



**Hosting your project at the
Academy Software
Foundation**

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An Open Source Foundation Developed in Partnership



The Academy Software Foundation provides a neutral forum for open source software developers in the motion picture and broader media industries to share resources and collaborate on technologies for image creation, visual effects, animation and sound.



Why the Academy Software Foundation?



- Legal Framework
- Continuous Integration and Build Infrastructure
- Clear path to accepting contributions (neutral forum)
- Versionitis

ASWF created

August 10, 2018

Founding members:

Animal Logic

Autodesk

Blue Sky Studios

Cisco

DNEG

DreamWorks

Animation

Epic Games

Foundry

Google Cloud

Intel

SideFX

The Walt Disney

Studios

Weta Digital



Scitech
Council
Open source
Investigation
concludes

01

First project

October 23, 2018

OpenVDB

New members:

Sony Pictures

Entertainment

Warner Bros.

Blender Foundation

Visual Effects Society

02

February 8, 2019
OpenColorIO

May 1, 2019
OpenEXR
OpenCue

NVIDIA
ftrack
Red Hat

03

04

Open Source Day 2019

July 29, 2019

OpenTimelineIO

Netflix

Amazon Web Services

Rodeo FX

MovieLabs

05

September 13, 2019
Apple
Microsoft

06

COVID
19

\$1M/
year

Nov

Feb

May

Open Source Days 2020

August 19-20, 2020

Unity Technologies
Conductor Technologies

SMPTE

08

April 16, 2020
Open Shading Language

AMD
DockYard

December 15,
2020

Adobe
ETC

09

10

January 28,
2022

Wevr

11

Open Source Days 2021

August 4-5, 2021

MaterialX

Maxon

Open Source Forum
March 10, 2022

Rez
DPEL
RawtoACES

Open Source Days 2022

August 8-9, 2022

OpenFX
OpenAssetIO
Open Review Initiative

Canonical
Khronos Group

12

13

May

August

Nov

Feb

May

August

Nov

Feb

May

August

Nov

Feb

May

August

2018

2019

2020

2021

2022

Membership

Premier



General



CANONICAL



Associate



ENTERTAINMENT
TECHNOLOGY
CENTER



Our Mission

Increase the *quality* and *quantity* of open source contributions by establishing a *governance model*, a *legal framework* and a *community infrastructure* that lowers the barrier to entry for developing and using open source software.

Our Goals

- Provide a ***neutral forum*** to coordinate cross-project efforts, establish best practices and share resources.
- Develop an open ***continuous integration (CI)*** and build infrastructure to enable reference builds from the community.
- Streamline development for build and runtime environments through the sharing of ***open source build configurations, scripts and recipes***.
- Provide individuals and organizations with a ***clear path for participation*** and code contribution.
- Provide better, ***more consistent licensing*** through a shared licensing template.
- Create working groups for exploration of ***new or larger projects***.
- Focus on ***diversity and inclusion*** and raising the profile of software engineers in our industry.

Our Projects



contributed by:
Dreamworks
Animation



contributed
by:
Lucasfilm



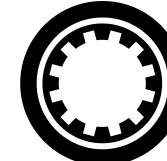
contributed by:
Sony Pictures Imageworks



contributed by:
Pixar Animation
Studios



contributed by:
Open Effects
Association



contributed by:
Google Cloud and
Sony Pictures Imageworks



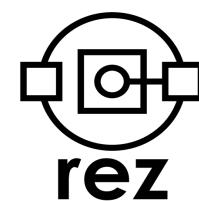
contributed by:
Sony Pictures Imageworks



