Fall 2019 Internship Abstract:

Jenna Horn's work with the Office of the Chief Information Officer

Project Descriptions:

Redesign of api.nasa.gov and data.nasa.gov:

This project involved redesigning the front pages for both api.nasa.gov and data.nasa.gov so that their look was modernized as well as more navigation friendly. I was instructed to utilize the NASA Web Design Service template for format and add in what else we needed.

NASA GitHub Backup and Sensitive Key Check:

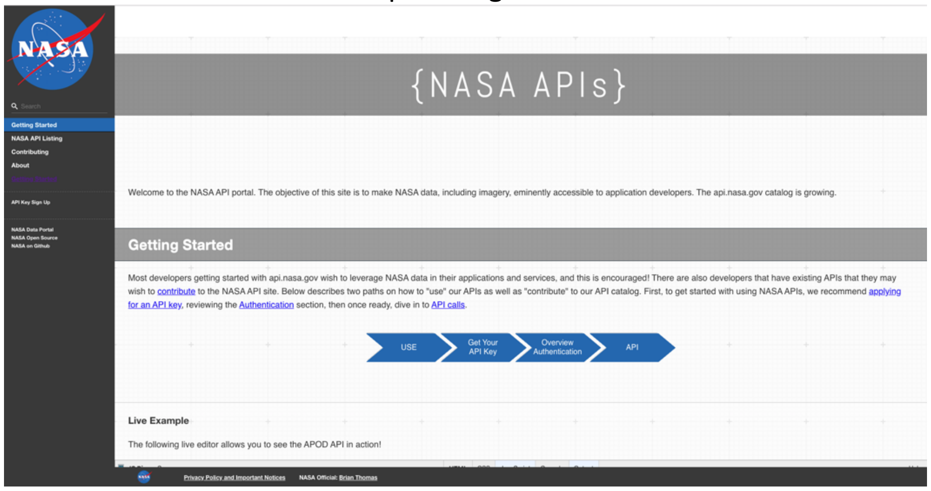
Our office manages NASA's public GitHub organization, and we wanted to implement a backup system in case anything happened to the whole of the org. or if anyone needed to request a backup. We also wanted to be able to check periodically for Key and Password leaks since everything on this GitHub is public facing. We looked into both tasks and ended up converting them into one program.

Project Outcomes:

Redesign of api.nasa.gov and data.nasa.gov:

Note: Normal view is 1080x1920 resolution, Mobile view is iPhone X.

Previous Iteration of api.nasa.gov:



{NASA APIs}

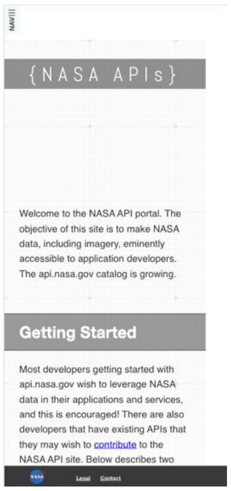
Welcome to the NASA API portal. The objective of this site is to make NASA data, including imagery, eminently accessible to application developers. The api.nasa.gov catalog is growing.

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.

Live Example

The following live editor allows you to see the APOD API in action!



