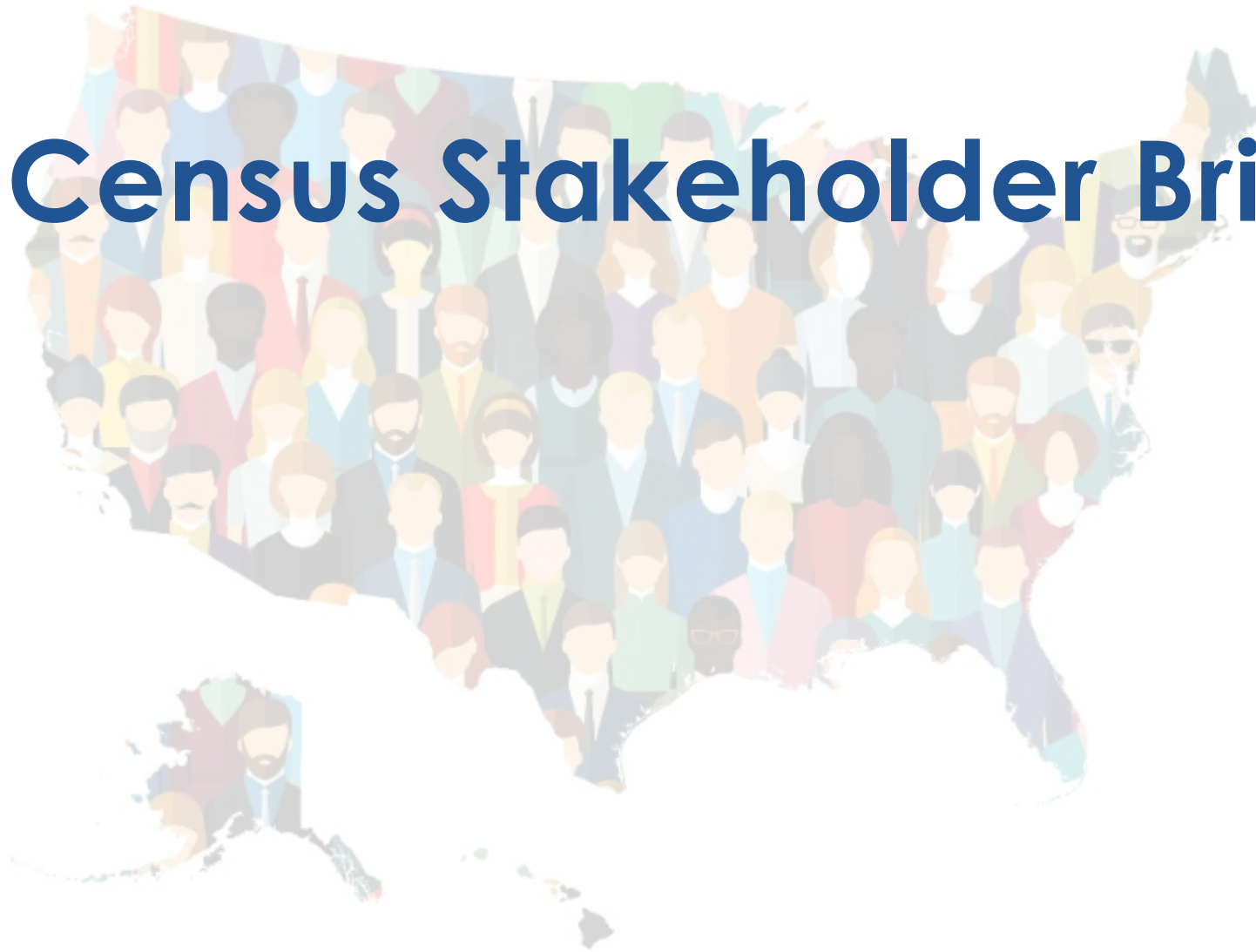


2020 Census Stakeholder Briefing

July 22, 2021



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Today's Speakers

- **Robin Bachman**, Chief, National Partnership Program (moderator)
- **James Whitehorne**, Census Redistricting and Voting Rights Data Office
- **Michael Hawes**, Senior Advisor for Data Access and Privacy

Also joining us today:

- **Rachel Marks**, Chief, Racial Statistics Branch, Population Division
- **Andrew Roberts**, Chief, Sex and Age Statistics Branch, Population Division
- **Matthew Spence**, Senior Advisor for Special Population Statistics and Disclosure Avoidance, Population Division

We look forward to taking your questions following the presentation. As a reminder, today's briefing is closed to media.



2020 Census Redistricting Data

07/22/2021

James Whitehorne

Chief, Census Redistricting and Voting Rights Data Office

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2020

2020 Census Redistricting Data Program

Public Law 94-171

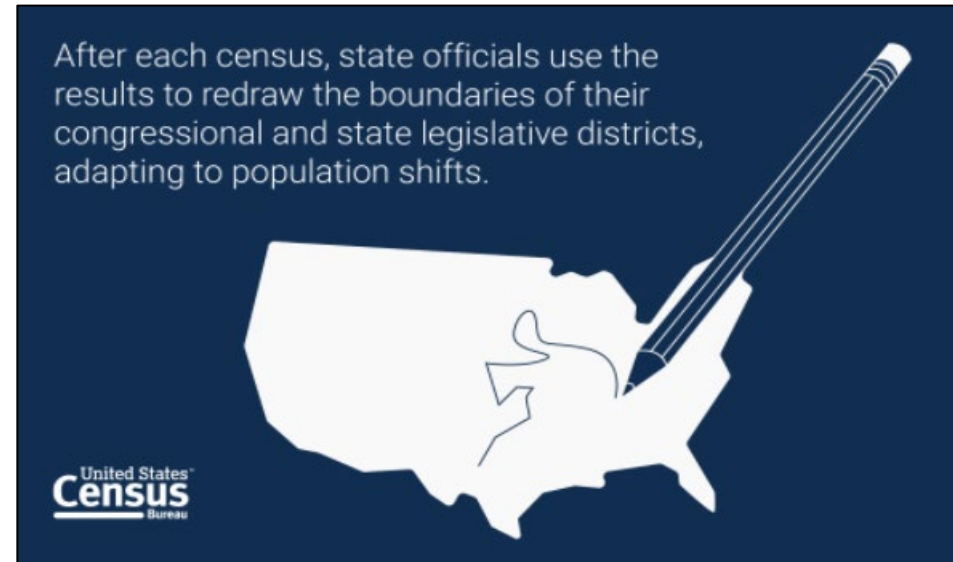
Program Mission: Provide states an opportunity to identify the geographic areas for which specific tabulations of population are needed for legislative redistricting and to deliver high quality data for those areas in a timely manner

