

# ACS Summary File Technical Documentation

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*2017 ACS 1-year and 2013-2017 ACS 5-year Data Releases*

**American Community Survey Office**

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# 1 Introduction

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## 1.1 The American Community Survey

The American Community Survey (ACS) is part of the U.S. Census Bureau's Decennial Census Program and is designed to provide current social, economic, housing, and demographic estimates throughout the decade. The ACS provides information on more than 40 topics, including educational attainment, language spoken at home, ability to speak English, the foreign-born, marital status, migration, and many more. Each year the survey randomly samples around 3.5 million addresses and produces statistics that cover 1-year and 5-year periods for geographic areas in the United States and Puerto Rico, ranging from neighborhoods to congressional districts to the entire nation. For more information about the ACS, please visit our main page at: <https://www.census.gov/acs>. ACS data are published through a number of channels, including American FactFinder, QuickFacts, and the Census Bureau's Application Programming Interface (API). This document will brief data users on the contents of the ACS Summary File and explain how they can use it to obtain statistics.

## 1.2 The American Community Survey Summary File

The American Community Survey Summary File (ACSSF) is a unique data product that includes all the estimates and margins of error from the Detailed Tables and geographies that are published for the ACS. Other ACS data products, such as Subject Tables and Data Profiles, are created from the Detailed Tables and, therefore, are not available in the ACS Summary File.

Since the Detailed Tables contain a large number of cells, the tables are stored in a series of files with only the data from the tables, without such information as the title of the tables, the description of the rows, and the names of the geographic areas. That information (or metadata) is in other files and templates that the user must merge with the data files to reproduce the tables. Learn more about metadata and templates in [Chapter 2.2](#) and [Chapter 2.3](#).

The ACS Summary File data files are in American Standard Code for Information Interchange (ASCII) format. The files are divided into three types:

- Geographies – (position based and comma delimited)
- Estimates – (comma delimited)
- Margins of Error – (comma delimited)

[Chapter 2](#) discusses each component in detail and explains how to put them all together.

## 1.3 Topics and Geographies Covered

Data contained in the ACS Summary File cover social, economic, housing, and demographic subject areas. All Detailed Tables for the ACS 1-year and 5-year estimates are in the Summary File and are listed in [Appendix A](#) for their respective data release.

The ACS Summary File covers geographic areas based on “summary levels.” A summary level specifies the content and the hierarchical relationships of the geographic elements that are required to tabulate and summarize data. For example, summary level code “040” represents the U.S. states, Washington D.C., and Puerto Rico; while summary level code “050” represents counties and county equivalents within states.

The ACS 1-year estimates are published for areas that have populations of 65,000 or more. The ACS 3-year estimates are no longer published, but historically covered areas with populations of 20,000 or more. The ACS 5-year estimates are published for all geographic areas, including census tracts, block groups, American Indian areas, core-based statistical areas, combined statistical areas, Congressional districts, and state legislative districts.<sup>1</sup> View the full list of summary levels published for the Detailed Tables in [Appendix B](#). Data for census block groups are published in American FactFinder, the Census Bureau API, as well as the ACS Summary File. The list of tables in the 5-year [Appendix A](#) shows which tables are available at the block group level.

Many resources are available to help users understand the ACS geographic terms and concepts. For additional information, please visit the Geography Reference page at <https://www.census.gov/geo/reference/index.html> and the Geography & ACS page at <https://www.census.gov/programs-surveys/acs/geography-acs.html>.

## 1.4 Tools for Obtaining Data

Since using the ACS Summary File can be challenging, it is recommended that users first check if their tables of interest are available for download on American FactFinder (AFF). Below are some other options to help users retrieve the tables they want. They are listed in order based on ease of use. You can access these tools, as well as instructions on how to access ACS estimates using the AFF Download Center on the ACS Summary File Documentation page <https://www.census.gov/programs-surveys/acs/technical-documentation/summary-file-documentation.html>.

- Instructions on How to Read the ACS Summary File into Excel

The Instructions on How to Read the ACS Summary File into Excel are a replicate of the Excel templates that Census 2000 provided for the Summary File 3 release. These instructions provide a basic layout of each sequence in Excel in the same format as the estimate and margin of error files. A detailed description of a sequence is available in [Chapter 2.3](#). You can access instructions for using it on the [ACS Summary File Documentation page](#).

- Simplified Geography Files

The Simplified Geography Files provide the basic geography information (i.e., LOGRECNO, GEOID, and name) and are designed to be used in correspondence with the Instructions on How to Read the ACS Summary File into Excel. This Excel file contains a tab for the US, as well as each

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<sup>1</sup> Starting with the 2014 ACS, the Census Bureau is also producing 1-year Supplemental Estimates, simplified versions of popular ACS tables, for geographic areas with at least 20,000 people. However, the Supplemental Estimates are not available in the Summary File.

state or state equivalent. Compared to the standard geography files in .csv and .txt format, these simplified files contain only the geography variables needed to read the ACS Summary File into Excel. You can find the Simplified Geography Files on the [ACS Summary File Documentation page](#).

