



Geocoding in *Wiz*

A guide to understanding match strategies

2024



Wolters Kluwer

Wiz Geocoding Overview

The following topics will be addressed to help users understand *Wiz* geocoding techniques.

- Recommended Geocode Settings & Fallback Methodology
- Match Strategy Definitions
- Interpreting mmwStat and centroid Codes
- *Wiz* Geocoding vs. FFIEC Geocoding



Wolters Kluwer’s Recommended Geocode Settings & Fallback Match Strategies

Parcel and street level geocoding are the most accurate methods of geocoding. The geocoding methodology in *Wiz* will attempt to geocode each address first to a specific parcel and then to a street match if a parcel match is not attainable. If neither a parcel match or street match is possible, *Wiz* will attempt to geocode the address based on the fallback strategies configured by your institution.

Wolters Kluwer’s Recommended Settings

Aggressiveness:

- Strict
- Moderate
- Lenient
- Fall Back To Tract
- Allow Weak Parcel and Tract Matches

Fall Back To ZIP Match

ZIP Match:

99% 95% 90%

ZIP Address Type:

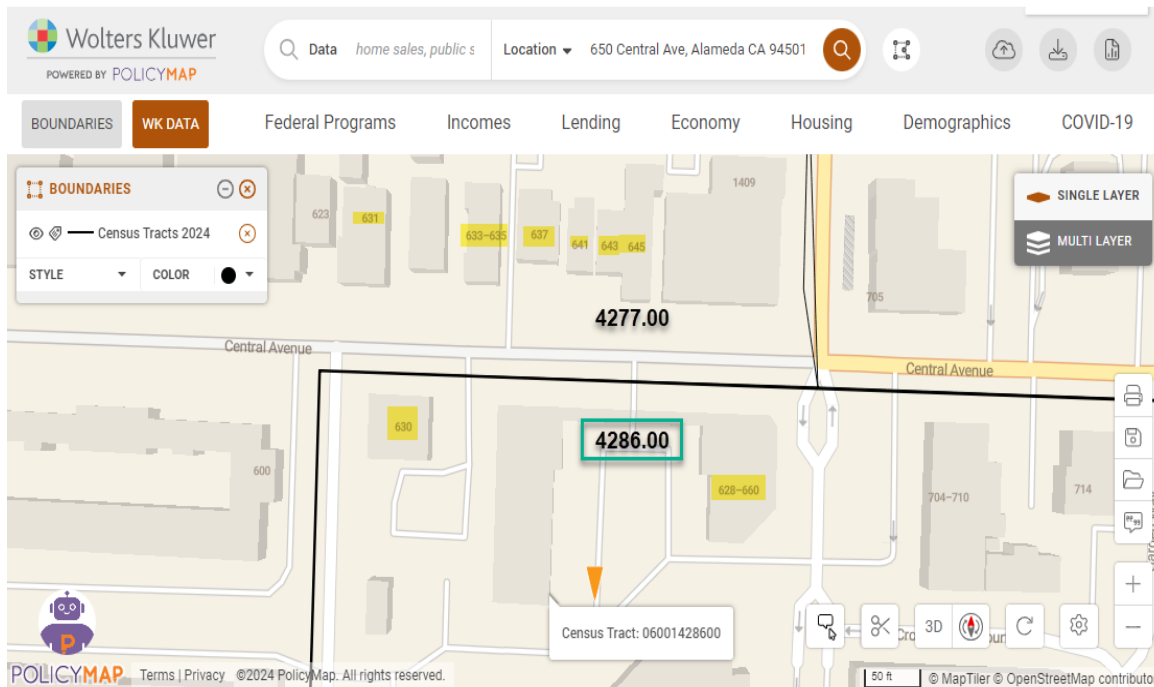
ZIP4 ZIP2 ZIP

Fallback Strategies

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.

Parcel Match

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 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.