Identified “geographic areas desired”:

- Census Tabulation Blocks
- Voting Districts (e.g. precincts, wards, etc.)
- Legislative and Congressional Districts

Requirements:

- Conduct the program in a non-partisan manner
- Establish program criteria
- Identify required tabulations
- Deliver the tabulations to the governor and the officers or public bodies having initial responsibility for the legislative apportionment or districting of each State no later than 1 year from Census Day.





Redistricting Geography

Redistricting Data Program

Phase 3 – P.L. 94-171 Redistricting Data Geographic Support Products

2020 Census P.L. 94-171 Redistricting Data Geographic Products

Product Type	Census Web Address
Shapefiles	https://www.census.gov/geographies/mapping-files/time-series/geo/tiger-line-file.html
Reference Maps	https://www.census.gov/geographies/reference-maps.html
Block Assignment Files	https://www.census.gov/geographies/reference-files.html
Name Lookup Tables	https://www.census.gov/geographies/reference-files/time-series/geo/name-lookup-tables.html
Block to Block Relationship Files	https://www.census.gov/geographies/reference-files/time-series/geo/relationship-files.html

- Shapefiles – Geographic information system geometry files.
- Reference Maps (PDF only) – County Block; State Legislative with Voting District; Census Tract; School District.
- Block Assignment Files – Tables identifying the blocks used to build different geographic entities.
- Name Lookup Tables – Contain names and codes for geographic areas within a state.
- Block to Block Relationship Files – Crosswalk of 2010 blocks to 2020 blocks.

Redistricting Data Program

Phase 3 – P.L. 94-171 Redistricting Data Shapefiles

State-based Shapefile
American Indian/Alaska Native/Native Hawaiian Area
American Indian Tribal Subdivision
Alaska Native Regional Corporation
State and Equivalent
Block
Block Group
Census Tract
113th Congressional District
116th Congressional District
Consolidated City
County and Equivalent
County Subdivision
Place
Elementary School District
Secondary School District
Unified School District
State Legislative District Lower Chamber
State Legislative District Upper Chamber
Subbarrio (Subminor Civil Division)
Voting District
Urban Growth Area
Primary and Secondary Roads

County-based Shapefile
Block
Block Group
Census Tract
County Subdivision
Voting District
All Lines
All Roads
Area Hydrography
Linear Water
Area Landmark
Point Landmark
Topological Faces (Polygons With All Geocodes)
County-based Relational Tables
County-based Relationship File
Address Range-Feature Name
Address Ranges
Feature Names
Topological Faces-Area Landmark
Topological Faces-Area Hydrography

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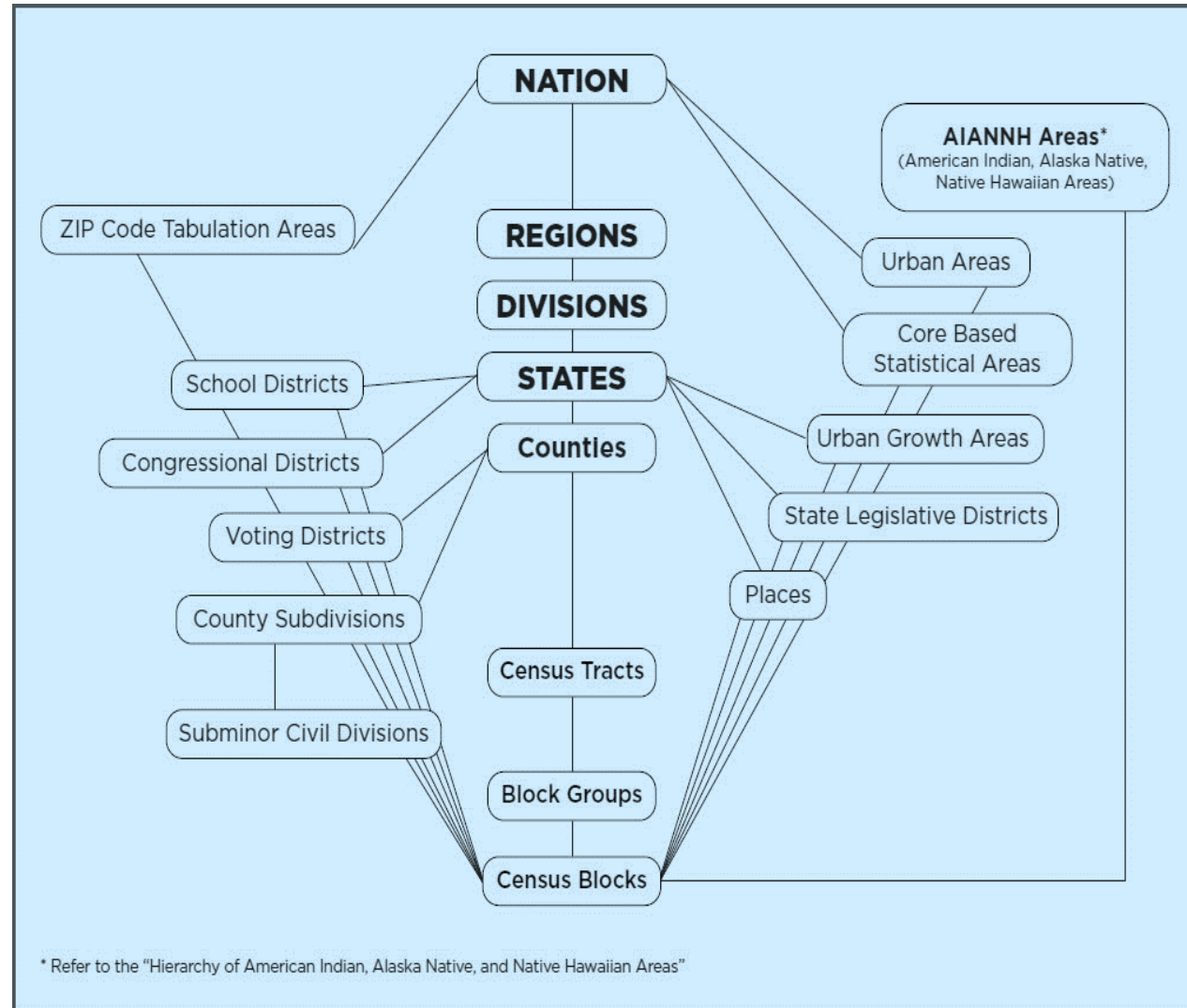
Standard Hierarchy of Census Geographic Entities

