

The APIs of Data.gov

Julia Frankosky

Government Information Librarian, Michigan State University

Help! I'm an Accidental Government Information Librarian

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Learning Outcomes

- At the end of this webinar, you will be able to:
 - Understand and explain what an API is
 - Know how to navigate Data.gov and find APIs
 - Have an understanding as to how you might use APIs in your projects

What is an API?

Formal Definition

- Application Programming Interfaces (APIs) are “a software tool...which performs a particular computational function...APIs act as building blocks allowing software developers to create new applications without having to code every function from scratch.”
- Daniel Chandler and Rod Munday, “Application Programming Interface” in *A Dictionary of Media and Communication* (Oxford University Press, 2011)

In Nontechnical Words

- APIs allow for seamless access and use of information stored elsewhere.
 - Developers do not need to write every piece of code from scratch
 - Data/information does not need to be stored and updated in your own database
 - Makes development of websites, apps, widgets, software, etc. much more efficient

API Creation

- APIs are built with a series of protocols, like SOAP and REST, and are combined with formats like JSON and XML. The combination of protocol and formats create APIs that have the ability to offer a variety of functionality that other developers can use when developing their own interfaces.

How to Use an API

- Using a scripting language like Python or PHP, developers can write commands to access data and information from the API.
- When a good API is developed, the API developer will include documentation for using the API so those who want to take advantage of it aren't having to do a lot of trial and error to get this to work.

Why Use an API?

- No need to download, store, and update data and information in your own database(s)
- The same data and information are available and useable by any developer
- Help create a more seamless user experience by allowing the creation of interrelated systems
- Helps save time since a lot of useful data/information is found in an API, each developer doesn't have to re-write the same code over and over again

Navigating Data.gov

What is Data.gov?

- Data.gov serves as a clearinghouse for locating government datasets and APIs in an attempt to foster a more open government
- By creating APIs for public use of governmental information, agencies and governmental organizations can allow others to spend time and money developing user interfaces (websites, apps, widgets, etc) to access this information

The home of the U.S. Government's open data

Here you will find data, tools, and resources to conduct research, develop web and mobile applications, design data visualizations, and [more](#).

GET STARTED

SEARCH OVER 209,478 DATASETS



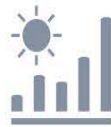
BROWSE TOPICS



Agriculture



Business



Climate



Consumer



Ecosystems



Education



Energy

non-geospatial (89428)

Tags



Clear All

noaa (52771)

u.s. department of ... (50986)

nesdis (50347)

doc/noaa/nesdis/ncei (49728)

national centers fo... (49727)

Show More Tags

Formats



Clear All

adcp (uhdas) (188)

api (665) ←

application/jpg (5428)

application/octet-s... (3738)

application/tif (1866)

application/unknown (308)

application/vnd.goo... (916)

application/vnd.goo... (969)

application/vnd.lot... (3114)

College Scorecard 645 recent views

Department of Education – College Scorecards make it easier for students to search for a college that is a good fit for them. They can use the College Scorecard to find out more about a...

HTML **zipped csv** **CSV** **CSV** **CSV** **CSV** 1 more in dataset



ZIP Code Data 620 recent views

Department of the Treasury – This study provides detailed tabulations of individual income tax return data at the state and ZIP code level.

HTML



Business Identification Numbers Cross-referencing (BINCS) System

464 recent views

Department of Defense – The Business Identification Number Cross-reference System (BINCS) is an all-in-one search engine that identifies foreign and domestic government/commercial...

HTML



Housing Affordability Data System (HADS) 456 recent views

Department of Housing and Urban Development – The Housing Affordability Data System (HADS) is a set of files derived from the 1985 and later national American Housing Survey (AHS) and the 2002 and later Metro...

CSV



Crimes - 2001 to present 452 recent views

City of Chicago – This dataset reflects reported incidents of crime (with the exception of murders where data exists for each victim) that occurred in the City of Chicago from 2001...

CSV **RDF** **JSON** **XML**



665 datasets found

Consumer Complaint Database 1378 recent views

Consumer Financial Protection Bureau – These are complaints we've received about financial products and services.

[CSV](#) [CSV](#) [JSON](#) [XML](#) [api](#)

Federal

Food Access Research Atlas 451 recent views

Department of Agriculture – The Food Access Research Atlas presents a spatial overview of food access indicators for low-income and other census tracts using different measures of supermarket...