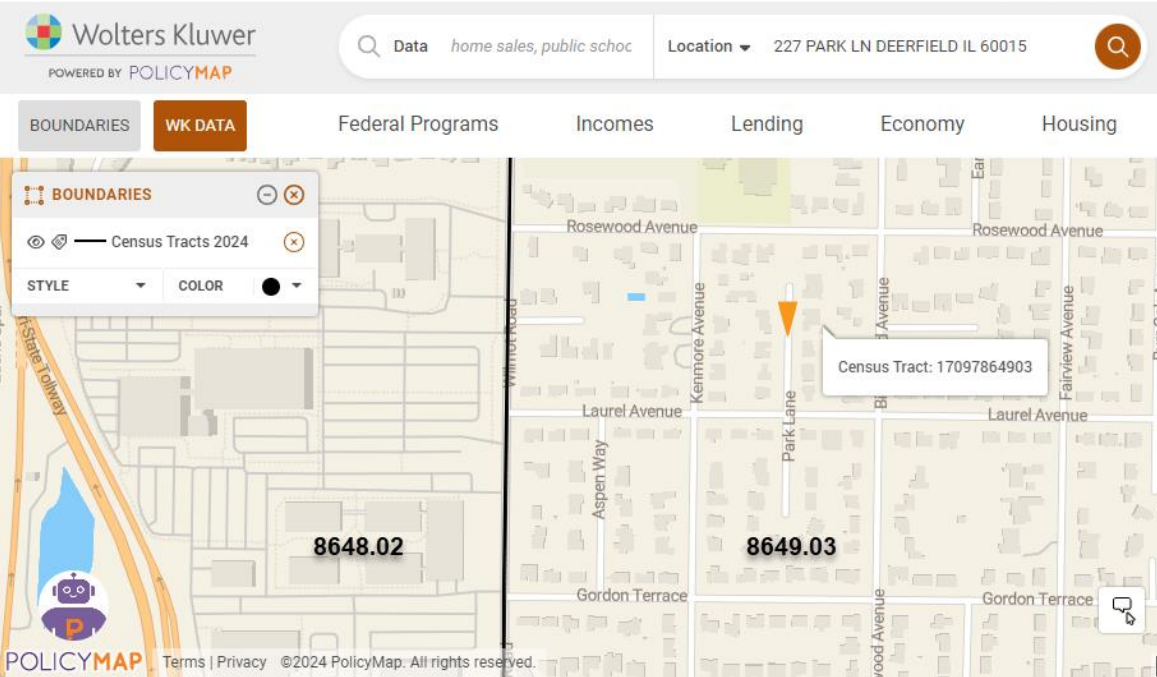


mmwStat Code: B1

Accuracy: Approximately 99%

Street Segment Match

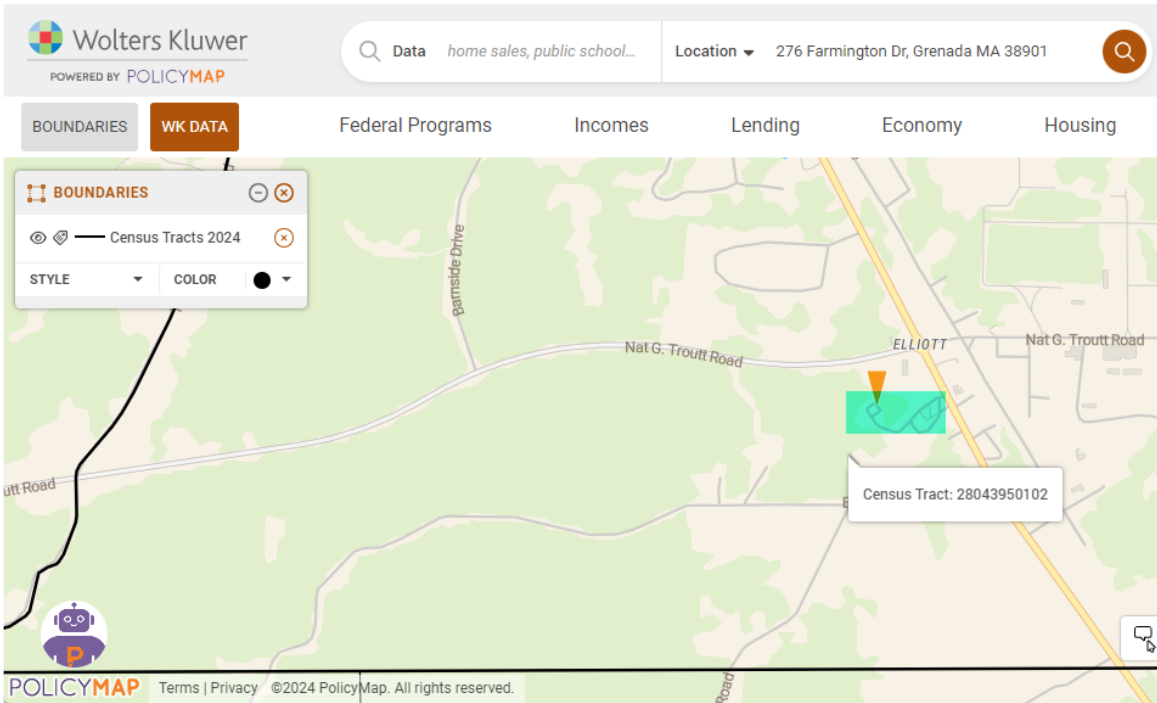
When an address is geocoded to a street segment, latitude and longitude information is interpolated for an address based on its position on a street segment. State, MSA, county, and census tract data is assigned based on that location.



