

Fair Lending Wiz[®] Training Manual

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Welcome to Fair Lending Wiz Training

Congratulations on selecting Fair Lending *Wiz*! All of us at Wolters Kluwer would like to welcome you as a new user, and we are looking forward to working with you to help you achieve all your fair lending analysis goals.

Compliance faces constant regulatory scrutiny, intense examinations, and increasing analysis demands. It can be difficult to keep pace with the changing environment. Fair Lending *Wiz* positions your institution to meet these demands, your business goals, and regulatory requirements.

Wolters Kluwer recognizes that clients also need dedicated support to help reach and often exceed their business goals. The following support is available to all our valued customers:

Account Management: Your Wolters Kluwer Account Representative is your primary point of contact and champion. He or she will be working closely with you to ensure that all of us at Wolters Kluwer do everything within our power to help you succeed.

Implementation: Our teams of implementation specialists ensure that the installation and configuration of Fair Lending *Wiz* is successful, and that you are able to import, process and analyze your various loan product categories.

Documentation: In addition to release notes and installation instructions, Fair Lending *Wiz* comes with direct access to the *Wiz* Web Center that provides a definitive set of user documentation for your reference. Context sensitive on-line help is also available. To access, select the F1 key from any screen in the *Wiz*.

Technical Support: Wolters Kluwer Technical Support is committed to providing dependable and timely resolutions of all customer inquiries regarding *Wiz* software products. Wolters Kluwer technical support is available for free to clients via telephone, Internet, or email throughout the United States. Every client inquiry is professionally tracked from the time contact is initiated until a jointly agreed resolution is reached. Based on the priority of a case, Wolters Kluwer technical support escalates client issues through our organization to ensure mission critical problems receive a quick resolution.

In addition to promptly responding to client-initiated requests, Wolters Kluwer technical support proactively reports vital information about the availability of new product releases and current release patches to our client base.

Key Technical Support Information: Hours of Operation: Monday - Friday, 8:00 am - 8:00 pm Eastern, excluding major holidays.

Contact Methods:

Technical Support- 1-800-261-3111, option 1, option 2 fairlendingwizsupport@wolterskluwer.com Website www.wolterskluwerfs.com

Chapter 1- Navigation

To maximize the potential of Fair Lending *Wiz*, it is important to understand how to navigate within the software. The product functionality within *Wiz* can be separated into five major sections:

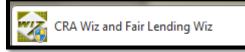
- ✓ Data Importing
- ✓ Data Editing and Preparation for Fair Lending Analysis
- ✓ Marketing and Demographic Information
- ✓ Fair Lending Analysis
- ✓ Mapping for Fair Lending Purposes

This chapter describes how to navigate within Fair Lending *Wiz* and identify product functionality.

Accessing CRA and Fair Lending Wiz

To launch the CRA Wiz program, follow these steps:

1. Select CRA *Wiz* from the Windows Start Menu.



n	Entor	tho	following	information.
2.	Ещег	uie	TOHOWING	information:

- a. SQL Server Machine Name
- b. CRA Wiz User Name
- c. CRA Wiz Password

Welcome to CR/	4 Wiz & Fair Lending Wiz
SQL Server Machine Name	(668)
User name:	Admin
Password:	*****
	Remember Password
Reset Password	OK Cancel

SQL Server Machine Name - by default, CRA *Wiz* will display (local) in this field indicating that the SQLserver is running on this machine. If your institution uses a dedicated SQL Server in a client/server environment, then the user will want to place the name of the SQL server machine in this field.

User Name - by default, CRA *Wiz* will display Admin as the default user. If the CRA *Wiz* administrator has created a user name for you, then you will replace Admin with your user name.

Password - the first time that the user logs into CRA *Wiz*, the password field will be blank, and the user will be prompted to create a password. If the Remember Password option is selected, then each time the user logs into CRA *Wiz*, the user name and password will be populated by default.

Working with the Wiz Web Center

Overview - The *Wiz* Web Center is a dynamic Web page that provides links to software updates, industry information, treasury rate downloads and documentation links.

Wolters Kluwer will periodically use the Web Center to post important information from various sources. While this information may not be compliance related, it may be vital to your institution.

Best Practice - Register your email address to receive advance notice of updates found under the <u>Announcements</u> tab on the *Wiz* Web Center.



Component Navigation

The software categorizes the product functionality into four tabs:

- Main
- Analysis
- Fair Lending Wiz
- Edit & Geocode



The Main Tab

The Main tab in CRA Wiz contains the following product functionality:

- Main this icon gives users access to the Wiz Web Center for industry information and software updates
- File Management this icon gives users access to the files that have been imported into CRA *Wiz*. In this area, users can copy, delete, transfer, install, and rename files in addition to other file management features
- Import Wizard this icon gives users access to the Import Wizard that is used to import data files such as; mortgage, small business, consumer, or other into CRA Wiz
- 2 Wiz[®] Web Center ▼ WHAT'S NEW Click Here for Image Legend ÷. Week of 2/3/2020 Treasury/APOR Downlo (Posted 1/31/2020) Click here to download the Treasury/APOR update. Click here to download the Treasury/APOR update in Zip format. Click here for Treasury/APOR Installation Instructions. • ALL REQUIRED Import Wizard 2019 Submission Guide (Posted 1/16/2020) \bigcirc An updated version of the Submission Guide is now available. Please click here to access the updated guide Event Scheduler Mapping Tool Web-based Training Scheduled in January (Posted 1/9/2020) Register for a 90-minute online training covering the mapping tool in CRA Wiz, Fair Lending Wiz and HMDA Wiz Product manager Mindy Marchetti will demonstrate how to maximize the Wiz web-based Premium Mapping to 4 • Creating Assessment Area Maps Accessing Demographics Setting Layer Preferences Working with Assessment Areas and mapping your institutions data \bigcirc Using Custom Areas this Includes drawing radii around specific points Generating Three Layer Maps Printing and Saving Maps What: Premium Mapper Training When: January 31, 1:00-2:30 PM EST Cost: \$250/ per log-in Register: Registration Link
- Event Scheduler this icon

gives users access to the event scheduler allowing them to set up an automated schedule for importing data, geocoding data, generating reports and exporting data

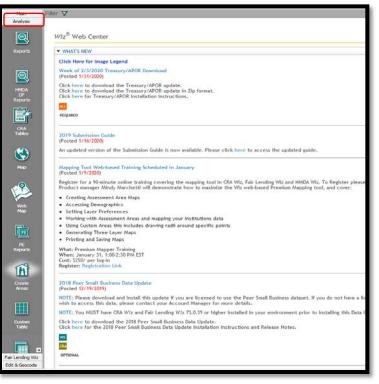
Filter 🍸

- Submission this icon gives users access to the Submission Wizard providing them with the ability to submit HMDA or CRA data to Regulatory Agencies
- System Maintenance this icon gives users a view of where the software has been installed, as well as the licensing level for each user

The Analysis Tab

The Analysis tab contains the following product functionality:

- Reports provides access to standard reports contained in CRA Wiz. The reports displayed will vary depending on the type of data file set as active
- CRA Tables provides access to CRA analysis reports and tables for periods from 3 months up to 5 years
- PE Reports provides access to the Performance Evaluation (PE) Reports Wizard, providing institutions with critical information needed to prepare a written evaluation of its record of meeting the credit needs of its community, including low-and moderate income neighborhoods and



borrowers, consistent with safe and sound operation of the institution

- Web Map Web-based maps used to map lending patterns, branches, and assessment areas
- Map provides access to the mapping functionality within CRA *Wiz*, allowing users to map lending patterns, branches and assessment areas of their institution
- Create Areas provides access to the assessment area functionality. Within this functionality, users can create, save, and view demographics of assessment area(s), states, counties, MSAs or Census Tracts
- Custom Tables provides the ability to create and save custom reports and conduct detailed analysis on a file
- Workbook Builder provides the ability to take multiple custom tables created in CRA Wiz and transfer the reports to individual worksheets within Microsoft Excel for further analysis
- Custom Report Wizard This icon can be used to create a user specific report using Crystal Reports which can then be added to Standard Reports. For more information on the Custom Report Wizard, contact your Wolters Kluwer Account Representative

The Fair Lending Wiz Tab

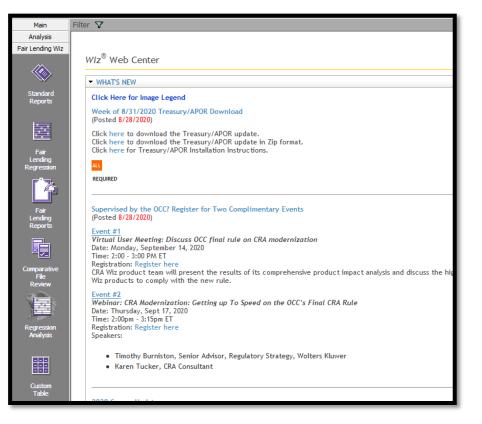
The Fair Lending Wiz tab contains the following product functionality:

Fair Lending Regression this icon is the newest release of SaaS based regression. This icon will launch the regression tool in a separate window, which allows users to test for disparate impact in underwriting and pricing by comparing each prohibitedbasis group against equally-or less-qualified control group applicants

Fair Lending Reports - this icon

contains several important analytical reports, broken into the following sections:

- Fair Lending Analysis Reports
- Standard Summary Reports
- Risk Factor Analysis Reports



Comparative File Review - this icon provides a critical component of fair lending analysis and contains two parts:

- Decisioning Comparisons compares each prohibited-basis denied applicant against equally- or lessqualified approved control group applicants
- Pricing Comparisons compares each prohibited-basis approved borrower against equally- or lessqualified control group borrowers

Regression Analysis - this icon is the legacy Fair Lending Wiz regression icon. Fair Lending Regression has an updated module (discussed above) that is powered by SaaS and provides a streamlined approach to regression. The legacy Fair Lending Wiz regression also allows users to conduct disparate impact analysis and contains two parts:

- Decisioning Regression allows the user to control for underwriting factors when comparing all prohibited-basis applicants against all control group applicants
- Pricing Regression allows the user to control for pricing factors when comparing all prohibited-basis borrowers against all control group borrowers

Custom Table - this icon opens the custom table builder for ad-hoc queries against any field(s) in the database.

The CRA Wiz Edit & Geocode Tab

The Edit & Geocode tab contains the following product functionality:

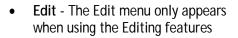
- Edit this icon gives users the ability to edit the data that has been imported or manually entered into CRA *Wiz*. The user will also have access to exception reports, filtering capabilities, and interactive geocoding
- Batch this icon gives users access to the CRA *Wiz* geocoder. From this screen users will be able to apply geocode settings and geocode the file in a batch process
- Geocode Outsourcing this icon gives users access to the process tool used to send records to Wolters Kluwer for outsourced geocoding

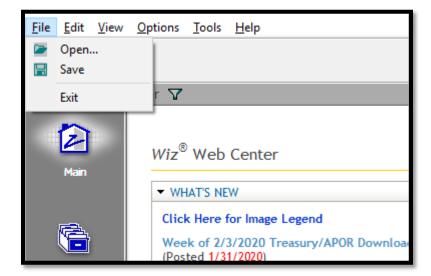
Main	Filter 🔽
Analysis	
Fair Lending Wiz	
Edit & Geocode	Wiz [®] Web Center
谷	▼ WHATS NEW
Edit	Click Here for Image Legend
Luit	Week of 2/3/2020 Treasury/APOR Download (Posted 1/31/2020)
<u>P</u>	Click here to download the Treasury/APOR update. Click here to download the Treasury/APOR update in Zip format. Click here for Treasury/APOR Installation Instructions.
Batch	ALL
	REQUIRED
Geocode Outsourcing	2019 Submission Guide (Posted 1/16/2020)
outsourcing	An updated version of the Submission Guide is now available. Please click here to access the updated guide.
	Mapping Tool Web-based Training Scheduled in January (Posted 11/1/2020)
	Register for a 90-minute online training covering the mapping tool in CRA Wiz, Fair Lending Wiz and HMDA Wiz. To Register please click here. Product manager Mindy Marchetti will demonstrate how to maximize the Wiz web-based Premium Mapping tool, and cover:
	Creating Assessment Area Maps
	Accessing Demographics
	Setting Layer Preferences
	Working with Assessment Areas and mapping your institutions data
	Using Custom Areas this Includes drawing radii around specific points
	Generating Three Layer Maps
	Printing and Saving Maps
	What: Premium Mapper Training When: January 31, 1:00-2:30 PM EST Cost: 5200 per log-in
	Register: Registration Link
	2018 Peer Small Business Data Update (Posted 12/19/2019)
	NOTE: Please download and install this update if you are licensed to use the Peer Small Business dataset. If you do not have a license, but wish to access this data, please contact your Account Manager for more details.
	NOTE: You MUST have CRA Wiz and Fair Lending Wiz 73.0.39 or higher installed in your environment prior to installing this Data Update.
	Click here to download the 2018 Peer Small Business Data Update. Click here for the 2018 Peer Small Business Data Update Installation Instructions and Release Notes.
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Additional Navigation Tools

CRA *Wiz* provides additional navigational tools in conjunction with the icons located on the view bar. There are six menu options that users can access to perform a variety of functions within the software. The menu options are context sensitive, but include:

- File
- Edit
- View
- Options
- Tools
- Help
- File The File menu gives users the ability to open files, save files, and exit the program



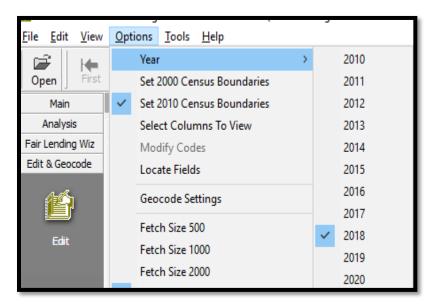


File	Edit	View Options Tools Help
Op		Add New Record Delete Current Record Geocode Current Record
, Fair I Edit		Next Record Prev Record First Record Last Record
		Geocode Exception Report (All) Geocode Exception Report (Exclude Zip Matches) Gov't Exception Summary Report (All) Gov't Exception Summary Report (Group By) Record Level Exception Report (Group By) Gov't Exception Detailed Report (All) Gov't Exception Detailed Report (Group By) Geocoding Statistics Report Custom LR Report
(01		Summary Change History Report Record Detail Change History Report

• View - The View menu gives users the ability to access most screens and product functionality contained within *Wiz*

	File	Edit	View	Options Too	ls	Help		
	C Op	en		Main Import Wizard				
Ì		Main		File Managemen	t			
		Main		File Management Event Scheduler System Maintenance Submission				
	Ma				nd Iry/APOR Download Treasury/APOR update. Treasury/APOR update in Zip OR Installation Instructions.			
		Import Wizard	I	Edit Batch Geocode Outsourcing				hic Data Update d install this update if you are l s this dataset, please contact y

 Options - The Options menu gives users the ability to change the year CRA *Wiz* is using to match the activity year of the data file as well as the ability to switch between 1990, 2000 and 2010 Census Boundaries



It is important to have the year match the activity year of your file. This will ensure correct calculations are performed when importing new information or recalculating various fields.

Tools - Except in the Edit screen, the Tools menu gives users access to the "Geocode an Address" function, providing users the ability to geocode or verify geocode values for a single address

<u>File</u> <u>Edit</u> <u>View</u>	<u>Options</u>	Tools <u>H</u> elp
Open First	Prev	Geocode an Address Find
Main	Filter 😽	Replace
Analysis	Current	Sort
Fair Lending Wiz	current	Manage Custom Tabs
Edit & Geocode		Manage Custom Tabs Define Edit Checks
n-all	Dat	
		Turn off Quality Edits
		Lock Current Record
Edit		UnLock Current Record
		Lock All Records
115-7		UnLock All Records
부		Find Duplicates
Batch		Show All Records
batar		Tag All
		Remove All Tags
		-
-		Clear Geocode Fields (Current Record)
Geocode		Clear Geocode Fields (All)
ile <u>E</u> dit <u>V</u> iew	Options	Lools Help
	Therein	Geocode an Address
Open		Create Sample File
Main	Filter 🍸	

In the Edit function, selecting Tools changes the view to what is displayed here.

 Help - The Help menu gives users access to online, context-sensitive help as well as information about what version and build of CRA *Wiz* being used

File Edit View	Options Tools	Help
🚅 🔶	← 💷	CRA Wiz® Help
Open First	Prev 1 Filter 🖓	Fair Lending Wiz® Help
Main	Filler &	About CRA Wiz®
Analysis	Current Record	

Chapter 2 - System Maintenance

This chapter provides users with information that will assist with maintaining the location of the software, license authorization, user access levels, and the settings of CRA *Wiz*. The following sections are pertinent to Fair Lending:

- ✓ Settings Tab Race Proxy, Ethnicity Proxy, BISG Race Proxy
- ✓ Minority & Comparator Tab Default definitions of Protected Class Groups vs Control Groups

Introduction

The System Maintenance area provides the administrator of CRA *Wiz* with various options that will help maintain the integrity of the software. It is typically used by IT or network administrators when configuring the server environment, setting up users and managing settings to provide access to outsourcing and/or web services. Training and other information can be found in the CRA *Wiz* Training Manual

The System Maintenance button can be found in the Main tab. To access System Maintenance, follow these steps:

1. From the Main tab, scroll down and Click System Maintenance



Within System Maintenance there are six tabs. Each tab provides information based on the level of access a user has within CRA *Wiz*.

- Data and Application Mapping shows the CRA *Wiz* element and the location
- User Management lists all users and their access level as well as the security mode
- License and Access Management shows the licenses available for each module as well as the access level of each user
- Settings provides settings for geocode outsourcing, proxy, and web settings
- Data and Application Mapping
 User Management
 Locone and Access Management
 Settings
 Meanly & Comparator
 Web Map

 Data and Application Mapping

 The Data of Aplators Nappe
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 Web Map

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- Minority and Comparator provides settings for Minority (Protected) groups and Comparator (Controlled) groups
- Web Map allows users to manage data and saved assessment areas that are synchronized with Web Map

Settings

Race Proxy

Click on settings in System Maintenance to assign proxies to files that do not have Race, Ethnicity or Gender.

- Proxies use either the BISG method OR the Wolters Kluwer Race/Ethnicity methods
- Enter the desired Threshold percentage values (if you wish to change it from the default value of 70). If changed, click Apply
- From the Geography Level drop-down menu, select the desired geography level on which to base geography matches. If changed to something other than "Block

Settings					
Wiz Geocode Outsourcing		_	-Race Proxy	12	
Geocode Outsourcing ID:		Apply	Lowest Geography Level	CensusTract 💌	- 199917
Remote Ptp Folder:	ftproot/GeocodeFolder/	. Sector	% Race Threshold based on Geography	70	
Ptp Login:	anonymous		% Race Threshold based on Last Name	70	
Ftp Password:	<to change="" didk="" here="" password="" the=""></to>		% Race Threshold based on Last Name	79	
Retype Ftp Password:	«Please retype the password»		Ethnicity Proxy		
			Hispanic Threshold %	70	
Web Services Geocoder Service Urb		Apply	BISG Race Proxy		
sepcoder service unc		ACOTY	Geography Level	Block Group +	
Export Service Url:		Apply	Geography Level	Block Group	39917
Submission Service Url:		Apply	Web Map		
RATA			Username:		14907
RATA ID:	Client Enabled	2000	Password:		
Generate Application N	umber for Outsourcing	in the second second	Enable Synchronization of Data Files		
General			Enable Synchronization of Assessmen	it Areas	
Enable Auto-truncation o	f log for new files.				
Access Webcenter		1000			
Enable Auto Update at L	ogin 🕑 Silent		22		
Update Info URL	http://www.pcidownloads.com/CRAWI				
Timeout for Auto Update	0	Acoly			

something other than "Block", click Apply

Best Practices:

- Change the Lowest Geography Level in Race Proxy to Census Tract (all three geography levels are actually reviewed, starting with Block, then Block Group, then Census Tract)
- Leave the thresholds at 70% for Geography, Last Name and Ethnicity Proxy unless you have performed tests in your markets to determine that a different number works better. The higher the percentage, the less likely someone will be classified by last name or geography. The Wolters Kluwer method uses the higher of the two methods (last name OR geography), if both apply
- Use the BISG method if you are covered by CFPB rules. If regulated by an agency other than CFPB ask your regulator what method to use. The BISG method combines the geography and last name probabilities together to produce probabilities for each race or ethnicity
- <u>DO NOT CHANGE the BISG Race Proxy geography level setting</u>. The program automatically selects Block Group first then moves to Census Tract level if appropriate

Ethnicity Proxy

- The Ethnicity proxy threshold only applies to the Wolters Kluwer alternative method to the BISG. It has no bearing on the BISG method
 - As mentioned above, use <u>either BISG or RACE and ETHNICITY</u>. You cannot combine the two methods
 - The BISG method treats ETHNICITY as a Race Category, classifying an applicant as either American Indian (1), Asian (2), Black/African American (3), Hawaiian (4), White non-Hispanic (5), Hispanic (8) or Other Race (9)
- If you are using the Wolters Kluwer method and wish to change the threshold (not recommended), enter the desired **Threshold** percentage value, click **Apply**

If you are not sure what the appropriate threshold percentages should be set to, Wolters Kluwer recommends leaving the default values.

Race Proxy Examples

Each of these examples is based on the Default Settings (Race - Last Name setting 70%, Race - Geography Level 70%, Ethnicity Last Name setting 70%, BISG at Block Group level).

Example 1: Last Name "NAM", living in State 36, County 47, Census Tract 0560.00, Block Group 2

- Geography Levels
 - White 84.13% (highest level based solely on Geography)
 - o Black 1.07%
 - More than 2 Races 1.88%
 - o Hispanic 5.93%
 - o Other Race 1.00%
 - Asian/Pacific Islander 7.01%
- Last Name "NAM"
 - Probability of being "White" based on last name 3.56%
 - Probability of being "Black" 1.07%
 - Probability of being "American Indian" 0.00%
 - Probability of being "More than 2 Minority Races" 1.88%
 - Probability of being "Hispanic" 0.00%
 - Probability of being "Other Race" 0.00%
 - Probability of being "Asian/Pacific Islander" 92.77% (highest level based solely on Last Name)
- BISG Combined Probabilities
 - Probability of being "White" based on last name 31.43%
 - Probability of being "Black" 0.09%
 - Probability of being "American Indian" 0.00%
 - Probability of being "More than 2 Minority Races" 0.23%
 - Probability of being "Hispanic" 0.00%
 - Probability of being "Other Race" 0.00%
 - Probability of being "Asian/Pacific Islander" 68.25% (highest level combined probability)
- Wolters Kluwer Method (Geography Level White 84.13% OVER 70%; Last Name Asian/Pacific Islander 92.77% OVER 70%). <u>Final classification Asian Pacific Islander</u>
- BISG Method Asian/Pacific Islander 68.25%

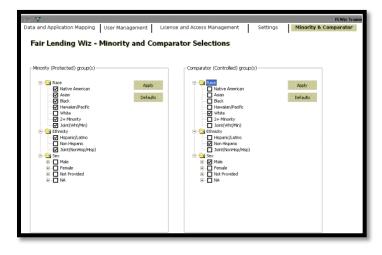
Race Proxy Examples (continued)

Example 2: Last Name "ARJUN", living in State 36, County 93, Census Tract 0216.00, Block Group 2

- Geography Levels
 - White 57.49% (highest level based solely on Geography)
 - o Black 12.56%
 - American Indian/Alaska Native 0.81%
 - o More than 2 Races 7.14%
 - o Hispanic 6.34%
 - o Other Race 8.18%
 - Asian/Pacific Islander 7.49%
- Last Name "ARJUN"
 - o Probability of being "White" based on last name 4.64%
 - Probability of being "Black" 15.89%
 - Probability of being "American Indian" 0.00%
 - Probability of being "More than 2 Minority Races" 45.7% (highest level based solely on Last Name)
 - Probability of being "Hispanic" 0.00%
 - Probability of being "Other Race" 0.00%
 - Probability of being "Asian/Pacific Islander" 31.79%
- BISG Combined Probabilities
 - o Probability of being "White" based on last name 25.88%
 - Probability of being "Black" 19.36%
 - Probability of being "American Indian" 0.00%
 - Probability of being "More than 2 Minority Races" 31.67% (highest level combined probability)
 - Probability of being "Hispanic" 0.00%
 - Probability of being "Other Race" 0.00%
 - Probability of being "Asian/Pacific Islander" 23.10%
- Wolters Kluwer Method (Geography Level White 57.49% NOT over 70%; Last Name "Two or More Minorities" 45.7% NOT over 70%). <u>Final classification - None</u>
- BISG Method "Two or More Minorities" 31.66% (no minimum threshold is applied to the BISG method)

Minority and Comparator Selections for Fair Lending Wiz

The Minority and Comparator Selections screen allows legacy Fair Lending *Wiz* regression users to select their desired minority and comparator group(s) based on Race, Ethnicity, and Sex. The statistical significance calculations of Minority group(s) vs. the Comparator group for Race, Ethnicity, and Sex will be based on these selections instead of the default groups.



To change the Minority and Comparator Selections for Fair Lending Reports or SaaS based Fair Lending Regression, users can select their desired minority and comparator groups by:

- 1. Opening Fair Lending Reports
- 2. Selecting Create Group Settings

Fair Lending Wiz	<i>Wiz[®]</i> Web Center	
	😪 CRA Wiz & Fair Lending Wiz Reports	
Standard Reports	Generate Report Create Group Settings These group settings and	e appli
Fair Lending Regression Fair Lending Reports	 Fair Lending Analysis Focal Point Report The Focal Point Report (FPR) presents a single view of fair lending risk. It al scrutiny and help increase the strength of a fair lending program. Difference of Means Report The Difference of Means Report provides a quick statistical view of the sele classifications, allowing you a visual on the areas where there are significan Redlining & Marketing Scorecard (M6) Redlining Analysis compares an institution's proportion of prohibited basis Marketing Analysis identifies whether the proportion of prohibited basis ap modulates of the product operations. 	ected pr at differ

	Load Default Settings	Load Institution Specific Settings	Load User Specific Settings		
Analysis Group:	Race				
Control Group:	Protected Class:				
American Indian or Alaskan	American In	idian or Alaskan			
Asian Indian	Asian Indian	1			
Chinese	Chinese				
Filipino	Filipino				
Japanese	Japanese				
Korean	Korean				
Vietnamese	Vietnamese				
Other Asian	Other Asian				
Black or African American	Black or Afri	ican American			
Native Hawaiian or other Pacific Islander	Native Haw	aiian or other Pacific Isla	nder		
Native Hawaiian	Native Hawa	aiian			
Cuamanian or Chamorro	🔲 Guamanian	or Chamorro			
Samoan	Samoan				
Cher Pacific Islander	Other Pacifi	c Islander			
White	White				
Two or more Minority Races	Two or more	e Minority Races			
Joint Race	Joint Race				
Not Provided	Not Provide	d			
Not Applicable	Not Applica				
Not Calculated	Not Calcula	ted			

Another window will open for users to make their selections

Chapter 3 - Importing

Use the **Import Wizard** to import data (source file) into the target file (the CRA *Wiz* data file). When users import records into CRA and Fair Lending *Wiz*, records from the source file, a file generated from the institution's loan data repository, or a manually created file, will be imported into a new or existing CRA *Wiz* data file. The source file must be imported into the software before users can geocode, edit, and analyze the data.

During the import process, users will create an **import format**. An import format maps the data in the source file into the CRA *Wiz* software. The source file's **record layout**, which describes the structure of the source file, can be used as a guide when creating the import format. To begin, a new import format will need to be created for each different source file type imported into CRA *Wiz*. Once import formats are created, they can be saved for future use.

Import formats must be properly defined to ensure accurate analysis of Ioan data. When importing Ioan data into the software, prepare the data so that it meets the institution's fair lending objectives. Quality data is crucial for exam preparation and will help ensure accurate fair lending analysis is completed.

Best Practices for Importing

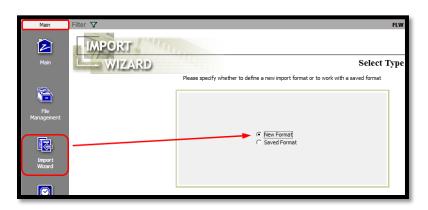
- ✓ Make sure the action year matches the activity year of the source file, which can be validated and updated on the Summary Information screen
- ✓ Ensure that the source file has all of the required fields for the data type that is being imported
- ✓ Try to keep the source data consistent in structure (column names) from one import to the next
- ✓ Import the source data into CRA *Wiz* on a regular basis, such as monthly or quarterly
- ✓ Avoid importing Excel files, if possible. Excel often contains visual formatting options which may allow the underlying data to look correct when it is not
- ✓ Save Excel files as a comma-separated (.csv) file or a tab delimited (.txt) file and import as a text file. This removes visual formatting options that Excel may assign to a file
- ✓ Identify the data that is being captured for your source file and pay close attention to data format and structure
- ✓ Do not use special characters in the source data headers, field names, or name of the source file (ex. @, #, \$, %, ^, &, *) as they cannot be imported into *Wiz*. Instead, use an underscore (_)
- ✓ If possible, have the field names in the source file match the field names in CRA Wiz to allow for auto-mapping
- ✓ Save the import format(s) created so they can be used again in the future
- ✓ If the file being imported is going to be geocoded in CRA Wiz, the source file must contain address, city, state_abrv, zip and zip4 (even if the latter is blank)
- ✓ If CRA *Wiz* will be calculating rate spreads (recommended) ensure the source file contains:
 - Rate lock date
 - APR
 - Rate Type
 - Loan term (in years)
 - Adjustable term (in years) if RateType is "2" (adjustable rate loan)

Importing a HMDA DF Data File as a "Base" File for Fair Lending

The importing function in CRA *Wiz* is quite powerful. It allows users to bring in several types of files (Microsoft Access, Microsoft Excel 1997 to 2003 version, Microsoft SQL, or Text files in fixed length or delimited versions).

Users can import a new file, update an existing file, append multiple files together, or any combination of these features. In the examples below, users will learn how to import a new file establishing the base HMDA DF data plus additional fields for geocoding and create several blank fields for updating later.

- 1. On the Main tab, click the Import Wizard button
- 2. Select Type of Import Format screen: The import format is the template used to map the fields in a source file to the corresponding columns in CRA Wiz



There are two options:

- New Format create a new import format
- Saved Format use a previously saved import format
- 3. Select New Format and click the Next button to continue to the next screen

The **Source File Selection** screen includes the following:

- Source Data Type
 - Access
 - o Excel
 - o SQL Server
 - o Text
 - Source Folder
 - Click the Ellipsis
- Source File

Source Data Type Microsoft Access Source Access File Source Table	Select source para	meters. Press Next button to move to) the next screen.
	Source Data Type	Microsoft Access	•
Source Table 🔻	Source Access File		
	Source Table		•

• Source Data Type - Click on the drop-down arrow and select the source file type. For more information on source file types and layouts, go to the online CRA *Wiz* Help guide within CRA *Wiz* under Help - Importing > Source File Types > Source File Types Overview

- 4. Source Data File click on the ellipsis button, a directory box will appear, navigate to the source file and select it
 - a. Data Type = **TEXT**
 - b. Source Folder = the location of the file to be imported
 - c. Source File = the name of the file to be imported "FLW Training File HMDA DF.txt"
 - d. Click NEXT

Source Data Type	Text	•
Source Folder	C:\Users\	
Source File	FLW Training File HMDA DF.TXT	

The Source File Format Selection screen includes the following:

- **Delimited Radio Button -**• the field values for source file records are separated by a special character (semicolon, vertical bar, comma, or tab)
- Fixed Length Radio Button - all values for a specific field have the same length
- File Type default value is • ANSI (required for text files) Row Delimiter - the

•

Oelimited ○ Fixed Length ANSI Skip Rows 0 File Type • Row Delimiter <none> First Row Has Column Names Text Oualifier <none> Preview of 'FLW Training File 1 - 2014.txt' CoaRace RecordId Instit id AgencyCode Applnumb ApplDate LoanTypeProperty_Type 20095010 11/29/2013 11/30/2013 20095012 20095013 11/23/2013 20095021 20095025 555 11/30/2013 12/8/2013 8 20095037 12/1/2013 <

character used to separate individual records in the data file Possible values are Carriage Return and None

- Text Qualifier text fields in the source file may be enclosed with special characters to differentiate • them from other fields. Possible values are Double Quote (""), Single Quote ('') and None
- Skip Rows if the loan records are preceded by one or more rows of data other than the column • heading information, enter the number of rows. For example, the source file includes two rows of descriptive information, the file name and the date the file was generated, two rows preceding the header row would be skipped
- First Row Has Column Names select this if the row preceding the loan record information in the • source file includes the names of the source file fields. The column names automatically display as column headers on the Text File Column Delimiter Selection screen
- Record Preview displays the records in the source file

For this example:

- 5. Radio Button = "Delimited"
 - a. File Type = ANSI
 - b. Row Delimiter = "Carriage Return"
 - c. Text Qualifier = "Double Quote"
 - d. Select "First Row has Column Names"
 - e. Click Next

,••	Delimited	C Fixed Length						
File Type	ANSI	•	Skip Rows 0					
Row Delimiter	Carriage Return	-	_					
Text Qualifier	Double Quote {"}	-	First Row Has Co					
12345A6789B12348 12345A6789B12348	Q698 12345A67898 Q698 12345A67898	12348Q6982009753650 12348Q6982009786630 12348Q6982009873542 12348Q6982009873542	20097866 20098735	7/13/2018 6/30/2018 8/12/2018 5/5/2018 2				
12345A6789B12348 12345A6789B12348								
		12348Q6982009884988	20098849	8/23/2018	`			

The Text File Column Delimiter Selection screen allows you to select the type of column delimiter:

- Comma
- Tab
- Semicolon
- Vertical Bar (|)
- Other
- 6. Select "Tab" radio button a. Click Next

Race	CoaRace	RecordId	Instit_id 🖕 Agend	cyCode A	Applnumb 🖕	ApplDate 🖕	LoanType	Property
	6	6		2	20095010	11/29/2013	1	L
	3	8		2	20095012	11/30/2013	1	L
	5	8		2	20095013	11/23/2013	:	2
	5	8		2	20095021	11/30/2013	4	ŧ
	5	8		2	20095025	12/8/2013	1	L
	5	8		2	20095037	12/1/2013	1	L

The Target File Selection screen includes the following:

- The *Wiz* File Type dropdown box lists the file types available for importing
- Target File Name offers three options:
 - New File import a new file into the software
 - **Update File** update the information in an existing *Wiz* file by specific, or all columns
 - Append File append records to an existing Wiz file

Wiz File Type	Mortgage DF	•	
Target File Name		^	
<u>New File in</u>	Mortgage Mortgage 2004		
	Mortgage DF Other Small Business and Farm Small Business Farm and Consumer	~	
C Append File			
	NAMA 1003LP770XR WAMA 1003LP770XR		

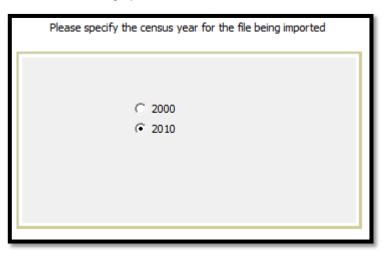
7. Make Selections

- a. Wiz File Type = "Mortgage DF"
- b. New File Name = "Training File 1"
- c. Click Next

Wiz File Type	Mortgage DF	•	
Target File Nam	e and Database Server		
• New File in	n Bank Data Mortgage DF		
Training F	File 1		
	L		
O godate H	IC		
C Append Fi	ile		
Server Name	NAMA 1003LP77QXR WAMA 1003LP77QXR		

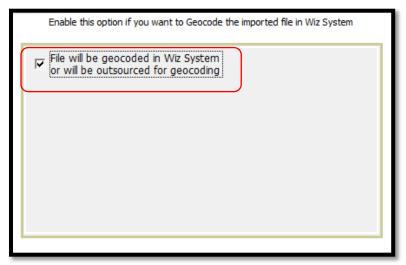
On the Census Year Selection screen, there are the following options:

- Census 2000 import a loan file using 2000 census tract boundaries for action dates from 2003 through 2011
- Census 2010 import a loan file using 2010 census tract boundaries for all action dates after 2011
- 8. Select the Census Year, for this example:
 - a. Census Year = "2010"
 - b. Click NEXT



On the Geocode Settings screen, there is only option. If you want to CRA *Wiz* to geocode your file, select that option here.

If you do not want to geocode the file, do not select this check box.



If your institution does NOT use CRA *Wiz* to geocode, the data below must be supplied in the source data file. However, if the file is not geocoded within *Wiz* (from Address, City, State_Abrv and Zip), the file will not include Latitude, Longitude, Block or Block Group.

- State
- MSA
- County
- Census Tract
- 9. For this example:
 - a. Place a checkmark in the "File will be geocoded in Wiz ... "
 - b. Click Next

The Define Map Source Columns to Wiz Format screen contains the following columns:

• Column 1: Import displays a check mark next to the fields that have a matching data source and will be imported into the software

If a field does not have a check mark, *Wiz* will not import the field.

• Column 2: Target displays the name of the fields that will appear in the *Wiz* file after importing

	MPORT WIZARI	100	and the second							Map Source Columns To Wiz Form	at
-	WILLAND!	-						Man	source colu	ums to corresponding Wiz columns	1
_								- They		and to conceptioning the common	
	Target		Source	NA Option		Nullable	Size	Precision	-	Data Preview	^
	Recorded	П		None	String	2	-	1	0		
2		2			String	2			0	0 1234546769812348Q698	_
M			u	None	String				0	0 1234546769912348Q6982009753650	
2	Appinumb		Appirumb	None	String				0	0 20097536	
	ApplDate		AppiDate	NA Only	Date	2			0	0 7/13/2018	-
	LoanType	2	LoanType	None	Char	2			0	0 2	
Ø	Purpose		Purpose	None	String				0	0 1	
2	Preapproval		Preapproval	None	Char	2			0	0 2	
M	ConstructionMethod	×	ConstructionMethod	None	Char			1	0	0 1	
M	OccupancyType	R	OccupancyType	None	Char	2		1	0	0 1	
¥	LoanAmountInDolars	2	LoanAmountInDolars	None	Numeric	2		9	5	2 125000	
M	Action		Action	None	Char			1	0	0 1	11
¥	ActionDate	Ø	ActionDate	None	Date			8	0	0 8/10/2018	11
	Address	۲	Address	None	String		1	50	0	0 8617 WOOD SPRINGS COURT	11
¥	City		City	None	String			15	0	0 DOUGLASVILLE	
	STATE_ABRV	۲	STATE_ABRV	None	String			2	0	0 GA	
2	Zp	2	Zp	None	String	2		10	0	0 30135	
M	Zp4		Zp4	None	String			4	0	0	1
×	State	V	State	None	String			2	0	0 13	
	MSA		MSA	None	String			5	0	0 12060	
Ø	County		County	None	String	2		3	0	0 97	*
۲.											>
Auto	Nap only Predefined Reids	Auto-M	ao Renaining Fields as Us	er Defined U	map Al	_	_	_	_	Hen en Next	

- Column 3: Codes displays the government issued codes assigned to each of the required fields
- Column 4: Source displays the name of the fields that are in your source file
- Column 5: Type displays if the target field is character, numeric, integer, boolean, string, memo, date and float
- Column 6: Nullable displays a check mark next to the target fields that allow fields to be blank
- Column 7: Size displays the length of each target field
- Column 8: Precision displays the total number of digits in the column (digits before the decimal point plus digits after the decimal point even if these digits are not displayed)
- Column 9: Scale displays the number of digits after the decimal point
- Column 10: Data Preview displays a preview of the data as it will appear after *Wiz* imports the loan file
- Navigation Buttons First record, Previous record, Next record

Click the "Auto-Map..." links at the bottom of the screen to have the system automatically map the fields in the source file to the Target column fields.

- The Auto-Map only Predefined Fields link automatically maps the fields in the Source column and lists the fields in the Target column only if the source field matches the CRA *Wiz predefined* field name. If the software could not match a field, the corresponding source field displays <none>. In these instances, the user will have to manually map the source field
- The Auto-Map Remaining Fields as User Defined link automatically maps any remaining unmapped user defined fields in the file (target) to any user defined fields in the system (source) that have matching field names and a default data type of Varchar 25 (variable character length of 25)
- 10. For this example:
 - a. Click on the "Auto-Map only Predefined Fields" linki. Review fields that were auto-mapped
 - b. Click on the "Auto-Map Remaining Fields as User Defined" link
 - i. Review remaining fields that were auto-mapped
 - c. Review additional records by clicking on Next (in Navigation, not the next step button)
 - d. Click First to return to the first record
 - e. Click Next

Ľ	- WIZARI	0								Map Source Columns To Wiz Format
	TT CALFORN							Map s	aurce colum	ins to corresponding Witz columns
mport	Target	Codes	Source	NA Option	Туре	Nulable	Sze	Precision	Scale	Deta Preview
	RecordId			None	String		2		0	0
	E		LEI	None	String		21			0 1234546789812348Q698
¥	10	V	ut	None	String		45		1	0 1234546789811234806982009753650
	Appinumb		Applnumb	None	String	2	25			0 20097536
2	AppiDate		AppiDate	NA Only	Date		8		1 9	0 7/13/2018
	LoanType		LoanType	None	Char		1			0 2
	Purpose	۲	Purpose	None	String		2			0 1
۲	Preapproval	۲	Preapproval	None	Char		1		1 8	0 2
	ConstructionMethod	۲	ConstructionMethod	None	Char	۲	1		1 8	0 1
	OccupancyType		OccupancyType	None	Char	2	1		1 8	0 1
2	LoanAmountInDollars		LoanAnountinCollars	None	Numeric	2	9	15		2 125000
	Action	۲	Action	None	Char		1		1	0 1
	ActionDate	۲	ActorDate	None	Date		8		1 d	0 8/10/2018
V	Address	۲	Address	None	String	Ø	50	0	1	0 8617 WOOD SPRINGS COURT
2	Dty		Oty	None	String		35		1	0 DOUGLASVILLE
	STATE_ABRV		STATE_ABRV	None	String		2		ê - 0	0 GA
	Ζφ		Zp	None	String		10	0		0 30135
8	Zip4	۲	Zp4	None	String	2	4	0		0
¥	State	۷	State	None	String		2			0 13
2	MSA		MSA	None	String		5			0 12060
2	County		County	None	String	2	3			0.97

- 11. To manually match fields in the source file to the corresponding fields in the CRA *Wiz* target file, or to create a new field to be filled in later:
 - a. Scroll down to the bottom of the field list
 - b. Click <Add New Column>
 - c. In the SOURCE column, click the drop-down list to see a list of fields not yet mapped

•	LockDays	>	LockDays	String	~	25	0	0
•	Underwriter	•	Underwriter	String	✓	25	0	0
	NewColumn_0000		<none> 👻</none>	Char 👻	✓	10 ÷	0	0
	<add column="" new=""></add>		<empty></empty>					
			<none> CoaRace</none>					
			Race					

- d. Click on an available field (in this example, click on RACE), then double-click in the Target field name (NewColumn_0000)
- e. With the field highlighted in blue, type in the new name FAKE_FIELD
- f. Change FAKE_FIELD from a Char field with a size of 10 wide to a Char field with a size of 1 wide
- 12. To add a new "empty" field
 - a. Click <Add New Column>
 - In the SOURCE column, click the drop-down list to see a list of fields not yet mapped

FAKE_FIELD Race Char I 0 0 6 <add column="" new=""> 6</add>	Y	Underwriter	•	Underwri	Underwriter 5			•	25	0	0
<add column="" new=""></add>		FAKE_FIELD	•	Race	Char	•	~		0	0 6	
		<add column="" new=""></add>									

•	Underwriter		Underwriter	String	•	25	0	0	
✓	FAKE_FIELD	•	Race	Char	✓	1	0	0 6	6
~	FAKE_FIELD2	•	·	Char 👻	~	10 ÷	0	0	
	<add column="" new=""></add>		<empty> H<none></none></empty>						
			CoaRace						

- c. Click on the word "Empty", then double-click in the Target field name (NewColumn_0001)
- d. With the field highlighted in blue, type in a new name FAKE_FIELD2
- e. Leave this field as a Char with a size of 10 wide

•	Underwriter	•	Underwriter	String	•	25	0	0	
•	FAKE_FIELD	✓	Race	Char	~	1	0	0	6
•	FAKE_FIELD2		"FAKE2" 👻	Char 👻	~	10 -	0	0	FAKE2
	<add column="" new=""></add>								

- f. To type in a value in this field, click on the Ellipsis next to the empty quote marks. Place the cursor in the Expression Builder's Expression Window, and type in "FAKE2" (with double quotes)
- g. Click Apply
- h. Click Next

Select Expression Language C TSQL C VBScript Columns - Action - Action - Action - Address - Age - Age - Age - ApoR - APOR - APOR_Date - Apolate - Applate - Applat	xpression Builder			<u>Clear</u>	Apply
Column Selection Columns Action ActionDate Address Address Age Age APOR APOR_Date ApplicationType Applumb APRR AppResult1 With Service Apgle quotes for T-Sql and double quotes for VBScript if value is character type. Validation	elect Expression Language C TSQ	VBScript			
- Action - ActionDate - Address - Address - AgencyCode - ApoR - APOR - ApOR - ApolicationType - ApplicationType - Appli					
- ActionDate - Address - Age - Age - Age - Age - ApOR - APOR - APOR - ApOR - ApplicationType - Johnumb - APR - AUSResult1 - Johnumb Jse single quotes for T-Sql and double quotes for VBScript if value is character type Validate - ApplicationType - ApplicationTy	Columns	 Functions 			
- Address - Age - Age - Age - ApencyCode - APOR - APOR - APOR Date - Apolication Type - Application Type - Application Type - Application Type - AppR thod - APR - AJSResult 1 Jse single quotes for T-Sql and double quotes for VBScript if value is character type. Validational - Area - Address - Conditional - Conditio	Action				
Age Age Age Age Age Age Age Age Age ApoR APOR APOR APOR APOR ApplDate ApplicationType Applmub ApPMethod APPR APR AVR APR Aussesult 1 Just single quotes for T-Sql and double quotes for VBScript if value is character type. Validate	ActionDate				
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ApplDate ApplIcationType Applinumb Applitumb Appletbod APR AUSResult 1 Jse single quotes for T-Sql and double quotes for VBScript if value is character type. Validat	APOR	±.String			
ApplicationType ApplicationType AppMethod APR APR AVSResult1 Just for T-Sql and double quotes for VBScript if value is character type. Validate					
Applnumb APPMethod APR AUSResult 1 Use single quotes for T-Sql and double quotes for VBScript if value is character type, <u>Validat</u>					
APPMethod APR AUSResult 1 Jse single quotes for T-Sql and double quotes for VBScript if value is character type. Validat					
APR AUSResult 1 Juse single quotes for T-Sql and double quotes for VBScript if value is character type. <u>Validat</u>					
AUSResult1 Jse single quotes for T-Sql and double quotes for VBScript if value is character type. <u>Validat</u>					
I successful to See Single quotes for T-Sql and double quotes for VBScript if value is character type. <u>Validat</u>					
	-AUSResult1	~			
Fake2"	Jse single quotes for T-Sql and double q	uotes for VBScript if value is chara	cter type.		Validat
	Fake2"				
	rakez				

- 13. In this example, we will not be applying a filter
- a. Click Next
- 14. The Summary Information screen:
- a. Save the Defined Import Format -Check the box
- b. Enter the import format name, in this case: "FLW Training 1"
- c. Click the Import Now checkbox
- d. Change the Activity Year to match the data year in the source file, in this case 2019
- e. Click Finish

	F	ilter Source	e File for Importing
Please specify an expres	sion to be used as filter. Use Expression Builder to easily b	uild the expression.	
Expression Builde	r		

Summary Information:		í
Source: C:\Users		
Save the defined import format Import Format Name	✓ Import Now Select Action Year	
FLW Training 1	2018	•
Log errors		
Abort import if more than 20000	errors have been log	ged

The Log Errors function allows users to set a total number of errors the system will allow before aborting the import process. Once the system reaches that number, the import will no longer continue. Clients with very high record counts may consider using this feature. It may be easier to correct an error directly in your loan origination system.

15. Click Yes to display the summary report



The **Import Summary** report displays the following:

- Date and time of import
- Source file used
- Target file created
- Total number of errors (syntactical, validity, quality)
- Rows with errors
- Number of records processed

ImportSummary.txt - Notepad File Edit Format View Help CRA Wiz® & Fair Lending Wiz® (Build 74.0.28) Summary of Import Census year used: 2010 Action year used: 2018 Executed on: 2/3/2020, 11:44:34 AM Source is a text file (FLW Training File HMDA DF.TXT) Created the loan file 'Bank Data\Mortgage DF\training 12343' (Wiz_00082) Edits in the file: Syntactic error: 0 Validity errors: 6997 Quality errors: 2781 End-of-Cycle (Macro) error: 0 User Defined errors: 548 Rows with syntactic errors: Ø Rows with validity errors: 3655 Rows with quality errors: 2284 Rows with user defined errors: 548 Rows with no errors: 219 Results: Number of records processed: 3,983 Number of records imported: 3,983

16. Click the 'X' in the upper right corner of the report. The software closes the summary report and displays the CRA *Wiz* Main screen. The file imported now shows as the current file

Updating an Existing File

For the example institution used in this manual, the HMDA DF file was used as the "base" information, with additional information coming from other sources (such as the Loan Origination System).