[HTML](#) [api](#) [Excel](#)

Federal

Food Environment Atlas 99 recent views

Department of Agriculture – Food environment factors--such as store/restaurant proximity, food prices, food and nutrition assistance programs, and community characteristics--interact to...

[HTML](#) [api](#) [Excel](#)

Federal

CDC WONDER: Mortality - Multiple Cause of Death 80 recent views

U.S. Department of Health & Human Services – The Mortality - Multiple Cause of Death data on CDC WONDER are county-level national mortality and population data spanning the years 1999-2009. Data are based on...

[api](#)

Federal

High School and Beyond 75 recent views

Department of Education – High School and Beyond (HS program data is available since 1980 at <http://nces.ed.gov/pubsearch/getpubcats.asp?sid=022>. HS&B (<http://nces.ed.gov/surveys/hsb/>)...

[api](#) [HTML](#)

Federal

US Forest Service National Forest System Trails 58 recent views

US Forest Service, Department of Agriculture – A map service on the world wide web that depicts National Forest Service trails that have been approved for publication. This service is used internally and...

[ArcGIS Map Service](#) [ArcGIS Map Preview](#) [api](#) [XML](#) [ZIP](#) [ZIP](#) 2 more in dataset

Federal

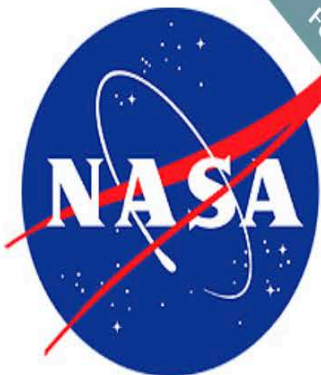
HUD Low and Moderate Income Areas 56 recent views

Department of Housing and Urban Development – This dataset and map service provides information on the U.S. Housing and Urban Development's (HUD) low to moderate income areas. The term Low to Moderate Income,...

Federal

Caveats

- APIs and other data are not actually hosted on Data.gov, Data.gov is just a clearinghouse. This means that the links you click on may potentially not work or might not take you where you expect.
- To use certain APIs (for example Census APIs) you may need to create an account first, request a key or a token.
- Not all APIs have documentation on how to use them, which can make use challenging.



Astronomy Picture of the Day API

📅 Metadata Updated: Nov 25, 2015

This endpoint structures the APOD imagery and associated metadata so that it can be repurposed for other applications. In addition, if the `concept_tags` parameter is set to `True`, then keywords derived from the image explanation are returned. These keywords could be used as auto-generated hashtags for twitter or instagram feeds; but generally help with discoverability of relevant imagery.

🏛️ Publisher

National Aeronautics and Space Administration

✉️ Contact

Jason Duley

🔗 Share on Social Sites

📄 Google+

🐦 Twitter

📘 Facebook

Access & Use Information

🌐 **Public:** This dataset is intended for public access and use.

📄 **License:** U.S. Government Work

Downloads & Resources



Astronomy Picture of the Day API 📈 24 views

This endpoint structures the APOD imagery and associated metadata so that it...

📄 Download



Landing Page

🔗 Visit page

API_KEY_MISSING

No api_key was supplied. Get one at <https://api.nasa.gov>


{NASA APIS}

<open>a p i . N A S A . g o v </data>

Get Started

 NASA DATA PORTAL

 NASA ON GITHUB

 NASA OPEN SOURCE

Welcome to the NASA API portal. The objective of this site is to make NASA data, including imagery, eminently accessible to application developers. The api.nasa.gov catalog is growing.

Getting Started

Most developers getting started with api.nasa.gov wish to leverage NASA data in their applications and services, and this is encouraged! There are also developers that have existing APIs that they may wish to [contribute](#) to the NASA API site. Below describes two paths on how to "use" our APIs as well as "contribute" to our API catalog. First, to get started with using NASA APIs, we recommend [applying for an API key](#), reviewing the [Authentication](#) section, then once ready, dive in to [API calls](#).



Get Your API Key

Sign up your API key to access and use APIs available on both NASA API and api.data.gov developer networks.

