

# GEOCODING:

## The Indiana Composite Locator



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# What is Geocoding?



ID	ADDRESS_STREET1	ADDRESS_STREET2	ADDRESS_CITY	STATE	ZIP_CODE	COUNTRY
0014	WESTFIELD AVENUE		LA PORTE	IL	60050	US
0020	COLONY WOOD DR		INDIANAPOLIS	IN	46229	US
0123	EAST WINDYBROOK		OSHAU	IL	60477	USA
0025	1301 E		LAUNSWAY	IL	60701	US
0073	RD 16		ADLEY	IL	60795	US
0089	RD 10		LAUNSWAY	IL	60701	US
0139	WYCKE		HILL CREEK	IL	60555	USA
0041	WES		LA PORTE	IL	60050	US
0017	401 S		LA PORTE	IL	60050	USA
			LAUNSWAY	IL	60701	US
			CLARKSVILLE	IL	62529	US
			LAUNSWAY	IL	60701	USA
			HARTFORD CITY	IL	62548	US
			WOLFCITYVILLE	IL	60795	US
			LAUNSWAY	IL	60701	US
			MOON	IL	60551	USA
			DECATUR	IL	62520	US
			LA PORTE	IL	60050	US



Input  
Addresses or  
Description

Find Locations

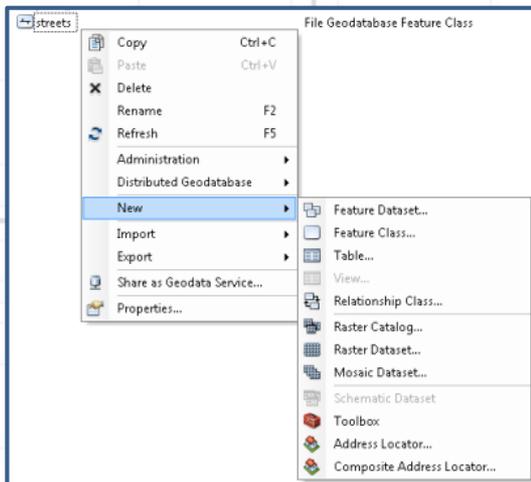
Create Points

Geocoding is the process of transforming a description — such as a pair of coordinates, an address, or a name of a place—to a location on the earth's surface. (ESRI)

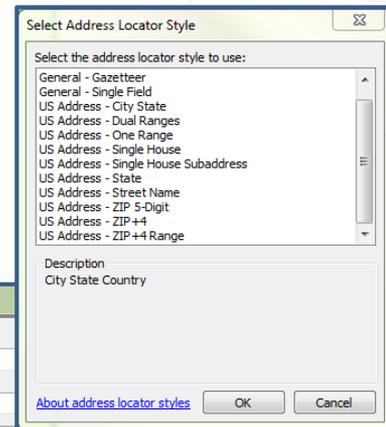
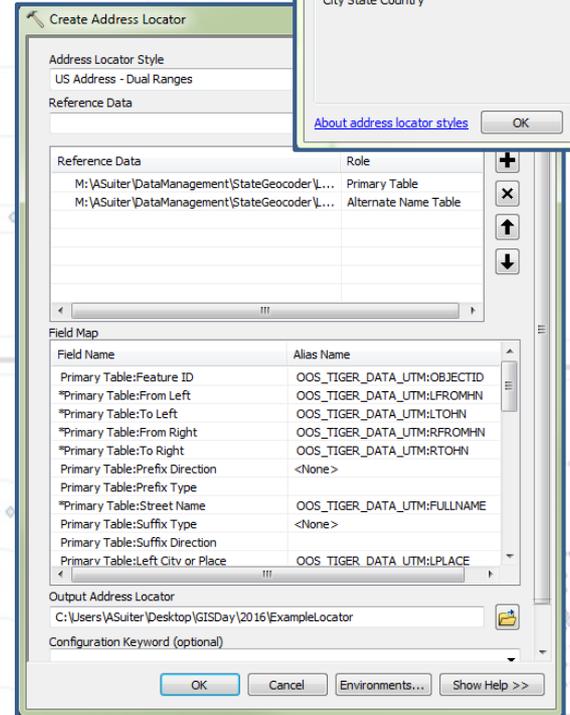
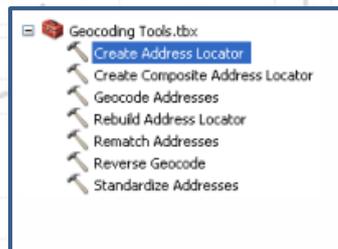
# What is a ESRI Locator?

A locator is a customized ESRI tool that has been built using location data (any ESRI user can do this!)

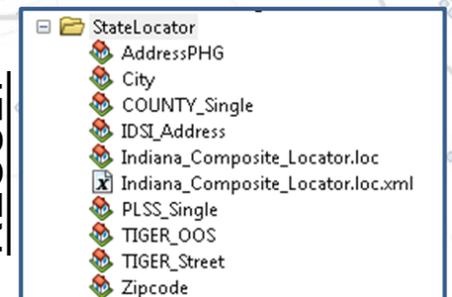
- Built using point or street data
- Reference data should be standardized and have a coordinate system/projection
- Many locator styles are available