- 1. Follow the steps of the Import Wizard:
 - a. Click on the **Import Wizard** button
 - b. Select New Format
 - c. Click Next
 - d. Source Data Type = Text
 - e. Source Folder = [as instructed]
 - f. Source File = FLW Training File HMDA DF-Addl fields.txt (either click 'Open" or doubleclick on file)
 - g. Click Next
- 2. Populate information about the file being imported, for this example:
 - a. File type = Delimitedb. Row Delimiter =
 - Carriage Return
 - c. Text Qualifier = Double Quote
 - d. First Row Has Column Names = Checkmark
 - e. Click Next
- 3. Delimiter = Tab

Source Data Type	Text	•	
Source Folder	C:\Users\		
Source File	FLW Training File HMDA DF-Addl fields.txt		
		_	_

	Oelimit	ted		0	Fixed L	ength				
File Type	ANS	SI		-	:	Skip Rows	0 ÷	ļ		
Row Delimite	r Car	riage Retur	m ·	-	_				_	
Text Qualifie	r Dou	uble Quote	{"} ·	-	F	First R	ow Has Co	olumn Na	mes	
Preview of 'Train	ning File 2 - I	FL Info.txť								
"Applnumb"	"Age"	"Coa_Ag	e"	"LTV"	"FERatio	"BERatio	" "NoteRa	ate"	"Dec_	^
20095977		52.000		96.500	42.284	42.284	4.625	651	"FF30	
20095978		30.000		100.000	30.133	36.046	4.375	646	"VF30	
20095979		32.000		86.111	27.892	27.892	5.000	776	"CF30	
20095980		39.000		80.000	16.927	45.629	4.500	762	"CF30	
20095981		54.000	54.000	61.151	3.779	6.106	4.125	784	"CF10	
*20095983		47.000		53.868	36.212	56.371	4.250	792	"CF3(v
									>	

C Comma	•	Tab	C Sem	icolon	C Vertic	al Bar (I)	C Other	:
Applnumb 🖕	Age 🖕 🤇	Coa_Age 🖕 L'	TV 📮	FERatio 🖕	BERatio 🖕	NoteRate 🖕	Dec_Score	LoanProg 🖍
7	52.000		96.500	42.284	42.284	4.625	651	FF30
8	30.000		100.000	30.133	36.046	4.375	646	VF30
9	32.000		86.111	27.892	27.892	5.000	776	CF30
0	39.000		80.000	16.927	45.629	4.500	762	CF30
1	54.000	54.000	61.151	3.779	6.106	4.125	784	CF10
3	47.000		53.868	36.212	56.371	4.250	792	CF30
<								>

- 4. On the Update File in Bank Data Wortgage DF folder click the Ellipsis
- Select the name of the source file being imported that will update the current file. In this case, Training File 1
- 6. Click the **Open** button
- 7. Click Next

Wiz File Type	Mortgage DF	•
-	e and Database Server	
C <u>N</u> ew File		
 Update File Training F 	e in Bank Data\Mortgage DF\ ile 1	
C Append Fil	e	

Server Name	NAMA 1003LP77QXR WAMA 1003LP77QXR	

The fields that needed updating were brought in as empty fields in the initial import. The field names were added into Excel 2013, in Row 1, with no additional information. The file was then saved as a Tab-Delimited file (".txt").

One critical field in the process is known as the "Key" field (the field that identifies which records get updated with the new information). The APPLNUMB field (application number) is the Key field in this case.

- 8. Map Source Columns to *Wiz* Format:
 - a. On the Map Source Columns to *Wiz* Format screen, click **the Auto-Map only Predefined Fields** link at the bottom of the screen
 - b. Scroll down to see the other fields that were mapped

L	WIZAR			Map s	iource colur	nns to corres	ponding Wiz	-	Source Columns To Wiz Format	
Import	Target	Codes	Source	Type	Nullable	Size	Precision	Scale	Data Preview	
	RecordId		<none></none>	Char	~	2	0	0		
	Instit_id		<none></none>	Char		10	0	0		
	AgencyCode		<none></none>	Char	~	1	0	0		
•	Applnumb	•	Applnumb	Char	~	25	0	0	20095977	
	ApplDate		<none></none>	Date		8	0	0		
	LoanType		<none></none>	Char	~	1	0	0		
	Property_Type		<none></none>	Char	~	1	0	0		
	Purpose		<none></none>	Char		1	0	0		
	Occupancy		<none></none>	Char	~	1	0	0		
	LoanAmount	4	<none></none>	Numeric	~	9	15	3		
	Preapproval		<none></none>	Char	~	1	0	0		
	Action	Þ	<none></none>	Char	•	1	0	0		
	ActionDate		<none></none>	Date	~	8	0	0		

Other field widths can also be changed. For example, if the field called LoanProgram is longer than 25 characters wide, you would need to change to the proper width, but not longer than needed. Use the next record button to see what other values are included. Do not truncate valuable information by setting the field width too small.

- 9. For this example:
 - a. FERatio Numeric, 9, 15, 2
 - b. LoanProgram Char, increase Size to 30
 - c. Employee Char, decrease Size to 20

In the event a column does not map from the source file to the target file, it can be added using manual mapping.

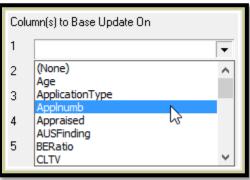
- 10. For this example:
 - a. In the Source column, click on the word None in the Row containing the field you wish to add, in this case, Cust_Credt
 - b. Click on the dropdown arrow to open the list of fields, then click on the matching field name, in this case **Score**

Import	Target	Codes	Source	NA Option	Туре	Nullable	Size	Precision	Scale	Data Preview
	TotalLoanCosts_NA		<none></none>	None	Boolean	~	1	0	0	
	TotalPtsAndFees_NA		<none></none>	None	Boolean		1	0	0	
	OrigFees_NA		<none></none>	None	Boolean	~	1	0	0	
	DiscountPts_NA		<none></none>	None	Boolean	~	1	0	0	
	LenderCredts_NA		<none></none>	None	Boolean		1	0	0	
	InterestRate_NA		<none></none>	None	Boolean		1	0	0	
	PPPTerm_NA		<none></none>	None	Boolean	~	1	0	0	
	DTIRatio_NA		<none></none>	None	Boolean		1	0	0	
	CLTV_NA		<none></none>	None	Boolean		1	0	0	
	Loan_Term_Months_NA		<none></none>	None	Boolean	~	1	0	0	
	IntroRatePeriod_NA		<none></none>	None	Boolean		1	0	0	
	PropertyValue_NA		<none></none>	None	Boolean		1	0	0	
	MFAHU_NA		<none></none>	None	Boolean	~	1	0	0	
	Rate_Spread_NANC		<none></none>	None	Boolean	~	1	0	0	
	Cust_credt		<none> 🔻</none>	None 👻	Integer 👻		4	0	0	
			<empty></empty>							
			<none> Score</none>							

- c. Change the Type match the data type you wish to add to the file, in this case we will select **Integer**
- d. Click Next

The Matching Column Selection screen displays only when a file is being updated. When updating a file, records from the source file are imported into an existing CRA *Wiz* target file.

- Users can select up to five match columns. These are the columns (fields) used to match records in the source file and the target file
- Every record in the target file that has a matching record in the source file can be updated (if the field was selected in the previous step) with new information imported from the source file if the record has been changed in the source file
- All records in the source file that do not match an existing record in the target file can be added (also known as appended) to the target file, depending upon the next screen's selections
- 11. For this example:
 - a. Select APPLNUMB as the Column to Base Update on
 - b. Click NEXT



The File Update Option screen displays only when a file is being updated and is used to select the options used to update the target file.

- Append Unmatched Records to the Updated File appends all unmatched records to the existing *Wiz* file
- **Do not Update Matched Records** select this option if you <u>do not</u> want *Wiz* to update matching records in the existing file (append unmatched records only)

- Delete Matched Records deletes all matched records in the target file (e.g., records that were imported in error, such as pre-qualifications)
- Ungeocode Records with Modified Address - ungeocode all records in the existing *Wiz* file whose addresses differ from the source file
- Update Quality Error Checks updates all the quality error checks in the existing *Wiz* file

Update Options These are several possible settings for updating your file. Use the checkboxes to set your update options. Append Unmatched Records to the Updated File Do not Update Matched Records Delete Matched Records Ungeocode Records with Modified Address Update Quality Error Checks

- 12. For Training purposes:
 - a. Uncheck all 5 boxes
 - b. Click NEXT

Expression Builder button - use this button to display the Expression Builder. You use the Expression Builder to create expressions to filter your source data.

For this example, no additional expression will be applied on the Filter Source File for Importing screen.

- 13. Click Next
- 14. The Summary Information Screen:
 - a. Check the "Save the defined import format" box if you wish to save the import format created
 - b. Double-click into the "Import Format Name" textbox. When cursor is flashing in an empty box, enter the name of the import format you wish to save, in this case "FL Info File"
 - c. Check the "Import Now" box

-	נ טו -רועטו ווטועס.נאנ (דטאני)	< >
Cart format Dolimited (Save the defined import format Import Format Name FL Info File	Import Now Select Action Year 2018	•
Log errors Abort import if more than 20000	errors have been logged	

- d. Select the Action Year that matches the source file, in this case, 2018
- e. Click the FINISH button

The Import Wizard indicates that 3,983 records were UPDATED, no records were APPENDED, no records were DELETED, and no records were ungeocoded.

- 15. Click **YES** to see the Summary Information report and review
- 16. Close the Summary Report

Import Wizard	Send Error Report	×
Do you want to display the summary of import 3983 rows updated 0 row appended 0 row upgeocoded (More messages not shown)	2	
Y	ies No	

Other Features

Instructions for the following other features can be found in the CRA Wiz Training Manual - Data Prep:

- Creating Replace Commands upon Import
- Modifying Your Import Format
- Transferring/Installing Saved Import Formats

Chapter 4 - Geocoding Records

Geocoding is the process of appending numeric geographical data codes for MSA, state, county, and census tracts to records. Valid addresses (street, city, state, ZIP code) are required for accurate geocoding.

Geocoding your records ensures the anonymity of the records and enables your institution to analyze data based on census tract boundaries. Properly geocoded records include geographical coordinates (latitude & longitude) required for creating maps within CRA *Wiz* showing activity or branch locations.

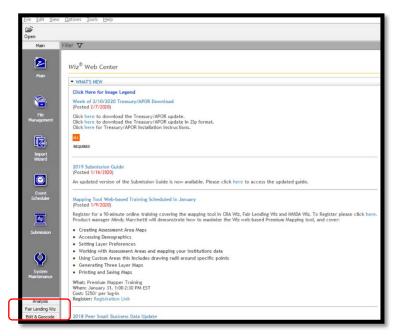
- There are three ways to geocode records in CRA *Wiz*: batch geocoding, single record geocoding, and interactive geocoding
 - Batch geocoding reviews all addresses in the application or file and geocodes all records in the file that have valid addresses
 - o Single record geocoding obtains geocoding information for an individual address
 - o Interactive geocoding geocodes individual records that do not geocode during batch geocoding

Batch Geocoder

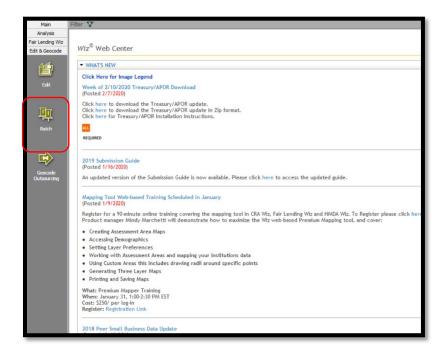
Accessing the Batch Geocoder

To batch geocode records, follow these steps:

1. Click the Edit & Geocode tab



2. Click the **Batch** button from the Edit and Geocode tab



Setting the Current File for Geocoding

Exercise: Once CRA *Wiz* imports a file, that file becomes the current and active file in the program. However, we are going to Geocode the **Mortgage DF YTD** file. Follow the steps below to learn how to change from one file to another.

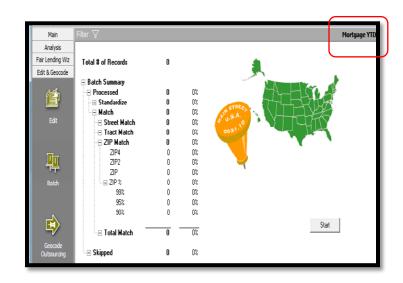
To change the current file, follow these steps:

 On the Batch Geocode screen, click the Open button

e (File Edit View	ptions Tools Help	
ר ו	Open Setting		×
	Main		
	Analysis	Look in: 🗀 Mortgage DF	▼ ← € × [™] □ ▼
	Fair Lending Wiz	Bank Data	
	Edit & Geocode	Tect	
	Ê	MTraining File 3 Training File 1 Mortgag :	
	Edit	HV gdg	TY
	F F Batch	Martgage 2004	
		Mortgage DF File name:	Start Open
_	Geocode	•	
F	Outsourcing	Peer Data File type: All Files	Cancel

 Double click on the Training File 1 from within the Mortgage DF folder

5. The software displays **Training File 1** file as the active file

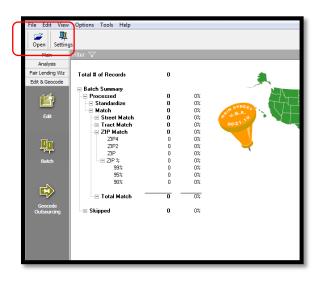


Understanding and Applying Geocode Settings

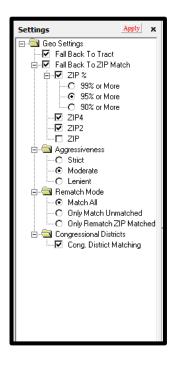
The options selected in the **Settings** pane determine the level at which CRA *Wiz* geocodes records from the street address down to ZIP Code matches.

To access the geocode settings, follow these steps:

1. Click the Settings button



- 2. For this example, select the following:
 - a. Fall Back to Tract
 - b. Fall Back to Zip Match
 - c. ZIP%: 95% or More
 - d. ZIP4
 - e. **Z**P2
 - f. Aggressiveness: Moderate
 - g. Rematch Mode: Match All
 - h. Click Apply



Match All setting instructs the system to geocode all records. Only Match Unmatched setting instructs the system to only geocode those records that are not geocoded. For fair lending, Match All records if the file is not geocoded.

Geocode Settings

etting	Definition
Fall Back to Tract	This selection allows the geocoder to match the address to a census tract when the street falls entirely within a single census tract, if the geocoder cannot match the loan record's street address.
Fall Back to Zip Match	Zip match selections allow the geocoder to match a record to a zip code in the geocoder's address reference database, if the geocoder cannot match the street address to a census tract.
	This selection will allow the geocoder to match unmatched addresses to the Zip+4 codes
Zip 2	This selection will allow the geocoder to match unmatched addresses to the Zip+2 codes
Zip%	This selection will allow the geocoder to automatically centroid unmatched addresses to census tracts if the selected percentage of the Zig Code is within a single census tract.
99%	If 99% of the loan record's zip code falls within a single census tract, the geocoder will match the record to that census tract.
95%	If 95% of the loan record's zip code falls within a single census tract, the geocoder will match the record to that census tract.
90%	If 90% of the loan record's zip code falls within a single census tract, the geocoder will match the record to that census tract.
Zip	This selection will allow the geocoder to match unmatched addresses to the centroid (center) of the loan record's five-digit zip code.
Aggressiveness	Aggressiveness selections determine the geocoders matching requirements.
Strict	This selection instructs the geocoder to return a match only when the house number, side of the street, street type, street direction, and zip code match a record in the geocoder address reference database.
Moderate	This selection instructs the geocoder to return a match only when the house number and street direction or house number, side of the street, and street type match a record in the geocoder address reference database.
Lenient	This selection instructs the geocoder to return a match only when the house number and side of the street match a record in the geocoder address reference database.
Rematch Mode	Rematch mode selections will determine which records the geocoder attempts to match during the batch process.
Match All	This selection instructs the geocoder to geocode all records.
Only Match Unmatched	This selection instructs the geocoder to geocode only ungeocoded records.
Only Rematch Zip Matched	This selection instructs the geocoder to geocode only records that geocoded using a zip fallback.
Congressional Districts	
Cong. District Matching	Select to match addresses to Congressional Districts as well as Census Tracts.

Batch Geocoding

Batch geocoding is the process of geocoding multiple records simultaneously. The CRA *Wiz* batch geocoder matches all valid addresses in a file with corresponding geographical data.

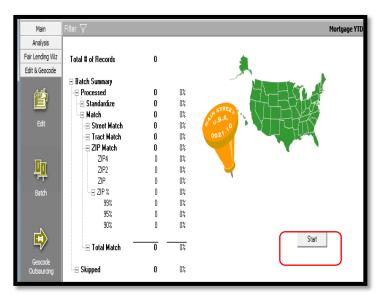
To begin the process, the user will select the batch geocode settings and initiate batch geocoding on the Batch Geocode screen.

After confirming the Batch Geocoding settings, run the batch geocode process, and then determine how many records could not be matched.

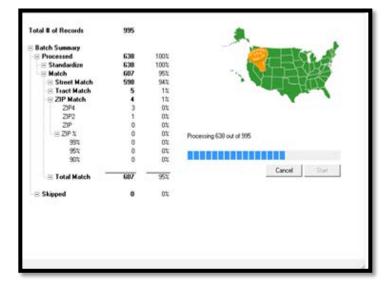
The number of matched records is largely dependent on the accuracy of the source data. Ensuring that loan or application data is entered correctly into the institution's database will help increase the batch geocoder's match rate and may also help avoid extensive data editing later.

To batch geocode records, follow these steps:

1. Click the Start button

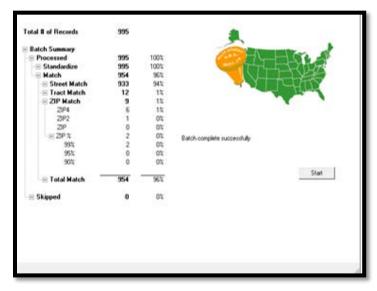


The software geocodes the file.

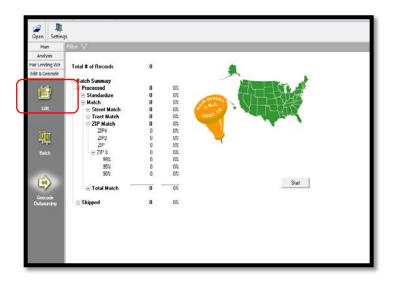


Reviewing the Batch Summary Report

Overview: When a file is geocoded in the batch mode within CRA *Wiz*, the software reports geocoding results in the Batch Summary report. You use the Batch Summary report to determine how many records batch geocoded.



2. To access the Edit menu, you must access the Edit module



 Click the Edit menu from the tool bar and select the Geocoding Statistics Report



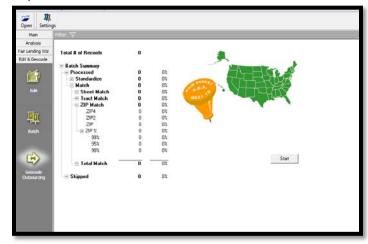
 Once the statistics report generates, the user has the option of printing the report. Print or Click Exit Report to close

ortgage YTD						
	Count	96		Count	16	
Address Standardization	2,772	100.0	FIPS Code Summary			
			State	2,667	96.21	
Matched Street Match	2,679	96.65	MSA	2,667	96.21	
Street Match Batch	2,622	94.59 94.59	County Census Tract	2,667	96.21 96.21	
Interactive	2,022	0.00	Cemus Iraci	2,00/	70.21	
Tract Match	26	0.94				
Postal Code Match	19	0.69				
ZIP4 Match	6	0.22				
ZIP2 Match	3	0.11				
ZIP 99% Match	10	0.36				
ZIP 95% Match	0	0.00				
ZIP 90% Match	0	0.00				
ZIP Match	0	0.00				
Manual Geocode Match	12	0.43				
Unmatched*	93	3.35				
Invalid State Name	0	0.00				
Invalid Locality	0	0.00				
Address Parse Error	0	0.00				
Locality Offline	0	0.00				
Invalid Street Name	93	3.35				
Invalid Address Range	0	0.00				
Ambiguous Segment	0	0.00				
Invalid Intersection Other Unmatched	0	0.00				
Total Records	2,772	100.0				

Reviewing the Geocode Exception Report

To review geocode exceptions, follow these steps:

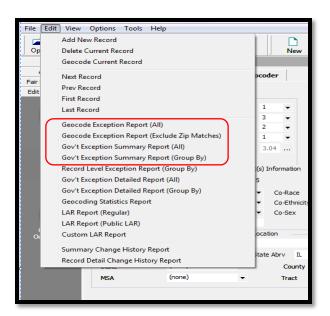
1. From the Batch Geocode screen, click the Edit button



2. Click the Edit menu located on the top tool bar

rrent Record	Brows	e Codes	Geocor	ler												
oan and Property B	nformati	n Applicant	Informatio	n Underwr	iting and Pricing Inf	ormation										
Loan Identifier	r Inform	nation														
Legal Entity Ider	ntfer			Application Nur	nber											
12345A678981	2348Q69	8		20097536												
Universal Loan I	dentifier			NMLSR Identifi	er											
12345A678981	2348Q65	82009753650		8111460												
Loan Informat	tion								Property Infi	ormatio	in					
Application Date		Loan Type		Loan Purpose		Loan Amount i	n Dollars		Address			Oty		State Abry	Zp	Zp 4
07/13/2018		2		1		125000			8617 WOOD S	PRINGS	COURT	DOUGLAS	/ILLE	GA	30135	
Action		Action Date		Purchaser		Pre-Approval			State		MSA					
1	•	08/10/2018		6		2			13		12060					
Denial 1		Denial 2		Denial 3		Denial 4			County		County5		Tract	т	ract11	
10	•	(none)		(none)		(none)	-		097		13097		0805.08	- 1	30970809	08
Denial Other		Loan Term		Prepayment P	enalty Term	Introductory R	Rate Period		Occupancy Typ	pe			Constructio	n Method		
		360	Months	NA	Months	NA	,	Anths	1				1			
HOEPA Status		Lien Status		Submitted Dire	ctly to Institution?		le to your Ins	titution?	Manufactured	Home Se	scured Prop	erty Type	Manufactur	ed Home Secu	red Proper	ty Interes
2	-	1		1		1		-	3			-	5			-
Balloon Payment	t	Reverse Mortga	ge	Interest-Only	Payment	Open-End Line	of Credit		Property Value	8	Total Units		Multifamily	Affordable		
2	•	2		2	٠	2		•	133000		1		NA.			
Negative Amorti	ization	Primarily for Bus	iness/Com	nercial Purpose		Other Non-Am	nortizing Feat	ures								
2		2				2		-								

3. Select Geocoder Exception Report (All) from the Edit drop down list



The following functions can be found on the tool bar:

- Export Report
- Print Report
- ToggleGroupTree
- Next Page
- Last Page
- Page 1 of x
- Stop Loading
- Refresh
- Find
- Exit Report
- 4. Use the scroll bar to review the error messages and account information
- 5. When finished reviewing the Geocode Detail Exception Report (AII), click the Exit Report button

		C I. P	Desert			_
tgage ¥T	D	Geocode Exception	Keport			
Record	Application Number	Adres	City	Rate	Σφ	Zişi
		COULD NOT FIND STREET	NAME			
	266030278	PO BOX 92154	ILK OROVI	1	60009	
	266069930	42223 N LAKE TERRACE AVE	VELAGE ANTIOCH	1.	60002	
	266088822	109 \$ 340CH AVE	ADDISON	z.	60103	
	266089070	200 BEVINIY RD	BARRINGTON	1	60010	
	266261187	P080X142	ELK OROVE	L	60009	
	266291213	33 WALNUT CIR	VILLACE AURORA	1	60506	
	266092829	147 E PALATINE RD	PALATINE	1	60067	
	210292611	7830 34AD050N ST	RNTR	1	60505	
	210297524	43399 N LAKE TERRACE AVE	FOREST ANTIOCH	1	60002	
	210291115	25073 W FOX TRAIL AVE	NTIOCH	z.	60002	
11	210291599	503 ILL AVE	IL6N	1	60123	

Geocoding Individual Records that do not Batch Geocode

Understanding Interactive Geocoding

Based on the quality of address data in the file, there may be some records that do not geocode during batch geocoding. For example, records entered with spelling errors, P.O. Box, rural route as an address, no address, or properties located in a new development will not geocode. You can geocode these records interactively by matching the address information to a variety of criteria.

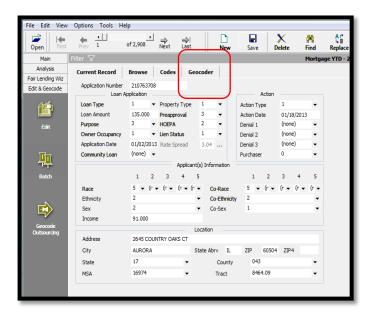
The interactive screen includes the following fields and buttons:

Main	Filter 🏆 🧧		
Analysis Lending Wiz	Current Record Browse Code	s Geocoder	
& Geocode	- Working Address 2	Input Address	
122	23202 KRISTOFF CT	23202 KRISTOFF CT	
	PLAINFIELD IL 60544 9664	PLAINFIELD PL ROSA4 3664	
Edk	3Street segment match (Batch)	Match To 23202 KRISTOFF CT PLAINFIELD, IL 60544	Street Match ZIP Match
	State City	Street	
•	4 5		manua h
Seccode	Dir Range(L)	Range(R) Type	ZIP(L)
dsourcing	7		

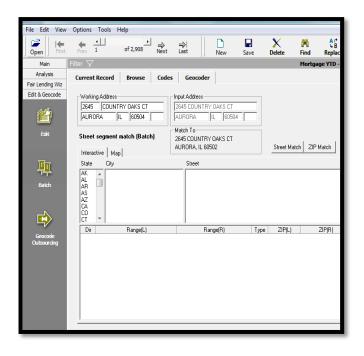
- 1. Next button click the Next button to display the next ungeocoded record
- 2. Working Address update the address (number, street, city, state and ZIP code)
- 3. Current geocode status describes the current status of the record
- 4. State automatically selected when you display a loan record
- 5. City automatically displays when you display a loan record
- 6. Street use this list to determine the correct spelling of an incorrectly spelled street
- 7. Address ranges/Zip Codes all available address ranges for the street you select
- 8. Street Match/Zip Match button the button you click depends on the address information you change in the Working Address field

To access interactive geocoding functionality from the Edit screen, follow these steps:

1. Click the Geocoder Tab



The software displays the Interactive Geocoder screen.



Working with the Interactive Geocoder

The test institution's standing process is to interactively geocode, to the street match level, all records that did not geocode during batch geocoding.

We noted on the **Geocode Exception** report that one record in particular (application number 20096155) did not geocode. The street name entered for this loan record (CHGO) did not match any street names in the address database. Because the majority of records in the LAR are located in Illinois, we can assume that CHGO is an abbreviation of Chicago.

To update the address and geocode the record, use the following procedures:

Find the Record Correct Spelling

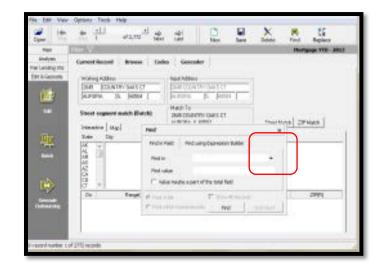
Find the Record

To find the record, follow these steps:

1. On the Interactive screen, click the Find button

knallynis Landerg mitt & Edmonder	Cerrent Research Bisease Col VisitegAddeet (260) (C2UARTY CARS CT AURONA IL 10254	In Geseller	
10	Next organic saleh (Rabb)	Mass.Te 246 DOM/RY OWS (1 4.90% 1.9002	There Robin 200 Hands
#	State Op 95	Toot	
•	Th Repti	Finanti La	940 (MC e

2. Click the Find in field drop down



- 3. Select Application Number (Applnumb)
- 4. In the Find value field, enter 20096155 and click the Find button

Working Address	r Input Address	
11770 BARLETTA DRIVE		
ORLANDO FL 32827	DRLANDO PL (32027	
Match Status	ZIP Locality City Locality	
Interactive Map	Cheat Match ZIP Match	
State Dity		
	Find in Field Find using Expression Builder	
	Find in Application Number (Applicumb) •	
	Find value 20096155	
	Value maybe a part of the total field	
I		
Dir Bangel	P Find in file T Show All Records	ZIP(R)
	C Find within found records Find Find Internet	
-		
1		

The software begins to search for the record.

The file is filtered to display only the record you are searching for. To turn off the filter, select "Show All Records" from the Tools menu.

The software displays application number 20096155. To interactively geocode this record, follow these steps:

- 5. Select State FL
- 6. Select City Orlando
- 7. Click in the top of the Street list

The software highlights the first row in blue.

8. Type **B A R L**, the first few letters of Barletta, the street to search for

r V				Training File 2 - 2
woking Addess 11770 BARLETTA DRIVE ORLANDO FL 32827	Codes Geocoder	 Standardoe To: 11770 BARLETTA DR GRUJABO, RJ. 32827-7165 		
Parcel match (Interactive)	Match To 11770 BARLETTA DR ORLANDO, RL 32827-7165	Street Match ZIP Match		
State City CT a [OBANGE LAKE	Steet A BARDSTON			
DE URANGE PARK DE URANGE SPRINGS CHUNNOO DE URANGO DE URANGO DE DEACH GA OSPREY GU OSPREY GU OSTEEN H UTTER CREEK	BAREFOOT BAY BARGATE BARK BARKSDALE BARKWOOD BARKWOOD			
De Range(L) 11700-11898		Type (2P)L) DR 32827	2PRI 33827	

The software displays and highlights Barletta in the Street field.

9. To confirm that the address number 11770 is valid, use the scroll bar to search for the address range in which the address 11770 falls

17					Training File 2 - 20
rrent R	ecord Browse Co	des Geocoder			
Volking/ 11770 ORLAND	BARLETTA DRIVE	Input Address [11770 BARLETTA DRIVE [ORLANDO FL 32827	- Standardon To - 11770 BARLETTA DR ORLAND, R. 12827,7165		
	natch (Interactive)	March To 11770 BARLETTA DR ORLANDO, FL 32827-7165	Sheet Match ZIP Match		
State	City	Street			
	ORANGE LAKE ORANGE PARK ORANGE SPRINGS ORLANDO	A BARDSTON DAREFOOT BAY BARGATE BARK			i
FM GA GU	ORMOND BEACH OSPREY OSTEEN OTTER CREEK	BARKSCALE BARKWATER BARKWOOD			
Dir	Range(L) 11700-11898	Range(R) 11701-11899	Type 2019.3 DR 32827	20FyFij 32827	
_					

10. Double click the address range

The software geocodes the record and displays **Street Segment Match (Interactive)** as the new geocode status message.

The last step is to permanently change the record's address, which will be completed during the next exercise.

Working Address 11701-1 (BARLETTA DR OFILANDO FL (32027	Input Address 11770 BARLETTA DRIVE [OFILANDO FL 20027			
Street segment match (Interactive)	Match To 11701-11899 BARLETTA DR ORLANDO, FL 32827-	Steet Match 20P Match		
State Op CT * ORANGE LAKE DC ORANGE PARK ORANGE PARK ORANGE SPENGS DE ORANGE SPENGS PARK COMPANY ORANGE SPENG GU OSTEEN W OSTEEN W OSTEEN	Sheet Sheet ABAREFOD BAY BAREFOD BAY BARK BARKANEE BARKWOOD MONTETTA			
De RangelL)	Range(R)	Type 20PtL1	23P(R)	
11700311690	BangetH) 11701-11099	1996 (29%) Con 51200220	201910 20102	

Geocoding Individual Loan Records

Overview: The Geocode button in the Edit screen can be used to geocode a single loan record without utilizing the Batch Geocode function. This functionality can be accessed by selecting the record that needs to be geocoded and clicking the Geocode button located on the toolbar. The Geocoder button will use the same settings that have been set for the batch process.

In the previous exercise we interactively geocoded application number 20096155. CRA *Wiz* automatically corrected the working address on the Geocoder tab, however the input address located on the Current Record tab is still incorrect. We will correct and permanently change the input address and then use the Geocode button to geocode the address.

To correct the input address and use the Geocode button, follow these steps:

1. Click on the Current Record tab

oan and Property Inform	ator	n Applicant In	formatio	n Underwrit	ing and Pricing I	hń	ormation									
Loan Identifier Info	orm	noide														
Legal Entity Identifier				Application Numb	æ											
12345467898123480	Q809			20096155												
Universal Loan Identif	fer			IMLSR Identifier												
123/5467898123/80	Q805	2009615515		8777127												
Loan Information									Property In	nformatio	on —					
Application Date		Loan Type		Loan Purpose			Loan Amount in Dollar	\$	Address			City		State Ab	rv Zp	Zp
03/04/2018		1	•	1		•	290000		11770 BARL	DRIVE		ORLANDO		R.	32827	
Action		Action Date		Purchaser			Pre-Approval		State		MSA					
1	٠	06/30/2018		6		•	2	•	12	•	36/40	Orlando-I 🔹				
Derial 1		Derial 2		Denial 3			Derial 4		County		County5		Tract		Traci 11	
10	•	(none)	٠	(none)	•		(none)	•	095	•	12095		0168.02	•	12095016	802
Denial Other		Loan Term		Prepayment Per	naity Term		Introductory Rate Pe	riod	Occupancy T	ype			Construction	Method		
		360	Months	NA	Mont	tis	NA	Months	1			•	1			
HOEPA Status		Lien Status			fly to Institution	n?	Initially Payable to yo	ur Institution?	Manufacture	d Home S	ecured Proy	erty Type	Manufacture	ed Home Se	cured Prope	rty Inb
2	•	1	٠	1	1	•	1		3			•	5			
Dalloon Payment		Reverse Mortgage		Interest-Only Pi	ayment		Open-End Line of Cre	dit	Property Val	æ	Total Unit	3	Multifamily A	fordable		
2	•	2	•	2	1	•	2	•	326000		1		NA			
Negative Amortization	1	Primarily for Busine	ss/Con	mercial Purpose			Other Non-Amoritaing	Features								
2	•	2				•	2	•								
UR V & C Frite	-			FPR Marro Edits:				Status: Liniocked	-							-

2. Click in the Address field holding the left mouse button down and highlight the word BARL and type the word BARLETTA

Property Information	on				
Address	City		State Abrv	Zip	Zip 4
11770 BARL DRIVE	ORLANDO		FL	32827	
State	MSA				
12 🗸	36740 Orlando-l 👻				
County	County5	Tract	Tr	act11	
095 👻	12095	0168.02	v 1	209501680	2
Occupancy Type		Construction	Method		
1	•	1			-
Manufactured Home Se	ecured Property Type	Manufacture	ed Home Secur	ed Propert	y Interest
3	•	5			•
Property Value	Total Units	Multifamily A	ffordable		
326000	1	NA			

3. Click the Save button located on the toolbar

New	H Save	X Delete	M Find	A r ↓ B Replace	A∏ Z♥ Sort	لیا Geocode	🛃 Edit Check

Once the record is saved, CRA *Wiz* clears the values that were in the MSA, State, County, and Census Tract field because a change was made to the address

- 4. Click the Geocode button to geocode the address
- 5. Click the **OK** button in the geocode confirmation dialog box

Prev	1	of 1	▶ Next	➡ Last	New		X Delete	師 Find	A r 4 B Replace	A Z₩ Sort	፲፲ Geocode	Z Edit Ch	ck
Filter 🤇	7												
Curre	ent Record	Brows	e Codes	Geoo	oder								
Loar	n and Property I	Informatio	on Applica	nt Informat	ion Under	writing and Pric	ing Information						
	Loan Identifie	r Inforn	nation										
	Legal Entity Ide	ntifier			Application M	Number							
	12345A6789B1	L2348Q80	9		20096155								
	Universal Loan				NMLSR Iden	tifier							
	12345A6789B1	12348Q80	92009615515		8777127								
	Loan Informa	tion									Property Info	rmation	
	Application Date	e	Loan Type		Loan Purpo	CRA Wiz® 8	Eair Lending	ı Wiz®			end Error Repo		1
	03/04/2018		1	-		~						<u></u>	
	Action		Action Date		Purchaser	🚺 Geoc	oding successf	ul					SA
	1	-	06/30/2018		6						ок		inone
	Denial 1 10		Denial 2		Denial 3		Denial 4				County	c	Sounty
		•		•	(none)	•	(none)		•		(none)	•	
	Denial Other		Loan Term		Prepaymen	t Penalty Term	Introdu	ictory Rate P	eriod	(Occupancy Type	2	
			360		NA		. NA				1		

The record is now geocoded.

Working with the Geocode an Address Function

The Wolters Kluwer Single Record Geocoder function gives users the ability to geocode a single address.

Exercise: You have recently been asked for the census tract of a particular address the marketing department is researching, for the purpose of opening a new branch. The address is 230 W Monroe, Chicago, IL, 60606.

To geocode an address with the Wolters Kluwer Single Record Geocoder, follow these steps:

1. Click the Tools menu and select Geocode an Address

ile Edit Tools View Option • → of 2,908 New Reference Save X Delete 酋 AP 48 H + ⇒ ⇒ Next Last Open Find Repla Main Analysis Current Record Browse Codes Geocoder Fair Lending Wiz Application Number 210763708 Edit & Geocode Loan Application Action Loan Type 1 Property Type 1 Action Type 1 胷 Loan Amount 135.000 Preapproval 3 -Action Date 01/18/2013 Purpose 3 ▼ HOEPA 2 Denial 1 (none) ▼ Lien Status Owner Occupancy 1 1 Denial 2 (none) 3.04 ... Application Date 01/02/2013 Rate Spread Denial 3 (none) Community Loan (none) 👻 0 **耻** Purchase -Applicant(s) Information 1 2 3 4 5 2 3 4 5 1 5 • (n • (n • (n • Co-Race Race 5 2 Ethnicity Co-Ethnicity 2 ▼ Co-Sex € Sex 2 1 Income 91.000 Location Address 2645 COUNTRY OAKS CT State Abry IL City AURORA ZIP 60504 ZIP4 17 043 State County 16974 8464.09 • MSA Tract -

- 2. Enter the following information:
 - a. Address: 230 W Monroe
 - b. City: Chicago
 - c. State: IL
 - d. Zip: 60606
- 3. Click the Match button

The record is now geocoded.

Information obtained through this method is not retained in any file.

	30 W Monroe	Address Information	
	su w Montoe		
		Ci i II	715 00000
City C	hicago	State IL	ZIP 60606
Match To			Match
230 W MONROE	ST		Match
CHICAGO, IL 608	606		
	Census Codes		GeoDemographic Data
State	17	HUD Median	
MSA	16974	% MSA Income	239.5327%
County	031	% Minority	41.5862%
Census Tract	8391.00		Match Information
Block Group	1	Match Status	
Congressional Dist.	1707	match status	r arcernater (bater)

To review the current Geocode Settings, follow these steps:

4. Click the settings drop down

The software displays the Settings window.

ingle Interactive			Setting Apply
Address	220 W Monroe	Address Information	E-Geo Settings
City	Chicago	State IL	Fall Back To Tract
Match To			- ▼ 2/P4 - ▼ 2/P2 - ▼ 2/P % - ○ 39% or More - ○ 95% or More
	Census Codes		C 90% or More
Stat	te 17	HUD Mec	Aggressiveness
MS/	A 16974	% MSA Inco	O Suict Moderate
Count	ty 031	% Mino	Lonionk
Census Trac	ct 8391.00		🖻 🚔 Congressional Districts
Block Grou	ир 1	Match Sta	Cong. District Matching
Congressional Dis	t. 1707		

5. Click the X button to close the Single Record Geocoder

Digitizing an Address

There will be times when the Geocoder is not able to geocode an address. Reasons may vary, but the most common reason is because the street is new and the new address is not in the address database. Also, some small rural communities are not yet included in the database. In these instances, the user may want to seek additional information to be able to pinpoint the property on a map.

Exercise: We determined that CRA Wiz could not geocode an address on Blanchard Creek Rd because the address is not found in the address database. Using information gained from the file, it is discovered that this property new construction and it was discovered that there are three streets bordering the area where the houses on Blanchard Creek Rd are being built:

- North of Patterson Street 1431-1913 1430-1912 •
- South of Seibold Street 1601-1817 1600-1818 •
- East of Skyline Drive 901-999 900-998 •

To use the digitize tool to interactively geocode the record based on the information learned above, follow these steps:

- 1. Click on the Find button in the tool bar
- 2. Type Application Number 20095037 in the Find In field and click the Find button



Find using Expression Builder

20095037

Application Number (Ar

Find 3472-3438

υн 35976

寙

at Match ZIP Match

2

The software finds the record and provides the information it knows to be true, such as state and city. When you click on a city/town all the streets found within that area will be listed.

Interactive Man

BREEN POND

REENVILLE

JLF SHORE

Range(3300-34

3410-34 3473-345

State City.

Dir

Find

Find in Field

Find in

Find value

Value m

C Find within found records

Find in file

 Scroll down to locate Patterson (one of Blanchard Creek's adjacent streets) from the street list

Working Record Browse Codes Geocoder Working Addesss Stardsdom To: 2545	Nument Record Browse Codes Geocoder Working Addeess Stard address Stard address SAVE COLUNITY OWS CT Stard address 2445 COLUNITY OWS CT JAUPORA [IL: FORDA Mach Te 245 COLUNITY OWS CT Steed tegenent match (Interactive) Mach Te 245 COLUNITY OWS CT Steed Columity Address Steed Match Steed Columity Mach Te 245 COLUNITY OWS CT AURORA L 5900 Steed Match Steed City Steed	t 1 of 1.000 Next	Last New S	ave Delete	Find Rep	lace Sort	Geocode E
Working Address Inc.d Address Standardse To: 2645 COUNTRY DAXS CT Inc.d Address Standardse To: 2645 COUNTRY DAXS CT Inc.d Standardse To: Standardse To: 2645 COUNTRY DAXS CT Inc.d Standardse To: Standardse To: 2645 COUNTRY DAXS CT AURORA. IL: Standardse To: 2645 COUNTRY DAXS CT AURORA. IL: Standardse To: 2645 COUNTRY DAXS CT AURORA. IL: Standardse To: 2645 COUNTRY DAXS CT Steet Steet Standardse To: Steet Steet	Working Addees: Input Addees: Standardsee Tor [2645] COUNTRY OWS CT [2645 COUNTRY OWS CT 2845 COUNTRY OWS CT [AURORA [IL [02004] [IL [02004] Steet tegment malch [Interactive 2845 COUNTRY OWS CT 2845 COUNTRY OWS CT Steet tegment malch [Interactive] 2845 COUNTRY OWS CT 2845 COUNTRY OWS CT Steet Copy Steet Steet Match 20 Match Steet Copy Steet Steet Match 20 Match	n 7					Hortgage YI
2645 COUNTRY DAXS CT DS& COUNTRY DAXS CT Standards To: ARAPORA (IL. 60504 DSMS COUNTRY DAXS CT Standards To: Standard To: DSMS COUNTRY DAXS CT Standards To: Standards To: Standard To: DSMS COUNTRY DAXS CT Standards To: Standards To: Standard To: DSMS COUNTRY DAXS CT Standards To: Standards To: Standard To: DSMS COUNTRY DAXS CT Standards To: Standards To: Standard To: DSMS COUNTRY DAXS CT Standards To: Standards To: Standard To: DSMS COUNTRY DAXS CT Standards To: DSMS COUNTRY DAXS CT Standard To: DSMS COUNTRY DAXS CT Standards To: DSMS COUNTRY DAXS CT Standard To: DSMS COUNTRY DAXS CT Standards To: DSMS COUNTRY DAXS CT Standard To: DSMS COUNTRY DAXS CT DSMS COUNTRY DAXS CT DSMS COUNTRY DAXS CT Standard To: DSMS COUNTRY DAXS CT DSMS COUNTRY DAXS CT DSMS COUNTRY DAXS CT Standard To: DSMS COUNTRY DAXS CT DSMS COUNTRY DAXS CT DSMS COUNTRY DAXS CT Stand Count To: DSMS	Staff COUNTRY DAXS CT Staff COUNTRY DAXS CT Staff COUNTRY DAXS CT Staff COUNTRY DAXS CT Staff COUNTRY DAXS CT AURONA, IL 0500. Street regment match (Interactive) Match To Street Match Street Match	urrent Record Browse Code	s Geocoder				
Street cognerit autch (Interactive) SAB COUNTRY DAYS CT AURORAL Le0502 Street Match ZIP Match Interactive Map Street Match ZIP Match Street Match ZIP Match	Street regnent match (Interactive) 3545 COUNTRY DAKS CT AURORA, IL 60552 Street Match 20P Match State Op Street Aurona ALR Aurona Street Match 20P Match	2645 COUNTRY DAKS CT	2645 COUNTRY OAKS CT AURORA II, [60504]	2645 COUR	NTRY DAKS CT		
AK A	AK A AF A AF A AG A CA CO CO CO		2645 COUNTRY DAKS CT	Steet M	alch ZP Match	J	
AL COL	A4 A5 A5 C4 C0 C0 C0 C1		Street				
	De Range(L) Range(R) Type 20P(L) 20P(R)	AL m					
Dir Range(L) Range(R) Type 23P(L) 23P(R)		Dir Range(L)	Range(R)	Type ZIP(L)		ZIP(R)

	Addess BLANCHARD CREEK ROAL BVMLL (AL. (2007)	Input Address				
Address a Interactive	range did not exis e Map] Cite	20P Locality GUNTERSVILLE. City Locality GUNTERSVILLE.		Steel Match 20 ^p Match		
4.42	GREEN POND	A PANKEY PANKEY PARK PARK PATRICK				
AS AZ A	GROVEDAK GUN GULF SHORES	PAUL W STOCKTON PAWNEE PEARSON				
	GROVEDAK GUN GULF SHORES DUNELOUVILLE PlangetL1	PAUL W STOCKTON PAWNEE PEARSON PangelRI	Type	29%) Non	2098) 2010	
	GROVEDAK GUN GULF SHORES	PAUL W STOCKTON PAUL W STOCKTON PAWNEE PEARSON Range(R) 2-190	DR	2PkJ 2505	35976	
	GROVEDAK GUN GULF SHORES DUNELOUVILLE PlangetL1	PAUL W STOCKTON PAWNEE PEARSON PangelRI	DR ST ST	35976	20190) 250% 250%	
	GUROVICIUX GUN GUN BURGEN BURGELI 1-199 1401-1425 1407-1425	PALLY ISSON PAUL W STOOKTON PRANEE PRANEE PRANE(I) 2-150 1400-1410 1412-1428	09 51 51 51	25076 25576 35576	25976 35876 35876	
VAD V	GRID/UCUAK GUIN GOLF SHORES GOLF SHORES DON/11020741 1-199 1401-1425 14271429 14271429 14271429	V 1101000 PAUL V STOCKTON PAUNEE V (PEARSON Parge(R) 2430 1400-1410 1412-1428 1420-1912	0A ST ST ST ST	35976 35976 35976 35976	25076 35376 35576 35576	
	GUROVICIUX GUN GUN BURGEN BURGELI 1-199 1401-1425 1407-1425	PALLY ISSON PAUL W STOOKTON PRANEE PRANEE PRANE(I) 2-150 1400-1410 1412-1428	09 51 51 51	25076 25576 35576	25976 35876 35876	

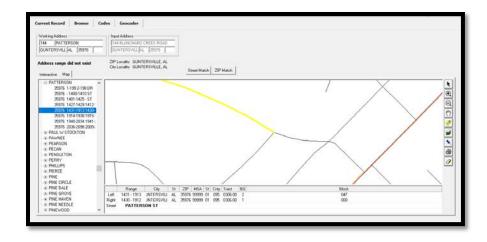
- 4. Click on Patterson
- 5. Click the Map tab
- 6. Double click on the street segment Patterson 1431-1913 1430-1912

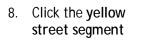
The software displays the street segment highlighted in yellow on the Map and census tract information in the grid below the map.

