolbar as shown below. This will redirect the user to an inbox with all of the “MyGinnieMae” messages.

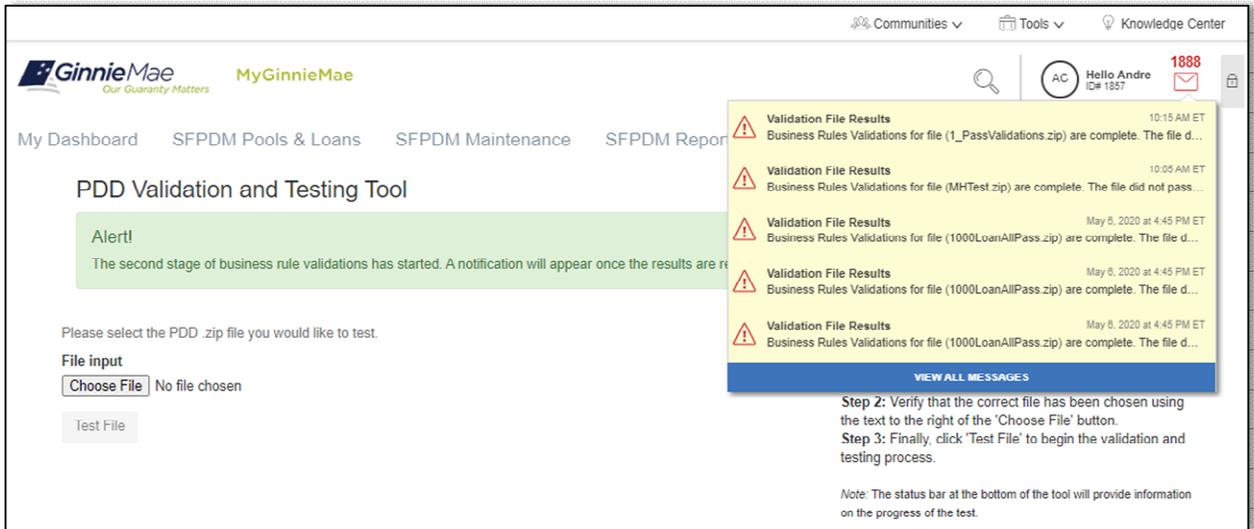


Figure 4.12 View Message Center/Inbox

### 4.4 Addressing Common PDD Validation Results

The purpose of this section is to help users troubleshoot common errors with their PDD file that the VTT returns during normal processing. For assistance in troubleshooting issues with the VTT system itself, please refer to [Troubleshooting](#) or reach out to the appropriate resources in the [Ginnie Mae Customer Support](#) section. There are a number of errors that may occur throughout the validation process. The VTT helps users find and correct those errors prior to uploading the file to the SFPDM. These errors will likely occur in one of the two validation steps. The error screens are described in detail in the subsections below.

#### 4.4.1 Structural Validation Results

Structural validations will determine the technical compatibility of the XML file by checking it against the XSD. The error screen will appear after Step 5 in the Structural Validation of Submission Files walkthrough. An example of this error screen is shown below. For more information on reporting capabilities, please refer to the Standard Reports section.

The screenshot shows a validation results window with a red header bar. The header contains the text "Validation Results for File." on the left, "Error Count: 16" in the center, and two buttons "Export to CSV" and "Exit Validation" on the right. Below the header is a navigation bar with a series of numbered tabs (1, 2, 3, 4) and arrows. The main content area is a table with the following data:

Line Number	Category	Description
89	cvc-pattern-valid	Value '2107.929' is not facet-valid with respect to pattern '((0-9)+)(0-9){2}' for type 'PDD_Amount_Base_7_2'.
118	cvc-pattern-valid	Value '1.000' is not facet-valid with respect to pattern '((0-9)+)(0-9){2}' for type 'PDD_Amount_Base_7_2'.
118	cvc-type.3.1.3	The value '1.000' of element 'GovernmentAnnualPremiumAmount' is not valid.
131	cvc-complex-type.2.4.b	The content of element 'LOAN_STATE' is not complete. One of '{"www.ginniemae.gov":LoanStateType}' is expected.
139	cvc-type.3.1.3	The value 'Day' of element 'LoanMaturityPeriodType' is not valid.

