Census Data API

 Raw statistical data from programs and surveys across the Bureau

Geocoder

• Translates addresses and other location formats into latitude/longitude parameters

TIGERweb Services

 Census area boundaries and shapes for mapping referenced by FIPS codes

Census Data API: <u>census.data@census.gov</u> Geocoder: <u>geo.geocoding.services@census.gov</u> TIGERweb: <u>geo.tigerweb@census.gov</u>



Use the descriptive parameter to add variable labels to the second row of the API results.

- &descriptive=true includes variable labels in the API output.
 - Example: <u>https://api.census.gov/data/2023/acs/acs5/profile?get=NAME,DP02_0065E&for=us:*&descriptive=true</u>
- **&descriptive=false** excludes variable labels in the API output.
 - By default, API variable labels are also excluded in the API output when a descriptive parameter is not added to the API call.

←	\rightarrow	G	←	\rightarrow	G	â	10	api.census.gov/data/2023/acs/acs5/profile?get=NAME,DP02_0065E&for=us:*	
Pret	ty-pr	rint	Pret	ty-pr	rint				
[["N/ ["Geo ["Un:	AME", ograp ited	,"DP phic Sta	[["N/ ["Un:	AME", ited	,"DP(Stat	02_000 tes",'	65E" "485	"us"], 91540","1"]]	degree","Nation"],



If you would like to get API results in Comma Separated Values (CSV) format, use the outputFormat parameter:

- **&outputFormat=csv** provides output in CSV format. When using this parameter in your web browser, it will create a CSV file that will appear in your downloaded files.
 - Ex: <u>https://api.census.gov/data/2023/acs/acs5/profile?get=group(DP05)&for=us:*&outputFormat=csv&descriptive=true</u>
 - &outputFormat=json provides output in JSON format.

×	AutoSave Off 🗄 5 × C × = DP05 2023 G ×									
Fi	ile Home Insert Page Layout Formulas Data Review View Automate Help									
A14 \checkmark : $\times \checkmark f_x$							~			
	A	С	E	G	I	К	М			
1	DP05_0001E	DP05_0001M	DP05_0001PE	DP05_0001PM	DP05_0002E	DP05_0002M	DP05_0002PE			
	Estimate!!SEX AND AGE!!Total	Margin of Error!!SEX AND	Percent!!SEX AND AGE!!Total	Percent Margin of Error!!SEX	Estimate!!SEX AND AGE!!Total	Margin of Error!!SEX AND	Percent!!SEX AND			
2	population	AGE!!Total population	population	AND AGE!!Total population	population!!Male	AGE!!Total population!!Male	population!!Male			
3	332387540	-555555555	332387540	-888888888	164545087	6966	6			
1										



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API calls are case sensitive. Be mindful of capitalization when using &outputFormat=csv

and &outputFormat=json

* Need older data not available on data.census.gov, such as pre-2010 ACS data

* Pull data for multiple tables at once, rather than viewing individual tables on data.census.gov

* Need to gather a lot of data at once (usually involves use of third-party software)

* Need datasets not available in data.census.gov or the Microdata Access Tool (MDAT)

* Problems pulling data from data.census.gov

* Using Census data to create your own application or visualization



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Accessing pre-2010 ACS data via the API

DP05 ACS Demographic and Ho American Community Survey 2023: ACS 1-Year Estim	using Estimates	Notes Geo	Topics Codes	Dataset Ye	ar Columns	ooo More Tools
Please note that American Community to use 1-year or 5-year estimates.	Survey 1-Year estimates are pub	lished for geographies with a p	population of 65,00	0 or more.	Search	Q guid
label	United States				2016	
Luboi	Estimate	Margin of Error		Percen	2015	or
✓ SEX AND AGE					2015	
✓ Total population	334,914,896	****		334,914,896	2014	X)
Male	165,729,373	±34,559		49.5%	2013).1
Female	169,185,523	±34,560		50.5%	2012).1
Sex ratio (males per 100 females)	98.0	±0.1		(X	2012	X)
Under 5 years	18,333,697	±19,410		5.5%	2011).1
5 to 9 years	19,799,430	±58,324		5.9%	2010	0.1
10 to 14 years	21,203,879	±52,238		6.3%		±0.1