Volking Address 144 (PATTERSON GUNTERSVILL (AL. (35976)	Induk Addees 144 BLANCHARD CREEK ROAD GUNTERSVILL (AL. (35976			
uddress range did not exist	21P Locality: GUNTERSVILLE, AL City Locality: GUNTERSVILLE, AL	Steet Match 21P Match		
	Left 1431-1913 JNTERSVILI AL	2P MA 9 Cry Test 60 2015 2020 01 02 00600 2 2005 9999 01 02 00600 2 2005 9999 01 02 00600 1	Black Black Geo 000	

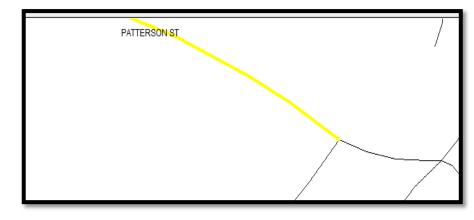
The census tract of the Patterson street segment is: 0306.00

7. Click the Label Street tool





Patterson Street is now labeled on the map.



Use the scroll bar to locate Seibold from the street list	9. Use t	the scroll bar t	o locate Seibold	from the street list
---	----------	------------------	------------------	----------------------

10. Double click the + sign next to Seibold

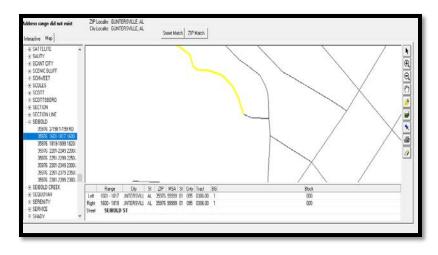
Interactive Map	
Image: SATTELITE Image: SAUTY Image: SCANT CITY Image: SCANT CITY	<
35976 2-198 1-199 RD 35976 1601-1817 1600- 35976 1819-1899 1820- 35976 2201-2249 2200- 35976 2251-2299 2250- 35976 2301-2349 2300- 35976 2351-2379 2350- 35976 2381-2399 2380- ■ SEIBOLD CREEK ■ SEQUOYAH ■ SERVICE ■ SERVICE ■ SHADY	

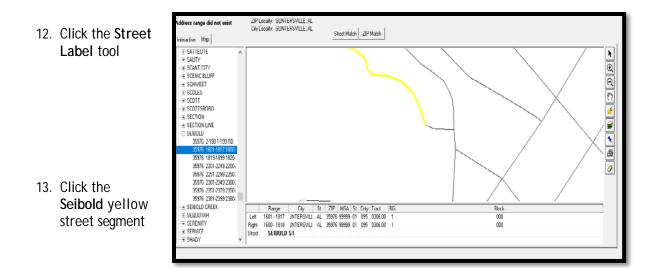
The software displays the street segments for Seibold

11. Double click the street segment Seibold 1601-1817 1600-1818

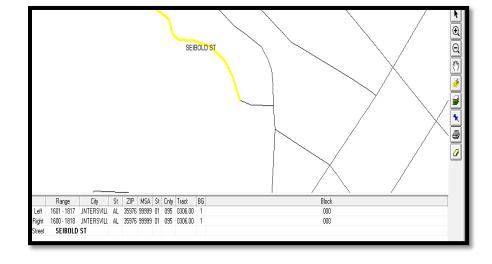
The software displays the street segment highlighted in yellow on the Map and census tract information in the grid below the map.

The census tract of the Seibold street segment is: 0306.00



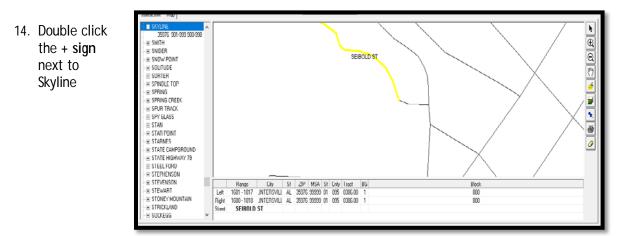


Seibold is now labeled.









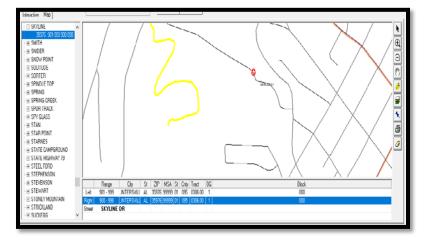
The software displays the street segments for Skyline Dr.

15. Double click the street segment Skyline 901-999 900-998

The software displays the street segment highlighted in yellow on the Map and census tract information in the grid below the map

The census tract of the Skyline street segment is: 0306.00

- 16. Click the Street Label tool
- 17. Click the **Skyline** street segment. The software labels the street segment **Skyline Dr**



With all the surrounding streets located and labeled on the map, you can now digitize the location of Blanchard Creek Rd. You also know that all street segments surrounding Blanchard Creek Rd fall within the same census tract 0306.00.

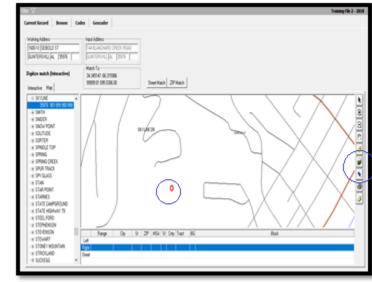
You will digitize the address directly in the center of all the surrounding streets.

To digitize the Blanchard Creek address, follow these steps:

- 18. Click the **Digitize** tool
- 19. Click in the center of the surrounding three streets

The software does the following:

- Geocodes the Blanchard Creek address to a Longitude and Latitude
- Changes the Geocode status message to: Digitize match (interactive)



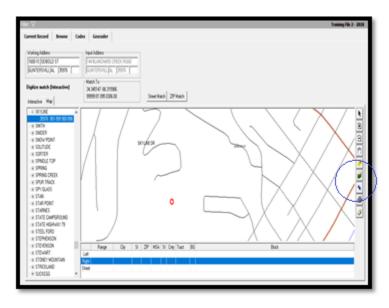
An orange line on the map represents a census tract.

Adding a Tract Layer to a Map

To ensure that all surrounding street segments truly exist within the same census tract (0306.00), you can add a Tract layer to the Map.

To add a Tract layer to the map, follow these steps:

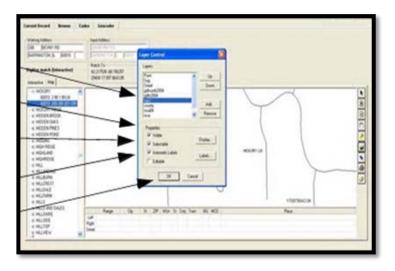
1. Click the Layer Control button



The software displays the available layers.

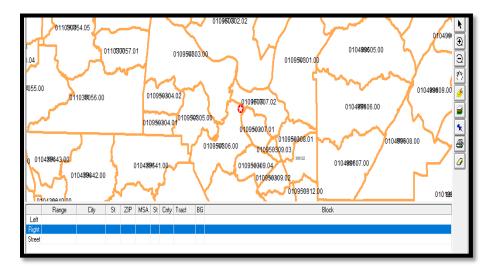
Select the following:

- Tract
- Visible
- Selectable
- Automatic Labels
- 2. Click OK

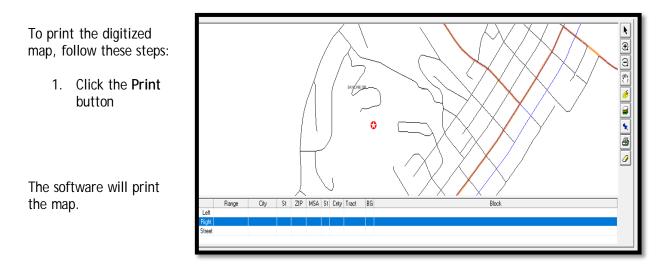


3. Click the on the Zoom Out button and click four times in the center of the map

The software now displays the census tracts boundaries and the FIPS code on the map.



Printing a Digitized Map



Updating Calculated Fields for Geocoding

Due to HMDA DF changes, the census tract and county codes now report in a different format. For CRA *Wiz* to update the information, you must Update Calculated Fields.

- 1. To update calculated fields
 - a. Click Browse
 - b. Click Edit Check
 - c. Click All Records

The system will update calculated fields.

2. Click OK when finished

3,983	Next	⇒ Lest	New Save	X Delete	(A) Find	Replace	≜↓ Sort	Geoc	(ode	Edit Check			
rowse	Codes	Geocoder	1										
Re	scordId LEI		Juu	Appinumb		AppiDate		LoanType	Purp	ose Preapprova			LoanAmou
_	123	4546789812348Q6	1234546789812348	Q6120097536		07/13/2018		2	1	2	1	1	125000
_	123	45A6789812348Q6	1234546789812348	Q6(20097866		06/30/2018		3	1	2	1	1	159000
	123	45A6789812348Q6	12345A6789812348	Q6120098735		08/12/2018		1	1	2	1	1	104000
	123	45A6789812348Q6	12345A6789812348	Q6120096941		05/05/2018		2	1	2	1	1	68000
	123	45A6789812348Q6	1234546789812348	Q6120098849		08/23/2018		1	1	2	1	2	124000
	123	45A6789812348Q6	1234546789812348	Q6120099237		09/15/2018		1	1	2	1	1	108000
	123	45A6789812348Q6	1234546789812348	Q6120099445		09/28/2018		2	1	2	1	1	102000
	123	45A6789812348Q7	1234546789012348	Q7120097324		06/01/2018		1	1	2	1	1	342000
	123	45A6789812348Q7	1234546789812348	Q7: 20096075		03/10/2018		1	1	2	1	1	417000
	123	45A6789812348Q7	1234546789812348	Q7120097174		05/13/2018		1	1	2	1	2	58000
	123	45A6789812348Q7	1234546789812348	Q7 20096996		05/02/2018		2	1	2	1	1	47000
	123	45A6789812348Q7	1234546789812348	Q7 20096631		03/26/2018		2	1	2	1	1	317000
	123	45A6789812348Q7	1234546789812348	Q7 20094955		11/17/2017		2	1	2	1	1	101000
	123	45A6789812348Q7	12345A6789812348	Q7:20097732		06/24/2018		1	31	2	1	3	338000
	123	45A6789812348Q7	12345A6789812348	Q7120094823		11/10/2017		1	31	2	1	3	81000
	123	45A6789812348Q7	1234546789812348	Q7120097306		05/31/2018		1	1	2	1	1	218000
	123	45A6789812348Q7	1234546789812348	Q7, 20096700		04/16/2018		1	1	2	1	1	70000
	123	45A6789812348Q7	1234546789812348	Q7 20094474		10/16/2017		1	1	2	1	3	32000
		45A6789812348Q7	1234546789812348	Q7 20095942		02/24/2018	CRA Wiz® & Fair Lending Wiz® Send Error				Send Error R	Report ×	
	123	45A6789812348Q7	1234546789812348	Q7: 20094777		11/19/2017		and the second second					
	123	45A6789812348Q7	1234546789812348	Q7120096244		01/08/2018 (1) Would you like to		ke to nin Edit (?	n Edit Check & Update Calculated Fields on the				
	123	45A6789812348Q7	1234546789812348	Q7:20095933		01/31/2018	selected record or the entire file?						
			1234546789812348			05/05/2018	NOTE: This operation will not be performed on any locked r						
	123	45A6789812348Q7	12345A6789812348	Q7 20096857		05/02/2018					locked records.		
_			1234546789812348			04/26/2018	8 Current Record All Records						
			12345A6789812348			06/23/2018				rds Cancel			
_			12345A6789812348			10/28/2018	1	1	I.c.	1			Long.
			12345A6789812348			07/20/2018		3	1	2	1	1	224000
			12345A6789812348			04/08/2018		2	1	2	1	1	151000
			1234546789812348			05/26/2018		2	1	2	1	1	72000
			1234546789812348			02/02/2018		2	1	2	1	1	235000
	123	454678981234907	1234546789812348	07/20095393		01/10/2018		2	1	2	1	1	154000

Chapter 5 - File Management

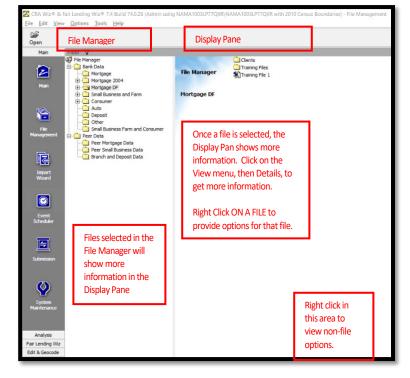
File Management is the module within CRA *Wiz* where users may perform necessary file related functions. Within File Management, users can back up loan data files, copy a LAR, append one file to another, and export a file out of CRA *Wiz*. Performing Edit Checks and Update Calculated fields will help to ensure the integrity and quality of the data within the file. Users can also set a file as the current file, rename a file, and modify the structure of the file.

Understanding File Management

You use the LAR Manager screen to manage your Wiz files.

The LAR Manager screen includes the following.

- File Manager Use the File Manager tree view to select the folders you want to display in the display pane
- **Display Pane** Use the Display Pane to display the contents of a folder you select in the tree view
- View Menu Click on View > Details to show other information, such as date last modified and whether the file is geocodable (also indicated by the blue pushpin)



Functions in File Management (right-click on file)

FUNCTION	COMMENTS
Set as Current File	Changes the file selected to the "Current File" (the utilized file)
Properties	Database name, creation date, record count
Browse	Opens file for viewing, but no edits allowed
Edit	Use instead of Edit & Geocode > Edit
Audit LAR	Available to those paying for the Audit features
Rename	Rename a file
Delete	Delete any file - as long as it isn't the "Current" file
Cut	Cut from a folder, Paste into a different folder
Сору	Make a Copy of a file, then "Paste" into same or different folder
Copy Codes Table	Copy the Modify Codes results between 2 files
Append to File	Appends 100% of records from one file to another
Copy with Filter	Performs a copy but applies a filter to the results
Update One File to Another	Takes contents from one file and "Updates" another file
	Creates a sample size the user selects or uses precision and reliability
Create Sample File	levels to produce a sample
Change File Type	Change from one Wiz file type to another
Run Edit Checks >	Runs the Edit Check routines after changes are made
Update Calculated Fields	Updates all Calculated Fields (rate spread, demographic information fields, etc.)
Update County Codes	Used to update the Alaska counties that changed in 2010/2011 and the Alaska and Virginia counties that changed in 2015
Modify ZIP Codes for RPO	Uses a database to change Zip codes for Rural Post Office addresses
Impute Gender Based on First Name >	Uses FirstName to proxy Gender
Impute Ethnicity Based on Last Name >	Uses LastName to proxy Ethnicity
Impute Race Based on >	Uses LastName to proxy Race
Impute BISG Race Based on >	Uses a combination of LastName and Address to produce a combined probability of being a particular race or ethnicity
Unlocate File	USE WITH CAUTION! Removes a file from the File Management listing (the user must know the Database name before doing this)
Transfer/Backup	Creates an encrypted file that is smaller in size and puts it into a chosen folder (outside the Wiz tool)
Modify Structure	Allows for addition, deletion or modification of fields in a file
Export File	A user can export a file by selecting the file type, location, and fields, and records to be exported. Export formats can be saved for future use

Functions in File Management (NOT on a file)

FUNCTION	COMMENTS
New File	Allows a new file to be created.
New Folder	Allows for a new folder to be created. Automatically places the folder within the sub-folder showing in the left panel
Paste	Allows a copied file to be placed or "pasted" in the folder selected
Copy with Filter	Performs a copy but applies a filter to the results. It prompts for both the source and target files
Update One File to Another	Takes contents from one file and "Updates" another file. It prompts for both the source and target files
Locate File	Allows for "Unlocated Files" to be relocated so long as the user knows the database name "Wiz_000xxx". The user will select the database name and the file will appear in the list of files
Install/Restore	If a file was "Transferred" using Transfer/Backup, use this option to locate the file and bring it back to a location of choice.
View >	Changes the file listing from the default (list), to Large Icons, Small Icons, or Details (which provides the last modification date and whether the file is Geocodable)
Arrange Icons >	Arranges the file listing in Name, Geocodable, or Modification Date

Transfer \ Backup a File

The Transfer function is a utility that places an encrypted, compressed copy of the selected file in any location the user chooses. Once the file has been transferred, a user can retrieve it by using the Install function.

To backup/transfer a file, follow these steps:

- 1. Right-click on Training File 1 file
- 2. Select Transfer/Backup from the menu

<u>File Edit View Options Tools H</u> elp			
0pen			
Main Filter 🗸			
🐼 File Manager	Clients		
Wart Berk: State Martin Mortgage Berk: State Mortgage Marting Difference Berk: State Mortgage Berk: State Difference Berk: State Difference	File Manager Transform Server Name NaMA 1003,P77208 (VAM Database Name Way 20086 Full Path Bark Duta Mortgage DF(Transform File 1	Set as Current File Properties Browse Edit Audit LAR Regame Delete Cut Capy Copy Codes Jable Append to File Copy with Eilter Update One File to Another	
Event Schedder		Create Sample File Change File Type Run Edit Checks Update Calculated Eields Update County Codes Modify ZIP codes for RPO Synchronize with Web Map	>
System Mantenance		Impute Gender Based on First Name Impute Ethnicity Based on Last name Impute Race Based on Impute BISG Race Based on BISG LAR Comparison Report	> > >
Analysis		Unjocate File	
Fair Lending Wiz		<u>T</u> ransfer/Backup	
Edit & Geocode		Modify Structure Export File	

3. Navigate to the folder where you would like the file to be stored, provide a name and click the Save button

Organize 🔻 New folder					•== •	0
☆ Favorites	^		Name	Date	modified	Туре
Desktop			REPLACE STATEMENTS	5/12/	2015 12:09 PM	File fol
🐌 Downloads			TRAINING FILES	1/26/	2016 4:19 PM	File fol
🕮 Recent places						
🖳 This PC						
膧 Desktop						
Documents						
🗼 Downloads						
🕆 Living Room						
Music						
E Pictures	~	<	c			>
File name: Training File 1 BACKUP COPY.d	lat					¥
Save as type: Data File (*.dat)						~
) Hide Folders				Save	Cance	el

Transfer/Back up allows the user to create and save a copy of the file in a location other than CRA Wiz.

Copy/Paste a LAR

Wolters Kluwer strongly recommends all users make a copy of a file before any modifications are made to the file.

There are two different methods for copying files:

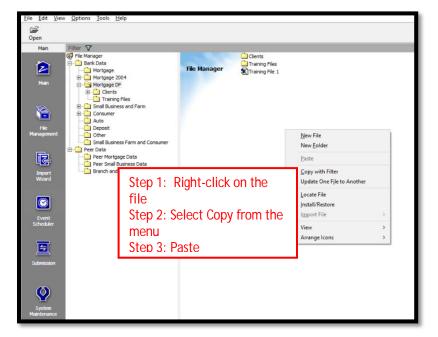
- Copy (including Copy with Filter) copies the file within CRA Wiz
- Transfer/Backup creates a copy of the file in any location the users chooses. If the original file is damaged, you would delete the damaged file, and use the Install/Restore function to recreate and restore the file to its original condition

To copy a file, follow these steps:

- 1. Right click on the file you wish to copy
- 2. The contextual menu will appear. Select Copy
- 3. Right click in the open area (not on a file)
- 4. Select Paste from the contextual menu

The software names the new file to the file name with "(001)" at the end and places the copy in the folder.

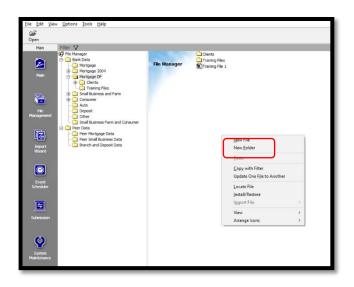
By pasting the copy in the same location as the original, a numeric value is added to the file



name. (001) represents the first copy. The software makes a duplicate of the file.

Create New Folder

1. Right click anywhere in the display pane



2. Select New Folder from the contextual menu

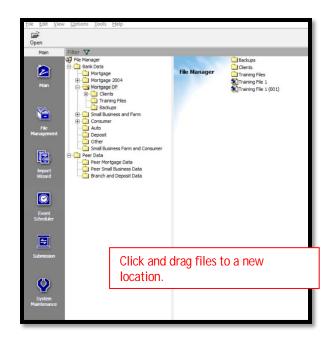
The software creates a subfolder under the file type.

3. Rename the New Folder Backups



Relocate a File

 Left click on the file you wish to relocate and drag the file into the Backups folder



Copy with Filter

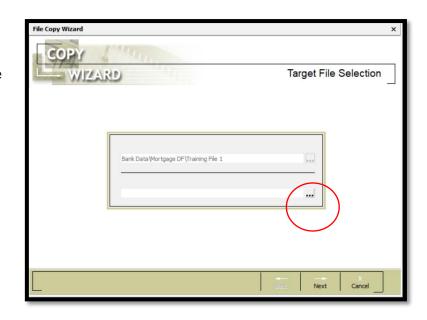
Copy with filter can be a useful method for creating a new file with fewer records - records that are specific to what the user needs to analyze. For example, for a fair lending pricing analysis a new file could be created containing only originated (funded) loans. The most likely reason to do this would be to reduce the number of records by removing all other actions.

Copy with filter can also be used on Peer Mortgage Data, copying applications from specific lenders that the institution compares itself against.

- 1. To create a file with originated loans only:
 - a. Right-click on Training File 1
 - b. Select Copy with Filter from the menu



2. The Source File and Path is already selected. Click the Ellipsis to set the new file's directory and provide a name



- 3. Navigate to the folder where the copied file to go
- 4. Provide a File Name
- 5. Click the Save button
- 6. Click NEXT

2							×
Save in:	Mortgag	e DF		•	-	X	f 🎟 👻
Bank Data	Clients						
	Training training Sample F						
Mortgage	Training						
î							
Mortgage 2004							
Mortgage DF	File <u>n</u> ame:	Training File with Filt	er			•	<u>S</u> ave
Peer Data	File type:	All Files				•	Cancel

The next step is to select the columns to be copied. Most of the time all columns will be selected, but you can choose to select any column(s) you want in the copied file.

- 1. For this example, only a certain column will be selected, such as APPLNUMB
 - a. In the Source column next to the Target name of the field you would like to select, click <None>
 - b. Click the down arrow to open the drop-down list
 - c. Type as much the file name as needed to see it in the list
 - d. Click the matching field

CO	PY WIZARD				Se	lect Columns to I	be Copied
Import	Target	Source	Туре	Scale	Dat	ta Preview	^
	Race	<none></none>	Char	1	D	Example shows s	electing the
	CoaRace	<none></none>	Char		D	Application Numb	
	RecordId	<none></none>	Char		0	only	
	Instit_id	<none></none>	Char		D		
	AgencyCode	<none></none>	Char		0	Step 1: Click "NO	
	Applnumb	1 <none> 👻 2</none>	Char		0	Step 2: Open the Step 3: Type "API	
	ApplDate	ApplDate ApplDate NA	^ ;e		D	Step 4: Click on /	
	ApplDate_NA	ApplicationType	lean		0		
	LoanType 3, 4	4 Applnumb Appraised	ar		0		
	Property_Type	APR Assessment	ar	1	D		
	Purpose	AUSFinding	✓ ar	1	0		~
A	uto Map Remaining Co	olumns L	Jnmap All			rst Prev Next	

- 2. To select all columns, click the blue link Auto Map Remaining Columns
- 3. Click NEXT

Import	Target	Source	Туре	Scale	Data Preview	^
•	Race	Race	Char	0	6	
✓	CoaRace	CoaRace	Char	0	6	
✓	RecordId	RecordId	Char	0		
~	Instit_id	Instit_id	Char	0		
✓	AgencyCode	AgencyCode	Char	0	2	
~	Applnumb	Applnumb	Char	0	20095010	
•	ApplDate	ApplDate	Date	0	11/29/2013	
✓	ApplDate_NA	<none> 👻</none>	Boolean	0	False	
✓	LoanType	LoanType	Char	0	1	
•	Property_Type	Property_Type	Char	0	1	
✓	Purpose	Purpose	Char	0	1	~

The "Filter File to be Copied" screen is next. Here, a user can copy any column, multiple columns, combinations of required fields and User-Defined Fields.

- 1. Open the Loan Information folder (by clicking the + sign or double-clicking anywhere in the name of the folder)
- 2. Open Loan Information
- 3. Open Action Taken
- 4. Select Loan Originated
- 5. Click Next

File Copy Wizard					>
COPY					
WIZARD		Filter Fi	le to be	e Copied	
	Filter string is:				
Filter Selection Clear	· · · · · · · · · · · · · · · · · · ·				
Filter Name					
Current Filters Saved Filters					
Edit Checks					
User Defined Variables Loan Identifier Information					
E Application Date					
🗈 💼 Loan Type					
⊡ Loan Purpose ⊡ Preapproval					
🗈 🛅 Loan Amount (in thousands)					
Action Taken ✓					
				Х	1
_		Back	Next	Cancel	J

The "Thank You" screen contains a summary of the actions you are about to take, which also includes the filtering information.

6. Review the information to ensure it looks correct. If so, click the **Finish** button, if not click the **Back** button and correct the incorrect information

File Copy Wizard		×
СОРУ	La L	
WIZARD		Thank You
		-
	sfully specified the information necessary for e selection below and click 'Finish' to copy	
Summary		
Source File	Bank Data\Mortgage DF\Training File 1	6
Target File	Bank Data\Mortgage DF\Training File 1	Originations Only
Filter	Action Taken is Loan originated	
		- <u>A</u> ×
		Back Finish Cancel

Update One File to Another

In the Import chapter, users learned how to "Update" an existing file with information from a new source. In the same manner, users can use an existing file to "Update" another file.

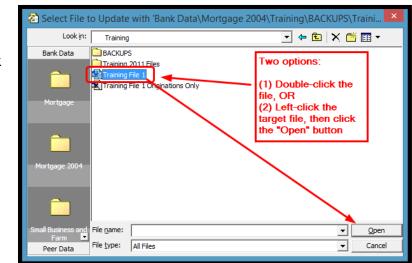
The fields must be the same name and same format in both files (both files must contain the field Cust_Credt, for example, and both must be Integer fields)

- 1. To update a field from one file to another:
 - a. Navigate to the folder location of the file you wish to update the Target file with. In this example, the BACKUPS folder
 - b. Right-click on the file
 - c. Select Update One File to Another
 - d. On the Select File or Update screen, click the Ellipsis



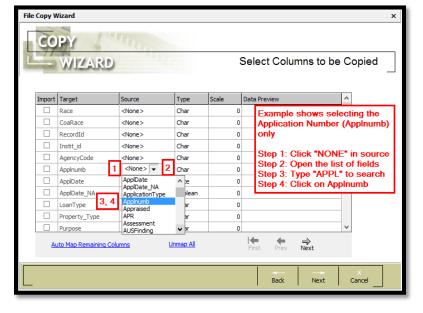
	APPEN PARA	Select File for Update
N Second	- Internet	
	Select the target file you want to update with da For additional information, press the F1 key on you	ata in the source file. iur computer keyboard.
	Bank Data Wortgage DF (Badups (Training File 1 (0	01)
	Bank Data Mortgage DF/Badrups/Vraining File 1 (0	001) and
	Bank Data Wortgage DFiBadups(Traning File 1 (0	001)

e. Select the file as the target by doubleclicking on it, or single-click, then click Open



To perform an update on a file, the "Key" field must be included in both and selected. The key field drives the update process by selecting the appropriate record to update, then applying your changes to that record.

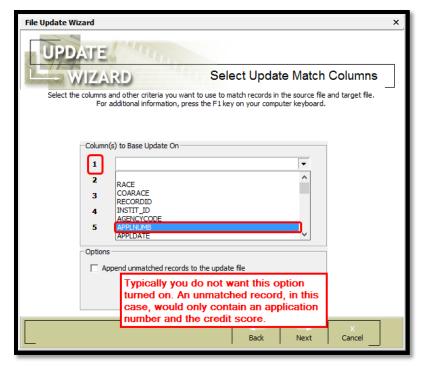
- 1. For this example, only a certain column will be selected, such as APPLNUMB
 - a. In the Source column next to the Target name of the field you would like to select, click <None>
 - b. Click the down arrow to open the drop-down list
 - c. Type as much the file name as needed to see it in the list
 - d. Click the matching field



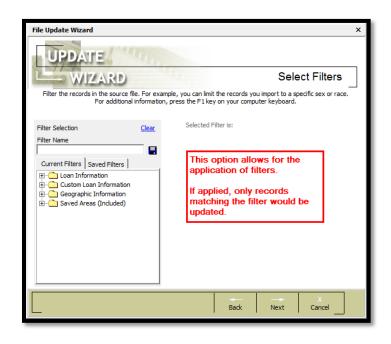
- 2. Then add the next field that needs to be updated. To do so, scroll down through the list of fields until you reach the field, such as Cust_Credt
 - a. In the Source column, click on <None>
 - b. Type Cust_Credt until it appears in the list
 - c. Select Cust_Credt from source
- 3. Click NEXT

File Updat	e Wizard					×		
U	UPDATE							
P-15	WIZARD		Selec	t Colun	nns to be	Updated		
	Select the target file columns (fields) you want to update with new data from the source file. For additional information, press the F1 key on your computer keyboard.							
Import	Target	Source	Туре	Scale	Data Preview	^		
	Imprt_Trct	<none></none>	Char	0				
	Branchnumb	<none></none>	String	0				
	Age	<none></none>	Integer	0				
	Coa_Age	<none></none>	Integer	0				
	Cust_credt	<none> ▼</none>	Integer	0				
	LTV	Cust_credt Denial1	^ neric	0				
	FERatio	Denial2	neric	0				
	BERatio	Denial3 Discount802	neric	0				
	NoteRate	Documentation EditStatus	neric	0				
Auto M	lap Remaining Columns	EscrowWaiver	First		⇒ Next			
				Back	Next	X Cancel		

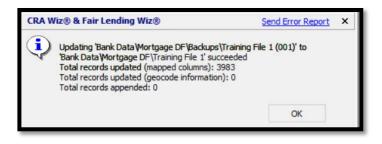
2. In the Select Update Match Columns, Column 1, select the "key" field that will be the match factor. In this example, Application Number or APPLNUMB



- No filters are being applied at this time, but filters could be applied
 Click NEXT
- 4. Click NEXT
- 5. The next screen is the FINISH THE UPDATE screen. Click the Finish button



6. The summary should show an update of the total number of records in the file. Click **OK**



Create a Sample File

Within File Management you have the ability to create a totally random sample of your file. Reasons for creating a sample file may include fulfilling a request by an examiner or for fair lending review purposes.

The following exercise uses 'Numerical Sampling'. Numerical Sampling uses an interval sampling, meaning that based on the Precision Level and Reliability Level selected records will be selected at certain intervals.

Standard sampling allows a user to select a random sample based on a specific sample size requested.

To create a sample file, follow these steps:

 Right-click the file you wish to use to create a sample

	2011 Files Right-click on file
File Manager	
	Create Sample File Change File Type

 For this example, select Numeric Sampling with a 5% Precision Level, combined with a 95% Reliability Level

If you wanted to use Standard Sampling of 5%, for example, you would set a sample size of 5% of the records in the file

3. Click OK

Sampling of 'Training File 1'	×	•
C Standard Sampling	60	
Numeric Sampling Precision Level 5% 10%	Reliability Level	
	Ok Cancel	

Export a File

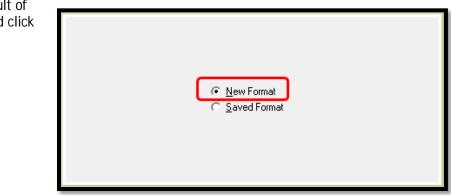
There may be times when users may wish to export from CRA *Wiz* to view, change or add additional fields to the data.

Users can export all or just selected fields, all or filtered records and choose whether to save the Export Format for future use.

- 1. For this example, a sample of records (denied applications) and fields will be exported instead of the whole file
 - a. Right-click the file to be exported
 - b. Select Export File from the contextual menu

	BACKUPS		
File Manager	Training 2011 Fi	iles	
Right-click "Training File 1"	Training File 1	Set as Current File Properties Browse	
Server Name MA10LP520632\SQLEXF	PRI	Edit Audit LAR	
Database Name Wiz_00122		Rename Delete	
Full Path Bank Data Wortgage 2004 (Training (Training File 1		Cut Copy Copy Codes Table	
Notes		Append to File Copy with Filter Update One File to Another	
		Create Sample File Change File Type Run Edit Checks Update Calculated Fields Update County Codes Modify ZIP codes for RPO Synchronize with Web Map	Þ
		Impute Gender Based on First Name Impute Ethnicity Based on Last name Impute Race Based on Impute BISG Race Based on	+ + +
		Unlocate File Transfer/Backup Modify Structure	
	(Export File	

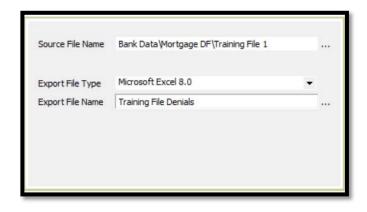
c. Accept the default of New Format and click the Next button



- d. Click on the Export File Type drop down list
- e. Select the format you wish to export to from the drop-down menu

Source File Name	Bank Data (Mortgage DF \Training File 1	
Export File Type	Text	
Export File Name	dBase IV dBase/FoxPro Family Microsoft Access Microsoft Excel 8.0	
	Text	

- 2. Click the Ellipsis to define an Export File Name
 - a. In the desired folder provide the name of the export file
 - b. Click Next



- For this example, only limited fields for export will be selected. For each one, click in specified Row on the Source <None> and type the first few letters of the field you are looking for:
 - a. Applnumb b. LoanType c. Purpose

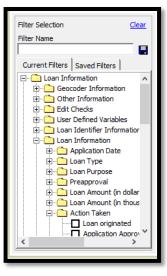
 - d. LoanAmount
 - e. Action

	Target	Source	NA Option	Туре	Nullable	Size	Precision	Scale	Data Preview
	DatasetId	<none></none>	None	Double		8	0	0	
	RowId	<none></none>	None	Double	~	8	0	0	
	RecordId	<none></none>	None	String	~	2	0	0	
	LEI	<none></none>	None	String		20	0	0	
	ULI	<none></none>	None	String		45	0	0	
	Applnumb	Applnumb	None	String	~	25	0	0	20097536
	ApplDate	<none></none>	None	String		50	0	0	
•	LoanType	LoanType	None	String		1	0	0	2
•	Purpose	Purpose	None	String	•	2	0	0	1
•	Preapproval	LoanAmount	None	String	~	1	0	0	125
	ConstructionMethod	<none></none>	None	String		1	0	0	
	OccupancyType	<none></none>	None	String		1	0	0	
	LoanAmountInDollars	<none></none>	None	Double	•	8	0	0	
	LoanAmount	<none></none>	None	String		50	0	0	
•	Action	Action 👻	None	String 👻		1 :	0	0	1
<				1					
Auto M	ap Source and Target Co	kuma Liamaa All							

- 4. Scroll down to continue
 - a. Denial1
 - b. Denial2
 - c. Denial3
 - d. Denial 4
 - e. DenialOther
- 5. Click NEXT

Export	Target	Source	NA Option	Туре	Nullable	Size	Precision	Scale	Data Preview
	CreditScore	<none></none>	None	String	•	50	0	0	
	Coa_CreditScore	<none></none>	None	String	•	50	0	0	
	CreditModel	<none></none>	None	String	•	1	0	0	
	CreditModelOther	<none></none>	None	String	•	100	0	0	
	Coa_CreditModel	<none></none>	None	String		2	0	0	
	Coa_CreditModelOther	<none></none>	None	String		100	0	0	
V	Denial 1	Denial 1	None	String		2	0	0	10
•	Denial2	Denial2	None	String	•	1	0	0	
•	Denial3	Denial3	None	String	•	1	0	0	
V	Denial4	Denial4	None	String	•	1	0	0	
v	DenialOther	DenialOther 👻	None	String 👻	v	255	•	0	
	TotalLoanCosts	<none></none>	None	String	•	50	0	0	
	TotalPtsAndFees	<none></none>	None	String	•	50	0	0	
	OrigFees	<none></none>	None	String	•	50	0	0	
	DiscountPts	<none></none>	None	String	•	50	0	0	
<			1	1	1		1		
Auto M	Iap Source and Target Colu	umns <u>Unmap All</u>							

- 6. On the Select Filters screen
 - a. Open the Loan Information folder
 - b. Open the Loan Information sub-folder
 - c. Open the Action folder
 - d. Select Denied
- 7. Click NEXT



- 8. Place a checkmark next to Export Now
- 9. Click Finish
- 10. Click **OK** when the export summary appears

itor 🗸			Training File 1 - 201
WIZARD	There are two functions on this screen. You can save the regar formal and/or begin experting records.		Finish the Export
	Summary Information: ^ • Source frie State Destrictopop Offitams frie 1 Dentement 102, 20007 • Their Action Tester is Application Gened • V		
	☐ Save the defined report formal ☐ <u>booth new</u>		
		Back	Finish Cancel

If you think you will be repeating this Export later, you can save the Export Format. Provide a descriptive name in the text box, along with the checkmark in the "Save the defined export format" box

Accessing the Edit Screen

To access the Edit screen, follow these steps:

- 1. Click the Edit & Geocode tab
- 2. Click the Edit button
- 3. First time in the file, the software displays the Current Record tab

- Y					-		-							H.W	Training
urrent Record E	Brows	e Codes	Geocor	ler											
Loan and Property Infe			informatio	Underwriting and	Pricing In	formation									
Loan Identifier 1	Inform	sation													
Legal Entity Identit	fer			Application Number											
FakeLEI				20095010											
Universal Loan Ide	entifier			NMLSR Identifier											
FekeLE120095010	337														
Loan Informatio									Property Infor	mation					
Application Date		Loan Type		Loan Purpose		Loan Amount in	Dolars		Address		City		State Abry	Zo	Zp 4
11/29/2017		1	•	1		356000			1145 HAMILTON	ESTATES DRIVE	KENNESAL	N	GA	30152	
Action		Action Date		Purchaser		Pre-Approval			State	NSA					
4		02/01/2018		0		3		•	13	 12060 	•				
Denial 1		Denial 2		Denial 3		Denial 4			County	County5		Tract	3	ractii	
(none)	•	(none)	•	(none) •		(none)			067	• 13067		0302.58	•	130670302	18
Denial Other		Loan Term		Prepayment Penalty Ter		Introductory R	ate Period		Occupancy Type			Construction	n Method		
		360	Months		Months	NA		Months	1		•	1			•
HOEPA Status		Lien Status		Submitted Directly to In	stitution?	Initially Payable	e to your in	ristitution?	Manufactured H	me Secured Prop	verty Type	Manufacture	ed Home Sea	red Proper	ty Intere
2	•	1		(none)	•	(none)		•	(none)		-	(none)			
Balloon Payment		Reverse Mortga	*	Interest-Only Payment		Open-End Line	ofCredit		Property Value	Total Unit	5	Multifamily /	Affordable		
2	•	2		2		2		•	445000	1					
Negative Amortiza	tion	Primarily for Busi	ness/Com	nercial Purpose		Other Non-And	ortizing Fea	stares							
2	•	2				2									
FPB V & S Edits:			œ	P8 Macro Edits:			Lock Stat	lus: Unlocked							
FFB Quality Edits:			Us	er Defined Edits:			Geocode	Match: 99							

Current Record Tab

The Current Record screen displays individual records in the loan file. The software displays record data in fields and drop-down menus which can be used to modify data.

Use the Current Record screen to view individual records. For HMDA DF File, there are 3 tabs:

- Loan and Property Information
- Applicant Information
- Underwriting and Pricing
 Information
- Rate Spread Calculator is located in the Underwriting and Pricing Information Tab. Select Rate Spread Override check box to have CRA *Wiz* calculate the rate spread

Other file types will have one tab for the Current Record.

Rate Spread C	Calculator-						Rate Spread O	verride
Rate Lock Date	APR				APOR		APOR Date	
11/01/2018	3.71	%			4.9	%	10/29/2018	
Rate Type	Loan Term		Variable Term	1	Rate Spread		Raw Rate Sprea	ad
1 🔹	30	Years		Years	-1.190	%	-1.19	%
							Calculate	-

Edit Screen

Browse Tab

The **Browse** screen is used to view records in your loan file in a spreadsheet format. Records in the Browse screen can be modified by selecting data from either dropdown menus or by entering the information directly into a field. Users can also use the Replace Wizard to populate new or existing fields.

- 1. Click the Browse tab
 - Column Headings Right-click any column heading to display a contextual menu with commands for hiding and displaying columns, modifying codes, and locating a field
 - Selection Buttons Use to select a record. The software highlights the record you

Filte	er (7						
C	urr	ent R	ecord	Browse	e Codes	Geocode	r	
							I	
		Race	CoaRace	RecordId	Instit_id	AgencyCode	Applnumb	ApplDate
-		6 🔻	6		_	2	20095010	11/29/2013
_		3	8			2	20095012	11/30/2013
		5	8			2	20095013	11/23/2013
		5	8			2	20095021	11/30/2013
		5	8			2	20095025	12/08/2013
		5	8			2	20095037	12/01/2013
		5	8			2	20095045	12/01/2013
		5	8			2	20095052	10/26/2013
		5	5			2	20095053	12/02/2013
		3	8			2	20095056	11/20/2013
		5	8			2	20095057	12/02/2013
		5	8			2	20095061	12/02/2013
		5	8			2	20095063	12/03/2013
		3	8			2	20094918	11/10/2013
		3	8			2	20094927	11/20/2013
		5	8			2	20094931	11/23/2013
		4	8			2	20094936	11/19/2013
		2	8			2	20094945	11/20/2013

select. The software also indicates the record with a small arrow that displays in the selection button. You can also click on any field to select a record

c. Edit Checks Display Area - Displays quality, validity, and geocoding errors in a loan record

Codes Tab

The codes tab displays user defined loan field codes in a spreadsheet format. Users can modify codes as needed. Code information includes the name of the field associated with the code, code name, values, dates, and detail. The codes tab includes the following elements:

> Columns - Display user-defined field code variables. By default, CRA Wiz displays a custom code for action date and application date by quarter; however, users have the ability to edit the codes to fit their date preference

Filter 🖓							
Current Red	cord Br	owse C	odes G	eocoder			
VARNAME	CODEID	CODENAME	VALUEFROM	VALUETO	DATEFROM	DATETO	DETAIL
ActionDate	1	1st Quarter			2018-01-01	2018-03-31	
ActionDate	2	2nd Quarter			2018-04-01	2018-06-30	
ActionDate	3	3rd Quarter			2018-07-01	2018-09-30	
ActionDate	4	4th Quarter			2018-10-01	2018-12-31	
ApplDate	1	1st Quarter			2018-01-01	2018-03-31	
ApplDate	2	2nd Quarter			2018-04-01	2018-06-30	
ApplDate	3	3rd Quarter			2018-07-01	2018-09-30	
ApplDate	4	4th Quarter			2018-10-01	2018-12-31	
rate_spread	1	1.50 - 1.99*	1.50	1.99			
rate_spread	2	2.00 - 2.99	2.00	2.99			
rate_spread	3	3.00 - 3.99	3.00	3.99			
rate_spread	4	4.00 - 4.99	4.00	4.99			
rate_spread	5	5.00 - 5.99	5.00	5.99			
rate_spread	6	6.00 - 6.99	6.00	6.99			
rate_spread	7	7.00 - 7.99	7.00	7.99			
rate_spread	8	8.00% & Ab	8.00	9999999999.			

Update Calculated Fields and Edit Checks

The CFPB (HMDA) and the FFIEC (CRA), issue a series of edit checks for HMDA and CRA files. Each edit must be reviewed and corrected prior to submission each year. Within the File Management module of CRA *Wiz*, there are two functions that will update the file:

- ✓ Run Edit Checks Runs all edit checks against the records within the file. This function updates the status of any edit checks that were previously identified in the file based on any new modifications and/or changes that may have made to the file
- ✓ Update Calculated Fields There are critical fields contained in a file, depending on a file type, that track Race, Ethnicity, Gender, Age, the applicant's income level (Appl_incm_perc, Appl_incm_catg), the tract income level (PercMedian, Trct-incm_catg), the tract minority level (PercMinor, Mnrty_trct), reportable Rate Spreads (Rate_Spread), and Raw Rate Spreads (Raw_Rate_Spread), Revenues (Revcatg) (based on Revenues or an imported number), and Size Category based on the Loan Amount field (SizeCatg)

Ensure that the Options > Year is pointing to the same year as the Action Dates in the file so the correct edit checks will be applied to the current file.

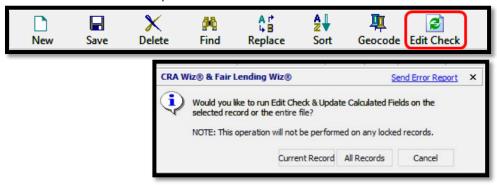
There are three ways to run Edit Checks:

• Option 1: On the Edit Module Toolbar, click on the Edit Check button. The system will perform the Edit check on the current record

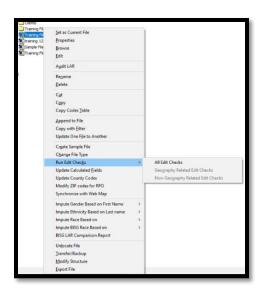


Training File 1 2014

• Option 2: While in Browse view, click on the Edit Check button. The system will ask if you wish to run Edit Check and Update Calculated Fields on the selected records or entire file. The current record or entire file will have Edit Checks performed based on selection



• Option 3: Within File Management, right-click, and select Run Edit Checks, then select All Edit Checks



Understanding Editing Functionality

To ensure an accurate HMDA/CRA analysis and an error-free submission to the regulatory agencies, data must be checked for errors. If certain types of errors are found, they must be corrected prior to submission. The CRA *Wiz* Edit functions provide you with automated data validation by supplying the same predefined filters used by the CFPB and FFIEC to check your data.

CRA Wiz supports four types of errors/edits:

Error Name	Example	Error Definition
Syntactical	Action year is 2018, activity year is 2019	Flags records with errors that will prevent the user from submitting. Often an incorrect year or missing application number.
Validity	Action code is missing or not in range 1-8	Flags data that is out of range of specified parameters, or field is blank. The government requires institutions to correct all validity errors before submitting loan records.
Quality	Applicant Income <=\$9 thousand	Flags data that is an unexpected result, but that is not necessarily a validity error. You can submit loan records with quality errors. The government will notify you if any quality errors are found.
User-Defined	Used to set up user-defined error checks that will flag certain ratios, credit scores or CLTV values as errors before continuing	Users can create their own error checks to flag records for data problems or as a tracking tool.
	Credit Score > 850 CLTV > 125 for originated loan	

Summary Exception Report

To generate the Government Exception Summary report, follow these steps:

- 1. Click the Browse tab
- 2. Click the Edit menu
- 3. Select the Gov't Exception Summary Report (All)
- 4. Close the Report

This report lists all edit types found in the active file and may consist of Syntactical, Validity, Quality and User-Defined edits. The report provides the error codes, error code description and the number of records. Transaction level exceptions can be found in the detailed reports or can be produced in HMDA DF Reports. Any record with a Validity or Syntactical error should be resolved.

File	Edi	t View Options Tools Help		
		Add New Record		D .
Ор		Delete Current Record		New
		Geocode Current Record	1.1.2	
		Geocode Current Record		
		Next Record	ocode	r
Fair		Prev Record		
Edit		First Record		
			C. I.	1 la
		Last Record	yCode	Applnumb 20095010
		Geocode Exception Report (All)	L	20095010
				20095012
		Geocode Exception Report (Exclude Zip Matches)		20095021
		Gov't Exception Summary Report (All)		20095025
		Gov't Exception Summary Report (Group By)		20095037
		Record Level Exception Report (Group By)		20095045
				20095052
		Gov't Exception Detailed Report (All)		20095053
		Gov't Exception Detailed Report (Group By)		20095056
		Geocoding Statistics Report		20095057
		· · ·	L	20095061
		LAR Report (Regular)		20095063 20094918
		LAR Report (Public LAR)	<u> </u>	20094918
		Custom LAR Report		20094927
				20094936
		Summary Change History Report		20094945
		Record Detail Change History Report		20094946
		5 8 2	1	20094949

HMDA DF Reports

HMDA DF Reports are located in the Analysis section of CRA *Wiz*.