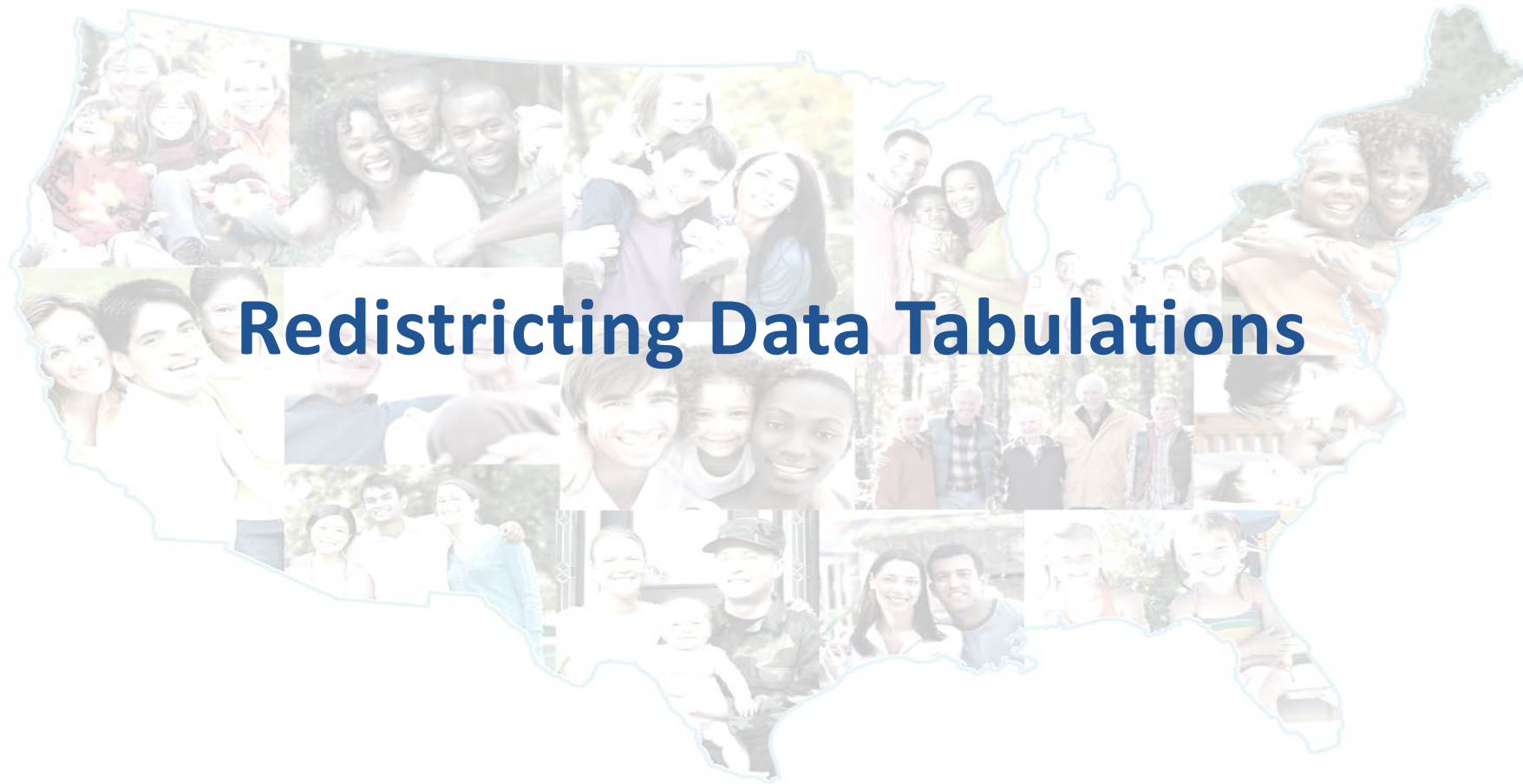
Hierarchy displays how legal, administrative, and statistical boundaries related to one another.

Geographic relationships are depicted with a line connection.

Census Blocks are the smallest components of census geography.

Census Blocks are aggregated up to form all other census geographies.





