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CRA *Wiz* & Fair Lending *Wiz*
Geocoding:

What is changing? What to you
need to know?

What do you need to do?

Version 7.1

November 2015

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What has changed?

- On December 1st, 2014, with no prior notice, the FFIEC announced that its HMDA and CRA Geocoding System had been updated with "enhanced mapping features and more precise geocodes"

- While the FFIEC provided no additional details on their enhancements & precision, Wolters Kluwer began researching their website and new methodology

- Wolters Kluwer meets with regulators to review geocoding methodology changes implemented and new data sets being used

  — Parcel Level Geocoding (first pass) / Street Level Geocoding (second pass)

  — *New* Point Data Source

  — *New* Streets Data Source

  — No ZIP Code centroids

  — New functionality to "push pin" geocode

- Wolters Kluwer made the investment to upgrade all Consumer Compliance applications (CRA *Wiz* & Fair Lending *Wiz*, *Wiz* Geocoder, Browser Based Editing, HMDA *Wiz* & *Wiz* Sentinel) with the new geocoding methodology and new datasets to re-align our geocoding with the FFIEC's

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What do you need to know?

- To align its methodology and results with the FFIEC's geocoder, CRA *Wiz* & Fair Lending *Wiz* Version 7.1 includes parcel matching as its primary match strategy with street matching serving as a secondary strategy

    Note: Legacy fall back match strategies such as Tract, ZIP%, ZIP4, ZIP2 and ZIP matching will continue to be options

- 2015-Q3 Geocoding Data must be installed with Version 7.1 to include support the new geocoding methodology

- The size of the geocoding data has increase to account for parcel data.

    US Geocoding Data

    2015-Q1 Geocoding Data = 4.88GB

    2015-Q3 Geocoding Data = **8.58GB**

    For size requirements for regional data sets, please reference the 2015-Q3 Geocoding Data Release Notes and Installation Instructions

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What else do you need to know?

- Wolters Kluwer performed extensive testing on the new geocoding methodology and data

- Comprehensive performance testing was also completed

- Due to the nature of parcel level geocoding and the increased size of the geocoding data itself, institutions should expect increased processing times when batch geocoding

- Performance tests indicate that there are a handful of environmental factors that can contribute to increased processing times when geocoding large files

Performance Impacting Factors	Description	Mitigation
Memory	Geocoding large files (example: 200K) with the new parcel data requires 500-550MB of free memory. This is an increase from the legacy data which required 300-350MB of free memory. If batch geocoding process is constantly vying for memory with other processes, its performance can be significantly impacted. **Scenario:** In one testing scenario where SQL Server was installed in the environment where geocoding process was being executed, SQL Server processes severely impacted available memory and there was significant impact geocoding performance.	If SQL Server is installed in the same environment where the batch geocoding process is running, performance issues can be decreased by setting a limit on Maximum Memory consumption for the SQL Server instance.
Not enough Disk IO	Standalone machines that do not have enough Disk IO may experience performance problems. **Scenario:** We have found that most standalone machines with a local installation of CRA *Wiz* did not have sufficient Disk IO to geocode large files with optimal performance. During batch processing the Wolters Kluwer Quality Assurance Team observed Disk IO maxing out at 100% and the OS struggled to get enough Disk IO for the batch to process. In this scenario, we found that batch geocoding took 2-3x as long as it previously did.	Upgrade machine with a disk that has a higher RPM.
Not enough Network Bandwidth	Our testing indicates that environments with low network bandwidth can expect significant performance impact when geocoding large files. In these scenario, we found that batch geocoding took 2-3x as long as it previously did.	Reduce network latency issues. Consider moving geocoding data to another location.

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Q: What is parcel level geocoding?

A: When an address is geocoded to a parcel, the latitude and longitude for the address is assigned based on the center point of the parcel of land (or sometimes the center point of the structure's roof.) Relevant geocoding data points such as state, MSA, county and census tract are assigned based on this location.

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What's the difference between street segment geocoding and parcel level geocoding?

Street Match: Latitude and longitude is interpolated for an address based on its position on a street segment. State, MSA, county, census tract data is assigned based on that location.