1. Click Analysis Tab



There are two sections within the HMDA DF Report writer:

- HMDA/CRA Submission
- Standard Reports

To generate a report:

- 2. Click on CFPB Edits Summary and/or Edit Record & Detail Exception Report
- 3. Click generate
- 4. Resolve any record with Syntactical or Validity edits

	nerate Report	
	DA/CRA Submission	
	CFPB Edits Summary	
	his report provides a summary of all CFPB codes that appear within the file, allowing you to quickly prioritize which areas of the file that will need the nost data scrubbing/editing	
	Loan Application Register - HMDA DF	
	ryour management team of a CPOP examiner would like to see the list of your HMDA DF loans in your flie, this report organizes the entire file into a ecord by record list of loans that display required HMDA DF information. This report can only be generated in CSV format upon selection. ■ Edit Record & Detail Exception Report	
	his report provides both summary and details of loan applications which contain edits.	
4 5	dard Reports	
	Standard Summary Report	
	he Standard Summary Report provides an overall measure for your lending distribution. This includes all applications, by race, ethnicity, gender, gplicant income level, tract income level, and tract minority level.	
	HMDA Underwriting and Pricing Analysis Report	
	The HMDM Underwriting and Prixing Analysis Report provides a summary of denied and withdrawn applications as a percentage of total applications, tako provides a lending statistical summary of 1st and 2nd liens. This summary is analyzed across race, ethnicity, minority status, income, gender, ract minority, and text income characteristics.	
	Pricing Summary Report	
	he Pricing Summary Report provides an overview of reportable vs. non-reportable rate spreads, as well as a detailed breakdown of raw rate spreads. 'his summary is analyzed across race, ethnicity, minority status, income, gender, tract minority, and tract income characteristics.	

- **CFPB Edits Summary** will provide a total of syntactical, validity, and quality edits within the HMDA DF File
- The Loan Application Register HMDA DF will provide the entire HMDA LAR in csv format
- The Edit Record and Detail Exception Report will provide transaction level edits with the applicable data field, the current data value and the relevant edit
- The Standard Reports are also found in the Fair Lending *Wiz* module under Fair Lending Reports

CFPB Edits	Summary	
Training Fil	le 1	
Active Filter	ni	
Error Code	fror Code Description	Records
0607	Rease review the information below and update your file. If needed,	Accertai
	1) If Lien Status equals 2, then Loar Amount generally should be less than or equal to \$250 thousand (entered as 250000)	
Q615	Rease review the information below and update your file, if needed.	112
	 If Total Loan Costs and Origination Charges are not reported NA, then Total Loan Costs generally should be greater than Origination Charges. 	
	 If Total Points and Fees and Origination Charges are not reported NA, then Total Points and fees generally should be greater than Origination Charges. 	
0616	Rease review the information below and update your file, if needed.	
	 If Yotal Loan Costs and Discount Points are not reported NA, then Tatal Loan Costs generally should be greater than Discount Points. 	
	 If Total Points and Pees and Discount Points are not reported NA, then Total Points and Fees generally should be greater than Discount Points 	
0617	Rease review the information below and update your file, if needed, 1) If Combined Loan-to-Value Ratio and Property Value are not reported IXA, then the	905
	() in Compared Loan-to-value realize and interperty value are not reported in, men the Combined Loan-to-Value Ratio generally should be greater than or equal to the Loan-to-Value Ratio (calculated as Loan Amount divided by the Property Value).	
0428	Rease review the information below and update your file, if needed.	100
	 If Loan Purpose equals 1, and Total Units is less than or equal to 4, then Loan Amount generally should be greater than \$13,000 (reported as 10000). 	
0629	Rease review the information below and update your file, if needed.	
	T) If Action Taken equals 1, 2, 3, 4, 5, 7, or 8, and Total Units is less than or equal to 4, and Loan Purpose equals 1, 2 or 4, then income generally should not be NA.	
	Total Number of Errors	1110
	Number of Syntactical Errors	
	Number of Validity Errors	

elected Reports: Edit Record & Det	ail Exception Report 🖕	Refresh	
4 4 1 of 130 🕨 🔰 🔶	8 😂 🖬 🗐 🖓 - 10	•	Find Next
Edit Record & Detail E	Exception Report		
Active Filters:			
Field Name	Field Value	Edit	
Application Number: 20093988			
Universal Loan Identifier: 12345A67	89812348Q941200939884	8	
Loan Amount	383000.00	Q607	
Lien Status	2	Q607	
Application Number: 20094329			
Universal Loan Identifier: 12345A67	89812348Q954200943293	7	
Loan Amount	113000.00	Q617	
Combined Loan-to-Value Ratio	86-000000000	Q617	

User-Defined Edit Checks

Within *Wiz, there is an option to create user-defined checks.* User-defined edit checks may be useful for an institution to monitor the data for "errors" that may not trigger a standard error defined by the CFPB or FFIEC, but may be an error for the institution, such as loan types or purposes that the institution does not offer, or ratio values that may be skewed.

For Training purposes, three statements will be added to the Edit Check routines to look for these conditions.

- 1. To create user-defined edit checks:
 - a. In File Management, right-click the file that you wish to add userdefined edits to
 - b. Select Edit
 - c. Select the Browse tab
 - d. Click the **Tools** menu
 - e. Select Define Edit Checks

🕗 CRA Wiz®	& Fair Ler	nding Wiz® 7.1 Build 71.0.82 (Admin using N	/IA10LP5206
File Edit View	Options	Tools Help	
Open First	P rev	Geocode an Address Find	/ Save
Main	Filter 😽	Replace	
Analysis	Current	Sort	
Fair Lending Wiz Edit & Geocode		Manage Custom Tabs	
Eart & Geocode		Define Edit Checks	
44	Rac	Turn off Quality Edits	ıb
	▶ 6	Lock Current Record	10

- 2. Click New
- 3. Enter a value for the error code. In this example, "301"
- 4. Click OK

٢	Image: Save Delete First Prev O of Next Last
Er	Error Code : Search for Find ror Description
¢	New Edit Check × Please enter a three-digit number for this error code, e.g.: OK 234, 434 etc OK Enter a 3-digit code for this error (document suggests 301 for BERatio < 1)
	301

- 5. In the Error Description, type a description of the error you wish to define. For this example, DTIRatio>100
- 6. Click the **Build** button to open the Expression Builder

New Save		First		1	of 1	Next	→ Last			
Error Code : Error Description			Search fo	r			Find			
DTIRatio>100										
Condition to pro	duce error.	Click on	the 'Build'	button	to define	edit chec	<pre>c expression</pre>	64	Build	
Condition to pro	duce error.	Click on	the 'Build'	button	to define	edit chec	< expression	64	Build	
Condition to pro	duce error.	Click on	the 'Build'	button	to define	edit checl	< expression	64	Build	
Condition to prov	duce error.	Click on	the 'Build'	button	to define	edit chec	< expression	64	Build	
Condition to prov	duce error.	Click on	the 'Build'	button	to define	edit checl	c expression	68	Build	
Condition to prov	duce error.	Click on	the 'Build'	button	to define	edit check	< expression	64	Build	

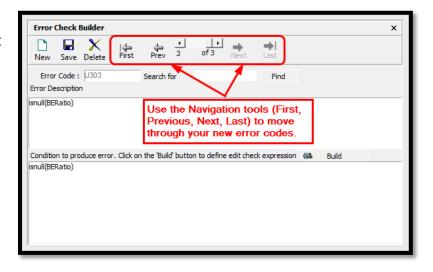
- Type the Expression used to find the presumed error: DTIRatio>100
- 8. Click Apply

Expression Builder		<u>Clear</u>	<u>Apply</u>	×
Select Expression Language C TSQL (VBSg	ript			
Column Selection				
CreditScore_NA Coa_CreditScore_NA Coa_CreditScore_NA CreditModelOther Coa_CreditModelOther Coa_CreditModelOther DTIRatio_NA DTIRatio_NA CITV CITV_NA AUSystem1 AUSystem1	Functions G:-Date G:-Date G:-Conditional -Numeric G:-General G:-String			
AUSystem3	*			
Use single quotes for T-Sql and double quotes for V	BScript if value is character type.		Validate	1
DTIRatio>"100"				~
Expression Creating Window				

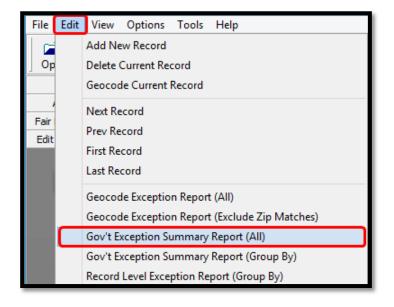
- 9. Click the Save button
 - a. Click **OK** to the message reminding you to "Run Edit Checks" after the new error checks are completed

Error Check Builder ×		
New Save Delete	InterestRate	APF
	4.375	5.1
Error Code : U301 Search for Find	4.125	4.4
Error Description	4.375	4.4
DTIRatio > 100	4.500	5.5
511/000 × 100	4.500	4.5
	4.250	4.9
	4.750	5.5
	NA	
Condition to produce error. Click on the 'Build' button to define edi Warning	Send Error Repo	ort X
To update all records for user defined edit of Edit Checks" in File Management	hecks, you must run OK	
	INA	
	NA NA	6.6

- 10. To add additional codes, Click New and add the next Error Code, for this example, "302"
- 11. In this case, the Error Description and Expression are identical: DTIRatio > 50 and Action= "1"
- 12. Click Save, a. Click OK
- 13. Click New again and add the next Error Code, for this example, "303"
- 14. In this case, the Error
- Description and Expression are identical: DTIRatio<43 and Action= "3" 15. Click New again and add the next Error Code, for this example, "304"
- 16. In this case, the Error Description and Expression are identical: DTIPatio
- 16. In this case, the Error Description and Expression are identical: DTIRatio<1
- 17. Click Save a. Click OK
- Close the Error Check Builder
- 19. On the Toolbar click the Edit Check button
- 20. Select **All Records** from the dialog box
- 21. Select Run Edit Checks
- 22. Click OK to the "...completely successfully" message
- 23. In the Menu (top of screen) click Edit
- 24. Select Gov't Exception Summary Report (All)







RESULTS:

U301	DTIRatio>100	26
U302	DTIRatio>50 and Action is 1	371
U303	DTI<43 and Action="3"	152
U304	DTIRatio<1	1

25. Close the Exception Report

Install a File

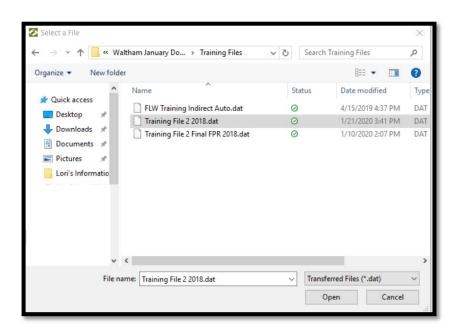
As we learned earlier in this chapter, the purpose of the **Transfer** function is to create an exact duplicate of a file in another location. The **Install** function installs the transferred file back on the local machine, or workstation. Since the **Transfer** function compresses the copy, the copy takes less space too.

To install a file, follow these steps:

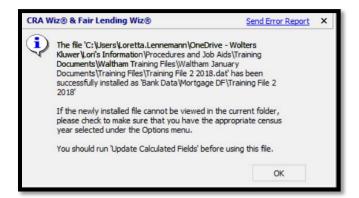
- 1. **Right-click** anywhere in the display pane
- 2. From the Contextual menu, select Install/Restore

Open 0					
Main	Filter 🗸				-
Man File Management	Per Nanoper Park Data Park Data	File Manager	Clents Control Contro		
Import Wizard	Peer Small Business Data				
import Wizard Event Scheduler	Peer Small Business Data			New File New Solder	
Event Scheduler	Peer Small Business Data				
	Peer Small Business Data			New <u>Folder</u>	
Event Scheduker	Peer Small Business Data			New Eolder Paste Copy with Filter	
Event Scheduler	Peer Small Business Data			New Eolder Poste Copy with Filter Update One Fije to Another Locate File Install/Restore	
Event Scheduker	Peer Small Business Data			New Eolder <u>Paste</u> <u>Copy with Filter</u> Update One Fije to Another Locate File	

 Double-click on the file to be restored, or singleclick on the file and
 a. Click Open



- 4. A lengthy message will pop up on the screen. Look for the words
 "...successfully installed..."
 a. Click OK
 - a. Check OK
- 5. In File Management, right-click on the file and Update Calculated Fields
 - a. Then select "Set as Current File"



Additional Functionality

Information on additional functions and features listed below can be found in the CRA *Wiz* Data Prep Training Manual

- Rename a File
- Properties
- Synchronize with Web Map
- Create New File
- Modify ZIPs for RPOs (Rural Post Office)

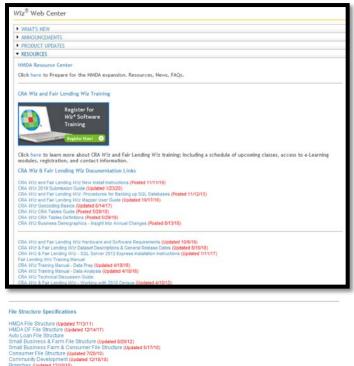
Chapter 6 - Edits Required for Fair Lending

Editing is the process of finding and correcting errors within your data file, not only for HMDA or CRA reporting, but to ensure the best possible data is available for fair lending analysis. The Edit screen can be used to find and correct errors in existing fields, as well as using functions such as Sort, Replace, Find, Delete and Filter to assist you further.

On January 1, 2018, new rules became effective for the Home Mortgage Disclosure Act. New fields were added to the required fields that must be submitted to the Government by March 1st each year. At Wolters Kluwer, we have been using a substantial number of these new fields for years to analyze fair lending patterns.

Data Needed for Fair Lending Analysis

Data needed to perform a robust fair lending analysis is dependent upon how the institution does business and what data is collected for analysis. A starting point for each type of data can be the File Type Structures listed on the Wiz Web Center which cover structure requirements, fields and recommendations for each field.



After familiarizing yourself with the file types, structure requirements, possible fields and recommendations, review your data to determine if you may need additional fields or if you have all of the relevant data.

Keep in mind that although some fields may allow text and descriptive fields, it may be very difficult to isolate and use, especially when conducting regression analysis. Regression must be able to perceive information as numeric values, not text.

Creating New Fields Using the "Modify Structure" Feature

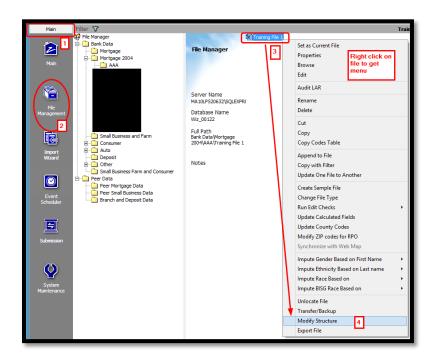
nunity Development (Up thes (Updated 12/18/18)

A Fair Lending Wiz user can create blank fields at any point - prior to an import, during an import, or after an import. You may remember that empty fields were created by including them in the imported file. We also created two new fields (remember FAKE_FIELD and FAKE_FIELD2?) by using the <Add New Column> feature in one of the import screens. The third method is to modify the structure of the database at the time you need to add a new field.

For this example, we will create three new fields, as follows:

- Investment, as an INTEGER field, from the OccupancyType HMDA field, Value= "3"
- SecondResidence, as an INTEGER field, from OccupancyType HMDA field, Value= "2" •
- Employee_Flag, as an INTEGER field, from Employee field, Value = "yes" or "employee" •

- 1. Click on Main
- 2. Click on File Management
- 3. Right click on the file you wish to update, for this example, Training File 1
- 4. Select Modify Structure



- 5. Click on the **Optional Columns** tab
- 6. Click on the Add button at the bottom of the window
- 7. With the Column00 highlighted in blue, type Investment
- Click in the Data Type column and change to Integer (Int) (the size automatically goes to 4, or max value of 9999)

Required Columns	Optional Columns	Indexes				
Name	Data Type	Size	Precision	Scale	Allow Nul ^	OK
ongitude	Decimal	5	9	6		Cancel
BlockGrp	VarChar	4				Apply
dtMCD	VarChar	5				Print
gdtPlace	VarChar	5				
nmwStat	VarChar	2				
entroid	Char	1				
CongDist	Char	2				
WizImportError	Boolean	1				1.000
<add column="" new=""></add>					~	Added

- 9. Repeat the process two more times, creating Integer fields called SecondResidence, and Employee_Flag
- 10. Click OK (or Apply, then OK)
- 11. Right-click on the file and select Edit (4th option)

		1				
Required Columns	Optional Columns	Indexes				
Name	Data Type	Size	Precision	Scale	Allow Nul ^	OK Cancel
mmwStat	VarChar	2				Cancel
centroid	Char	1				Apply
CongDist	Char	2				Print
WizImportError	Boolean	1				
Investment	Int	4				
SecondResidence	Int	4				
Employee_Flag	Int	4				

Introduction to Expressions

Within CRA *Wiz* there are two languages available for creating expressions: (1) VB Script (Visual Basic) and (2) T-SQL (Transact-Structured Query Language). Within each of those languages, there are an extensive number of possible expressions that can be written and utilized.

The two used most often are the IIF(, ,) and INSTR(, , ,) functions. Spaces after the IIF or INSTR are forbidden, but extra spaces between the commas in the expression are acceptable.

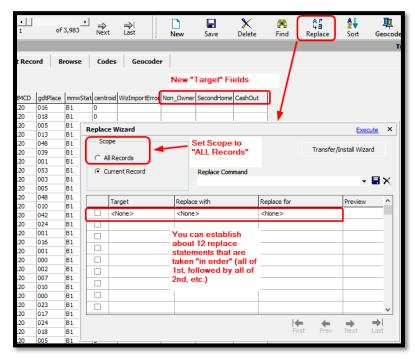
- IIF(,,) has 3 "arguments"
 - (1) WHAT condition to look for?
 - (2) What to do IF TRUE?
 - o (3) What to do IF FALSE?
 - Example: IIF(Occupancytype= "3",1,0)
 - Asks IF occupancytype = "3", then place a 1 in Investment, but if it isn't true put a 0 in Investment
- INSTR(,,,) has 4 "arguments"
 - (1) WHERE to start search?
 - o (2) Search in WHAT TEXT?
 - o (3) WHAT are you looking for?
 - o (4) Text or Binary Search?
 - It returns a numeric value if it finds the text
 - Example: INSTR(1, Employee, "Yes", 1)=1
 - Performs a Text search starting at the first letter of the Employee field, looking for word "Yes", and the "=1" means that it must be in the first position (leaving behind the nonemployee loans)

Replacing Data

Create replace commands (also called **expressions**) that find and replace data in the file based on the rules and conditions selected.

Use the Edit screen Replace Wizard to build replace commands. You can also save commands for later use.

- 1. In the Toolbar, click on Replace
- Scope use the option buttons to select whether you want to replace data in the currently selected record, or in your entire file
- Transfer/Install Wizard use to transfer a replace command for back up purpose or for use by another CRA *Wiz* user. You can also bring in replace commands created by other users
- Replace Command use this field to enter a name for the replace command and then save it
- Check box select to start building your command
- Target select the field in which you want to replace data



- **Replace with** use to access the **Expression Builder**. Use the Expression Builder to build an expression that specifies the data you want to use
- Replace for use to access the Expression Builder. Use the Expression Builder to build an expression that specifies the condition under which data should be replaced (and when it shouldn't be)
- Preview displays the data in the field you are replacing
- Navigation buttons use to display records in the Preview

- 2. Select ALL Records as the Scope
- Activate the first Target by placing a checkmark in the first column. (TIP: after opening the list of potential fields with the drop-down arrow, Type (don't scroll first) the first letters of the field you are looking for (in this case I N V) until the search for Investment is successful, then select the field)

Replac	e Wizard					Exec	<u>ute</u> >	×
	ope Il Records Jurrent Record		Replace Command		Transfer	/Install Wiza	rd EX	
	Target		Replace with	Replace for		Preview	^	,
•	Investment	-	<none></none>	<none></none>				ł
	<none></none>		<none></none>	<none></none>				
								I
								I
							~	,
				Fir	st Prev	Next	➡ Last	

- 4. In the Replace With row for Investment, click the Ellipsis
- 5. **Double-click** the conditional expressions function list to open it
- 6. Double-click the IIF function
- With the IIF function in the expression window, click in between the opening parenthesis and the first comma

Select Expression Language C TSQL IV VBScript Columns Columns IP Inctions - Action 0 IP Inctions IP Inctions - Action 0 at the set of the s	
Column Selection Columns -ActionDate -Address -Address -Age_nDate -Age_nCyCode -Apol_nom_catg -ApplicationType Use single quotes for T-Sql and double quotes for VBScript if value is character type.	
Image: Action Date Image: Action Date - Address Image: Conditional - Age Image: Conditional - Age: NA Image: Conditional - Age: NA Image: Conditional - Age: NA Image: Conditional - ApencyCode Image: Conditional - APOR Image: Conditional - Apol_Inom_catg Image: Conditional - Apol_Inom_perc Image: Conditional - AppDate_NA Image: Conditional - ApplicationType Image: Conditional Use single quotes for T-Sql and double quotes for VBScript if value is character type. Validate	
- ActionDate - Address - Age - Age_nVA - Age_NCVCde - Apen_VCde - APOR_Date - Apol_inom_catg - ApplicationType - VUse single quotes for T-Sql and double quotes for VBScript if value is character type.	
→Address ⊟ Conditional →Age →IFF(,,) →AgencyCode →IFF(,,) →AgencyCode B: General →APOR_Date B: String →Appl_inom_perc →Apploate_INA →Apploate_INA ↓ →Apploate_INA ↓ ↓ Use single quotes for T-Sql and double quotes for VBScript if value is character type. Yalidate	
Age Age Age_NA Age_rov Age_rov Age_rov Apol_nom_catg Apol_inom_perc Apol_ate_NA Apoloate_NA Apolo	
Age_NA AgencyCode APOR APOR_Date Apol_Inom_berc Apoplate_NA Apopl	
AgencyCode APOR APOR APOR APOR Apol_Inom_catg Apol_Inom_perc Apploate_INA ApplicationType V Use single quotes for T-Sql and double quotes for VBScript if value is character type. <u>Validate</u>	
APOR APOR_Date Apol_inom_catg Apol_inom_perc Apploate Apoloate NA Apoloate NA Apoloate NA Apoloate Type V Use single quotes for T-Sql and double quotes for VBScript if value is character type. <u>Validate</u>	
APOR, Date Appl_incm_catg Appl_incm_perc ApplDate ApplDate ApplDate ApplDate ApplDate ApplDate ApplDate V Use single quotes for T-Sql and double quotes for VBScript if value is character type. Validate	
Appl_incm_catg Appl_incm_perc ApplDate ApplDate ApplDate ApplDate ApplDate ApplDate YN Use single quotes for T-Sql and double quotes for VBScript if value is character type. <u>Validate</u>	
AppDate AppDate NA ApplicationType Use single quotes for T-Sql and double quotes for VBScript if value is character type. Validate	
ApplDate_NA ApplicationType Use single quotes for T-Sql and double quotes for VBScript if value is character type. <u>Validate</u>	
ApplicationType	
Use single quotes for T-Sql and double quotes for VBScript if value is character type. Validate	
IIF()	
↓	
Expression Creating Window	_

- 8. Activate the Columns list by clicking anywhere in the list (the word Columns turns blue)
- 9. Type the letters O C C until the word appears in the list, then double-click on OccupancyType

Expression Builder		<u>Clear</u>	Apply
Select Expression Language C TSQL	VBScript		
Column Selection			
-mmvGty -mmvStat -mmvState -mmvZp4 -Mnrty_trct -MSA -NegAM -NMSAID -NoCApplicant -NonCApplicant	► Functions B: Date B: Logical Conditional Unit(r, r) -Numeric B: General B: String		
OccupancyType OpenLOC OrgFees Use single quotes for T-Sql and double quo IIF(OccupancyType",,)	v Ites for VBScript if value is character type.		Validate

- Place your cursor after the word OccupancyType in the expression window and type: = "3" (quotes are suggested whenever matching text)
- 11. Move your cursor AFTER the first comma and type a 1 (no quotes this time)
- 12. Move your cursor AFTER the second comma and type a 0 (again, no quotes)
- 13. Click Apply

Expression Builder		Clear	<u>Apply</u>	×
Select Expression Language C TSQL @ VBScrip	ot			
Column Selection				
mmwCity	 Functions 			
mmwStat				
mmwState	😟 Logical			
···mmwZip	E Conditional			
mmwZip4				
Mnrty_trct	Numeric			
MSA	⊕-General			
NegAM	⊕ String			
NMLSRID				
NoCoApplicant				
NonAmortz				
OccupancyType				
OpenLOC				
OrigFees	~			
Use single quotes for T-Sql and double quotes for VBS	Cript if value is character type.		Validat	e
IF(OccupancyType="3",1 ,0)				^
pression Creating Window				~

14. Define the SecondResidence field with the following expression: IIF(Occupancytype= "2", 1, 0)

Replac	Replace Wizard Execute X							
œ /	ope All Records Current Record	Replace Command		Transfer/I	install Wiza	rd I 🛛 🗙		
	Target	Replace with	Replace for		Preview	^		
•	Investment	IIF(OccupancyType=	<none></none>			0		
•	SecondResidence	<pre>IIF(OccupancyType="2", 1,0</pre>	<none></none>			0		
	<none></none>	<none></none>	<none></none>					
						~		
		·	First	Prev	⇒ Next	➡ I Last		

The third replace command will use a combination of the IIF and INSTR functions. In words: IF the INSTRING function finds the WORD "Y" starting in the first position of the Employee field, then put a 1 in the Employee_Flag field. If it doesn't then put a 0 in the Employee_Flag field.

- 1. Select the Target field as Employee_Flag
- 2. Click the Ellipsis to open the Expression Builder
- 3. Open the Conditional functions list and double-click IIF(, ,)
- Place the cursor after the opening parenthesis, open the String function list and type the letter "I" for instring. Doubleclick when found
- Type a "1" (no quotes) after the opening parenthesis and type a "1" (no quotes) before the closing parenthesis of the Instring function IIF(InStr(1, , , 1), ,)
- 6. Place the cursor after the first comma in the Instring function
- Expression Builder Clear Apply Select Expression Language C TSQL

 VBScript Column Selection Functions Columns Action Logical
 Conditional ActionDate Address Age Age_NA Numerio AgencyCode -General APOR APOR_Date -IsNull() -IsNumeric() - Appl_incm_catg - Appl_Incm_perc ---Coalesce(,) ---Format(,) ApplDate + String ApplDate_NA --- ApplicationType Use single guotes for T-Sgl and double guotes for VBScript if value is character type Validate IIF(instr(1, employee ,"y" ,1) , ,) Expression Creating Windo
- 7. Activate the Columns list and type EMP. Double-click when found
- 8. In the third argument of the Instring function, type "Y" including the quotes
- To complete, type in "=1" after the closing parenthesis of the InString function. The =1 to finish the InString function ensures that the letter "Y" must appear in the first position
- 10. Complete the IIF arguments by typing a 1 in the TRUE statement, and 0 in the FALSE statement
- 11. Click Apply

Use single quotes for T-Sql and double quotes for VBScript if value is character type.	Validate				
IIF(instr(1, employee ,"y" ,1)=1, 1, 0)	^				
	~				
Expression Creating Window					

- In the Replace Command Save text box, type "Create Inv Second Employee" then click the Save button (the diskette)
- 13. When ready, click on the Execute button

So	ope				T	antell Mine		
•	All Records				Transfer/	Install Wiza	ra	
C C	Current Record		Replace Command Create inv second en	nployee	 	•] 🖪 :	×
	Target	Rep	ace with	Replace for	 	Preview		^
•	Employee_Flag	iif(in	str(1, employee, "yes", 1) <none></none>			0	
•	Investment	iif(o	ccupancytype="3", 1, 0)	<none></none>			0	
•	SecondResidence	iif(occupancytype="2 🗸	<none></none>			0	
	<none></none>	<no< td=""><td>ne></td><td><none></none></td><td></td><td></td><td></td><td></td></no<>	ne>	<none></none>				
				Id	4		-	

Consider creating new fields that are meaningful to the data set that is being used. Some examples are provided below:

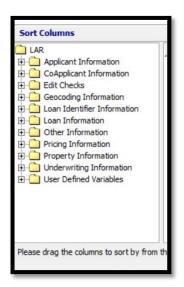
- 1. ConstPerm_Flag. An INTEGER field created from ConstPerm field = "Yes" or "CP" (make sure you pick up any value that indicates construction to perm). Value of 1 = True in new field
- CONDO. An INTEGER field created from SFRType = "Condo" (make sure you don't pick up those HR Condo's). Value of 1 = True in new field
- 3. Cust_Credt. An INTEGER field created from CreditScore. (Watch for 7777 and 8888 and do not copy those values as they are not a credit score)
- 4. CSGT720. An INTEGER field created from CreditScore where CreditScore >= 720. Value of 1 = TRUE in new field. (Watch for 7777 and 8888 and do not copy those values as they are not a credit score)

Some institutions report CreditScore and Coa_CreditScore. When performing regression and comparative file review, only one credit score can be used in the models. Therefore, a determination of which score to use must be made. Consider creating a field called cust_credt that can be populated with the appropriate score. This could be different for pricing and decisioning, as well as loan products.

Validating Data Using the Sorting and Filtering Functions

In CRA *Wiz*, it is possible to choose fields from eleven broad categories from which to sort or filter a particular LAR:

- Applicants Information (Income, Race, Sex, etc.)
- CoApplicants Information (Income, Race, Sex, etc.)
- Edit Checks (Edit Check results)
- Geocoding Information
- Loan Identifier Information
- Other Information
- Pricing Information
- Property Information
- Underwriting Information
- User Defined Variables



You may choose more than one desired field from the above list to sort or filter your file.

All primary fields that will be used in your fair lending analysis should be thoroughly checked for proper values.

Selecting Columns to View

Working in the **Browse** screen allows users to view all fields in a file, beyond the regulatory required fields. Wolters Kluwer recommends hiding or viewing columns in the **Browse** screen to make the editing process more efficient.

To select which columns you want to view, follow these steps:

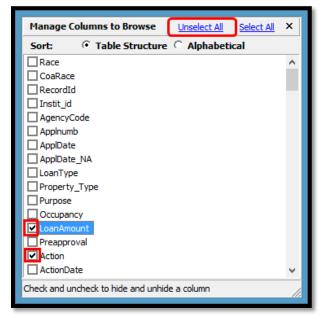
- 1. Right click in the Browse screen
- 2. Select the Select Columns to View option from the Menu

	BERatio	NoteRa	te	LoanProgram	A	USFinding
►	682.104	4 75		A 5 INTCHE		
	532.335	4	Hide This Col	umn		
	305.05 Right-click in the	5	Select Colum	ns To View		
	data to get the menu.	4	Modify Codes Locate Field Turn Off Quality Edits			prove/Eligible
_	Click on "Select	4				
	Columns to View"	4	Lock Current			
	116.656	4	Unlock Curre			prove/Eligible prove/Eligible
	115.207	4	Lock All Reco	rds		
	104.359 100.474 98.772		Unlock All Re	cords		prove/Eligible
			Select Numb	er Of Decimals		THER
	93.687	4.875		FF30		

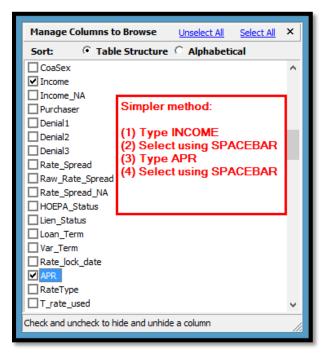
The software displays the "Manage Columns to Browse" dialog box.

Options:

- Select All
- Unselect All
- Table Structure order (fields listed exactly how they are in the Browse tab)
- Alphabetical order
- 1. Click on Unselect All
- 2. Click on checkbox for LoanAmount (selecting it)
- 3. Click on checkbox for Action (selecting it)



- 4. Using a simpler method, type the word Income then press the spacebar to select Income, once found
- 5. Type APR (must be seen as a complete word, not as the letter A, then a pause, then the letter P, then a pause, etc.). Press Spacebar.
- 6. In similar manner, select
 - a. AGE
 - b. COA_AGE
 - c. CUST_CREDT
 - d. DTIRatio
 - e. InterestRate
 - f. CLTV
- Close the dialog box with the "x" in the upper corner (be careful, don't click Select All by accident)



Any variable (factor or field) should have expectations based on your institution's product mix, policies and practices or the HMDA Regulation. Consider tracking any adjustments made to the data within your workpapers. Negative numbers can create havoc in analysis, and debt ratios higher than 999 can literally stop the program from continuing.

Sorting Records

- 1. From the Browse screen tool bar, click the Sort button
- 2. Double-click the Underwriting Information
- 3. Once opened, doubleclick on DTIRatio
- 4. Click Apply

AUSystemOther	~	Column Name	Order	
		A DTIRatio	ASC	
Coa_CreditModel Coa_CreditModelOther Coa_CreditModelOther Coa_CreditModelOther CreditModelOther CreditModelOther CreditModelOther CreditScore CreditScore DTIRatio DTIRatio_NA DTIRatio_NA DTIRatio_NA User Defined Variables		Open the folder (double- name) and start typing the you want. Double click or of Once selected (a on the right), rigoptions or doub from Ascending	he name of th drag to this w and in the wir ght-click to vi le-click to cha	e field indow. ndow ew ange

- 5. **Right-click** anywhere in the data to open a context-sensitive menu
- 6. Select Locate Field...

	Race	CoaRace	RecordId	Instit_id	AgencyCode	Applnumb	ApplDate	
	5	8			2	20004663	10/25/2013	3
	5	5	-	Hide This Col	umn		12/05/2013	3
	Rig	ht-click		Select Colum	ns To View	[10/17/2014	4
	to o	pen				[11/10/2014	4
	this	menu		Modify Code	5	[11/18/2014	4
				Locate Field		11/24/2013	3	
	Sele	ect			-	01/14/2014	4	
	Loc	ate		Turn Off Qua	lity Edits	[01/08/2014	4
	Fiel	d		Lock Current	Record	06/23/2014	4	
				Unlock Curren	at Decend	07/19/2014	4	
►				Unlock Currel	10/28/2014	4		
				Lock All Reco	rds	[12/07/2014	4
				Unlock All Re	cords	[02/09/2014	4
			4			. [02/22/2014	4
	3	8		Select Numbe	er Of Decima	S	04/14/2014	4
	5	8	_		2	20099205	09/14/2014	4

- 7. Click on the **drop-down arrow** to view the list of available fields
- 8. Once opened, start typing DTIRatio until it appears, then Select

Open the list of fields that are in the current columns view. Start typing DTI to start the search for DTIRatio

Select DTI Ratio

9. Close the Find Field box

Find Field		×
Select the	field you are trying to locate fr	rom the combobox
Fields	DTIRatio	-

10. Review the results of the sorted data.

Missing DTI Ratios may indicate missing data, or there may be a reason such as commercial purpose applications. Review the results to determine if they make sense for your data set. If so, you may proceed. If not, you may want to go back to the source data to determine why the values may be missing.



Why? Action 4 or 5? Commercial Purpose?

Click in the last empty field to see how many are missing, if any.

TRA .
NA
CFPB V & S Edits: V600
CFPB Quality Edits:

- 11. Click the Sort button in the tool bar again
- 12. Right-click on DTIRatio and select Descending order
- 13. Right-click in data, select LOCATE FIELD
- 14. Open list, type DTIRatio
- 15. Close Find Field dialog box

Sort Columns	Clear <u>Apply</u>
LAR Applicant Information CoApplicant Information CoApplicant Information Edit Checks Coapplicant Information Loan Identifier Information Loan Information Other Information Pricing Information Underwriting Information User Defined Variables	 Order DESC DESCENDING order: ick on DTIRatio or k and choose Descending

16. Review the results to ensure they make sense for the data set

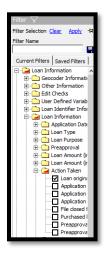
Interest	Rate	DTIRatio	
NA		682.1	
NA		532.33	
NA		305.05	
NA		203.99	
NA		196.18	
NA		163.59	
NA		144.28	
NA		143.19	
NA		141.32	
NA		139.29	
NA		139.02	
NA		138.55	
NA		135.82	
NA		135.16	
NA		133.09	
NA		132.95	
NA		131.49	
NA		121.7	
NA		120.98	
NA		118.71	
NA		116.65	
NA		115.2	
NA		104.35	
ALA.		100.47	

Knowing the data is important. If the majority of the ratios are above the institution's maximum allowed, something may have gone awry with the import. If the data makes sense for the data set, then you can proceed.

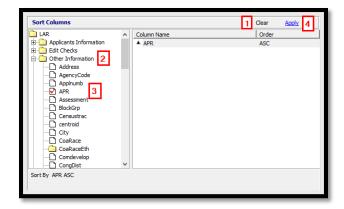
Filtering Records

The best data should be available on originated loans. Variables should make sense when viewed against the institution's product mix, pricing guidelines and exception policies.

- 1. Click on the Filter button
- 2. Open the Loan Information folder (by clicking the + OR double-clicking anywhere in the folder name)
- 3. Open the Loan Information and then Action Taken folders
- 4. Select Loan Originated
- 5. Click Apply



- 6. Click the Sort button
- 7. Click Clear to remove the current sort variable
- 8. Double-click the **Other Information** folder
- 9. Double-click the APR variable
- 10. Click Apply



Data Quality Reports (Difference of Means)

Sorting and filtering for each variable provides the most detail, but a report is available that will allow users to understand at a high-level the guality of the data, such as the mean, median, mode, and minimum and maximum values of a field.

To run the Difference of Means Report:

- 1. Consider setting a filter for originated or denied loans
- 2. Click the Fair Lending Wiz button
- 3. Click the Fair Lending Reports button
- 4. Under the Standard Reports heading, click Difference of Means Report
- 5. Select by Race, Ethnicity, and other categories as you see fit
- 6. Then select the fields to analyze, such as APR, DTIRatio, CLTV, Cust_Credt, and InterestRate
- 7. Click Generate Report

air Lending Analysis

Focal Point Report The Focal Point Report (FPR) presents a single view of fair lending risk. It allows you to target your fair lending search to those areas that deserve utiny and help increa se the strength of a fair lending program Difference of Means Report

The Difference of Means Report provides a guick statistical view of the selected pricing factors between the protected and controlled groups of various a visual on the eas where there are significant difference Redlining & Marketing Scorecard (M6)

n institutio oportion of prohibited basis applicants against peer institutions in a given ge

Marketing Analysis identifies whether the proportion of prohibited basis applicants is significantly lower than that group's representation in the tota population of the market area

Difference of Means										
Factor = APR										
Race	Count	Maximum	Minimum	St. Dev.	Mode	Median	Average	Difference of Means		
American Indian or Alaskan	18	8.27	4.08	1.0400		4.36	5.0000	0.31		
Asian	167	10.16	2.96	0.8500		4.43	4.5500	-0.14		
Asian Indian	0							0.00		
Chinese	0							0.00		
Filipino	1	4.91	4.91	0.0000	4.91	4.91	4.9100	0.22		
Japanese	1	4.51	4.51	0.0000	4.51	4.51	4.5100	-0.18		
Korean	0							0.00		
Vietnamese	0							0.00		
Other Asian	0							0.00		
Black or African American	753	9.98	2.68	0.6700		4.89	5.0600	0.37		
Native Hawaiian or other Pacific Islander	10	5.86	4.04	0.5100	4.04	5.02	4.9600	0.27		
Native Hawaiian	0							0.00		
Guamanian or Chamorro	0							0.00		
Samoan	0							0.00		
Other Pacific Islander	0							0.00		
White	2,770	10.20	2.71	0.7000		4.61	4.6900	0.00		
Two or more Minority Races	2	5.01	4.43	0.2900	4.43	4.72	4.7200	0.03		
Joint Race	34	5.56	3.28	0.6300		4.23	4.4200	-0.27		
Not Provided	222	8.21	2.87	0.7300		4.54	4.7600	0.07		
Not Applicable	5	5.88	4.32	0.5800	4.32	4.68	4.9800	0.29		
Not Calculated	0							0.00		
Total	3,983	10.20	2.68	0.7200		4.64	4.7600			

Dealing with Incorrect Data

If incorrect data has been found in the file, the data will need to be corrected before analysis can begin. Refer to your institution's procedures on how to correct data, which may include updating the source file and subsequently updating the target file, or users may choose to "Null" the values within CRA *Wiz* to exclude them from the analysis.

How to Null Values

- 1. If you have not already done so, close both the Report Viewer and Fair Lending Report selection screen
- If not in the Edit > Browse screen already, click on the Edit & Geocode button, then the Edit button
- 3. Click on Filter > Clear
- 4. In the tool bar, click on the Replace Wizard button
 - a. Scope = All Records
 - b. Target Field = Cust_Credt (remember to type CUST)
 - c. Replace with = Ellipsis
 - d. Select Expression Language = TSQL
 - e. In the Expression Window = NULL (type the word NULL)
 - f. Click Apply

Expression Builder	
Select Expression Language C TSQL VBScript	1
Columns A Action ActionDate Address Age Age AgencyCode Appl_incm_catg Appl_incm_perc ApplDate ApplDate ApplDate_NA ApplicationType Applnumb Appraised APR	Functions ⊕-Date ⊕-Logical ⊕-Conditional ⊡-General ⊕-String
Use single quotes for T-Sql and double quotes for VBScript if v	
NULL 5	

Replace Wizard		<u>Execute</u> ×
Replace Wizard Scope Image: Construction of the second		Transfer/Install Wizard
C Current Record	Replace Command	
		- 🖬 🗙
Target	Replace with Replace for	Preview 🔨
✓ Cust_credt 2	<none> <n: 3<="" th=""><th></th></n:></none>	
<pre> <none></none></pre>	<none> <none></none></none>	

- g. Replace for = Ellipsis
- h. Click into the Column Selection list
- i. Type the word "CUST" until found
- j. Select Cust_Credt
- k. Type <300 or
- I. Select Cust_Credt
- m. Type >850
- n. Click Apply

Expression Builder	<u>Clear</u>	Apply	×
Select Expression Language TSQL C VBScript Column Selection CoaRace_1 CoaRace_2 CoaRace_3 CoaRace_4 CoaRace_5 T - Type "CUST" CoaSex To find		10	
Condevelop - Condo - CongDist - ConvMI - County - Cs_TierA - Cs_TierA - Cs_TierA - Cs_TierA - Cs_TierA - Coust_credt 9 - Double-click to use			
Use single quotes for T-Sql and double quotes for VBScript if value is character type. Cust_credt<300 or Cust_credt>850 8 9		Validate	~
Expression Creating Window			

There is no "UNDO" button for a replace statement. Always read the statement carefully before clicking the Execute button, especially if working with original data (rather than creating a new field). If there is a backup copy of the file (recommended) the field can be repaired, but it is best not to make an error in the first place.

- In the Replace Command text box, type the name of the replace command you wish to save, in this case, "Repair cust_credt too low or too high"
- 6. Click the Save button
- 7. Click the **Execute** button

F	Replac	e Wizard						1	2 <u>Exe</u>	<u>cute</u> ×
	- Sco							Transfer/Ir	nstall Wiza	ard
	 All Records Current Record 				Replace Command Type in a description				[11
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		Replac	ce Wizard				Send E	Error Repor	<u>t</u> ×	
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Additional Functionality

Instructions on additional functions and features listed below can be found in the CRA *Wiz* Data Prep Training Manual

- Finding Records
- Modifying Data
- Changing Tabs (Between Current Record and Browse)
- Finding Duplicate Records
- Deleting Records
- Adding Records
- Locking/Unlocking Records
- Tagging/Untagging Records
- Clearing Geocode Fields
- Printing the LAR/LR Reports
- Best Practices for Editing

Chapter 7 - Exam Procedures and Statistics

The Federal Financial Institutions Examination Council (FFIEC) Interagency Fair Lending Examination Procedures, which the Consumer Financial Protection Bureau (CFPB) adopted as part of their Supervision and Examination Manual, are the heart of fair lending monitoring and analysis.

This chapter will introduce fair lending concepts, as well as serve as an introduction to statistics.

✓ Statistics - how statistics relate to the questions raised in the examination procedures

The examination procedures themselves contain the following sections:

- ✓ Introduction to laws and regulations governing Fair Lending
- ✓ Part 1 Examination Scope Guidelines
- ✓ Part 2 Compliance Management Review
- ✓ Part 3 Examination Procedures
- ✓ Part 4 Evaluating Responses and Concluding the Examination
- ✓ Appendix contains several sections that provide further details

Laws and Regulations Pertaining to Fair Lending

- 1. Equal Credit Opportunity Act
 - a. Covers all aspects of a credit transaction (from initial contact through collections)
 - b. Defines classes of individuals against whom discrimination is prohibited, including:
 - i. Race or color
 - ii. Religion
 - iii. National origin
 - iv. Sex
 - v. Marital status
 - vi. Age (provided the applicant has the capacity to contract)
 - vii. Applicant's receipt of income from any public assistance program
 - viii. Applicant's exercise, in good faith, of any right under the Consumer Credit Protection Act
- 2. Fair Housing Act
 - a. Prohibits discrimination in all aspects of "residential real-estate related transactions"
 - b. Prohibits discrimination based on:
 - i. Race or color
 - ii. National origin
 - iii. Religion
 - iv. Sex
 - v. Familial status
 - vi. Handicap

Types of Discrimination

There are three types of discrimination discussed in the Examination Procedures.

- 1. Overt Evidence of Disparate Treatment verbal or written policy statements or actions that openly discriminate on a prohibited basis
- 2. Comparative Evidence of Disparate Treatment occurs when a lender treats a credit applicant differently based on one or more of the prohibited bases. It does not require any showing that the treatment was motivated by prejudice or a conscious intention to discriminate against a person beyond the difference in treatment itself
 - a. The analysis to look for disparate treatment can be known as "benchmark-overlap analysis", "matched-pair analysis" or "comparative file review"
- 3. Evidence of Disparate Impact statistical evidence suggesting that a policy or practice, even though having the appearance of being neutral, disproportionally excludes or burdens certain persons on a prohibitive basis
 - a. Regression analysis can be used to look for disparate impact

Examination Procedures Outline

- 1. Part 1 Examination Scope Guidelines
 - a. Background
 - i. Understanding Credit Operations
 - ii. "Before evaluating the potential for discriminatory conduct, the examiner should review sufficient information about the institution and its market to understand the credit operations of the institution and the representation of prohibited basis group residents within the markets where the institution does business."
 - b. Evaluating the Potential for Discriminatory Conduct (Risk Factors)
 - i. Develop an Overview
 - ii. Identify Compliance Program Discrimination Risk Factors
 - iii. Review Residential Loan Products
 - iv. Identify Residential Lending Discrimination Risk Factors
 - v. Organize and Focus on Residential Risk Analysis
 - vi. Identify Consumer Lending Discrimination Risk Factors
 - vii. Identify Commercial Lending Discrimination Risk Factors
 - viii. Complete the Scoping Process
- 2. Part II Compliance Management Review
 - a. This section allows examiners to set the <u>intensity</u> of the examination based on their evaluation of the compliance management systems in place, as well as the reliability of the practices and procedures in place for ensuring fair lending compliance
 - b. "Determining whether the policies and procedures of the institution enable management to prevent, or to identify and self-correct, illegal disparate treatment in the transactions that relate to the products and issues identified for further analysis under Part 1 of these procedures."
 - c. "Obtaining a thorough understanding of the manner by which management address its fair lending responsibilities with respect to (a) the institution's lending practices and standards, (b) training and other application-processing aids, (c) guidance to employees or agents in dealing with customers, and (d) its marketing or other promotion of products and services."
- 3. Part III Examination Procedures
 - a. Verify Accuracy of Data
 - b. Documenting Overt Evidence of Disparate Treatment
 - c. Transactional Underwriting Analysis Residential and Consumer Loans
 - d. Analyzing Potential Disparities in Pricing and Other Terms and Conditions
 - e. Steering Analysis
 - f. Transactional Underwriting Analysis Commercial Loans
 - g. Analysis of Potential Discriminatory "Redlining"
 - h. Analysis of Potential Discriminatory Marketing Practices
- 4. Part IV Obtaining and Evaluating Responses from the Institution and Concluding the Examination a. Present all findings for explanations
 - b. Document all responses provided by the institution, not just its "best" or "final" response

Compliance Program Discrimination Risk Factors

- C1. Overall institution compliance record is weak
- C2. Prohibited basis monitoring information required by applicable laws and regulations is nonexistent or incomplete
- C3. Data and/or recordkeeping problems compromised reliability of previous examination reviews
- C4. Fair lending problems were previously found in one or more of the institution's products or in the institution's subsidiaries
- C5. The size, scope, and quality of the compliance management program, including senior management's involvement, designation of a compliance officer, and staffing is materially inferior to programs customarily found in institutions of similar size, market demographics and credit complexity
- C6. The institution has not updated compliance policies and procedures to reflect changes in law or in agency guidance
- C7. Fair lending training is nonexistent or weak

Underwriting Risk Factors

The asterisk below means: "...examiners need not attempt to calculate the indicated ratios for racial or national origin characteristics when the institution is not a HMDA reporter. However, consideration should be given in such cases to whether or not such calculations should be made based on gender or racial-ethnic surrogates."