- SAS Programs

There are two programming options for SAS users. The first option is a set of individual SAS programs, one for each summary file by geography and sequence. These programs are best for users only interested in looking at a specific sequence for a specific geography. The second option is a single SAS program that is parameterized to allow users to read in any sequence for any geography into SAS. This program can also be used to read the entire summary file into SAS, and is designed for users looking for a large amount of data. You can access these programs on the [Summary File Documentation page](#).

- Instructions on Joining the ACS Summary File to the TIGER/Line Shapefiles

TIGER/Line Shapefiles allow data users to directly link geographic areas to data from the ACS and other surveys. The TIGER/Line Shapefiles are designed for use with geographic information system (GIS) software. Learn more about TIGER/Line Shapefiles at <https://www.census.gov/geo/maps-data/data/tiger.html>. You can also access instructions for using these files on the [ACS Summary File Documentation page](#).

## 1.5 Notable Changes to the Summary File

You can learn more details about each data release by visiting the Data Releases page at <https://www.census.gov/programs-surveys/acs/news/data-releases.html>. This page includes a schedule, notes about new estimates or new guidance, and technical information about geography and product changes. You can also browse notes from previous years.

## 1.6 Contact Us

Please send any technical questions or comments on the ACS Summary File you have via email to: [acso.users.support@census.gov](mailto:acso.users.support@census.gov). If you have questions or comments about the American Community Survey, you can submit a question online at [ask.census.gov/](https://ask.census.gov/). There is also a users group and online community specifically for users of ACS data, called the American Community Survey Data Users Group (DUG) at <https://acsdatacommunity.prb.org>. DUG has a group just for Summary File users as well at <https://acsdatacommunity.prb.org/acs-data-products--resources/acs-summary-files/>.

## 2 How to Use the ACS Summary File

### 2.1 Locating the Summary File

The ACS Summary File is accessible from the American Community Survey main page. From the ACS main page, <https://www.census.gov/acs>, click on the **Data** tab in the left navigation, select the option for **Summary File Data**, as shown below:

The screenshot shows the top navigation bar of the Census Bureau website. The 'Data' tab is highlighted in the left navigation menu. A dropdown menu is open under 'Data', and 'Summary File Data' is circled in red. The main content area features a heading 'American Community Survey (ACS)' and a descriptive paragraph: 'The American Community Survey (ACS) helps local officials, community leaders, and businesses understand the changes taking place in their communities. It is the premier source for detailed population and housing information about our nation.' Below this are several tiles: 'Data Tables & Tools', 'Data via FTP', 'PUMS Data', 'Variance Replicate Tables', 'Race/Ethnicity and American Indian & Alaska Native Data', and 'Custom Tables'. There are also three small image tiles with text: 'respond to', 'Why do you ask each question?', and 'Where can I get ACS data?'. On the right, there is a video player titled 'Stats In Action: New Orlean...'. At the bottom, there is a 'Data' section with the heading 'Data Tell Stories. Tell Us Yours!' and a sub-heading '2017 Data Release'.

That will take you to the ACS Summary File page. Click on **1-year Summary File** to go to the ACS Summary File FTP site.

The screenshot shows the 'Summary File Data' page for the year 2016. The page includes a navigation menu on the left with categories like 'Data', 'PUMS Data', and 'Technical Documentation'. The main content area features a year selector (2016) and a list of links: '2016 ACS 1-year Estimates', '2012-2016 ACS 5-year Estimates', '1-Year Summary File' (circled in red), and '5-Year Summary File'. There are also social media icons and a 'Related Information' section on the right.

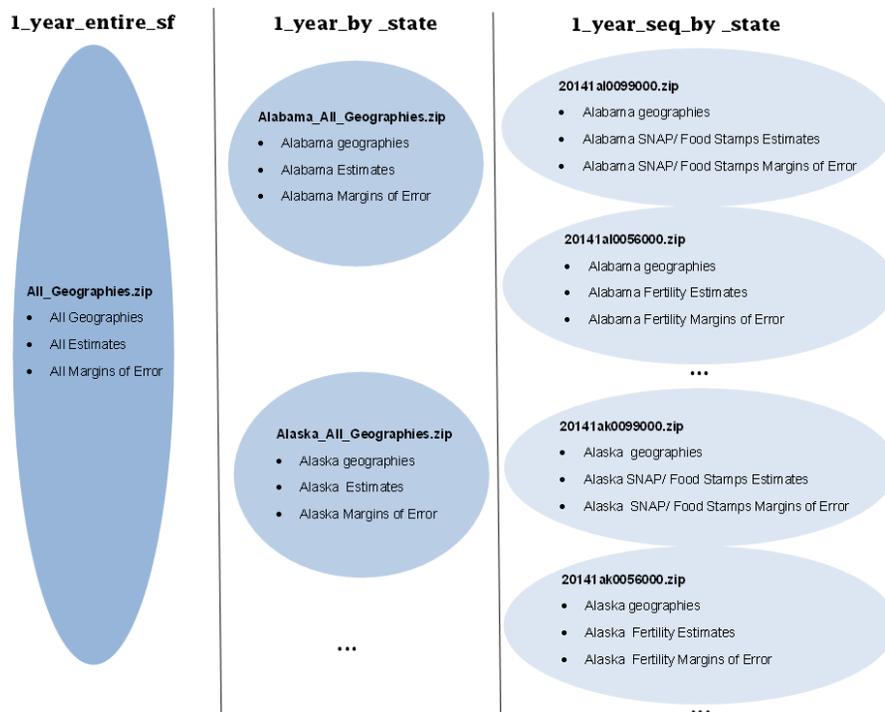
This is the ACS Summary File. As you will see in the next section, it is actually comprised of three folders, as well as templates, for each data release.

