

/* ACADEMY
SOFTWARE
FOUNDATION

Overview

January 2025

Antitrust Policy Notice

Linux Foundation meetings involve participation by industry competitors, and it is the intention of the Linux Foundation to conduct all of its activities in accordance with applicable antitrust and competition laws. It is therefore extremely important that attendees adhere to meeting agendas, and be aware of, and not participate in, any activities that are prohibited under applicable US state, federal or foreign antitrust and competition laws.

Examples of types of actions that are prohibited at Linux Foundation meetings and in connection with Linux Foundation activities are described in the Linux Foundation Antitrust Policy available at linuxfoundation.org/antitrust-policy. If you have questions about these matters, please contact your company counsel, or if you are a member of the Linux Foundation, feel free to contact Andrew Updegrove of the firm of Gesmer Updegrove LLP, which provides legal counsel to the Linux Foundation.

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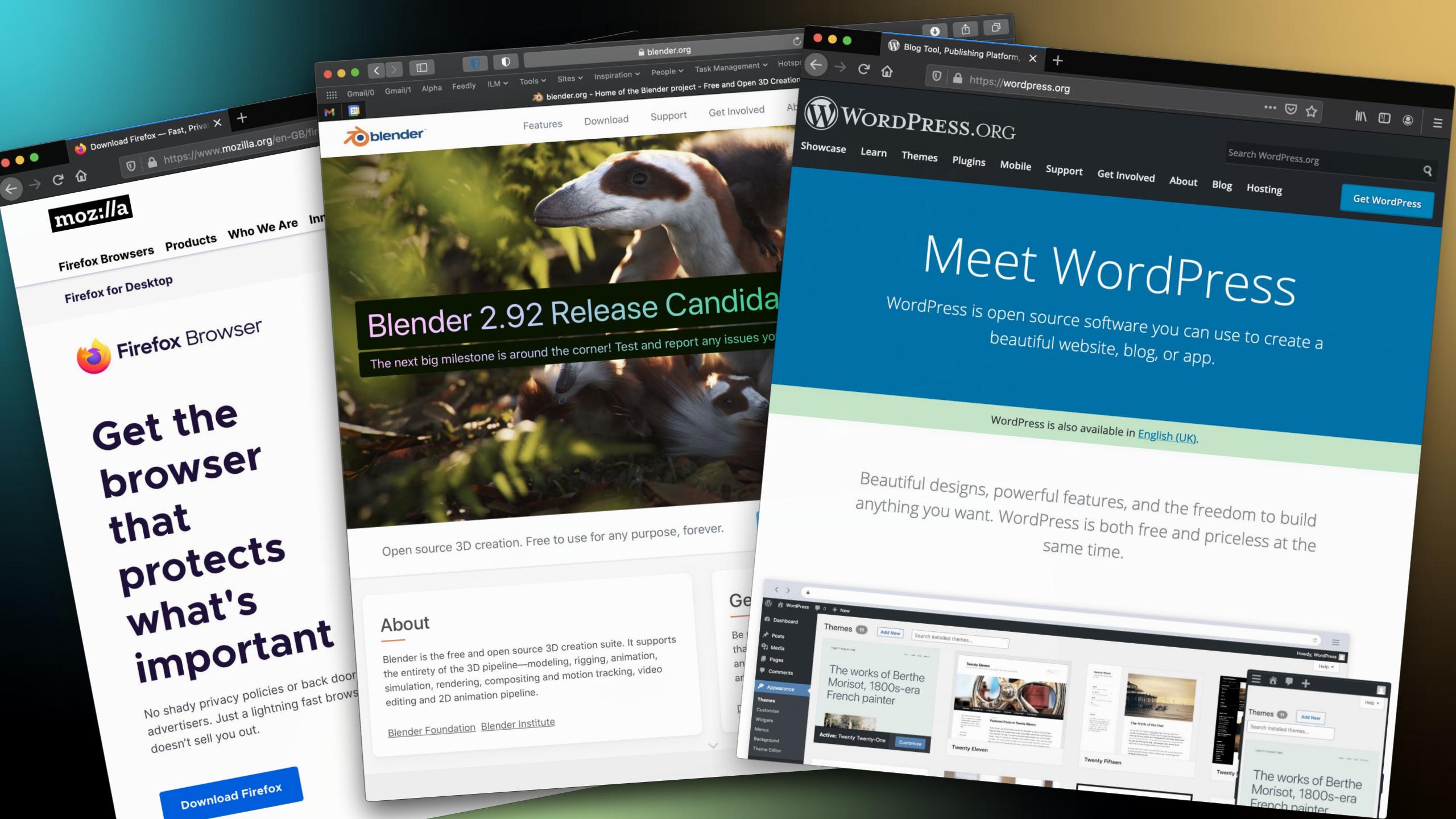
Why Open Source?