Redistricting Data Tabulations

Apportionment vs. Redistricting

		APPORTIONMENT	REDISTRICTING
Geography	Largest	State	State
	Smallest	State	Census Block
Who is counted		Resident Population + Federally Affiliated Count Overseas	Resident Population Only
What is reported		Total Population only	Race, ethnicity, and select housing characteristics
Disclosure Avoidance		None	Differentially Private (TopDown Algorithm)
Current Timeline		Released April 26, 2021	Legacy Format – by August 16, 2021 DVDs/Flash Drives & data.census.gov by September 30, 2021

Redistricting Data Program

Phase 3 – P.L. 94-171 Redistricting Data Tabulation Product

2020 Census P.L. 94-171 Redistricting Data Tabulations

Table P1 – Race

Table P2 – Hispanic or Latino, and not Hispanic or Latino by Race

Table P3 – Race for the Population 18 Years and Over

Table P4 – Hispanic or Latino, and not Hispanic or Latino by Race for the Population 18 Years and Over

Table H1 – Occupancy Status (Housing)

New Table

Table P5 – Group Quarters Population by Group Quarters Type

- All tables produced at multiple geographies including census block
- Group Quarter types: Correctional Institutions for Adults, Juvenile Facilities, Nursing Facilities/Skilled Nursing, Other Institutional, College/University Student Housing, Military quarters, and other non-institutional
- Group quarters is total population only, no demographic breakdown

Redistricting Data Program

P.L. 94-171 Redistricting Data Tabulation Product

Table P1 – Race
Universe: Total Population

Table P3 – Race for the Population 18 Years and Over
Universe: Total population 18 years and over

RACE [71]
Universe: Total population
Total:
Population of one race:
White alone
Black or African American alone
American Indian and Alaska Native alone
Asian alone
Native Hawaiian and Other Pacific Islander alone
Some Other Race alone
Two or More Races:
Population of two races:
White; Black or African American
White; American Indian and Alaska Native
White; Asian
White; Native Hawaiian and Other Pacific Islander
White; Some Other Race
Black or African American; American Indian and Alaska Native
Black or African American; Asian
Black or African American; Native Hawaiian and Other Pacific Islander
Black or African American; Some Other Race
American Indian and Alaska Native; Asian
American Indian and Alaska Native; Native Hawaiian and Other Pacific Islander
American Indian and Alaska Native; Some Other Race
Asian; Native Hawaiian and Other Pacific Islander
Asian; Some Other Race
Native Hawaiian and Other Pacific Islander; Some Other Race
Population of six races:
White; Black or African American; American Indian and Alaska Native; Asian; Native Hawaiian and Other Pacific Islander; Some Other Race

Redistricting Data Program

P.L. 94-171 Redistricting Data Tabulation Product

Table P2 – Hispanic or Latino, and Not Hispanic or Latino by Race

Universe: Total population

Table P4 – Hispanic or Latino, and Not Hispanic or Latino by Race for the Population 18 Years and Over

Universe: Total population 18 years and over

HISPANIC OR LATINO, AND NOT HISPANIC OR LATINO BY RACE [73]
Universe: <i>Total population</i>
Total:
Hispanic or Latino
Not Hispanic or Latino:
Population of one race:
White alone
Black or African American alone
American Indian and Alaska Native alone
Asian alone
Native Hawaiian and Other Pacific Islander alone
Some Other Race alone
Two or More Races:
Population of two races:
White; Black or African American
White; American Indian and Alaska Native
White; Asian
White; Native Hawaiian and Other Pacific Islander
White; Some Other Race
Black or African American; American Indian and Alaska Native
Black or African American; Asian
Black or African American; Native Hawaiian and Other Pacific Islander
Black or African American; Some Other Race
American Indian and Alaska Native; Asian
American Indian and Alaska Native; Native Hawaiian and Other Pacific Islander
American Indian and Alaska Native; Some Other Race
Asian; Native Hawaiian and Other Pacific Islander
Asian; Some Other Race
Native Hawaiian and Other Pacific Islander; Some Other Race
Population of six races:
White; Black or African American; American Indian and Alaska Native; Asian; Native Hawaiian and Other Pacific Islander; Some Other Race

Redistricting Data Program

P.L. 94-171 Redistricting Data Tabulation Product

Table H1 – Occupancy Status

Universe: Housing Units

- Total
 - Occupied
 - Vacant

Table P5 - Group Quarters Population by Group Quarters Type

Universe: Total Population in Group Quarters

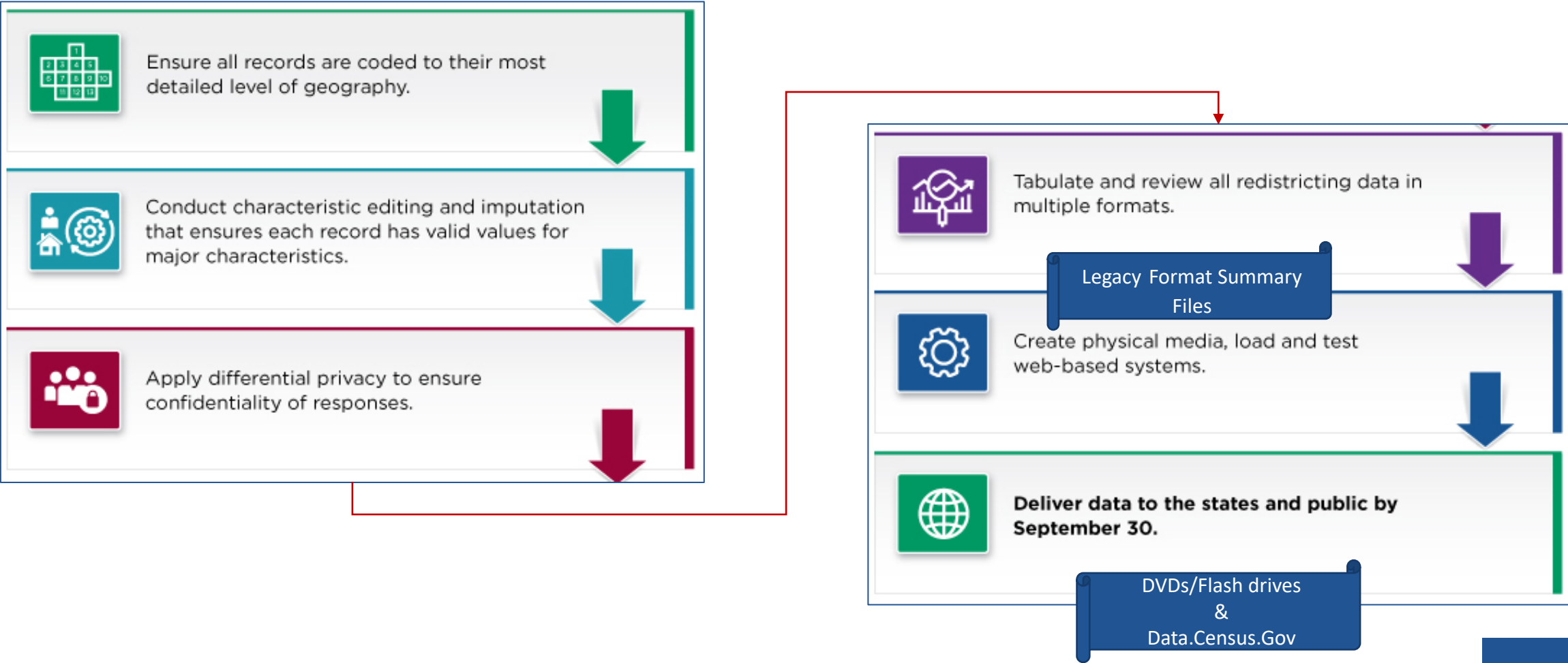
- Total
 - Institutionalized population
 - Correctional facilities for adults
 - Juvenile facilities
 - Nursing facilities/Skilled-nursing facilities
 - Other institutional facilities
 - Noninstitutionalized population
 - College/University student housing
 - Military quarters
 - Other non-institutional facilities