Census API

Accessing and downloading a 2005 ACS table

• Download a Data Profile table (DP01) for all Places in Nebraska using the 2005 ACS 1-Year Estimates



Census API

Accessing and downloading a 2005 ACS table

• Download a Data Profile table (DP01) for all Places in Nebraska using the 2005 ACS 1-Year Estimates





Download table DP01 for all Places in Nebraska for the year 2005

• Select the American Community Survey 1-Year Data on the Available APIs page





census.gov/data/developers/data-sets.html

Using the More dropdown menu, change the year from 2023 to 2005

Table ID

Geography level

Please review the example API calls for each of the table types listed below and use those examples to build your API calls. API calls are also available for tables found in data.census.gov by selecting the API function in the tool bar. Visit the API Resources page for tutorial videos, workshops and other tools.

The API is one of several ways to access ACS data. Visit the ACS Data page to find all the ways to access ACS data.



Variables, and the values they represent, may change over time. Use this 2023 1YR API Changes document as a guide for which variables have changed from the prior year for 2023 ACS 1-Year Detailed Tables, Data Profiles and Subject Tables. See below for a description of each change type.

• No Change - The variable has not changed from the prior year (most variables).

https://www.census.gov/data/developers/data-sets/acs-1year.html



Under Data Profile, open Examples and Supported Geography

2005

Detail Tables

- Example Call: api.census.gov/data/2005/acs/acs1? get=NAME,B01001_001E&for=state:*&key=YOUR_KEY_GOES_HERE
- 2005 ACS Detail Table Variables [html | xml | json]
- ACS Technical Documentation
- Examples and Supported Geography

Data Profile

- Example Call: api.census.gov/data/2005/acs/acs1/profile? get=NAME,DP01_0001E&for=us:*&key=YOUR_KEY_GOES_HERE
- 2005 ACS Data Profile Variables [html | xml | json]
- ACS Technical Documentation
- Examples and Supported Geography

https://www.census.gov/data/developers/data-sets/acs-1year.2005.html



Open the Groups and Examples links in new tabs in your browser

	Census API: Datasets in /data/2005/acs/acs1/profile and its descendants										
Title	Description	Vintage	Dataset Name	Dataset Type	Geography List	Variable List	Group List	SortList	Examples	Developer Documentation	API Base URL
American Community Survey: 1-Year Estimates: Data Profiles 1-Year	The American Community Survey (ACS) is an ongoing survey that provides data every year giving communities the current information they need to plan investments and services. The ACS covers a broad range of topics about social, economic, demographic, and housing characteristics of the U.S. population. Much of the ACS data provided on the Census Bureau's Web site are available separately by age group, race, Hispanic origin, and sex. Summary files, Subject tables, Data profiles, and Comparison profiles are available for the nation, all 50 states, the District of Columbia, Puerto Rico, every congressional district, every metropolitan area, and all counties and places with populations of 65,000 or more. Data profiles contain broad social, economic, housing, and demographic information. The data are presented as population counts and percentages. There are over 1,000 variables in this dataset.	2005	acs) acs1) profile	Aggregate	<u>geographies</u>	<u>variables</u>	g <u>roups</u>	<u>sorts</u>	<u>examples</u>	documentation	http://api.census.gov/data/2005/acs/acs1/profile
	1 da	taset									

https://api.census.gov/data/2005/acs/acs1/profile.html



- Open the **Groups** page
- Note the available tables. We will access data from table **DP01**
 - Table DP01 was available in the 2005 ACS 1-Year Estimates. In later years, this table was not used and table DP05 became available.