OR



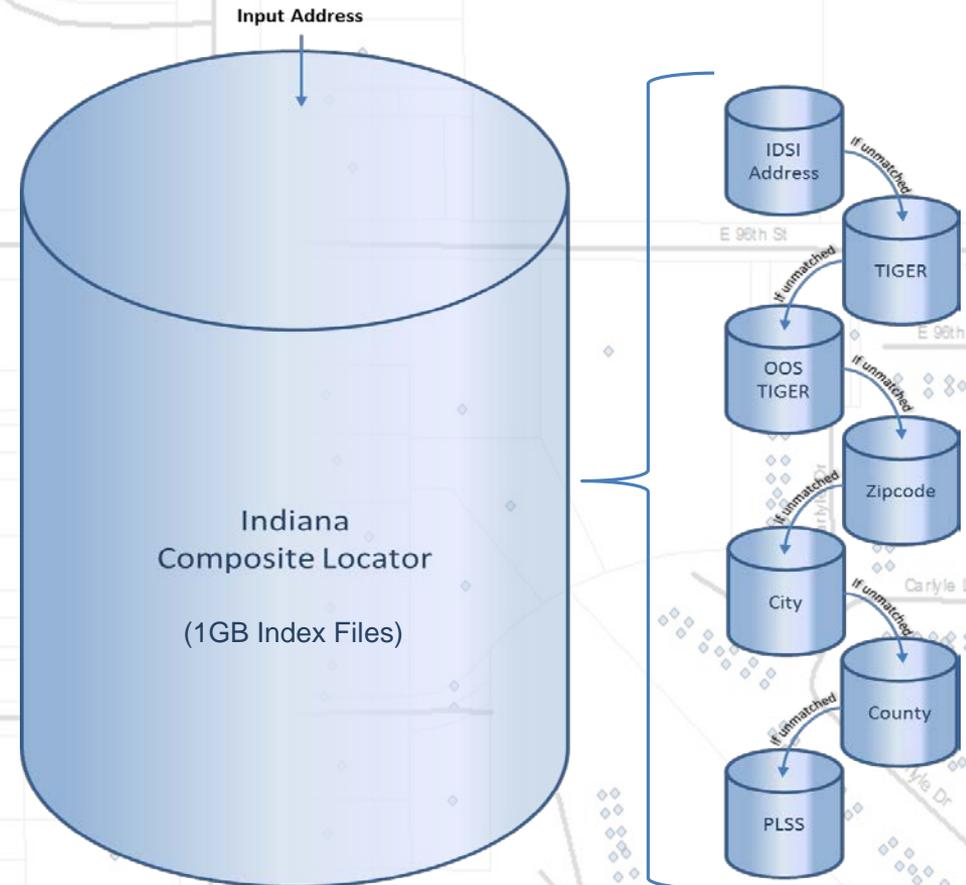
RESULT



# State GIO Composite Locator

<https://gis.in.gov/arcgis/rest/services>

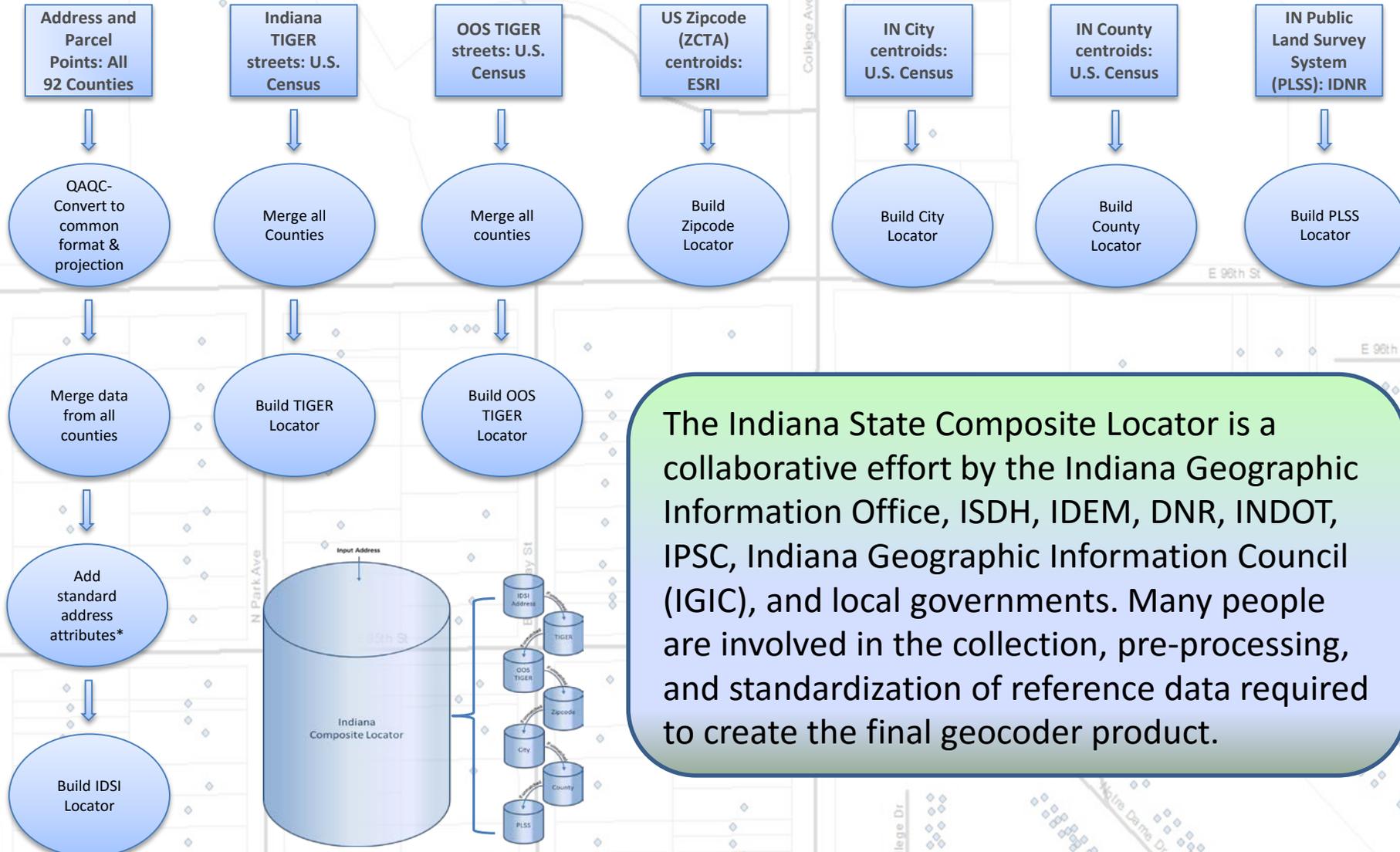
- A composite locator is made up of multiple locators, each referencing a unique dataset and matching to different location types.
- Cascading → order is important
- Locators are searched from the top down.
- All locators within the composite should have the same coordinate system and projection



# Composite Locator Reference Data



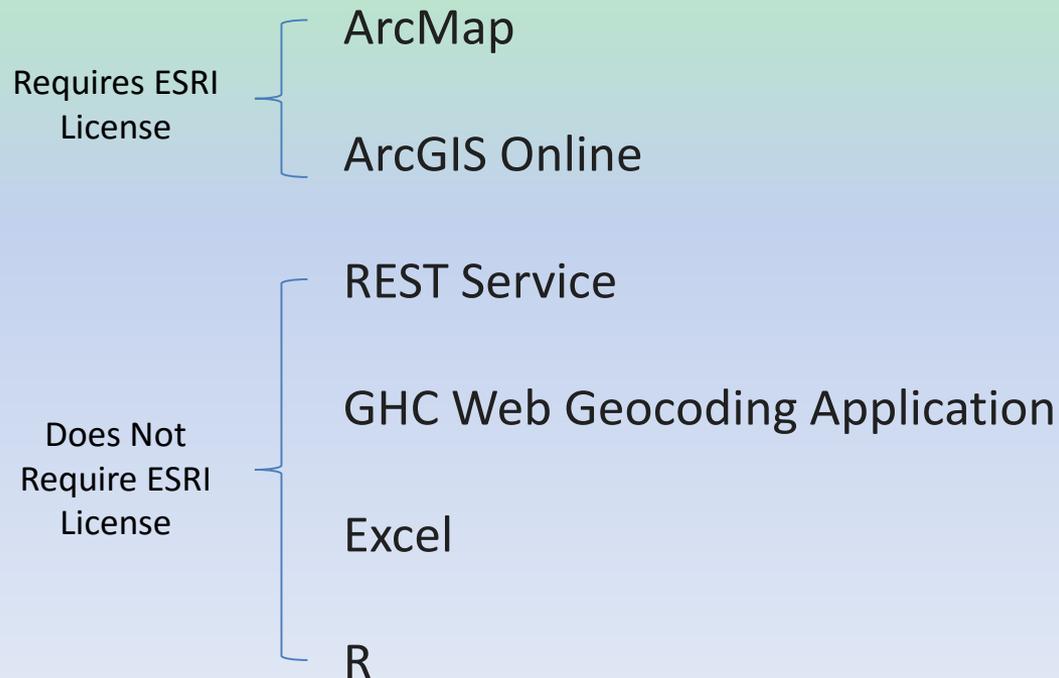
Current IDSI locator defers to local naming convention and uses addresses as obtained from the County. Future iterations of this locator will include a standardized address



The Indiana State Composite Locator is a collaborative effort by the Indiana Geographic Information Office, ISDH, IDEM, DNR, INDOT, IPSC, Indiana Geographic Information Council (IGIC), and local governments. Many people are involved in the collection, pre-processing, and standardization of reference data required to create the final geocoder product.

