



Find more.™



USA_Geo_002

Service Description Document

Except for normal in-house use, reproduction of any part of this document by any means without permission from Tele Atlas® is prohibited.

© **1984-2006 by Tele Atlas®**. All rights reserved. This material is proprietary and the subject of copyright protection and other intellectual property rights owned by or licensed to Tele Atlas® and its affiliates. The use of this material is subject to the terms of a license agreement. You will be held liable for any unauthorized copying or disclosure of this material.

Dynamap® files and documentation are subject to all copyrights.
Dynamap® is a trademark of Tele Atlas®.

ZIP is a trademark of the United States Postal Service.

Every attempt has been made by Tele Atlas® to depict accurately the current version of this product's content and use. However, the information in this document is subject to change without notice and should not be viewed as a commitment by Tele Atlas®. In addition, Tele Atlas® is not responsible for any errors in this document.

Introduction

This document contains all of the service specific information you will need to understand and use this particular EZ-Locate hosted service. Namely, this document specifies:

- The network address and service name;
- The required input fields and their content definitions; and
- The supported output fields and their format/content definitions.

With the data in this document, you should have everything you need to begin using this service through your preferred client (EZ-Locate client, self-built solution, etc).

Service Information	
Service access method	EZ-Locate 2 client software or SDK
Server address	mmezl.teleatlas.com
Service name	USA_Geo_002

Description

USA_Geo_002 provides the latest in Tele Atlas® geocoding technology and data for the United States. In addition to the output fields of its predecessor, this service returns a postal standardized version of the input address when possible. This service uses map data built from our most recent database and uploaded to the geocoding server on the first day of each month.

Service Inputs

Each record transmitted to this service must have a required set of input fields. Here are the names of the fields and a description of their required contents.

Field Name	Field Description
Addr	House number and street name
City	City name
State	2-character state abbreviation
ZIP	ZIP Code
Plus4	4-digit ZIP Code extension if separate from ZIP field

Guidance on Input Field Formats and Content

ADDR

- Avoid PO Box or Rural Route numbers for best street level matching.
- Spell out street names completely. Street types and directionals can be abbreviated safely (Adams St E, W Cherry Ave).
- Express a range of numbers with a hyphen (160-170 Park St will match; 160 to 170 Park St will not match).
- Intersections are formatted (Smith St & Jones St; Smith St and Jones St; Smith St. at Jones St.; Smith St. @ Jones St.).
- Place apartment numbers, floors and suites AFTER the street name and separate them with a comma. The preferred method is to provide a separate field for apartment numbers, floors and suites (these are not used for matching).
- Remove apartment letters from street numbers: 143-D Park St and 143 D Park St will not match. These addresses should be changed to 143 Park St or 143D Park St.

State

- State abbreviations must be the two-letter abbreviations used by the U.S. Postal Service.

ZIP & Plus4

- If you have a single field containing a full ZIP Code you can transmit the value in the ZIP field. The allowable formats are <12345>, <12345-6789>, <123456789>, or <12345 6789>.
- If you have the 5-digit ZIP Code parsed separately from the plus4 value then transmit them separately in the fields provided.

See following page for examples.

Here are some example inputs to the system.