← → C û sapi.census.gov/data/2005/acs/acs1/profile/groups.html										
Census API: groups in /data/2005/acs/acs1/profile/groups										
Name Description Variable List										
DP01	General Demographic Characteristics: 2005	selected variables								
DP02	Selected Social Characteristics in the United States: 2005	selected variables								
DP02PR	Selected Social Characteristics in Puerto Rico: 2005	selected variables								
DP03	Selected Economic Characteristics: 2005	selected variables								
DP04	DP04 Selected Housing Characteristics: 2005									
	5 στουρα									
	S groups									

https://api.census.gov/data/2005/acs/acs1/profile/groups.html



- Open the **Examples** page
- Under the state > place geography, open the 2nd link which has &for=place:*&in=state:* in the URL

subdivision		https://api.census.gov/data/2005/acs/acs1/profile?get=NAME,DP01_0001E&for=county%20subdivision:08070∈=state:09%20county:001&key=Y0
		https://api.census.gov/data/2005/acs/acs1/profile?get=NAME,DP01_0001E&for=place:*&key=YOUR_KEY_GOES_HERE
state> place	160	https://api.census.gov/data/2005/acs/acs1/profile?get=NAME,DP01_0001E&for=place:*∈=state:*&key=YOUR_KEY_GOES_HERE
		https://api.census.gov/data/2005/acs/acs1/profile?get=NAME,DP01_0001E&for=place:07000∈=state:01&key=YOUR_KEY_GOES_HERE
american indian area/alaska		https://api.census.gov/data/2005/acs/acs1/profile?get=NAME,DP01_0001E&for=american%20indian%20area/alaska%20native%20area/hawaiian%2

https://api.census.gov/data/2005/acs/acs1/profile/examples.html



- Use Ctrl+F in your browser to search for "Nebraska"
 - Note that Nebraska's state FIPS code is 31

← → C 🏠 😁 api.census.gov/data/2005/acs/acs1/profile?get=NAME,DP01_0001E&for=place:*∈=state:*		Q & #	Ð
Pretty-print 🗌	Nebraska	1/2 ^ ~ X	
<pre>["Springfield city, Missouri", "139600", "29", "70000"], ["Billings city, Montana", "92844", "30", "06550"], ["Lincoln city, Nebraska", "226062", "31", "28000"], ["Omaha city, Nebraska", "373215", "31", "37000"], ["Henderson city, Nevada", "223776", "32", "31900"], ["Loc Vorec city, Nevada", "528652", "22", "40000"]</pre>			

https://api.census.gov/data/2005/acs/acs1/profile?get=NAME,DP01_0001E&for=place:*&in=state:*



- Update the URL:
 - Replace NAME, DP01_0001E with group(DP01)
 - Replace &in=state:* with &in=state:31
 - 31 is the state FIPs code for Nebraska
 - Add &outputFormat=csv&descriptive=true to the end of the URL
 - &outputFormat=csv will download the table as a CSV file
 - &descriptive=true adds variable labels to the results, which will be helpful when viewing the output of an entire table
- Press Enter to reload the page and the table will automatically download





https://api.census.gov/data/2005/acs/acs1/profile?get=group(DP01)&for=place:*&in =state:31&outputFormat=csv&descriptive=true

- Open the saved CSV file
- First, to locate the geography NAME column Press Ctrl+F in Excel and search for Nebraska

Find and F	Replace		-		×
Fin <u>d</u>	Replace				
Fi <u>n</u> d what	: Nebraska	✓ No Format Set	et	For <u>m</u> at.	. •
Wit <u>h</u> in: <u>S</u> earch:	Sheet ~ By Rows ~	Match <u>c</u> ase Match entire cell c <u>o</u> ntents		Ontions	
LOOK IN:	Formulas	Find All Eind Next		Close	•



Right click on the NAME column and choose Cut





- Right click on the Column A and choose Insert Cut Cells
 - This will place the geography names in Column A to make the file easier to read





- View data from table **DP01** for all places in Nebraska
- Note only Lincoln and Omaha are appearing here as we are viewing data from the ACS 1-Year Estimates. The ACS 1-Year Estimates are published for geographies with a population of 65,000 or more. For more information, see the guidance for when to use 1-year or 5-year estimates.