Name	Last modified	Size	Description
Parent Directory		-	
1_year_by_state/	29-Aug-2017 17:01	-	
1_year_entire_sf/	29-Aug-2017 17:30	-	
1_year_seq_by_state/	29-Aug-2017 17:36	-	
5_year_by_state/	22-Nov-2017 09:54	-	
5_year_entire_sf/	12-Dec-2017 10:32	-	
5_year_seq_by_state/	22-Nov-2017 15:47	-	
2016_1yr_Summary_FileTemplates.zip	29-Aug-2017 16:55	2.3M	
2016_5yr_Summary_FileTemplates.zip	22-Nov-2017 12:50	1.7M	

## 2.2 Summary File Organization

The Summary File is organized in three folders per data release as shown in the above screenshot. Each data release also includes a corresponding zip file for templates. These three directories contain the same combination of files; they are simply arranged differently to accommodate various user needs:

An illustration of how ACS 1-year files are arranged in the three folders is included below.



- **All-in-one** (1\_year\_entire\_sf, 5\_year\_entire\_sf)

This directory contains a zipped file, which includes geography, estimate, and margin of error files. This zipped file is ideal to download if users want estimates and margins of error for all geographies throughout the nation. The file is very large and should only be used by those who can easily process a very large file.

- **State tables** (1\_year\_by\_state, 5\_year\_by\_state)

This directory contains zipped files for each state or state-level equivalent, including each of the 50 states, the District of Columbia, Puerto Rico, as well as cross-state geographies such as metropolitan areas. Each zipped file contains a geography file and multiple estimate and margin of error files. Downloading from these state level folders is ideal if users want all the tables for a state level geography or cross-state geographies.

In addition to the state-level files mentioned above, there is also a level called “United States,” and includes summary levels that cross state boundaries such as the Nation, Regions, Divisions, Metropolitan Statistical Areas, Zip Code Tabulation Areas (ZCTAs), and Tribal Areas. The United States level does not contain tables for geographies that are always entirely within a state, such as counties and places; for those tables, go to the folder or files for that state.

The following table compares summary levels of state-level files with U.S.-level files.

Each State, DC, and Puerto Rico	United States
State	Nation
County	Region
County subdivision	Division
Place	Metropolitan or urban statistical areas
Congressional districts Public Use	New England City and Town Area (NECTA)
Microdata Area (PUMA) School Districts	American Indian/Alaska Native/Hawaiian Home Land areas
Alaska Native Regional Corporation	Urban areas
	Zip Code Tabulation Areas (ZCTAs)

- **Topic tables** (1\_year\_seq\_by\_state, 5\_year\_seq\_by\_state)

This directory contains folders for each state or state-level equivalent, including each of the 50 states, the District of Columbia, Puerto Rico, as well as cross-state geographies such as metropolitan areas. Within those folders are a geography file and zipped files containing the estimate and margin of error files, one per “sequence” (sequences are explained in [Chapter 2.3](#)). Downloading from these folders is ideal if users only want a few tables for a state-level geography or cross-state geographies.

Using the 1-year release as an example, the naming convention used for the zipped files in the 1\_year\_seq\_by\_state directory is the following:

2017 1 ak 0001 000.zip		
Example	Name	Range or Type
2017	Reference Year	ACS data year (last year of the period for multiyear periods)
1	Period Covered	1=1-year, 5=5-year
ak	State Level	US or abbreviations for state, District of Columbia, and Puerto Rico
0001	Sequence Number	0001 to 9999
000	IterationID	Iteration ID for Selected Population Tables and American Indian & Alaska Native Tables. Note: Iteration ID is always “000” for the standard 1-Year and 5-Year products.

