NCUA
National Credit Union Administration

Data Exchange Application User Guide

November 2021

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Version Updates

Version #	Date	Changes Made
2.0	7/27/2020	July 2020 release
2.1	5/15/2021	Clarified functionality and updates about system functionality
2.2	11/2021	Added Appendix B Troubleshooting DEXA File Import Errors

Table of Contents

Chapter 1: Introduction to DEXA

Overview

The Data Exchange Application (DEXA) is the NCUA's web-based data ingest tool used to upload credit union member loan and share data provided in compliance with Letter to Credit Unions 03-CU-05 - Expanded AIRES Loan and Share Record Layout.

Some of DEXA's key features include the ability to:

- Upload loan and share data files;
- Upload a mapping schema for credit union loan and share type codes;
- Validate data prior to submitting files;
- View the status of submitted files; and
- Remove submitted files.

Note: DEXA is not compatible with Internet Explorer. The NCUA recommends using Google Chrome.

Accessing DEXA

Authorized users must log in to NCUA Connect to access DEXA. Internal users (i.e., NCUA staff) who need access to NCUA Connect can contact NCUA's technical assistance service at OneStop@ncua.gov. External users, including credit unions and state supervisory authorities (SSA), should contact their Admin Portal administrator for access. If you do not have an Admin Portal administrator, please contact OneStop@ncua.gov to establish one.

DEXA allows authorized users to navigate to a specific credit union to upload member loan and share data files and view a history of previously uploaded files. To access DEXA:

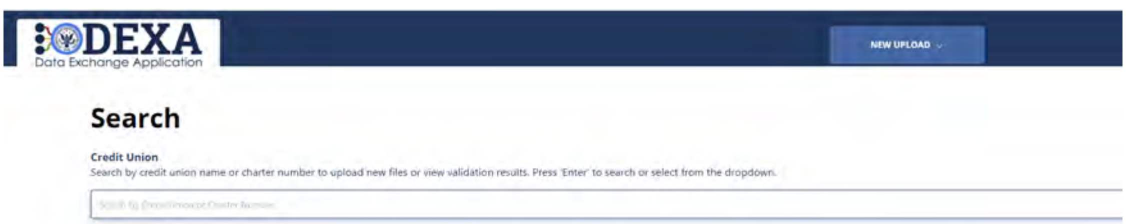
1. Log in to NCUA Connect.
2. Click the DEXA icon.

Navigating DEXA

Credit union users will automatically be directed to the Loan and Share Uploads landing page. NCUA and SSA users will be directed to a search page to locate a specific credit union.

Search for a Credit Union (NCUA and SSA Users Only)

To navigate to a credit union, begin typing the first few letters of the credit union's name or the first few numbers of the credit union's charter number. A drop-down list of credit unions will appear for the user to select the appropriate credit union. The results table will populate once the credit union is selected or the user clicks **Enter** on their keyboard.

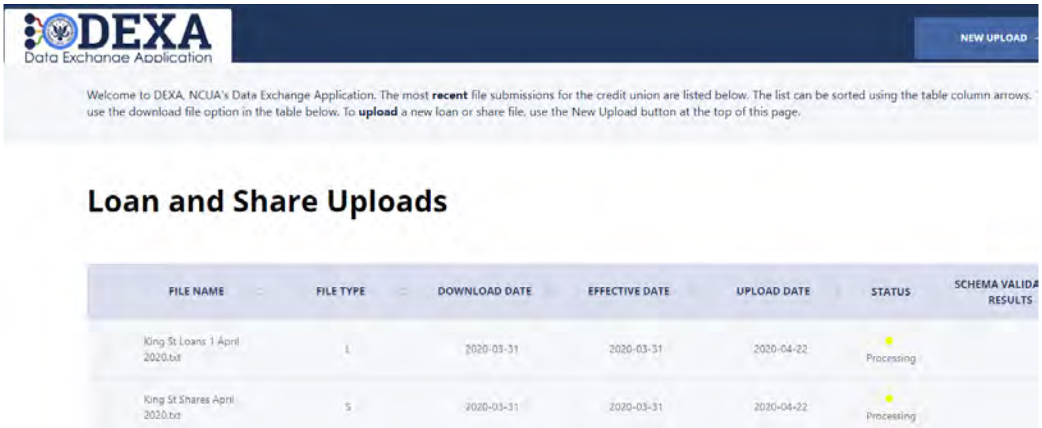


Click the radio button next to the credit union's name and click **Continue** to navigate to the Loan and Share Uploads landing page