	A	В	С	D	E	F		
1	NAME	[["DP01_0077E"	DP01_0077M	DP01_0078E	DP01_0078M	DP01_0079E	DP01_0	3
							Margin	4
			Margin of Error!!HISPANIC OR LATINO			Estimate!!HISPANIC OR LATINO AND	AND RA	4
		["Estimate!!HISPANIC OR LATINO AND	AND RACE !! Total population !! Not	Estimate!!HISPANIC OR LATINO AND	Margin of Error!!HISPANIC OR LATINO	RACE!!Total population!!Not Hispanic	Hispani	ic
		RACE!!Total population!!Not Hispanic	Hispanic or Latino!!Some other race	RACE!!Total population!!Not Hispanic	AND RACE!!Total population!!Not	or Latino!!Two or more races!!Two	races!!	1
2	Geographic Area Name	or Latino!!Some other race alone"	alone	or Latino!!Two or more races	Hispanic or Latino!!Two or more races	races including Some other race	race	
3	Lincoln city, Nebraska	["0"	216	2928	1007	0)	
4	Omaha city, Nebraska	["621"	348	6490	2131	268	3	
5								
6								
7								
8								
9								
10								1



 To transpose the data, highlight all cells in the table, right click, and copy the data

1 NAME DP01_0077E DP01_0077M DP01_0078	BE
Lincoln city, NebraskaLatino!!Some other race aloneLatino4Omaha city, Nebraska05 6 6 2 7 2 8 2 9 2 10 2 11 2 11 2	● E C OR 00 ✓ !Total 1100000000000000000000000000000000000



Open a new sheet, right click and select transpose





- **Resize** columns and rows to make the cells fit on your screen
- Rename columns A and B to "Variable Name" and "Variable Label"

4	А	В	С	D	
1	Variable Name	Variable Label	Lincoln city, Nebraska	Omaha city, Nebraska	
		Estimate!!HISPANIC OR LATINO AND RACE!!Total population!!Not Hispanic or Latino!!Some			
2	DP01_0077E	other race alone	0	621	
		Margin of Error!!HISPANIC OR LATINO AND RACE!!Total population!!Not Hispanic or			
3	DP01_0077M	Latino!!Some other race alone	216	348	
		Estimate!!HISPANIC OR LATINO AND RACE!!Total population!!Not Hispanic or Latino!!Two or			
1	DP01_0078E	more races	2928	6490	
		Margin of Error!!HISPANIC OR LATINO AND RACE!!Total population!!Not Hispanic or Latino!!Two			
5	DP01_0078M	or more races	1007	2131	
		Estimate!!HISPANIC OR LATINO AND RACE!!Total population!!Not Hispanic or Latino!!Two or			
5	DP01_0079E	more races!!Two races including Some other race	0	268	
		Margin of Error!!HISPANIC OR LATINO AND RACE!!Total population!!Not Hispanic or Latino!!Two			
7	DP01_0079M	or more races!!Two races including Some other race	216	302	
		Estimate!!HISPANIC OR LATINO AND RACE!!Total population!!Not Hispanic or Latino!!Two or			
3	DP01_0080E	more races!!Two races excluding Some other race, and Three or more races	2928	6222	
		Margin of Error!!HISPANIC OR LATINO AND RACE!!Total population!!Not Hispanic or Latino!!Two			
9	DP01_0080M	or more races!!Two races excluding Some other race, and Three or more races	1007	2129	
0	DP01_0081E	Estimate!!RELATIONSHIP!!Household population	226062	373215	



- Add filters to the columns by clicking on the first cell in Row 1, and pressing Ctrl+Shift+L
- Click on the drop down menu on Column A and Sort A to Z