Input Record		Best Match Possible									
<table border="1"> <tr><td>Addr</td><td>11 Lafayette St.</td></tr> <tr><td>City</td><td>Lebanon</td></tr> <tr><td>State</td><td>NH</td></tr> <tr><td>ZIP</td><td>03766</td></tr> <tr><td>Plus4</td><td>1445</td></tr> </table>	Addr	11 Lafayette St.	City	Lebanon	State	NH	ZIP	03766	Plus4	1445	Since all fields contain values, it is possible to attain any match type other than an intersection match from this input.
Addr	11 Lafayette St.										
City	Lebanon										
State	NH										
ZIP	03766										
Plus4	1445										
<table border="1"> <tr><td>Addr</td><td>11 Lafayette St.</td></tr> <tr><td>City</td><td>Lebanon</td></tr> <tr><td>State</td><td>NH</td></tr> <tr><td>ZIP</td><td>03766</td></tr> <tr><td>Plus4</td><td></td></tr> </table>	Addr	11 Lafayette St.	City	Lebanon	State	NH	ZIP	03766	Plus4		Since no value for Plus4 is supplied, there is no chance of obtaining ZIP+4 or ZIP+2 quality centroids. Otherwise, it is the same as the previous example.
Addr	11 Lafayette St.										
City	Lebanon										
State	NH										
ZIP	03766										
Plus4											
<table border="1"> <tr><td>Addr</td><td>Main St. & Allen St.</td></tr> <tr><td>City</td><td>Hanover</td></tr> <tr><td>State</td><td>NH</td></tr> <tr><td>ZIP</td><td></td></tr> <tr><td>Plus4</td><td></td></tr> </table>	Addr	Main St. & Allen St.	City	Hanover	State	NH	ZIP		Plus4		This will match to an intersection or not match at all. No centroid matches are possible since no ZIP Code information is provided.
Addr	Main St. & Allen St.										
City	Hanover										
State	NH										
ZIP											
Plus4											
<table border="1"> <tr><td>Addr</td><td></td></tr> <tr><td>City</td><td></td></tr> <tr><td>State</td><td></td></tr> <tr><td>ZIP</td><td>03766-1445</td></tr> <tr><td>Plus4</td><td></td></tr> </table>	Addr		City		State		ZIP	03766-1445	Plus4		With just the ZIP Code and plus4 value, it is possible to obtain any of the centroid match types depending on which are findable in the Tele Atlas® ZIP Code data.
Addr											
City											
State											
ZIP	03766-1445										
Plus4											
<table border="1"> <tr><td>Addr</td><td></td></tr> <tr><td>City</td><td>Lebanon</td></tr> <tr><td>State</td><td>NH</td></tr> <tr><td>ZIP</td><td></td></tr> <tr><td>Plus4</td><td></td></tr> </table>	Addr		City	Lebanon	State	NH	ZIP		Plus4		With just the city name and state abbreviation as input, there is NO MATCH possible.
Addr											
City	Lebanon										
State	NH										
ZIP											
Plus4											

Service Outputs

For each record transmitted to the service, the server will return a specified set of output values. Here are the returned field names and a description of their content.

Field Name	Field Description
STD_ADDR	Postal standard street address
STD_CITY	Postal standard city name
STD_ST	Postal standard state abbreviation
STD_ZIP	Postal standard 5-digit ZIP code
STD_P4	Postal standard Plus4 code
STD_CR	Postal standard carrier route
MAT_ADDR	Matched Address
MAT_CITY	Matched City
MAT_ST	Matched State
MAT_ZIP	Matched ZIP Code
MAT_LAT	Match latitude (decimal degrees)
MAT_LON	Match longitude (decimal degrees)
FIPS_ST	State FIPS Code
FIPS_CTY	County FIPS Code
CEN_TRCT	Census Tract
CEN_BLK	Census Block
FIPS_PLC	FIPS Place
FIPS_MCD	FIPS MCD Code
FIPS_MSA	FIPS MSA Code
MAT_CENT	Centroid Type Code
CBSA	CBSA Code
METROD	Metropolitan Division Code
MICROF	Micropolitan flag
MAT_STAT	Matchmaker Status Code
MAT_TYPE	Match Type Code

Standardized Address, City, State, ZIP Code, Plus4, Carrier Route

The standardized fields are the results of performing a postal standardization of the input address. The returned fields will not be consulted when searching for the input address in our map database. Thus, the standardized values may differ in content from the "Matched" return values in one or more of these fields. An address that standardizes may not match and an address that matches may not standardize.

Matched Address

The matched street address contains the address number, pre-directional, street name, street type and post-directional for the matched address as found in our database. The matched street address will be blank on addresses that match to centroids or that did not match at all.