# Using the Geocoder

The Indiana Composite Locator is published as a REST service which can be interacted with from a variety of platforms



**NOTE**

Indiana Composite Locator is the default locator for State Enterprise AGOL Accounts

# ArcMap Example

## Adding Address Data

### Multi-Field Input

	E	F	G	H	I	J
1	ADDRESS_STREET1	ADDRESS_STREET2	ADDRESS_CITY	STATE	ZIP_CODE	COUNTRY
12975	990 PORTAGE AVE.		PORTER	IN	46304	US
12976	9901 NORTH ST. RD. 3 LOT 53		MUNCIE	IN	47303	
12977	9901 PENDLETON PIKE	LOT 231	INDIANAPOLIS	IN	46236	US
12978	9901 WILD TURKEY ROW		MC CORDSVILLE	IN	46055	US
12979	9904 HARD KEY CIR		INDIANAPOLIS	IN	46236	US
12980	9907 VALLEY VISTA PL		FORT WAYNE	IN	46804	US
12981	9909 FULLBROOK DR APT#E		INDIANAPOLIS	IN	46229	US
12982	9910 E 16TH STREET		INDIANAPOLIS	IN	46229	US
12983	9910 W 900 S		PENDLETON	IN	46064	US
12984	9911 SOUTHMOOR AVE		HIGHLAND	IN	46322	US
12985	9912 HIDDEN VILLAGE PLACE		FORT WAYNE	IN	46835	US
12986	9913 WOODSMALL DR		INDIANAPOLIS	IN	46229	US
12987	9915 OAK TRAIL RD.		FORT WAYNE	IN	46825	US
12988	9917 W 1700 S		LA CROSSE	IN	46348	
12989	9920 CATALINA DR		INDIANAPOLIS	IN	46235	US
12990	9921 ALEXIA DR		INDIANAPOLIS	IN	46236	
12991	9921 S MISTY LN		HAUBSTADT	IN	476398240	US
12992	9922 VALLEY VISTA PLACE		FORT WAYNE	IN	46804	US
12993	9922 E 1000 N		ODON	IN	47562	US
12994	9922 FULLBROOK DR.	APT B	INDIANAPOLIS	IN	46229	US
12995	9923 S NORTHBROOK		FT WAYNE	IN		US
12996	9924 BIRCHWOOD COURT		INDIANAPOLIS	IN	46280	
12997	9924 NEW DEVON		MUNSTER	IN	46321	US
12998	9927 SERPENTINE COVE		FORT WAYNE	IN	46804	

OR

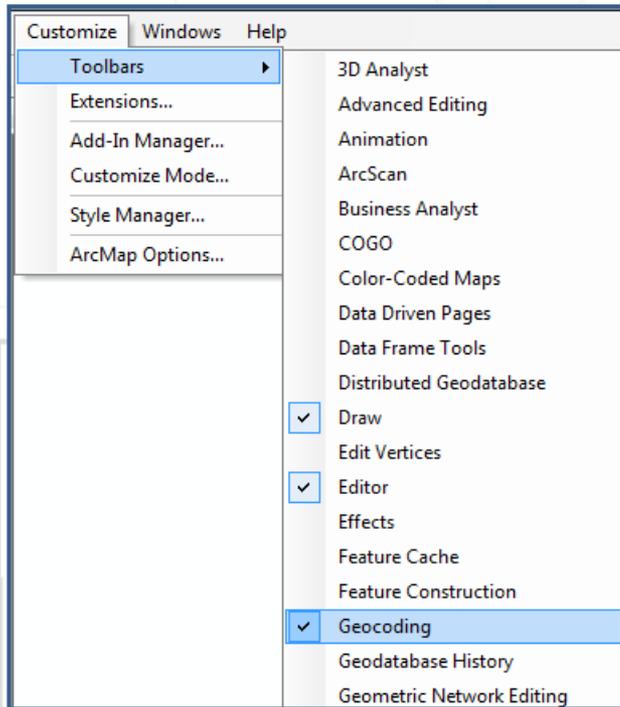
### Single Field Input

	A
1	SingleLineAddress
2	5250 E USHY 36, AVON, IN 46123
3	112 HOSPITAL LN, DANVILLE, IN 46122
4	7 MANOR DR, DANVILLE, IN 46122
5	1000 E MAIN ST, DANVILLE, IN 46122
6	8244 E US HIGHWAY 36, AVON, IN 46123
7	321 E NORTHFIELD DR, BROWNSBURG, IN
8	
9	

Addresses may be stored in any common table format:  
.xls, .xlsx, .dbf, .txt, .csv, .mdb, or Oracle table

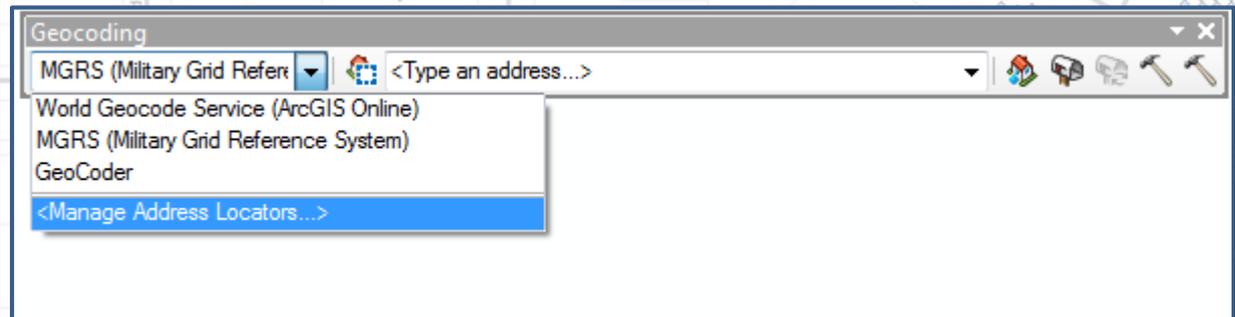
# ArcMap Example

## Adding the Geocoding Toolbar



### Customize → Toolbars → Geocoding

- Manage address locators
- Search and view single address
- Inspect addresses
- Geocode address table
- Rematch addresses