Example: 650 Central Avenue, CA 94501
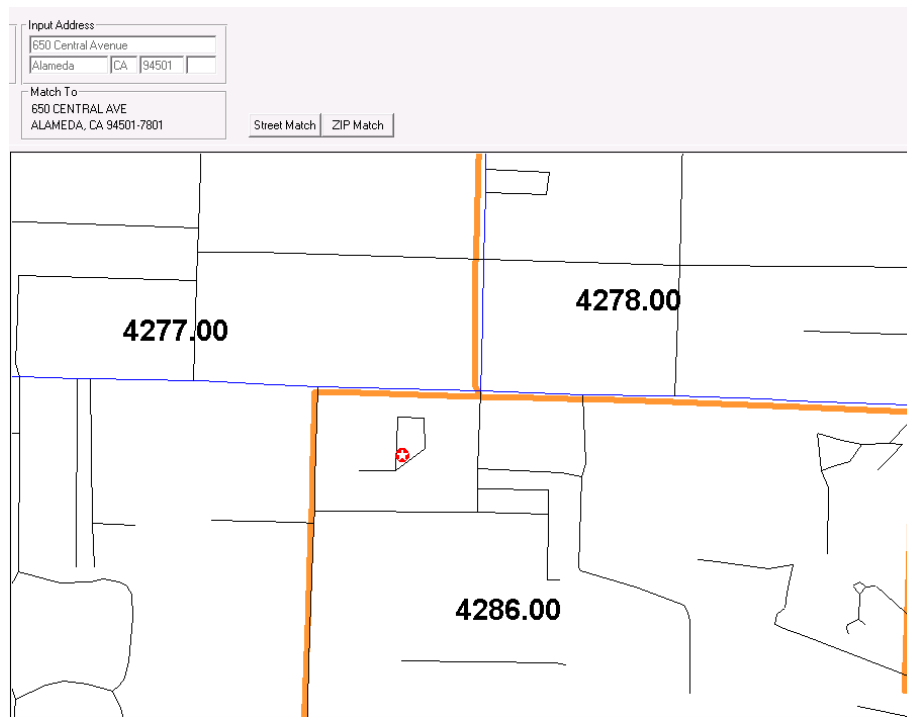

State: 06

MSA: 36084

County: 001

Census Tract: **4277.00**

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Parcel Match: Latitude and longitude is assigned for the address based on center point of this address's parcel. In this case, the center of the parcel is located in census tract 4286.00. As a result, state, MSA, county, census tract data is assigned based on that location.

Example: 650 Central Avenue, CA 94501

Input Address
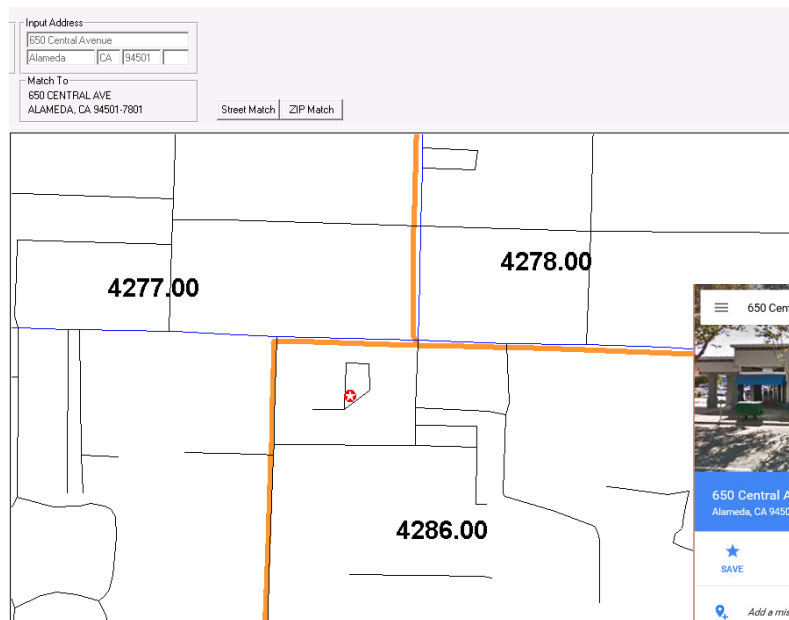650 Central Avenue
Alameda   CA   94501

