



# RETRIEVING CENSUS DATA

Guide for Indiana Government Employees

## PURPOSE

This guide will facilitate Indiana State government employees in making full use of US Census Bureau data for the service of Indiana's residents.

Geographic Information  
Office, Indiana



# Retrieving Census Data

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## **IMPORTANT NOTE – STATE EMPLOYEES**

All Indiana State Employees have access to the GIO Library found on the [GIS Sharepoint](#) site. This Library has over 20 census-related layers. See the PDF “[Datasets in the State New GIO Library.](#)” For those of you with access, here is a [direct-download link](#) to the .sde file. See [this document](#) for instructions on connecting to the Library in ArcMap.

**PLEASE CHECK THE LIBRARY TO SEE IF WE HAVE THE DATA YOU SEEK BEFORE PROCEEDING WITH THE INSTRUCTIONS IN THIS DOCUMENT.**

If you have a suggestion for adding to or modifying the library’s content, please send an email to [gio@iot.in.gov](mailto:gio@iot.in.gov)



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## Tiger Products

[Link](#)

*“TIGER PRODUCTS ARE SPATIAL EXTRACTS FROM THE CENSUS BUREAU’S MAF/TIGER DATABASE, CONTAINING FEATURES SUCH AS ROADS, RAILROADS, RIVERS, AS WELL AS LEGAL AND STATISTICAL GEOGRAPHIC AREAS.”*

Below is a guide that will help you identify which TIGER product will best meet your project goals.

### Which product should I use?

Product	Best For...	File Format	Type of Data	Level of Detail	Descriptive Attributes	Vintages Available
<a href="#">TIGER/Line Shapefiles</a>	Most mapping projects--this is our <b>most comprehensive dataset</b> . Designed for use with GIS (geographic information systems).	Shapefiles (.shp) and database files (.dbf)	Boundaries, roads, address information, water features, and more	Full detail (not generalized)	Extensive	2006 - 2016, CD 113
<a href="#">TIGER Geodatabases</a>	Useful for users needing national datasets or all major boundaries by state. Designed for use in ArcGIS. Files are extremely large.	Geodatabase (.gdb)	Boundaries, roads, address information, water features, and more	Full detail (not generalized)	Limited	2013-2016
<a href="#">TIGER/Line with Selected Demographic and Economic Data</a>	Data from selected attributes from the 2010 Census, 2006-2010 through 2010-2014 ACS 5-year estimates and County Business Patterns (CBP) for selected geographies. Designed for use with GIS.	Shapefiles (.shp) and Geodatabases	Boundaries, Population Counts, Housing Unit Counts, 2010 Census Demographic Profile 1 attributes, 2006-2010 through 2010-2014 ACS 5-year estimates data profiles, CBP data.	Full detail (not generalized)	Limited	2012 CBP, 2010, 2006-2010 to 2011-2015 ACS 5-Year Estimates
<a href="#">Cartographic Boundary Shapefiles</a>	Small scale (limited detail) mapping projects clipped to shoreline. Designed for thematic mapping using GIS.	Shapefiles (.shp)	Selected boundaries	Less detail (generalized)	Limited	2013-2016, 2010, 2000, 1990
<a href="#">KML - Cartographic Boundary Files</a>	Viewing data or creating maps using Google Earth, Google Maps, or other platforms that use KML.	KML (.kml)	Selected boundaries	Less detail (generalized)	Limited	2013-2016
<a href="#">TIGERweb</a>	Viewing spatial data online or streaming to your mapping application.	Interactive viewer, HTML data files, plus REST and WMS map services	Boundaries, roads, address information, water features, and more	Detailed	Extensive	Current, 2015 ACS, 2014 ACS, 2010 Census

The process for retrieving the *two most frequently used products* – **TIGER/Line Shapefiles** and **TIGER Geodatabases** - are discussed in detail below. The other products are briefly described, with accompanying links for data retrieval instructions when available.



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## TIGER/Line Shapefiles

[Link](#)

*“THE CORE TIGER/LINE FILES AND SHAPEFILES DO NOT INCLUDE DEMOGRAPHIC DATA, BUT THEY DO CONTAIN GEOGRAPHIC ENTITY CODES (GEOIDS) THAT CAN BE LINKED TO THE CENSUS BUREAU’S DEMOGRAPHIC DATA, AVAILABLE ON [American FactFinder](#).”*

**\*NOTE:** Before 2007, TIGER/Line Files were **not** Shapefiles. Instead, they consist of multiple ASCII files, each corresponding to a record type. More information (documentation) can be found [here](#). A user-friendly interface for downloading these files can be found [here](#).