- **Templates**

2017\_1yr\_Summary\_FileTemplates.zip, 2017\_5yr\_SummaryFileTemplates.zip

This zip file contains Excel files templates for each sequence (i.e., Seq1.xls, Seq2.xls), as well as the geography file (i.e., 2017\_SFGeoFileTemplate.xls). These files provide users with two rows of metadata containing the variable names and their descriptions for every column. The templates are meant to be used with the comma-delimited version of the data files.

## 2.3 Sequence Numbers

Detailed Tables for similar subject areas are grouped together in “sequences.” A sequence number is an assigned number to a grouping of ACS tables. Table sequencing now follows these rules:

1) Tables are sorted numerically by the "root" of their Table ID, where the "root" is defined as the numeric section after the first letter and before any additional letters, so for example the root of B06004APR is "06004". For tables with the same root, additionally sort them in the following order:

- Non-iterated, non-collapsed, non-PR (non-Puerto Rico) version (e.g., Table B06003)
- Iterated, non-collapsed, non-PR versions (e.g., Tables B06004A, B06004B...B06004I)
- Non-iterated, collapsed, non-PR version (e.g., Table C06001)
- Iterated, collapsed, non-PR version (e.g., Tables C08505A, C08505B... C08505I)
- Non-iterated, non-collapsed, PR version (e.g., Table B06003PR)
- Iterated, non-collapsed, PR versions (e.g., Tables B06004APR, B06004BPR...B06004IPR)
- Non-iterated, collapsed, PR version (e.g., Table C06001PR)
- Iterated, collapsed, PR version (e.g., Table C06001APR)

With tables sorted in this order, start with the first table and assign it to the first sequence. For each subsequent table, if the table has either a new "subject," a new "geography type," or would cause the number of cells in the sequence to exceed 245, start a new sequence. "Subject" is described using the second and third characters in the Table ID, so for example the subject of B06004APR is "06" for place of birth. You can view a complete list of subjects and further information on Table ID's at <https://www.census.gov/programs-surveys/acs/guidance/which-data-tool/table-ids-explained.html>. "Geography type" can be one of three things: Place of Residence geography type, Place of Work geography type, or Residence 1 Year Ago geography type.

2) If a table does not fit in one sequence, then put the first 245 cells of it in one sequence, and the rest in the next. If a table does not fit in two sequences, then put the first 245 cells of it in one sequence, the next 245 cells in the next sequence, and the rest in a third sequence.

The rules governing how many tables can be assigned the same sequence number depend on the following:

- There are no more than 256 cells per sequence, so the data can be read into a spreadsheet. There are 245 data cells and 11 other cells reserved for identifying information.

- There are approximately 170+ sequences for the ACS 1-year Summary File, and approximately 120+ sequences for the ACS 5-year Summary File.
- Tables are grouped numerically by the "root" of their Table ID, (i.e., Table B00001 is in sequence file 0001).
- Tables with race iterations are grouped in the same sequence.

It is critical to know the sequence number associated with a Detailed Table (Table ID) for two reasons. First, one needs it in order to access the correct estimates and margins of error files for the desired table. Second, the field start position for the estimates or margins of error of a particular Detailed Table depend on its sequence number.

The Sequence Number and Table Number Lookup file, available in SAS, Excel, and Text format, lists Table IDs associated with each sequence number. This spreadsheet is available on the ACS Summary File Documentation page at <https://www.census.gov/programs-surveys/acs/technical-documentation/summary-file-documentation.html>.

For example, to find the sequence number associated with the Table B08406, a user must open and look for that Table ID in the Sequence Number and Table Number Lookup file. Shown below is a screenshot of this file opened to where the "Table ID" is B08406. The next column in the file, "Sequence," shows that this Table ID is associated with the sequence number "38," highlighted in the screenshot. In order to access the estimate and margin of error file for Table B08406, a user will need to download the estimate and margin of error files labeled with the sequence number "38."