SELECT	CREDIT UNION	CHARTER NUMBER
○	BROWN AND DAUGHTERS	24918

Loan and Share Uploads Landing Page

The Loan and Share Uploads landing page displays the history of loan and share uploads, including the status and validation results for each file. It also includes a **New Upload** button for users to upload loan and share data and mapping files.



Note: Clicking the DEXA logo will return the user to the credit union search page (for NCUA and SSA users only).

Chapter 2: Uploading Data Files

Overview

The import process includes creating a mapping of the credit union loan and share type codes in a Microsoft Excel document, uploading data and mapping files, validating the uploaded files, and obfuscating social security numbers. After validation, the data is available in a business intelligence tool for examination purposes. Once files are uploaded, credit union users do not have access to the data or analytics.

Data File Schema Requirements

The loan and share data file schema requirements are the same as previously required for AIRES as detailed in NCUA Letter to Credit Unions 03-CU-05. DEXA allows users to upload properly formatted tab delimited text files. Header and footer rows are not required, but the system will accept files with a single-row header or footer.

Mapping Data Files

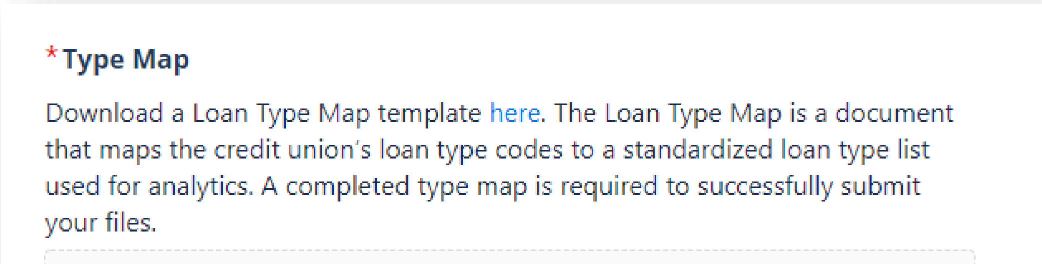
The type map file is a Microsoft Excel spreadsheet that correlates the credit union's loan and share type codes to a standardized type list used for analytics in MERIT. A completed type map file is required to successfully submit loan and share data files in DEXA. Users will download and complete loan and share type map templates to be used when uploading loan and share data files.

Record Code	Credit Union Share Type Codes	Credit Union Share Type Code Description	NCUA Share Types
S	S0	Share 1	Share Drafts
S	SHD1	Share 2	Regular Shares
S	U	Share 3	Money Market Shares

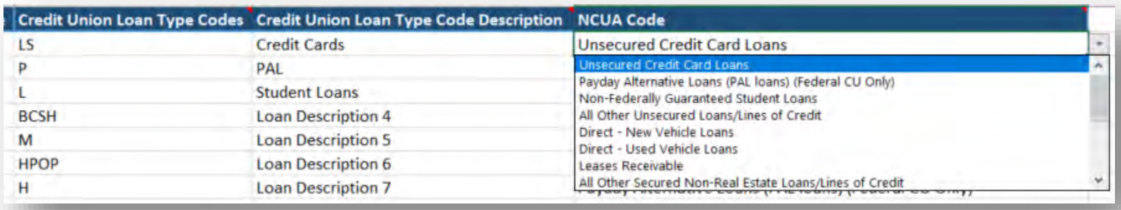
The mapping file must be in Microsoft Excel format. Users without Microsoft Excel have several options including using the free Microsoft Web Application (an account must be created with Microsoft) or asking your examiner for assistance. It is recommended users maintain these mapping files from year to year for future examinations and update them, as needed.