mmwStat Code: B2
Accuracy: Approximately 98%

Tract Match

If the *Wiz* geocoder is unable to match a specific street address to its address database but it can discern that the entire street is in one census tract, *Wiz* will geocode the address to that census tract.



mmwStat Code: B8
Accuracy: Approximately 98%

Understanding ZIP Code Centroids

ZIP Codes are used to identify mail delivery routes and provide a specific geographic region. The region identified becomes increasingly accurate based on the number of digits of provided for any given ZIP Code.

Leominster, MA **01453-1452**

A full 9-digit ZIP Code can generally be used to find a very specific geographic areas which can provide enough information to determine census tract level accuracy.

Centroiding is the process of identifying the center point of a region and assigning geographic information (state, county, MSA and census tract) for that location. Since the information returned does not represent the latitude and longitude of the specific street address, accuracy rates can vary depending on the type of ZIP Code centroid.

Wiz offers institutions the option of geocoding with the following centroid types.

- ZIP %
- ZIP4
- ZIP2
- ZIP

ZIP % Match

ZIP % matches are derived from a spatial calculation using ZIP Code and census tract data. *Wiz* calculates how much a ZIP Code overlaps with a census tract boundary. The ZIP % geocode setting allows *Wiz* users to select the percentage of overlap between ZIP Code and a census tract boundaries they are tolerant of accepting for a ZIP % match to be assigned to a street address.

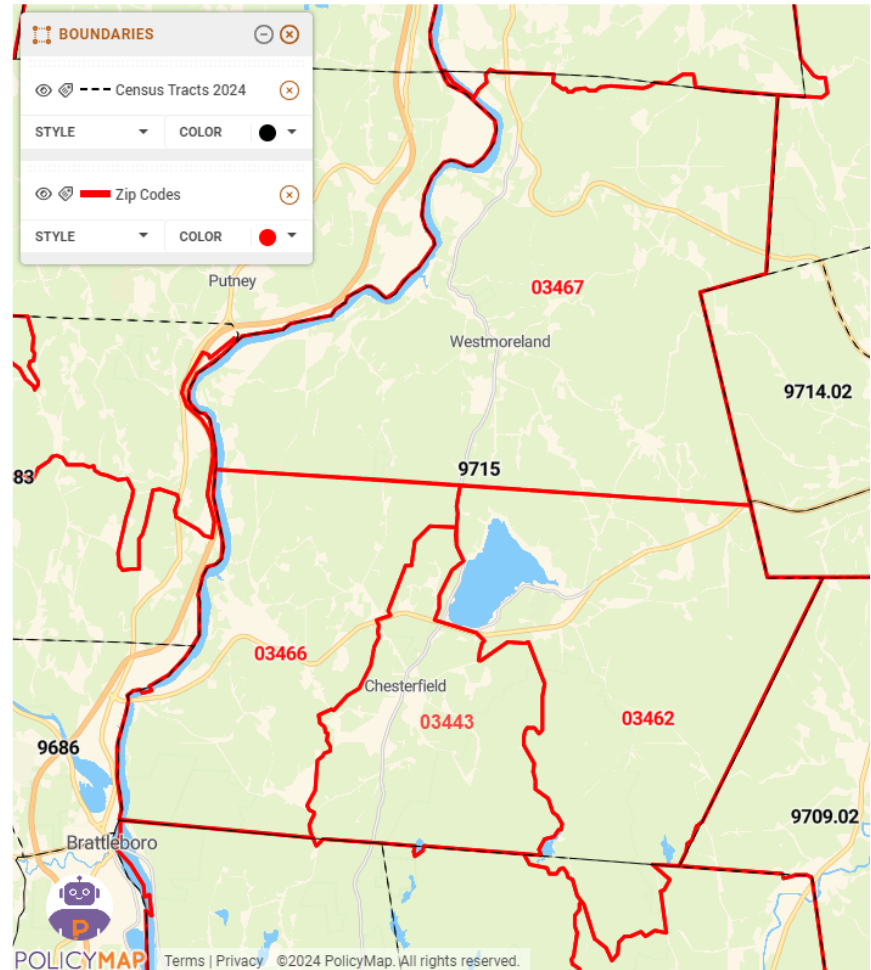
Wiz allows intuitions to select from three percentages; ZIP 99%, ZIP 95%, and ZIP 90%.