contributed by:
Foundry



contributed by:
The Academy of Motion
Picture Arts and
Sciences



contributed by:
Allan Johns



created by:
Academy Software
Foundation



contributed by:
Lucasfilm



Digital Production Example Library

created by:
Academy Software
Foundation

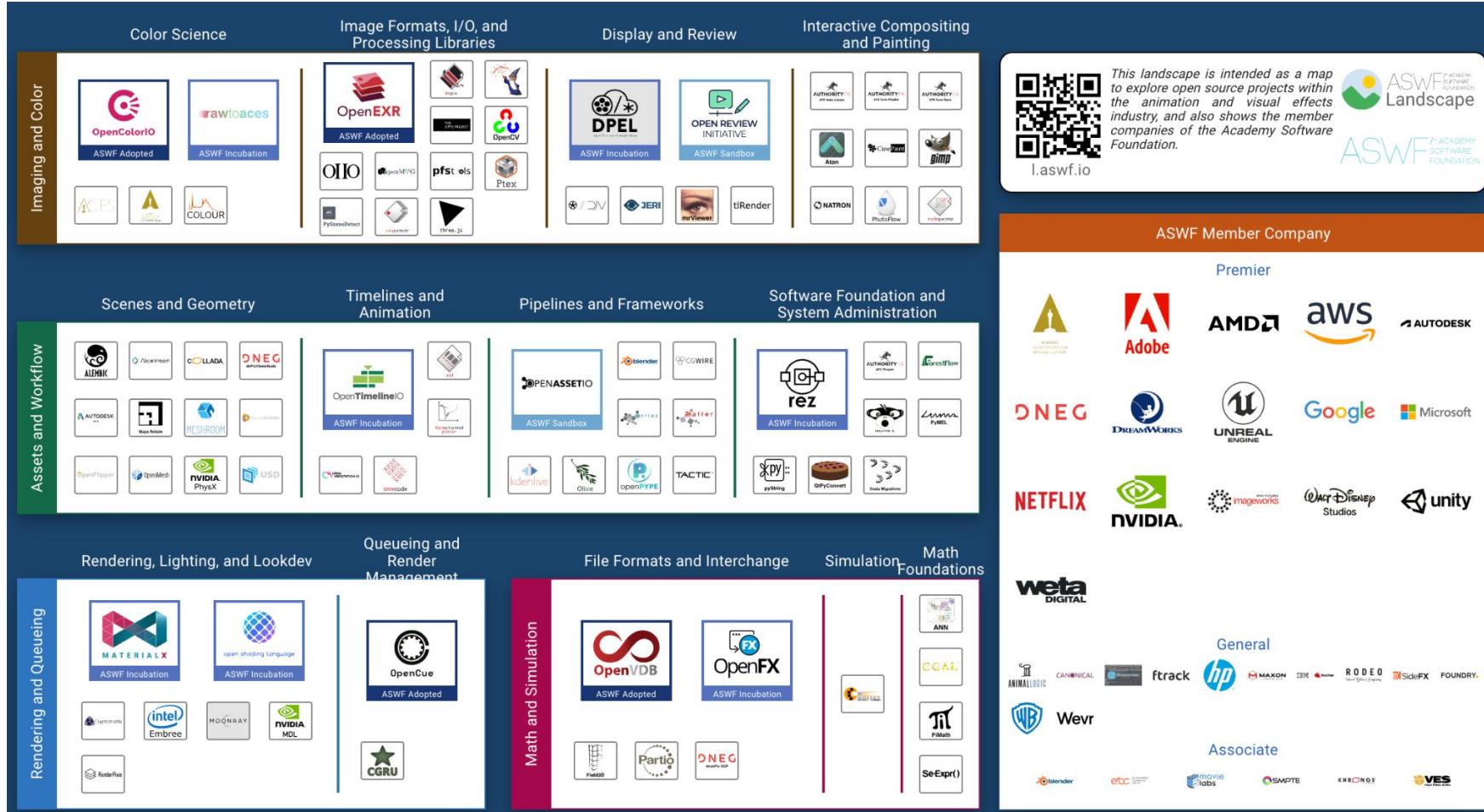
Diversity & Inclusion

Diversity & Inclusion Working Group

“Open source has the power to break down racial, gender, and corporate barriers to unite people around a shared goal...”

Read more at aswf.io/diversity_inclusion.