Match To
650 CENTRAL AVE
ALAMEDA, CA 94501-7801   Street Match   ZIP Match

4278.00

4277.00

4286.00

State: 06

MSA: 36084

County: 001

Census Tract: **4286.00**

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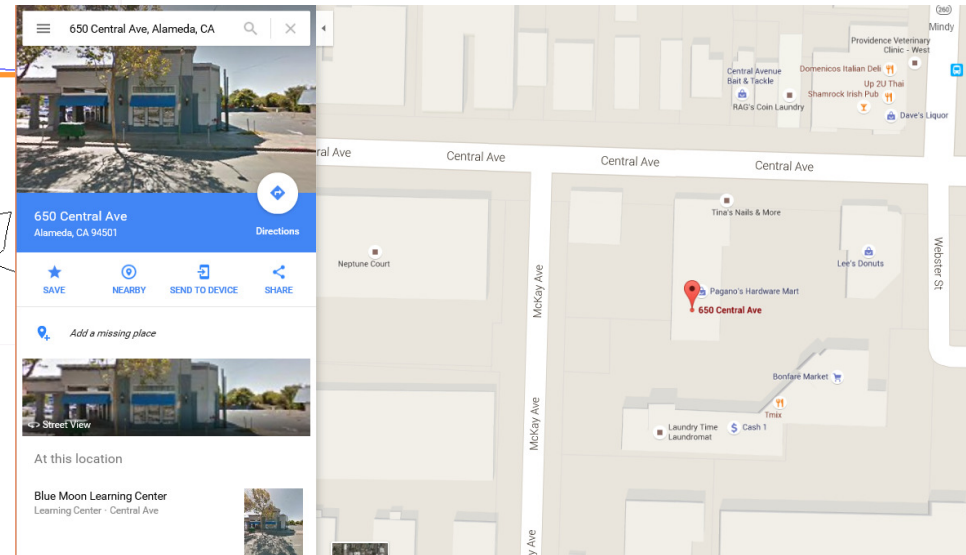
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Accuracy Improvements

- New source displays additional streets
- More accurate geocodes. In this example, you can see that this building is clearly located within census tract 4286.00

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What else do you need to know?

Wolters Kluwer has updated the priority of its geocoding fall back options

In the event that a parcel or street match is not possible, the CRA *Wiz* & Fair Lending *Wiz* geocoder will attempt the following match strategies (in order below) if they are enabled in your Geocoding Settings.

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.
---- Zip%	This selection will allow the geocoder to automatically centroid unmatched addresses to census tracts if the selected percentage of the Zip Code is within a single census tract.
-0.99	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.
0.95	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.
0.9	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 4	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 match unmatched addresses to the centroid (center) of the loan record's five-digit zip code.

Version 7.1 changes:
- ZIP% matches (99% & 95%) <u>increased</u> fall back priority *over* ZIP4, ZIP2 and ZIP matches
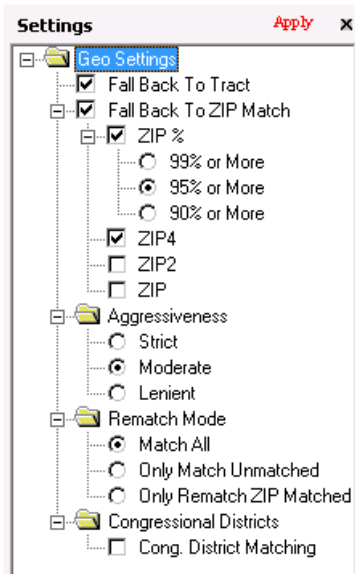
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What else do you need to know?

Wolters Kluwer has updated its recommended geocoding settings

New Recommended Settings

Version 7.1 changes:
- ZIP2 matching removed from recommended settings
- Aggressiveness changed from 'Lenient' to 'Moderate'

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What else do you need to know?