To download and complete the type map file template:

1. From the Loan and Share Uploads landing page, click the **New Upload** button at the top of the screen to navigate to the upload page.
2. Scroll down to the **Type Map** section and click the type map template link to access the template. Alternatively, users can access the type map templates from the DEXA webpage on NCUA's website at www.NCUA.gov.



3. Save the loan and share type map templates to your computer.
4. Open the Loan Type Map Template.
5. Input the credit union's Loan Type Codes into column B, a description of the loan type in column C, and using the dropdown options, identify the corresponding NCUA Loan Type in column D. The NCUA type codes are very similar to categories used in the 5300 Call Report and are utilized for visualizations in the analytics. A couple helpful tips:
   a. List each type code only once in the document.
   b. Do not modify column D. This will distort the information available to the examiner and may require a new loan or share file to be uploaded.
   c. If you are unable to match a credit union type code and description to one of the NCUA types, it is recommended you assign the loan type to "All Other Unsecured Loans" and the share type to "All Other Shares."
   d. If the credit union does not use the Type Code field or there are some loans or shares without a type code, then leave the **Credit Union Type Code** column blank and assign loans to "All Other Unsecured Loans" and the shares to "All Other Shares."



6. Save the updated loan type map template to your computer to be used when submitting the loan data file(s).
7. Repeat the same process for the share type map template and save the updated share type template to your computer to be used when submitting the share data file(s).

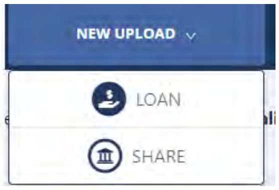
The mapping file does not overwrite the credit union type codes in the dataset. During the submission process, both the credit union type code and the NCUA code description are saved and available in MERIT analytics for the examiner.

Note: Regardless of the number of loan or share files being uploaded, only one mapping file is needed for loans and one mapping file for shares.

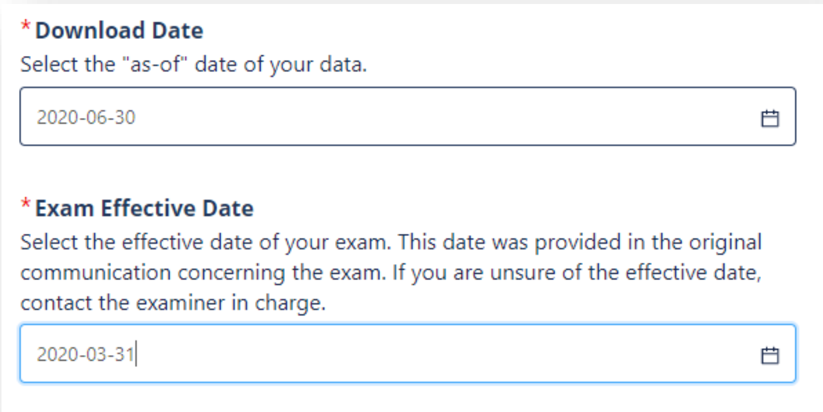
Uploading Data Files

After the loan and share mapping files are complete, users are ready to upload loan and share data files. To upload data files, access the Loan and Share Uploads landing page:

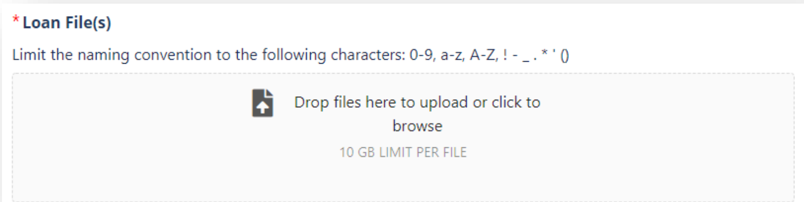
1. Click the **New Upload** button at the top of the screen to navigate to the upload page and select either **Loan** or **Share**.