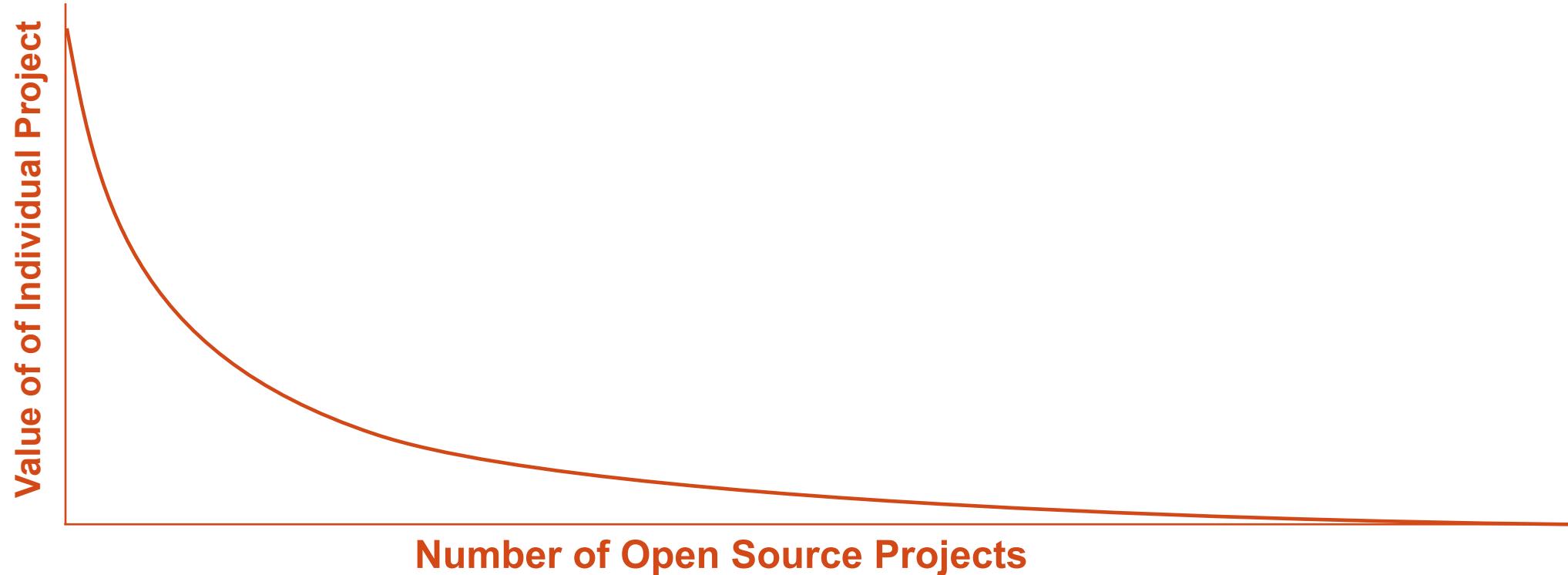
ASWF Landscape



l.aswf.io

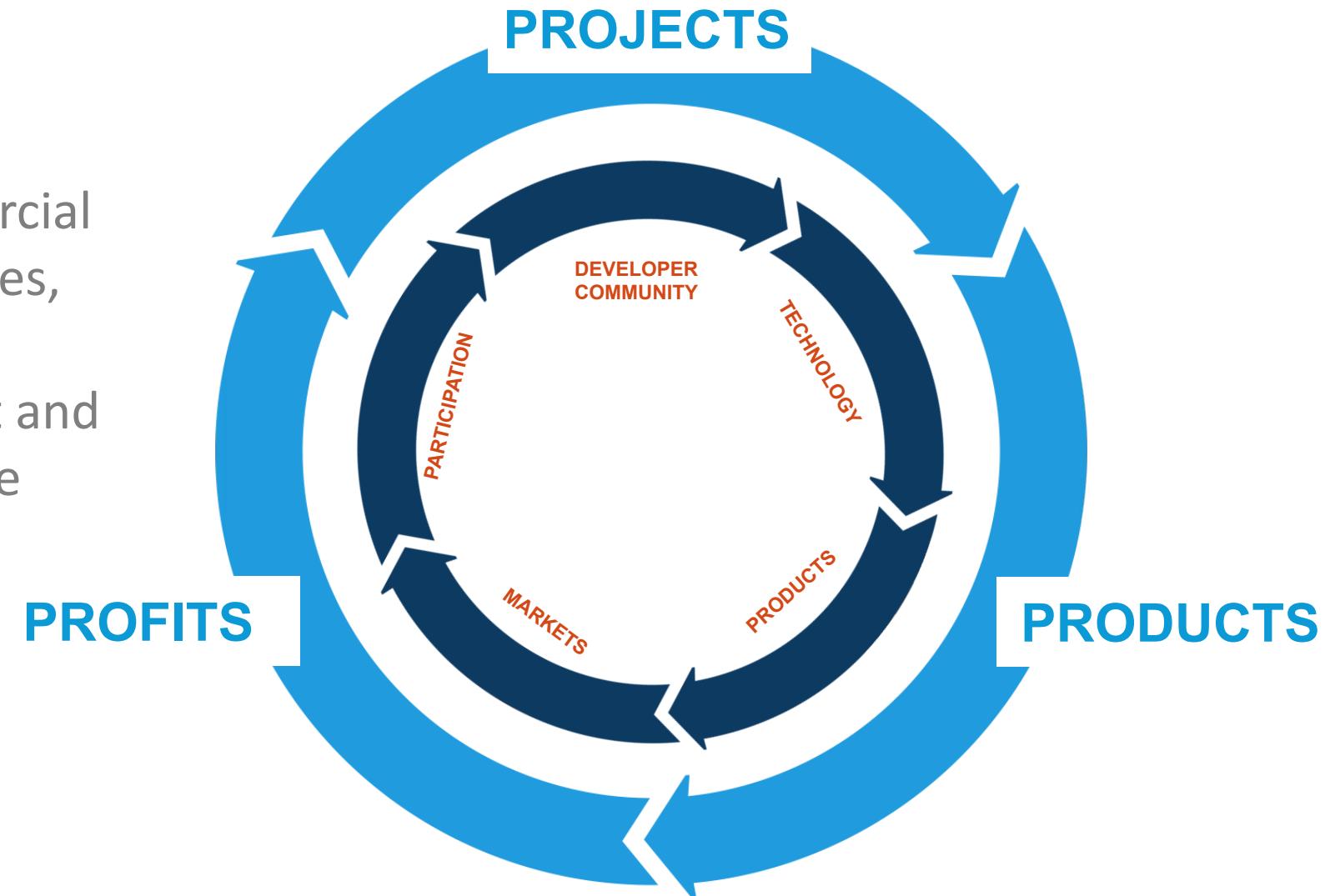
- Public list of open source projects in the animation and VFX industry
 - Updates can be submitted via GitHub
 - Goal is to have all active, open source projects in animation and VFX industries represented.

The Real Question is Which Projects Matter?

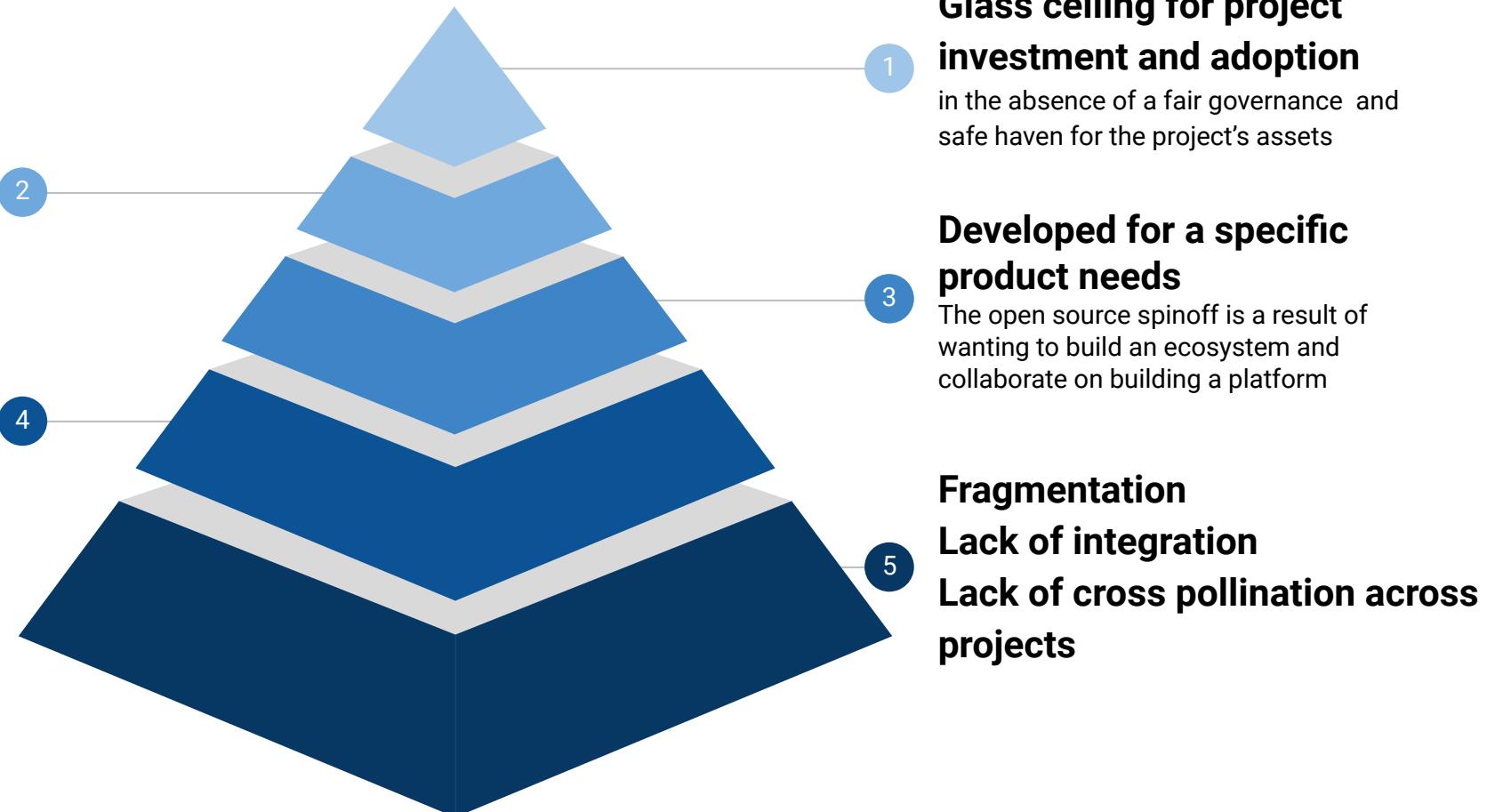


The Answer: Projects With Sustainable Ecosystems

Sustainable projects have a developer community whose technology is used in commercial solutions that profit businesses, who in turn participate and reinvest back into the project and hire developers to work in the community.