To the right of the table is a section titled "Additional Information:" which contains a paragraph and a bulleted list:

The initial validations are focused on ensuring the submitted files are capable of being loaded into the database correctly. Specifically, the initial validations include the following checks:

- **ZIP Validation** - confirms file is a valid ZIP file and contains a single file.
- **Well-Formed XML** - checks XML structure.
- **XML Schema Definition** - checks XML file against XML Schema Definition (XSD) (Element Names, Hierarchy, Data Types, Enumerations).
- **Data Length** - checks XML file against data point length restrictions.
- **Cardinality** - checks XML file against cardinality restrictions.

Figure 4.13 Structural Validation Results Failure

For solution references to common structural errors, see Table 4.1 below.

Validation Type	Attribute Tested	Description	Solution
ZIP Validation	ZIP Validation	Confirms the file is a valid ZIP file and contains a single .XML file	Refer to Section 6.10 of the <a href="#">PDD Implementation Guide</a> for compression and submission instructions
XML Schema Definition	XML File Structure	Checks that the XML file is well-formed, following syntax rules and a defined structure	Refer to Appendix E for XML schema definition
	XML Header Information	Checks that the XML file contains information required by the VTT, including the name of the XML Schema Definition (XSD) file used to validate the XML structure	Refer to the sample XML scenarios in the SFPDM Implementation Guide, Appendix C and Appendix E ComplexTypes.xsd
	Element Names	Checks each data element name for accuracy	Refer to the Appendix D tab entitled "MISMO Data Points" for appropriate container and data point names
	Hierarchy	Validates container and element sequence	Refer to the Appendix D tab entitled "MISMO Data Points" for appropriate XPath for each data point name
	Data Types	Validates appropriate data type is used for each data point	Refer to the Appendix D tab entitled "MISMO Data Points," Column N titled "PDD Accepted Data Format" for appropriate data point lengths and types
	Enumerations	Validates accuracy of chosen data point against allowable values	Refer to the Appendix D tab entitled "Enumerations" for allowable values
	Data Pattern	Validates data types, lengths, minimums and maximums and their appropriate sequence	Refer to the Appendix D tab entitled "MISMO Data Points," Column N titled "PDD Accepted Data Format" for appropriate data point lengths and types or Refer to the results report specifying file line with error; match specified line against acceptable pattern in Appendix E
Maximum Cardinality	Checks that an element does not exceed the maximum number of occurrences	Refer to the Appendix D tab entitled "Cardinality" to determine the maximum cardinality for each data point	

Validation Type	Attribute Tested	Description	Solution
	Minimum Cardinality	Checks that 'Required' elements are provided. For some structures within the data, checks that 'Conditionally Required' are provided when appropriate	Refer to the Appendix D tab entitled "Cardinality" to determine the minimum cardinality for each data point
No Category Provided	Valid XML Character Usage	Ensures that no XML-invalid characters have been entered in the PDD data element values (error indicated by keywords "Unexpected character" in error description)	Refer to Table 4.2 for a list of XML-invalid characters and remove/replace them in the PDD data element values with the listed escape characters to allow them to render properly.

Table 4.1 Solution References to Common Structural Errors

Additionally, see Table 4.2 below for a list of invalid characters that may not be entered as values in the PDD XML file. If any of these characters need to be included, please use the corresponding equivalent string in the "Valid Replacement" column.

Invalid Character	Valid Replacement
&	&amp;
<	&lt;
>	&gt;
"	&quot;
'	&apos;
XML-Restricted Characters	These are invalid characters and <b>must be removed</b> from the PDD. Although they are invisible/blank in the XML document, the corresponding structural validation message returns the offending data element value with a "¿" symbol where the XML-restricted character is located, allowing the user to find and delete the character in the XML document.

Table 4.2 List of Invalid Characters in XML Documents

#### 4.4.2 Business Rule Validation Results

Business Rule validations will determine the document's compatibility with Ginnie Mae's Business Rules by running the file against the Business Rule Engine (BRE). Error messages will appear in the message window as shown below. This screen will appear in the sequence that is described in the Business Rule Validation of Submission Files walkthrough.