Matched City, State and ZIP Code

The matched city, state, and ZIP Code found in our database for the input address. The matched ZIP Code is a five-character text field.

Coordinate Fields

LATITUDE:

The latitude in geographic projection; decimal degree format, World Geodetic System Datum 1984, formatted 00.000000.

LONGITUDE:

The longitude in geographic projection; decimal degree format, World Geodetic System Datum 1984, 11 characters, formatted -X00.000000 (X = blank or 1).

Census Fields

Census Fields	Description
FIPS_ST	The two-digit state FIPS code.
FIPS_CTY	The three-digit county FIPS code.
CEN_TRCT	The seven-character census tract code; formatted 0000.XX (XX =blank or numeric).
CEN_BLK	The four-character (number) Census 2000 block code.
FIPS_PLC	The five-digit place FIPS code; five characters, formatted 00000. Place and MCD codes are the same in many cases. Not every address will fall within a Place.
FIPS_MCD	The five-digit MCD (Minor Civil Division) FIPS code; five characters, formatted 00000.
FIPS_MSA	The four-digit MSA (Metropolitan Statistical Area) FIPS code; four characters formatted 0000. Not every address will fall within an MSA.
CBSA	The five-digit CBSA code that identifies a CBSA area.
METROD	The five-digit Metropolitan Division code. A Metropolitan Division is a county or group of counties within a Core Based Statistical Area that contains a core with a population of at least 2.5 million.
MICROF	This is a one-character field that will contain either a "0," indicating a Metropolitan Area, or a "1," indicating a Micropolitan Area.

Centroid Type

Centroid Type code is a one-character field identifying the type of centroid that was assigned. Centroid Type codes include:

Centroid Type	Description
0	Not a centroid (street address match)
4	ZIP+4 centroid
2	ZIP+2 centroid
X	5-digit ZIP Code centroid
Blank	No centroid available

A ZIP+4 centroid coordinate is the latitude/longitude point that falls at the middle address of the address range associated with the ZIP+4 according to the USPS.

A ZIP+2 centroid coordinate is the latitude/longitude point that is the mathematical average of the coordinates associated with all the ZIP+4s within a ZIP+2. A ZIP+2 also is known as a sector.

A 5-digit ZIP Code centroid is the Delivery-weighted centerpoint latitude/longitude of the polygon formed by the 5-digit ZIP Code boundaries. These 5-digit ZIP Code centroids also are described as "delivery-based centroids."

Match Status Codes

A two-character code appended to each record indicates the type of match or failure. Match status codes are assigned automatically. A "B" code indicates the match was made through the batch process.

Match Status Code	Description
B1	Street segment.
B2	Intersection.
B3	Intersection.
B5	Alternate name match. Address match to an alternate or "secondary" name of a street in the Tele Atlas® database. A common example: when a U.S. or state highway passes through a town, becoming "Main St."
B6	Placeholder match. Matched to a point in the Tele Atlas® database that had been placed earlier as a best estimate until acquisition of better resources.
B7	Alternate name match to Placeholder. Matched to an alternate name of a point in the Tele Atlas® database that had been placed earlier as a best estimate until acquisition of better resources.
10	Not a valid two-character state abbreviation. Either a typo or non-covered area (Guam, V.I., etc.).
11	Locality not found in list of valid localities. The Postal Service and therefore Tele Atlas® does not list this as a deliverable locality.
12	Street address parse error. Incomplete or poorly formatted addresses such as blank fields. The geocoding software was unable to break the address down properly into prefix, street name, type, suffix, directional, etc.
14	Street name could not be found. The street name given is not found in the Tele Atlas® street database. This is either due to missing data in the Tele Atlas® database or an invalid address.
15	Address range does not exist. The address given is not found in the Tele Atlas® street database on the street given. This is either due to missing address ranges on streets in the Tele Atlas® database or an invalid address number.
16	More than one segment with address range. Ambiguity: either due to the address occurring multiple times in the Tele Atlas® street database, or the address is not specific enough (EXAMPLE: "100 Main St" when the Tele Atlas® database contains both "100 N Main St" and "100 S Main St").
17	Unable to match intersection. There may be two valid streets that do not intersect or one or both streets that could not be matched. Another possibility is that the two streets intersect in more than one place.