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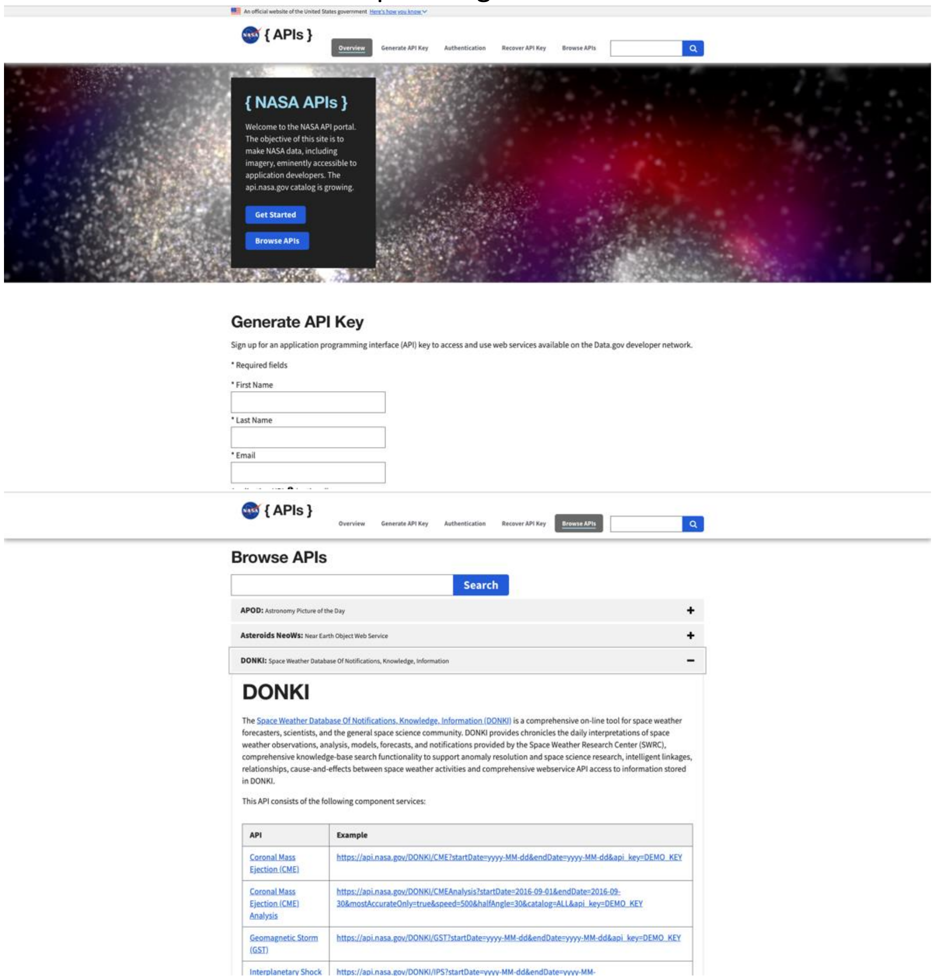

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Generate API Key

Sign up for an application programming interface (API) key to access and use web services available on the Data.gov developer network.

* Required fields

* First Name

* Last Name

* Email

Browse APIs

APOD: Astronomy Picture of the Day +

Asteroids NeoWs: Near Earth Object Web Service +

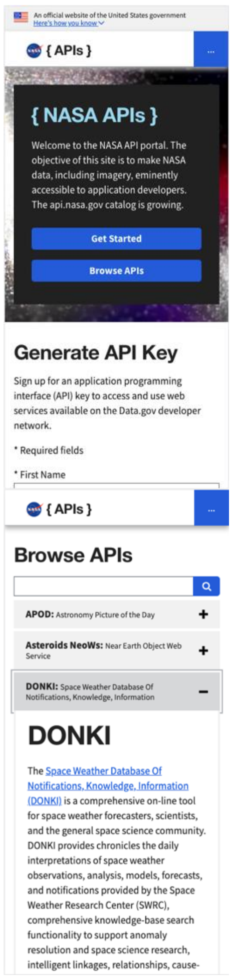
DONKI: Space Weather Database Of Notifications, Knowledge, Information −

DONKI

The Space Weather Database Of Notifications, Knowledge, Information (DONKI) is a comprehensive on-line tool for space weather forecasters, scientists, and the general space science community. DONKI provides chronicles the daily interpretations of space weather observations, analysis, models, forecasts, and notifications provided by the Space Weather Research Center (SWRC), comprehensive knowledge-base search functionality to support anomaly resolution and space science research, intelligent linkages, relationships, cause-and-effects between space weather activities and comprehensive webservice API access to information stored in DONKI.

This API consists of the following component services:

API	Example
Coronal Mass Ejection (CME)	https://api.nasa.gov/DONKI/CME?startDate=yyyy-MM-dd&endDate=yyyy-MM-dd&api_key=DEMO_KEY
Coronal Mass Ejection (CME) Analysis	https://api.nasa.gov/DONKI/CMEAnalysis?startDate=2016-09-01&endDate=2016-09-30&mostAccurateOnly=true&speed=500&halfAngle=30&catalog=ALL&api_key=DEMO_KEY
Geomagnetic Storm (GST)	https://api.nasa.gov/DONKI/GST?startDate=yyyy-MM-dd&endDate=yyyy-MM-dd&api_key=DEMO_KEY
Interplanetary Shock	https://api.nasa.gov/DONKI/IPS?startDate=yyyy-MM-dd&endDate=yyyy-MM-