### Directions for Retrieval of 2007+ Data

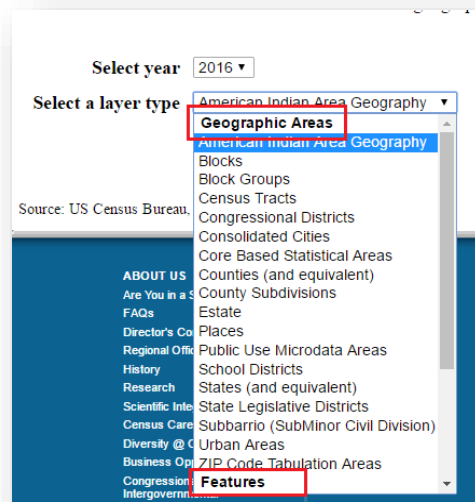
1. Go to this [link](#).
2. Select the year of interest and then *click Download*.
3. Click **Web Interface**.

The screenshot shows a web interface for downloading TIGER/Line Shapefiles. At the top, there is a navigation bar with buttons for years: 2016, 2015, 2014, 2013, 113th CD, 2012, 2011, 2010, 2009, 2008, 2007, 2006SE, and Census 2000. Below this, a dropdown menu is open showing the year 1992. The main content area is titled "2016 TIGER/Line Shapefiles" and includes the text "All legal boundaries and names are as of January 1, 2016. Released August 19, 2016." There is a green bar with a right-pointing arrow and the text "Download". Below this, there are two bullet points: "Web interface" and "FTP site". At the bottom, there are three expandable sections: "Technical Documentation", "File Availability", and "User Notes". A disclaimer at the very bottom states: "The boundaries shown are for Census Bureau statistical data collection and tabulation purposes only; their depiction and designation for statistical purposes does not constitute a determination of jurisdictional authority or rights of ownership or entitlement."



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4. There are two main *layer types* to choose from: **Geographic Areas** and **Features**.



Note the choices for **Geographic Areas** in the figure above.

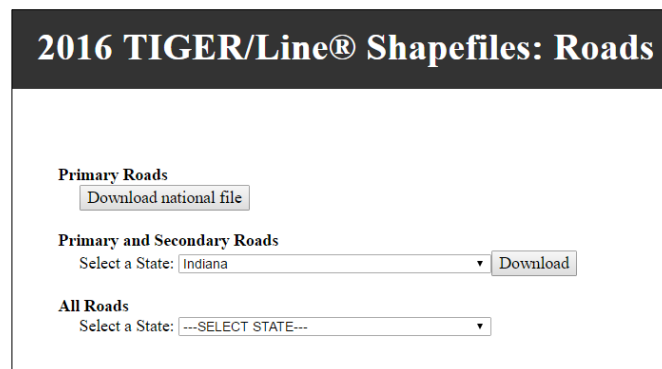
The following are the choices for **Features**:

- All Lines
- Coastline
- Landmarks
- Roads
- Rails
- Military Installations
- Water

5. Once you have chosen your layer type, *click* **Submit**.

6. Depending on the layer, you may be prompted to **Select a State**. *Select* the state of interest and *click* **Download**.

Here is an example of Road Features in Indiana:



*Note how you may choose your desired level of detail.*



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7. Once the download is complete, *locate* the zipped folder.
8. *Right click* on the zipped folder and *click* **Extract All**.
9. A window will pop up prompting you to select a destination for the extracted files.
10. Under **Files will be extracted to this folder**, *click* **Browse** and *choose where you want the files to go*.
11. Be sure that **Show extracted files when complete** is *checked*.
12. **Click** *Extract*.
13. The unzipped folder should pop up when the process is complete.
14. The .shp file can now be imported into your GIS software.

## Joining Census Data to TIGER/Line Shapefiles

The great power of these TIGER Files lies in their ability to be joined to Census Data. A user can search for specific Census data using the American FactFinder found [here](#), download that data, and attach it to the geographic TIGER/Line shapefiles.

[Follow these instructions](#) provided by the Census Bureau to perform this task in ArcMap.

**NOTE:** Another process for joining census data to geographic boundary layers is discussed in the section entitled "TIGER/Line with Selected Demographic and Economic Data." It is worth being aware of both techniques, so that you can choose which is best for your project.



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## TIGER Geodatabase

[Link](#)

*“TIGER GEODATABASES ARE SPATIAL EXTRACTS FROM THE CENSUS BUREAU’S MAF/TIGER DATABASE FOR USE WITH ESRI’S ARCGIS. THE GEODATABASES CONTAIN NATIONAL COVERAGE (FOR GEOGRAPHIC BOUNDARIES OR FEATURES) OR STATE COVERAGE (BOUNDARIES WITHIN STATE).”*

**Note:** The Feature Classes retrieved in this process do not contain metadata. See [documentation here](#).

### Directions for Retrieval of Data

1. Go to this [link](#).
2. Under **Download**, click on the **Select a Geodatabase** scroll bar.

**Download**

Select a layer below or connect directly to our ftp site to download the files. The size in the download menu is the compressed size. We strongly suggest you account for the log-in and password).