Open Source in the motion picture and broader media industries sector challenges



Creating sustainable open source projects requires real work

Governance and Membership	<ul style="list-style-type: none">• Incorporation, Tax status, Bylaws, Member Agreements, Antitrust, etc.• Ongoing business development and membership recruitment
Development Process	<ul style="list-style-type: none">• Technical Decision Making• Project Life Cycle• Release Process
Infrastructure	<ul style="list-style-type: none">• Custom infrastructure using open source best practices• Security and reliability
Ecosystem Development	<ul style="list-style-type: none">• Marketing• Events• Training
IP Management	<ul style="list-style-type: none">• Code Provenance and License compliance• Trademark management• Legal defense and Collaboration



What do Academy Software
Foundation projects look like?



The Croods; courtesy of DreamWorks Animation

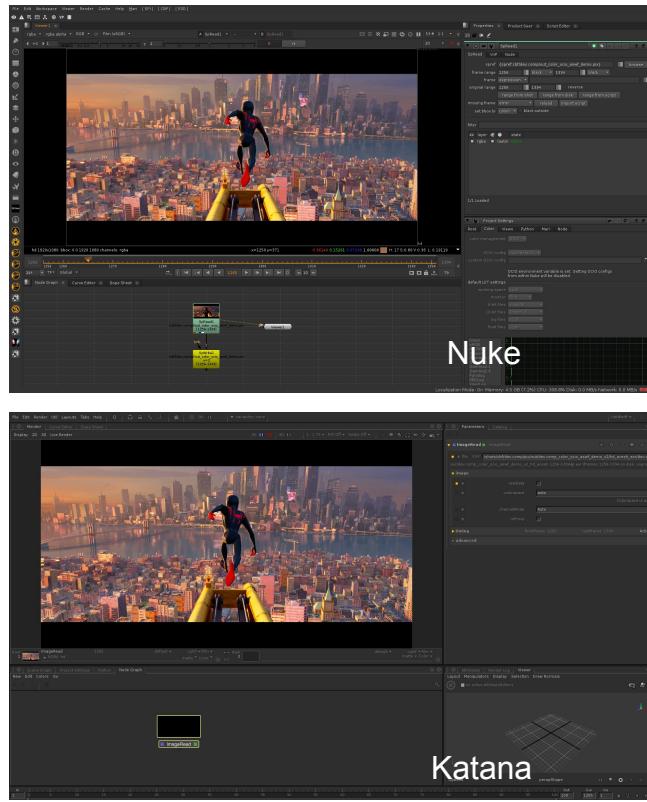


How to Train Your Dragon: The Hidden World; courtesy of DreamWorks Animation



openvdb.org

- First project adopted by ASWF in Sept. 2018; first project to graduate to adopted status in July 2019.
- Developed by DreamWorks Animation in 2012.
- C++ library for volumetric representations including fluid simulations, animated volumes and environmental effects.
- Academy Technical Achievement Award recipient.
- Key contributors include DreamWorks, Autodesk, DNEG, Industrial Light & Magic, NVIDIA, SideFX, Weta Digital.




OpenColorIO

opencolorio.org

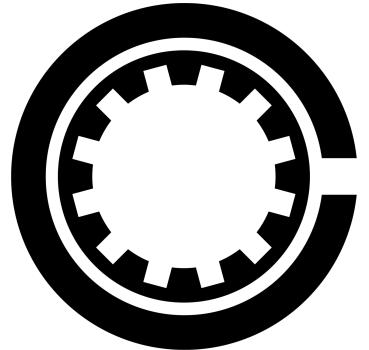


Spider-Man™: Into the Spider-Verse; all images courtesy of Imageworks

- Joined ASWF in Feb. 2019; adopted status in Nov. 2019.
- Developed by Sony Pictures Imageworks in 2003.
- Provides a consistent user experience across digital content creation applications; widely adopted in VFX and computer animation studios and software.
- Academy Technical Achievement Award recipient.
- Key contributors include Imageworks, Autodesk, DNEG, ILM, Foundry, Framestore.
- OCIO v2 released fall 2020, led by Autodesk.

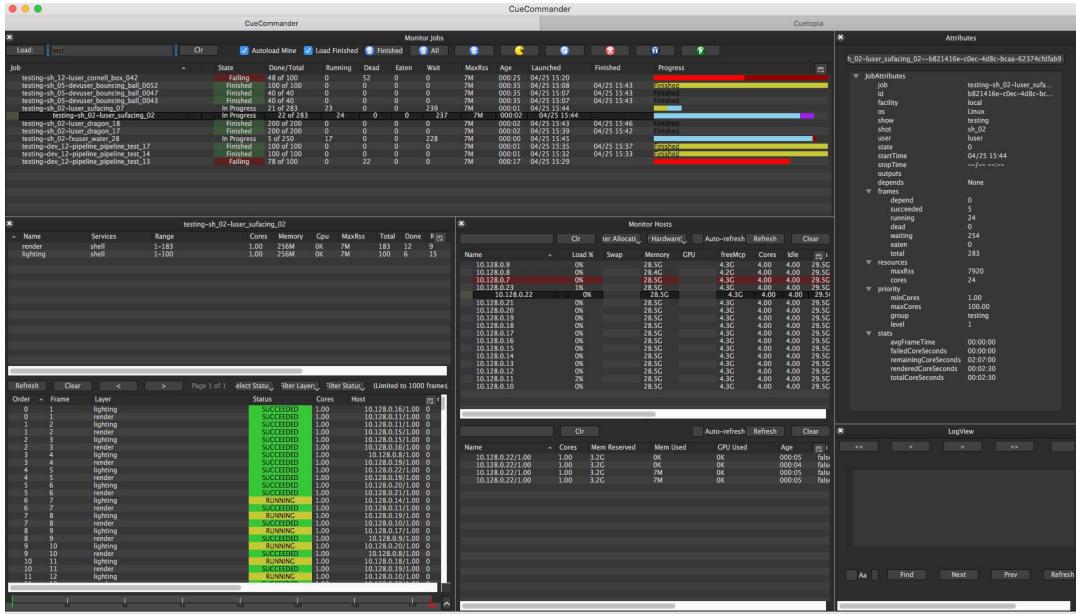


Smurfs: The Lost Village; courtesy of Sony Pictures Imageworks



OpenCue

opencue.io

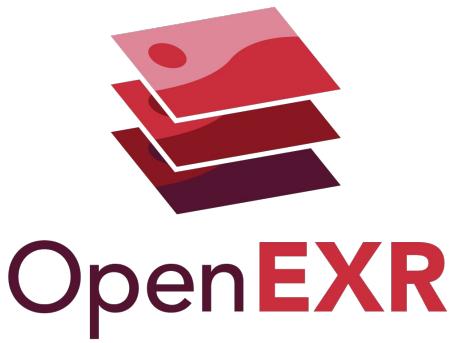


OpenCue screenshot

- Joined ASWF in April 2019.
- Developed at Sony Pictures Imageworks as its internal render farm manager (“Cue3”); collaboration with Google Cloud to release as OpenCue in January 2019.
- Fully featured render manager for media and entertainment that can be used to break down complex jobs into individual tasks.
- Contributors include Imageworks, Google, Netflix, Microsoft, Amazon.
- Monthly releases over the past year, including adding Python 3 compatibility, Windows support, new documentation.