Match Type Codes

These codes are the same as the Match Status codes, except they are strictly numeric and do not contain any leading alphabetic characters. Additionally, there are the new values of:

- 1 IncorrectInputError – wrong number of fields sent to service.
- 10 NetworkError – server or network error while transmitting address.

Understanding ZIP Codes

The following section is included to help you better understand the geocodes attached to your address file. A ZIP Code is a number of up to nine digits used by the U.S. Postal Service to identify an area where mail is delivered. There are three levels of ZIP Codes.

5-Digit ZIP

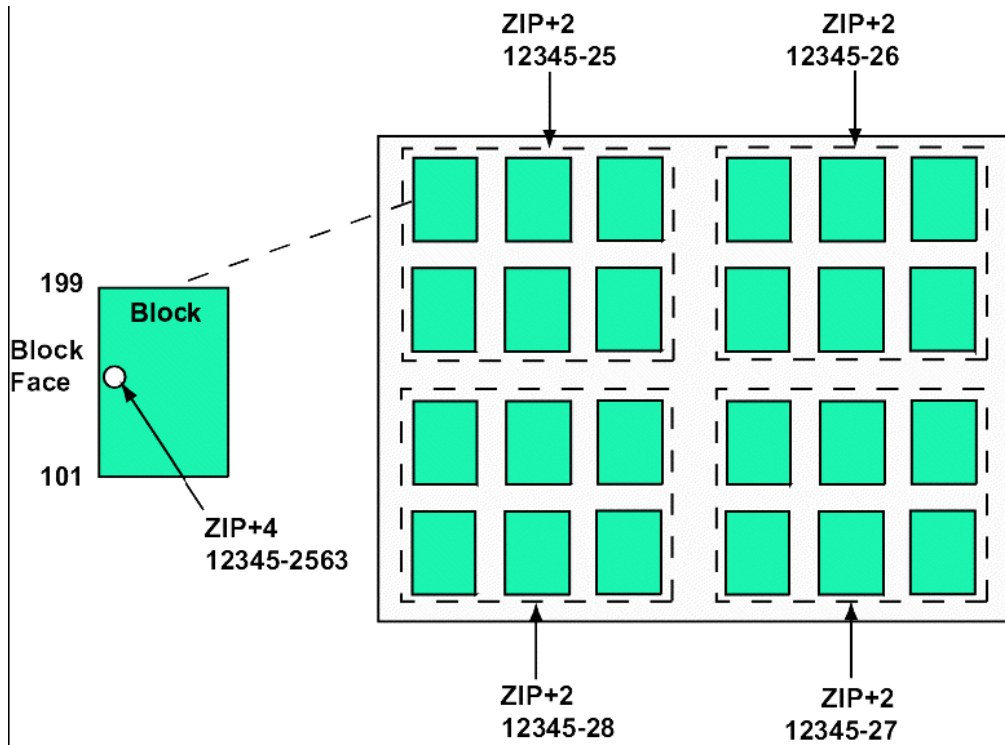
The first digit of a 5-digit ZIP Code divides the country into 10 large areas numbered from 0 in the Northeast to 9 in the far West. Within these areas, each state is divided into an average of 10 smaller geographical areas, identified by digits number 2 and 3. These digits, in conjunction with the first digit, represent a sectional center facility or a mail processing facility area. Digits number 4 and 5 identify a post office, station, branch or local delivery area. The illustration in this section shows a stylized 5-digit ZIP Code delivery area. The white areas are roads and the green areas represent city blocks. Most sides or faces of these blocks have address ranges.

ZIP+2

A 5-digit ZIP area is divided into ZIP+2 delivery sectors, each of which may be a group of Post Office Boxes; several office buildings; a single high-rise building with multiple firms or apartments; a small geographic area; or several blocks as shown in the illustration in this section. A ZIP+2 area is identified by adding two digits to the 5-digit ZIP Code.