Redistricting Data Delivery

2020 Census Redistricting Data Program

Phase 3 – P.L. 94-171 Redistricting Data Processing



Redistricting Data Program

Public Law 94-171 Previously Used Format Summary Files – August Release

Previously Used Format Summary Files

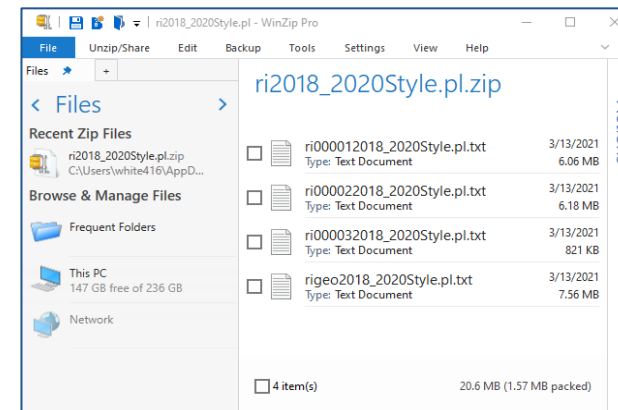
- Product was always part of the 2020 Census product plan
- Format produced and provided to the states since at least Census 2000
- Requires additional handling to properly extract data from this format
- Fully reviewed and cleared for publication by August 16, 2021
- The same data as what will be released in more user-friendly forms by September 30, 2021
 - Used as the source files for the DVD/Flash Drive creation
- Consultations with major software vendors, NCSL, and individual states to ensure they understand the August format

Redistricting Data Program

Public Law 94-171 Previously Used Format Summary Files – August Release

Physical description

- 2020 formatting is four pipe delimited text files per state contained in a single .ZIP file
 - Geoheader – contains all the geographic codes for the geography include in the redistricting dataset
 - Now contains a GEOCODE field so data can be easily joined to geography
 - Data Segment 1 – Table P1: Race & Table P2: Hispanic or Latino, and not Hispanic or Latino by Race
 - Data Segment 2 – Table P3: Race for the Population 18 Years and Over & Table P4: Hispanic or Latino, and not Hispanic or Latino by Race for the Population 18 and Over & Table H1 – Housing Status (Occupancy)
 - Data Segment 3 – Table P5: Group Quarters Population by Group Quarters Type
- The geoheader must be used together with the data segments in order to access the data
- 2010 formatting was different
 - 3 files in total: 1 geoheader and 2 data segments
 - Geoheader was a fixed width format
 - Data segments were comma delimited



Redistricting Data Program

Public Law 94-171 Previously Used Format Summary Files – August Release

Support

- 2020 Census State Redistricting (P.L. 94-171) Summary File Technical Documentation
- Prototype P.L. 94-171 Redistricting Data Summary File
 - Content from the 2018 End-to-End Census Test in Providence County, RI
 - In the format planned for the 2020 Census Previously Used Format Summary Files
 - <https://www.census.gov/programs-surveys/decennial-census/about/rdo/program-management.html#P3>
- Header File – Excel Format
 - Tabs for the header of each file which can be imported into other software or used within Excel
 - Tabs with plain English definition for the headers
- Microsoft Access database shell
 - Tables shells for each file
 - Example queries to demonstrate query logic and provide practice
 - Illustrated step-by-step guide on how to use the Microsoft Access database shell
- SAS & R scripts for import of the Previously Used Format Summary File

Redistricting Data Program

Public Law 94-171 official tools and materials – September Release

The user-friendly tools and materials we intend to deliver in September are the DVDs and Flash Drive and our Data.census.gov Data Explorer platform.

- DVDs and Flash Drives – These are what we deliver to the official recipients with an integrated software browsing tool that allows intuitive browsing of the data. They also contain a custom extraction menu that allows for the extraction of large datasets from the device. Those extractions can then be imported easily into a Geographic Information System or database.
- Data Explorer web tool – The data.census.gov Data Explorer is our online data browsing tool for both the official recipients and the public. Users of the Data Explorer platform can access many different census datasets, including the redistricting data. It has custom filters that allow the user to filter on those geographic and characteristic data for which they are interested. For example, a State could filter the data and easily identify the number of voting-age residents by race or ethnicity in each and every block within a census tract, county, or even for the entire state. They can then view, map, and download these datasets once they have set the filters with their choices.