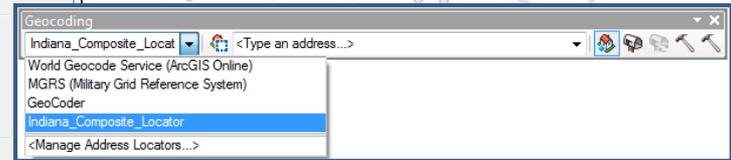
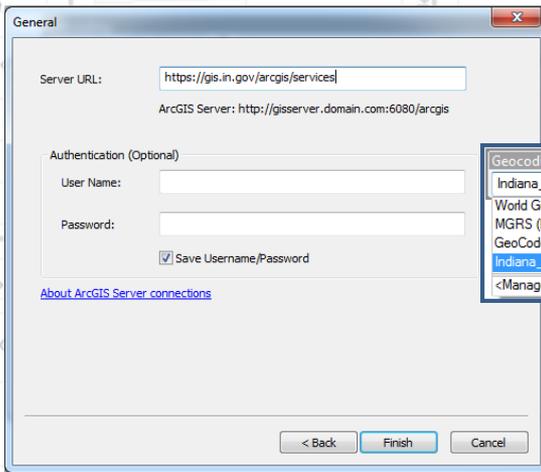
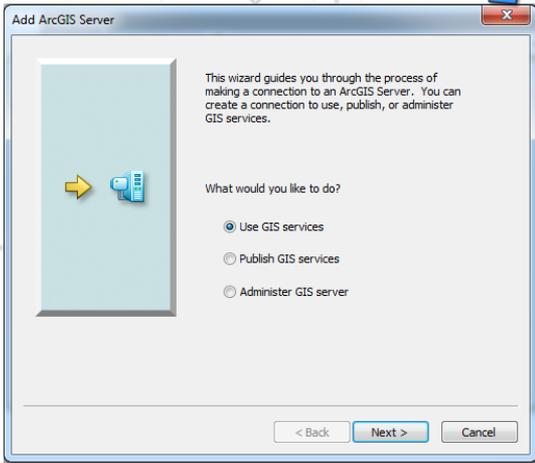
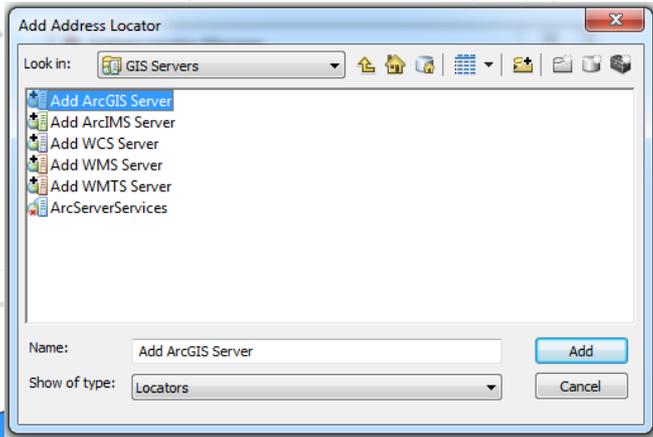


# ArcMap Example

## Adding the State Composite Locator

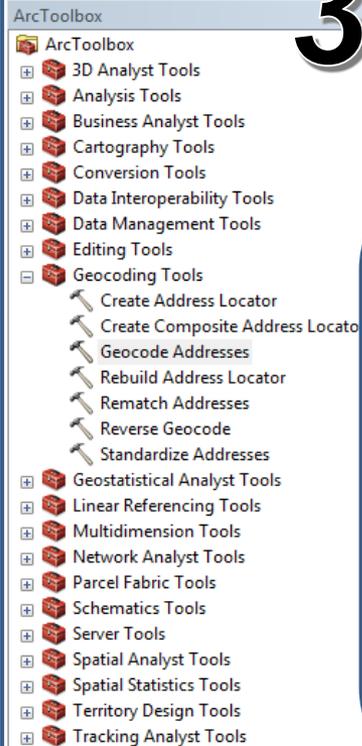
**From the Geocoding Toolbar:**

- Choose Manage address locators
- Navigate to GIS Servers
- Add State ArcGIS Server
- URL: <https://gis.in.gov/arcgis/services>
- Locate Indiana\_Composite\_Locator



# ArcMap Example

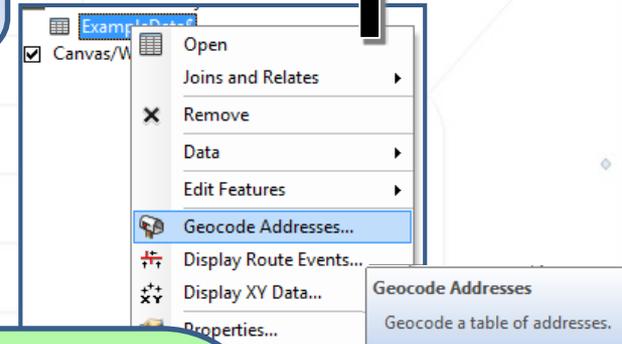
## Start Geocoding!



3

### Many ways to get started

1. Right-click on address table in Table of Contents
- OR
2. Select Geocode tool from Geocoding Toolbar
- OR
3. Choose Geocoding Tools > Geocode Addresses from ArcToolbox