ZIP % Setting	% of ZIP Code Overlap with Census Tract	mmwStat Code	Centroid Code	Approximate Accuracy
ZIP 99%	99%	14	A	99%
ZIP 95%	95%	14	B	95%
ZIP 90%	90%	14	C	85%

ZIP % Match: How the Calculation Works

ZIP % overlap calculation with census tract
9715.00:

- ZIP Code 03467 overlaps 98.156% with 9715.00
- ZIP Code 03466 overlaps 99.826% with 9715.00
- ZIP Code 03443 overlaps 98.740% with 9715.00



ZIP4 & ZIP2 Centroids

- ZIP4 Centroid

The four-digit extension of a standard ZIP Code translates to a well-defined geographic area *within* a five-digit ZIP Code. It is represented by all nine digits of a ZIP Code, for example Leominster, MA [01452-1452](#). With the ZIP4 setting enabled in the geocoders fallback match strategies, *Wiz* will geocode the address to the center point of the geographic area identified by the nine-digit ZIP Code.

mmwStat Code: Z4

Accuracy: Approximately 90%

- ZIP2 Centroid

The two-digit extension of a standard ZIP Code translates to a slightly larger geographic area *within* a five-digit ZIP Code. It is represented by the first seven digits of a ZIP Code, for example Leominster, MA [01452-1452](#). With the ZIP2 setting enabled *Wiz* will geocode the address to the center point of the geographic area identified by the seven-digit ZIP Code.

mmwStat Code: Z2

Accuracy: Approximately 68%

ZIP Centroids

This match strategy uses the five-digit ZIP Code from the input address and geocodes to the geographical center of ZIP Code. **ZIP matching is the least accurate** means of geocoding an address and is therefore not a recommended match strategy for regulatory grade geocoding.

When all other geocode match options fail, ZIP matching can be used to geocode an address to the center point of a five-digit ZIP Code, for example Leominster, MA [01453](#)-7601.