2. Enter the **Download Date**. This is the "as of" date of the data based on the credit union's data processing system.
3. Enter the **Exam Effective Date**. This is the date provided in the communication about the exam. If you are unsure of the exam effective date, contact the examiner in charge before proceeding. Entering an incorrect exam effective date could impact the ability to view analytics or may impact the accuracy of some queries.



4. In the **Loan File(s)** or **Share File(s)** section, add the loan or share data file(s) by browsing to the location where you saved the files or using the drag and drop feature. The user can upload multiple files at one time. The file must be in a tab delimited text format.



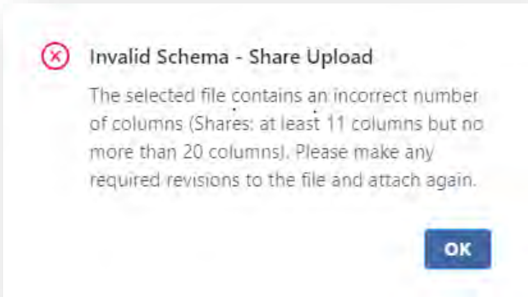
Note: Please limit the naming convention of the data file(s) to the following characters: 0-9, a – z, A – Z, ! - _ . * ' ( ). The file size is limited to 10 GB per file.

DEXA will only accept loan files on the Loan Upload form and share files on the Share Upload form. If the user tries to upload the incorrect type of file (e.g., a share file on the Loan Upload form), the user will receive a validation error.

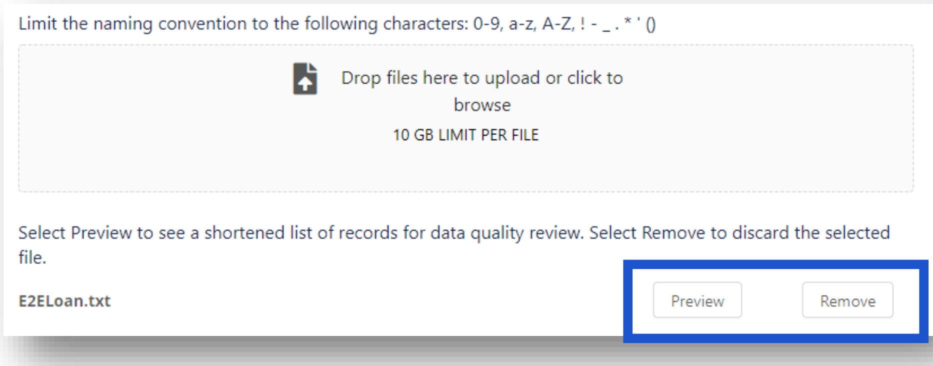
When attaching data files, DEXA performs several validations including:

- DEXA requires at least 31 columns and will accept no more than 39 columns for loan files.
- DEXA requires at least 11 columns and will accept no more than 20 columns for share files.

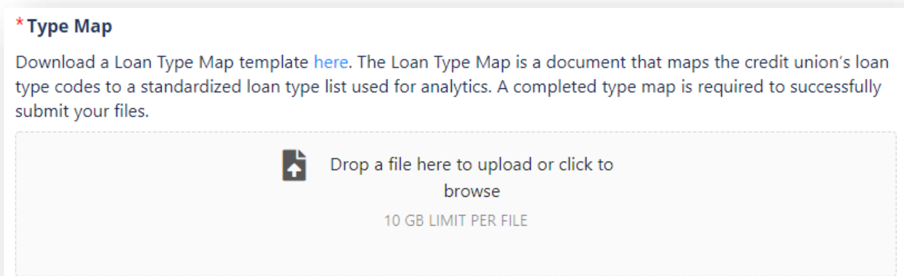
Users will receive a validation error and be unable to upload loan or share files with an incorrect number of columns in the data file. See Appendix B for troubleshooting tips.