Images from *Solo: A Star Wars Story*. © and TM Lucasfilm Ltd. All Rights Reserved.



openexr.org

- Joined ASWF in April 2019; adopted status in Nov. 2019.
- Developed by ILM in 1999; first release of a major open source project by a studio.
- High dynamic-range (HDR) image file format for high-quality image processing and storage; widely adopted standard in computer graphics.
- Academy Technical Achievement Award recipient.
- Key contributors include ILM, Disney Animation, Imageworks, Epic Games, Weta Digital, Pixar, Autodesk, and DreamWorks.
- OpenEXR 3.0 just released.



Image courtesy of Pixar Animation Studios.

OpenTimelineIO used on Coco
for transitions and linking
media to the latest renders.



OpenTimelineIO

opentimeline.io

- Joined ASWF in July 2019.
- Developed by Pixar Animation Studios.
- Open source interchange format for editorial timeline information – clips, timing, tracks, transitions, metadata etc.
- Key contributors include Pixar, Netflix, DreamWorks, Autodesk.
- In Public Beta



The Angry Birds Movie 2; courtesy of Imageworks



Spider-Man: Far From Home; courtesy of Imageworks



open shading language

openshadinglanguage.org

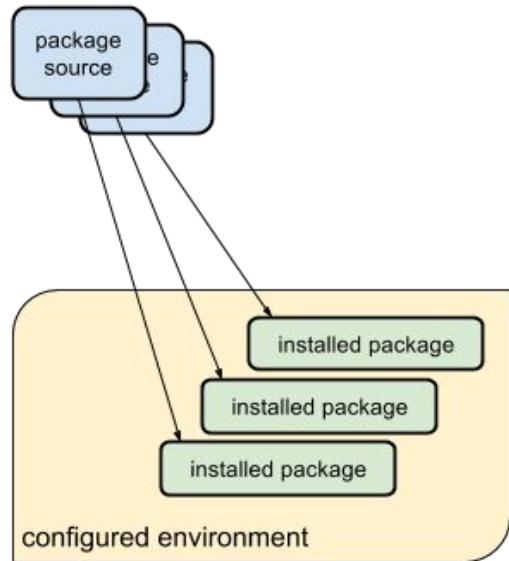
- Joined ASWF in April 2020.
- Developed by Sony Pictures Imageworks; released as open source in 2010.
- De facto standard shading language for VFX and animation, ideal for describing materials, lights, displacement, and pattern generation.
- Academy Technical Achievement Award recipient.
- Key contributors include Imageworks, Animal Logic, NVIDIA, Pixar, DNEG, Autodesk.

ILM Production tests using MaterialX

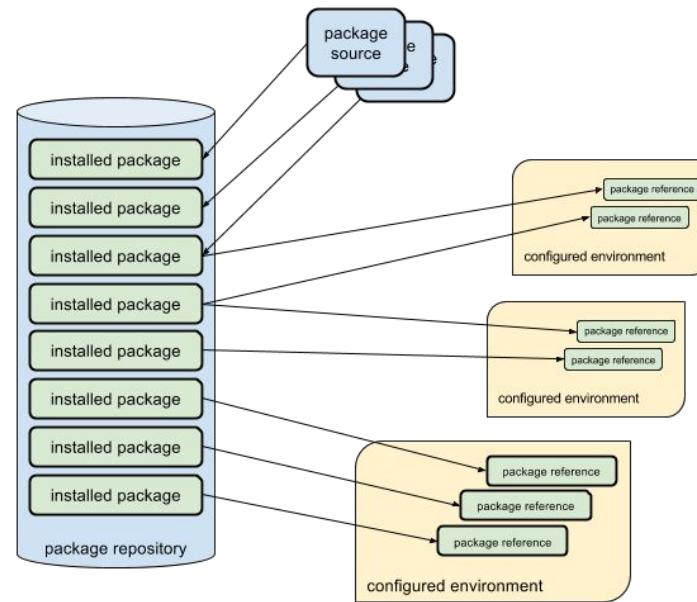


materialx.org

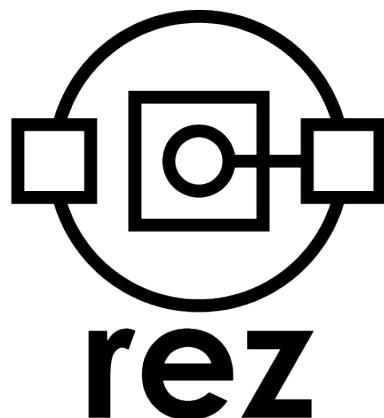
- Joined ASWF in March 2021.
- Open standard for representing rich material and look-development content in computer graphics, enabling its platform-independent description and exchange across applications and renderers.
- Launched at Industrial Light & Magic in 2012, MaterialX has been a key technology in their feature films and real-time experiences since Star Wars: The Force Awakens and Millennium Falcon: Smugglers Run.
- Key contributors include Sony Pictures Imageworks, Pixar, Autodesk, Adobe, and SideFX.