Redistricting Data Program

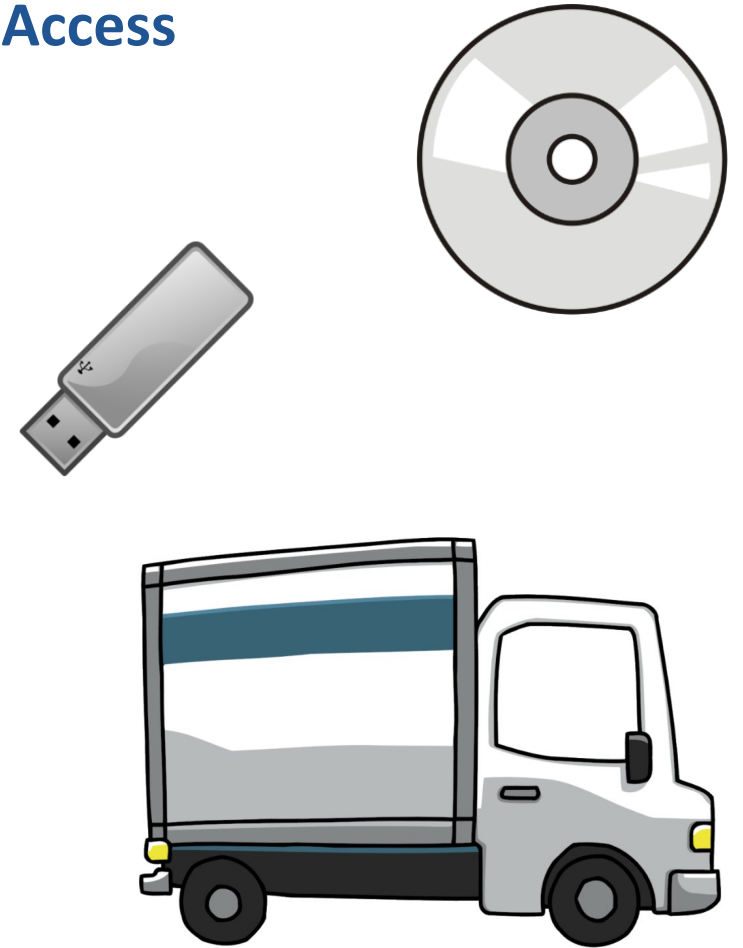
Public Law 94-171 Previously Used Format Summary Files - Access

Previously Used Format Summary Files – by August 16

- Release files to states and public on Public File Transfer Protocol (Public FTP) site by August 16, 2021.

User-Friendly Redistricting Data Files – by September 30

- Provide files to official state recipients on physical media (DVD/Flash Drive) by overnight mail
 - Governors
 - Majority and Minority Legislative Leadership
 - Redistricting Commissions (if established)
 - Non-partisan State Liaisons
- Release to states and public via the Data Explorer web tool <data.census.gov>



Redistricting Data Program

Where to get the data.




WWW.CENSUS.GOV/RDO

Voting Rights Data
(Section 203 & CVAP)

Decennial Census of Population and Housing

About the Decennial Census

- Why a Census?
- History of the Census
- Census in the Constitution
- Decennial and the American Community Survey (ACS)
- Coverage Measurement
- Local Update of Census Addresses Operation (LUCA)
- New Construction Program
- Participant Statistical Areas Program (PSAP)
- Redistricting**
- Voting Rights
- Related Sites
- Information for Respondents
- By Decade



Redistricting Data Program

REDISTRICTING & VOTING RIGHTS DATA OFFICE (RDO@CENSUS.GOV OR 301-763-4039)

MAY 05, 2017
Redistricting Data Program Congressional Districts
Guidance and access to information about congressional districts and congressional district products.

MAY 08, 2017
Redistricting Data Program State Legislative Districts
Guidance and access to information about state legislative districts and state legislative district products.

MAY 08, 2017
Decennial Census P.L. 94-171 Redistricting Data Summary Files
Guidance and documentation to assist in accessing P.L. 94-171 Redistricting Data

Redistricting Data Program Management
Guidance about and for participation in the Redistricting Data Program for the current and past Decennial Censuses.

Prototype Data

Official Data in 2021 Support Products for the Previously Used Format Summary Files

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Thank You

James Whitehorne

Chief - Census Redistricting & Voting Rights Data Office

Email: rdo@census.gov

Phone: 1-301-763-4039

Web: www.census.gov/rdo

For more on redistricting, visit our 2020 Census Redistricting Files [Press Kit](#).

The 2020 Census Disclosure Avoidance System

Michael Hawes

Senior Advisor for Data Access and Privacy
Research and Methodology Directorate
U.S. Census Bureau

July 22, 2021

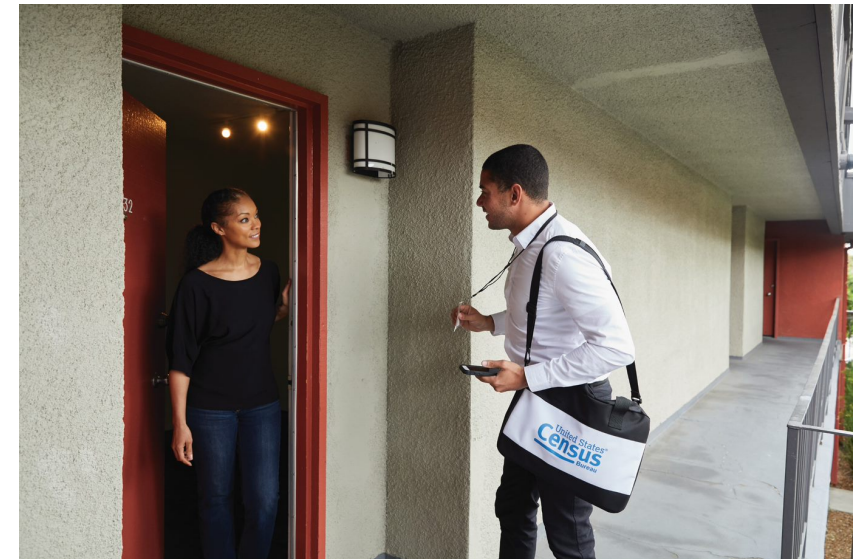
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Our Commitment to Privacy and Confidentiality

Data stewardship is central to the Census Bureau's mission to produce high-quality statistics about the people and economy of the United States.

Our commitment to protect the privacy of our respondents and the confidentiality of their data is both a legal obligation and a core component of our institutional culture.