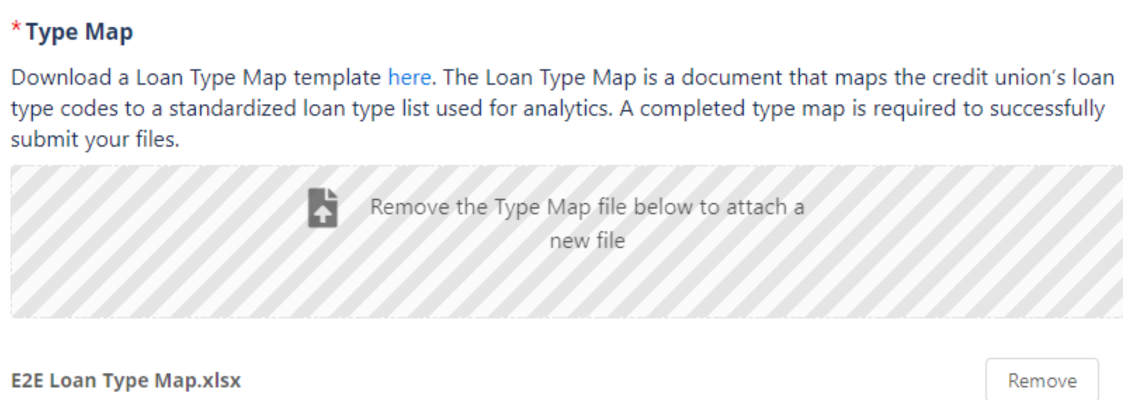
5. After attaching the file(s), the user can preview the data file to verify the file format or remove the file by clicking either button next to the file name.



6. In the **Type Map** section, add the completed type map Excel file by browsing to the location where you saved the file on your computer or using the drag and drop feature.



Prior to clicking **Submit**, users can remove the attached type map file by clicking the **Remove** button and attaching a new file.



7. Click **Submit** to start the upload and validation process. Users will see a status bar for the data files and mapping file. While the file is uploading, do not close the browser. This will interrupt the upload process and require users to start over. Once the system returns to the Loan and Share Uploads Landing page, users can close the browser while the system processes the file(s).

Re-Uploading Data Files

If the user uploads a loan or share file with the same name, download date, and exam effective date into DEXA, <u>only the new or modified records</u> will be added or updated in the analytics, as applicable.

If the examiner requests a new data download file excluding records (e.g., charged off loans), the original uploaded file should be deleted by the examiner so the new file can then be uploaded. Summary data, including the loan upload date, for each data file uploaded is recorded in the analytics on the Loan and Share Landing Page.

Chapter 3: Validating Data Uploads

Overview

After initiating the upload process, DEXA will begin a validation process (running in the background). The validation processing time will vary depending on the size of the file and the number of users uploading files simultaneously. During this process, users do not need to remain logged in to DEXA. The user who uploaded the file(s) will receive an email notification once the validation process is complete indicating a successful or failed upload.

During the automated validation process, DEXA performs the following validations:

- Compares the loan and share type codes in the data files to the reported type codes in the type map Excel file to ensure the mapping document includes all loan or share type codes; and
- Ensures the loan and share files have the correct data type in each data field (e.g., a date field only includes data formatted as a date, numeric fields do not contain alpha characters, etc).

Note: Share or loan files may have null values in the columns. However, the examiner may contact the credit union if data is missing that is needed for analysis during the examination process. The NCUA encourages credit unions to work with their data processing vendors to provide accurate and complete data sets.

Viewing Upload Results

Users can view the history and status of the loan and share uploads and validation results from the Loan and Share Uploads landing page. Users **cannot** access or view any loan and share data through DEXA once files are submitted.

FILE NAME	FILE TYPE	DOWNLOAD DATE	EFFECTIVE DATE	UPLOAD DATE	STATUS	SCHEMA VALIDATION RESULTS	DATA MAPPING VALIDATION RESULTS
E2ELoan.txt	L	2020-05-17	2020-05-17	2020-07-03	Submitted		

Each row on the landing page displays the following information:

- File name – name of the file uploaded;
- File type – a 'L' indicates a loan file; a 'S' indicates a share file;
- Download date – the 'as of' date of the data from the credit union's data processor entered during the upload process by the user;
- Effective date – the exam effective date this data is associated with entered during the upload process by the user;
- Upload date – date the file was uploaded into DEXA;
- Status – indicates the current status of the data file:
    1. Processing – file is in the automated validation process
    2. Failed – file failed the schema and/or the data mapping validation process
    3. Submitted – file passed the schema and data mapping process and was successfully accepted by DEXA
    4. Deleted – file has been removed by a NCUA or SSA user
- Schema validation results – provides a **Download** option if a file fails the schema validation process. This field will be blank if a file passes the schema validation.
- Data mapping validation results – provides a **Download** option a file fails the data mapping validation process. This field will be blank if a file passes the data mapping validation.