- U1. *Substantial disparities among the approval/denial rates for applicants by monitored prohibited basis characteristic (especially within income categories)
- U2. *Substantial disparities among the application processing times for applicants by monitored prohibited basis characteristic (especially within denial reason groups)
- U3. *Substantially higher proportion of withdrawn/incomplete applications from prohibited basis group applicants than from other applicants
- U4. Vague or unduly subjective underwriting criteria
- U5. Lack of clear guidance on making exceptions to underwriting criteria, including credit scoring overrides
- U6. Lack of clear loan file documentation regarding reasons for any exceptions to standard underwriting criteria, including credit scoring overrides
- U7. Relatively high percentages of either exceptions to underwriting criteria or overrides of credit score cutoffs
- U8. Loan officer or broker compensation based on loan volume (especially loans approved per period of time)
- U9. Consumer complaints alleging discrimination in loan processing or in approving/denying residential loans

Pricing Risk Factors

- P1. Financial incentives for loan officers or brokers to charge higher prices (including interest rate, fees and points). Special attention should be given to situations where financial incentives are accompanied by broad pricing discretion (as in P2), such as through the use of overages or yield spread premiums
- P2. Presence of broad discretion in loan pricing (including interest rate, fees and points), such as through overages, underages or yield spread premiums. Such discretion may be present even when institutions provide rate sheets and fees schedules, if loan officers or brokers are permitted to deviate from those rates and fees without clear and objective criteria
- P3. Use of risk-based pricing that is not based on objective criteria or applied consistently
- P4. *Substantial disparities among prices being quoted or charged to applicants who differ as to their monitored prohibited basis characteristics
- P5. Consumer complaints alleging discrimination in residential loan pricing
- P6. *In mortgage pricing, disparities in the incidence or rate spreads of higher-priced lending by prohibited basis characteristics as reported in the HMDA data
- P7. *A loan program that contains only borrowers from a prohibited basis group, or has significant differences in the percentages of prohibited basis groups, especially in the absence of a Special Purpose Credit Program under ECOA

Steering Risk Factors

- S1. Lack of clear, objective and consistently implemented standards for (i) referring applicants to subsidiaries, affiliates, or lending channels within the institution (ii) classifying applicants as "prime" or "sub-prime" borrowers, or (iii) deciding what kinds of alternative loan products should be offered or recommended to applicants (product placement)
- S2. Financial incentives for loan officers or brokers to place applicants in nontraditional products (e.g., negative amortization, "interest only", "payment option" adjustable rate mortgages) or higher cost products
- S3. For an institution that offers different products based on credit risk levels, any significant differences in percentages of prohibited basis groups in each of the alternative loan product categories
- S4. *Significant differences in the percentage of prohibited basis applicants in loan products or products with specific features relative to control group applicants. Special attention should be given to products and features that have <u>potentially negative consequences for applicants</u> (e.g., nontraditional mortgages, prepayment penalties, lack of escrow requirements, or credit life insurance)
- S5. *For an institution that has one or more sub-prime mortgage subsidiaries or affiliates, any significant differences, by loan product, in the percentage of prohibited basis applicants of the institution compared to the percentage of prohibited basis applicants of the subsidiary(ies) or affiliate(s)
- S6. *For an institution that has one or more lending channels that originate the same loan product, any significant differences in the percentage of prohibited basis applicants in one of the lending channels compared to the percentage of prohibited basis applicants of the other lending channel
- S7. Consumer complaints alleging discrimination in residential loan pricing or product placement
- S8. *For an institution with sub-prime mortgage subsidiaries, a concentration of those subsidiaries' branches in minority areas relative to its other branches

Redlining Risk Factors

- R1. *Significant differences, as revealed in HMDA data, in the number of applications received, withdrawn, approved not accepted, and closed for incompleteness or loans originated in those areas in the institution's market that have relatively high concentrations of minority group residents compared with areas with relatively low concentrations of minority residents
- R2. *Significant differences between approval/denial rates for all applicants (minority and non-minority) in areas with relatively high concentrations of minority group residents compared with areas with relatively low concentrations of minority residents
- R3. *Significant differences between denial rates based on insufficient collateral for applicants from areas with relatively high concentrations of minority residents and those areas with relatively low concentrations of minority residents
- R4. * Significant differences in the number of originations of higher-priced loans or loans with potentially negative consequences for borrowers, (e.g., non-traditional mortgages, prepayment penalties, lack of escrow requirements) in areas with relatively high concentrations of minority residents compared with areas with relatively low concentrations of minority residents
- R5. Other patterns of lending identified during the most recent CRA examination that differ by the concentration of minority residents
- R6. Explicit demarcation of credit product markets that excludes MSAs, political subdivisions, census tracts, or other geographic areas within the institution's lending market or CRA assessment areas and having relatively high concentrations of minority residents
- R7. Difference in services available or hours of operation at branch offices located in areas with concentrations of minority residents when compared to branch offices located in areas with concentrations of non-minority residents
- R8. Policies on receipt and processing of applications, pricing, conditions, or appraisals and valuation, or on any other aspect of providing residential credit that vary between areas with relatively high concentrations of minority residents and those areas with relatively low concentrations of minority residents
- R9. The institution's CRA assessment area appears to have been drawn to exclude areas with relatively high concentrations of minority residents
- R10. Employee statements that reflect an aversion to doing business in areas with relatively high concentrations of minority residents
- R11. Complaints or other allegations by consumers or community representatives that the institution excludes or restricts access to credit for areas with relatively high concentrations of minority residents. Examiners should review complaints against the institution filed either with their agency or the institution; the CRA public comment file; community contact forms; and the responses to questions about redlining, discrimination, and discouragement of applications, and about meeting the needs of racial or national origin minorities, asked as part of obtaining local perspectives on the performance of financial institutions during prior CRA examinations
- R12. An institution that has most of its branches in predominantly non-minority neighborhoods at the same time that the institution's sub-prime mortgage subsidiary has branches which are located primarily in predominantly minority neighborhoods

Marketing Risk Factors

- M1. Advertising patterns or practices that a reasonable person would believe indicate prohibited basis customers are less desirable
- M2. Advertising only in media serving non-minority areas of the market
- M3. Marketing through brokers or other agents that the institution knows (or has reason to know) would serve only one racial or ethnic group in the market
- M4. Use of marketing programs or procedures for residential loan products that exclude one or more regions or geographies within the institutions assessment or marketing area that have significantly higher percentages of minority group residents than does the remainder of the assessment or marketing area
- M5. Using mailing or other distribution lists or other marketing techniques for pre-screened or other offerings of residential loan products that:
 - exclude groups of prospective borrowers on a prohibited basis; or
 - exclude geographies (e.g., census tracts, ZIP codes, etc.) within the institution's marketing area that have significantly higher percentages of minority group residents than does the remainder of the marketing area
- M6. *Proportion of prohibited basis applicants is significantly lower than that group's representation in the total population of the market area
- M7. Consumer complaints alleging discrimination in advertising or marketing loans

Introduction to Statistics

Several of the Risk Factors listed above have wording such as "substantial disparities", "proportion is significantly lower", "significant differences in the number of" or "substantially higher proportion of"; however, there is no place in the examination procedures where those words are actually defined.

There are many methods that could be used to determine significance, but the ones discussed most often are "Benchmarks", "Odds Ratios" and "Statistical Significance".

Benchmarks - Setting an arbitrary ratio of one group's proportion to another group's proportion, above which the difference becomes "significant". Based on the user's data set, ratios may need to be adjusted to be worthwhile. Examples are provided below to assist in understanding the use of ratios.

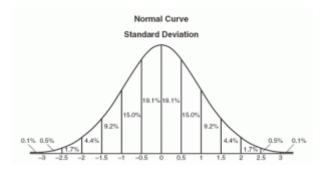
- Smaller volumes tend to give larger ratios, while larger volumes tend to give smaller ratios

 Example # 1:
 - 500 White applicants with a denial rate of 10%
 - 20 Black applicants with a denial rate of 23%
 - Ratio of Black denials to white denials is 23% divided by 10%, or 2.3 to 1
 - IS THIS RATIO STATISTICALLY SIGNIFICANT? No
 - Example #2:
 - 10,000 White applicants with a denial rate of 30%
 - 3,000 Black applicants with a denial rate of 32%
 - Ratio of Black denials to white denials is 32% divided by 30%, or 1.07 to 1
 - IS THIS RATIO STATISTICALLY SIGNIFICANT? Yes
- Benchmarks are one way to look at whether something seems significant, but ratios should not be a stand-alone methodology

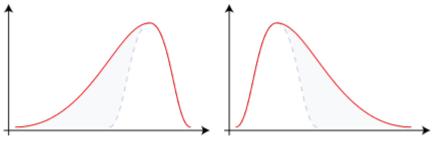
STATISTICAL TERMS:

- Average (or Mean) = calculated by adding all the numbers together and dividing by the number represented
- Median value = with all values laid out in order, the median is the middle point in the list
- Mode = the most frequently occurring value found in the list of numbers under review. If there were no values appearing more often than any other, the mode would be 0
- Standard Deviation (SD) = the measure of the average distance between all the data values and the mean. Once the average is known, the standard deviation indicates how closely the data points fall around the average
- Normal Distribution = A bell-shaped, symmetrical frequency distribution curve. In a normal distribution, extremely large values and extremely small values are rare, and occur near the "tail" ends. Most frequent values are clustered around the mean and fall off smoothly on either side of the mean
 - In a normal distribution, 68% of all values lie within one standard deviation, 95.45% lie within two standard deviations, and 99.8% lie within 3 standard deviations

• Here's an example of a normal distribution curve:



• Skewed Distribution = the opposite of a normal distribution, where the data is not symmetrical on both sides of the mean







- T-statistic (aka t-test, t-stat, test statistic) = a t-statistic is a calculation which measures the relative distance of <u>a data point</u> from the mean of the sample or population. The t-stat is calculating the number of standard deviations the data point is from the mean. The greater the value of the t-stat, the less likely the difference occurred by chance. If the value of the t-stat is 1.96 or greater, then it is considered statistically different from the mean
- Null Hypothesis in statistics, you are testing a hypothesis to see whether it is true or not. In Fair Lending, the "null hypothesis" could be something like "We treat all applicants the same there is no difference in treatment between any two groups." In the statistical world, the null hypothesis is taken for granted until the alternative is proven true. The null hypothesis is never proven true; you simply fail to reject it
- Confidence Level (aka Significance Level) the confidence level used in fair lending is 95% (0.95 on a scale from 0 to 1). In general, a confidence level of 95% means that there is a probability of at least 95% that the results are reliable. The confidence level plus the chosen p-value must equal 1 (0.95 + 0.05 = 1)
 - A confidence level of 95% (0.95) directly corresponds to a t-stat of 1.96

STATISTICALLY SIGNIFICANT - After calculating the average (or mean) for two groups, the standard deviation of the item reviewed (credit score, debt ratio, CLTV ratio, etc.) for the same groups and the population sizes of two groups, you can calculate whether two groups of individuals were statistically different or not

✓ Typically, you should have at least 25 people in the "majority" group and at least 5 in the "minority" group to calculate statistical significance. If you have less than 25/5 in the two groups, statistics can become "unreliable"

Examples of Statistics Use in Fair Lending Wiz:

- Data Quality Report:
- Difference of Means Report:

Cust_cree	lt Count	Maximum	Minimum	Standard Deviation	Mode	Median	Average
Total							
Total	3,983	825.00	576.00	55.65	0.00	717.00	695.12

Factor = Loan To Value Ratio								
Race	Count	Maximum	Minimum	St. Dev.	Mode	Median	Average	Difference of Means
American Indian or Alaskan	18	100.00	15.00	24.5400	96.50	96.48	82.8400	-2.05
Asian	167	112.79	9.95	17.2300	80.00	90.00	84.2400	-0.65
Black or African American	754	277.43	6.25	15.5500	96.50	96.50	93.5200	8.63
Native Hawaiian or other Pacific Islander	10	96.50	74.46	8.4400	96.50	96.49	90.8400	5.95
Two or more Minority Races	2	100.00	95.00	2.5000	95.00	97.50	97.5000	12.61
Joint Race	33	111.16	40.00	13.7800	80.00	80.92	85.4100	0.51
White	2,777	210.56	4.25	18.6700	96.50	94.25	84.8900	0.00
Not Provided	222	208.65	9.99	19.6000	96.50	92.58	85.9000	1.01
Not Available	0							0.00
Total	3,983	277.43	4.25	18.4100	96.50	95.00	86.5700	

• Focal Point Report:

Borrower Characteristic	Record	0	rigination			Den	ial	
	Count	Count	% Row	% Total	Count		T-Stat	Ratio
Total						_		
Total Applications	3,983	3,293	82.68%	100.00%	318	7.98%	0.00	
Race								
American Indian or Alaskan	18	13	72.22%	0.39%	3	16.67%	1.71	2.53
Asian	167	139	83.23%	4.22%	17	10.18%	1.79	1.54
Black or African American	754	589	78.12%	17.89%	86	11.41%	4.42	1.73
Native Hawaiian or other Pacific Islander	10	9	90.00%	0.27%	1	10.00%	0.43	1.52
Two or more Minority Races	2	2	100.00%	0.06%	0	0.00%	0.00	0.00
Joint Race	33	27	81.82%	0.82%	1	3.03%	-0.82	0.46
White	2,777	2,347	84.52%	71.27%	183	6.59%	0.00	1.00
Not Provided	222	167	75.23%	5.07%	27	12.16%	3.13	1.85
Not Available	0	0	0.00%	0.00%	0	0.00%	0.00	0.00

Chapter 8 - Custom Tables

Getting to Know Your Data

Before starting any type of analysis, you should thoroughly understand the data that you have to work with.

Review the data and understand what is contianed within the data set. Consider some of the following:

If you are a mortgage lender:

- ✓ Do you make non-conventional loans (such as FHA, VA, Farm Service Agency, Rural Housing Service)?
- ✓ If you do make non-conventional loans, what proportion of applications/loans is in those products?
- ✓ Do you place non-saleable loans in your portfolio? If so, is the interest rate higher?
- ✓ Do you consider applications for junior liens or HELOCs?
- ✓ Do you consider applications only for 1-4 family dwellings, or do you consider manufactured homes?
- ✓ Do you consider applications for non-owner occupied loans? If so, is the price different for second homes than it is for investment properties?
- ✓ Do you follow Fannie/Freddie guidelines for loan-level price adjustments (LLPAs)?
- ✓ What other types of adjustments do you make to pricing?
- ✓ If you involve brokers in your process, which brokers bring the highest risk to you as an organization?

If you are a consumer/auto lender:

- ✓ How many product categories do you have classified as "consumer" applications?
- ✓ Do make indirect loans, as well as direct?
- ✓ If you make indirect loans (such as auto finance loans), which dealers bring the highest risk to you as an organization?
- ✓ How are prices determined for each of the products? Can you prove to an outsider that the price adjustments work as expected?

If you are a small business/commercial lender::

- ✓ What types of small business applications do you consider?
- ✓ What elements go into the pricing of a small business loan?

The more of these questions that you have the answers for before starting the fair lending analysis, the better the analysis will be.

Custom tables can help provide some basic understanding of the application records under review.

Obtaining a Distribution of Applications by Type and Purpose

- Install or select the file you would like to analyze. For this example, Training File 2 Final FPR 2018.dat, and update calculated fields
- 2. Click on the Fair Lending *Wiz* button
- 3. Click the Custom Table button

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Comparative)roj	Select D)ata Content					
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- 4. On the right side, double-click the Loan Information folder
- There are <u>two ways</u> to move a field into the custom table:
 - o Click and drag
 - Right-click and select "Send to Row" or "Send to column"

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		Seni	Loan A Loan A To <u>Column</u> Upen: Initaly Preapp Type of Loan P Revero Other Inform Applicant In	nd The C payable & toval I Purchas urpose e mortgag nation

- 5. Click and drag Action Taken into any empty column
- 6. Right-click on Loan Type, right-click and select Send to Row
- 7. Right-click and send Loan Purpose to Row

- 8. Under the option labeled Display Subtotals, click the drop-down arrow and select %Col Total
- 9. In the Toolbar, click Generate, or in this case, To Excel button

Filter	\bigtriangledown						
		Drop C	olunn Fie	lds Here			
		Action Tak					
Drop Row Fields Here	Loan Type Loan Purp	Select I	Data Conten	Disp	Display Rows. Display Subtot %Col Total No %Total %Row Total %Col Total lay Template ault	Zero Values	

10. Review results: Percentages of Applications Received - Conventional 50.49%, FHA 39.39%, VA 5.55%, FSA/RHS 4.57% (Highlighting added for visual effect)

			Action Taken				
				Approved			
Loan	Loan		a	Not			
Туре	Purpose	Data	Originated	Accepted	Denied	Withdrawn	Grand Total
Conventional	Home Purchase	Count	1225	7	66	129	1427
		%Col of Count	37.20%	70.00%	20.75%	35.64%	35.83%
	Home Improvement	Count	14		2		16
	improvement	%Col of Count	0.43%	0.00%	0.63%	0.00%	0.40%
	Refinancing	Count	207	0.0070	38	34	279
		%Col of Count	6.29%	0.00%	11.95%	9.39%	7.00%
	Cash-out Refinance	Count	185	1	36	15	237
		%Col of Count	5.62%	10.00%	11.32%	4.14%	5.95%
	Other	Count	45		4	3	52
		%Col of Count	1.37%	0.00%	1.26%	0.83%	1.31%
Conventional Cou	nt		1676	8	146	181	2011
Conventional %Co	ol of Count		50.90%	80.00%	45.91%	50.00%	50.49%
FHA	Home Purchase	Count	1225	2	115	139	1481
		%Col of Count	37.20%	20.00%	36.16%	38.40%	37.18%
	Refinancing	Count	46		18	5	69
	5	%Col of Count	1.40%	0.00%	5.66%	1.38%	1.73%
	Cash-out Refinance	Count	14		4	1	19
		%Col of Count	0.43%	0.00%	1.26%	0.28%	0.48%
FHA Count			1285	2	137	145	1569
FHA %Col of Cour	it		39.02%	20.00%	43.08%	40.06%	39.39%
VA	Home Purchase	Count	175		14	15	204
		%Col of Count	5.31%	0.00%	4.40%	4.14%	5.12%
	Refinancing	Count	3		6	4	13
		%Col of Count	0.09%	0.00%	1.89%	1.10%	0.33%
	Cash-out Refinance	Count	2		1	1	4
		%Col of Count	0.06%	0.00%	0.31%	0.28%	0.10%
VA Count			180		21	20	221
VA %Col of Count			5.47%	0.00%	6.60%	5.52%	5.55%
FSA/RHS	Home Purchase	Count	152		14	16	182
		%Col of Count	4.62%	0.00%	4.40%	4.42%	4.57%
FSA/RHS Count			152		14	16	182
FSA/RHS %Col of	Count		4.62%	0.00%	4.40%	4.42%	4.57%
Total Count			3293	10	318	362	3983
Total %Col of Cou	nt		100.00%	100.00%	100.00%	100.00%	100.00%

Go back to Custom Tables, keep the same information, but for this example, perform the following:

- 11. Click the drop-down arrow for **Display Subtotals** a. Change to **%Row Total**
- 12. In the Toolbar, click To Excel

	Action				
Loan Type	Select I)ata Conten	t		
Purpose	Count	•	with Z	y Rows and Co ero Values y Subtotals	ols
				v Total	•
			XRov XCol	v Total	

- 13. Review results: The options selected show the Origination Rate and Denial Rate for each category and sub-category
 - a. Overall denial rate (7.98%) is low
 - b. VA Refinances have the highest denial rate (46.15%)
 - c. FHA Refinances have the next highest (26.09%)

			Action Take				
				Approved			Grand
Loan Type	Loan Purpose	Data	Originated	NA	Denied	Withdrawn	Total
	Home						
Conventional	Purchase	Count	1225	7	66	129	142
		%Row of Count	85.84%	0.49%	4.63%	9.04%	100.00
	Home						
	Improvement	Count	14		2		1
		%Row of Count	87.50%	0.00%	12.50%	0.00%	100.00
	Refinancing	Count	207		38	34	27
		%Row of Count	74.19%	0.00%	13.62%	12.19%	100.00
	Cash-out						
	Refinance	Count	185	1	36	15	23
		%Row of Count	78.06%	0.42%	15.19%	6.33%	100.00
	Other	Count	45		4	3	5
		%Row of Count	86.54%	0.00%	7.69%	5.77%	100.00
Conventional (Count		1676	8	146	181	201
	KRow of Count		83.34%	0.40%	7.26%	9.00%	100.00
conventional	Home		05.5470	0.40%	7.2070	5.00%	100.00
FHA	Purchase	Count	1225	2	115	139	148
11124	rarenase	%Row of Count	82.71%	0.14%	7.77%	9.39%	100.00
	Definencien	Count	46	0.1476	18	5.55%	100.00
	Refinancing			0.00%			
		%Row of Count	66.67%	0.00%	26.09%	7.25%	100.00
	Cash-out						
	Refinance	Count	14		4	1	1
	1	%Row of Count	73.68%	0.00%	21.05%	5.26%	100.00
FHA Count			1285	2	137	145	156
FHA %Row of			81.90%	0.13%	8.73%	9.24%	100.00
	Home				8		
VA	Purchase	Count	175		14	15	20
		%Row of Count	85.78%	0.00%	6.86%	7.35%	100.00
	Refinancing	Count	3		6	4	1
		%Row of Count	23.08%	0.00%	46.15%	30.77%	100.00
	Cash-out						
	Refinance	Count	2		1	1	
		%Row of Count	50.00%	0.00%	25.00%	25.00%	100.00
VA Count			180		21	20	22
VA %Row of C	ount		81.45%	0.00%	9,50%	9.05%	100.00
	Home						
FSA/RHS	Purchase	Count	152		14	16	18
		%Row of Count	83.52%	0.00%	7.69%	8.79%	100.00
FSA/RHS Coun	•		152	0.0070	14	16	100.00
			83.52%	0.00%	7,69%	8,79%	
FSA/RHS %Rov	w of Count						100.00
Total Count			3293	10	318	362	398
Total %Row of	Count		82.68%	0.25%	7.98%	9.09%	100.00

Next, for this example we will add a filter to the file. To do so, return to Custom Tables and perform the following:

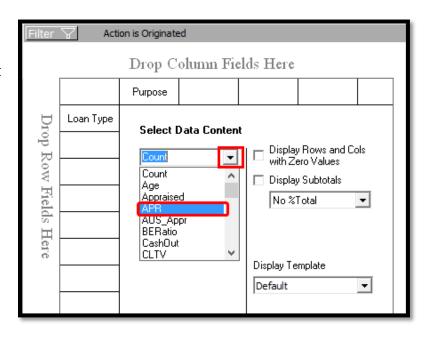
- 14. Click on Filter
 - a. Open Loan Information
 - b. Open Loan Information
 - c. Open Action
 - d. Select Originated
 - e. To SAVE this filter for later use, type "Originated" in the Filter Name text box
 - f. Click the Save button i. Click OK after Save
 - g. Click Apply



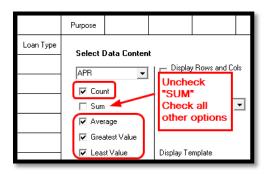
- 15. Right-click on Action (in the Column header) a. Select Delete
- 16. Drag Loan Purpose into the first empty column
- 17. Uncheck Display Subtotals

Filter	Actio	on is Originated
		Drop Column Fields Here
Drop	Loan Type	Purpose 14. Right-click on ACTION, then Delete. Select Data Content
w Fields	15. Drag PURPOS from ROV to	Lount with Zero Values E N N N V
Here		16. Uncheck Display Subtotals

 Click the "Select Data Content" drop-down arrow and select APR from the list of fields



- 19. After selecting APR, uncheck SUM and check Count, Average, Greatest Value, Least Value
- 20. In the Toolbar, click To Excel



- 21. Review Results: The overall average for the portfolio is 4.50%
 - a. Home Purchase loans are the most expensive (4.74% compared to Other 4.18% or Refinances 4.26%)
 - b. FHA loans cost an average of 57 basis points more than conventional

Training File	2 Final FPF	R 2018					
Active Filter	5						
Action Tak	en is Loan orig	jinated					
		Loan Purpos 🔻					
		Home	Home		Cash-out		
Loan Type 👻	Data	Purchase	Improvement	Refinancing	Refinance	Other	Grand Total
Conventional	Count	1225	14	207	185	45	1676
	Avg of APR	4.66	4.39	4.12	4.21	4.18	4.31
	Max of APR	10.2	5.32	6.11	7.81	6.74	10.2
	Min of APR	2.71	3.31	2.84	2.89	2.83	2.71
FHA	Count	1225		46	14		1285
	Avg of APR	5.09		4.66	4.90		4.88
	Max of APR	6.62		5.61	5.31		6.62
	Min of APR	2.87		2.98	4.08		2.87
VA	Count	175		3	2		180
	Avg of APR	4.44		3.99	4.64		4.36
	Max of APR	5.5		4.57	5.06		5.5
	Min of APR	2.68		3.27	4.21		2.68
FSA/RHS	Count	152					152
	Avg of APR	4.76					4.76
	Max of APR	5.37					5.37
	Min of APR	4.05					4.05
Total Count		2777	14	256	201	45	3293
Total Avg of AF	PR	4.74	4.39	4.26	4.58	4.18	4.50
Total Max of A	PR	10.2	5.32	6.11	7.81	6.74	10.2
Total Min of A	PR	2.68	3.31	2.84	2.89	2.83	2.68

Understanding the Values Behind HMDA Codes

As mentioned on the introductory page to this chapter, there are facts about your data that you should know <u>before</u> starting your analysis. HMDA codes specify things like Occupancy Type, Construction Method, Lien Status, HOEPA Status, Rate Types, and others.

Before starting a fair lending analysis, you should know what is behind these fields. For example, Construction Method has two available codes: Code 1: Site-built 2: Manufactured Housing. Generally speaking, applications for Manufactured homes are denied more frequently and are priced higher when originated. Therefore, when conducting fair lending analysis, regression in particular, applications with code 2 should indicate a higher denial rate and a higher price compared to Code 1.

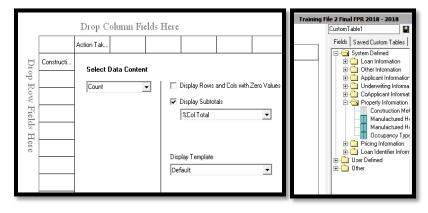
To determine if the assumption above is correct:

1. Click on Filter then Clear



Click on the Custom Table button to reset all settings

- a. Drag Action to COLUMN
- b. Drag Construction Method to ROW
- c. Set Display Subtotals to %Col Total
- d. Send To Excel
- e. **Results**: 99.% Site Built and 1% Manufactured Home



1	Training File 2 2018						
2	oznana dzi neodania s						
3	Active Filters						
4	None						
5							
6			Action Taken 🔹				
7	Construction Method -	Data	Loan originated	Application Approved but not accepted	Application denied	Application withdrawn by applicant	Grand Total
8	Site built (modular or prefabrication)	Count	3262	10	316	355	3943
9		%Col of Count	99.06%	100.00%	99.37%	98.07%	99.00%
10	Manufactured housing	Count	31		2	7	40
11		%Col of Count	0.94%	0.00%	0.63%	1.93%	1.00%
12	Total Count		3293	10	318	362	3983
13	Total %Col of Count		100.00%	100.00%	100.00%	100.00%	100.00%

- 2. Right-click on Lien Status and Send to Row
 - a. Right-click on Construction Method and Delete
 - b. Send To Excel
 - c. **Results**: There are 75 subordinate liens representing 1.88% of total applications

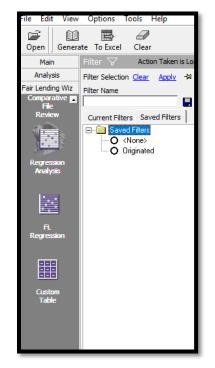
n									
sis ng Wiz			Drop C	olunn Fi	elds 1	Here			
			Action Tak						
2	$D_{\rm F}$	Lien Status	Select I) Data Conter					
ard rts	Drop Row Fields		Count				Display Rows	and Cols with:	Zern Values
	łow		looun		-		Display Subtot		
	Fiel						%Col Total		•
-	ds I								
ng rts	Here								
						Dior	lay Template		

Training File 2 2018						
Active Filters						
None						
		Action Taken *				
Lien Status 🔹	Data	Loan originated	Application Approved but not accepted	Application denied	Application withdrawn by applicant	Grand Total
Secured by a First Lien	Count	3226	10	314	358	3908
	%Col of Count	97.97%	100.00%	98.74%	98.90%	98.12%
Secured by a Subordinate Lien	Count	67		4	4	75
	%Col of Count	2.03%	0.00%	1.26%	1.10%	1.88%
Total Count		3293	10	318	362	3983
Total %Col of Count		100.00%	100.00%	100.00%	100.00%	100.00%

Calculating Average APRs for All Loan Products

To determine if some products carry more fair lending risk, such as higher prices on average for certain prohibited-basis groups, consider creating a custom table similar to the one below.

- 1. Click the Custom Table button to reset all
- 2. Click Filter
 - a. Saved Filters
 - b. Double-click the folder to open
 - c. Select Originated
 - d. Click Apply



- 3. Complete the Custom Table, as follows:
 - a. Double-click the Applicant Information folder
 - b. Right-click Calculated Age and Send to Column
 - c. Double-click the Other folder
 - d. Type loanp (the first five letters of LoanProgram), or scroll down to find LoanProgram
 - e. Right-click LoanProgram and Send to Row
 - f. Click the drop-down arrow for Select Data Content; select APR
 - g. Check Count, Average, Greatest Value, Least Value and uncheck Sum
 - h. Click Generate or To Excel
 - i. Additional formatting or analysis can be done in Excel, if desired

Filter	├ Acti	on Taken is Lo	an origin			
		Drop C	olunn Fie	elds Here		
		Calculated				
Drop Row Fields Here	LoanProgr	APR Cour Sum Aver	- age atest Value		Display Rows Display Subtot No %Total play Template fault	Zero Values

Custom Table Report	a 6	ustom Table	Report	×	3																			
Training File 2 2018																								
Active Filters Action Taken is Loan orig	inated																							
Calculated	Age	18.	24	-		25.44				45.	61			624				Not Ca	Indated			Scheutal	2	
LoanProgram	Coust, Av	s. Max. Mirc)	of APR																					
Commercial																	3	4.95	3.88	4.32	5	4.98	5.88	43
CVARM					44	3.25	4.49	2.93	29	3.42	4.68	2.71	14	1.36	4.26	2.78					87	3.32	4.60	2.7
CVFixed	31	4.58	6.07	3.65	508	4.56	10.2	2.94	395	4.58	00.16	2.85	148	4.47	6.18	2.88					1,182	4.55	10.2	28
CVFmedJambo				-					2	6.04	6,47	5.6									2	6.04	6.47	3,
CVVARJUMBO					2	3.65	4	3.5	2	3.85	3.95	3.75	1	4.54	34.34	34.34					5	3.33	434	3.
FHAARM					7	8.21	3.12	2,95	1	3.19	3.45	2.87	2	3.62	4.14	3.09					13	3.27	4.14	2.8
FHAFixed	152	5.12	6.29	3.44	789	5.08	5.62	3.99	255	5.06	6.14	3.55	75	5.15	6.15	4.19					1,272	5.09	6.62	33
HELOC	20	4.92	3.89	3.61	205	4.79	8.27	2.94	101	4.58	5.85	2.83	34	4.58	5.53	2.91					367	4.72	8.27	2.8
Mobile	1	4.83	4.83	4.85	16	4.92	5.15	4.45	8	4.45	5.02	3.76	5	43	3.38	3.01					28	4.71	5.75	3.0
USDA	25	4.91	5.24	4.46	95	4.73	5.37	4.05	27	4.74	5.15	4.33	5	4.77	5.54	4.41		_	_		152	4.76	5.37	4.0
VAARM					1				2	2.98	3.27	2.68						-		_	2	2.98	3.27	2.6
VAFood	12	4.58	5.01	4.2	95	4.42	3.5	3.43	45	4.49	5.05	3.44	20	4.42	4.19	4.82	-	_			175	4.45	3.5	3.4
Subtotal	247	4.98	6.29	3.44	1,865	4.78	10.2	2.73	872	1.68	20,16	2.68	204	1.59	6.28	2.78		4.98	6.88	6.32	3,293	4.75	10.2	2.68

Suggestions:

- Custom tables can be saved by typing in a name in the textbox supplied (overwrite CustomTable1) with a descriptive name
- Add APPLNUMB (application number) in as a ROW to see the applications taken in each category (of loans, minority tracts, assessment areas [Analysis > Create Areas > Assign Areas to a File to make the file "aware" of the Assessment Area designations], or anything else that may be helpful
 - Adding anything more than 10 to 30 columns, such as Application Number, is not easy to understand
- Switch things around using Excel's Pivot Table features
 - Change the order of multiple Rows by dragging the Lower field above the higher field
 - Change the description of the field (right click on the field name in the Pivot Table Field List for options)
- Possible custom tables:
 - ROW = Loan Term; COL = Actions; SUBTOTAL OPTION both %Row & %Column
 - ROW = Dealer_Name; COL = RaceEth (or Race, Ethnicity, Sex, Age); SUBTOTAL OPTION %Row
 - ROW = Marital_Status; COL = Actions; SUBTOTAL OPTION both %Row & %Column
 - ROW = RateType; COL = Actions; SUBTOTAL OPTIOIN both %Row & %Column
 - BISG Proxy: ROW = RaceEth; COLUMN = Race, Ethnicity; SUBTOTAL OPTION both %Row & %Column

Chapter 9 - Risk Reports

Users should understand the risks that are apparent in the data. Following the Interagency Fair Lending Examination Procedures (see Chapter 8) can help with understanding the risks, and several reports within Fair Lending *Wiz* are designed to help as well.

This chapter will cover the following reports:

- ✓ Underwriting U1 and Pricing Risks P4: Focal Point Report
- ✓ Underwriting Risk U2: Disparities in Processing Times
- ✓ Underwriting Risk U3: Proportion of Withdrawn/Incomplete Apps
- ✓ Pricing Risks P4: Pricing Disparity Summary
- ✓ Steering S3: Proportion of Conventional vs FHA Mortgages
- ✓ Redlining R1: Differences in Origination Counts by Minority Concentration
- ✓ Redlining R2: Differences in Minority Concentration
- ✓ Redlining R3: Differences in Insufficient Collateral by Minority Concentration
- ✓ Marketing M6: Redlining and Marketing Scorecard

Focal Point Report

This is an ideal report to analyze risks quickly. This report identifies underwriting risks by assessing origination and denial rates, as well as pricing risks by assessing high-priced mortgage loans. The assessments use fields such as average APRs, average Interest Rates and the difference between the APR and Interest Rate (implying fees). The questions in the examination procedures regarding "Substantial disparities among the approval/denial rates" and "Substantial disparities in prices being quoted or charged" are covered using two totally separate tests. One is a benchmark test, the other applies statistical calculations to the volumes and differences to calculate t-statistics.

To access the Focal Point Report:

- 1. Click the Fair Lending Wiz button (Ensure all filters are
- 2. Click the Fair Lending Reports button



removed)

- 3. Select Focal Point Report from the reports list
 - a. For now, leave all benchmark settings at their default values

Focal Point Report The Focal Point Report (FPR) presents a single view of fair lending scrutiny and help increase the strength of a fair lending program.	g risk. It allows you to target your fair lending search to those areas that deserve
Declination Ratio Highlight	2.00
Above Threshold Highlight	2.00
Highlight APR Above Control Group	0.25
Highlight Note Rate Above Control Group	0.25
Highlight APR-Note Rate Above Control Group	0.10
Statistical Confidence Interval (%)	95 -
Rate 1	APR -
Rate 2	Note Rate 🔹

- b. For Pricing (Rate 1 and Rate 2), select two rate types to compare (for example, APR and Interest Rate). The system will calculate the difference between the two values. It is important that the factors selected are comparable. For example, comparing total points and fees to APR isn't likely to render valuable results. The options included for Rate 1 and 2 are:
 - i. APR
 - ii. Interest Rate or Note Rate
 - iii. Discount
 - iv. Lender Credits
 - v. Origination Fees
 - vi. Total Loan Costs
 - vii. Total Points and Fees
 - viii. Buy Rate
 - ix. Closing Costs
 - x. Fees
 - xi. Rate Difference
 - xii. Rate Spread
- c. Select Generate Report

For future reference, benchmarks can be changed depending upon the type of lending being reviewed. The decision to change benchmarks is optional and would be based on the control group's binomial percentage (denial rate, above threshold rate, etc.).

- 4. Options:
 - a. Selected Reports drop down list (if multiple reports generated at once, click on the drop-down to see the additional reports)
 - b. **Refresh** button applying filters from the left-most *Wiz* icon changes automatically; if underlying data changes, click Refresh
 - c. **Print** icon takes users to the Windows print dialog box
 - d. Print layout shows what the printed page will look like
 - e. Page setup allows adjustments to margins and selection of portrait vs. landscape mode
 - f. Export button allows export/save to Excel, PDF or Word
 - g. T-Stat toggle toggles t-statistic columns on, then off again
 - h. Count toggle toggles count columns off, then on again

Selected Reports: Focal Point Report Refresh	
🕪 4 1 of 3 🕨 🔰 4 🛞 🖨 🗐 🔎 💐 100%	✓ Find Next
Focal Point Report	
File Type: Mortgage DF File Name: Training File 2 Final FPR 2018 Filter:	
Toggle: ⊡ T-Stat ⊡ Count	

You can apply various filters to review segments of the data file. For example, you can separate out by loan type, open end/closed end, lien position, occupancy type, and so on.

5. **Review results**: For this example

Borrower Characteristic	Record	0	rigination		1	Denial		Above Thr	eshold	AP	Above Threshold APR			APR - Interest Rate		
	Count	Count	% Row	% Total	Count	%	Ratio	Count	Ratio	Average	vs Target	Average	vs Target	Average	vs Target	
Total																
Total Applications	3,983	3,293	82.68%	100.00%	318	7.98%		70		4.75		4.30		0.45		
Race																
American Indian or Alaskan	18	13	72.22%	0.39%	3	16.67%	2.52	1	4.50	5.00	0.31	4.57	0.30	0.43	0.02	
Asian	167	139	83.23%	4.22%	17	10.18%	1.54	2	0.84	4.55	-0.14	4.19	-0.08	0.35	-0.06	
Asian Indian	0	0	0.00%	0.00%	0	0.00%	0.00	0	0.00							
Chinese	0	0	0.00%	0.00%	0	0.00%	0.00	0	0.00							
Filipino	1	1	100.00%	0.03%	0	0.00%	0.00	0	0.00	4.91	0.22	4.50	0.23	0.41	-0.01	
Japanese	1	1	100.00%	0.03%	0	0.00%	0.00	0	0.00	4.51	-0.18	3.75	-0.52	0.76	0.34	
Korean	0	0	0.00%	0.00%	0	0.00%	0.00	0	0.00							
Vietnamese	0	0	0.00%	0.00%	0	0.00%	0.00	0	0.00							
Other Asian	0	0	0.00%	0.00%	0	0.00%	0.00	0	0.00							
Black or African American	753	588	78.09%	17.86%	86	11.42%	1.73	23	2.29	5.05	0.36	4.43	0.16	0.61	0.20	
Native Hawaiian or other Pacific Islander	10	9	90.00%	0.27%	1	10.00%	1.51	0	0.00	4.96	0.27	4.47	0.20	0.49	0.07	
Native Hawaiian	0	0	0.00%	0.00%	0	0.00%	0.00	0	0.00							
Guamanian or Chamorro	0	0	0.00%	0.00%	0	0.00%	0.00	0	0.00							
Samoan	0	0	0.00%	0.00%	0	0.00%	0.00	0	0.00							
Other Pacific Islander	0	0	0.00%	0.00%	0	0.00%	0.00	0	0.00							
Two or more Minority Races	2	2	100.00%	0.06%	0	0.00%	0.00	0	0.00	4.72	0.03	4.31	0.04	0.41	-0.01	
Joint Race	34	28	82.35%	0.85%	1	2.94%	0.44	0	0.00	4.42	-0.27	4.06	-0.21	0.36	-0.06	
White	2,770	2,340	84.48%	71.06%	183	6.61%	1.00	40	1.00	4.69	0.00	4.27	0.00	0.42	0.00	
Not Provided	222	167	75.23%	5.07%	27	12.16%	1.84	4	1.40	4.73	0.05	4.33	0.06	0.40	-0.01	
Not Applicable	5	5	100.00%	0.15%	0	0.00%	0.00	0	0.00	4.98	0.29	5.28	1.00	(0.30)	-0.71	
Not Calculated	0	0	0.00%	0.00%	0	0.00%	0.00	0	0.00							

- a. Whites represented 71.06% of originations; American Indian 0.39%; black/African American 17.86%
- b. White denial rate 6.61%; American Indian denial rate 16.67%; black denial rate 11.42%
- c. **Denial Ratio** American Indian/white = 16.67 / 6.61 = 2.52 (above 2.00 benchmark but **not** statistically significant)
- d. Denial Ratio black/white = 11.42 / 6.61 = 1.73 NOT >= 2.00, but was Statistically Significant (red cell)
- e. Above threshold Ratio: 40 whites out of 2,340 originations (1.71% becomes 1.00 as control group), compared to blacks 23 out of 588 (3.91%). 3.91 divided by 1.71 = 2.29 ratio. Above 2.00 benchmark AND statistically significant)
- f. APR Pricing: Average white APR 4.69%, average black APR 5.05%, for difference of 36 basis points (0.36). Difference was over the 0.25 benchmark AND was statistically significant
- g. Interest Rate Pricing: Average white Note Rate 4.27%, average black Note Rate 4.43%, 16 basis points higher. Difference was <u>not</u> over benchmark of 0.25 but was statistically significant)
- h. Fees Pricing: Fees (APR Note Rate). Whites paid "fees" of 0.42%, blacks paid fees of 0.61%, 20 basis points higher which was over benchmark of 10 basis points AND statistically significant

6. Click on t-stat toggle to show the t-stat column. Remember: any t-stat greater than or equal to 1.96 is statistically significant (2 or more standard deviations higher than average)

_	Denia	l 📃		Above	e Thresho	bld		APR		1	nterest Ra	te	APR	- Interest	Rate
Count	%	T-Stat	Ratio	Count	T-Stat	Ratio	Average	T-Stat	vs Target	Average	T-Stat	vs Target	Average	T-Stat	vs Target
318	7.98%	0.00		70	0.00		4.75	0.00		4.30	0.00		0.45	0.00)
3	16.67%	1.70	2.52	1	1.64	4.50	5.00	1.60	0.31	4.57	1.86	0.30	0.43	0.15	i 0.02
17	10.18%	1.78	1.54	2	(0.24)	0.84	4.55	(2.30)	-0.14	4.19	(1.58)	-0.08	0.35	(1.91) -0.06
0	0.00%	0.00	0.00	0	0.00	0.00		0.00			0.00			0.00)
0	0.00%	0.00	0.00	0	0.00	0.00		0.00			0.00			0.00)
0	0.00%	0.00	0.00	0	0.00	0.00	4.91	0.00	0.22	4.50	0.00	0.23	0.41	0.00	-0.01
0	0.00%	0.00	0.00	0	0.00	0.00	4.51	0.00	-0.18	3.75	0.00	-0.52	0.76	0.00	0.34
0	0.00%	0.00	0.00	0	0.00	0.00		0.00			0.00			0.00)
0	0.00%	0.00	0.00	0	0.00	0.00		0.00			0.00			0.00)
0	0.00%	0.00	0.00	0	0.00	0.00		0.00			0.00			0.00)
86	11.42%	4.41	1.73	23	3.29	2.29	5.05	11.25	0.36	4.43	6.11	0.16	0.61	11.63	0.20
1	10.00%	0.43	1.51	0	(0.40)	0.00	4.96	1.17	0.27	4.47	1.06	0.20	0.49	0.58	3 0.07
0	0.00%	0.00	0.00	0	0.00	0.00		0.00			0.00			0.00)
0	0.00%	0.00	0.00	0	0.00	0.00		0.00			0.00			0.00)
0	0.00%	0.00	0.00	0	0.00	0.00		0.00			0.00			0.00)
0	0.00%	0.00	0.00	0	0.00	0.00		0.00			0.00			0.00)
0	0.00%	0.00	0.00	0	0.00	0.00	4.72	0.00	0.03	4.31	0.00	0.04	0.41	0.00) -0.01
1	2.94%	-0.86	0.44	0	(0.70)	0.00	4.42	(2.00)	-0.27	4.06	(1.95)	-0.21	0.36	(0.79) -0.06
183	6.61%	0.00	1.00	40	0.00	1.00	4.69	0.00	0.00	4.27	0.00	0.00	0.42	0.00	0.00
27	12.16%	3.11	1.84	4	0.66	1.40	4.73	0.81	0.05	4.33	1.24	0.06	0.40	(0.38) -0.01
0	0.00%	-0.59	0.00	0	(0.29)	0.00	4.98	0.93	0.29	5.28	3.96	1.00	(0.30)	(4.28) -0.71
0	0.00%	0.00	0.00	0	0.00	0.00	J	0.00			0.00			0.00)

a. Black/White denial ratio of 1.73 times higher - t-statistic was 4.41

b. Black/White Above Threshold ratio of 2.29 - t-statistic was 3.29

c. Black/White APR Difference of 36 basis points - t-statistic was 11.25

d. Black/White Note Rate Difference of 16 basis points - t-statistic was 6.11

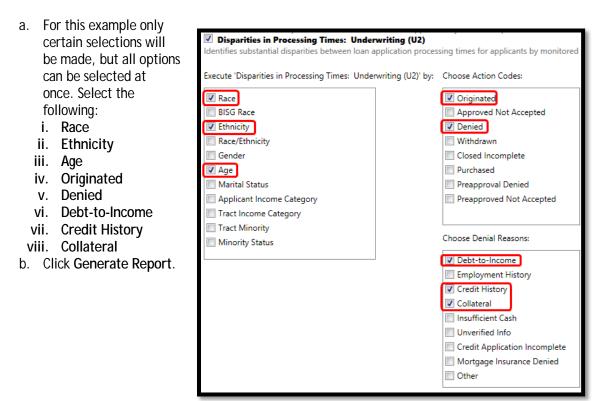
e. Black/White Fees Difference of 20 basis points - t-statistic was 11.63

7. Review remainder of Focal Point Report, then click the X to close the report

Disparities in Processing Times: Underwriting (U2)

If the application date and action dates are in the file, and are accurate, the software calculates the average time between the two dates.

1. Select Disparities in Processing Times: Underwriting (U2) from report menu



- 2. **Pay attention** to the filter box below the report name
- 3. Move to Page 2 (using page navigation)

All Applications (Action = Originated, Denied; Denial Reasons = Debt-to-Income, Credit History, Collateral)

4. Review Results:

Action = Loan originated							
Race	Count	Maximum	Minimum	St. Dev.	Mode	Median	Average
American Indian or Alaskan	13	73.00	11.00	17.3200	21.00	23.00	31.9200
Asian	139	232.00	8.00	26.1300	23.00	32.00	40.1900
Asian Indian	0						
Chinese	0						
Filipino	1	25.00	25.00	0.0000	25.00	25.00	25.0000
Japanese	1	35.00	35.00	0.0000	35.00	35.00	35.0000
Korean	0						
Vietnamese	0						
Other Asian	0						
Black or African American	588	245.00	8.00	25.0300	35.00	38.00	43.8000
Native Hawaiian or other Pacific Islander	9	50.00	14.00	12.3700	14.00	25.00	31.1100
Native Hawaiian	0						
Guamanian or Chamorro	0						
Samoan	0						
Other Pacific Islander	0						
White	2,340	398.00	8.00	22.2400	28.00	32.00	37.9600
Two or more Minority Races	2	39.00	32.00	3.5000	32.00	35.50	35.5000
Joint Race	28	116.00	11.00	19.9700	25.00	27.00	34.1800
Not Provided	167	127.00	10.00	19.2100	29.00	30.00	35.2900
Not Applicable	5	38.00	21.00	6.2800	21.00	24.00	27.4000
Not Calculated	0						
Total	3,293	398.00	8.00	22.8500	28.00	33.00	38.8600

- a. It took 37.96 days for whites, 43.80 days for blacks. The difference was significantly longer
- 5. Move to Page 3 (All Denial Reasons together)

6. Review Results:

ice	Count	Maximum	Minimum	St. Dev.	Mode	Median	Average
American Indian or Alaskan	3	68.00	21.00	19 . 9400	21.00	33.00	40.6700
Asian	12	175.00	15.00	48.3300	15.00	29.50	49.8300
Asian Indian	0						
Chinese	0						
Filipino	0						
Japanese	0						
Korean	0						
Vietnamese	0						
Other Asian	0						
Black or African American	74	241.00	1.00	39.0300	26.00	42.00	52.8900
Native Hawaiian or other Pacific Islander	1	19.00	19.00	0.0000	19.00	19.00	19.0000
Native Hawaiian	0						
Guamanian or Chamorro	0						
Samoan	0						
Other Pacific Islander	0						
White	151	228.00	0.00	33.8100	14.00	39.00	46.5900
Two or more Minority Races	0						
Joint Race	1	17.00	17.00	0.0000	17.00	17.00	17.0000
Not Provided	20	165.00	7.00	38.7600	25.00	44.00	56.3000
Not Applicable	0						
Not Calculated	0						
Total	262	241.00	0.00	36.5400	25.00	40.00	48.9700

- a. It took 46.59 days (on average) for white applicants to be denied. Blacks took 52.89 (on average) but the difference was not significantly different
 - i. The Minimum and Maximum values for all races
- b. The row for Native Hawaiians implies a significant difference, but there is only 1 person in that group. Statistical results are not considered reliable if the number of people in the "sample" is less than 5. Keep that in mind when reviewing these results
- 7. Close the report viewer
- 8. Unselect Disparities in Processing Times

Proportion of Withdrawn/Incomplete Apps: Underwriting (U3)

Calculates proportions of prohibited-basis groups who received the action codes of withdrawn or incomplete. Higher proportions can be an indication of risk.