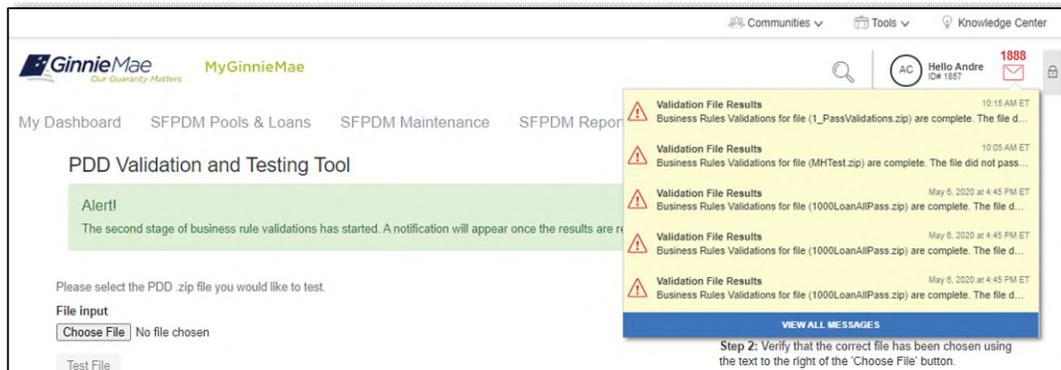


Figure 4.14 Accessing Rule Validation Errors

Note that the BRE can return both Errors (fatal) and Warnings (non-fatal). Although files with any Errors will fail Business Rule validations and return the notification type shown above, files with only Warnings will pass Business Rule validations. In the latter scenario, the VTT will indicate to the user that the file passed, but with warnings.

To ensure that the data submitted will be processed correctly, the VTT performs a series of Data Integrity checks. Therefore, two different types of errors can be returned during Business Rule Validation: **Data Integrity Errors and Business Rule Errors**.

The purpose of Data Integrity checks is to ensure that PDD data is evaluated as the user expects, and that the VTT only returns relevant results to the issuer. **As such, if Data Integrity Errors are found with any loan / pool information in the PDD, the VTT will only return the Data Integrity Errors and skip Business Rule validations for that loan or pool.** Once Data Integrity Errors are resolved for a given loan or pool, the VTT will proceed normally and display the Business Rule errors for the loan / pool, if any.

This functionality works on a *loan-by-loan* and *pool-by-pool* basis, meaning it is possible for some loans or pools in a PDD to pass Data Integrity checks and return Business Rule Errors while others only return Data Integrity Errors. This is illustrated in the figure below, which shows an example VTT error log for a PDD that failed Business Rule Validations. Note that the VTT UI also indicates which errors are Data Integrity errors by referencing their error codes.

**Final Results**

Business Rule Results for File. Error Count: 4

Pool ID	Loan ID	Type	Category	Description
BG6460		Error	SFP-01P57301E	Pool government bond finance program name is missing.
BG6460		Error	SFP-01P57201E	Pool government bond finance program type is missing.
BG6460		Error	SFP-01P59201E	Pool should not have more than 1 P&I ACH account.
BG6460	1000000000000000	Error	SFP-02R03101E	Invalid or missing LoanRefinanceCashOutDeterminationType value.

Note: Error codes SFP-01P57301E, SFP-01P57201E, SFP-01P59201E are data integrity validation errors. As such, some or all Business Rule errors will not be visible until these data integrity validation errors have been resolved.

Annotations:

- Pool-specific Data Integrity Errors (points to SFP-01P57301E, SFP-01P57201E, SFP-01P59201E)
- This loan passed Data Integrity Errors and returns Business Rule Errors (points to SFP-02R03101E)
- Message in UI indicates which errors are Data Integrity Errors (points to the note at the bottom)

Figure 4.15 Business Rule and Data Integrity Validation Errors

For a list of Data Integrity rules that VTT checks the PDD against, see Table 4.3 below.

Level	Validation Description
Pool	Pool Government Bond Finance Program Type is missing (SFP-01P57201E).
Pool	Serial Note Units are missing for SN Type Pool (SFP-01P57401E).
Pool	SN Type Pool must have minimum 100 and maximum 200 Serial Notes (SFP-01P57101E).
Pool	Serial Note Units should not be present for non-SN Type Pool (SFP-01P59001E).
Pool	Serial Note Certificate Amount must be \$25,000 except the last one which has to be greater than or equal to \$25,000 and less than \$50,000 (SFP-01P59901E).
Pool	Pool Transferee Issuer is not present (SFP-01P57601E).