A1 ~	$(\times \checkmark f_x)$	Variable Name		
A		В	С	D
1 Variable Name		/ariable Label	Lincoln city, Nebraska 💌	Omaha city, Nebraska 💌
A ↓ Sort A to Z		Estimate!!HISPANIC OR LATINO AND RACE!!Total population!!Not Hispanic or Latino!!Some	-	
Z Sort Z to A		other race alone Margin of Error!!HISPANIC OR LATINO AND RACE!!Total population!!Not Hispanic or	0	621
Sor <u>t</u> by Color	>	Latino!!Some other race alone	216	348
Sheet <u>V</u> iew	>	Estimate!!HISPANIC OR LATINO AND RACE!!Total population!!Not Hispanic or Latino!!Two or more races	2928	6490
Clear Filter From "Varia	ble Name"	Margin of Error!!HISPANIC OR LATINO AND RACE!!Total population!!Not Hispanic or Latino!!Two or more races	1007	2131
Filter by Color	>	Estimate!!HISPANIC OR LATINO AND RACE!!Total population!!Not Hispanic or Latino!!Two or		
6 Text <u>F</u> ilters	>	more races!!Two races including Some other race	0	268
Search		Margin of Error!!HISPANIC OR LATINO AND RACE!!Total population!!Not Hispanic or Latino!!Two or more races!!Two races including Some other race	216	302
Select All)	1	Estimate!!HISPANIC OR LATINO AND RACE!!Total population!!Not Hispanic or Latino!!Two or more races!!Two races excluding Some other race, and Three or more races	2928	6222
DP01_0001EA		Margin of Error!!HISPANIC OR LATINO AND RACE!!Total population!!Not Hispanic or Latino!!Two		0
c		or more races!!Two races excluding Some other race, and Three or more races	1007	2129
1 DP01_0002E		Estimate!!RELATIONSHIP!!Household population	226062	373215
1 DP01_0002M		Margin of Error!!RELATIONSHIP!!Household population	2646	5505
1	OK Cancel	Estimate!!RELATIONSHIP!!Household population!!Householder	97619	162908



- Optionally, remove Annotation variables by clicking on the filter drop-down for Column B > Search for "Annotation" > Unselect all results > Check the box for "Add current selection to filter"
 - This will allow you to only see Estimates and Margins of Error on the table

Variable Name				
В				
Variable Label			¥	inco
Estimate!!Total population	2↓ z∣	Sort A to Z		
Annotation of Estimate!!Total population	Av	Sor <u>t</u> by Color	>	null
Margin of Error!!Total population		Sheet <u>V</u> iew	>	
Annotation of Margin of Error!!Total population	X	<u>C</u> lear Filter From "Variable Label" F <u>i</u> lter by Color	>	null
Estimate!!Total population!!SEX AND AGE!!Male	_	Text <u>F</u> ilters	>	
Annotation of Estimate!!Total population!!SEX AND A		Annotation	×	ull
Margin of Error!!Total population!!SEX AND AGE!!Mal		Add current selection to filter		
Annotation of Margin of Error!!Total population!!SEX		Annotation of Estimate::HISPA Annotation of Estimate!!HISPA Annotation of Estimate!!HISPA	NI	null
Estimate!!Total population!!SEX AND AGE!!Female			NE	
Annotation of Estimate!!Total population!!SEX AND A		Annotation of Estimate!!HISPA	NI)	null
Margin of Error!!Total population!!SEX AND AGE!!Fen		ОКСа	ncel	
Annotation of Margin of Error!!Total population!!SEX	AND	AGE!!Female		null



View the final results for your edited table

Clipboard 🛛	For	nt 🕞		Alignment	Г	Number	Гъ	Styles		Cells
A1 ~	: $\times \checkmark f_x$ Va	ariable Name								
A				В				С	D	
1 Variable Name	<mark>_↑</mark> Va	ariable Label					J Lir	ncoln city, Nebraska 💌	Omaha city, Nebraska	•
2 DP01_0001E	Es	stimate!!Total popula	tion					226062		373215
4 DP01_0001M	Ma	argin of Error!!Total p	opulation					2646		5505
6 DP01_0002E	Es	stimate!!Total popula	tion!!SEX AND	AGE!!Male				111179		182267
8 DP01_0002M	Ma	argin of Error!!Total p	oopulation!!SE	X AND AGE!!Male				1775		3159
10 DP01_0003E	Es	stimate!!Total popula	tion!!SEX AND	AGE!!Female				114883		190948
12 DP01_0003M	Ma	argin of Error!!Total p	oopulation!!SE	X AND AGE!!Female				1711		3041
14 DP01_0004E	Es	stimate!!Total popula	tion!!SEX AND	AGE!!Under 5 years				16457		27502
16 DP01_0004M	Ma	argin of Error!!Total p	oopulation!!SE	X AND AGE!!Under 5 y	/ears			657		1462
18 DP01_0005E	Es	stimate!!Total popula	tion!!SEX AND	AGE!!5 to 9 years				14566		24853
20 DP01_0005M	Ma	argin of Error!!Total p	oopulation!!SE	X AND AGE!!5 to 9 yea	irs			1599		1542
22 DP01_0006E	Es	stimate!!Total popula	tion!!SEX AND	AGE!!10 to 14 years				12333		26202



data.census.gov Workshops





These participatory classes walk you through examples of using data.census.gov to find demographic and economic data.