The Privacy Challenge

Every time you release any statistic calculated from a confidential data source you “leak” a small amount of private information.

If you release too many statistics, too accurately, you will eventually reveal the entire underlying confidential data source.



The Census Bureau's Privacy Protections Over Time

Throughout its history, the Census Bureau has been at the forefront of the design and implementation of statistical methods to safeguard respondent data.

Over the decades, as we have increased the number and detail of the data products we release, so too have we improved the statistical techniques we use to protect those data.



The Growing Privacy Threat

More Data and Faster Computers!

In today's digital age, there has been a proliferation of databases that could potentially be used to attempt to undermine the privacy protections of our statistical data products.

Similarly, today's computers are able to perform complex, large-scale privacy attacks with increasing ease.

These parallel trends represent new threats to our ability to safeguard respondents' data.



Disclosure Avoidance

Disclosure avoidance methods seek to make re-identification of individuals in published data more difficult by:

- Reducing precision
- Removing vulnerable records, or
- Adding uncertainty

Commonly used methods include:

- Complementary suppression
- Rounding
- Top/Bottom coding of extreme values
- Sampling
- Record swapping
- Noise injection

Impact on Data

All statistical techniques to protect privacy impose a tradeoff between the **degree of privacy protection** and the resulting **accuracy of the data**.

Swap rates, noise injection parameters, cell suppression thresholds, etc. determine this tradeoff.



Differential Privacy

DP is not a disclosure avoidance “method” as much as it is a framework for defining and then quantifying privacy protection.

Every individual that is reflected in a particular statistic contributes toward that statistic’s value.

Every statistic that you publish “leaks” a small amount of private information.

DP as a framework allows you to assess each individual’s contribution to the statistic, and to measure (and thus, limit) how much information about them will leak.



Differential Privacy

When combined with noise injection, DP allows you to precisely control the amount of private information leakage in your published statistics.

- Infinitely tunable – parameter “dials” can be set anywhere from perfect privacy to perfect accuracy.
- Privacy guarantee is mathematically provable and future-proof.
- The precise calibration of statistical noise enables optimal data accuracy for any given level of privacy protection.*

*Absent post-processing requirements, which can introduce error independent of that needed to protect privacy.



Working with stakeholders

Over the past two years, the Census Bureau has released five sets of demonstration data products generated by running 2010 Census data through the 2020 Census Disclosure Avoidance System.

This allowed our data users to compare the differentially private results to the results published after the 2010 Census (which were protected using “swapping”).

The feedback and analyses we received have helped us to tune and adjust our algorithms to ensure that the resulting data will meet our data users’ needs.

Production Settings for 2020 Census P.L 94-171 Redistricting Data Summary File

FOR IMMEDIATE RELEASE: WEDNESDAY, JUNE 09, 2021

Census Bureau Sets Key Parameters to Protect Privacy in 2020 Census Results

JUNE 09, 2021

RELEASE NUMBER CB21-CN.42

SUBSCRIBE



JUNE 9, 2021 —The U.S. Census Bureau's [Data Stewardship Executive Policy Committee](#) (DSEP) announced it has selected the settings and parameters for the Disclosure Avoidance System (DAS) for the 2020 Census redistricting data (PL-94-171). The DAS uses a mathematical algorithm to ensure that the privacy of

Stay Informed: Subscribe to the 2020 Census Data Products Newsletter

*Search “Disclosure Avoidance” at
www.census.gov

2020 Census Population Counts for Apportionment are Now Available

[// Census.gov](#) > [2020 Census Research, Operational Plans, and Oversight](#) > [Process](#) > [Disclosure Avoidance Modernization](#) > [2020 Census Data Products Newsletters](#)

 **2020 Census Data Products Newsletters**



 Sign up for news and information about 2020 Census Data Products and the implementation of the new Disclosure Avoidance System.

SIGN-UP FOR NEWSLETTERS

Past Issues:

April 28, 2021
New DAS Update Meets or Exceeds Redistricting Accuracy Targets

April 19, 2021
New Demonstration Data Will Feature Higher Privacy-loss Budget

April 07, 2021
Meeting Redistricting Data Requirements: Accuracy Targets

February 23, 2021
The Road Ahead: Upcoming Disclosure Avoidance System Milestones


February 03, 2021
New DAS Phase: Optimizing Tunable Elements

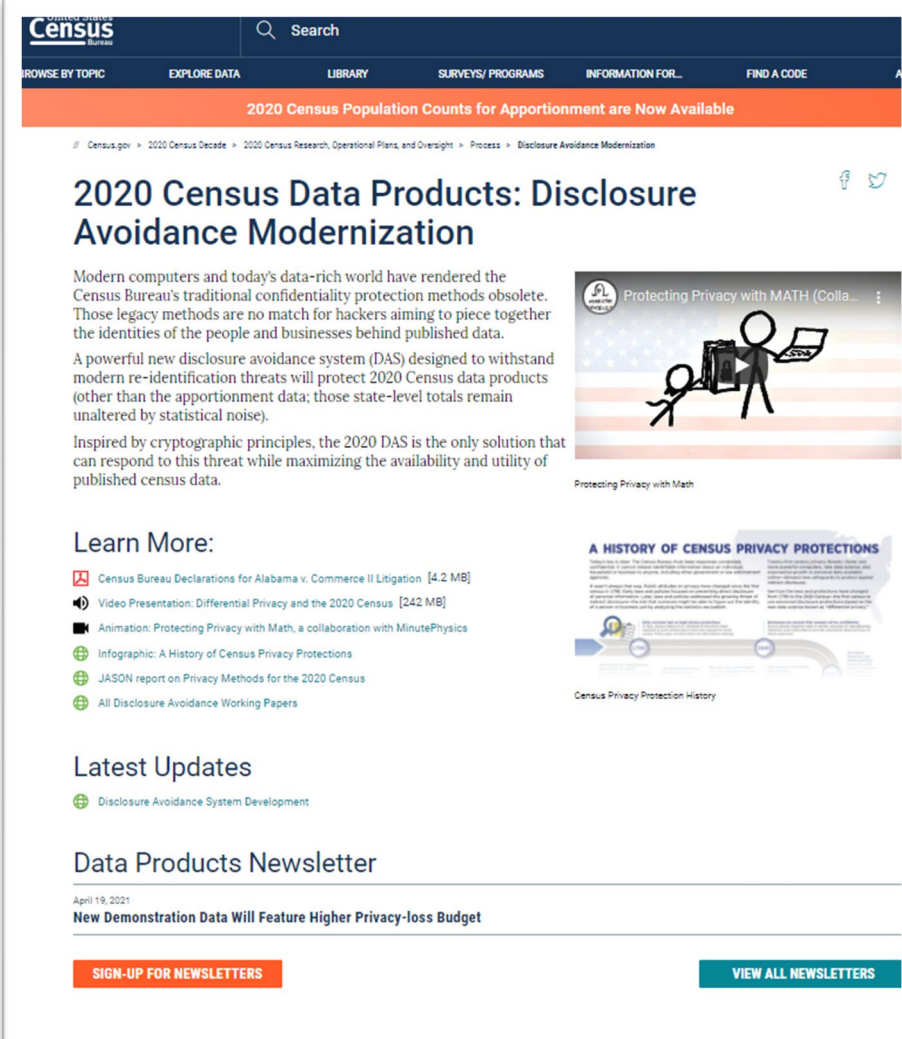
November 25, 2020
Invariants Set for 2020 Census Data Products