Pool	Pool can have only 1 P&I and up to 50 T&I ACH Accounts (SFP-01P59101E).
Pool	At least 1 Principal & Interest ACH Account should be present for Pool (SFP-01P59401E).
Pool	At least 1 Taxes & Insurance ACH Account should be present for Pool (SFP-01P59201E).
Pool	Pool should not have more than 50 T&I ACH Accounts (SFP-01P59201E).
Pool	Investor ACH Bank Account Identifier should not be 0 for Investor +poolInvestor.investorName (SFP-01P59701E).
Pool	Investor ABA Routing Number should not be 0 for Investor +poolInvestor.investorName (SFP-01P59801E).
Loan	Loan Down Payment Funds Type Other Description is missing (SFP-02P57501E).
Loan	Refinance Loan should not have Down Payments (SFP-02P58901E).
Loan	Borrower Information is missing (SFP-02P06604E).
Loan	At least one Primary Borrower should be present (SFP-02P06601E).
Loan	More than one Primary Borrower is present (SFP-02RP06602E).
Loan	Cannot have more than 4 Secondary Borrowers (SFP-02P06603E).
Loan	Primary Borrower's Credit Score must be entered (SFP-02P06701E).
Loan	Adjustment Information is missing for ARM Loan (SFP-02P57804E).
Loan	ARM Loan Interest Rate Lifetime Adjustment Percentage Information is missing (SFP-02P57704E).
Loan	Non ARM Loan cannot have Adjustment Information (SFP-02P57804E).
Loan	Interest Rate Lifetime Adjustment Percentage Information cannot be present for Non ARM Loan (SFP-02P57704E).
Loan	Index Type should be +varIndexType+ for + Loan.poolHeader.poolSuffixId + pool type (SFP-02P57905E).
Loan	Loan Modification Data is missing (SFP-02P59605E).
Loan	Construction Method cannot be blank for MH Type Pools (SFP-02P06610E).
Loan	Construction Method can only be Manufactured for MH Type Pools (SFP-02P06610E).

Table 4.3 VTT Data Integrity Validation Rules

For solution references to common Business rule errors, see Table 4.4 below.

Validation Type	Attribute Tested	Description	Solution Reference
Business Rules	Empty Fields	Checks that all required fields contain values	Refer to the Ginnie Mae Business Rule Resource Guide to determine which field is missing a value
	Formatting	Checks that a reported value is in the proper format	Refer to the Ginnie Mae Business Rule Resource Guide to determine the proper format for the conflicting data point
	Validity	Checks that a reported value is valid	Refer to the Ginnie Mae Business Rule Resource Guide to determine why the data point's value is invalid
	Duplication	Checks that data points which cannot be duplicated are not duplicated	Refer to the Ginnie Mae Business Rule Resource Guide to determine which data point is improperly duplicated
	Range	Checks that the reported value is within the acceptable range	Refer to the Ginnie Mae Business Rule Resource Guide to determine the acceptable range for the conflicting data point
	Calculations	Checks that the reported value matches the value calculated from the values of other reported data points	Refer to the Ginnie Mae Business Rule Resource Guide to determine which data point is improperly reported

Table 4.4 Solution References to Common Business Rule Errors

## 5 REPORTING

### 5.1 Standard Reports

The VTT has the ability to export the Validation Results Reports to a comma separated value (CSV) file. This provides the ability to send the results report to other users for file correction purposes.

Validation Results Reports can be exported from either validation stage (1<sup>st</sup> Round Structural or 2<sup>nd</sup> Round Business Rule Validation), depending on which validation stage errors were found. The Validation Results Report will contain line by line error information that matches the line items shown in the VTT UI for the given validation stage.

### 5.2 Standard Report Procedures

The error report can be exported into a CSV file by selecting the “Export to CSV” button, as shown in the figure below. A user will presented with this option in either of the following scenarios:

- 1<sup>st</sup> Round Structural Validations are encountered after step 5 of Structural Validation of Submission Files.
- 2<sup>nd</sup> Round Business Rule Validations are encountered after step 4 of [Business Rule Validation of Submission Files](#).