- 1. Select Proportion of Withdrawn/Incomplete Apps: Underwriting (U3) from the Risk Factor Analysis Reports menu
- 2. For this example, select
 - a. Race
 - b. Ethnicity
 - c. Gender
 - d. Age
- 3. Generate Report
 - a. Go to Age Results

Age		Tota	l Applications	Withdrawn/Incomplete	Percentage
< 18	The age sub groups are aggregated		0	0	0.00 %
18-24	The age sub-groups are aggregated together to form the "Under 62" group.		286	20	7.00 %
25-44	*(20+202+88)/(286+2246+1052))*100=8.6		2,251	203	9.00 %
45-61	% compared to 47/378 = 12.43%		1,063	92	9.00 %
62 +			378	47	12.00 %
Not Avail	able		5	0	0.00 %
Total			3,983	362	9.09 %

4. Review Results:

a. Of all of the groups, only those 62 or older were withdrawn significantly more often. 12% withdrawn compared to 8.65% for those under the age of 62. T-Statistic was over 1.96

- 5. Close the report viewer
- 6. Unselect Proportion of Withdrawn/Incomplete Apps

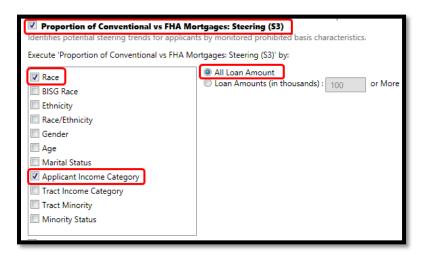
Proportion of Conventional vs FHA Mortgages: Steering (S3)

As identified in the Examination Procedures, FHA loans can be considered a higher-risk product and should be monitored for steering risk due to historically being priced higher than conventional loans.

Since every lending institution is different, monitoring other potential steering issues would necessitate the identification of those considered "more costly, or having potentially negative consequences" in a new binary field. Once identified, a custom table could be used to show who received those products.

Fair Lending Wiz can conduct an analysis of steering (FHA to conventional loans) via the Steering Report.

- Select Proportion of Conventional vs FHA Mortgages: Steering (S3) report
 - a. For this example we will only select two categories, but all categories can be selected at once
 - i. Select Race
 - ii. Applicant Income Category
 - For this example, "All Loan Amounts" will be selected, and the user



may choose to show loan amounts in thousands

c. Click Generate Report

2. Review Results:

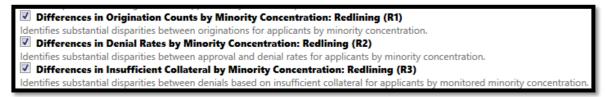
	c	onvention	al		FHA		Tot	al
Race	Count	Row %	Col %	Count	Row %	Col %	Count	Col %
American Indian or Alaskan	9	50.00 %	0.45 %	7	38.89 %	0.45 %	18	0.45 %
Asian	107	64.07 %	5.32 %	60	35.93 %	3.82 %	167	4.19 %
Asian Indian	0	0.00 %	0.00 %	0	0.00 %	0.00 %	0	0.00 %
Chinese	0	0.00 %	0.00 %	0	0.00 %	0.00 %	0	0.00 %
Filipino	1	100.00 %	0.05 %	0	0.00 %	0.00 %	1	0.03 %
Japanese	0	0.00 %	0.00 %	1	100.00 %	0.06 %	1	0.03 %
Korean	0	0.00 %	0.00 %	0	0.00 %	0.00 %	0	0.00 %
Vietnamese	0	0.00 %	0.00 %	0	0.00 %	0.00 %	0	0.00 %
Other Asian	0	0.00 %	0.00 %	0	0.00 %	0.00 %	0	0.00 %
Black or African American	204	27.09 %	10.14 %	458	60.82 %	29.19 %	753	18.91 %
Native Hawaiian or other Pacific Islander	5	50.00 %	0.25 %	5	50.00 %	0.32 %	10	0.25 %
Native Hawaiian	0	0.00 %	0.00 %	0	0.00 %	0.00 %	0	0.00 %
Guamanian or Chamorro	0	0.00 %	0.00 %	0	0.00 %	0.00 %	0	0.00 %
Samoan	0	0.00 %	0.00 %	0	0.00 %	0.00 %	0	0.00 %
Other Pacific Islander	0	0.00 %	0.00 %	0	0.00 %	0.00 %	0	0.00 %
White	1,528	55.16 %	75 .9 8 %	950	34.30 %	60.55 %	2,770	69.55 %
Two or more Minority Races	0	0.00 %	0.00 %	1	50.00 %	0.06 %	2	0.05 %
Joint Race	21	61.76 %	1.04 %	10	29.4 1 %	0.64 %	34	0.85 %
Not Provided	131	59.01 %	6.51 %	77	34.68 %	4.91 %	222	5.57 %
Not Applicable	5	100.00 %	0.25 %	0	0.00 %	0.00 %	5	0.13 %
Not Calculated	0	0.00 %	0.00 %	0	0.00 %	0.00 %	0	0.00 %
Total	2,011	50.49 %	100.00 %	1,569	39.39 %	100.00 %	3,983	100.00 %
Applicant Income Category	c	onvention	ગ		FHA		To	al
	Count	Row %	Col %	Count	Row %	Col %	Count	Col %
Low < 50%	265	28.43 %	13.18 %	580	62.23 %	36.97 %	932	23.40 %
Moderate 50 - 79.99%	336	34.71 %	16.7 1 %	500	51.65 %	31.87 %	968	24.30 %
Middle 80 - 119.99%	424	52.15 %	21.08 %	282	34.69 %	17 .97 %	813	20.41 %
Upper >= 120%	977	78.04 %	48.58 %	200	15 .97 %	12.75 %	1,252	31.43 %
Not Available	10	52.63 %	0.50 %	7	36.84 %	0.45 %	19	0.48 %
Total	2,011	50.49 %	100.00 %	1,569	39.39 %	100.00 %	3,983	100.00 %

- a. White applicants applied for FHA loans 34.30% of the time. Blacks, by comparison, applied 60.82% of the time. The proportion for blacks was calculated to be significantly higher
- b. For applicant income, middle- and upper-income groups were combined into one control group. Out of 1,401 applications, 482 middle- and upper-income persons applied for FHA loans. That percentage came out to 34.43%, compared to 62.23% for low-income or 51.65% for moderateincome applicants
- 3. Close the Report Viewer
- 4. **Unselect** the checked report

Redlining Reports (Origination Counts, Denial Rates, Insufficient Collateral)

Virtually every report contains sections labeled "Tract Income Category" and "Tract Minority Level". If applications were received less often in these areas, denied more frequently once received, and/or priced higher once originated, redlining risks existed for the time period under review.

These standalone reports provide another view of redlining risk. No options are available for these three reports, other than providing a filter ahead of time if desired (such as Home Purchase, Home Improvement, Refinance, Conventional, etc.)



1. For this example all three redlining reports will be selected at once; however, each can be selected individually

Minority Concentration	Total Applications	Originated Count	Originated %	Total Housing Units	Owner Occupied Households	Owner Occupied %
< 10%	366	303	83.00 %	386,601	242,817	62.81 %
10% - 19%	724	601	83.00 %	625,950	427,064	68.23 %
20% - 49%	1,642	1,396	85.00 %	1,214,383	771,969	63.57 %
50% - 79%	914	737	81.00 %	665,306	348,035	52.31 %
80% - 100%	336	255	76.00 %	324,745	157,662	48.55 %
Not Available	1	1	100.00 %	0	0	0.00 %
Total	3,983	3,293	82.68 %	3,216,985	1,947,547	60.54 %

- 2. Click Generate Report
- 3. Review Results for "Differences in Origination Counts by Minority Concentration: Redlining (R1)"
 - a. For the file under review here, the origination rates in minority areas (50% 79% and 80% 100% areas) are approximately the same, as less than 10% minority. Red cells would appear (like in 20-49%) in the origination % column if this was not the case, as red indicates statistically significantly higher whereas yellow indicates statistically significantly lower
 - b. For this report, it is important to review the higher minority concentration areas that are significantly lower than the control group, which is in green highlighting
- 4. Toggle to the next Redlining report:
 - a. Navigate to the Selected Reports drop down list and select the Differences in Denial Rates report

5. Review Results for "Differences in Denial Rates by Minority Concentration: Redlining (R2)"

Tract Minority	Loan originated		Application Approved but not accepted		Application denied			Application withdrawn by applicant			Total			
, i i i i i i i i i i i i i i i i i i i	Count	Row %	Col %	Count	Row %	Col %	Count	Row %	Col %	Count	Row %	Col %	Count	Col %
< 10%	303	82.79 %	9.20 %	1	0.27 %	10.00 %	28	7.65 %	8.81 %	34	9.29 %	9.39 %	366	9.19 %
10% - 19%	602	83.03 %	18.28 %	0	0.00 %	0.00 %	61	8.41 %	19.18 %	62	8.55 %	17.13 %	725	18.20 %
20% - 49%	1,396	85.02 %	42.39 %	6	0.37 %	60.00 %	110	6.70 %	34.59 %	130	7.92 %	35 .9 1 %	1,642	41.23 %
50% - 79%	737	80.63 %	22.38 %	1	0.11%	10.00 %	87	9.52 %	27.36 %	89	9.74 %	24.59 %	914	22.95 %
80% - 100%	255	75.89 %	7.74 %	2	0.60 %	20.00 %	32	9.52 %	10.06 %	47	13 .99 %	12 .9 8 %	336	8.44 %
Not Available	0	0.00 %	0.00 %	0	0.00 %	0.00 %	0	0.00 %	0.00 %	0	0.00 %	0.00 %	0	0.00 %
Total	3,293	82.68 %	100.00 %	10	0.25 %	100.00 %	318	7.98 %	100.00 %	362	9.09 %	100.00 %	3,983	100.00 %

- a. For the file under review here, the denial rates for 50%-79% minority area was significantly different to the denial rate in the less than 10% minority tract areas and is shaded in red. 80%-100% was not significantly different and is not shaded in red
- b. This report is four pages, breaking the findings into income categories (low and moderate, middle, upper)
- 6. Toggle to the next Redlining report:
 - a. Navigate to the Selected Reports drop down list and select the Differences in Insufficient Collateral...report
- 7. Review Results for "Differences in Insufficient Collateral by Minority Concentration: Redlining (R3)"

Tract Minority	Denied Count	Insufficient Collateral	Percentage
< 10%	28	13	46.00 %
10% - 19%	61	27	44.00 %
20% - 49%	110	45	41.00 %
50% - 79%	87	26	30.00 %
80% - 100%	32	12	38.00 %
Not Available	0	0	0.00 %
Total	318	123	38.68 %

a. For the file under review here, the percentage of denials for "insufficient collateral" were actually lower than the "less than 10% minority" tracts used as the control group. If significant differences had been higher, the percentage column would have contained red cells

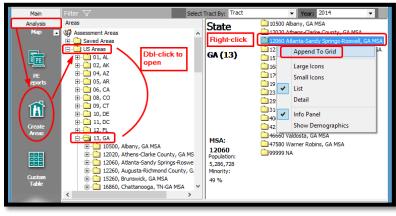
Redlining and Marketing Scorecard (M6)

The Fair Lending Examination Procedures outline several marketing risks, some of which can be monitored by using HMDA data. The primary goal is to determine if the institution is serving all segments of a market equally or if there are potential areas for improvement.

The Redlining and Marketing Scorecard report looks at the demographics of your various markets, compares the applications taken and originations made against those demographics, and compares your applications against the peer.

To run the report:

- 1. Close the report viewer if it is open
- 2. From the Fair Lending Reports list, select Redlining and Marketing Scorecard (M6)
- 3. To run the report, an Assessment Area is helpful and should be selected. If you have not already created an assessment area, follow the steps below:
 - a. Click the left-most Wiz icon in the Windows taskbar
 - b. Click the Analysis button
 - c. Click the Create Areas button
 - d. In the Areas list (left side of the screen), double-click US Areas
 - e. Double-click the area you wish to create, in this case 13, GA
 - f. On the right-side of the
 - g. Select Append to Grid
 - **h**. With the Grid showing 951 tracts, click the Save button
 - i. Type in an area name of Atlanta-Sandy Springs-Roswell MSA
 - Click Save j.



screen, right-click on "12060 Atlanta-Sandy Springs-Roswell, GA MSA"

Area Name: Number of T]		tion Method:	Tracts/BNA		
St	tate	MSA	County	Census Tract	Minority Tract	ract Income Catg	Percent Median
	-12 <mark>2</mark>	12000	013	Save In	100/ 200/	000/ 1000/	X
	Save in:			•	🥆 🗙 🖻 🗉	I • I ,	
	∑ <mark>Atlanta-Sa</mark>	andy Springs-Rosw	ell MSA				
A	Area <u>N</u> ame:	Atlanta-Sandy Sp	orings-Roswell	MSA		<u>S</u> ave	<u>C</u> ancel

- 4. In the Windows Taskbar, click the right-most Wiz icon (Fair Lending Reports)
- 5. Select the Redlining and Marketing Scorecard report
- 6. Select categories you wish to run the report. In this case only certain ones will be selected, but all can be selected at once:
 - a. Select the following:
 - i. Race
 - ii. Ethnicity
 - iii. Gender
 - iv. Tract Minority
 - b. In the Saved Areas listing, select the area you wish to analyze, in this case Atlanta-Sandy Springs-Roswell MSA
 - c. Leave the benchmark designations at the default settings (85% for demographics, 95% for peer)
 - i. These benchmarks can be changed based on the institution's preference, there is not a
 - defined standard Execute 'Redlining & Marketing Scorecard (M6) Saved Areas: Peer Lender Groups d. Click Aggregate Race Saved Areas Peer Lender Group View BISG Race Valley Ethnicity First Hawaiian e. Peer Mortgage Data Race/Ethnicity - select the year of Gender Marital Status Peer data Applicant Income Category swell MSA Tract Income Category applicable Tract Minority f. Keep Aggregate Cender (Standard) 🔲 Age View Minority Statu Selected Areas: Atlants Sandy Springs Roswell MSA (ID:134) Selected Lender Groups g. Click T-Stat, if you wish to see the Tvs. Demographic Highlight * Peer Mortgage data 85 No Peer Data is selected · • Stat values vs. Peer Highlight 95 h. Leave the **Agency** Race/Ethnicity Aggregate View
 DisAggregate View
 selection set to All T-Stat Leave Lender İ.
 - Groups selection blank, unless you have a specific group of lenders you wish to analyze. In this case select the group applicable
- 7. Click Generate Report

8. Review Results:

Assessment Area: Atlants	Sandy Spring	s Roswe	II MSA														
	Area Demog	raphics	Institu	tion App	lications	Instit	ution Ori	ginations		Institution (Denials	Aggregate	Peer App	lications	Aggregate	Peer Orig	inations
Race	Population	%Total	Applications	%Total	vs. Demographics	Originations	%Total	vs. Demographics	Denials	%Total	vs. Demographics	Applications	%Total	Institution vs. Peer	Applications	%Total	Institution vs. Peer
American Indian or Alaskan	16,044	0.30	11	0.39	130.00	9	0.39	130.00	1	0.46	153.33	989	0.28	139.29	383	0.23	169.57
Asian	293,771	5.49	145	5.15	93.81	122	5.22	95.08	12	5.50	100.18	20,710	5.95	86.55	11,487	6.92	75.43
Black or African American	1,831,421	34.20	616	21.86	63.92	476	20.38	59.59	69	31.65	92.54	73,803	21.19	103.16	33,194	19.99	101.95
Native Hawaiian or other Pacific Islander	1,990	0.04	5	0.18	450.00	4	0.17	425.00	1	0.46	1150.00	723	0.21	85.71	257	0.15	113.33
White	3,086,318	57.63	1,819	64.55	112.01	1,555	66.57	115.51	111	50.92	88.36	156,940	45.06	143.25	89,758	54.05	123.16
Two or more Minority Races	126,080	2.35	2	0.07	2.98	2	0.09	3.83	0	0.00	0.00	816	0.23	30.43	324	0.20	45.00
Joint Race			26	0.92	NA	23	0.98	NA	1	0.46	NA	3,358	0.96	95.83	1,944	1.17	83.76
Not Provided			191	6.78	NA	142	6.08	NA	23	10.55	NA	52,622	15.11	44.87	25,920	15.61	38.95
Not Applicable			3	0.11	NA	3	0.13	NA	0	0.00	NA	38,256	10.98	1.00	2,776	1.67	7.70
Not Calculated			0	0.00	NA	0	0.00	NA	0	0.00	NA	98	0.03	0.00	16	0.01	0.0
Ethnicity	Population	%Total	Applications	%Total	vs. Demographics	Originations	%Total	vs. Demographics	Denials	%Total	vs. Demographics	Applications	%Total	Institution vs. Peer	Applications	%Total	Institution vs. Peer
Hispanic or Latino	578,574	10.45	208	7.38	70.62	173	7.41	70.91	16	7.34	70.24	18,172	5.22	141.38	8,994	5.42	136.72
Non Hispanic or Latino	4,957,263	89.55	2,418	85.81	95.82	2,015	86.26	96.33	182	83.49	93.23	236,500	67.90	126.38	126,639	76.26	113.11
Joint Ethnicity			18	0.64	NA	18	0.77	NA	0	0.00	NA	3,081	0.88	72.73	1,756	1.06	72.64
Not Provided			171	6.07	NA	127	5.44	NA	20	9.17	NA	52,247	15.00	40.47	25,926	15.61	34.8
Not Applicable			3	0.11	NA	3	0.13	NA	0	0.00	NA	38,160	10.96	1.00	2,712	1.63	7.90
Not Calculated			0	0.00	NA	0	0.00	NA	0	0.00	NA	155	0.04	0.00	32	0.02	0.0
Gender	Population	%Total	Applications	%Total	vs. Demographics	Originations	%Total	vs. Demographics	Denials	%Total	vs. Demographics	Applications	%Total	Institution vs. Peer	Applications	%Total	Institution vs. Peer
Male	2,085,477	47.88	1,777	63.06	131.70	1,498	64.13	133.94	132	60.55	126.46	0	0.00	NA	0	0.00	NA
Female	2,270,186	52.12	915	32.47	62.30	746	31.93	61.26	69	31.65	60.73	0	0.00	NA	0	0.00	N/
Both Male and Female			4	0.14	NA	3	0.13	NA	1	0.46	NA	0	0.00	NA	0	0.00	N/
Not Provided			119	4.22	NA	86	3.68	NA	16	7.34	NA	0	0.00	NA	0	0.00	N/
Not Applicable			3	0.11	NA	3	0.13	NA	0	0.00	NA	0	0.00	NA	0	0.00	NA
Not Calculated			0	0.00	NA	0	0.00	NA	0	0.00	NA	348,315	100.00	0.00	166,059	100.00	0.00
Tract Minority	# of Tracts	%Total	Applications	%Total	vs. Demographics	Originations	%Total	vs. Demographics	Denials	%Total	vs. Demographics	Applications	%Total	Institution vs. Peer	Applications	%Total	Institution vs. Peer
< 10%	52	5.49	128	4.54	82.70	109	4.67	85.06	9	4.13	75.23	18,547	5.32	85.34	9,675	5.83	80.10
10% - 19%	135	14.24	414	14.69	103.16	348	14.90	104.63	35	16.06	112.78	62,073	17.82	82.44	31,926	19.23	77.40
20% - 49%	306	32.28	1,224	43.44	134.57	1,043	44.65	138.32	76	34.86	107.99	132,817	38.13	113.93	66,217	39.88	111.9
50% - 79%	228	24.05	748	26.54	110.35	602	25.77	107.15	69	31.65	131.60	80,357	23.07	115.04	36,621	22.05	116.8
80% - 100%	227	23.95	304	10.79	45.05	234	10.02	41.84	29	13.30	55.53	54,521	15.65	68.95	21,620	13.02	76.9
Not Available			0	0.00	NA	0	0.00	NA	0	0.00	NA	0	0.00	NA	0	0.00	N/

- a. Applications from Blacks: 34.20% of the population in the Atlanta MSA was Black or African-American. The institution received 21.86% of its applications from that group, or 63.92% of the demographic. 63.92% was below the 85% benchmark, so it is highlighted in orange
- b. Originations from Blacks: The percentage of Originations was lower than the applications percentage, at 59.59% of the demographic
- c. Applications compared to peer: The peer received 21.19% of its applications from blacks compared to this institution's percentage of 21.86%. Because 21.86% was higher than 21.19%, the percentage showed 103.16% and is not highlighted in orange
- 9. Close the report viewer
- 10. Close Fair Lending Reports

Notes on this Risk Factor Report:

- 1. This report is available for <u>Mortgage and Consumer files</u> only
 - a. Consumer Files will only compare the institution's activity to the demographics due to lack of peer data
- 2. This report must have defined Assessment Areas to provide demographic information. For HMDA reporters, assessment areas are likely already defined in the Wiz. For Consumer and Auto files, however, you can create "Assessment Areas" based on where your institution does business (make areas based on the MSAs where you concentrate your business)
- 3. To create an "Assessment Area" based on where the loan applications came from, follow these steps:
 - a. Click the Analysis button
 - b. Click the Create Areas button

- c. In the Display Pane (the upper-right area), click in a blank area to open a context-sensitive menud. Select Create Area Based on LAR and navigate to the
- file you want to analyze
- e. Once the list of tracts is in the "grid" (lower part of the screen), click the Save button and name the area accordingly

	Install
	Create Area Based on LAR
	Paste
	Large lcons
	Small Icons
~	List
	Detail
~	Info Panel
	New Folder

Chapter 10 - Decisioning Regression Analysis

You have already used the Fair Lending Reports, such as the Focal Point Report and other Risk Factor Analysis Reports to determine the risk that you have in your lending patterns.

Regression analysis is an industry standard practice used to test for disparate impact by controlling for credit policy factors such as credit score, debt-to-income, or combined-loan-to-value criteria, that may impact the decision to approve or deny.

The decision to approve or deny is considered a "binary" decision (you were either approved '1', or you weren't '0'). The decision to approve or deny is the "dependent" variable, while the factors used to make the decision are the independent variables.

This chapter will cover the thought process behind building a successful decisioning regression analysis, which must be done with care. Good data is critical to the process, so the data should have already been "scrubbed", with "odd" values in the data fields either corrected, "capped" or nulled out if they can't be fixed. Text fields should have been converted to numeric values for use in the modeling.

Overview of Logistic Regression

The type of regression analysis used to analyze the underwriting process is called "logistic regression". By contrast, the regression analysis used to determine pricing is called a "linear regression".

In statistics, logistic regression analysis is a model used to predict the probability of a specific event. If we consider the specific event to be that an applicant was approved for a loan, then the model is predicting that person's probability of approval. The flip side, of course, is the probability that the person should have been denied.

A given loan file has a series of observed data points (applicants). Each applicant has a set of explanatory variables (also called independent variables, predictor variables, input variables, features, attributes or factors). Each applicant also was either denied (value of 0) or approved (value of 1). The goal of logistic regression is to explain the relationship between the explanatory variables and the approval/denial outcome. The model calculates the relationships by looking at the decisions made for a certain time period (quarterly, semi-annually, annually) and analyzing each variable's apparent importance to the decisioning process. A minimum number of applications are needed to accomplish the necessary statistical tasks (200 to 250 applications that have varying outcomes and are comprised of prohibited basis and control applicants).

What factors go into the probability calculation? A chief component would be the person's willingness to repay debts incurred in the past (the credit score). Another might be the how much debt they are carrying (the debt ratio), and a third might be the amount they need to borrow compared to the value of the dwelling they hope to acquire or refinance (the CLTV/LTV ratio). Other factors can come into play as well, such as whether they qualify for a government insured or guaranteed loan (FHA, VA, or a USDA program), whether they are using the dwelling as their primary residence or are buying as an investment property, whether they are asking for cash back for improvements, and so on.

Your institution's policies, procedures, limitations, available product types, risk appetite, and whether you have policy exceptions also make a difference in whether someone gets a loan or not.

In other words, the relationships are determined by looking at how the decisions were made for the entire portfolio under review.

The logistic function is:

- $F(x) = \frac{1}{1 + e^{-(\beta_0 + \beta_1 x)}}$
- F(x) is the probability of the dependent variable equaling "success" (an approval in our case here)
- Base "e" is a called the natural exponential function. e is Euler's number, a transcendental number (a constant number similar to "Pi" π) approximately equal to 2.718 281 828. The exponential function is used to model a relationship in which a constant change in the independent variable gives the same proportional change in the dependent variable
- β_0 is the <u>intercept</u> from the linear regression equation (the value of the criterion when the predictor(s) is equal to zero)
- $\beta_1 x$ is the <u>regression coefficient</u> multiplied by the value of the predictor

Overview of Factors That Can be Used for Logistic Regression

Generally speaking, numeric indicators of items that are specifically laid out in policy statements or other underwriting guidelines should be included as factors used to explain the decisions made. If at all possible, there should be data elements representing each of these factors (predictors). Sometimes, they can be "derived" from text fields that are included in the data.

- The Credit scores used in the decision
- If there is an applicant AND a co-applicant, and BOTH have merged scores, you have to ask whether the HIGHER of the two scores is used, or the LOWER of the two scores is used
 - Based on the score used, you may need to create a custom field that will contain the higher or lower of the applicant/co-applicant score, which will then be used in regression
- Raw Credit scores are considered "continuous variables". An alternative to using raw credit scores is to establish binary values that explain the presence (or absence) of an applicant within a particular credit "bucket" or "tier", which can be derived from policy or in our case, the "dummy variables" below:
 - Example: A field called CS_740_up is defined as an Integer field. If an applicant's score is 740 or higher, then a "1" goes in CS_740_up. If their score is less than 740 then a "0" goes in
 - If there are 7 buckets, establish 7 fields "Is740_up", "Is720_739", "Is700_719", and so on. When using these fields in a regression model, you MUST leave out at least one of these fields so the model can compare the outcomes of the included bins against the "reference" field. The buckets should reflect the credit score ranges used in underwriting or pricing
 - Alternatively, you can create a linear tier field with the best scores in tier 1, next best in tier 2, and so on, and applicants without a score in the last tier. The tiers should reflect the credit score ranges used in underwriting or pricing, below is the example used for training purposes
 - Tier 1 40+
 - Tier 2—720-739
 - Tier 3–700-719
 - Tier 4–680-699
 - Tier 5—660-679
 - Tier 6–640-659
 - Tier 7-620-639
 - Tier 8 <620
 - Tier 9 No Score
- Debt ratios
 - The "front-end ratio", sometimes known as the Housing Expense ratio, is the PITI (Principal, Interest, Taxes and Insurance) payment required for the new loan, divided by gross monthly income
 - The "back-end ratio", also known as total debt ratio or debt-to-income ratio is the PITI plus all required monthly payments on all debts
- Loan-to-Value Ratios (LTV) is the requested loan amount divided by the appraised value of the residence
 - \circ $\,$ CLTV is the Combined LTV (both first and second lien), if a second lien is in place
- Credit components already considered in the credit score (or scores)
 - Some institutions require their lenders to dissect the credit report, looking for late payments of a particular kind (on a previous mortgage, for example), or a bankruptcy
 - Consider having an numeric indicator showing either there was or was not a bankruptcy or late payment or a numeric indicator that contains the number of bankruptcies or late payments indicated in the file

- Other possible indicators:
 - Length of employment in current job (make sure that all data reflects the same thing either months or years of employment, not some of each)
 - Length of residence (make sure of the consistency of the data)
 - Home ownership indicator (as a 0 if "No", 1 if "Yes")
 - Construction to Perm Indicator (as a 0 if "No", 1 if "yes")
 - Employee Indicator (as a 0 if "No", 1 if "yes")
 - Self-employed indicator (as a 0 if "No", 1 if "Yes")
 - Current account holder at the institution (as a 0 if "No", 1 if "Yes")
 - Auto-debit of payment from account at institution (either as 0 and 1, or as amount)
 - CREDIT CARDS: Percentage of credit lines used
 - CREDIT CARDS: Secured card indicator (0 if "No", 1 if "Yes")
 - CAR LOANS: New or Used indicator (0 if "Used", 1 if "New")
 - CAR LOANS: Certified Pre-Owned indicator (0 if "No", 1 if "Yes")
 - PROPRIETARY SCORES: Make sure you understand the possible range and the direction (is it higher numbers reflect better credit, or lower?)
- HMDA codes (if you understand the values behind the numbers, and what YOU have):
 - HMDA fields can be used, though they may require additional formatting or changes (please refer to Chapter 8, "Understanding the Meaning Behind HMDA Codes") for more information
 - Regression is looking for a linear relationship in the meaning behind the numbers
 - For example, Construction Method 1-Site Built and 2-Manufactured Home. But within "1" may be 1-4 family, condos, co-ops and multifamily properties. Within "2" may be manufactured homes with or without land and manufactured home parks. Those different property types likely have different underwriting requirements. If necessary, set up user defined codes.
 - Lien Status (if first or subordinate lien)
 - Construction Method (if site built or Manufactured)
 - o Occupancy Type (if Primary Residence, Second Residence, and Investment)
- Policy limitations
 - If policy limitations are in place there should be an indicator that the borrower exceeded that limit:
 - Qualified Mortgage (QM) rules state that the DTI Ratio cannot go over 43%
 - Set up a new field called QM and populate with a 0 if 43% or below and a 1 if 43.01% or higher
 - LTV/CLTV Limits might prohibit any loan with an LTV/CLTV ratio higher than 110% (except for special programs)
 - Set up a new field called LTV_Limit with a 1 if over 110% and a 0 if <= 110%
 - CAR LOANS: Mileage limits might impact the approval. A limit might be 80,000 miles unless it fits into a special program (classic cars, commercial trucks)
 - Set up a new field called MileageLmt with a 1 if over 80,000 miles and a 0 if not

This list is not exhaustive. Think about the fields that are needed based on your institution's underwriting policies and pricing matrix.

Testing the Model

There are several methods for testing the effectiveness of a model. Most of these tests are extremely complex. Rather than providing one test, Fair Lending Wiz provides 5 different tests:

- %Agreement this represents a percentage of the time that the predicted outcome MATCHED the actual outcome. For each applicant, the model calculates the probability that the applicant should have been approved. The "line in the sand" for approval versus denial is based on the origination rate for the entire file under review.
 - In the file used in this manual, the origination rate is a very high (and somewhat unusual) origination rate of 82.67%
 - Applications without valid values in the predictor variables are excluded from the analysis. Therefore, the addition of each predictor can change the associated origination rate by leaving out the records without values in the fields being tested.
 - After determining the origination rate, any applicant with a probability equal to or higher than the origination rate is classified as "should have been approved"
 - Any applicant with a probability lower than the origination rate is classified as "should have been denied"
 - The model then compares the predicted outcomes to the actual outcomes.
 - AGREEMENT: If model prediction was "Approve" and the applicant was "Approved"
 - AGREEMENT: If model prediction was "Deny" and the applicant was "Denied"
 - DISAGREEMENT: If model prediction was "Approve" and the applicant was "Denied"
 - DISAGREEMENT: If model prediction was "Deny" and the applicant was "Approved"
 - o Divide the Agreements by the total number of applications considered
 - DIRECTION: Higher is generally better
 - A higher %Agreement does not necessarily mean a better model
- X² (Chi-Squared) pronounced like the "Ki" in "Kite", NOT like "She") this formula estimates the predicted outcomes versus the actual occurrences
 - DIRECTION: Higher is generally better. For each new predictor variable added, the chisquared number will increase slightly; larger file sizes will have higher Chi-Squared values
- AIC (Akaike Information Criterion) this formula (developed by Hirotugu Akaike in 1974), is a measure of the relative quality of different models for a given set of data
 - Given a collection of different models, AIC estimates the quality of each model, relative to each of the other models. It provides a means for model selection. It deals with the trade-off between the "goodness of fit" of the model and the complexity of the model
 - Increasing the number of explanatory variables almost always improves the goodness of fit, and this helps measure
 - One rule-of-thumb for the number of records ("observations") per explanatory factor ranges from 10 to 15
 - DIRECTION: Lower is generally better
 - The AIC offers a relative estimate of the information lost with the data provided. Since the criterion is dependent upon the data delivered, make sure your data is as good as possible (no data extremes, or impossible values)
- R² (R-Squared) This statistic indicates how useful the explanatory variables were in predicting the outcomes. Theoretically this value can approach a value of "1" if the explanatory variables explained everything that occurred in the file under review

- DIRECTION: Higher is generally better
- X² Hosmer-Lemeshow Test this is yet another statistical test (developed by Stanley Lemeshow and David Hosmer) measuring goodness of fit of a model
 - The test assesses whether or not the observed event rates (approval, denial) match the expected event rates. The test divides the applicants into 9 subgroups (deciles) and compares the expected versus observed event rates in the various groups.
 - DIRECTION: Lower is generally better
 - This test has come under some criticism by statisticians (but what hasn't?), so use with caution
- Derivatives a derivative measures the sensitivity to change in the dependent variable when the independent variable changes by one unit of measure

Best Practices:

- Use a combination of these measurements when deciding what explanatory variables to use in your model
- Look carefully at the data behind the explanatory variable to see if you can validate and understand what the results are suggesting items that look "too good to be true" might be
- Regression modeling is not "one size fits all". You must know your data and your policies to know what is going to work for your particular situation and the data you are analyzing
- Consider maintaining an Excel Spreadsheet of the various items that you tested in your model, and what the statistics had to say about each one
- Don't include an explanatory variable just because it increases the %Agreement. The item should make sense based on the underwriting guidelines

Base Model Setup and Interpretation

Start simple. Base your initial model on the explanatory variables that should, according to your underwriting guidelines, make the most difference. If there are items that you want to leave out any analysis such as Employee or Business loans the data should have a variable that identifies these circumstances so the user can filter the loans out of the analysis.

- In Mortgage lending, a good "base" model might include raw credit scores, raw CLTV ratios and raw back-end ratios
- In Consumer lending (credit cards, unsecured lines of credit, overdraft protection plans, etc.) a good "base" model may be raw credit scores and debt ratios only
- If a product line is "Secured" then an LTV might be appropriate. If not appropriate, then an indicator that it is a secured product might suffice
- In Auto lending a good base model consist of raw credit scores, raw debt ratios, raw LTV ratios, model year (or the number of years old), and a new/used indicator

Start by testing individual factors one at a time (adding a new factor to the base model, testing it, subtracting the new factor and adding another, etc.)

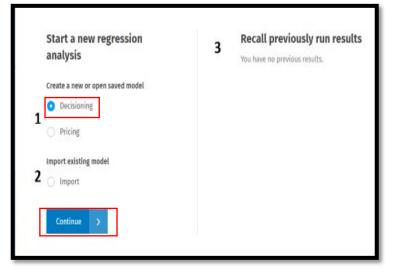
To begin

- 1. Click the Fair Lending Wiz tab
- 2. Click the Fair Lending Regression button

P en		
Main	Filter V	
Analysis air Lending Wiz	Wiz [®] Web Center	
	WHATS NEW	
Standard Reports	Click Here for Image Legend Week of 5/4/2020 Treasury/APOR Download Posted 5/1/2020	
Fair Lending Regression	CRC here to download the Treasury/APOR update. CRC here to download the Treasury/APOR update. CRC here for Treasury/APOR Installation Instructions.	
4	NIQUND	
Fair Lending Reports	ISSUE/JMTIGATION: Fair Lending Wiz New Regression Module (Posted 5/1/200) Dear Fair Lending Wiz Regression Users:	
	Dear Par Lending Wiz Regression Users: We wanted to notify you of an issue that has surfaced in the New Regression Module in CRA W/z and Fair Lending W/z 7.4 SP1.	
omparative File	Issue: The New Repression Module unexpectedly closes when user attempts to click Race/Ethnicity or other Demographics tabs after running a model. Mittation: Until Wolters Kluwer provides a fix for the New Repression Module, you can continue to access the previous version of the	
Review	<u>Mingaton</u> : Until Wolters Nauver provides at to to the New Regression Module, you can continue to access the previous version of the Regression Module to perform your regression analyses in 7.6P1 version. <u>Next Steps</u> : Please look out for notifications in coming weeks that will contain information about an update/fix.	
	If you have questions/concerns please contact the support team at FairLendingWitSupport@wolterskluwer.com	
Regression Analysis	Updated CRA Wiz Training Manuals Available (Posted 4/20/2020)	
	The CRA Wiz Training Manuals have been revised to include updated screenshots and new exercises specific to the HMDA DE LAR type. The new manuals are available from the links below or under the Resources section.	
Custom Table	CRA WIZ Treining Manual - Data Prep CRA WIZ Treining Manual - Data Analysis	
t & Geocode	2019 Peer Mortgage Data Update - Preliminary Release (Posted 4/10/2020)	

A new window will open

- 3. Click the Decisioning button
- 4. Select Continue



5. Click Create New Model



- 6. Select the factors to analyze by clicking the Plus Sign located next to the factor and then clicking the checkbox
 - a. Start with a base model and select the credit score used in the decisioning process (for training, ours is a user defined field called Cust_Credit), CLTV, and DTI Ratio. After you establish the base, test each additional factor by itself. After you determine which factors are best to use, you will build the model with all factors selected

😫 Applicant(s) Info	
🛨 Credit Score	
E Financial Ratios	
All	
✓ Debt to Income Ratio	
✓ Combined Loan to Value Ratio	
Loan to Income Ratio	
🗌 Loan To Value Ratio	
Front End Ratio	
Back End Ratio	

Q cust	×
User Defined Variables	^
Cust_Credit	
	User Defined Variables

7. "Model summary" pane will display the selected factors

Model summary	
Factors	Remove all
Debt to Income Ratio	×
Combined Loan to Value Ratio	×
Cust_Credit	×

- The "Action Taken values" section under Model type allows you to select the loans you wish to see as "Approvals" and as "Denials"
 - a. The only action type that is on both sides of the equation is Approved Not Accepted. Each institution will need to determine what constitutes an "Approval" under their policy or regulator guidance. For Training purposes, Approved will be Originated and Denied will be Denied applications (the default settings)
- 9. Significance Level is defaulted to 95%

Model type Decisioning	
Action taken values	🖊 Edit
Approved: Originated	
Denied: Denied	
Significance 95%	File type HMDA DF
File name Training File 2 Final FP	R 2018

Saving Decisioning Regression Model

1. To save your model, click the Save model button

⊘ Start regression analysis	2 Define regression model	3 Analyze data					
Saved models	Create new model	Model summary				C [®] Export model	≛ PDF
Q Search Mortgage Applicant(s) Info Credit Score Financial Ratios	^	Factors Debt to Income Ratio Combined Loan to Value Ratio Cust_Credit	Remove all × × ×	Model type Decisioning Action taken values Approved: Originated Denied: Denied	✓ Edit		
 Loan/Application Pricing Stability User Defined Variables 	~	Save model Reset All]	Significance 95% File name Training File 2 Final FPR	File type HMDA DF 2018	Start analysis	>

The software displays a dialog box

2. Enter a name for your saved model in the provided text box

∏ype model name	Please enter a name for this mo	del	
	∏ype model name		
Save Cance			Cancel

Click the Save button

- 3. The software saves your model and displays the model name after Model summary at the top of the screen
 - a. If you want to change the name of your model, click the model name, edit as necessary in the provided dialog box, then click the Save button
- 4. To save a copy of the model using a different name, click the Save as button

The software displays a dialog box

- 5. Enter a name for the new model
- 6. Click the Save button
 - a. The software displays the model name in the Model summary

To remove all selected factors and start over, click the Reset All button



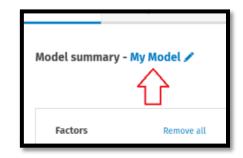
Cancel



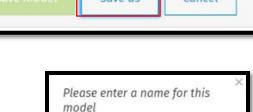
My Model (001)

Please enter a name for this model

My Model



Cancel



Running Decisioning Regression

- 1. After assessing which factors to use, create the model, consider saving it and printing the Model Summary to PDF
- 2. Then click Start Analysis

Factors	Remove all	Model type	
Debt to Income Ratio	×	Decisioning	
Combined Loan to Value Ratio	×	5	
Cust_Credit	×	Action taken values	Edit
		Approved:	
		Originated	
		Denied:	
		Denied	
		Significance 95%	File type HMDA DF
		File name Training File 2 Final FPR 2	018

3. Once you have ran the model, you will be taken to the results screen. On the left-hand side of the screen, users can view the results by clicking on each category under "Show results by"

Statistics	
Summary	
Race	
Ethnicity	
Marital Status	6
Tract Minority	6
Tract Income	Category
Applicant Inco	ome Category
Gender	
Age	

4. The Statistics Screen will display information about the model, including the statistical values of the overall model and the statistical significance of the factors used in the model

show results by	Total Appl.	Approved		nent or Fit	Cutoff for Revie		Recalculate
Statistics	3570 / 3983 🚱	3285 / 92%	285 / 8% 62.4%		92.0%	• ?	Recalculato
Summary	x : 261.820	R ² : 0.132	AIC: 1,733.661		X'HL: 123.106		DF:3
Race	X 1 201.020	R . 0.132	ALC: 1,753.001		XIIC: 123.000		0113
Ethnicity	Factor ©		Estimated Influence	Significance +	Pr > t ¢	Marginal Impact	Interpretation or relationship
Marital Status				argumentse +	C125942223301512		
Tract Minority	Intercept		9.7113	13.65	0.0000	0.5120	
Tract Income Category	Cust_Credit		-0.0005	-8.80	0.0000	0.0000	1 Decreases approval
Applicant Income Category							· secretaria approvat
Gender	Combined Loan to Value	Ratio	-0.0576	-8.27	0.0000	-0.0030	Decreases approval
Age	Debt to Income Ratio		-0.0349	-6.01	0.0000	-0.0018	L Decreases approval

- 5. Consider recording the Total Appl., Agreement or Fit percentage, Estimated Influence, Significance (Tstat), and interpretation or relationship of each factor in an excel spreadsheet or take a screenshot of the statistics to keep for your records
 - a. As the DTI Ratio increases, probability of approval decreases. Ensure that the relationship makes sense

Total Appl. 3570 / 3983 😯	Approved 3285 / 92%		greement or Fit 2.4%	Cutoff for Rev 92.0%		Recalculate
x²: 261.820	R ² : 0.132	AIC : 1,733.6	61	x²HL : 1 23.106		DF: 3
Factor 🖨		Estimated Influer	ce <u>Significance</u> •	Pr > t ≑	Marginal Impact	Interpretation or relationship
Intercept		9.7'	13 13.65	0.0000	0.5120	
Cust_Credit		-0.00	-8.80	0.0000	0.0000	↓ Decreases approval
Combined Loan to Val	ue Ratio	-0.05	76 -8.27	0.0000	-0.0030	↓ Decreases approval
Debt to Income Ratio		-0.03	49 -6.01	0.0000	-0.0018	↓ Decreases approval

- 6. After the base is built, add each factor you are considering into the model one at a time. Compare the factor's information and statistics in how it affects the base model. Consider the following:
 - Run a new "base" using credit score tier instead of raw credit score. Did the results change?
 - Watch the Statistics for actual influence
 - Watch the %Agreement. A better model will increase the figure but do not use factors that drastically spike or decrease the figure. Do not add a value just to see the %Agreement rise
 - Watch the total number of records considered. A decrease in records means the data contains null values
 - Refer to custom tables to see the volume of applications being approved or denied for a particular factor
 - If using tiers or buckets, be sure to only add one or the other, not both. If using credit score buckets, be sure to leave on bucket out as a reference bucket

7. Next, the user will click on the "Summary" option from the left-hand sidebar. This view will provide the user with the number of total applications that were "Denied & Review" or "Approved & Review", along with the breakdown via prohibited basis category

Statistics	Total Appl. 3570 / 3983 🚱	Approved 3285 / 92%	O 285 / 8%	Agreement or Fit 62.4%	Cutoff for Review		Recalculate	
Summary	x ⁱ : 261.820	R ² : 0.132	AIC: 1,73	3.661	X ^e HL : 123.106	DF	-3	
Race								
Ethnicity Marital Status	Show properly denied/approperly denied/approperly denied/appropriate	pproved					③ Show	v leger
Tract Minority		Denied & Review			Approved & Review			
Tract Income Category	Borrower Characteristic	Count	% row	Ratio 🕜	Count	% row	Ratio 🕜	
Applicant Income Category Sender	— Total							
ge	Total applications	91	2.55 %		1,253	35.10 %		
	- Race							
	American Indian or Alaska	in 1	6.25 %	3.01	6	37.50 %	1.21	
	Asian	5	3.25 %	1.56	46	29.87 %	0.96	
	Asian Indian	0	0.00 %	0.00	0	0.00 %	0.00	
	Chinese	0	0.00 %	0.00	0	0.00 %	0.00	
	Filipino	0	0.00 %	0.00	1	100.00 %	3.22	

8. Then, click on each individual prohibited basis group from the left-hand side to view applications that are categorized as "Denied & Review". Those that are statistically significant will be highlighted in either red or blue

Show results by Statistics	Total Appl. 3570 / 3983 🕜	Approved 3285 / 92%	Denied Agreem 285 / 8% 62.4%	eent or Fit Cutoff fo		Recalculate
Summary Race	View by 💿 % of Row	🔿 % of Column			🖉 Expo	t data 👻 🛞 Show legen
Ethnicity Marital Status	Tract Minority	▲ Denied & Review	Approved & Review	Properly Denied	Properly Approved	Total
Tract Minority	* < 10%	11 3.33%	88 26.67%	16 4.85%	215 65.15%	330 100.00%
Tract Income Category	10% - 19%	12 1.83%	176 26.83%	43 🕇 6.55%	425 64.79%	656 100.00%
Applicant Income Category Gender	20% - 49%	28 🖡 1.87%	507 † 33.94%	72 4.82%	887 \$ 59,37%	1494 100.00%
Age	50% - 79%	33 4.07%	351 🕇 43.33%	44 5.43%	382 \$\$47.16%	810 100.00%
	80% - 100%	7 2.50%	131 🕇 46.79%	19 6.79%	123 👃 43,93%	280 100.00%
	Not Available	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 100.00%
	Total	91 2.55%	1253 35.10%	194 5.43%	2032 56.92%	3570 100.00%

Red text indicates significantly higher than the control group. Blue text indicates significantly lower than control group. By clicking details, you will see the application's probability of approval. Files with a higher probability of approval but were declined should be looked at first. You are reviewing for proper documentation of the decisions made, proper section of the denial reasons on the Statement of Denial and proof that the assistance provided was proper and not discriminatory.