Typical package managers
install packages into an
environment

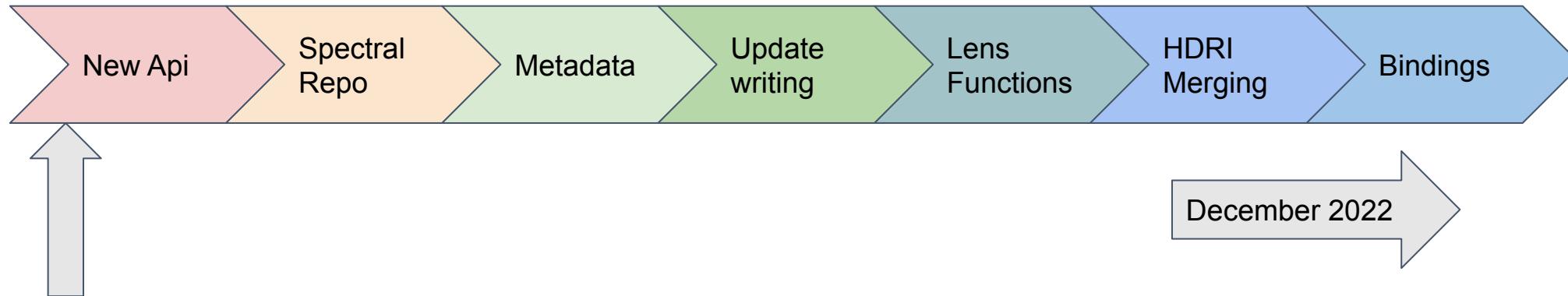


Rez installs packages once,
and configures environments
dynamically



rez-project.io

- Joined ASWF in February 2022.
- Developed by Allan Johns of Method Studios.
- Cross-platform package manager that leverages a central repository for storing packages instead of installing into each environment separately, reducing the time to create complex environments to just a few seconds.
- Key contributors include Luma Pictures, Method Studios, NVIDIA, and Shotgrid



rawtoaces

rawtoaces.org

- Joined ASWF in January 2021.
- Software package that converts digital camera raw files to ACES container files containing image data encoded according to the Academy Color Encoding Specification (ACES) as specified in SMPTE 2065-1.
- Key contributors include AMPAS and Weta Digital



OpenFX Overlay Draw Suite

Industry-wide common interface between image-based visual effects plugins and host applications, used by *Autodesk Flame*, *Foundry Nuke*, *Blackmagic Design DaVinci Resolve* and *Fusion*, *Sony Catalyst* and *MAGIX Vegas Pro*, *Assimilate Scratch*, *Filmlight Baselight*, *Boris FX Sapphire* and *Silhouette*, *RE:Vision Effects* and more.

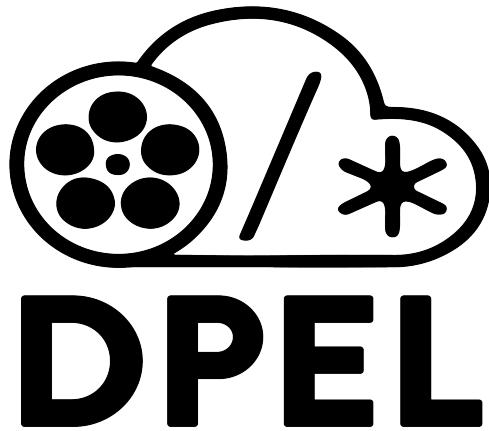
Open, extensible C API currently version 1.4 with version 1.5 in development. Want to find out more or contribute?

OpenFX

openeffects.org



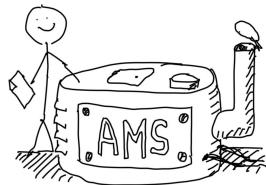
Launching with ASC Standard Evaluation Material II (StEM2), Animal Logic's ALab Phase 2, Intel's Volumetric Clouds Library and AWS character Noa.



Digital Production Example Library

dpel.aswf.io

Providing a vendor-neutral hosting platform and a uniform license agreement, to encourage, curate and publish *production-grade sample assets* for developers, researchers and educators, Digital Production Example Library is the conclusion of an Academy Software Foundation working group on assets



ftrack



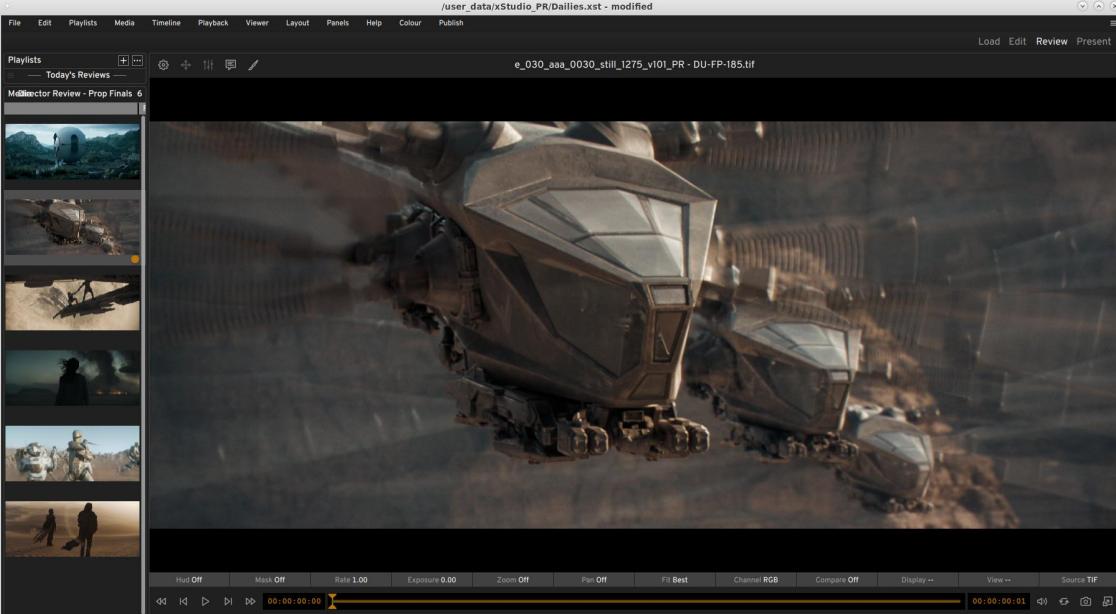
OPENASSETIO

openassetio.org



OpenAssetIO is an early stage open source interoperability standard between tools and asset management systems, *developed by Foundry* with proofs of concept and design input from 15 companies including *DNEG, Pixar, Amazon Web Services, Animal Logic, Blizzard, and Blender.*

OpenAssetIO was the first project to join the Academy Software Foundation in sandbox stage.