Note that while the screenshot shown below displays 2<sup>nd</sup> Round Validation results, the export function is available for 1<sup>st</sup> Round Validation results in the same manner.

The screenshot shows a web interface titled "Final Results" with a sub-header "Business Rule Results for File." and "Error Count: 4". A navigation bar includes "Export to .CSV" and "Return to Tool" buttons. Below is a table with columns: Pool ID, Loan ID, Type, Category, and Description. The table lists four error entries for Pool ID BG6460. A note at the bottom explains that error codes SFP-01P57301E, SFP-01P57201E, and SFP-01P59201E are data integrity validation errors.

Pool ID	Loan ID	Type	Category	Description
BG6460		Error	SFP-01P57301E	Pool government bond finance program name is missing.
BG6460		Error	SFP-01P57201E	Pool government bond finance program type is missing.
BG6460		Error	SFP-01P59201E	Pool should not have more than 1 P&I ACH account.
BG6460	100000000000000000	Error	SFP-02R03101E	Invalid or missing LoanRefinanceCashOutDeterminationType value.

Note: Error codes SFP-01P57301E, SFP-01P57201E, SFP-01P59201E are data integrity validation errors. As such, some or all Business Rule errors will not be visible until these data integrity validation errors have been resolved.

The second stage of validations are focused on ensuring the data in the database conforms to Ginnie Mae's policies and business rules regarding single-family-at-issuance data. Specifically, the second stage of validations include the following checks:

- **Calculations** - performs aggregations across multiple data points and/or loans to prepare data for the business rules.
- **Business Rules** - first checks pool and loan data against PDD conditionality, then checks pool and loan data against pre-defined business requirements.
- **Other Validations** - consist of any additional checks on pool and loan data needed to ensure data integrity.

Note: Warnings are non-fatal errors. As such, a file with only warnings will still pass for submission in SFPDM. Errors are fatal and must be resolved before successful submission in SFPDM.

Figure 5.1 Export File

## 6 GETTING HELP

This section provides the user with information on where to search for information and resources to assist with their account, navigating the portal and its applications, and troubleshooting issues.

### 6.1 Troubleshooting System Errors

The Validation and Testing Tool is meant to provide error results to help the user create a valid PDD XML file. Additional errors are not expected. Please refer to [Addressing Common PDD](#) for more information on any common PDD errors that occur during normal VTT processing.

If the VTT encounters an unexpected error, or if validation services are not available, users may encounter the message shown in the figure below to alert them of an internal system error. It is also possible that the user does not receive a second round notification at all.

**Final Results**

Business Rule Results for File. Error Count: 1

◀ ◁ 1 ▷ ▶

Pool ID	Loan ID	Type	Category	Description
BE6094	100000000000000	Error	System Failure	There is a problem with the service or the service is unavailable.

Test:

[Export to .CSV](#) [Return to Tool](#)

The second stage of validations are focused on ensuring the data in the database conforms to Ginnie Mae's policies and business rules regarding single-family-at-issuance data. Specifically, the second stage of validations include the following checks:

- **Calculations** - performs aggregations across multiple data points and/or loans to prepare data for the business rules.
- **Business Rules** - first checks pool and loan data against PDD conditionality, then checks pool and loan data against pre-defined business requirements.
- **Other Validations** - consist of any additional checks on pool and loan data needed to ensure data integrity.

Note: Warnings are non-fatal errors. As such, a file with only warnings will still pass for submission in SFPDM. Errors are fatal and must be resolved before successful submission in SFPDM.