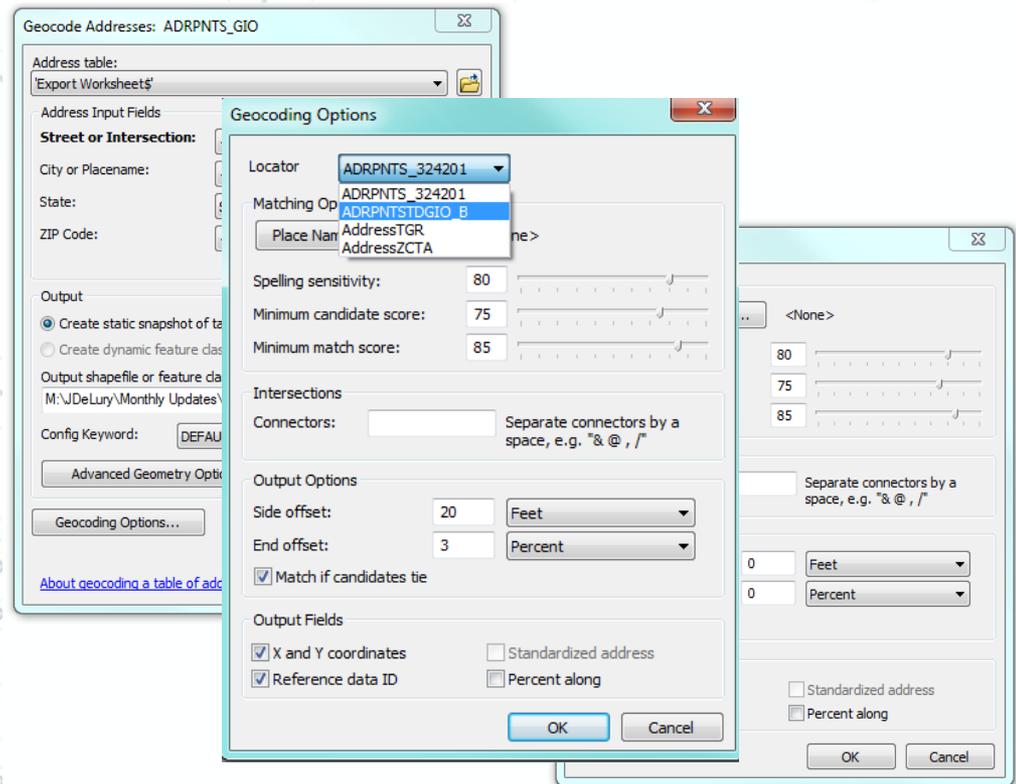
1



2

# Parameters

- Select the address table
- Choose Address Input Fields
- Defaults parameters will be set...they can be changed
- Advanced Geometry: Sets projection
- Geocoding Options:
  - Offsets set at 0
  - Check (✓) X and Y coordinates
  - Check (✓) Reference data ID if needed
  - Composite: Parameters set for each locator
  - Match ties only needed for street segments



Geocoded feature class will have points only for matches and ties

NOTE

Some records will not have corresponding points because of errors in the data



# Geocoding Results

## Challenging Addresses

### Identifying and Reducing Errors

- Spelling errors are a common reason for an unmatched address
- Other sources of error might include:
  - Incorrect prefixes or suffixes
  - Incorrect house numbers
  - Incorrect ZIP Codes
  - Extra blank spaces - either between words or at the beginning or the end of the address field
- Use of the wrong zipcode can lead to incorrect point location because zip is considered first when locating street address

# Geocoding Results

## Challenging Addresses

### Identifying Mismatches:

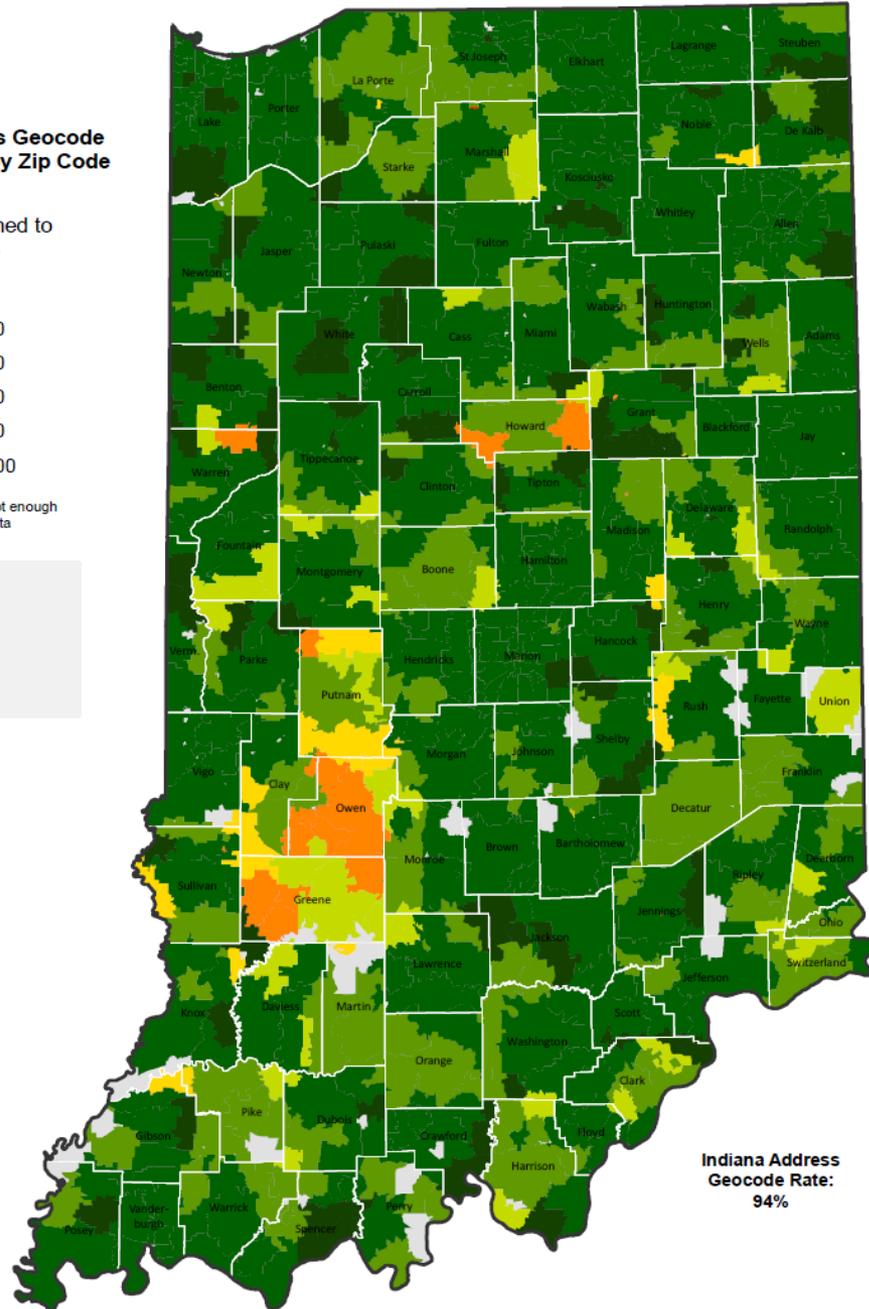
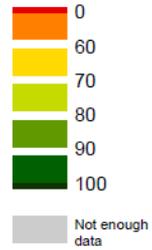
- Missing reference data
- Outdated reference data
- County and state road names are frequently difficult due to multiple ways of referencing these features
- A less accurate locator (ZCTA, TIGER) may have a higher score than a match from a more accurate locator (IDSI) within the composite.
- Inclusion of Unit in a single line address may cause mismatches - Standardization of addresses before geocoding can reduce some of these errors.