	A	B	C	D	E	F	G	H	I
7440	ACSSF	B08406	38		7	51 CELLS		SEX OF WORKERS BY MEANS OF TRANSPORTATION TO WORK FOR WORKPLACE GEOGRAPHY	Journey to Work
7441	ACSSF	B08406	38					Universe: Workers 16 Years And Over	
7442	ACSSF	B08406	38	1				Total:	
7443	ACSSF	B08406	38	2				Car, truck, or van:	
7444	ACSSF	B08406	38	3				Drove alone	
7445	ACSSF	B08406	38	4				Carpooled:	
7446	ACSSF	B08406	38	5				In 2-person carpool	
7447	ACSSF	B08406	38	6				In 3-person carpool	
7448	ACSSF	B08406	38	7				In 4-or-more-person carpool	
7449	ACSSF	B08406	38	8				Public transportation (excluding taxicab):	
7450	ACSSF	B08406	38	9				Bus or trolley bus	
7451	ACSSF	B08406	38	10				Streetcar or trolley car (carro publico in Puerto Rico)	
7452	ACSSF	B08406	38	11				Subway or elevated	
7453	ACSSF	B08406	38	12				Railroad	
7454	ACSSF	B08406	38	13				Ferryboat	
7455	ACSSF	B08406	38	14				Bicycle	
7456	ACSSF	B08406	38	15				Walked	
7457	ACSSF	B08406	38	16				Taxicab, motorcycle, or other means	
7458	ACSSF	B08406	38	17				Worked at home	
7459	ACSSF	B08406	38	18				Male:	
7460	ACSSF	B08406	38	19				Car, truck, or van:	
7461	ACSSF	B08406	38	20				Drove alone	
7462	ACSSF	B08406	38	21				Carpooled:	
7463	ACSSF	B08406	38	22				In 2-person carpool	
7464	ACSSF	B08406	38	23				In 3-person carpool	
7465	ACSSF	B08406	38	24				In 4-or-more-person carpool	
7466	ACSSF	B08406	38	25				Public transportation (excluding taxicab):	
7467	ACSSF	B08406	38	26				Bus or trolley bus	
7468	ACSSF	B08406	38	27				Streetcar or trolley car (carro publico in Puerto Rico)	
7469	ACSSF	B08406	38	28				Subway or elevated	
7470	ACSSF	B08406	38	29				Railroad	
7471	ACSSF	B08406	38	30				Ferryboat	

## 2.4 Geography File

There is a geography file that comes with the estimate and margin of error files. This file begins with a "g" and is an ASCII file using either a position based format or comma delimited format. A geography file exists for each state or state level equivalent.

Geography files are named using the following convention (using the 1-year data release as an example):

<b>g 2017 1 ak.txt or.csv</b>		
<b>Example</b>	<b>Name</b>	<b>Range or Type</b>
g	File Type	g=geography
2017	Reference Year	ACS data year (last year of the period for multiyear periods)
1	Period Covered	1=1-year, 5=5-year
ak	State Level	US or abbreviations for state, District of Columbia, and Puerto Rico

The geography files contain geographic information for an ACS tabulated area, including the name of the area. One variable on the file, called LOGRECNO, is the logical record number and is used to link the level of geography to the estimate and margin of error files. An example of how to use LOGRECNO is discussed in [Chapter 2.5](#). The fields in the layout below are blank if the geography is not available for a release.

The following table provides the generic layout of the geography file (1, 5-Year):

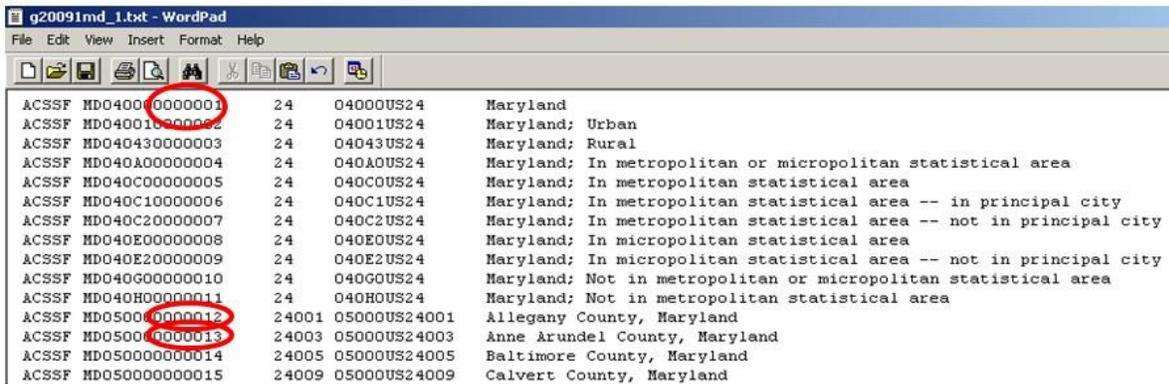
<b>Variable Name</b>	<b>Description</b>	<b>Field Size</b>	<b>Starting Position</b>	<b>Code Type</b>
FILEID	Always equal to ACS Summary File identification	6	1	Record
STUSAB	State Postal Abbreviation	2	7	Record
SUMLEVEL	Summary Level	3	9	Record
COMPONENT	Geographic Component	2	12	Record
LOGRECNO	Logical Record Number	7	14	Record
US	US	1	21	Geographic
REGION	Census Region	1	22	Geographic
DIVISION	Census Division	1	23	Geographic
STATECE	State (Census Code)	2	24	Geographic
STATE	State (FIPS Code)	2	26	Geographic
COUNTY	County of current residence	3	28	Geographic
COUSUB	County Subdivision (FIPS)	5	31	Geographic
PLACE	Place (FIPS Code)	5	36	Geographic
TRACT	Census Tract	6	41	Geographic
BLKGRP	Block Group	1	47	Geographic
CONCIT	Consolidated City	5	48	Geographic
AIANHH	American Indian Area/Alaska Native Area/ Hawaiian Home Land (Census)	4	53	Geographic
AIANHHFP	American Indian Area/Alaska Native Area/ Hawaiian Home Land (FIPS)	5	57	Geographic
AIHHTLI	American Indian Trust Land/ Hawaiian Home Land Indicator	1	62	Geographic
AITSC	American Indian Tribal Subdivision (Census)	3	63	Geographic