DNEG's xSTUDIO



openreviewinitiative.org



Autodesk's RV Player

A new open source project with the mission to build a unified toolset for *playback, review and approval* of motion picture and related professional media, with *Autodesk contributing RV, Dneg contributing xSTUDIO, Imageworks contributing parts of itView*, and the three companies providing lead architects and maintainers for the project Technical Steering Committee.



Why host your project at the
Academy Software Foundation?

Question: Value of a Foundation?

There have been times when projects have asked what the value of an open source foundation can offer them?

A basic premise behind the LF, and open source in general, is that most interactions are positive-sum. There is no fixed amount of investment, mindshare, or development contributions that is allocated to specific projects. Just as open source development is based on the idea that, collectively, we are smarter than any one of us, open source foundations work to make the entire community better off. **Equally important, a neutral home for a project and community fosters this type of positive-sum thinking and drives growth and diversity that we believe are core elements of a successful open source project.**

It's more than putting a project on GitHub

Organizations and projects come to the Academy Software Foundation to...

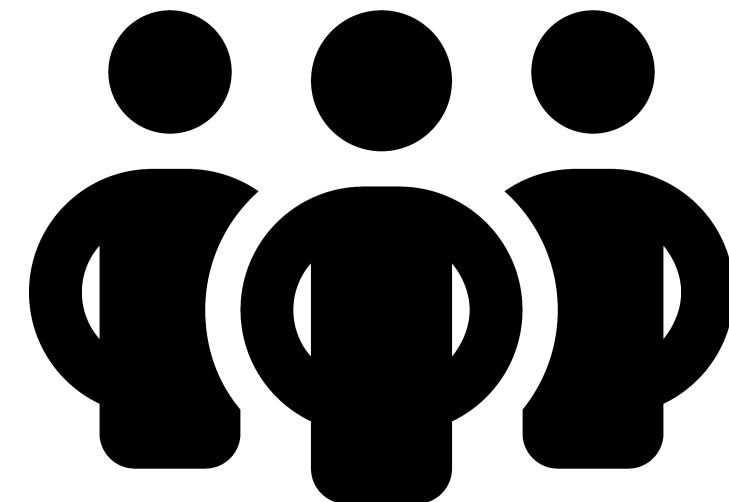
- Have a vendor-neutral home for the project and assets.
- Bring in contributors from different organizations (including your competitors)
- Drive broad industry awareness with press and analysts.
- Build a downstream ecosystem for open and commercial solutions.
- Have world-class tools for measuring project insights and success.
- Leverage the collective experience and expertise of the Linux Foundation.

How does the Academy Software Foundation enable this?

Vendor-neutrality provides a sustainable home

Groundbreaking and game-changing projects are a collective effort across organizations. Hosting at the Academy Software Foundation ensures a project has a reputable legal home and governance to attract contributors and adoption.

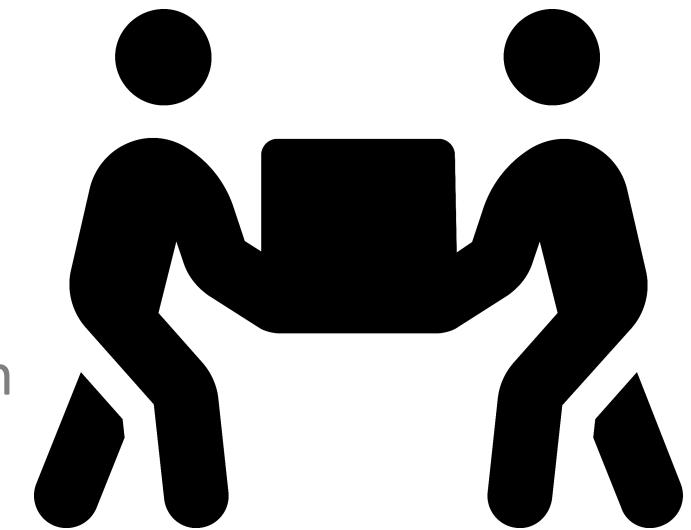
- All projects are set up as 501c6 Series LLC legal entities, giving the project a non-profit status and giving them the autonomy to set their own policies and processes with expert guidance.
- Infrastructure such as mailing lists, websites, and domain names are owned by the project to ensure neutral management.
- [Academy Software Foundation TAC project lifecycle](#) gives the project guidance on how to establish a sustainable project.



Bring in a broader contributor base

Shared R&D with a broad ecosystem means bringing more contributors and maintainers into your project - including your competitors.

- Our staff works with the project to establish an open, neutral governance that makes roles clear and paths to leadership available.
- All projects have a Code of Conduct to ensure collaboration is done in safe and welcoming environment for all.
- Outreach done through the Academy Software Foundation is done from a neutral perspective, which separates out product promotion and vendor favoritism and promotes the work of the community.



Drive broad industry awareness with press and analysts

Through our large audience, extensive media outreach, and with key partnership with publications such as [Linux.com](#) and [TFiR](#) your project will get broad exposure in energy, tech, and open source.

- Your project will be featured on both the [Academy Software Foundation website](#) and [Linux Foundation website](#).
- Always available guest blog post(s) on the [Academy Software Foundation blog](#) on project updates.
- Post one technical article about an open source project you care about to [Linux.com](#), which has over 1 million unique visitors per month.
- Support of your announcements with social outreach and quotes from Linux Foundation and/or Academy Software Foundation leadership as appropriate.
- Access to opportunities for contributed articles, videos, podcasts, and events



1800+
followers



1700+
followers

Build a downstream ecosystem for open and commercial solutions

Sustainable projects are those the industry adopts and drive economic value with. Doing this at Academy Software Foundation takes advantage of the expertise in building these programs.

- Conformance programs with community requirements that are managed by the Academy Software Foundation Projects
- Training and certification programs through LF Training
- Badging using Credly to recognize individuals
- Events for the community to connect and collaborate.