# Geocoding Results

## Match Rates by Zip

### Address Geocode Rates By Zip Code

% Matched to Address



Indiana Address Geocode Rate:  
94%

Central Ave

N Park Ave

E 99th St

E 99th St

Carlyle Ln

Carlyle Dr

# Indiana\_Composite\_Locator REST Service

[https://gis.in.gov/arcgis/rest/services/Indiana Composite Locator](https://gis.in.gov/arcgis/rest/services/Indiana_Composite_Locator)

**The composite geocoder created in ArcGIS Desktop is published to a REST Service hosted by the Indiana Geographic Information Office and is available for public use**

- Representational State Transfer (REST) – a web service that can be queried using Hypertext Transfer Protocol - Uniform Resource Locator (HTTP URL)
- Query Results in Open Data formats (HTML, JSON, KMZ) and any coordinate system/projection. GeoJSON output will be available in the future
- Currently returns up to 1,000 records
- Example:  
`https://gis.in.gov/arcgis/rest/services/Indiana_Composite_Locator/GeocodeServer/geocodeAddresses?addresses={\"records\":[{\"attributes\":{\"OBJECTID\": 1, \"Address\": \"2 North Meridian, Indianapolis, IN 46204\"}}]}&outSR=WKID+%3D+4326&f=html`
- Example with encoding:  
`https://gis.in.gov/arcgis/rest/services/Indiana_Composite_Locator/GeocodeServer/geocodeAddresses?addresses=%7B%22records%22%3A%5B%7B%22attributes%22%3A%7B%22OBJECTID%22%3A+1%2C+%22Address%22%3A+%222+North+Meridian%2C+Indianapolis%2C+IN+46204%22%7D%7D%5D%7D&outSR=WKID+%3D+4326&f=html`

# REST Service Documentation

State of Indiana [US] | <https://gis.in.gov/apps/isdh/geocode/>

## Indiana Open Geocoder Service

**What is it?**  
The Indiana Geocoder is a geographic coding web service for finding a location (x,y) based on a given address, city, zip code, county or PLSS Township-Range Section.

**How is it created?**  
The service is a product of the Indiana GIS Data Sharing Initiative. Address locations and parcels are harvested from local government information systems and merged into a single "rooftop" state-wide dataset. Additional datasets collected from various sources are also included in the service to provide a robust geocoding solution.

**Who can use it?**  
Anyone can use the service!

**Use Limitations**  
This service, including its underlying data and results, is distributed "AS-IS" without warranties of any kind, either expressed or implied, including but not limited to warranties of suitability of a particular purpose or use. These data graphical representations and are for reference purposes only. They are not to be construed as a legal document or survey instrument. A detailed on-the-ground survey and historical analysis of individual features may differ from this data.

**Credits**  
Indiana Geographic Information Office, Indiana Geographic Information Council, Indiana Department of Homeland Security, Indiana State Department of Health, Indiana Department of Natural Resources, Indiana Department of Transportation, and all local governments in Indiana.

### Update Schedule

*Next Update: Not yet scheduled*

- Adding Census Block id to "User\_fld" results
- Considering standardization of addresses in addition to address provided through local gov
- Request additional features - send email to [health@lgic.org](mailto:health@lgic.org)

*Last Update: May 16, 2016*

- Added the ability to geocode to locations in adjacent states (IL, KY, MI, OH) using 2015 Census TIGER data. To accomplish this, a new locator was added to the composite service. "TIGER\_OOS" is now included in the domain of values returned in the "Loc\_name" field.
- Added the ability to retrieve the county name and county fips of the geocoded location. The county values appear in the "User\_fld" field. The "User\_fld" contains a semi-colon delimiter to distinguish between values.

**Links for Developers**

- [Indiana Geocoder \[production\]](#) - URL to the REST Geocoding Service
- [Indiana Geocoder \[QA/test\]](#) - URL to the test service
- [Geocode using JavaScript](#) (no additional framework or api required)
- REST API documentation (coming soon)
- ESRI Javascript API documentation (coming soon)
- OpenLayers Javascript API documentation (coming soon)

**Links for Users**

- [Starter Map](#) - Paste addresses, geocode and map. Download results to csv. It's that easy!
- Geocode from Excel (example coming soon)
- [Geocode from B](#)
- [Geocode from SAS](#)
- Geocode from ArcGIS (example coming soon)
- Geocode from QGIS (example coming soon)
- Download the Locator file (coming soon)

**Attention All Users of the Geocoder!**  
You should always review the LOC\_NAME field in the geocoding results to determine spatial accuracy. See Service Description below.  
Are your Indiana addresses being matched to streets outside of Indiana? If so, ensure you include a "State" field populated with "IN".  
How has this geocoder benefited you? Have you found errors or received unexpected results? Do you have suggestions to improve the geocoder? Do you want to be alerted to geocoder updates? Send email to [health@lgic.org](mailto:health@lgic.org).

**Link to the Geocoding Service:**  
[https://gis.in.gov/arcgis/rest/services/Indiana\\_Composite\\_Locator/GeocodeServer](https://gis.in.gov/arcgis/rest/services/Indiana_Composite_Locator/GeocodeServer)

**Documentation and Examples can be found here:**  
<https://gis.in.gov/apps/isdh/geocode>

# REST Service Example: Find Candidates

[https://gis.in.gov/arcgis/rest/services/Indiana\\_Composite\\_Locator/GeocodeServer](https://gis.in.gov/arcgis/rest/services/Indiana_Composite_Locator/GeocodeServer)

## Find Address Candidates: (Indiana\_Composite\_Locator)

Street:

City:

State:

ZIP:

Country:

SingleLine:

Out Fields:

Max Locations:

Output Spatial Reference:

Search Extent:

Format:

```
{
  "spatialReference": {
    "wkid": 26916,
    "latestwkid": 26916
  },
  "candidates": [
    {
      "address": "2 North MERIDIAN St, INDIANAPOLIS, IN, 46204",
      "location": {
        "x": 572089.6843965617,
        "y": 4402277.7516089184
      },
      "score": 89.04000000000006,
      "attributes": {
      }
    },
    {
      "address": "2 N Meridian St, INDIANAPOLIS, IN, 46204",
      "location": {
        "x": 572102.92053052585,
        "y": 4402246.4358857656
      },
      "score": 89.04000000000006,
      "attributes": {
      }
    },
    {
      "address": "2 S Meridian Ct, INDIANAPOLIS, IN, 46217",
      "location": {
        "x": 572031.38993952423,
        "y": 4395801.6070423182
      },
      "score": 79.90999999999997,
      "attributes": {
      }
    },
    {
      "address": "2 Meridian Ln, INDIANAPOLIS, IN, 46220",
      "location": {
        "x": 572091.63458734006,
        "y": 4412404.5343286181
      },
      "score": 79.90999999999997,
      "attributes": {
      }
    }
  ]
}
```

Output results as HTML, JSON, or KMZ

# REST Service Example

[https://gis.in.gov/arcgis/rest/services/Indiana\\_Composite\\_Locator/GeocodeServer](https://gis.in.gov/arcgis/rest/services/Indiana_Composite_Locator/GeocodeServer)

## ArcGIS REST Services Directory

[Home](#) > [services](#) > [Indiana Composite Locator \(GeocodeServer\)](#) > [geocodeAddresses](#)

### Geocode Addresses: (Indiana\_Composite\_Locator)

Addresses:

```
{
  "records": [
    {
      "attributes": {
        "OBJECTID": 1,
        "Address": "2 North Meridian,
Indianapolis, IN 46204"
      }
    },
    {
      "attributes": {
        "OBJECTID": 2,
        "Address": "100 N Senate Ave,
Indianapolis, IN 46204"
      }
    }
  ]
}
```

Output Spatial Reference:

Format:

[Geocode Addresses \(GET\)](#)