Figure 6.1 Internal System Error Alert

If a user encounters this error message or if a user does not receive a portal notification upon submitting a file successfully to the Business Rule Validation, they should contact the Ginnie Mae Help Desk (see [Ginnie Mae Customer Support](#)) and provide the following information:

1. Their MyGinnieMae User ID
2. Approximate time they received the error (or ran the file that did not return a notification)
3. Loan and Pool ID's associated with any system errors returned

### 6.2 MyGinnieMae Self-Help Tools

Users should first reference the appropriate section of the MyGinnieMae Getting Started User Manual for information on creating a user account, requesting functional roles, and managing a user account. Some functions a user may complete without the assistance of a system administrator such as:

- Changing a password every 90 days – [Changing a Password in MyGinnieMae QRC](#)
- Resetting a forgotten password – [Forgot Password in MyGinnieMae QRC](#)
- Updating profile information – [Managing My Profile in MyGinnieMae QRC](#)
- Registering for mobile delivery of the OTP – [Registering with the Oracle Mobile Authenticator QRC](#)
- Troubleshooting Errors in MyGinnieMae – [Troubleshooting and Common Errors in MyGinnieMae QRC](#)

Easy reference tools like [Quick Reference Cards \(QRCs\)](#) and the Portal Help link at the bottom of each portal page, can be used to help answer common questions. To get more help, users may access the training sessions and materials on the [Issuer Training Page](#) of the Ginnie Mae website at

[https://www.ginniemae.gov/issuers/issuer\\_training/pages/modernization.aspx](https://www.ginniemae.gov/issuers/issuer_training/pages/modernization.aspx). Konkimalla, Nagaraju  
<Nagaraju.Konkimalla@bnymellon.com>

### 6.3 Organization Administrators

Organization Administrators, formerly known as Security Officers and Enrollment Administrators, are privileged users inside each Ginnie Mae business partner organization that are responsible for creating and managing End User accounts in Ginnie Mae systems on behalf of their organization. Organization Administrators are responsible for the following functions:

- Create an End User Account
- Update Account Attributes such as an RSA Token
- Reset Password
- Add/Remove Functional Roles for an End User Account
- Disable/Enable an End User Account
- Lock/Unlock an End User Account

End Users that need their One-Time PIN (OTP) reset or have questions about how to use portal applications should seek assistance from Ginnie Mae Customer Support.

### 6.4 PDD Resources

Resources for the Pool Delivery Dataset and the PDD can be found on GinnieMae.gov within the Modernization Initiatives page and the Tools and Resources page under Issuer Training. The resources listed below provide additional information on PDD specifications, which will assist you in developing your PDD and interpreting validation results from the VTT:

- Introduction to the PDD – [PDD Implementation Guide](#)
- PDD Example Business Scenarios – [PDD Implementation Guide Appendix B](#)
- Example PDD XML Files (Corresponding to Scenarios in Appendix B) – [PDD Implementation Guide Appendix C](#)
- Data Dictionary and Requirements for PDD data elements – [PDD Implementation Guide Appendix D](#)
- XML schema and formatting guidance – [PDD Implementation Guide Appendix E](#)
- Additional PDD Guidance – [Frequently Asked Questions \(FAQs\)](#)

## 6.5 Ginnie Mae Customer Support

For questions regarding PDD Development or help understanding your PDD Validation errors please send inquiries to [GinnieMae\\_MISMO\\_Support@HUD.gov](mailto:GinnieMae_MISMO_Support@HUD.gov).

For other VTT technical support, Ginnie Mae Customer Support may be reached at:

1-833-GNMA HELP / 1-833-466-2435

[ginniemae1@bnymellon.com](mailto:ginniemae1@bnymellon.com)

For support relating to Pool Delivery Dataset development or using the Validation and Testing Tool, please press 2 to reach the Ginnie Mae Issuer Support Hotline. Then, please press 6 to reach a representative.

### 6.5.1 Help with System Access

The Operations Administrators for the MyGinnieMae portal may be reached via Ginnie Mae Customer Support. The Operations Administrators are responsible for creating and managing Organization Administrator accounts. The Operations Administrator is not authorized to create or otherwise manage End User accounts for Ginnie Mae business partners but may support Organization Administrators in their role to manage End User accounts on behalf of their organization.

### 6.5.2 Help with System Access

End Users are encouraged to utilize their Organization Administrators, the information found in the [Getting Started Manual](#) and other [Tools and Resources](#) found on the Ginnie Mae website. End Users are invited to utilize [Ginnie Mae Customer Support](#) for additional guidance and support.