Variable Name	Description	Field Size	Starting Position	Code Type
AIT5	American Indian Tribal Subdivision (FIPS)	5	66	Geographic
ANRC	Alaska Native Regional Corporation (FIPS)	5	71	Geographic
CBSA	Metropolitan and Micropolitan Statistical Area	5	76	Geographic
CSA	Combined Statistical Area	3	81	Geographic
METDIV	Metropolitan Statistical Area-Metropolitan Division	5	84	Geographic
MACC	Metropolitan Area Central City	1	89	Geographic
MEMI	Metropolitan/Micropolitan Indicator Flag	1	90	Geographic
NECTA	New England City and Town Area	5	91	Geographic
CNECTA	New England City and Town Combined Statistical Area	3	96	Geographic
NECTADIV	New England City and Town Area Division	5	99	Geographic
UA	Urban Area	5	104	Geographic
BLANK		5	109	Geographic
CDCURR	Current Congressional District ***	2	114	Geographic
SLDU	State Legislative District Upper	3	116	Geographic
SLDL	State Legislative District Lower	3	119	Geographic
BLANK		6	122	Geographic
BLANK		3	128	Geographic
ZCTA5	5-digit ZIP Code Tabulation Area	5	131	Geographic
SUBMCD	Subminor Civil Division (FIPS)	5	136	Geographic
SDELM	State-School District (Elementary)	5	141	Geographic
SDSEC	State-School District (Secondary)	5	146	Geographic
SDUNI	State-School District (Unified)	5	151	Geographic
UR	Urban/Rural	1	156	Geographic
PCI	Principal City Indicator	1	157	Geographic
BLANK		6	158	Geographic
BLANK		5	164	Geographic
PUMA5	Public Use Microdata Area – 5% File	5	169	Geographic
BLANK		5	174	Geographic
GEOID	Geographic Identifier	40	179	Geographic
NAME	Area Name	1000	219	Geographic
BTTR	Tribal Tract	6	1219	Geographic
BTBG	Tribal Block Group	1	1225	Geographic
BLANK		44	1226	Geographic

We also provide an Excel template for the geography file named “YYYY\_SFGeoFileTemplate.xls.” The template provides users with two rows containing the variable names and their descriptions (as displayed in the above table) for each column in the geography file. It is meant to be used with the comma delimited version of the geography file. The template is available in the Data folder for your dataset. Here is a screenshot of the Excel file:

	A	B	C	D	E	F	G	H	I	J	K	L	M	
1	FILEID	STUSAB	SUMLEVEL	COMPONENT	LOGRECNO	US	REGION	DIVISION	STATECE	STATE	COUNTY	COUSUB	PLACE	TR
	Always equal to ACS Summary File Identification	State Postal Abbreviation	Summary Level	Geographic Component	Logical Record Number	US	Census Region	Census Division	State (Census Code)	State (FIPS Code)	County of current residence	County Subdivision (FIPS)	Place (FIPS Code)	Cer Tra
2														
3														
4														
5														
6														
7														
8														

Each state, the District of Columbia, Puerto Rico and the set of cross-state geographies, have one geography file (available in both .csv and .txt format) associated with them regardless of how the Summary File is accessed. For example, the following screenshot shows the beginning of the state geography file for Maryland. In the screenshot, the logical record numbers corresponding with the state of Maryland, Allegany County, and Anne Arundel County are circled. The logical record number for the state of Maryland is “0000001”, for Allegany County it is “0000012”, and for Anne Arundel County it is “0000013”.



Excess spaces in the pictured geography file have been removed for illustrative purposes.

## 2.5 Estimate and Margin of Error Files

Each of the three Summary File directories include zipped files containing estimate files (file names beginning with an “e”) and margins of error files (file names beginning with an “m”). The estimate files contain published ACS estimates and the margin of error files contain published ACS margins of error for their respective estimates. Here is the naming convention used for those files (using the 1-year data release as an example):

e 2017 1 ak 0001 000.txt		
Example	Name	Range or Type
e	File Type	e=estimate, m=margin of error
2017	Reference Year	ACS data year (last year of the period for multiyear periods)
1	Period Covered	1=1-year, 5=5-year
ak	State Level	US or abbreviations for state, District of Columbia and Puerto Rico
0001	Sequence Number	0001 to 9999
000	Reserved for future use	Iteration value for future use

The estimates and margins of error for Detailed Tables are grouped together by sequence numbers, as discussed in [Chapter 2.3](#). There is an estimate and margin of error file for each sequence number.