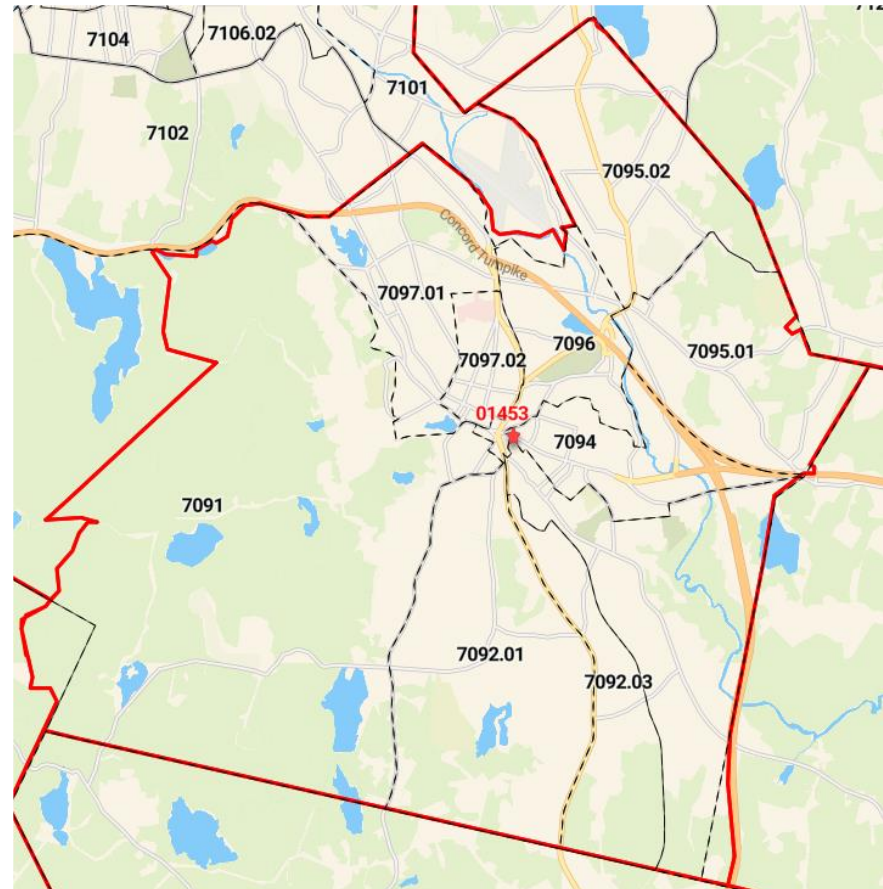
mmwStat Code: Z5

Accuracy: Approximately 30%

ZIP 5 Match: Center of the ZIP Code

ZIP 5 calculation plots the center of the ZIP Code.

Matched to Census Tract: 7094.00



Aggressiveness

The aggressiveness specifies the level of geocoding strictness. Below are the definitions of the different levels.

- **Lenient:** Returns a match when the house number and side of the street match properly to the Geocoder's reference addresses.
- **Moderate:** Returns a match only when the house number and street direction; or house number, side of the street and street type match properly to the Geocoder's reference addresses.
- **Strict:** Returns a match only when the house number, side of the street, street type, street direction and Zip Code match properly to the Geocoder's reference addresses.

Our geocoder standardizes the address first then looks for a match. The match results are *scored* and the result with the best score is used, provided the score is within the threshold defined by the aggressiveness setting. If the score is not met the geocoder will fall back to other methods allowed per the geocoding settings.

Note: The exact algorithm, methodology, and thresholds that the geocoding engine utilizes are considered proprietary and are therefore unknown to us.

Weak Parcel and Tract Matches

The **Allow Weak Parcel and Tract Matches** setting is another optional setting giving you flexibility to allow the Geocoder to return parcel and/or tract matches where the underlying geocoding data is considered weak. This is not a recommended setting for your first geocoding method but can be implemented to increase your geocoding matches and to geocode residual addresses that do not match in the first pass.

These weak parcel matches can be identified by values in the `gsLocationCode` field of AP22, AP23, and AP24. The address point level locations are not based on known parcel boundaries or structure locations but are based on two known locations surrounding the matched address.

Known locations:

- **AP22** - 2 parcels
- **AP23** - Parcel and end of street segment
- **AP24** - No known parcel or structure locations on the street segment. Match returned has been interpolated along the street segment based on low and high building numbers.

Source: https://customer.precisely.com/s/article/How-to-evaluate-AP22-AP23-and-AP24-LocationCode-values-in-Enterprise-Geocoding-Module?language=en_US

MMWStat Codes & Definitions

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.
11	The city name entered does not exist in the state that you entered. This address cannot be geocoded.
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
99	The record was Manually geocoded

Centroid Codes & Definitions

Code	Description
Z4	ZIP +4 Match
Z2	ZIP +2 Match
Z5	ZIP Match
ZA	99% of the ZIP Code is within a single Census Tract
ZB	95% of the ZIP Code is within a single Census Tract
ZC	90% of the ZIP Code is with in a single Census Tract

Wiz Geocoding vs. FFIEC Geocoding

- The biggest difference between geocoding in *Wiz* and the FFIEC website is that the FFIEC provides *only* parcel level and manual geocoding.
- Another difference between the FFIEC's geocoder and *Wiz* is that the provider of their geocoding data is ESRI whereas ours is Precisely.
Note: Many of the data sources are the same since several data sources are used to create the entire geocoding data set.
- *Wiz* provides users with optional match strategies to increase an institution's hit rate during the batch geocoding process (Tract matches, ZIP %, and ZIP centroiding ZIP4, ZIP2 & ZIP)
- *Wiz* provides users with a set of recommended geocoding settings that allows users to utilize supplemental match strategies while still ensuring the highest possible accuracy rates.