## 7 APPENDIX

### 7.1 Functional Role Matrix

Functional Roles are a system access profile based on business activities used to ensure End Users have the appropriate level of access to be able to perform their job functions and responsibilities. Functional roles are grouped and vary by type (refer to the [Functional Role Matrix](https://www.ginniemae.gov/issuers/issuer_training/Documents/functional_role_matrix.pdf) at [https://www.ginniemae.gov/issuers/issuer\\_training/Documents/functional\\_role\\_matrix.pdf](https://www.ginniemae.gov/issuers/issuer_training/Documents/functional_role_matrix.pdf))

### 7.2 MyGinnieMae Portal Dictionary

The MyGinnieMae Portal Dictionary is a reference resource for all portal users. The dictionary contains definitions for terms that provide clarification around portal pages, applications, processes, and general functionality pertaining to the MyGinnieMae portal. Refer to the [MyGinnieMae Portal Dictionary](#).

### 7.3 Acronyms and Abbreviations

Term	Definition
BRE	Business Rule Engine
CSV	Comma Separated Value
IAM	Identity and Access Management
MBS	Mortgage Backed Security
MISMO	Mortgage Industry Standards Maintenance Organization
PDD	Pool Delivery Dataset
SFPDM	Single Family Pool Delivery Module
VTT	PDD XML - Validation and Testing Tool
XML	Extensible Markup Language
XSD	XML Schema Definition

Table 7.1 Application Acronyms and Abbreviations

### 7.4 References

The table below summarizes the documents in this user manual.

Document Name	Description	Location
PDD Implementation Guide: Appendix D – XML Data Reference	Outlines the necessary data points that Issuers must transmit in XML format for new pool issuance.	Appendix D: XML Data Reference
PDD Implementation Guide: Appendix E – XML Schema Definition	Provides information that can be utilized by the Issuers to validate the PDD XML files prior to submission.	Appendix E: XML Schema Definition

Ginnie Mae Business Rule Resource Guide	Provides solution references to common errors encountered during Business Rule validations	TBD depending on Business Rule completion and supporting documentation
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Table 7.2 References

## 7.5 Error Mapping

The table below provides the category description associated with an Error Category returned by the VTT.

XML Error	Code Detail	Business Error Description
cvc-accept		Element Sequence Accepted (Particle)
cvc-assertion		Assertion Satisfied
cvc-assess-attr		Schema-Validity Assessment (Attribute)
cvc-assess-elt		Schema-Validity Assessment (Element)
cvc-attribute	3	Invalid Enumeration or Pattern
cvc-au		Attribute Locally Valid (Use)
cvc-complex-content		Element Sequence Locally Valid (Complex Content)
cvc-complex-type.2.1	2-1	Invalid Container Content
cvc-complex-type.2.2	2-2	Invalid Element Content
cvc-complex-type.2.3	2-3	Invalid Container Content
cvc-complex-type.2.4.a	2-4-a	Invalid Element Name or Sequence
cvc-complex-type.2.4.b	2-4-b	Missing Element
cvc-complex-type.2.4.c	2-4-c	Invalid Elements Provided
cvc-complex-type.2.4.d	2-4-d	Invalid Container Choice
cvc-complex-type.3.1	3-1	Invalid Element Content
cvc-complex-type.3.2.2	3-2-2	Invalid Attribute Name
cvc-complex-type.4	4	Missing Attribute
cvc-datatype-valid.1.2.1	1-2-1	Invalid Data Type
cvc-datatype-valid.1.2.3	1-2-3	Invalid Data Type
cvc-elt.1	1	Invalid Namespace
cvc-elt.2	2	Invalid Abstract Content
cvc-elt.3.1	3-1	Invalid Nil Declaration
cvc-elt.3.2.1	3-2-1	Invalid Nil Element Content
cvc-elt.4.1	4-1	Invalid Type Declaration
cvc-elt.4.2	4-2	Invalid Type Declaration
cvc-elt.4.2	4-3	Invalid Type Extension
cvc-enumeration-valid		Invalid Enumeration or Pattern
cvc-facet-valid		Facet Valid
cvc-fractionDigits-valid		Invalid Decimal Value
cvc-id.1	1	Validation Root Valid (ID/IDREF)
cvc-identity-constraint		Identity-constraint Satisfied
cvc-length-valid		Length Valid
cvc-maxExclusive-valid		MaxExclusive Valid