LOAN 12 19	L	2019-12-31	2020-03-31	2020-06-23	Failed	Download	
LOAN 12 19.txt	L	2019-12-31	2020-03-31	2020-06-24	Failed		Download

Sorting Upload Results

The upload history can be sorted by file name, file type, download date, effective date, or upload date by clicking the sort arrows next to the column heading.

SELECT	FILE NAME	FILE TYPE	DOWNLOAD DATE	EFFECTIVE DATE	UPLOAD DATE

Viewing Validation Results

If a file fails either the schema or data mapping validation, the data file is purged and is not ingested into MERIT analytics. The user will receive an email notification indicating the file failed validation. A summary of the validation results is provided on the Loan and Share Uploads landing page. If the landing page indicates the file failed, but there is no error message, contact NCUA's technical support team at OneStop@NCUA.gov.

To view the validation results:

1. Log in to DEXA.
2. On the Loan and Share Uploads page for the credit union, click the **Download** link. The user will be prompted to Save or Open a .csv file.
3. Open the file to view the reasons the file was not imported. See Appendix B for troubleshooting tips.
4. Correct the data or mapping file, as applicable, and upload the files again.

DOWNLOAD DATE	EFFECTIVE DATE	UPLOAD DATE	STATUS	SCHEMA VALIDATION RESULTS	DATA MAPPING VALIDATION RESULTS
2021-02-26	2021-02-27	2021-02-26	Submitted		
2021-02-26	2021-02-26	2021-02-26	Failed		Download
2021-02-26	2021-02-26	2021-02-26	Failed	Download	

Data Mapping Validation Results

Data mapping validation errors are related to the loan or share type map document created by the user to map the credit union type codes to the NCUA type codes.

Account Num	Account Type Code	Error
149	B	Account Type Code is not mapped to NCUA Type Code in associated Mapping document

If the user receives the **Account Type Code is not mapped to NCUA Type Code in associated Mapping Document** error message, the mapping document is missing one or more credit union type codes or the credit union type code in the mapping document does not match the format of the information in the data file. Type codes in the mapping document must be identical to the Type Code in the data file(s). For example, type code 001 must be listed in the type mapping document as 001 with the leading zeros. See Appendix B – Troubleshooting DEXA File Import Errors for more information.

Note: During the validation process, the system analyzes the mapping and data files. If the mapping file is missing a Record Code (e.g., column A – the ‘L’ or ‘S’, it will not process any type codes after that line and will report a mapping error for all type codes after that. To mitigate the risk of this error, ensure the Record Code column is accurate in the mapping Excel file.

	A	B
1	Record Code	Credit Union Loan Type Codes *
2	L	A
3	L	B
4	L	C
5	L	D
6	L	E
7	L	F
8		G
9	L	H

Schema Validation Errors

Schema validation errors are related to the loan and share files generated from the credit union's data processing system and indicate the line number, character position, and a brief description of the error. Credit unions are encouraged to work with their data processing vendors and their examiner to correct these errors. Additionally, users can open the loan or share file and manually correct these errors. See Appendix B – Troubleshooting DEXA File Import Errors for more information.

Line #	Character	Error
3	84	Date value did not match format specified [mm/dd/yyyy]

Note: Users can open the loan or share file in Notepad or Excel. If using Notepad, use the **Edit, Go To** function to find the line item. If using Excel, after making any updates, save the file as a tab delimited .txt file before uploading the file into DEXA.