- Existing clients will need to *manually* change their geocoding settings if they want to use the new recommended settings

- With the parcel data, the majority of your addresses will likely get parcel matched (You will see fewer street matches)

- MMWSTAT codes have been updated to take the new parcel matches into consideration

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Updated mmwstat codes

Status Code	Description
1 (B1 / R1)	The address entered received a best match from parcel database
2 (B2 / R2)	The address entered received a best match from address database
3 (B3 / R3)	The address entered received an intersection match
5 (B5 / R5)	The address entered matched to an alternate name for the street
6 (B6 / R6)	The location of this address is known but has not been added to the parcel database. The address entered matched to a temporary placeholder from parcel database.
7 (B7 / R7)	The location of this address is known but has not been added to the address database. The address entered matched to a temporary placeholder from address database.
8 (B8 / R8)	The street name entered is correct, but the street number is not listed within the list of available ranges for this street. Because the entire street is contained within a single census tract, the address entered was matched to that tract.
9 (B9 / R9)	The street name entered is correct (to an alternate name), but the street number is not listed within the list of available ranges for this street. Because the entire street is contained within a single census tract, the address entered was matched to that tract.
10	The state abbreviation entered is incorrect. This address cannot be geocoded.

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Updated mmwstat codes, continued…

11	The city name entered does not exist in the state that you entered. This address cannot be geocded.
12	The street address entered is incomplete or incorrectly formatted. This address cannot be geocoded.
13	You are not licensed to geocode in the state that you entered. Please review your license agreement to determine which geographies your institution is licensed for.
14	The street name entered does not exist in the city that you entered. This address cannot be geocoded.
15	The street name entered is correct, but the street number is not within the correct range for this street. This address cannot be geocoded.
16	There are more than one street segment with the given address number. This address cannot be geocoded
17	The address contains two valid streets that do not intersect. This address cannot be geocoded
18	The city name entered is not covered by Wolters Kluwer's databases
-9	The address could not be matched as DLL Mode is off
-1001	The address could not be matched as MM Init Function Failed
-1002	The address could not be matched as MM Set Parameter Function Failed
-1003	The address could not be matched as MM Open Function Failed
-1021	The address could not be matched as usattr Open Function Failed
-1022	The address could not be matched as Attributes Database is Missing
-1011	The address could not be matched as Geo Database is Missing

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What do you need to do?

- ■ Ensure that CRA *Wiz* & Fair Lending *Wiz* Version 7.1 is installed **with** the 2015-Q3 Geocoding Data

- ■ Review your Geocode Settings, consider updating them to Wolters Kluwer's **new** recommended settings to ensure regulatory grade geocoding

- ■ Update Geocode Settings throughout the application to ensure that all geocoding is done with consistent settings

  - — Batch geocoder

  - — Single record geocoder

  - — Geocode tasks in the Event Scheduler

  - — Windows Geocoding Service (where applicable)

  - — *Wiz* Geocoder (where applicable)

- ■ With both installed, re-geocode your 2015 CRA and HMDA files with the new data & methodology

  Note: If you have manually geocoded records, make sure you filter these out prior to batch geocoding so that manual work is not overwritten

- ■ Wolters Kluwer does not recommend re-geocoding files 2014 and earlier as this methodology was introduced by the FFIEC in December 2014

  Note: Files with an Activity Year of 2012 or later (Census 2010) will use the new data and methodology if they are re-geocoded. Similar to the FFIEC's site, it will not be possible to go back in time to use the old data/methodology for these activity years. Census 2000 files will use the old method and old data.

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Remember….

- The FFIEC website no longer allows you access to the legacy data and geocoding methodology. The 'Year' drop down menu only allows you to establish the Activity Year for demographic purposes

- Notes for dealing with Internal auditors & Examiners

  - Expect that results in CRA *Wiz* & Fair Lending *Wiz* may change when comparing data geocoded before and after this change

  - Due to the way this was implemented on the FFIEC, the FFIEC may also contradict themselves when comparing current results to those received prior to this change

  - Per the regulators, this is expected and will be considered during examinations

  - Ensure your institution has a <u>consistent</u> and <u>documented</u> process for geocoding

  - Speak to your examiner in advance if you have questions

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