Time is allotted throughout the training for questions, and participation is strongly encouraged.

- · Please click the box below to view available classes.
- Registration is required to attend these workshops. Attendance is limited to 50 participants per session.

***When registering, if you receive a message that you are waitlisted, please sign up for later class. We are trying to move classes to Waitlist as they fill, but sometimes there is a lag in that update.

Basics of Finding Data Using data.census.gov	Advanced Usage of data.census.gov	Making the Most of Mapping in data.census.gov
In these participatory classes, data.census.gov outreach staff walk you through examples that	These participatory classes walk you through some of the more advanced ways to use	Join us in this participatory class as we look at mapping capabilities in data.census.gov.
cover basics and advanced of using data.census.gov to find data. \Im	data.census.gov to find demographic and economic data. ③	0
Basics of Using the Microdata	Basics of Using the Census API	Data.census.gov Geography
Access Tool in data.census.gov		Essentials for Beginners
Join us for a participatory class	Join us in this hands-on class as	This introductory workshop is
that walks you through the Microdata Access Tool (MDAT) within data.census.gov.	we learn how to access data through the Census Data Application Programming Interface	geared towards data users who want to master the fundamentals of census geographies.

https://www.census.gov/data/what-isdata-census-gov/workshops.html

Additional resources for R and Python Users

- Introduction to the Census Bureau Data API:
 - <u>https://www.census.gov/data/academy/courses/intro-to-the-census-bureau-data-api.html</u> (Module 3: Part 2 includes a video training on accessing the API using tidycensus)
- **tidycensus Resources via Kyle Walker** (author of tidycensus R package):
 - University of Michigan tidycensus workshops (comprehensive 3-part workshop): <u>https://github.com/walkerke/umich-workshop-2025</u>
 - Analyzing US Census Data: Methods, Maps, and Models in R by Kyle Walker: <u>https://walker-data.com/census-r/index.html</u>
 - Basic Usage of tidycensus: <u>https://walker-data.com/tidycensus/articles/basic-usage.html</u>
 - Working with Census microdata: <u>https://walker-data.com/tidycensus/articles/pums-data.html</u>
- censusdis Resources via Darren Vengroff (author of censusdis Python package):
 - Introduction to Working with U.S. Census Data in Python: <u>https://www.youtube.com/watch?v=3vyC7ON0Tvg</u>
 - Installation and First Example: <u>https://github.com/censusdis/censusdis?tab=readme-ov-file#installation-and-first-example</u>
 - Full tutorial (with many examples and exercises): <u>https://github.com/censusdis/censusdis-tutorial-2024</u>
- Using American Community Survey Data with Open-Source Software:
 - https://www.census.gov/programs-surveys/acs/guidance/statistical-software.html
- Census Bureau Slack Channel:
 - https://www.census.gov/data/developers/api-forum.html







data.census.gov Resources

<u>census.gov/data/what-is-data-</u> <u>census-gov.html</u>

<u>census.gov/data/what-is-data-</u> <u>census-gov/guidance-for-data-</u> <u>users/how-to-materials-for-using-</u> <u>the-census-api.html</u>

https://www.census.gov/data/whatis-data-census-gov/guidance-fordata-users/how-to-materials-forusionaitedestatesodata-access.html Census



The American Community Survey Find Answers, Get Support

Websites

census.gov/acs data.census.gov api.census.gov

Email Us

acso.users.support@census.gov (ACS) census.data@census.gov (DCG, MDAT, API)

Census Customer Service Center 800-923-8282

Email Alerts

https://public.govdelivery.com/accounts/USCENSUS/signup/12426 (ACS)

https://public.govdelivery.com/accounts/USCENSUS/signup/15450 (DCG, MDAT, API)

Census Academy census.gov/academy

Source Us U.S. Census Bureau, [YYYY – YYYY] American Community Survey [1/5]-year [estimates/statistics/data release]