Select a Geodatabase

3. You will notice that there are two types of Geodatabases that can be downloaded: **National Level Geodatabases** and **State Level Geodatabases**.  
[We will only discuss **State Level** data, but the retrieval process is the same.]
4. Under **State Level Geodatabases**, scroll down and select **Indiana**.
5. Click **Go**.
6. The zipped file with the Geodatabase should begin downloading. If not, refresh the page by hitting **F5**.
7. Once the download is complete, locate the zipped folder.
8. Right click on the zipped folder and click **Extract All**.
9. A window will pop up prompting you to select a destination for the extracted files.
10. Under **Files will be extracted to this folder**, click **Browse** and choose where you want the files to go.
11. Be sure that **Show extracted files when complete** is checked.
12. Click **Extract**.
13. The unzipped folder should pop up when the process is complete.
14. In ArcCatalog or ArcMap, connect to the folder housing the geodatabase.
15. You should now have access to boundary data for all of the sub-state administrative levels of the state you chose.





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## TIGER/Line with Selected Demographic and Economic Data [Link](#)

The frequently updated [American Community Survey](#)(ACS) data has been combined with TIGER/Line Shapefiles to create Geodatabases. These Geodatabases offer an optimal way of joining community data to administrative/geographic boundaries.

Please see [this](#) thorough and informative guide which briefly summarizes the ACS and outlines the process of making use of these geodatabases.

## Cartographic Boundary Shapefiles [Link](#)

*“THE CARTOGRAPHIC BOUNDARY FILES ARE SIMPLIFIED REPRESENTATIONS OF SELECTED GEOGRAPHIC AREAS... THESE BOUNDARY FILES ARE SPECIFICALLY DESIGNED FOR SMALL SCALE THEMATIC MAPPING.”*

### From “[Cartographic Boundary File Description](#)”:

#### Advantages

Simplified shapes improve the appearance of geographic areas when displayed at small scales.

- These boundary files take up less disk space than their ungeneralized equivalents.
- Cartographic boundary files take less time to render on screen.

#### Limitations

- These files should not be used for:
  - geographic analysis including area or perimeter calculation.
  - geocoding addresses.
  - determining precise geographic area relationships.
- Some small geographic areas are excluded from these files.
- Geographic areas may not align with the same areas from another year.

## KML – Cartographic Boundary Files [Link](#)

These are the same layers as the Cartographic Boundary Files. The only difference is that, instead of shapefiles, they are in KML format. These files can be viewed in your everyday GIS Desktop Software; but they can also be opened in Google Earth. See [here](#) for a detailed guide regarding the use of these files.



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## TIGERWeb

[Link](#)

These services are worth exploring:

The [TigerWeb Application](#) allows users to visualize and query TIGER and Census data, without downloading any data. This is particularly useful for those without access to a GIS (Geographic Information System). For guidance, see this [TIGERWeb User Guide](#).

The [TIGERweb Web Map Service \(WMS\)](#) allows the user to request map images from the Census Bureau's geospatial database. These images (or layers) can then be displayed in a browser, a WMS client application, or directly on a Desktop GIS (like ArcMap or QGIS). These layers can be used in producing maps. **Note:** When working with WMS layers, features and their accompanying data *cannot* be edited or removed.

### Connect to TIGERweb's WMS Server in ArcMap

1. Create a **New Map Document** in ArcMap.
2. *Navigate* to **Windows > Catalog** to open ArcCatalog in your workspace.
3. Under **GIS Servers** *double-click* **Add WMS Server**.
4. In the **URL** box, enter the "**Current**" WMS URL listed on [this page](#).
5. Click **Get Layers**. You can look through all of the layers in the server.
6. Click **OK**.
7. You can now drag layers into your map.

The [TIGERweb REST Services](#) offers yet another way to access the Bureau's GIS servers. These services allow for greater flexibility in data extraction *and* data manipulation. You may be familiar with the REST Services interface, as [seen here](#).



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## Additional Resources

These are additional resources provided by the US Census Bureau that might aid in the work of government employees.

### Reference Maps

[Link](#)

Reference Maps offer access to a variety of detailed maps, which are organized at a number of administrative levels (Census Blocks, Census Tracts, Urban Areas, etc). Most of the maps are in **PDF** format. Another similar source is the [Economic Census Reference Maps](#).

### Thematic Maps

[Link](#)

Census Thematic Maps provide visualized census data depicting any number of subjects – including Population Density, Income/Poverty Levels, etc. **Of note**, IU’s Indiana Business Research Center ([IBRC](#)) has put together a comparable resource of [Indiana Thematic Maps](#), which may offer more relevant information for Indiana data retrievers.

For more information on Thematic Maps in general, [this resource](#) should be helpful.

### Census Data Mapper

[Link](#)

The Census Data Mapper “*provides users with a simple interface to view, save, and print county-based demographic maps of the US.*” Users may choose the following parameters: data theme, data table, color palette, number of classes, and classification type. This is a flexible, quick way to make your own thematic map. The maps can be exported as PDFs.