



# SS2-SSI: The Agave Platform: An Open Science-As-A-Service Cloud Platform for Reproducible Science

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<https://agaveplatform.org>

# Agave Platform

## THE LEADING ALL-IN-ONE SCIENCE-AS-A-SERVICE PLATFORM FOR THE OPEN SCIENCE COMMUNITY

### Manage Data

Agave's hybrid cloud infrastructure allows you to securely manage, move, and share your data on your terms. No installation. No lock-in. Everything you expect from a first class data management platform. It's never been easier to move from campus to cloud and back.

### Run Code

Extend the reach and reproducibility of your existing code through Agave's app catalog. With support for every major HPC, HTC, Cloud, Container, and Big Data environment in use today, Agave can run your code, manage the lifecycle, and give you and your collaborators full control over the entire process.

### Collaborate Meaningfully

Great ideas are not bound to a email, messaging, and shared folders so why should your collaborations be? Add value to your existing processes and the time you spend with students, colleagues, and coworkers by inviting them into every area of your research lifecycle. Agave's standards-based Identity and Access Management allow you to work with your world on your terms.

### Integrate Anywhere

Looking for automation, webhooks, web sockets, or just a way to bring the Internet of Things to your things? Agave's rich notification and event system allow you to run code and take action in response to events you define using the standards that drive the modern web.

SFTP FTP HTTP GridFTP iRODS  
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### Synergistic Discovery and Design Environment

The Synergistic Discovery and Design Environment (SD2E) is the web-based analysis platform for the DARPA SD2 program. Agave's IAM, apps, jobs, data, and event services synergize with the first generation of Agave's spin-off FaaS, Abaco, to enable collaborative analysis, data sharing, and app development backed computing, analytics, and storage capacity spanning multiple HPC and cloud environments.

web: <https://sd2e.org>  
tags: data, serverless, events, apps, jobs, webhooks

### CyVerse

CyVerse is a 15 year investment by the National Science Foundation to design, deploy, and expand a national cyberinfrastructure for life sciences research and train scientists in its use. Agave's federated IAM, apps, and jobs services have allowed their user community to build a catalog of hundreds of publicly available codes free for use by the open science community.

web: <https://cyverse.org>  
tags: apps, jobs, data, iam, platform

### VDJServer + iReceptor

VDJServer and iReceptor are independently funded human immunology portals in the United States and Canada respectively. By leveraging the publication and collaborative features around Agave's data management solutions, the two projects were able to implemented a shared data processing pipeline that leveraged the strengths of both projects.

web: <https://vdjserver.org>  
web: <https://ireceptorgw.irmacs.sfu.ca>  
tags: data, workflow, iam, publication

### DesignSafe

DesignSafe-ci.org is the cyberinfrastructure component of the NSF-supported Natural Hazards Engineering Research Infrastructure (NHERI). Agave's data, metadata, and event services have enabled the project to design a real-time, data-driven decision making environment that includes HPC, Cloud, and physical instrument resources across the country.

web: <https://designsafe-ci.org>  
tags: data, events, integration, sso, iot

## TOOLS AND TECHNOLOGY FOR DEVELOPERS

Agave ToGo is a full featured reference web application that allows you to leverage the data, computation, and collaborative features of the Agave Platform without writing a single line of code.

Agave ToGo Microsites are small, single-purpose web applications designed to service a small to medium sized group of users. Their stripped down interface draws the user's focus to a single, specific task.

The Agave client SDK make it easy to add data management, code execution, collaborative features, and third-party integrations into your application. Officially supported SDK are available in Python, R, Javascript, Java, an PHP. Community provided and autogenerated libraries are available in several other languages

## GET STARTED AT OUR PLACE OR YOURS

### Managed Cloud PaaS

The Agave team operates a hosted instance of the Platform available free of charge for the open science community. Users can leverage the public instance of the Platform for any non-commercial use cases without restriction. For developers and people interested in learning more about what Agave can do for their science, the public platform is an ideal solution.

- or -

### Self-hosted PaaS

Deploy and manage your own instance of the Platform either on-premise or in the cloud using our open-source Ansible playbooks. Additional tooling is available to assist in the Day 2 operation of the platform.

### Kubernetes

Agave can now run entirely within a Kubernetes environment. Take advantage of integrated monitoring and metrics, persistence, messaging, auto scaling, and secure credential management. A single Helm chart will deploy the platform and provide enable full isolation for multitenant deployments.

### Microtenant

For developers and individual projects desiring a self-hosted instance of the platform, a new microtenant deployment is available. Each Agave microtenant delivers full platform functionality with a reduced memory footprint and streamlined installer.

Agave's predecessor, the Foundation API, released by the iPlant Collaborative.

Version 2 of Agave released, 6 new APIs added, usage jumps 10x.

Total number of user contributed apps pass 1000 across all tenants.

Total third party applications pass the 5000 mark.

Docker support added as a first class runtime environment.

First external deployments at Simon Fraser University, CDC, and AWS.

Python SDK released

Agave Microsites released

Agave Training and Data Science Environments for Python released

Agave microtenant released

K8S support released

Usage grows 40% month over month the first 18 months.

Multi-tenancy and API management added, first new tenant launched.

Monthly data movement passes 1 Petabyte a month.

Agave receives \$4M SSI award from National Science Foundation.

Native Jupyter Hub integration released

Agave ToGo released

AngularJS SDK released

Hawaii deploys multiple production tenants.

Univ. of Melbourne deploys Agave tenant for Nectar Cloud

Agave Data Science Environments for R released. R SDK released

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