Chapter 4: Removing Data Files

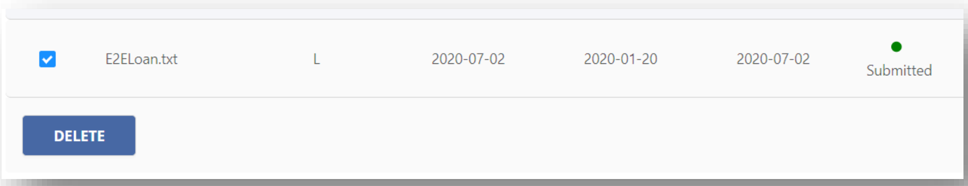
Overview

Loan and share data is purged from MERIT when exams are closed. There are scenarios when a file (and the associated analytics) may need to be manually removed. For this reason, NCUA and SSA users can delete files from the Loan and Share Uploads landing page in DEXA. Once a file has been deleted, it cannot be recovered.

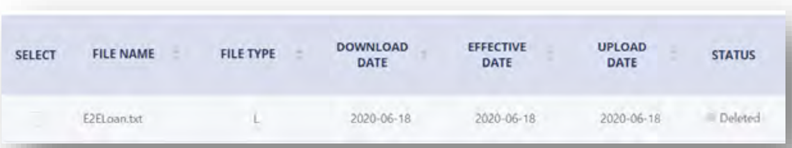
Removing Submitted Files

Once a data file is in **Submitted** status, it can be deleted by NCUA and SSA users. To delete a file:

1. From the Loan and Share Uploads landing page, check the box next to the **Submitted** file(s) to be deleted. A **Delete** button will appear.



2. Click the **Delete** button.
3. The user will receive a prompt to confirm deletion of the file. Click **Delete** to remove the file. The status will change to **Deleted**.



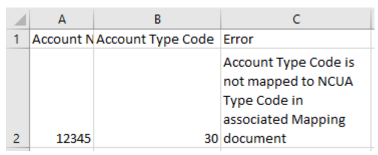
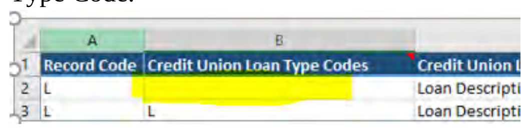
Appendices

Appendix A – DEXA Email Notifications

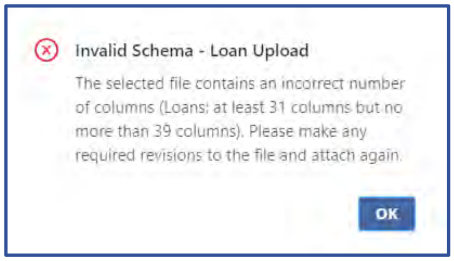
Notification	Recipients	Purpose
File upload successful/ File upload failed	User who submitted the file cc. NCUA District Examiner SSA Office role users (for FISCUs)	Notification for each loan/share file uploaded indicating successful import or failure. User is prompted to log in to DEXA, view the error report, and re-upload the file, if applicable.

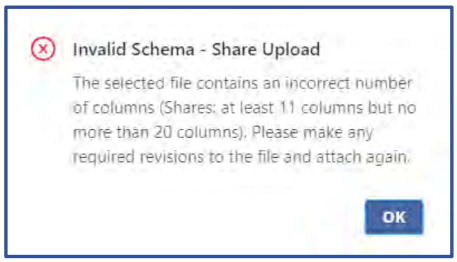
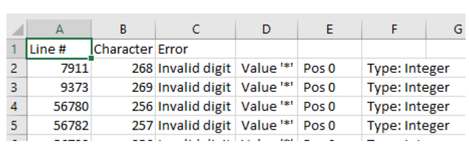
Appendix B – Troubleshooting DEXA File Import Errors