This will display the list of applications. For training, click on Denied & Review

Category		Tract Minority	Priority	No. of applications	Applications in %
Denied &	Review	20% - 49% -	1 Statistically lower	28	1.87%
Row ID	Application Number \$	Probability +	Debt-to-Income Ratio	Combined Loan-to-value Ratio	Cust_Credit
3080	20094727	0.994534	26.44	55	794
2870	20095349	0.994355	16.81	62	727
2973	20094918	0.983061	48.06	63	658
1484	20096949	0.976744	29.12	80	666
2953	20095310	0.975174	45.62	70	795
1406	20094879	0.971213	30.9	83	636
38	20098007	0.9706	13	93	768
1291	20095776	0.969276	53.73	69	784
3143	20097739	0.967592	37.13	80	784

To change which applications the software displays in the window, select new criteria from either of the provided drop-down menus located at the top of the screen. In the above example, those are Category and Tract Minority

Cat	Category							
	Denied & Review							
	Denied & Review	•						
tow I	Approved & Review	on						
080	Properly Denied	7						
870	Properly Approved	• 9						

Tract Minority	
20% - 49%	•
< 10%	^
10% - 19%	
20% - 49%	
50% - 79%	•

10. To view an individual application, click one of the application number links

Row ID	Application Number 🖨	Probability +	Debt-to-Income Ratio	Combin
3080	20094727	0.994534	26.44	55
2870	20095349	0.994355	16.81	62
2973	20094918	0.983061	48.06	63
1484	20096949	0.976744	29.12	80

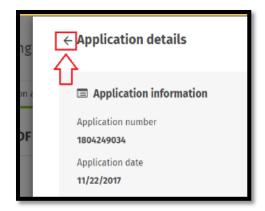
The software displays the Application details window

Application information		Applicant data	0
Application number	Action taken 3 - Application denied	Factors	Columns
Application date	Action date 02/15/2018	Q Search	
10/26/2017	02/15/2018	Factor name	Value
Applicant information		Debt to income Ratio	26.44
		Combined Loan to Value Ratio	55
First name	Last name -	cust_credit.	794
Co-Applicant first name	Co-Applicant last name		
•	*		
Race	Ethnicity		
5 - White	2 - Not Hispanic or Latino		
Age	Gender		
4 - <mark>4</mark> 5-61	0 - Joint		
Marital status			
3 - Not Calculated			
Ø Denial reason			
Denial 1	Denial 2		
7 - Credit Application Incomplete	÷		
Denial 3	Denial 4		

11. To view all of the application columns (fields), click the Columns tab located on the right side of the window

cant data	
Factors	Columns
Q, Search	
Column name	Value
Dataset (D	
Row ID	3080
Record Identifier	
Legal Entity Identifier (LEI)	12345A6789B12348Q749
Universal Loan Identifier (ULI)	12345A6789B12348Q74
Application Number	20094727
Application Date	10/26/2017
Loan Type	01 - Small Business
Loan Purpose	31 - Refinancing
Preapproval	2 - Preapproval not Requested
Construction Method	1 - Site built (modular or prefabrication)
Occupancy Type	1 - Principal residence
Loan Amount (in dollars)	175000
Loan Amount (in thousands)	175

12. To return to the Applications window, click the arrow located at the top left of the screen



13. To close the Application details window completely and return to the results screen, click the close (X) button located at the top right of the screen

	\leq
Columns	

Exporting Decisioning Regression Summary

You can export a Decisioning Regression results summary report in PDF (portable document format) and Excel format.

1. At the top, right-hand side of the screen, the user will select "Export Summary" to save and view the results of the model in either PDF or Excel format

Show results by	Total Appl.			Denie		greement or Fit		for Review			
Statistics	3570 / 3983 🚱	3285 /	92%	205/	8% e	2,4%	- 9	2.0%	0	Receivable	
Summary Race	View by 😑 % of Row	O % of Colum	n						C ^a Eq	port data +	@ Show leger
Ethnicity Marital Status	Tract Minority	A Denled	& Review	Appr	oved & Revie	w 🥌 Proj	perly Denied	🔶 Ртор	erly Approved		Total
Tract Minority	* < 10%	11	3.33%	88	26.67%	16	4.65%	215	4515%	330	100.00%
Tract Income Category	10% - 19%	12 1	1.03%	176	26.82%	43	1 6.55%	425	64.79%	656	100.00%
Applicant Income Category Gender	20% - 49%	28	1.87%	507	1 33.94%	72	4.82%	687	1 39,378	1494	100.00%
Age	50% - 79%	- 33	6.07%	351	1 43.33%	- 66	5.43%	382	1 473056	810	100.00%
	80% - 100%	7	2.50%	131	1 46.79%	19	6.79%	123	1 43.9296	280	100.00%
	Not Available	0	0.00%	0	0.00%	0	0.00%	0	0.00%		100.00%

PDF Summary Report

File Type: Mortgage											Stati	istically	Significa	nt:
File Name: Demo Da	ta 5-7-2014										Stati	istically	Favorabl	e:
Filter: None											Cont	rol Grou	ip:	
Analysis Summary:														
Records Analyzed: 2,640	Total Appl:	3,000	Appro	ved: 2,3	11/87.54	N Deni	nd: 329/	12.46%	Agrees	nent or FI	t: 59.1%	Cutoff f	or Review	87.5%
X2: 61.446	R2: 0.	031		Al	C: 1,932	.006		X2HL: 22.	43259464	2406	DF:	3		
Barrow Characteristic				_		-		- Deni				_		_
Borrower Characteristic		ed & Rev & Row			S Row			erty Denie % Row			The second second		Record	% Column
			iew Ratio (1)										Record	% Column
				Count						Count			count	% Column
Total Total applications	Count	% Row		Count	% Row I		Count	% Row 1		Count	% Row		count	
Total Total applications	Court 132	% Row		Count	% Row I		Count	% Row 1		Count	% Row		count	100.00%
Total Total opplications BISG Race	Court 132	% Row 5.00%	Ratio (1)	Count 947	% Row 1 35.87%	Ratio (1)	Count 197	% Row 1	latio (1)	Count 1,364	% Row 51.67%	Ratio (1)	count 2,640	0.00%
Total Total applications BISG Race American Indian or Alaski	Count 132 an 0 0	\$ Row 5.00%	Ratio (1) 0.00	Count 947 0	\$ Row 35.87% 0.00%	Ratio (1) 0.00	Count 197	1. Row 1 7.46% 0.00%	tatio (1) 0.00	Count 1,364 0	\$ Row 51.675 0.005	Ratio (1) 0.00	2,640	100.00% 0.00% 0.00%
Total Total applications BISG Race American Indian or Alaski Aslan or Pacific Islander	Count 132 an 0 0	% Row 5.00% 0.00% 0.00%	Ratio (1) 0.00 0.00	Count 947 0	\$ Row 35.87% 0.00% 0.00%	0.00 0.00	Count 197 0 0	7.46% 0.00% 0.00%	0.00 0.00	Count 1,364 0 0	\$ Row 51.675 0.005 0.005	Ratio (1) 0.00 0.00	2,640 0 0	100.00% 0.00% 0.00%
Total Total applications BISG Race American Indian or Alaski Aslan or Pacific Islander Black or African America	Count 132	\$ Row 5.00% 0.00% 0.00%	Ratio (1) 0.00 0.00 0.00	947 0 0	\$ Row 1 35.87% 0.00% 0.00%	0.00 0.00 0.00	Count 197 0 0	\$ Row 0 7.46% 0.00% 0.00% 0.00%	Latio (1) 0.00 0.00 0.00	Count 1,364 0 0	\$ Row 51.675 0.005 0.005 0.005	0.00 0.00 0.00	count 2,640 0 0	100.00% 0.00% 0.00% 0.00%
BISG Race American Indian or Alaski Asian or Pacific Islander Black or African America White	Count 132 an 0 0 0 0 0	\$ Row 5.00% 0.00% 0.00% 0.00%	Ratio (1) 0.00 0.00 0.00 0.00	947 947 0 0 0	\$ Row 35.87% 0.00% 0.00% 0.00%	C.00 0.00 0.00 0.00 0.00	Count 197 0 0 0 0	7.465 0.005 0.005 0.005 0.005	latio (1) 0.00 0.00 0.00 0.00	Count 1,364 0 0 0 0	\$ Row 51.675 0.005 0.005 0.005 0.005	0.00 0.00 0.00 0.00	count 2,640 0 0 0	100.00% 0.00% 0.00% 0.00%

Excel format - Compiles results from all demographic categories into a single output

- 5												Statis	tically Si	ionificar	
	File Type: Mortgage											J-Carto	carbany 5	-Britist of	···
7	the type:														
8															
10												Cashie	tically F	manable	
	File Name: Fair Lending	DE Roudou	(007)									Statis	cocany is	avoi abii	<i>.</i>
12	ran centing	Di luccatori	(oox)												
												e			
15	F Harrison Contraction Contraction											Contr	rol Group	00	
	Filter: None														
17 18															
19															
20	Analysis Summary:														
	and the second second second second														
	Records Analyzed: 269	Total Appl:	472	Appro	wed: 204	/ 75.84%	Denier	d: 65/	24.16%	Agreem	ent or F	t: 73.6%	Cutoff fo	r Review	: 75.8%
23	0.00			Appro						27				ir Review.	: 75.8%
25	Records Analyzed: 269 32: 28.209		472	Appro	wed: 204				24.16% X2HL: 14.	27		0Fr		ir Revlew	: 75.8%
27	0.00			Appro						27				r Review	: 75.8%
27 29	0.00	R2: 0			AR		3	Prop	X2HL: 14.	1757891479 d	854		2	Record	
27 27 29 30	3(2) 28,209	R2: 0	.095 ied & Revi		AR	275.28	l Iw	Prop	X2HL: 14.	1757891479 d	854 Prope	OF: erly Appro-	2 ved	Record	: 75.8% % Column
23 29 30 31 32	32: 28.209 Borrower Characteristic Total	R2: 0 Den Count	.095 ied & Revis % Row	ew	Appro Count	: 275.28 wed B. Revi 3: Row R	l Iw	Prop Count	X2HL: 14. serly Denie 3 Row P	1757891479 d	854 Prope Count	OF: erly Approv S Row R	2 ved	Record count	% Column
27 27 29 30 31 32 33	X2: 28.209 Borrower Characteristic Total Total applications	R2: 0 Den	.095 ied & Revi	ew	Aji	:1 275.28 wed B Revis	l Iw	Prop	X2HL: 14.	1757891479 d	854 Prope	OF: erly Appro-	2 ved	Record	
27 29 30 31 32 33 34	X2: 28.209 Borrower Characteristic Total Total applications Race	R2: 0 Den Count 20	095 ed It Revi 5 Row (7.435	ew Ratio (1)	Appro Count 51	275.28 wed 8 Revis 3 Row R 18,955	3 atio (1) - 1	Prop Count 45	X2HL: 14. serly Denie 3 Row P 16.73%	d atto (1)	854 Prope Count 153	OF7 erly Approv % Row 8 56.88%	2 latio (1)	Record , count 209	5 Column 100.001
23 29 29 30 31 32 33 34 35	X2: 28.209 Barrower Ownectoristic Total Total applications Race American Indian or Alephan	R2r 0 Den Count 20 0	095 5 Row 7 7.435 0.005	ew Ratio (1) 0.00	Appro Count 51	 275.28 wed B Revie % Row R 18.96% 50.00% 	3 atto (1) 2.52	Proc Count 45	X2HL: 14. erly Denie 3 Row P 16.73% 50.025	1757891479 d atto (1) 3.58	854 Drope Count 153	OF: sty Approv S.Row B 56.88% 0.005	2 ved (atio (1))	Record count 209 2	5 Column 100.001 0.745
23 20 27 29 30 31 32 33 34 35 36	32: 28.209 Borrower Characteristic Total Total applications Race American Indian or Alaskan Asian	R2r 0 Den Count 20	095 5 Row 0 7.435 0.005 56.573	ew Ratio (1) 0.00 13.45	All Appro Count 51 1 0	275.28 wed 8 Revio 5 Row R 18.965 50.005 0.005	3 atto (1) 2.52 0.00	Pros Count 45 1 0	X2HL: 14. erly Denie 3 Row P 16.73% 50.02% 0.02%	1757891479 d atto (1) 3.58 0.00	B54 Prope Count 153 0 2	OF: ty Approv 5 Row 8 56.885 0.005 33.315	2 (atio (1) 0.00 0.54	Record count 269 2 6	5 Column 100.001 0.745 2.235
27 27 29 30 31 32 33 34 35 36 37	X2: 28.209 Borrower Owracteristic Total Total Assa American Indian or Alexan Asian Indian	R2: 0 Den Count 20 0	095 5 Row 0 7.435 0.005 66.573 0.005	ew Ratio (1) 0.00 13.45 0.00	An Appro Count 51 1 0 0 0	275.28 wed 8 Revie 5 Row R 18.965 50.005 0.005 0.005	2.52 0.00 0.00	Pros Count 45 1 0 0	X2HL: 14. St Row F 16.735 50.005 0.005 0.005 0.005	d atto (1) 3.58 0.00 0.00	Rose Count 153 0 2 0	0Fr 5 Row 8 56.88% 0.005 33.33% 0.005	2 (atio (1) 0.00 0.54 0.00	Record count 209 2 6 0	5 Column 100.001 0.745 2.235 0.001
23 27 29 30 31 32 33 34 35 36 37 38	X2: 28.209 Borcover Gharacteristic Total applications Rece American Indian or Alesian Asian Asian Fution Chinese	R2: 0 Den Count 20 0 0 0 0 0 0 0 0	095 10 R Revi 10 Row 1 7.438 0.005 66.578 0.005	ew Ratio (1) 0.00 13.45 0.00 0.00	Appro Count 51 1 0 0 0	2 275.28 wed 8 Revo 3 Row R 18.905 0.005 0.005 0.005	2.52 0.00 0.00 0.00	Pros Count 45 1 0 8 0	X2HL: 14. x2HL: 14. x Row F 16.73% 50.00% 0.00% 0.00% 0.00% 0.00%	d atto (1) 4 3.58 0.00 0.00 0.00	854 Count 153 0 2 0 0 0	0Fr erly Approv 5 Row 8 56.88% 0.005 33.335 0.005 0.005	2 katio (1) 0.00 0.54 0.00 0.00	Record count 209 2 6 0 0	5 Column 100.001 0.745 2.235 0.001 0.001
23 27 29 30 31 32 33 34 35 36 37 38 39	X2: 28.209 Borrower Characteristic Total applications Roc Astern Astern Astern Astern Chinese Filipine	R2: 0 Den Count 20 0 0 0 0 0 0 0 0 0 0 0 0 0	095 5 Row 7.435 0.005 6.675 0.005 0.005	ew Ratio (1) 0.00 13.45 0.00 0.00 0.00	Appro Count 51 1 0 0 0 0	 275.28 wed B. Revis 50,005 0,005 0,005 0,005 	2.52 0.00 0.00 0.00 0.00	Pros Count 45 1 0 0 0 0	X2HL: 14. serly Denie 3. Row R 16.735 50.005 0.005 0.005 0.005 0.005 0.005	d atio (1) 3.58 0.00 0.00 0.00 0.00	854 Count 153 0 2 0 0 0 0	OFr trly Approx 5. Row 8 56.88% 0.005 33.33% 0.005 0.005 0.005	2 asto (1) 0.00 0.54 0.00 0.00 0.00	Record count 209 2 6 0 0 0 0	5 Column 100.001 0.749 2.233 0.009 0.009
23 27 27 29 30 31 32 33 34 35 36 37 38 39 40	X2: 28.209 Barrower Characterität Total appilestens Rec Americon Inden er Alesken Anten Kollan Chinese Filigine Japannere	R2r 0 Count 20 0 0 0 0 0 0 0 0 0 0 0 0 0	095 10 R. Rev5 5. Row 7.435 0.005 66.675 0.005 0.005 0.005	ew Ratio (1) 13,45 0,00 0,00 0,00 0,00	An Appro Count 51 1 0 0 0 0 0 0 0	 275.28 wed fit Revis 8 Row R 18.96% 50,00% 0.00% 0.00% 0.00% 0.00% 	3 ew. 2.52 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00	Pros Count 45 1 0 0 0 0	X2HL: 14. strly Denie 3. Row R 16.73% 50.005 0.005 0.005 0.005 0.005 0.005	d atio (1) 3.58 0.00 0.00 0.00 0.00 0.00	Prope fount 153 0 2 0 0 0 0 0 0	OFr strly Approx 5. Row 8 56.88% 0.005 0.005 0.005 0.005 0.005	2 beto (1) 0.00 0.54 0.00 0.00 0.00 0.00	Record count 209 2 6 0 0 0 0 0	5 Column 100.001 0.745 2.235 0.001 0.002 0.009 0.009
23 20 27 29 30 31 32 33 34 35 36 37 38 39 40 41	X2: 28.209 Borrower Owarksterktik Total Total applications Race American Indian or Alaskan Aslam Indian Chinese Filipina Japannen Korean	R2: 0 Count 20 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	095 1 Row 0 2 Row 0 7.435 0.005 0.005 0.005 0.005 0.005 0.005	ew Ratio (1) 0.00 13.45 0.00 0.00 0.00 0.00 0.00	AR Appro Count 51 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	 275.28 wed fit Revit Row R 18.945 50.005 0.005 0.005 0.005 0.005 0.005 	2.52 0.00 0.00 0.00 0.00 0.00 0.00 0.00	Pres Count 45 1 0 0 0 0 0 0 0	X2HL: 14. xerly Denie X. Row F 16.73% 50.005 0.005 0.005 0.005 0.005 0.005 0.005 0.005 0.005	d alto (1) 3.58 0.00 0.00 0.00 0.00 0.00 0.00	Properties 153	0Fr st. Row # 56.88% 0.005 33.335 0.005 0.005 0.005 0.005 0.005	2 (atto (1)) (0.00) (0.00) (0.00) (0.00) (0.00) (0.00) (0.00)	Record count 209 2 6 0 0 0 0 0 0 0 0 0 0 0	5 Column 100.001 0.745 0.001 0.001 0.001 0.001 0.001
	X2: 28.209 Barrower Characterität Total appilestens Rec Americon Inden er Alesken Anten Kollan Chinese Filigine Japannere	R2r 0 Count 20 0 0 0 0 0 0 0 0 0 0 0 0 0	095 10 R. Rev5 5. Row 7.435 0.005 66.675 0.005 0.005 0.005	ew Ratio (1) 13,45 0,00 0,00 0,00 0,00	An Appro Count 51 1 0 0 0 0 0 0 0	 275.28 wed fit Revis 8 Row R 18.96% 50,00% 0.00% 0.00% 0.00% 0.00% 	3 ew. 2.52 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00	Pros Count 45 1 0 0 0 0	X2HL: 14. strly Denie 3. Row R 16.73% 50.005 0.005 0.005 0.005 0.005 0.005	d atio (1) 3.58 0.00 0.00 0.00 0.00 0.00	Prope fount 153 0 2 0 0 0 0 0 0	OFr strly Approx 5. Row 8 56.88% 0.005 0.005 0.005 0.005 0.005	2 beto (1) 0.00 0.54 0.00 0.00 0.00 0.00	Record count 209 2 6 0 0 0 0 0	5 Column 100.001 0.745 2.235 0.001 0.002 0.009 0.009

Exporting Data Results

The results of the decisioning regression for each prohibited basis can be exported to Excel for easy filtering and file selection via CSV (comma delimited)

To export results data, follow these steps:

 Click the Export data link located at the top left of the results pane

Show results by	Total Appl.	Approved	C Denied Agree	ement or Fit Cutoff fo	r Review	
Statistics	3570 / 3983 🕝	3285 / 92%	285 / 8% 62.4%		0% +	Recalculate
Summary					_	
Race	View by 💿 % of Row	🔿 % of Column			3	' Export data 👻 🛞 Show le
Ethnicity						Model with factors only
Ethnicity Marital Status	Race	▲ Denied & Review	Approved & Review	Properly Denied	🔶 Properly Appr	Model with factors only Model with all columns -

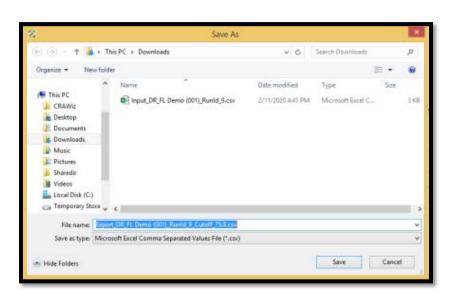
The software displays a drop-down menu

2. Select one of the two options



- The software displays a Save As dialog box. Use the dialog box controls to select a location for and name the exported file
- 4. Click the Save button

The software exports your results data



Users only need to select one prohibited basis category for export. When the software exports the data, all prohibited basis categories will be exported at once.

Adding Notes to Decisioning Regression Results

You can add notes to Decisioning Regression results that, for example, provide further clarification of results or contain a to-do item. Any notes you enter become permanently attached to results (if saved).

To enter notes for regression results, follow these steps

1. In the Decisioning Results screen, click the Notes link at the top of the results screen

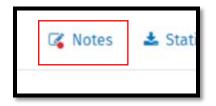


The software displays a dialog box

2. Enter notes as needed and click the save button when complete

Type your notes here.		

Saved notes are indicated by a red dot in the Notes link



Validating Decisioning Regression Results

You can validate your Decisioning Regression model and results using either the R or SaS statistical tools. To do so, you first have to create input and command files (for either R or SaS) so that you can upload your regression information to either validation tool.

Explanations of how to use R and SaS are beyond the scope of Fair Lending Wiz Regression Analysis training.

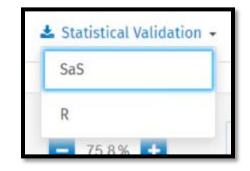
To create input and command files so you can validate your regression, follow these steps

 In the Decisioning Regression results screen, click the Statistical Validation link

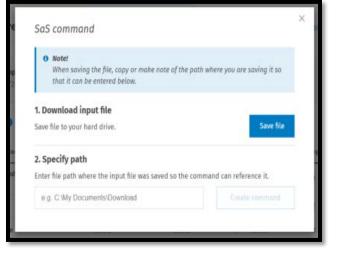


The software displays a drop-down menu

2. Select either SaS or R from the drop down



The software displays the Command dialog box



 Click the Save file button to download the input file to your hard drive

This is the file that contains all of your regression and model data. The file name and location will need to be referenced by the R or SaS command (Steps 6 and 7)

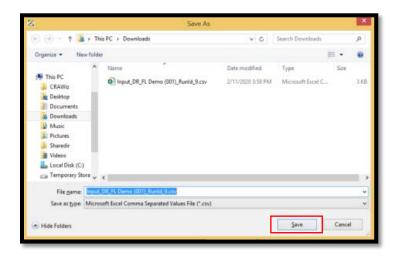
• Note! When saving the file, copy or make note of t that it can be entered below.	he path where you are saving it so
1. Download input file Save file to your hard drive.	Save file
2. Specify path	
Enter file path where the input file was saved so t	he command can reference it.
e.g. C:'My Documents\Download	

The software displays a Save As dialog box

- Use the dialog box controls to select a location to save the file and enter a name for the input file
- 5. Click the Save button

The software saves the input file to the specified location

6. In the provided text box, enter the file path where you saved the input file in Step 4



 Download input file Save file to your hard drive. 	Save file
2. Specify path	
 Specify path Enter file path where the input file was saved so 	o the command can reference it.

7. Click the Create command button

2. Specify path

command can reference it.
Create command

- 8. The software creates the R or SaS command and displays a preview in the dialog box
- 9. To save the command as a file, click the Save command button

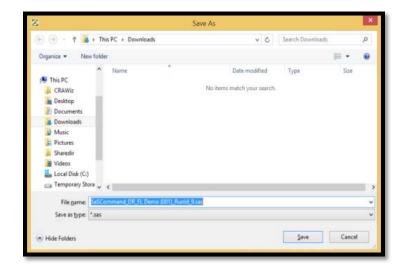
C:Users\Jane.Doe\Downloads Create com			
proc import datafile='C:Users/Jane.Doe/Down (001)_Runid_9.csv' dbms=dlm out=work.Reg delimiter=",";			
getnames≖yes;			
proc HPLOGISTIC data=work.RegInput;	al oan Term (÷	

To copy the command to your computer's clipboard (i.e., memory) for pasting into a text file or other application, click the Copy to clipboard link

dian	proc HPLOGISTIC data=wo	rk.Reginput; = '1') = CreditScore Loop Terr
	🔁 Copy to clipboard	Sa
Total	20 743%	51 18 96%

The software displays a Save As dialog box

10. Use the dialog box controls to select a location to save the command file and enter a name for the file



11. Click the Save button

The software displays the Command dialog box

12. Click the Done button

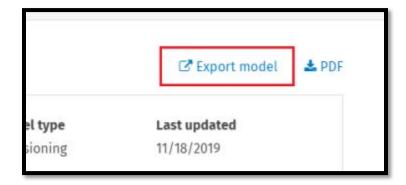
.OGIT; R PREDICTED OUT = work.R	egOutput;	- 11
clipboard	Save command	Done

Exporting the Model

You can export a Decisioning or Pricing Regression model to a file that can then be imported and run by other CRA *Wiz* and Fair Lending *Wiz* Regression module users. The model is exported to a file type (.JSON) that contains all of the necessary configuration information, including selected factors.

To export a Regression model, do the following:

1. Click the Export model link located on the right side of the screen:



The software exports the model to a .JSON file via your Web browser $% \left({{{\rm{A}}_{{\rm{B}}}} \right)$

	© 2019 Wolters	Kluwer and
Ô	Attimodel (1).json	^

Chapter 11 - Pricing Regression Analysis

Pricing regression analysis follows the same principals and steps as Decisioning regression. However, the factors may be different in a pricing model than a decisioning model. It is important to use factors that are evident in the pricing matrix or rate sheets used by the institution.

Testing the Model

Pricing has one test, R^2 (R-Squared), for testing the effectiveness of a model, but there are other items to consider.

- R² (R-Squared) This statistic indicates how useful the explanatory variables were in predicting the outcomes. Theoretically this value can approach a value of "1" if the explanatory variables explained everything that occurred in the file under review
 - o Direction: Higher is generally better
- Estimated Coefficient This is the statistical calculation of weight of the factor's influence on the pricing decision
- Degrees of Freedom The number of factors in the model

Best Practices:

- Use a combination of the measurements above when deciding what variables to use in the model
- Look carefully at the data behind the explanatory variable to see if you can validate and understand what the results are suggesting items that look "too good to be true" might be
- Regression modeling is not "one size fits all". You must know your data and your policies to know what is going to work for your particular situation and the data you are analyzing
- Consider maintaining an Excel Spreadsheet of the various items that you tested in your model, and what the statistics indicate about each one
- Don't include an explanatory variable just because it increases the R-Squared. The item should make sense based on the pricing guidelines

Base Model Setup and Interpretation

Start simple. Base your initial model on the explanatory variables that should, according to your pricing guidelines, make the most difference. If there are items that you want to leave out any analysis such as Employee or Business loans, the data should have a variable that identifies these circumstances so the user can filter the data for analysis.

- In Mortgage lending, a good "base" model might include credit scores, CLTV ratios, and loan term and, if available in the data, the rate type (fixed or variable)
- In Consumer lending (credit cards, unsecured lines of credit, overdraft protection plans, etc.) a good "base" model may be credit scores and loan term
 - If a product line is "Secured" then LTV might be appropriate. If not appropriate, then an indicator that it is a secured product might suffice
- In Auto lending a good base model consist of credit scores, loan term, model year (or the number of years old), and a new/used indicator

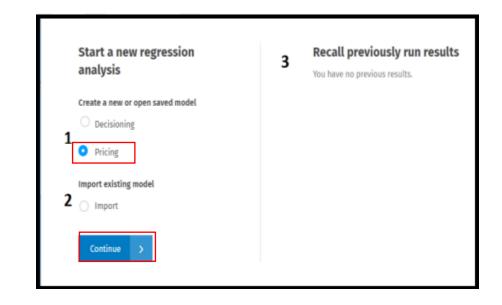
Build the model by adding each factor one at a time.

- 1. Click the Fair Lending Wiz tab
- 2. Click the Fair Lending Regression button

0pen		
Main	Filter 🗸	
Analysis Fair Lending Wiz Standard Reports Fair Lending	Wiz [®] Web Center • WHATS NEW Click Here for Image Legend Week of 5/4/2020 Treasury/APOR Download Posted 5/1/2020 Other to download the Treasury/APOR update. Cike Here to download the Treasury/APOR update. Cike Here to download the Treasury/APOR update. Cike Here for Treasury/APOR installation Instructions.	
Regression Fair Lending Reports Comparative Fik Review	HIGAND ISSUE/JNITIGATION: Fair Lending Wiz New Regression Module (Proted 5/17200) Dear Fair Lending Wiz Regression Users: We wanted to notify you of an issue that has surfaced in the New Regression Module in CRA Wiz and Fair Lending Wiz 7.4 SP1. Issue: The New Regression Module unexpectedly closes when user attempts to citck Race/Ethnicity or other Demographics tabs after running a model. Midgadiou. LUM Wolters Nurver provides a fix for the New Regression Module, you can continue to access the previous version of the Regression Module to perform your regression analysis in 7.459 Version. Heat Stegs: Rese look out for molification in complex weeks that will contain Information about an update/fix. If you have questions/concerns please contact the support team at FairLendingWitSupport@Wolterskluwer.com	
Regression Analysis Custom Table	Updated CRA Wiz Training Manuais Available (Posted 4/20/2000) The CRA Wiz Training Manuais have been reviewd to include updated screenshots and new exercises specific to the HMDA DE LAR type. The new manuals are available from the links below or under the Resources section. CRA Wiz Training Manual - Data Prep CRA Wiz Training Manual - Data Analysis	
Edit & Geocode	2019 Peer Mortgage Data Update - Preliminary Release (Posted 4110/2000)	

A new window will open

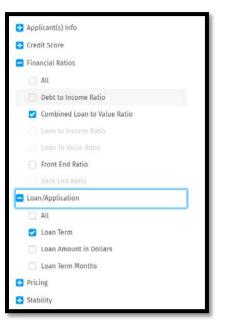
- 3. Click the Pricing button
- 4. Click continue



5. Click Create New Model



- 6. Select the factors to analyze by clicking the Plus Sign located next to the factor and then clicking the checkbox
 - a. Start with a base model and select the credit score used in the pricing process (for training, ours is a user defined field called Cust_Credit), CLTV, and Loan Term. After you establish the base, test each additional factor by itself. After you determine which factors are best to use, you will build the model with all factors selected



Q, cust	×
User Defined Variables	^
Cust_Credit	
Cust_credt	

You can also search for the factors using the Search bar

7. "Model summary" pane will display the selected factors

Factors	Remove all
Combined Loan to Value Ratio	×
Loan Term	×
Cust_Credit	×

- 8. The "Dependent pricing factor" section under Model type allows you to select the pricing factor you wish to use, such as APR, interest rate, rate spread or other HMDA DF pricing factors
 - a. For training purposes, APR will be used
- 9. Significance Level is defaulted to 95%

Model type Pricing	
Dependent pricing factor	🖌 Edit
Significance 95%	File type HMDA DF
File name Training File 2 Final FPR 2018	

The pricing regression module defaults the action taken that is included in the analysis to include Originated, Approved Not Accepted, and Pre-Approved Not Accepted applications. If you wish to only analyze Originated Ioans (which we will be doing for training purposes), be sure to include a filter to "Originated Loans" within CRA Wiz before starting regression.

Saving Pricing Regression Model

 To save your model, click the Save model button

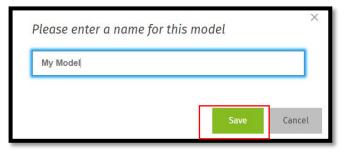
		Model type
Combined Loan to Value Ratio	×	Pricing
.oan Term	×	
Cust_Credit	×	Dependent pricing factor 🖌 Edit
		APR
		Significance File type 95% HMDA DF
		File name Training File 2 Final FPR 2018

The software displays a dialog box

2. Enter a name for your saved model in the provided text box

Please enter a name for this mo	del	×
Type model name		
		Cancel

3. Click the Save button



- 4. The software saves your model and displays the model name after Model summary at the top of the screen
 - b. If you want to change the name of your model, click the model name, edit as necessary in the provided dialog box, then click the Save button

My Model	

5. To save a copy of the model using a different name, click the Save as button

	Save as	Cancel
--	---------	--------

The software displays a dialog box

- 6. Enter a name for the new model
- 7. Click the Save button
 - b. The software displays the model name in the Model summary

Please ent model	er a name for	× this
My Model (0	01)	
	Save	Cancel
		contrast.

To remove all selected factors and start over, click the Reset All button

Factors	Remove all
Combined Loan to Value Ratio	×
Loan Term	×
Cust_Credit	×
	7
Save model Reset All	

Running Pricing Regression

- 1. After assessing which factors to use, create the model, consider saving it and printing the Model Summary to PDF
- 2. Then click Start Analysis

		Model type
Combined Loan to Value Rati	o ×	Pricing
Loan Term	×	5
Cust_Credit	×	Dependent pricing factor 🖌 Edit
		APR
		SignificanceFile type95%HMDA DF
		File name Training File 2 Final FPR 2018

3. Once you have ran the model, you will be taken to the results screen. On the left-hand side of the screen, users can view the results by clicking on each category under "Show results by"

Statistics	
Summary	
Race	
Ethnicity	
Marital S	tatus
Tract Min	ority
Tract Inco	ome Category
Applicant	Income Category
Gender	
Age	

4. The Statistics Screen will display information about the model, including the statistical values of the overall model and the statistical significance of the factors used in the model

how results by	Total loans	Degrees of freedom	% Adjusted RS	1		
Statistics	3290/ 3983	3,286	19.18%			
Summary	Factor ©	Estimated Influence	Significance 🗸	Pr > [t] ≎	Marginal Impact	Interpretation or relationship
Race			2.5		380 1	
thnicity	Intercept	4.4015	21.78	0.0000	0.0376	
Marital Status						
Tract Minority	Combined Loan to Value Ratio	0.0172	19,14	0.0000	0.0001	1 Increases rate or cost
Tract Income Category	Custom Credit Score	-0.0020	-8.83	0.0000	0.0000	1 Decreases rate or cost
Applicant Income Category						
Gender	Loan Term	0.0079	3.19	0.0014	0.0001	1 Increases rate or cost

5. Consider recording the Total loans, % Adjusted R-Squared, Estimated Influence, and the Significance (T-stat), and interpretation or relationship of each factor in an excel spreadsheet or take a screenshot of the statistics to keep for your records

As the CLTV increases the price increases. Ensure that the relationship makes sense

Show results by Statistics	Total loans 3290/ 3983	Degrees of freedom 3,286	% Adjusted RSo 19.18%	4		
Summary Race	Factor 🕀	Estimated Influence	Significance 🗸	Pr > t ¢	Marginal Impact	Interpretation or relationship
Ethnicity	Intercept	4.4015	21.78	0.0000	0.0376	
Marital Status Tract Minority	Combined Loan to Value Ratio	0.0172	19,14	0.0000	0.0001	1 Increases rate or cost
Tract Income Category	Custom Credit Score	-0.0020	-8.83	0.0000	0.0000	L Decreases rate or cost
Applicant Income Category Gender Age	Loan Term	0.0079	3.19	0.0014	0.0001	1 Increases rate or cost

- 6. After the base is built, add each factor you are considering into the model one at a time. Compare the factor's information and statistics in how it affects the base model. Consider the following:
 - Run a new "base" using credit score tier instead of raw credit score. Did the results change?
 - Watch the Statistics for actual influence
 - Watch the % Adjusted R-Squared. A better model will increase the figure but do not use factors that drastically spike or decrease the figure. Do not add a value just to see the % Adjusted R-Squared rise
 - Watch the total number of records considered. A decrease in records means the data contains null values
 - If using tiers or buckets, be sure to only add one or the other, not both. If using credit score buckets, be sure to leave on bucket out as a reference bucket

7. Next, the user will click on the "Summary" option from the left-hand sidebar. This view will provide the user with the number of total loans that had pricing that was "Above Predicted" or "Below Predicted", along with the breakdown via prohibited basis category

Show results by	Total loans	Degrees of	freedom	% Adjusted R	Sq			
Statistics	3290/ 3983	3,286		19.18%				
Summary	a Phone and the st						() Show legen	
Race	Show as predicted						@ Show teger	
Ethnicity			A bove Predicted			Below Predicted		
Marital Status	Borrower Characteristic	Count	% row	Ratio 🕢	Count	% row	Ratio 🕢	
Tract Minority		count	3410W	Rado	count	3610W	Ratio	
Tract Income Category	- Total							
Applicant Income Category	Total applications	70	2.13 %		87	2.64 %		
Gender Age	- Race							
-5°	American Indian or Alaskan	1	7.69 %	4.09	0	0.00 %	0.00	
	Asian	3	2.16 %	1.15	1 9	† 6.47 %	2.37	
	Asian Indian	0	0.00 %	0.00	0	0.00 %	0.00	
	Chinese	0	0.00 %	0.00	0	0.00 %	0.00	
	Filipino	0	0.00 %	0.00	0	0.00 %	0.00	

8. Then, click on each individual prohibited basis group from the left-hand side to view applications that are categorized as "Above Predicted". Those that are statistically significant will be highlighted in either red or blue

how results by Statistics	Total loans 3290/ 3983	Degr 3,286	ees of freedom		% Adjusted RSq 19.18%				
Summary Race	View by 🧿 % of Row 🔵 %							🕑 Export data 🗸	③ Show legen
Ethnicity Marital Status	Tract Minority	Above	Predicted	Belo	w Predicted	• A:	s Predicted		Total
Tract Minority	* < 10%	7	2.32%	9	2.98%	286	94.70%	302	100.00%
Tract Income Category	10% - 19%	11	1.83%	23	3.83%	566	94.33%	600	100.00%
Applicant Income Category	20% - 49%	36	2.58%	43	3.08%	1319	94,35%	1398	100.00%
Sender Age	50% - 79%	6	0.82%	9	1.23%	718	1 97.95%	733	100.00%
5-	80% - 100%	10	3.89%	3	1.17%	244	94.94%	257	100.00%
	Not Available	0	0.00%	0	0.00%	0	0.00%	0	100.00%
	Total	70	2.13%	87	2.64%	3133	95.23%	3290	100.00%

Red text indicates significantly higher than the control group. Blue text indicates significantly lower than control group. By clicking details, you will see the predicted dependent factor (APR). Groups with a higher volume of above predicted prices should be looked at first. Review for proper documentation of the price provided and ensure it matches the rate sheet.

 This will display the list of applications. For training, click on Denied & Review

Category		Tract Mi	nority Prio	rity	No. of applications	Applicatio	ns in %
Abov	e Predicted 🔹 🔻	50% - 79	9% - ↓ S	tatistically lower	6	0.82%	
Row ID	Application Number \$	Studentized Residual	Dependent factor - APR - Actual \$	Dependent factor - APR - Predicted \$	Combined Loan-to-value Ratio	Loan Term (in Years)	Cust_credt
2693	20097086	2.657021	4,99	3.285574	13	30	803
1399	20099274	2.213127	5.95	4.523341	84	30	793
642	20097383	2.095813	6.41	5.058676	104	30	695
1771	20096061	2.002415	5.71	4.419412	80	30	811
1394	20097436	1.993855	5.74	4.454712	80	30	793
3240	20095769	1.977792	5.03	3.76211	21	30	630

To change which applications the software displays in the window, select new criteria from either of the provided drop-down menus located at the top of the screen. In the above example, those are Category and Tract Minority

Appli	cations							
Cat	Category							
	Above Predicted							
	Above Predicted							
Row I	Below Predicted							
2693	As Predicted							

Tract Minority	
20% - 49%	
< 10%	•
10% - 19%	Ŀ
20% - 49%	
50% - 79%	•

10. To view an individual application, click one of the application number links

Category		Tract Mi	nority Prior	ity	No. of applications	Applicatio	ns in %
Abov	e Predicted 🔹	50% - 79	9% - ↓ St	atistically lower	6	0.82%	
Row ID	Application Number ©	Studentized Residual	Dependent factor - APR - Actual ¢	Dependent factor - APR - Predicted \$	Combined Loan-to-value Ratio	Loan Term (in Years)	Cust_cred
2693	20097086	2.657021	4,99	3.285574	13	30	803
1399	20099274	2.213127	5.95	4.523341	84	30	793
642	20097383	2.095813	6.41	5.058676	104	30	695

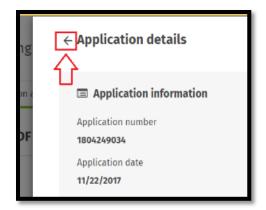
The software displays the Application details window

← Application details			
Application information		Applicant data	
Application number 20097086 Application date 05/16/2018	Action taken 1 - Loan originated Action date 06/02/2018	Factors Q. Search Factor name	Columns
		Combined Loan to Value Ratio	13
Applicant information		Loan Term	30
First name -	Last name -	cust_credt	803
Co-Applicant first name	Co-Applicant last name		
Race 5 - White	Ethnicity 2 - Not Hispanic or Latino		
Age 5 - 62+	Gender 1 - Male		
Marital status 3 - Not Calculated			
Ø Denial reason			
Denial 1 10 - Not Applicable	Denial 2		
Denial 3	Denial 4		

11. To view all of the application columns (fields), click the Columns tab located on the right side of the window

\pp	licant data		
	Factors	Columns	
	Q Search		
	Column name	Value	
	Dataset ID		
	Row ID	2693	
	Record Identifier		
	Legal Entity Identifier (LEI)	12345A6789B12348Q918	
	Universal Loan Identifier (ULI)	12345A6789B12348Q91	
	Application Number	20097086	
	Application Date	05/16/2018	
	Loan Type	01 - Small Business	
	Loan Purpose	2 - Home Improvement	
	Preapproval	2 - Preapproval not Requested	
	Construction Method	1 - Site built (modular or prefabrication)	
	Occupancy Type	1 - Principal residence	
	Loan Amount (in dollars)	43000	
	Loan Amount (in thousands)	43	

12. To return to the Applications window, click the arrow located at the top left of the screen



13. To close the Application details window completely and return to the results screen, click the close (X) button located at the top right of the screen



Follow the steps listed in Charter 10 for exporting the model factors, data, and results; adding notes; and validating the regression results.

Chapter 12 - Decision Comparative File Analysis

Comparative File Review allows users to compare denied protected class applicants to similarly situated applicants who were originated. Using your underwriting factors, you will perform a test on whether an applicant was treated differently than another. The results allow users to identify potential disparate treatment risk in the portfolio.

- 1. Go to Fair Lending Wiz Tab
- 2. Select Comparative File Review
 - a. Another window will open



- Select Decisioning Comparison for Matched Pair Analysis
- Each "Compare Applicants By: field must be selected individually. For this example, Gender is selected first
- Select Originated and Denied for comparison categories, or select the choices applicable to your institution and data set
- Select Control Group and Protected Class. Each group contains default settings, but users will want to review them to ensure

Matched Pair Analysis: Dec Compare Applicants By: Rac	isioning Comparison	* Sele	ected LAR: Training File 2 Final FPR 2018 (Wiz_00060 LAR Type: HMDP
Restore Saved Model: [No	ne]	-	Filters: No filter is applied
 Approved and Denied Appli Categories considered "Appr 		idered "Denied":	
Originated Approved Not Accepted	2 Denied		
Control Group and Protecte Select Control Group:	d Class Definition	Select Protected Class:	
American Indian or Alas	ikan	American Indian or Alaskan	
E Asian		🖉 Asian	Create Group Settings
Asian Indian		2 Asian Indian	Restore System Default
Chinese		Chinese	A State System Contact
E Filipino		V Filipino	
Japanese		2 Japanese	
Korean Vietnamese		Vietnamese	
Other Asian		V netnamese	
Black or African Americ	30	Black or African American	
		Native Hawallan or other Pacifi	ir Islander
Native Hawalian or othe	or reserve seedinger	V Native Hawailan	
Native Hawailan or othe Native Hawailan			
Native Hawailan	0		
E Native Hawailan	0	2 Guamanian or Chamorro	
Native Hawailan	0		

they are set up accurately for the market and data set being analyzed

Best Practices:

- Certain comparison factors should match, such as loan purpose and loan type (if applicable). Generally Conventional to VA would not be compared, as they have different underwriting requirements
- Other factors, such as credit score and DTIRatio, should be the same or "worse" than the prohibited basis group
- Tolerance factors can be applied to certain factors, such as loan amounts and dates, which allow the sample to be "tightened" or "loosened", which will result in smaller or larger sample sets

- Follow the lead of the regression analysis. If a factor was influential in regression, it should likely be used in Comparative File Review
- Select the factors that make the most sense to your underwriting policies
 - a. Establish the minority vs control factor and any tolerances
- 8. Select Records to Return as Items with Any Approved Comparators
- 9. Save the "model" if desired
- 10. Select Go

tor Name	Minority vs. Control	Tolerance Factor (%)			
oan Purpose			8		
oan Type			0		
onstruction Method			8		
Iccupancy Type			0		
ien Status		6	8		
Ipen-End line of credit		12	8		
oanProgram		6	8		
ebt to Income Ratio	>= v	1	8		
ombined Loan to Value Rati	>= *		0		
oan Term		1	0		
S_TIER	28 4		8		
sanAmount	+/	30	0		
pplication Date	+/- Days -	14	8		
S_TIER oan/Uncount pplication Date t Records to Return	>= •	30	0		
Denied Applications ms with Any Approved Com					
ms with at Least	0 🔄 Approved Cor	nparators			
el Saving Options					_
ve As New Model					
ve As New Model ve As Existing Model					

Users may choose how records will be returned in the "Select Records to Return" section by selecting one of the following option buttons:

- All Denied Applications (Default setting)- Select to see all denied applicants and each of its comparators based on selected match and tolerance factors
- Items with Any Approved Comparators Select to return only denied applicants who have at least one approved comparator, based on selected match and tolerance factors
- Items with at Least Approved Comparators Select to return only denied applicants who have at least the number of comparators that you specify in the provided spinner box, based on the match and tolerance factors

- 11. The system will return the results
 - a. If you get "Error Not enough data was found with these parameters from the given LAR", you may need to "loosen" or even remove some factors. It is unlikely that there will be no targets for comparisons
- 12. Users can save or print each Protected Class Applicants List, as well as each target
- 13. Select Show Other Information before generating each target for more detail
- 14. A side by side list will be produced. At a glance, you can see that the credit score of the target was higher than the comparators
- 15. Review the target and the compartators and compare the basis for the decline decision. In this example, the applicant was declined based on the employment history
 - a. If the target was declined apprpriately, look at the comparators to see if they had the same employment history (decline reason in the example) but were approved. If so, that could be an indication that the

								Protected Cla	ss Applicant
le Prot	tected App	plicants						Vie	w Model 🗃
:ted: #	# 1 of 14								
Applic	cation #	Comparators	Denial R	eason(s)	Gender	Loan Purpose	Loan Type	Construction Method	00
20096	136	9	Collatera		Female	Home Purchase	FHA	Site built (modular or prefabrica	tion) Prir .
20097	739	9	Employm	ent History	Female	Home Purchase	Conventional	Site built (modular or prefabrica	
20100	621	9		ent History	Female	Home Purchase		Site built (modular or prefabrica	
20096	514	5	Credit Hi	story	Female	Home Purchase	FHA	Site built (modular or prefabrica	tion) Pric
20096	064	4	Unverifie	d Info	Female	Home Purchase	Conventional	Site built (modular or prefabrica	tion) Prin
20097	826	4	Credit Ap	plication incomplete	Female	Home Purchase	Conventional	Site built (modular or prefabrica	tion) Priz
20094	914	3	Insufficie	nt Cash	Female	Home Purchase	FHA	Site built (modular or prefabrical	tion) Prin
20095	819	3	Credit Hi	story	Female	Home Purchase	FHA	Site built (modular or prefabrica	tion) Prin
20096	002	2	Credit Ap	plication Incomplete	Female	Home Purchase	FHA	Site built (modular or prefabrical	tion) Prin
20096	632	2	Collatera	L. Credit History	Female	Home Purchase	FHA	Site built (modular or prefabrica	Hog) Dele
									crony Print
20096-	481	1	Debt-to-I		Female	Home Purchase		Site built (modular or prefabrical	tion) Prir
20096		1	Debt-to-I			Home Purchase Home Purchase		Site built (modular or prefabrica Site built (modular or prefabrica	tion) Prir
20096 4 nparis	982 son View	for Applicati	Debt-to-I Credit Hi	ncome story. Debt-to-Income					tion) Prir
20096' 4 nparis	982 son View ther Inforr 3 Compara	for Application	Debt-to-I Credit Hi	Income story. Debt-to Income 096136	Female	Home Purchase	FHA	Site built (modular or prefabrica	tion) Prir tion) Prir
20096 A nparis now Ot proved	982 son View ther Infor	for Application	Debt-to-I Credit Hi	ncome story. Debt-to-Income	Female	Home Purchase	FHA	Site built (modular or prefabrica	tion) Prir tion) Prir
20096 A nparis now Ot proved	982 son View ther Inforr 3 Compara	tors	Debt-to-I Credit Hi	Income story. Debt-to Income 096136	Female	Home Purchase	FHA	Site built (modular or prefabrica	tion) Prir tion) Prir
20096 A aparis now Ot proved	982 son View ther Inforr d Compara Characte Distance	tors	Debt to I Credit Hi	Income Story, Debt-to-Income 096136 Selected: 20096136	Female	Home Purchase	FHA	Site built (modular or prefabrica D - 176) Comparator: 2009584	tion) Prir tion) Prir b
20096 A nparis now Ot proved	982 son View ther Inforr d Compara Characte Distance APPLICAT	v for Applicati mation ators	Debt to I Credit Hi ion # 200	Income Story, Debt-to-Income 096136 Selected: 20096136	Female	Home Purchase	FHA	Site built (modular or prefabrica D - 176) Comparator: 2009584	tion) Prir tion) Prir b
20096' A paris sow Ot proved	982 son View ther Inforr d Compara Characte Distance APPLICAI Loan App	v for Applicati mation ators eristic	Debt to I Credit Hi ion # 200	Income Story, Debt-to-Income 096136 Selected: 20096136	Female	Home Purchase	FHA	Site built (modular or prefabrica D - 176) Comparator: 2009584	tion) Prir tion) Prir b
20096' A paris sow Ot proved	982 son View ther Inforr Characte Distance APPLICAI Loan App Pricing C	v for Applicati mation ators eristic TION CHARACTER	Debt to 1 Credit Hi ion # 200 RISTICS	Income Story, Debt-to-Income 096136 Selected: 20096136	Female	Home Purchase	FHA	Site built (modular or prefabrica D - 176) Comparator: 2009584	tion) Prir tion) Prir b

Characteristic	Selected: 20100621	Comparator: 20098029	Comparator: 20099208	Comparator: 20097023
DistanceValue	0.0000	0.8975	1.9440	2.3280
Loan Application Information				
Application Date	Dec 02, 2018	Jul 07, 2018	Sep 16, 2018	May 11, 2018
Loan Type	FHA	FHA	FHA	FHA
Purpose	Home Purchase	Home Purchase	Home Purchase	Home Purchase
Loan Amount (\$000s)	87.000	87.000	87.000	87.000
Loan Term	30	30	30	30
Rate Lock Date	Dec 02, 2018	Jul 08, 2018	Sep 16, 2018	May 31, 2018
Pre-Approval	Preapproval not Requested	Preapproval not Requested	Preapproval not Requested	Preapproval not Requested
Action	Application denied	Loan originated	Loan originated	Loan originated
Action Date	Dec 12, 2018	Jul 29, 2018	Oct 31, 2018	Jun 16, 2018
Denial Reason 1	Employment History	Not Applicable	Not Applicable	Not Applicable
Denial Reason 2				
Denial Reason 3				
Loan to Income Ratio	4.14	1.13	1.93	2.81
Pricing Characteristics				
Annual Percentage Rate (APR)		4.920	5.040	5.300
Rate Spread	NA	0.330	0.460	0.610
HOEPA Status	Not Applicable	Not a high cost mortgage	Not a high cost mortgage	Not a high cost mortgage
Credit Scores				
Custom Credit Score	704	650	654	695
CREDIT & FINANCIAL INFORMATION				
Gross Income (\$000s)	21.000	77.000	45.000	31.000
Other Information				

target was potentially unfairly treated or discriminated against

16. Continue to run the analysis against all prohibited basis categories and perform file review

Chapter 13 - Pricing Comparative File Analysis

Pricing Comparative File Analysis functions similar to Decisioning Comparative File Analysis. Like in regression, the factors that you use may be different.