Training & Certification



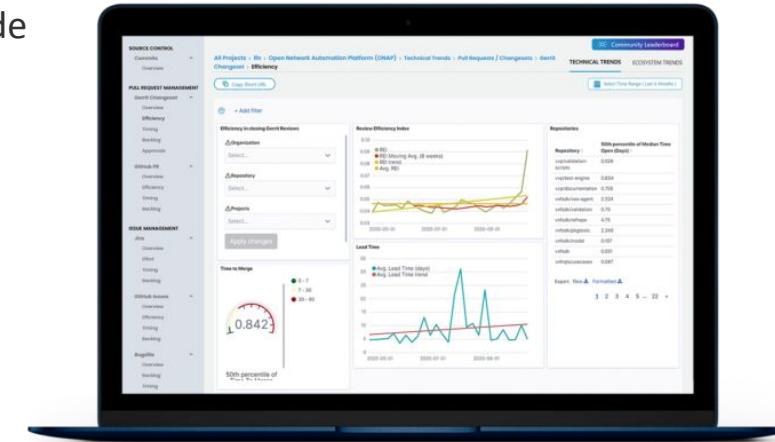
World class tools with LFX

LFX Insights is an analytics tool that is provided to all open source projects hosted by the Linux Foundation. Its capabilities include:

- Getting the visibility you need to remove bottlenecks at any stage of your project's code pipeline. Drill down into performance metrics across every step in the development lifecycle to identify where you should be focusing your resources.
- Ensuring the health and viability of the open source projects you care about. Leverage data to help validate projects for investment, and track the activity and growth of projects your organization is already involved in.
- Showcasing your organization's leadership and subject matter expertise in the open source community. Leverage affiliations to measure the impact of your employees' contributions and capture the full picture of your team's impact

LFX Security is a tool for managing security for your project. It's capabilities include:

- Monitoring of your entire project for potential vulnerabilities with an aggregated project-level view of your entire software sandwich across source control systems and repositories, with the ability to remediate the found issues.
- Identifying non-inclusive language and code secrets in your project to prevent embarrassing situations.



LFX | Insights

LFX | Security

Leverage the collective experience and expertise of the Linux Foundation

Academy Software Foundation staff collective have decades of experience in driving open source projects and ecosystems in a variety of vertical and horizontal industries, bringing the best practices to your project

- Press relations and analyst relations teams to increase awareness of and excitement about your project, and receive regular reports on press mentions and comparisons to similar projects.
- Academy Software Foundation is able to leverage the expertise of its parent organization, The Linux Foundation, which hosts other successful projects including the Linux kernel, Let's Encrypt, and Node.js.
- You will have access to full-time Academy Software Foundation staff who are eager to assist your project in myriad ways and help make it successful

Bringing your project here

Anna Karenina Principle of Open Source

- › https://en.wikipedia.org/wiki/Anna_Karenina_principle
- › All happy open source projects are alike; each unhappy open source project is unhappy in its own way...
- › The “LF Way” is that there is no one way...
- › The LF assumes that each open source project is unhappy/different in its own way and that leads to building a unique governance and solution to sustain their communities...

Basic requirements for hosting a project at Academy Software Foundation

The project must:

- use an approved OSI open source license;
- be supported by a [TAC member](#);
- allow neutral ownership of project assets such as a trademark, domain or GitHub account (the community can define rules and manage them);
- technical do-ocracy and separation of business governance from technical governance (we're flexible on the model) clearly documented in a charter;
- allow anyone to participate in the technical community, whether or not a financial member or supporter of the project

Often projects are new open source project, but that isn't a requirement - existing projects are welcome!

Project Preparation Checklist

- Prepare draft mission and scope statement
- Identify internal teams within mission and scope
- Identify developers internally
- Analyze code for identification of licenses, license quality and project dependencies
- Assess potential universe of project participants
- Identify ecosystem constituents and concerns of each
- Identify any trademarks leveraged by the project (these will be owned by the LF neutrally)
- Outline infrastructure, marketing any other requirements needed for the project
- Complete the [project proposal](#) and submit to the TAC for consideration

The Academy Software Foundation staff is happy to engage and advise during this process - let us know how we can help!

Project Trademarks

- › Our project communities control the name of the project, not any one member or company contributor
- › In order to provide for neutral ownership of project assets, we require that The Linux Foundation entities own the trademarks leveraged by the project.
- › In the event that a trademark is already in use by the sponsoring organization, we recommend that the project create a new name to operate under or the owner assign the interest in the mark to The Linux Foundation.
- › See <http://fossmarks.org> for an education on trademarks in open source

How to contribute

 Search Academy Software Foundation

Need help or have a question? Contact us here

Contribute to an existing project:

- Submit a PR with a bugfix or new feature
- Pick existing GitHub issue as a sample project
- Integrate with a new app / contribute plugin
- Help improve project documentation
- Submit additional test cases
- Join the TSC discussion: dev mailing list, conf calls

Get involved with the TAC or Working Group:

- DevOps / CI expertise always useful
- Interest / expertise in security especially welcome
- Join the TAC discussions: mailing list, conf calls, working groups

More information at tac.aswf.io/engagement

Getting Involved in Projects

All of the projects hosted at the Academy Software Foundation are open and transparent, and welcome participation from anyone interested in the technology areas. Each project publishes their governance processes within their project repo (typically in the README.md file or in a GOVERNANCE.md file within the primary project repo or TSC repo) on roles within the community and how decision making is made.

TAC Meetings

Learn more about joining the public meetings of the Technical Advisory Council (TAC) on [the Meetings page](#)

Mailing Lists and Slack channels for hosted projects

Each project hosted at the Academy Software Foundation collaborates on open channels that are welcome for anyone in the community to participate in. See the below list of channels for each project.

All Slack channels referenced below are part of the [Academy Software Foundation Slack organization](#) unless otherwise noted.



Website: <https://opencolorio.org/>
Dev Mailing List: <https://lists.aswf.io/g/ocio-dev>
User Mailing List: <https://lists.aswf.io/g/ocio-user>
Slack: slack.opencolorio.org
Leads: Carol Payne - Imaging Technologist at Netflix, Inc



Website: <https://www.openexr.org/>

Join the Discussion

Mailing Lists for ASWF projects: lists.aswf.io

Join as a member: aswf.io/join

Slack: slack.aswf.io

Github: github.com/AcademySoftwareFoundation

Behind the Screens: bit.ly/BehindtheScreens

Twitter: [@AcademySWF](https://twitter.com/@AcademySWF), [#ASWF](#)

YouTube: [AcademySoftwareFoundation](https://www.youtube.com/user/AcademySoftwareFoundation)

How to participate

Developers can join our mailing lists to stay informed about the code and our projects at lists.aswf.io.

Learn how your organization can support the Academy Software Foundation community at aswf.io/join.

Stay connected to us on Twitter at
[@AcademySWF](https://twitter.com/AcademySWF) and [#ASWF](https://twitter.com)

THANK YOU!