[Geocode Addresses \(POST\)](#)

```
{
  "spatialReference": {
    "wkid": 26916,
    "latestWkid": 26916
  },
  "locations": [
    {
      "address": "",
      "location": {
        "x": "NaN",
        "y": "NaN"
      },
      "score": 0,
      "attributes": {
        "ResultID": 1,
        "Loc_name": "",
        "Status": "U",
        "Score": 0,
        "Match_addr": "",
        "Side": "",
        "X": 0,
        "Y": 0,
        "User_fld": "",
        "Addr_type": "",
        "ZIP": "",
        "Rank": ""
      }
    },
    {
      "address": "",
      "location": {
        "x": "NaN",
        "y": "NaN"
      },
      "score": 0,
      "attributes": {
        "ResultID": 2,
        "Loc_name": "",
        "Status": "U",
        "Score": 0,
        "Match_addr": "",
        "Side": "",
        "X": 0,

```

# ArcGIS Online Example

## Finding A Single Address

The screenshot displays the ArcGIS Online web interface. The browser address bar shows the URL: <https://isdh.maps.arcgis.com/home/webmap/viewer.html?useExisting=1>. The page title is "My Map". The search bar at the top right contains the text "2 North Meridian, Indianapolis, IN". A search results popup is open, listing the following results:

- 2 North MERIDIAN ST, INDIANAPOLIS, IN, 46204
- 2 N Meridian St, INDIANAPOLIS, IN, 46204
- 2 S Meridian Ct, INDIANAPOLIS, IN, 46217
- 2 Meridian Ln, INDIANAPOLIS, IN, 46220
- 2 S Meridian St, INDIANAPOLIS, IN, 46225

At the bottom of the popup, there are links for "Get Directions" and "Add to Map Notes". The map background shows a street grid in Indianapolis, with labels for streets like N. Senate, N. Capitol Ave, N. Illinois St, N. East St, N. Park Ave, W. Wabash St, W. Market St, W. Washington St, E. Ohio St, E. Wabash St, E. Court St, E. Pearl St, and E. Miami St. The Indiana State House is visible on the left. A scale bar at the bottom left indicates 300 and 600 feet. The Esri logo and "POWERED BY" text are at the bottom right.

# ArcGIS Online Example

## Geocode A List of Addresses

Home ▾ My Map New Map ▾ Ashley ▾

Details Add ▾ Basemap Analysis Save ▾ Share Print Directions Measure Bookmarks

About Content Legend

Contents

- ExampleAddresses
  - 1000 E MAIN ST, DANVILLE, IN 46122
  - 112 HOSPITAL LN, DANVILLE, IN 46122
  - 321 E NORTHFIELD DR, BROWNSBURG, IN 46123
  - 5250 E USHY 36, AVON, IN 46123
  - 7 MANOR DR, DANVILLE, IN 46122
  - 8244 E US HIGHWAY 36, AVON, IN 46123
- Topographic

**ExampleAddresses (6 features, 0 selected)** Table Options ▾

SingleLineAddress	FID
5250 E USHY 36, AVON, IN 46123	1
112 HOSPITAL LN, DANVILLE, IN 46122	2
7 MANOR DR, DANVILLE, IN 46122	3
1000 E MAIN ST, DANVILLE, IN 46122	4
8244 E US HIGHWAY 36, AVON, IN 46123	5

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**Result features can be save to your content and shared/exported. But, the result does not include lat/long, user field, or locator type**

# Starter Map Example

<https://gis.in.gov/apps/isdh/lhd/map.htm>

GeocodedPoints (5).csv - Excel

Suiter, Ashley

	A	B	C	D	E	F	G	H
1	ObjectID	Loc_name	Geo_Description	Score	Match_addr	X	Y	User_fld
2	0	TIGER_Street	Street Segment	100	1111 Ronald Reagan Pkwy, AVON, IN, 46123	-86.3437	39.78174	
3	1	TIGER_Street	Street Segment	100	1115 Ronald Reagan Pkwy, AVON, IN, 46123	-86.3437	39.78283	
4	2	IDSI_Address	Address Point	89.04	182 South 550 East, AVON, IN, 46123	-86.4299	39.75895	
5	3	IDSI_Address	Address Point	100	3700 CLARKS CREEK Road, PLAINFIELD, IN, 46168	-86.3722	39.70849	
6	4	TIGER_Street	Street Segment	100	255 Meadow Dr, DANVILLE, IN, 46122	-86.4996	39.76413	
7	5	IDSI_Address	Address Point	89.04	445 South 525 East, AVON, IN, 46123	-86.4324	39.75575	
8	6	IDSI_Address	Address Point	100	1000 East MAIN St, DANVILLE, IN, 46122	-86.5014	39.76183	
9	7	IDSI_Address	Address Point	100	722 Prairie Drive, BROWNSBURG, IN, 46112	-86.3972	39.83194	
10	8	IDSI_Address	Address Point	100	1010 HORNADAY Road, BROWNSBURG, IN, 46112	-86.3833	39.83022	
11	9	TIGER_Street	Street Segment	100	110 Greenacre Dr, BROWNSBURG, IN, 46112	-86.3957	39.8398	
12	10	IDSI_Address	Address Point	100	100 HOSPITAL Lane, DANVILLE, IN, 46122	-86.5027	39.76145	
13	11	IDSI_Address	Address Point	100	8110 NETWORK Drive, PLAINFIELD, IN, 46168	-86.3784	39.6521	
14	12	IDSI_Address	Address Point	100	100 HOSPITAL Lane, DANVILLE, IN, 46122	-86.5027	39.76145	

GeocodedPoints (5)

READY 100%

# Excel Function Example

<https://gis.in.gov/apps/isdh/geocode/Examples/excel.htm>

## =WebService(*url*)

=WEBSERVICE("https://gis.in.gov/arcgis/rest/services/Indiana\_Composite\_Locator/GeocodeServer/geocodeAddresses?Addresses={ 'records':[{ 'attributes':{ 'SingleLine'='&ENCODEURL(A2)&' } }]}&outFields=\*&outSR=4326&f=json")

B2 :    fx =WEBSERVICE("https://gis.in.gov/arcgis/rest/services/Indiana\_Composite\_Locator/GeocodeServer/geocodeAddresses?Addresses={ 'records':[{ 'attributes':{ 'SingleLine'='&ENCODEURL(A2)&' } }]}&outFields=\*&outSR=4326&f=json")