cvc-maxInclusive-valid		MaxInclusive Valid
cvc-maxLength-valid		MaxLength Valid
cvc-maxScale-valid		MaxScale Valid
cvc-minExclusive-valid		MinExclusive Valid
cvc-minInclusive-valid		MinInclusive Valid
cvc-minLength-valid		MinLength Valid
cvc-minScale-valid		MinScaleValid
cvc-model-group		Element Sequence Valid
cvc-particle		Element Sequence Locally Valid (Particle)
cvc-pattern-valid		Invalid Data Element Pattern
cvc-resolve-instance		Qname Resolution (Instance)
cvc-simple-type		String Valid
cvc-totalDigits-valid		TotalDigits Valid
cvc-type		Element Locally Valide (Type)
cvc-wildcard		Item Valid (Wildcard)
cvc-wildcard-name		Wildcard Allows Expanded Name
cvc-wildcard-namespace		Wildcard Allows Namespace Name
cvc-xpath		Xpath Evaluation
vr-cta-substitutable		Conditional Type Substitutable in Restriction

Table 7.3 Structural Error Details

## 7.6 Common MISMO Data Element Patterns

The table below lists common data patterns, which are represented as regular expressions, as well as explanations on how to interpret those examples. Basic information on accepted data formats is also provided in plaintext within the PDD Implementation Guide, Appendix D, Column N. However, it is also helpful to develop a basic understanding of regular expressions, as they are shown in Appendix E, “GNMA\_Simple\_types\_B1.xsd” and provide additional details on requirements for Ginnie Mae’s MISMO-compliant data formats.

Data Element Name	Accepted Pattern	Pattern Interpretation
GovernmentAnnualPremiumPer cent	<code>(([0-9]+)\.[0-9]{2})</code>	<p><b>Appendix D Accepted Data Format:</b> Amount 7,2 (Max of 7 digits followed by 2 decimal places)</p> <p>The pattern indicates that this element must contain one or more digits from 0-9, indicated by the segment <code>([0-9]+)</code>, followed by a decimal point (“.” is a special character and is not part of the pattern), followed by exactly two digits from 0-9, indicated by the segment <code>[0-9]{2}</code>.</p> <p><b>Example:</b> 30000.00</p>
ACHBankAccountIdentifier	<code>([A-Z][0-9]){20}</code>	<p><b>Appendix D Accepted Data Format:</b> String 20</p> <p>The pattern indicates that this element must contain only uppercase letters from A-Z OR</p>

Data Element Name	Accepted Pattern	Pattern Interpretation
		(The character “ ” is used as an OR symbol) digits from 0-9, and there must be 20 characters total.  <b>Example:</b> 1EABC1234B9Q034AB312
PoolIdentifier	(([A-LN-OQ-Z][A-Z]) ([1-9] [0-9]))[0-9][0-9][0-9][0-9]	<b>Appendix D Accepted Data Format:</b> String 6  The pattern indicates that the first two characters of this element can either both be letters OR both be numerical digits (notice how the “ ” character separates two sets of parentheses, each containing two sets of brackets specifying character types). If using two letters, the first letter must conform to the range requirements specified (A-L, N-O, Q-Z). If using two numerical digits, the first digit must be between 1 and 9, inclusive. The remaining 4 characters in this element must be numerical digits from 0-9.  <b>Example:</b> BZ1642

Table 7.4 Common MISMO Data Element Patterns

## 8 QUICK REFERENCE CARDS (QRCS)

A Quick Reference Card or QRC is an abbreviated one to two-page reference document with step-by-step instructions on how to complete a specific action. Below is a list of QRCs for the content provided in this User Manual. QRCs are posted to the Ginnie Mae website at [https://www.ginniemae.gov/issuers/issuer\\_training/pages/qrcs.aspx](https://www.ginniemae.gov/issuers/issuer_training/pages/qrcs.aspx).

User Manual	QRC#	QRC Name	Description
Validation Tool	QRC-VTT	Using VTT to Test PDD Files	QRC with the steps for submitting a file through the 1 <sup>st</sup> and 2 <sup>nd</sup> rounds of validation using the Validation and Testing Tool (VTT).

Table 8.1 VTT QRCs