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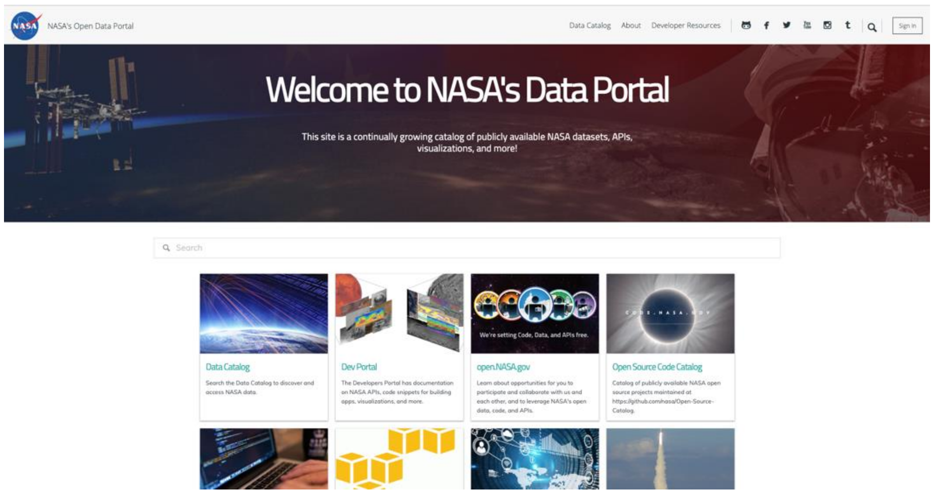
Major improvements over api.nasa.gov's previous iteration consist of:

- Scrollable Header: Header follows the user down the page in case they want to navigate quickly to another section
- Header Search Bar: This bar allows the user to search for either sections on the page OR our API Database. When selected, the search bar takes you to said place on the screen.
- Smooth Scrolling: If you select an item to navigate to or you open an API tab, the page will animate and scroll to the desired location or to the top of the newly opened tab.
- One-Page Navigation: All of api.nasa.gov exists on one html file, so navigating the page is smooth and consistent.

Previous Iteration of data.nasa.gov:



NASA's Open Data Portal

Data Catalog About Developer Resources

Sign In

Welcome to NASA's Data Portal

This site is a continually growing catalog of publicly available NASA datasets, APIs, visualizations, and more!

Search

Data Catalog

Search the Data Catalog to discover and access NASA data.

Dev Portal

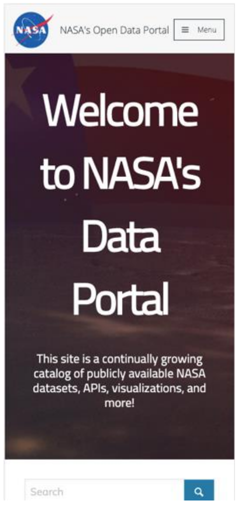
The Developers Portal has documentation on NASA APIs, code snippets for building apps, visualizations, and more.

open.NASA.gov

Learn about opportunities for you to participate and collaborate with us and each other, and to leverage NASA's open data, code, and APIs.

Open Source Code Catalog

Catalog of publicly available NASA open source projects maintained at https://github.com/nasa/Open-Source-Catalog.



NASA's Open Data Portal

Menu

Welcome to NASA's Data Portal

This site is a continually growing catalog of publicly available NASA datasets, APIs, visualizations, and more!

Search

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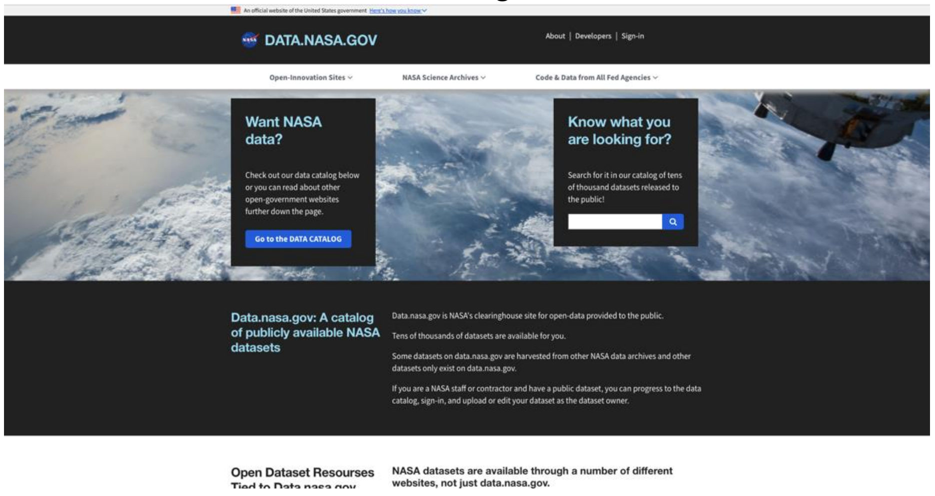


An official website of the United States government Here's how you know

DATA.NASA.GOV

About | Developers | Sign-in

Open-Innovation Sites

NASA Science Archives

Code & Data from All Fed Agencies

Want NASA data?