The format of the estimate and margin of error files are identical; they are strings of comma-delimited ASCII text. Each row represents a different geographic area and the first six fields contain metadata such as the geographic area and the sequence number. Following those fields are the estimates or margins of error for the Detailed Tables. Starting and ending positions of the fields associated with each Detailed Table can be found using the Sequence Number and Table Number Lookup file, which is discussed in [Chapter 2.3](#). The estimates or margins of error for one Detailed Table span several fields within a row.

Here is the record layout of the estimates and the margin of error files:

Field Name	Description	Field Size
FILEID	File Identification	6 Characters
FILETYPE	File Type	6 Characters
STUSAB	State/U.S.-Abbreviation (USPS)	2 Characters
CHARITER	Character Iteration	3 Characters
SEQUENCE	Sequence Number	4 Characters
LOGRECNO	Logical Record Number	7 Characters
Field # 7 and up	Estimates (or Margins of Error)	Various

Going back to the example from [Chapter 2.3](#), we know that Table B08406 corresponds to sequence “38.” Additionally, the Sequence Number and Table Number Lookup file (as shown earlier) tells us that Table B08406 begins at position seven and contains 51 cells.

In order to get estimates for Maryland; Allegany County, MD; and Anne Arundel County, MD one must recall the logical record numbers associated with each geography. In [Chapter 2.4](#), we identified these to be “0000001,” “0000012,” and “0000013,” respectively. The logical record number, LOGRECNO, must be used to merge the geography information to the estimate and margin of error files.

The example below shows the estimate file for sequence “0038” and all geographies except census tracts and block groups for the state of Maryland using the 2016 ACS 1-year Summary File. Note that each row has a uniquely assigned logical record number, called LOGRECNO, which links the estimate to a specific geographic area. The pictured example has the logical record numbers corresponding to Maryland, Allegany County, and Anne Arundel County circled. Estimates for Table B08406 at these geographic levels can be found within their respective rows at field seven and continuing for 50 additional fields.



included in the ACS Detailed Tables.

### **3.3 ACS Summary File Page**

The ACS Summary File Data page at <https://www.census.gov/programs-surveys/acs/data/summary-file.html> and Summary File Documentation page at <http://www.census.gov/programs-surveys/acs/technical-documentation/summary-file-documentation.html> contain links to all of the data, documentation, and user tools associated with the ACS Summary Files. This includes the data, templates, technical documents and appendices, table shells, sequence number and table number lookup files, SAS programs, DataFerrett, and TIGER/Line Shapefiles pre-joined with ACS estimates.

### **3.4 ACS Summary File User Tools Page**

More information about the user tools described in [Chapter 1.4](#), such as instructions, SAS tools, and DataFerrett, is available on the ACS Summary File Documentation page in the Summary File User Tools section at <https://www.census.gov/programs-surveys/acs/technical-documentation/summary-file-documentation.html>.

### **3.5 Supplemental Documentation**

Supplemental documentation concerning the American Community Survey is located on the ACS website at <https://www.census.gov/programs-surveys/acs/technical-documentation.html>. Documents such as the Subject Definitions, Accuracy of the Data, and Code Lists are available at the URL listed above. The documentation can assist users in understanding and using ACS data and ACS Summary Files.

## 4 User Notes

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### 4.1 Population Thresholds

The Census Bureau publishes ACS 1-year and 5-year estimates, with population thresholds set for the ACS 1-year estimates to produce reliable data. Here is a brief comparison of the two types of estimates:

<b>1-year Estimates</b>	<b>5-Year Estimates</b>
<ul style="list-style-type: none"> <li>• Published for selected geographic areas with populations of 65,000 or greater</li> <li>• Represent the average characteristics over a calendar year</li> <li>• Have fewer published geographic areas than the 5-year estimates</li> </ul>	<ul style="list-style-type: none"> <li>• Published for all geographic areas</li> <li>• Represent the average characteristics over the 5-year period of time</li> <li>• Have more published areas than the 1-year estimates</li> </ul>

For more guidance on using ACS estimates, users are encouraged to visit the ACS website at <https://www.census.gov/programs-surveys/acs/guidance/estimates.html>.

### 4.2 Jam Values

Some data values represent unique situations where either the information to be conveyed is an explanation for the absence of data, represented by a symbol in the data display, such as "(X)", or the information to be conveyed is an open-ended distribution, such as 115 or greater, represented by 115+.

The following special data values can appear in the ACS Summary File table as an explanation for the absence of data:

- Missing Value = “”

A missing string indicates that the estimate is unavailable. (This appears in the estimates and margins of error files as two commas adjacent to each other without anything between them. Or if the last cell in a data file is filtered then you get a comma followed immediately by a carriage return or EOF.) A missing value indicates when an estimate is missing because of filtering for geographic restrictions, coefficients of variations (CV), or was removed due to the Disclosure Review Board’s (DRB) requirements. For more detail on filtering, please visit [Chapter 4.4](#).