Stay Informed: Visit Our Webpage

*Search “Disclosure Avoidance” at
www.census.gov







Latest Updates

 Disclosure Avoidance System Development




The screenshot shows the top of the Census Bureau website with a search bar and navigation links. The main article is titled "2020 Census Data Products: Disclosure Avoidance Modernization". The text explains that modern computers and data-rich environments have made traditional confidentiality methods obsolete, and introduces a new Disclosure Avoidance System (DAS) designed to withstand modern re-identification threats. It mentions that the 2020 DAS is the only solution that can respond to this threat while maximizing the availability and utility of published census data.

Learn More:

-  Census Bureau Declarations for Alabama v. Commerce II Litigation [4.2 MB]
-  Video Presentation: Differential Privacy and the 2020 Census [242 MB]
-  Animation: Protecting Privacy with Math, a collaboration with MinutePhysics
-  Infographic: A History of Census Privacy Protections
-  JASON report on Privacy Methods for the 2020 Census
-  All Disclosure Avoidance Working Papers

Latest Updates

-  Disclosure Avoidance System Development

Data Products Newsletter

April 19, 2021
New Demonstration Data Will Feature Higher Privacy-loss Budget

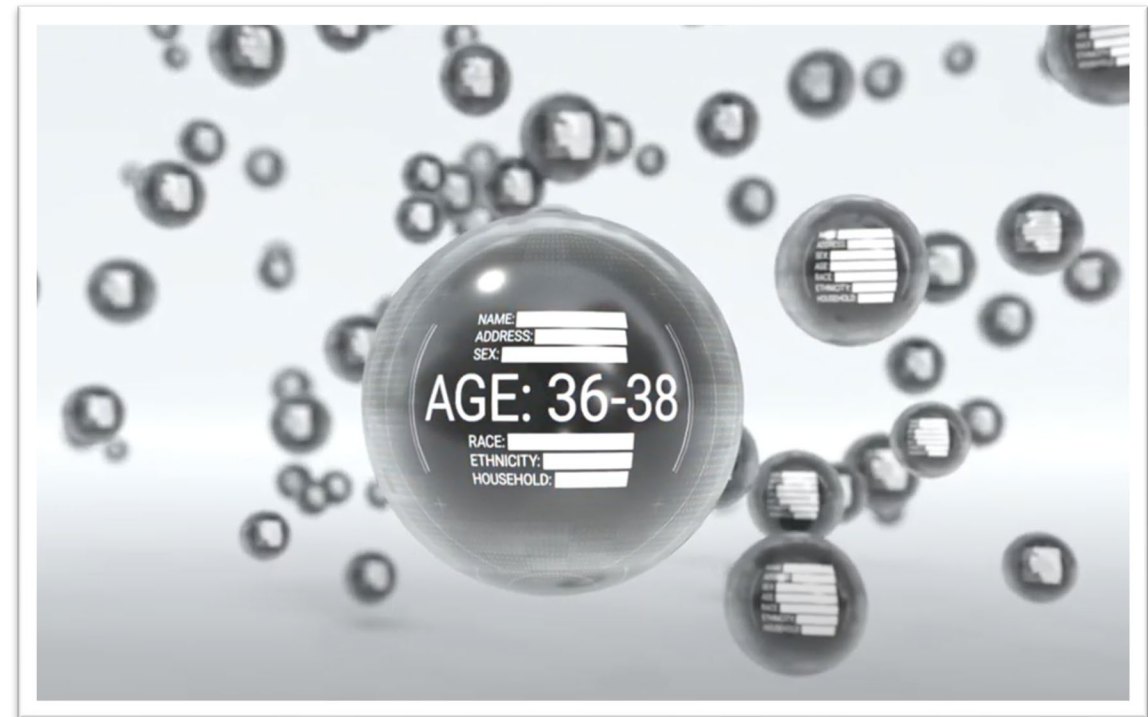
[SIGN-UP FOR NEWSLETTERS](#) [VIEW ALL NEWSLETTERS](#)

**** New Video ****

Protecting Privacy in Census Bureau Statistics

*Find it on our website and YouTube Page

Search “Disclosure Avoidance” at
www.census.gov



Upcoming Webinars

- July 28, 2 pm ET: data.census.gov Q&A Webinar
- July 29, 2 pm ET: Impact of the Pandemic on the American Community Survey
- July 29, 2 pm ET: Census Bureau Data for Emergency Management
- July 29, 2 pm ET: Business Formation Statistics
- Aug. 10, 2 pm ET: Census Bureau Data for Migrant Workers

More to come in August! Visit census.gov for updates.

Q&A