	A	B	C	D	E	F	G	H	I	J	K
1	Address	Result_GeoWebService	Result_GeoAccuracy	Result_Latitude	Result_Longitude	Result_GeoInfo	Result_County	Result_CntyFIPS	Web_Map	Web_GIS	Result_LookUpWebService
2	2 n meridian st, indianapolis, in 46204	{ "spatialReference":{ "wkid":4326 } }, { "SingleLine": "2 n meridian st, indianapolis, in 46204" }	IDSI_Address	39.767386	-86.15832	Marion;18097	Marion	18097	<a href="#">Google Map</a>	<a href="#">ArcGIS OnLine</a>	{ "objectIdFieldName": "OBJECTID", "uniqueIdField": "OBJECTID", "url": "https://gis.in.gov/arcgis/rest/services/Indiana_Composite_Locator/GeocodeServer/geocodeAddresses?Addresses={ 'records':[{ 'attributes':{ 'SingleLine'='&ENCODEURL(A2)&' } }]}&outFields=*&outSR=4326&f=json" }
3	3838 n rural st, indianapolis, in 46205	{ "spatialReference":{ "wkid":4326 } }, { "SingleLine": "3838 n rural st, indianapolis, in 46205" }	IDSI_Address	39.82633	-86.117934	Marion;18097	Marion	18097	<a href="#">Google Map</a>	<a href="#">ArcGIS OnLine</a>	{ "objectIdFieldName": "OBJECTID", "uniqueIdField": "OBJECTID", "url": "https://gis.in.gov/arcgis/rest/services/Indiana_Composite_Locator/GeocodeServer/geocodeAddresses?Addresses={ 'records':[{ 'attributes':{ 'SingleLine'='&ENCODEURL(A2)&' } }]}&outFields=*&outSR=4326&f=json" }

=WEBSERVICE("https://gisq.in.gov/arcgis/rest/services/ISDH/EnhancedBlocks/FeatureServer/0/query?geometry="&E2&"%2C"&D2&"39.7&geometryType=esriGeometryPoint&inSR=4326&spatialRel=esriSpatialRelIntersects&outFields=\*&returnGeometry=false&f=json")

K2 :    fx =WEBSERVICE("https://gisq.in.gov/arcgis/rest/services/ISDH/EnhancedBlocks/FeatureServer/0/query?geometry="&E2&"%2C"&D2&"39.7&geometryType=esriGeometryPoint&inSR=4326&spatialRel=esriSpatialRelIntersects&outFields=\*&returnGeometry=false&f=json")

	D	E	K	L	M	N	O	P	Q	R	S	T	U
1	Result_Latitude	Result_Longitude	Result_LookUpWebService	Census Block 2010	Census Blkgrp 10	Cen Tract 10	HUC 12	Time Zone	Wireless	Wireline	Homland Sec District		
2	39.767386	-86.15832	{ "objectIdFieldName": "OBJECTID", "uniqueIdField": "OBJECTID", "url": "https://gisq.in.gov/arcgis/rest/services/ISDH/EnhancedBlocks/FeatureServer/0/query?geometry="&E2&"%2C"&D2&"39.7&geometryType=esriGeometryPoint&inSR=4326&spatialRel=esriSpatialRelIntersects&outFields=*&returnGeometry=false&f=json" }	180973910003058	180973910003	180973910.00	051202011201	Eastern	YES	YES	5		
3	39.82633	-86.117934	{ "objectIdFieldName": "OBJECTID", "uniqueIdField": "OBJECTID", "url": "https://gisq.in.gov/arcgis/rest/services/ISDH/EnhancedBlocks/FeatureServer/0/query?geometry="&E2&"%2C"&D2&"39.7&geometryType=esriGeometryPoint&inSR=4326&spatialRel=esriSpatialRelIntersects&outFields=*&returnGeometry=false&f=json" }	180973226003025	180973226003	180973226.00	051202010904	Eastern	YES	YES	5		

# R (RFiddle) Example

## Finding A Single Address

<http://www.r-fiddle.org/#/fiddle?id=kX76plmf&version=5>

```
R-Fiddle Save Embed Share Install the R-Fiddle Chrome App
1 ##### Tweet
2 # Geocode Address(es) using Indiana Composite Locator #
3 # Author: Ashley E. Suiter 08/10/2016 #
4 #####
5 require(RCurl)
6 require(httr)
7 require(jsonlite)
8
9 #Example SingleLine Address for geocoding
10 SingleLineAddress1 = "2 North Meridian, Indianapolis, IN 46204"
11
12 #URL of Geocoding Service
13 GeoService = "https://gis.in.gov/arcgis/rest/services/Indiana_Composite_Locator/GeocodeServer/findAddressCandidates?"
14
15 #Parameters to use if geocoding Multi-Line Address
16 Street = "Street="
17 City = "&City="
18 State = "&State="
19 Zip = "&ZIP="
20 Country = "&Country="
21
22 #Parameter to use if geocoding Single Line Address
23 SingleLine = "&SingleLine="
24
25 #Fields to be Returned by the Service
26 outFields = "&outFields="
27
28 #Output Spatial Reference
29 SpatialRef = "&outSR=4326"
30
31 #Format of the returned data
32 Format = "&f=json"
33
34 #address = SingleLineAddress1
35 geocode = function(address){
36   #Concatenate URL and Parameters into a single string with encoding
37   SingleLineQuery = paste0(GeoService,Street, City, State, Zip, Country, SingleLine, curIEscape(address), outFields,
38     SpatialRef, Format, sep = "", collapse = " ")
39
40   #Send the http request and return JSON object as a string
41   json_string = httpGET(SingleLineQuery)
42
43   #convert JSON string into an R object
44   rawdata = fromJSON(json_string)
45
46   #convert portions of R object to dataframe object and rename columns
47   data4csv=data.frame(
48     lat=rawdata$candidates$location$y,
49     long=rawdata$candidates$location$x,
50     SourceAddress =rawdata$candidates$address,
51     MatchAddress=rawdata$candidates$attributes$Match_addr,
52     loc_name =rawdata$candidates$attributes$Loc_name,
53     score =rawdata$candidates$attributes$Score,
54     user_fld =rawdata$candidates$attributes$User_fld
55   )
56
57   #return results
58   return(data4csv)
59 }
60 # Example: Geocode one single line address
61 Results = geocode(SingleLineAddress1)
62 print(Results)
```

Rfiddle Example shows geocoding of a single line address. The R example on the [Documentation Page](#) also includes code to geocode a csv list of addresses and save the results to a csv file

	lat	long	SourceAddress					
1	39.76739	-86.15832	2 North MERIDIAN St, INDIANAPOLIS, IN, 46204					
2	39.76710	-86.15817	2 N Meridian St, INDIANAPOLIS, IN, 46204					
3	39.77136	-86.15635	46204					
			MatchAddress	loc_name	score	user_fld		
1	2 North MERIDIAN St, INDIANAPOLIS, IN, 46204	INDSI_Address	89.04	Marion;18097				
2	2 N Meridian St, INDIANAPOLIS, IN, 46204	TIGER_Street	89.04		0			
3		46204	Zipcode	100.00		0		

Graphs

Run Code

A light gray map background showing a grid of streets. The streets are labeled with names such as 'Parkwood Xing', 'College Ave N', 'E 98th St', 'Central Ave', 'N Park Ave', 'Broadway St', 'E 95th St', 'College Dr', 'Walter Dams Dr', 'Carlyle Ln', and 'Carlyle Dr'. Numerous small blue diamond markers are scattered across the map, representing individual data points or addresses. The text 'QUESTIONS ABOUT GEOCODING?' is overlaid in the center in a large, bold, black font.

# QUESTIONS ABOUT GEOCODING?