Check out our data catalog below or you can read about other open-government websites further down the page.

Go to the DATA CATALOG

Know what you are looking for?

Search for it in our catalog of tens of thousand datasets released to the public!

Data.nasa.gov: A catalog of publicly available NASA datasets

Data.nasa.gov is NASA's clearinghouse site for open-data provided to the public.

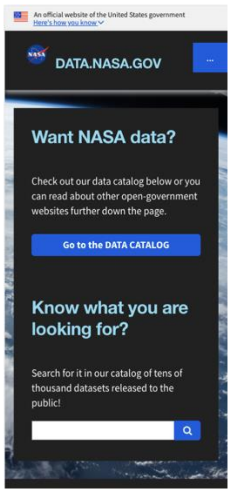
Tens of thousands of datasets are available for you.

Some datasets on data.nasa.gov are harvested from other NASA data archives and other datasets only exist on data.nasa.gov.

If you are a NASA staff or contractor and have a public dataset, you can progress to the data catalog, sign-in, and upload or edit your dataset as the dataset owner.

Open Dataset Resourses Tied to Data.nasa.gov

NASA datasets are available through a number of different websites, not just data.nasa.gov.



An official website of the United States government Here's how you know

DATA.NASA.GOV

Want NASA data?

Check out our data catalog below or you can read about other open-government websites further down the page.

Go to the DATA CATALOG

Know what you are looking for?

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Major improvements over data.nasa.gov's previous iteration consist of:

- Consistent Design with api.nasa.gov: Utilizing NASA's Web Design Service, it's easy to adapt new templates and keep pages looking and behaving similar to each other.
- Clearer Emphasis on Data Catalog: The first two buttons take you to the main data catalog that we host on the site vs before it was mixed in with site links and other catalogs.
- Optional Quick Links in Header: If the user doesn't need our catalog or wants to see our other sites, they can now find them in our header if they do not want to scroll down for details.
- Universal Footer: data.nasa.gov shares the same footer as api.nasa.gov and said footer can be added to future redesigns.

Conclusive Remarks:

This redesign project has helped me hone in CSS skills and shown me little tricks to lessen the burden of JavaScript programing in my future webpages. This project also showed me how to work with another person's CSS file and properly override it where I need to.

NASA GitHub Backup and Sensitive Key Check:

This project consists of 2 bash files that live on an EC2 server that simultaneously backs up NASA's GitHub organization to an S3 bucket and writes a report of potential key and password links.

Program Walkthrough:

Assuming the program has not been run before, the file gitleaks_backup.sh is launched. The program then starts doing these things:

- Gathers the Organization's repos by name and returns how many the program finds.
- Per Repo, the program clones to a temporary file, utilize a library called GitLeaks to find keys and passwords on the file, and backup the temporary file to an S3 bucket.
- Returns any potential leaks with a warning log in the console as well as adds it to a .csv file

If the backup incurs an issue or has to be restarted for any reason, gitleaks_backup.sh can be launched with a number of where to restart at. The program will also automatically end the EC2 instance after it finishes running in order to reduce costs of leaving it on for too long. The key report will have this format:

repo	line	commit	offender	rule	info	tags	severity	commitMsg	author	email	file	date

Using this report, the user can look through and find offenders to whitelist so that the next run does not pick up the false positives that might have triggered the report. To do so, the user fills out a separate .csv with this formatting.

repo	file	regex	reason for whitelist	whitelist type
repo	file	offender	User notes for why key was whitelisted (optional)	"0": regex whitelist "1": file whitelist

To add the new whitelist to the program, the user imports the separate .csv and runs generate_config.sh before the next run of gitleaks_backup.sh.

Benefits:

Utilizing this program saves lots of manpower that would go into a project like this without code. At maximum efficiency, simply downloading all of the repositories would take several hours. Checking through each file for keys would be an entire work day for some of these larger repositories and more than likely stuff would get missed due to human error. With this program, it reduces the work to leaving a computer alone to run the program for however long it needs without supervision or extra input.

Conclusive Remarks:

This project helped me get more familiar with bash programming as well as learning how to use Amazon's Web Services with a console. I have not done any kind of back end work like this before, so it was nice messing around with it and automating console commands.