Build a model using the following factors:

- 1. Select **Pricing Comparison** for Matched Pair Analysis
- 2. Each "Compare Applicants By: field must be selected individually. For this example, Gender is selected first
- 3. Pricing Factor Definition: Compare by APR
- 4. Select Control Group and Protected Class. Each group contains default settings, but users will want to review them to ensure each category is set

Natched Pair Analysis: Compare Applicants By: lestore Saved Model:	Pricing Comparison Gender [None]	-	elected LAR: Training File 2 Final FPR 2018 (Wiz_00087 LAR Type: HMDI Filters: No filter is applied
Pricing Factor Definition Pricing Factor Definition Control Group and Pro	n: APR	* Select Protected Class:	
Select Control Group: Male Female Both Male and Fem Not Provided Not Applicable Not Calculated	nale .	Select Protected Class:	Create Group Settings Restore System Default

up accurately for the market and data set being analyzed

- 5. Select the factors that make the most sense to your pricing rate sheet or matrix
 - a. Establish the minority vs control factors and any tolerances
 - b. For this exercise use the following factors
- 6. Select Records to Return as "Target applications with significantly higher pricing, as determined by selected Significance Level"
- 7. Save the "model" if desired
- 8. Select Go

Factor Name	Minority vs. Control	Tolerance Factor (%)					
Loan Purpose	- *		8				
Loan Type	- *		8				
Occupancy Type	- *		8				
Lien Status	- *		8				
Open-End line of credit	- •		8				
DPA	- *		8				
LoanProgram			8				
RateType	- *		8				
SFRType	- *		8				
Combined Loan to Value Rati	>= *		8				
Loan Term	= •		8				
Loan Amount in Dollars	+/-	30	8				
Cust_credt	<=		8				
Rate Lock Date	+/- Days 🔹	14	8				
	<u> </u>						
tatistical Significance 95%							
latistical significance							
elect Records to Return							
ll Target Applications							
rget applications with signi	ficantly higher pricing	as determined by selec	ted Signif				

- 9. The system will return the results
 - a. If you get "Error Not enough data was found with these parameters from the given LAR", you may need to "loosen" or even remove some factors. It is unlikely that there will be no targets for comparisons
- 10. Users can save or print each Protected Class Applicants List, as well as each target
- 11. Select Show Other Information before generating each target for more detail
- 12. A side by side list will be produced. At a glance, you can see that the credit score of the target was higher than the comparators
- 13. Review the target and the comparators' files and compare the basis for the pricing decision. If it cannot be explained, the target may have potentially been unfairly treated or discriminated against
- 14. Continue to run the

Protected Applicants View		Protected Class Ap View Mo								ow Matched Pair
Protected Applicants View		A CONTRACT OF CONTRACTO							and the second	
ed:# 1 of 5		The fit has							plicants	de Protected Ap
		🔟 🖬 📕								cted: # 1 of 5
splication # Comparators APR T-Stat Ethnicity Loan Purpose Loan Type Occupancy Type Lien Status										
	Open-	Lien Status	Occupancy Type	Loan Type	Loan Purpose	Ethnicity	T-Stat	APR	Comparators	Application #
094949 7 5.5900 4.0112 Hispanic or Latino Home Purchase FHA Principal residence Secured by a First Lie	Not an	Secured by a First Lien	Principal residence	FHA	Home Purchas	Hispanic or Latino	4.0112	5.5900	7	20094949
096664 7 5.4700 2.7020 Hispanic or Latino Home Purchase FHA Principal residence Secured by a First Lie	Not an	Secured by a First Lien	Principal residence	FHA	Home Purchase	Hispanic or Latino	2.7020	5.4700	7	20096664
095263 6 5.5700 2.5771 Hispanic or Latino Home Purchase FHA Principal residence Secured by a First Lie	Not an	Secured by a First Lien I	Principal residence	FHA	Home Purchase	Hispanic or Latino	2.5771	5.5700	6	20095263
096391 6 5.5200 3.7838 Hispanic or Latino Home Purchase FHA Principal residence Secured by a First Lie	Not an	Secured by a First Lien I	Principal residence	FHA	Home Purchase	Hispanic or Latino	3.7838	5.5200	6	20096391
097143 5 5.8500 5.7442 Hispanic or Latino Home Purchase FHA Principal residence Secured by a First Lie	Not an	Secured by a First Lien	Principal residence	FHA	Home Purchas	Hispanic or Latino	5.7442	5.8500	5	20097143

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analysis against all prohibited basis categories and perform file review

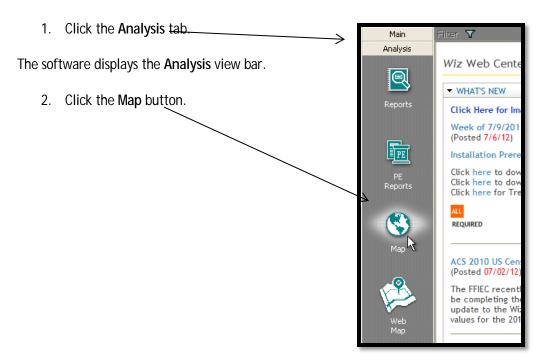
Chapter 14 - Demographic and Redlining Maps

Mapping in CRA Wiz is a valuable tool that helps institutions compliment their fair lending analysis. There is a variety of data available in CRA Wiz, including business, product, economic, projected business, and geodemographic data. You can use this data to create a map of a specific geographic area.

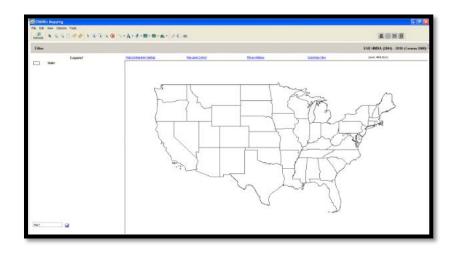
The geographic area you use for your map can either be an existing assessment area or the area for which you have activity in your current file, all the areas in which your institution has loans, or a geographic area you define.

Accessing the Mapper

To access the Mapper, follow these steps:



The software displays the Mapper main screen in a separate window:



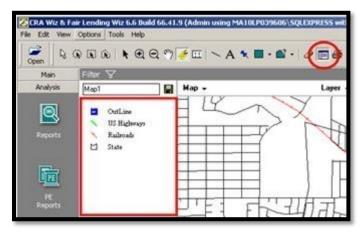
The map image will default to the region of mapping data that you have installed.

Mapper Toolbar

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- Select Selects features on a map
- Select Radius Draws a radius on the map in which all features within the area will be selected
- Select Marquee Draws a rectangle on the map in which all features within the area will be selected
- Select Polygon User draws a polygon on the map in which all features within the area will selected
- **Pointer** The Pointer allows the mouse to become an arrow to point to features on the map, as well as select items like user defined text
- Zoom In Works two ways: by selecting this tool a user can either click a spot on the map to zoom in or hold down the left mouse button to select an area (rectangle/square) to zoom in
- Zoom Out Works in two ways: by selecting this tool a user can either click a spot on the map to zoom out of or hold down the left mouse button to select an area (rectangle/square) to zoom out
- Pan Used to navigate around the map. The user can click and drag the "hand" to change the area of the map that displays
- Label Allows the user to manually add labels to features on a map
- Ruler Measures distance on the map. The user selects this option and clicks anywhere on the map. Holding the cursor down the user drags the cursor the distance they wish to measure (creating a dotted line on the map). In the upper right-hand corner of the display where the Zoom is shown, CRA *Wiz* displays the distance in miles
- Insert Line Button & Drop Down Menu Used to draw a user defined line on the map. User left clicks at 'Point A' to start drawing a link then drags the mouse to 'Point B' where they want the line to end
- Insert Text Button & Drop Down Menu Used to insert user defined text on the map. User selects this button and then clicks the spot on the map where text is desired. A text box appears on the map for the user to insert text
- Insert Symbol Button Used to draw a user defined symbol on the map. User selects this button then clicks the spot on the map where symbol is desired
- Insert Rectangle Button Used to draw a user defined rectangle on the map. User selects this button and then left clicks the map in one corner of the desired rectangle and drags the mouse to the diagonal corner of the desired rectangle. When the user releases the mouse button, the rectangle is displayed
- Insert Polygon Button & Drop Down Menu Used to draw a user defined polygon on the map. User selects this button and then begins to draw their desired polygon by clicking on a point of the desired outline. The user continues to click additional nodes of the polygon, expanding the polygon based on the new parameters. To finish the polygon, the user double clicks (rather than a single click to continue changing the parameters of the polygon)
- Clear Manual Label Used to clear all manually added labels from the map

- Side Legend Controls whether the Legend is displayed in the left margin of the map view. This button is set to 'True' by default. If the Side Legend button is set to 'False' by the user, the map should take up the entire display area with no legend present
- Print Used to generate a map layout that can be customized for printing



Creating a Map of an Assessment Area

You can use CRA Wiz to create a map of an assessment area, and can enhance the display of information on the map by adding layers such as:

- Boundary layers these include MSAs, congressional districts, bodies of water, and parks
- Linear layers these include railroad tracks and roads
- Point layers these indicate the location of airports, places of worship, and schools
- Themes add or remove themes from the map

Navigating the Mapper

To set map parameters, the Map Settings pane includes the following options:

- Geographic Breakdown (1) -Use the options in the Geographic Breakdown By section of the Map Settings pane to select the geographic level to display map information--Census Tract, County, State, or MSA
- Selecting Area (2) Use the options in the Data Files Displayed By section of the Map Settings pane to display geographic information by the current file area, a previously saved assessment area, or by defining a custom assessment area
- Adding Themes (3) Use the options in the Customize Your Display section of the Map Settings pane to add thematic information to a map including thematic shading, thematic overlay, dot density, pie charts, or data labels

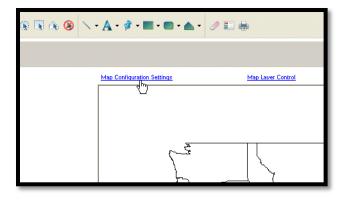
Map Settings	Saved Maps			Clear	Apply X
General					4
	phic Breakdown By: 1 Census Tract	O County	O MSA	🔘 State	
Data Fi	iles Displayed By:				
0	Current File Area				
•	User Defined Assessmen	t Area			
	Current: Boston AA Change Your Assessment	2			
	Custom Area	Mea			
	Current: None				
	Select Your Area				
Map Vi					
0	Map Area 💿 0	Current			
Customi	ize Your Display				
Choose	e Your Data: Thematic Sha	ding:			
	<u>elect a Layer</u> urrent: No layer selected		<u>Change Display Sett</u> Current: default	ings	
Choose	a Your Data: Thematic Ove	rlay			
	<u>elect a Layer</u> urrent: No layer selected		<u>Change Display Sett</u> Current: default	ings	
Dot Der	nsity	3			=
	elect a Layer urrent: No layer selected		Change Display Sett Current: default	ings	
FieCha	rt				\equiv
	<u>reate a Pie Chart</u> urrent: No layer selected		Change Display Sett Current: default	ings	
Add Da	ata Labels				
	elect a Layer urrent: No layer selected		<u>Change Display Sett</u> Current: default	ings	
Se Cu	elect a Layer urrent: No layer selected				
	elect a Layer urrent: No layer selected				

• Apply button - (4) After configuring all the necessary map parameters in the Map Settings pane, apply the changes to the map using the Map Settings Apply button

Accessing Map Settings Pane

You use the Map Settings pane to select a geographic area for a map. To access the Map Settings pane, do the following:

1. On the Mapper main screen, click the Map Configuration Settings link



The software displays the Map Settings pane:

p Configuration Settings	Map Lave		Plot an Ad	
fap Settings Saved Maps			Clea	r Apply
General Geographic Breakdown By: Census Tract	County	◯ MSA	🔿 State	
Data Files Displayed By:				
Current File Area				
User Defined Assessme	nt Area			
Current: Boston AA Change Your Assessmen	t Area			
Custom Area Current: None Select Your Area				
Map View Map Area	Current			
Customize Your Display				
Choose Your Data: Thematic Sha	ading:			
Select a Layer Current: Income as % of MS	SA Median	Change Display : Current : default	Settings	
Choose Your Data: Thematic Ov	erlay			
Select a Layer Current: No layer selected		Change Display : Current : default	Settings	
Dot Density				
Select a Layer Current: No layer selected		Change Display Current : default	Settings	
PieChart				
Create a Fie Chart Current: No layer selected		Change Display : Current : default	Settings	
Add Data Labels				
Select a Layer Current: No layer selected		Change Display : Current : default	Settings	
Select a Laver Current: No layer selected				
Select a Laver Current: No layer selected				

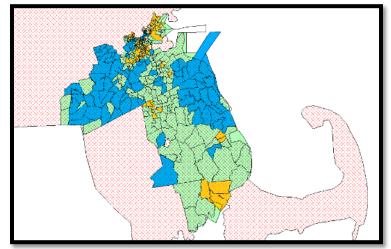
Selecting Geographic Breakdown

Use the options in the **Geographic Breakdown By** section of the General panel of the Map Settings pane to select the geographic level at which the map displays information for an area:

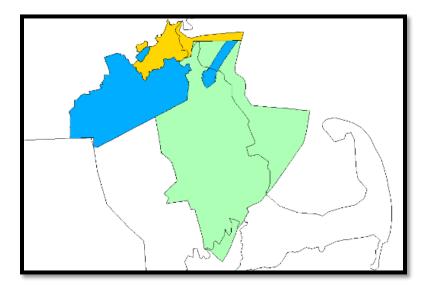
Map Settings Saved Maps			Clear Ap	ply X
Geographic Breakdown By: Ocensus Tract Data Files Displayed By:	County	O MSA	🔿 State	

To select a geographic breakdown, in the **Geographic Breakdown By** panel of the Map Settings pane, select one of the following option buttons:

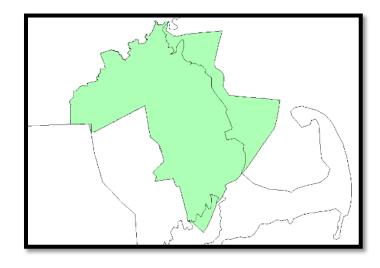
• Census Tract: creates a map that includes census tract boundaries and will be the setting used for this example



 County: creates a map that includes only the county boundaries



• MSA: creates a map that only includes the MSA boundaries



- State: creates a map that only includes the State boundaries

Selecting Area

Use the options in the **Data Files Displayed By** section of the General panel of the Map Settings pane to define the specific geographic area to display on the map:

- Current File Area Displays data for geographic areas in which your institution had loan activity, based on the currently active file in the system
- User Defined Assessment Area Displays geographic data for a Saved Assessment Area
- Custom Area Displays geographic data for areas (states, MSAs, counties, census tracts) selected
- 1. In the Data Files Displayed By section of the General panel of the Map Settings pane, click the Change Your Assessment Area link

The software displays the User Defined Assessment Areas pane.



Current: Atlanta-Sandy Springs-Roswell GA AA

User Defined Assessment Area

Change Your Assessment Area

From the list of saved areas, select the area for which you want to display a map.
 For this example only one area is selected, but multiple areas can be selected at one time

The list of saved areas the software displays is based on the current Census Year selection. For example, if Census Year is set to 2010, the software displays only those saved assessment areas associated with the 2010 Census Year.

Adding Themes

Use themes to create geographical representations showing the distribution and relationship of the information your institution maintains in your data files within the geographic areas your institution serves.

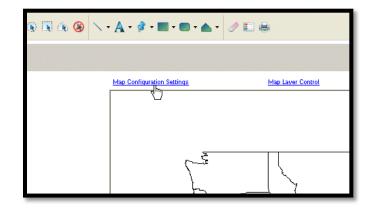
Themes include the following:

- Thematic Shading Represented with geographies, for example: census tracts, being shaded various colors on the map
 - By default, the system uses a regulator suggested color palette for displaying map theme ranges
 - For more information, refer to the description of the Style tab in Modifying Existing Themes
- Thematic Overlay Represented with geographies, for example: census tracts, displaying with crosshatches or other transparent patterns on a map
- Dot Density Represented with geographies being populated with dots to represent the presence of selected demographic information within the area. Can be configured based on display preferences, for example 1 dot = 1 loan or 1 dot = 100 loans
- Pie Chart Display lending or demographic variables in pie chart form. You can select up to six variables per type
- Data Labels Provides count of a variable in a Census Tract. You can apply up to three labels per type

Adding Thematic Shading

For training, add thematic shading to a map:

1. Click the Map Configuration Settings link



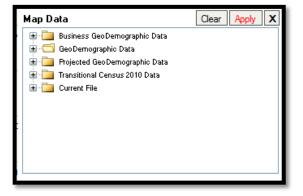
The software displays the Map Settings pane.

General Geographic Breakdown By: Census Tract O County MSA O State	
Census Tract County MSA State	
Data Files Displayed By:	
O Current File Area	
User Defined Assessment Area	
Current: Atlanta-Sandy Springs-Roswell GA AA Change Your Assessment Area	
Custom Area	
Current: None	
Select Your Area	
Map View	
Map Area Current	
Customize Your Display Choose Your Data: Thematic Shading:	
Select a Layer Change Display Settings Current: Income as % of MSA Median Current: default	
Choose Your Data: Thematic Overlay	
Select a Layer Change Display Settings	
Current: No layer selected Current: default	
Dot Density	
Select a Layer Change Display Settings	
Current: No layer selected Current: default	
PieChart	
Create a Pie Chart Change Display Settings	
Current: No layer selected Current: default	
Add Data Labels	
Select a Layer Change Display Settings	
Current: No layer selected Current: default	
Select a Layer	
Current: No layer selected	
Select a Layer	
Current: No layer selected	

2. In the Customize Your Display pane, click the Select a Layer link located under the Choose Your Data: Thematic Shading section

Customize Your Display
Choose Your Data: Thematic Shading:-
Select a Layer Current Slack

The software displays the Map Data pane.



Use the tree view to select the data you want to display on the map.

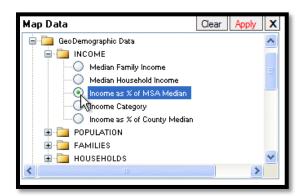
3. Select the GeoDemographic Data folder

The software displays the contents of the GeoDemographic folder.

4. Select the Income folder

The software displays the themes available in the Income folder.

- 5. Select Income as % of MSA Median
 - a. Click Apply



Income Category is another option to use to display tract income categories.

The software displays the Map Settings pane.

- 6. Click **Apply** located at the top-right of the Map Settings pane
 - a. Thematic shading is added to the map (Income as % of MSA Median)
 - b. Income as % of MSA Median ranges are added to the side legend



While reviewing the legend the four income ranges defined by government regulation (low, moderate, middle, and upper) are displayed. The number in parentheses is the number of census tracts in each range. There may be a fifth category listed, All Others. All Others represents tracts that do not have households with reportable income.

There are several reasons why this might be the case, including:

- No family income data
- No population with families
- No population (for example, the entire census tract might be an airport)

Adding Thematic Overlay

To add a thematic overlay to a map, follow these steps:

1. Click the Map Configuration Settings link

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	Map Configuration Settings	Map Layer Control

The software displays the Map Settings pane.

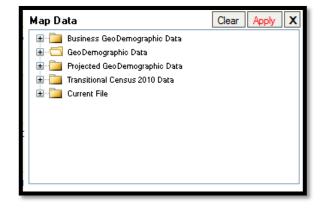
General Genera	Appl	Clear			Saved Maps	Settings
Oter Files Displayed by: County MSA State Oter Files Displayed by: County MSA State Outer Site Displayed by: County MSA State Outer before Assessment Area County MSA State Outer before Assessment Area County MSA State Outer before Assessment Area County County State Outer before Assessment Area County State State Outer Assessment Area County State State County May Area © Current Current: State County State I area Current: State Current: State Outer: Monyer salooted Current: State Current: State County: Monyer salooted Current: State Current: State Current: No hyer salooted Current: State Current: State County: Monyer salooted Current: State Current: State Current: No hyer salooted Current: State Current: State Current: No hyer salooted <t< th=""><th></th><th></th><th></th><th></th><th></th><th>General</th></t<>						General
Covers Tip Aves Order Status Area Covers Tip Aves Order Status Area Covers Tip Aves Covers Tip Aves Covers Tip Aves Order Aves Covers Tip Aves Order Aves Covers Tip Aves Order Aves		O State	O MSA	County		
Covers Tip Aves Order Status Area Covers Tip Aves Order Status Area Covers Tip Aves Covers Tip Aves Covers Tip Aves Order Aves Covers Tip Aves Order Aves Covers Tip Aves Order Aves					les Displayed By:	Data El
Conser: Reston AA Conser: View American Area Conser: View Discharge Conser: View Discharge Conser: View Discharge Conser: View Discharge Conser: View Conser: View Conser: Conser: Conser Conser: View Discharge Conser: View Conser: View Conser: Conser: Conser Conser: View Conser: View Conser: Conser: Conser Conser: View Conser: View Conser: Conser: Conser Conser: View Conser: View Conser: Conser: Conser: Conser Conser: View Conser: View Conser: Conser: Conser: Conser: Conser: View Conser: Conser: Conser: Conser: Conser: Conser: Conser: Conser: View Conser: C					Current File Area	0
Donas-too Assessment Asse Outran Assessment Asse Outran Assessment Asses Outran Assessment Asses Outran Assessment Asses Outran Assessment A				ent Avea	User Defined Assess	۲
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			Change Display Settings Current: default		urrent: No layer selecte	0
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 In the Customize Your Display pane, click the Select a Layer link located under the Choose Your Data: Thematic Overlay section

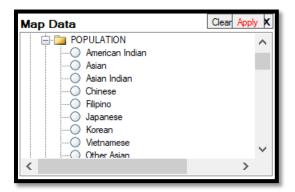
Choose Your Data: Thematic Overlay — Select a Layer Currer Mo layer selected

The software displays the Map Data pane.

 Use the tree view to select the data you want to display on the map. For this example, select the GeoDemographic Data folder

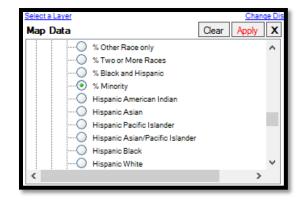


4. Select the Population folder

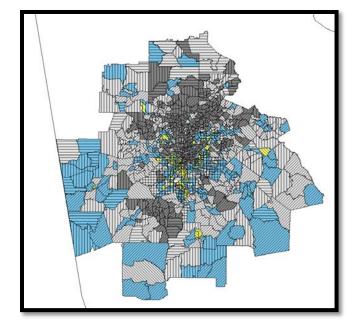


The software displays the themes available in the Population folder.

- 5. Select % Minority
- 6. Click Apply
 - a. The software displays the Map Settings pane
- 7. Click **Apply** located at the top-right of the Map Settings pane



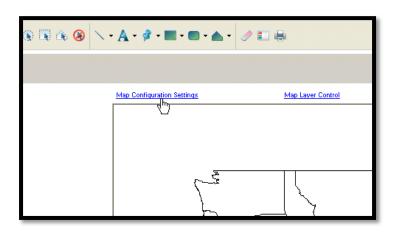
- 8. The following items are added to the map:
 - a. Thematic overlay
 - b. Associated ranges to the legend



Adding Dot Density

To add dot density data to a map, follow these steps:

1. Click the Map Configuration Settings link



The software displays the Map Settings pane.

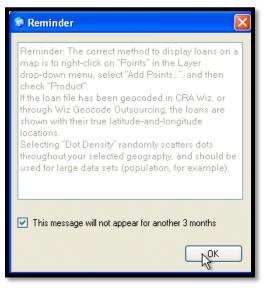
ep Settings	Saved Maps				Clear	Apply	
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	elect a Layer						
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2. In the Customize Your Display pane, click the Select a Layer link located under the Dot Density section

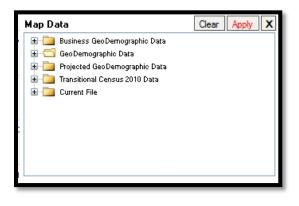


The software displays a Reminder dialog box indicating that dot density themes should be used only for displaying large data sets and is not recommended for displaying loans.

- To disable this message for three months, click the 'This message will not appear for another 3 months' check box
 - a. Click OK



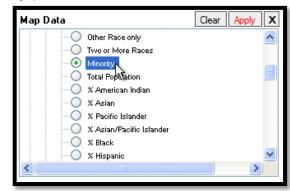
The software displays the Map Data pane.



- 4. Use the tree view to select the data you want to display on the map, for this example select the GeoDemographic Data folder
- 5. Then select the **Population** folder.
- 6. Scroll down the list and select Minority
- 7. Click Apply
 - a. The software displays the Map Settings pane

Map Data	Clear Apply X
🖃 🛅 GeoDemographic Data	~
INCOME	
	_
American Indian	
Asian	
Pacific Islander	

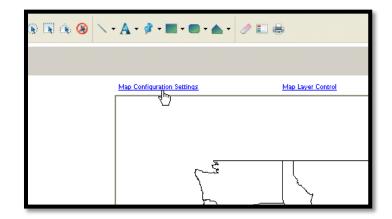
- 8. Click **Apply** located at the top-right of the Map Settings pane
 - a. Dot density is added to the map
 - b. Calculated "Per Dot" value is added to the legend. For example, 1 Dot = 374.4



Adding Pie Charts

To add pie charts to a map, follow these steps:

- 1. Clear Dot Density settings
- 2. Click the Map Configuration Settings link.



The software displays the Map Settings pane.

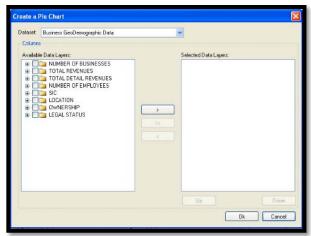
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3. In the Customize Your **Display** pane, click the **Select a Layer** link located under the **Pie Chart** section



The software displays the Create a Pie Chart dialog box.

- 4. Use the Dataset drop-down menu located at the top of the dialog box to select the data set (Business GeoDemographic Data, GeoDemographic Data, Projected GeoDemographic Data, Transitional Census 2010, and Current File) you want to add to the pie charts
- To add a variable, select the checkbox for the variable and then click the right-facing arrow button
 - a. The variable will be displayed in the right-hand list box
 - b. To remove a variable, click the leftfacing arrow button
 - c. To remove all selected variables, click the double-left-facing arrow button

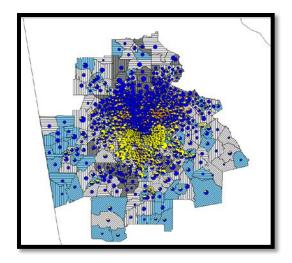


You must select a minimum of two (2) variables to create a pie chart. A maximum of six (6) variables can be selected.

- Select a layer variable and then click the Up or Down buttons to move the variable up or down the list. For this training select Households and then Black Householder, Hispanic Householder and White Householder
- 7. When you have finished adding variables, click OK
 - a. The software displays the Map Settings pane
- 8. Click the **Apply** link located at the topright of the Map Settings pane

	oDemographic Data		~	
Columns Available D2	ta Layen: ¹ , Middle Income Households ² , Upper Income Households ² , Households Below the Povert Anencan Indua Householder Paofio Islander Householder Paofio Islander Householder Haparic Householder Winte Householder Winte Non-Hapanic Householder Other Race Only Householder Two or More Races Householder ¹ , American Indian Householder ² , American Indian Householder ² , Asain Householder	> << <	Selected Data Layers: Black Householder Hispanic Householder White Householder	
			Uo	 Down

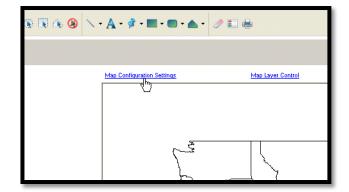
- 9. The following items are added to the map:
 - a. Pie charts
 - b. Associated pie chart descriptions to the legend



Adding Data Labels

To add data labels to a map, follow these steps:

- 1. Clear the Pie Charts
- 2. Click the Map Configuration Settings link



The software displays the Map Settings pane.

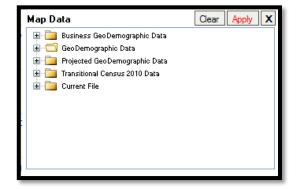
eneral Geographic Breakdown By:				
Geographio Breakdown By: Census Tract	County	O MSA	🔘 State	
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ustomize Your Display				_
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Select a Laver Current: No layer selected		Change Display Settings Current: default		
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3. In the Customize Your Display pane, click the Select a Layer link located under the Add Data Labels section.

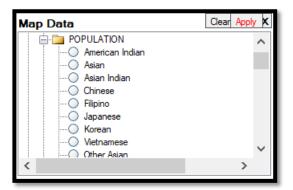


You can configure the other two (2) Select a Layer links to display a total of three (3) data labels on the map.

The software displays the Map Data pane.



 Use the tree view to select the data you want to display on the map. Select the GeoDemographic Data folder, select Population and select % Minority Households



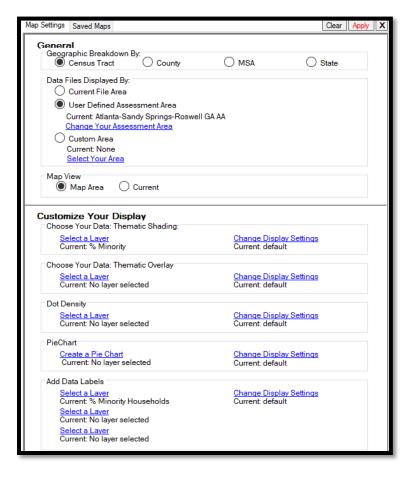


5. Click Apply

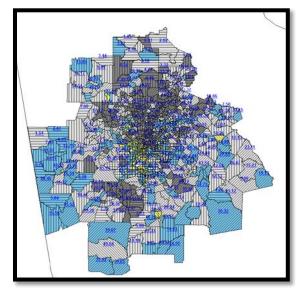
The software displays the Map Settings pane.

Up to three (3) total labels can be added.

6. Click the **Apply** link located at the top-right of the **Map Settings** pane



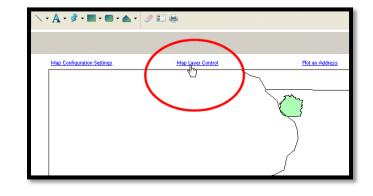
7. Labels are added to the map



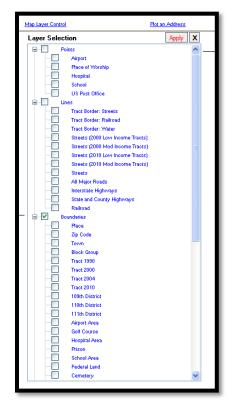
Adding Map Layers

To add layers (features) to a map, follow these steps:

- 1. Clear all labels
- 2. Click the Map Layer Control link



The software displays the Layer Selection pane.



3. To turn a layer on, select the checkbox for a layer, for example, Interstate Highways



4. To configure display options for the layer, click the name for the item



5. The Layer Options - [Name of Layer] dialog box opens

ayer Options - Interstate Highways		
Visibility		_
Visible	Sample	
Display Within Range: Zoom ran	nge 🔽	
Zoom is at least: 0.00	mi	
Zoom is less than: 0.00	mi 🔰	
Style	\wedge	
Labels:		
Current Setting: No Label	Change Label Display	
-		
ОК	Cancel	

- 6. Under current setting, select Auto Label
- 7. Click OK

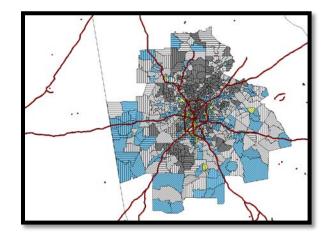
Layer Options - Streets (2017 Mod Income Tracts)	×
Visibility	
Visible	Sample
Display Within Range: Zoom range \vee	
Zoom is at least: 0.00 mi	
Zoom is less than: 0.00 mi	
Style	
Labels:	
Current Setting: No Label No Label Auto Label	Change Label Display
ОК	Cancel

The software displays the Layer Selection pane.

8. Click **Apply** located at the top-right corner of the Layer Selection

ontrol	Hot an Address
lection	Apply X
Points	- 🔨 🔊 _
Airport 🖉	
Place of Worship	
Hospital	
School	
US Post Office	

- 9. The following items are added to the map:
 - a. Layers (features)
 - b. New layers to the legend

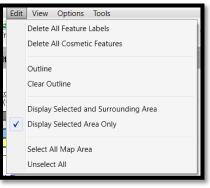


Applying Labels to Map Layers

Using the Layer Options dialog box, you can add labels to the three map layer types (geographic boundaries, lines, and points).

To add labels to a layer, follow these steps:

- 1. Add Map Layer Control of Water
 - Select Edit and select Display Selected Area Only



2. Below the map theme legend on the left side of the map, double-click on a currently displayed layer



The software displays the Layer Options - [Name of Layer] dialog box.

Layer Options - County	X
Visibility	
✓ Visible	Sample
🔲 Display Within Range: Zoom range 🕑	
Zoom is at least: 0.00 mi	
Zoom is less than: 600.00 mi	
Style	
Labels:	
Current Setting: No Label	Change Label Display
ОК	Cancel

- 3. From the Current Setting dropdown menu located in the Labels section of the dialog box, select Auto Label
- 4. To change label display options, click the Change Label Display button

Labels:		
<u>C</u> urrent Setting:	No Label	Change Label Display
•	Auto Label	Cancel

The software displays the Label Preferences dialog box.

Use the provided options in the five tabs (Visibility, AutoLabel, Style, Position, and Rules) to customize label settings such as font, color, and position.

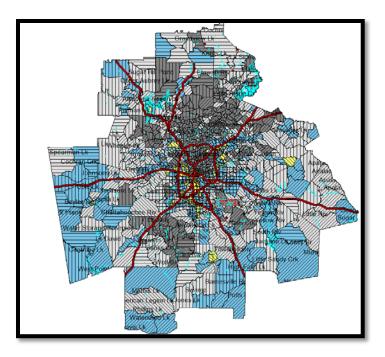
5. When you have configured label options, click OK

The software displays the Layer Options dialog box.

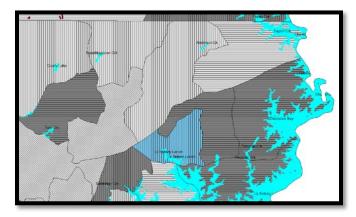
6. Click OK in the Layer Options dialog box

Label Preferences
Visibility AutoLabel Style Position Rules
✓ Visible
Display Within Range: Zoom range
Zoom is at least: 0.00 mi
Z <u>o</u> om is less than: 100,000.00 mi
OK Cancel

The software displays label names on the map.



7. Zoom in on an area of the map to get a better view



Modifying Layer Display

Using the Layer Options dialog box, you can modify the display options for the following map layer types:

- Geographic Boundaries Modify the style (fill type, color, transparency level, width, etc.) of borders for geographic boundaries such as States or Counties
- Points Modify the display symbols and style used for points such as schools and hospitals
- Lines Modify the style used for lines such as streets, highways, and railroads

To modify layer display:

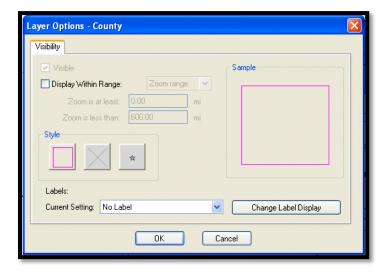
- 1. Adjust the Map Layer Control and remove water and add School Area from Boundaries
- 2. Below the map theme legend on the left side of the map, double-click on a currently displayed layer



The software displays the Layer Options - [Name of Layer] dialog box.

 To change the display properties of a layer, click one of the three buttons located in the Style section of the Layer Options dialog box

The type of the layer you selected in **Step** 1 determines which of the three buttons is enabled in the dialog box.



- 4. Click to modify the style for a geographic area
- 5. Click to modify the style for a line





6. Click to modify the style for a point



v

\$ %

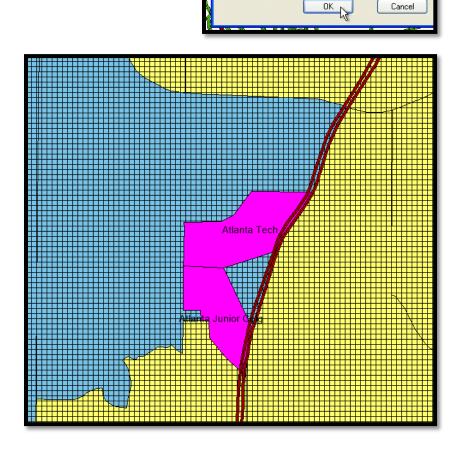
The software displays one of the following Style dialog boxes:

- Area Style dialog box Use the options provided in the two tabs (Fill and Border) of this dialog box to change the style and color of the fill for a geographical boundary layer, as well as the style, width, and color of the area's borders
- Line Style dialog box Use the provided options to change the style, color, and width of a line layer such as a street or railroad
- Symbol Style dialog box Use the provided options to change the font family used to display a symbol, along with the symbol type and color
- 7. When you have configured the necessary **layer** options in a dialog box, click **OK**.

The software displays the Layer Options dialog box.

8. Click OK

The software applies your changes to the layer. In this example, the user selected purple color and auto label.

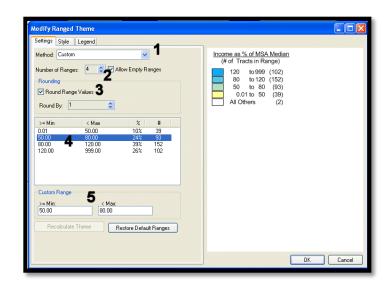


Translucency:

Modifying Existing Themes

You can modify an existing theme by changing map legend display options such as:

- 1. Range colors used
- 2. Calculation method
- 3. Rounding
- 4. Number of ranges
- 5. Labels

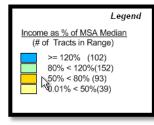


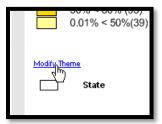
To modify an existing theme:

1. Double-click the map legend

OR -

2. Click the Modify Theme link located beneath the map legend





The software displays the Modify Ranged Theme dialog box.

The dialog box is divided into three tabs. Each tab displays legend options on the left, and a live preview of your changes to the map legend on the right.

Settings tab

- Select a range breakdown (Equal Count, Equal Ranges, Natural Break, Standard Deviation, and Custom) (1)
- 2. Select the number of ranges displayed in the legend (2)
- 3. Enable rounding for range values (3)
- 4. Create custom ranges by selecting a range in the list box (4)
- Enter a new minimum (> = Min) and maximum (< Max) range in the provided text fields (5) and Recalculate Theme

attings Style	Legend				
ethod: Custo umber of Ran Rounding Round Rar Round By:	ges: 🚺 🗘 🗹 A		1 ^{anges} 2	Income as % of MSA Median (# of Tracts in Range) 120 to 999 80 to 120 50 to 80 0.01 to 500 (39) All Others (2)	
>= Min 1.01 0.00 0.00 20.00	< Max 50.00 80.00 120.00 999.00	2 10% 24% 39% 26%	# 39 93 152 102		
Custom Range >= Min: 0 01	< Masc 50.00				
Recalcula		estore Defa	J Banges		OK Cenc

Style tab

- Click the Range Style button for a selected range to modify the display style for a selected range, including fill color, transparency, border style and border thickness (1)
- The Use Regulator Suggested Color Palette checkbox/option is enabled by default for demographics with four ranges (2)
- To override this option, de-select the checkbox then use the Start Style and End Style buttons in the Spread Styles section to configure customized color spreads for a data range (3)

Modify Ranged	Theme		
Settings Style	Legend		
Ranges: 0.01 to 50.00 50.00 to 80.00 80.00 to 120.00 120.00 to 999.00 All Others		Income as % of MSA Median (# of Tracts in Range) 120 to 996 (102) 80 to 120 (152) 50 to 80 (93) 0.01 to 50 (39) All Others (2)	
	r Suggested Color Palette		
Spread Styles			
O Color O Size	Start Style:		
⊙ Off	End Style:		
			OK Cancel

Legend tab

- 1. Modify the legend title and subtitle (1)
- Click the font buttons located next to each legend title to change display font options (2)
- Click the legend display border button to add a border around the legend. This option is disabled by default. To enable, select the Display Border checkbox) (3)
- Modify range labels in the legend by selecting a range in the Range Labels list box (4)
- 5. Modify the selected label in the Selected Range Label text field (5)
- To modify the range labels, select the Use Customized Range Labels checkbox (6)

Settings Style Legend		
Title and Border Title: Trate: Trate: Trate: Trate: Trate: Trate: Trate: Tracts in Range Aa 2 Aa 2 Aa 2 Aa 7 Aa	Income as % of MSA Median (# of Tracts in Range) ⇒ = 120% (102) 80 to 120 (152) 50 to 80 (93) 0.01 to 50 (39) All Others (2)	
Restore Defaults	OK	Cancel

- 7. Click the range labels Font button to change range label font options. (7)
- 8. You can change the range label display order by selecting the Ascending or Descending option buttons (8)
- 9. Modify legend options as necessary in the tabs
 Click OK
- 10. The software updates the legend and/or map theme

Mapping Your Lending Activity

Users frequently utilize GeoDemographic or Business Demographic data, to apply themes to their map. The Income as a % MSA Median variable available in GeoDemographic Data is a commonly used variable when applying thematic shading to a map. % Minority is used specifically for redlining work.

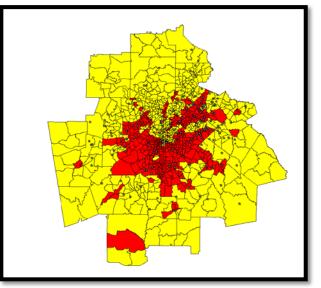
In addition to using demographic data sets to create thematic maps, the Mapper allows users to plot lending activity based on their institution's data files.

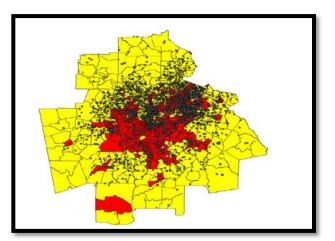
To create this map, complete the following steps:

Prior to creating to your map, ensure that your Current File in the Mapper is set and contains the necessary fields for mapping, such as latitude and longitude.

Start a New Map

- 1. Click the Map Configuration Settings link
- 2. Keep census tract and the same assessment area
- 3. In the Customize Your Display section, select the Select a Layer link available for Thematic Shading
- Click on the GeoDemographic folder to expand its contents, select Population and select % Minority
 - a. Click Apply
 - b. Change the display settings for 2 ranges
- 5. Go to Legend and **modify Theme**. Adjust the ranges as follows: 0-49.99% and 50%-100% and recalculate theme
- Under Style, change the 0-49.99% range to yellow and the 50%+ to red. Under Legend, change the Range Labels to <50% and >=50%.
 - a. Click OK
- 7. Go to Map Layer Control
- 8. Add Current File as Custom Coordinates. If needed, display Selected Map Area Only
- 9. The map shows all application activity with stars
- 10. Go to *Wiz* and the **Edit Screen** and apply a filter for **denials**
- 11. Go back to the Map and click **Refresh**. You may need to reapply the current file. The map now tells a different story. Most of the declines appear to be in minority areas



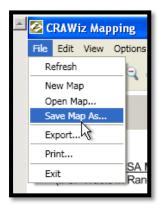


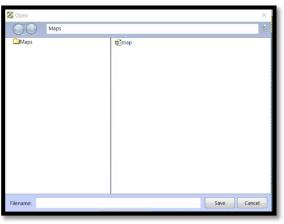
Saving the Map

Maps can be saved, exported, or printed.

To save a map:

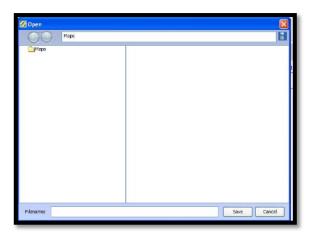
- 1. From the File menu, select Save Map As...
- 2. The system will display the Maps location.
- 3. Enter a filename and click Save





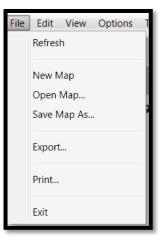
OR-

- At the bottom-left of the map screen, click the Save licon
- 2. The software displays a dialog box
- 3. In the Filename text field located at the bottom of the dialog box, enter a name for the map
 - a. Click Save
- 4. The software saves your map within the CRA *Wiz* system

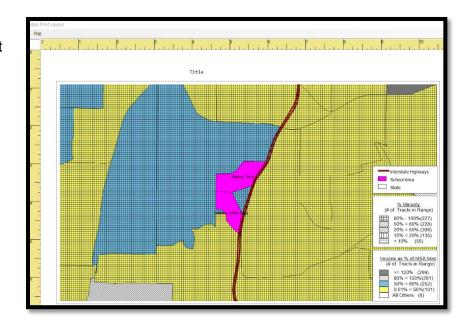


To Print the Map

1. From the File menu, select Print



- The system will display the Map Print Layout screen
 Click on "Title" and
- Click on "Title" and type "Assessment Area Map"

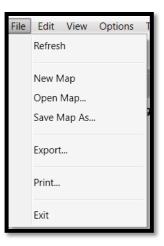


4. Click "File" and print the map

Мар	Print Layout	
File	e	
Γ	Save Layout	
L L	Page Setup	
	Print	
	Exit Layout Window	

To Export the Map

1. From the File menu, select Export



- 2. The system will display the "Export Map As Image" dialog box.
- 3. Select the location to export to
- 4. Enter a file name
- 5. Select a file type in the Save as Type drop down
- 6. Click Save. The map will be exported to the location selected

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About Wolters Kluwer Governance, Risk & Compliance

Governance, Risk & Compliance (GRC) is a division of Wolters Kluwer, which provides legal and banking professionals with solutions to ensure compliance with ever-changing regulatory and legal obligations, manage risk, increase efficiency, and produce better business outcomes. GRC offers a portfolio of technology-enabled expert services and solutions focused on legal entity compliance, legal operations management, banking product compliance, and banking regulatory compliance.

Wolters Kluwer (AEX: WKL) is a global leader in information services and solutions for professionals in the health, tax and accounting, risk and compliance, finance and legal sectors. Wolters Kluwer reported 2019 annual revenues of €4.6 billion. The company, headquartered in Alphen aan den Rijn, the Netherlands, serves customers in over 180 countries, maintains operations in over 40 countries and employs 19,000 people worldwide.