ZIP+4

ZIP+2 sectors can be subdivided further into ZIP+4 sections identified by attaching another set of two digits. A ZIP+4 might be one floor of an office building; specific departments in a firm; a group of Post Office Boxes; or one side of a street (block face) between intersecting streets, as shown below.



Single-Site ZIP+4s

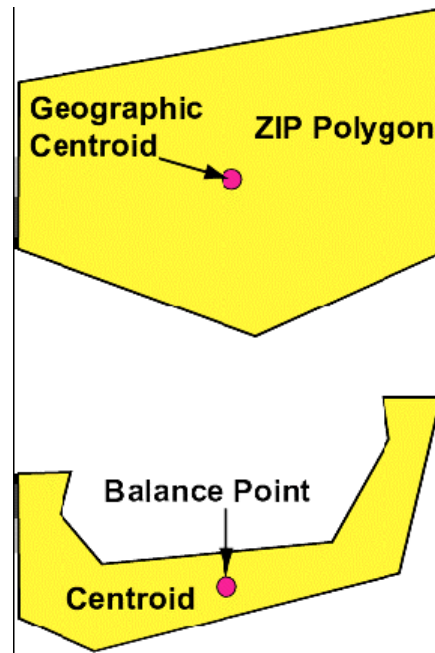
Although ZIP+4s usually define a single side (block face) of a single city block in urban areas (or both sides of a longer roadway in rural areas), they also can define a single building, or even a single floor in a building. For example, a ZIP+4 might be assigned to a high-rise apartment building in mid-town Manhattan, or to the Post Office Boxes in Putney, Vermont.

Understanding Centroids - U.S.

There are three types of ZIP centroids: 5-digit ZIP centroids, ZIP+2 centroids and ZIP+4 centroids. Each is calculated differently. The 5-digit centroids used in this product come from the Tele Atlas® 5-Digit ZIP Code Boundary and Inventory product.

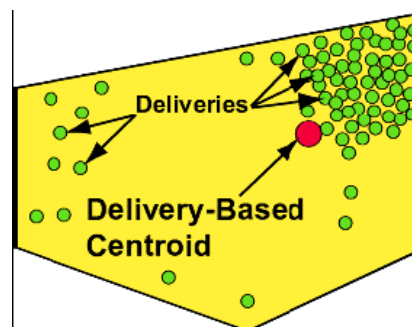
5-Digit Centroids (Delivery Based)

The centroid of a 5-digit ZIP Code area is the balance point of the polygon formed by its boundaries.



Often the number of deliveries is not evenly spread across a 5-digit ZIP Code area. The deliveries may be concentrated in one corner of the polygon.

Delivery-based centroids were developed to express the actual distribution of deliveries within a ZIP Code polygon. Delivery-based centroids may be thought of as "delivery"-weighted centroids. When delivery information is unavailable for a particular ZIP Code polygon, the Tele Atlas® delivery-based centroid will show the geographic centroid.



ZIP+2 Centroids

A ZIP+2 centroid is the point that is the average of the coordinates of all its Type S (street address), Type F (firms) and Type H (high-rise) ZIP+4 centroids as defined by Tele Atlas®.

If most ZIP+4 centroids occur at one end of the ZIP+2 area, the ZIP+2 centroid is pulled toward that concentration of ZIP+4 centroids, rather than being positioned in the center of the ZIP+2 area. This makes the ZIP+2 centroid a good indicator of address concentration.

ZIP+4 Centroids

The ZIP+4 centroid is the point corresponding to the address that is closest to the middle address of the ZIP+4 address range.

Address ranges from the Tele Atlas® core database are used to calculate ZIP+4 centroids. When overlaid on Dynamap® street products, ZIP+4 centroids that are odd or even are offset five feet to the odd or even side of the street. Centroids designated as both odd and even fall directly on street segments.