* First Name

* Last Name

* Email

How will you use the APIs?
(optional)

Signup

HTTP REQUEST

GET <https://api.nasa.gov/planetary/earth/assets>

QUERY PARAMETERS

Parameter	Type	Default	Description
lat	float	n/a	Latitude
lon	float	n/a	Longitude
begin	YYYY-MM-DD	n/a	beginning of date range
end	YYYY-MM-DD	<i>today</i>	end of date range
api_key	string	DEMO_KEY	api.nasa.gov key for expanded usage

EXAMPLE QUERY

https://api.nasa.gov/planetary/earth/assets?lon=100.75&lat=1.5&begin=2014-02-01&api_key=DEMO_KEY

APIs of Data.gov in Action

Keeping Tabs on USASpending.gov

We've taken data from other federal reporting systems and compared it with just the *grants* data found in USASpending.gov across three categories: Consistency, Completeness and Timeliness. How close are the reported dollar amounts to the yearly estimates? How many of the required fields are filled out in each record? And how long did it take the agency to report the money once it was allocated to a project?

View our **scorecard** to find out.



<http://sunlightfoundation.com/clearspending/>

Congressional Record



TO BUY

Congressional
 Record

BUY SUBSCRIPTION



CONGRESSIONAL RECORD
 (NOVEMBER 19, 2014)

BUY \$0.99

READ SAMPLE



CONGRES
 (NOVEMB

BUY \$

READ SA

Congressional Record

Wednesday, June 22, 2016



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PROCEEDINGS AND DEBATES
OF THE *114th* CONGRESS

Daily Digest



Senate Section

House Section

Extensions of Remarks Section

Entire Issue



SMART TRAVELER



Travel Warnings



Travel Warnings are issued when long-term, protracted conditions make a country dangerous or unstable.

Haiti Travel Warning

Mon, 18 Jul 2016 21:03:00 EST



Turkey Travel Warning

Mon, 18 Jul 2016 09:45:00 EST



Republic of South Sudan Travel Warning

Sun, 10 Jul 2016 16:02:00 EST



Bangladesh Travel Warning

Sun, 10 Jul 2016 07:06:00 EST



Venezuela Travel Warning

Thu, 07 Jul 2016 20:55:00 EST



Iraq Travel Warning

Wed, 06 Jul 2016 16:46:00 EST



Mali Travel Warning

Fri, 01 Jul 2016 21:39:00 EST



Kenya Travel Warning

Thu, 30 Jun 2016 16:23:00 EST



Countries



STEP



Warnings



Alerts



More

So You Want to Use an
API...Now What?



Learn to code interactively, for free.

<https://www.codecademy.com>

Learn To Code

Make a Website

HTML & CSS

Make an Interactive Website

JavaScript

Learn Sass

jQuery

Deploy a Website

PHP

Learn Rails

Python

Ruby on Rails Authentication

Ruby

Learn AngularJS

Learn APIs

Learn the Command Line

Learn SQL

SQL: Table Transformation

SQL: Analyzing Business Metrics

Learn Java

Learn Git

APIs

Learn how to use popular APIs to make your own applications.



Learn how to use Python and the National Highway Traffic Safety Administration's API!

Python

DWOLLA

Learn how to use the Dwolla API!

Python



Learn OAuth2 with the GitHub API!

Ruby

WEPAY

Learn how to use the WePay API!

Python

WEPAY

Learn how to use the WePay API!

Ruby



Learn to use the NPR API.

Python



Learn to use the SendGrid API.

Ruby



Learn how to use the SoundCloud API!

Javascript

w3schools.com

THE WORLD'S LARGEST WEB DEVELOPER SITE

<http://www.w3schools.com>

HTML and CSS

Learn HTML

Learn CSS

Learn W3.CSS

Learn Colors

Learn Bootstrap

Learn How To

HTML Graphics

Learn Canvas

Learn SVG

Learn Icons

Learn Google Maps

JavaScript

Learn JavaScript

Learn jQuery

Learn jQueryMobile

Learn AppML

Learn AngularJS

Learn JSON

Web Building

Web Templates

Web Statistics

Web Certificates

Server Side

Learn SQL

Learn PHP

Learn ASP

Learn ASP.NET

XML Tutorials

Learn XML

Learn XSLT

Learn AJAX



POSTMAN

**Modern software
is built on APIs.**

<https://www.getpostman.com>



Hurl.it — Make HTTP Requests

<https://www.hurl.it>

Questions?

Thank you for attending!

Julia Frankosky
frankosk@msu.edu