- Dot = “.”

A dot indicates when the estimate has no sample observations or too few sample observations. In the margin of error files, this value could also indicate that the margin of error is unavailable for a median estimate that has been replaced with a jam value.

- Zero = "0"

A "0" entry in the margin of error column indicates that the estimate is controlled. This is similar to the "\*\*\*\*\*" symbol used in American FactFinder.

- Negative 1 = "-1"

This indicates that an estimate does not contain a Margin of Error. Tables B00001, B00002, and tables starting with B98 and B99 do not have margin of error (MOE) associated with them. The MOE calculations are set to -1 for these tables.

- Jam Values for Medians

The following table is a listing of the jam values for medians. For example, if there is an estimate of "2499" for table B10010, then it does not indicate a dollar amount. It means that the median is somewhere below 2,500 and thus is not calculated.

<b>Jam Value</b>	<b>Actual Meaning</b>	<b>Use for Medians</b>
0	1 or less	Age, Duration of Marriage
9	9.0 or more	Rooms
10	10.0 or less	Gross Rent as Percentage of Income, Owner Costs as Percentage of Income
50	50.0 or more	Gross Rent as Percentage of Income, Owner Costs as Percentage of Income
99	100 or less	Rent, Gross Rent, Selected Monthly Owner Costs, Monthly Housing Costs
101	101 or more	Duration of Marriage
116	115 or more	Age
199	200 or less	Tax
1001	1,000 or more	Selected Monthly Owner Costs
1939	1939 or earlier	Year Built
1969	1969 or earlier	Year Moved In
2001	2,000 or more	Rent, Gross Rent
2010	2010 or later	Year Built, Year Moved In
2499	2,500 or less	Income, Earnings
4001	4,000 or more	Selected Monthly Owner Costs, Monthly Housing Costs
9999	10,000 or less	Value
10001	10,000 or more	Tax
200001	200,000 or more	Income
250001	250,000 or more	Income, Earnings
1000001	1,000,000 or more	Value

### 4.3 Rounding Rules and Margins of Error

B00001, B00002, B98001, and B98002 are sample counts, not estimates, and do not have margins of error (MOE) associated with them. Tables in series B99\* imputation tables and B98\* (except B98001 and B98002) quality measure tables do not provide margin of error calculations. The margin of error calculations are set to -1 for these tables.

There are a few special rules on how certain margins of error are determined for ACS estimates. The accuracy of the estimate (decimal place) within the Detailed Tables determine how many digits the margin of error is rounded.

#### 4.4 Explanation of Missing Estimates and Data Release Filtering Rules

Data users often question why certain ACS estimates are not available. Missing estimates can be caused by data suppression through various methods or restrictions that are applied to ACS data to limit the disclosure of information about individual respondents and to reduce estimates with unacceptable statistical reliability.

Filtering rules, based on statistical reliability of the ACS 1-year estimates, are used to ensure that Detailed Tables are not released where the majority of the estimates in the Detailed Tables have an unacceptable level of reliability.

Learn more about missing estimates and filtering rules in the data suppression document available on the ACS website at <https://www.census.gov/programs-surveys/acs/technical-documentation/data-suppression.html>.

#### 4.5 Display of Estimates

The estimates in the Summary Files are stored using standard notation instead of in scientific notation. The estimates are stored as whole numbers. The largest estimate in the ACS Summary File contains 14 digits.

#### 4.6 Multiple Sequences For a Table

There are eight tables with more than the maximum 245 cells that cannot fit into a single sequence, so each of these tables is broken into multiple sequence files. The table below shows the tables that contain multiple sequences:

Tables That Are Contained in More Than One Sequence File

Table ID	Table Title
B24010	Sex By Occupation For The Civilian Employed Population 16 Years And Over
B24020	Sex By Occupation For The Full-Time, Year-Round Civilian Employed Population 16 years And Over
B24121	Detailed Occupation By Median Earnings In The Past 12 Months For The Full-Time, Year-Round Civilian Employed Population 16 Years And Over
B24122	Detailed Occupation By Median Earnings In The Past 12 Months For The Full-Time, Year-Round Civilian Employed Male Population 16 Years And Over
B24123	Detailed Occupation By Median Earnings In The Past 12 Months For The Full-Time, Year-Round Civilian Employed Female Population 16 Years And Over
B24124	Detailed Occupation For The Full-Time, Year Round Civilian Employed Population 16 Years And Over".
B24125	Detailed Occupation For The Full-Time, Year Round Civilian Employed Male Population 16 Years And Over
B24126	Detailed Occupation For The Full-Time, Year Round Civilian Employed Female Population 16 Years And Over

Check [Appendix A](#) of either the 1-year Appendices or 5-year Appendices Excel files to verify the sequences for these tables. The last six tables on the list are only produced at the United States national level (summary level 010), and the files for these sequences will be blank for all other summary levels.