Mapping Validation Errors

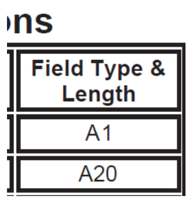
<table>
<tr><th>Error</th><th>Description</th><th>Corrective Action</th></tr>
<tr>
<td>Account Type Code is not mapping to the NCUA Type Code in associated mapping document</td>
<td>Mapping document does not include all type codes or the type codes do not match the data file
</td>
<td>1. Open DEXA.
2. Click the Download icon to open the error file
3. Use the sort and filter functions to organize the report and determine the missing type codes.
4. Open the mapping Excel file and verify there is a ‘S’ or ‘L’ in column A (Record Code). If one is missing, ensure the mapping Excel file is updated before re-uploading.
5. Open the mapping Excel file and add any missing type codes. Include a blank line in the mapping Excel file for any loans or shares without a type code in the data file and assign to an ‘Other’ NCUA Type Code.

6. Verify the mapping Excel file does not include any duplicate type codes. If any are noted, remove them from the mapping Excel file.
7. If all type codes are included in the mapping Excel file, verify the type codes in the mapping Excel file match the data file by opening the data file in Notepad. For example, a type code of 3, may be 00003 in the data file. In this example, the mapping Excel file would need to show the Credit Union Type Code as 00003.</td>
</tr>
</table>

Schema Validation Errors

<table>
<tr><th>Error</th><th>Description</th><th>Corrective Action</th></tr>
<tr>
<td>The selected file contains an incorrect number of columns</td>
<td>Occurs when a user is attaching a file in DEXA. The data file is missing columns or has more columns than the schema allows.



</td>
<td>1. Open Microsoft Excel.
2. Click Open and search for the data file on your computer.
3. Follow the prompts in the Text Import Wizard.
4. Moving from left to right, match the columns with the schema requirements outlined in [NCUA Letter to Credit Unions 03-CU-05](). The last column for Loans should be ‘AM’ and the last column for Shares should be ‘T’.
5. Remove any extra columns sometimes seen between each field.
6. If columns look accurate, there may be blank columns at the end that are not easily visible. Delete a few columns starting with ‘AN’ in the loan file or column ‘U’ in the share file (e.g., columns AN – AR, etc.).
7. Save the updated data file as a tab delimited text file.</td>
</tr>
<tr>
<td>Invalid Digit</td>
<td>Data file has a character that should not be in a field; for example, a special character in a numeric field or a number in a date field. Date fields should be formatted MM/DD/YYYY (e.g., 12/31/2019). Numeric fields must be a number and cannot be an alpha character including having a comma after the thousands digit. This error can also trigger if a data file is missing one of the required columns in the required schema.


	A	B	C	D	E	F	G
1	Line #	Character	Error				
2	7911	268	Invalid digit	Value '*'	Pos 0	Type: Integer	
3	9373	269	Invalid digit	Value '*'	Pos 0	Type: Integer	
4	56780	256	Invalid digit	Value '*'	Pos 0	Type: Integer	
5	56782	257	Invalid digit	Value '*'	Pos 0	Type: Integer	
</td>
<td>1. Open DEXA.
2. Click the Download icon to open the error file.
3. Open Microsoft Excel.
4. Click Open and search for the data file on your computer.
5. Follow the prompts in the Text Import Wizard.
6. Navigate to the line number/row in the data file.
7. Move across the columns until you find the value listed in column D of the error file.
8. Update the field in the data file, as needed. DEXA will accept null values (blanks).
9. Save the updated data file as a tab delimited text file.</td>
</tr>
</table>

Error	Description	Corrective Action
String Length exceeds DDL Length	Data field has more characters than allowed in the schema requirements outlined in NCUA Letter to Credit Unions 03-CU-05. For example, there are extra periods in the State field, loan terms over 999, or extra spaces after text in fields. Additionally, users may see an error message if there are leading spaces in fields or carriage returns. These errors can be difficult to diagnose.  ons Field Type & Length A1 A20	1. Open DEXA. 2. Click the Download icon to open the error file. 3. Open Microsoft Excel. 4. Click Open and search for the data file on your computer. 5. Follow the prompts in the Text Import Wizard. 6. Navigate to the line number/row in the data file. 7. Move across the columns until you find the extra characters and adjust the field. DEXA will accept null values (blanks). 8. Save the updated data file as a tab delimited text file.