Why Open Source?

- Software development has a **cost**
 - Development
 - Maintenance
 - Documentation
 - Training
- Open Source ecosystems **share** those costs
- Empower developers to lead development

Open Source Projects

Vertical Industry	     
Security	      
AI & Data	       
Cloud	       
Networking	       
Edge & IoT	       
Web	       
Visual Effects	      
Sustainability	      
Digital Trust	     
Hardware	     
Standards	      



Get the browser that protects what's important

No shady privacy policies or back door advertisers. Just a lightning fast browser that doesn't sell you out.

Download Firefox



moz://a

Firefox Browsers Products Who We Are Inspiration
Firefox for Desktop

The next big milestone is around the corner! Test and report any issues you find.

Open source 3D creation. Free to use for any purpose, forever.

About

Blender is the free and open source 3D creation suite. It supports the entirety of the 3D pipeline—modeling, rigging, animation, simulation, rendering, compositing and motion tracking, video editing and 2D animation pipeline.

[Blender Foundation](#) [Blender Institute](#)

blender.org

Features Download Support Get Involved About

Blender 2.92 Release Candidate

WORDPRESS.ORG

Showcase Learn Themes Plugins Mobile Support Get Involved About Blog Hosting

Meet WordPress

WordPress is open source software you can use to create a beautiful website, blog, or app.

WordPress is also available in [English \(UK\)](#).

Beautiful designs, powerful features, and the freedom to build anything you want. WordPress is both free and priceless at the same time.

Twenty Twenty-One

The works of Berthe Morisot, 1800s-era French painter

Twenty Eleven

Twenty Fifteen

Twenty

The works of Berthe Morisot, 1800s-era French painter

Open Source: Innovation Accelerator

Standardization on open technologies

Neutral environment for collaboration & cross-pollination

Innovation multiplier

Enables better interoperability

Minimizes fragmentation

Qualifies reference architectures

Lowers barriers to enter a new domain

Enables new business opportunities

Leads to better products

Allows shared cost of development

About the Academy Software Foundation

#ASWF

/* ACADEMY SOFTWARE FOUNDATION

Open Source in Entertainment

*How the Academy Software Foundation
Creates Shared Value*

A report from
 | Research

Written by
Barbara Robertson
report.aswf.io

DUNE Image Courtesy of DNEG © Legendary
Warner Bros. Entertainment Inc. All Rights Reserved.



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

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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

February 8, 2019
OpenColorIO

May 1 2019
OpenEXR
OpenCue

NVIDIA
ftrack
Red Hat

04

Open Source Day 2019

July 29, 2019

OpenTimelineIO

Netflix

Amazon Web Services

Rodeo FX

MovieLabs

Sept 13, 2019
Apple
Microsoft

05

02

03

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Open Source Days 2020

Open Source Days 2021

August 19-20 2020

Unity
Conductor
Technologies

SMPTE

April 16 2020
Open Shading Language
AMD
DockYard

Dec. 15 2020
Adobe
ETC

Jan. 28 2022
Wevr

Aug. 4-5 2021
MaterialX
Maxon

Feb. 12 2022
Khronos Group

Aug. 13 2022
Canonical

Feb. 14 2023
Khronos Group

Aug. 15 2023
Open Source Forum 2023

Feb. 16 2023
HP
Framestore

Open Source Forum 2022

March 10, 2022

Rez

DPEL

Raw2ACES

Open Source Days 2022

August 8-9, 2022

OpenFX
OpenAssetIO
Open Review Initiative

Canonical
Khronos Group

Open Source Forum 2023

Feb. 16 2023
HP
Framestore

5
YEARS

Open Source Days 2023

July 25 -
August 7, 2023

OpenImageIO
Otoy
Bolt Graphics
Coreweave

Open Source Forum 2024

Feb 22 2024

Mod Tech Labs

Open Source Days 2024

July 23-29 2024

Samsung

Caligra

Open Source Forum 2025

Feb 13 2025

OpenAPV
Stability.ai

RaynaultVFX

May

August

Oct

Feb

May

August

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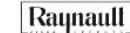
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Membership

Premier



General



Associate



Governing Board Representatives



Rob Bredow
Chair
SVP, Chief Creative Officer
Industrial Light & Magic



Alexander Forsythe
Senior Director, Science and Technology
Academy of Motion Picture Arts and Sciences



Daniel Heckenberg
Senior Software Engineer
Netflix, Inc.



Darin Grant
Treasurer
CTO
Netflix



Eric Bourque
Vice Chair
VP Content Creation
Autodesk



Eric Mejdrich
Advanced Micro Devices (AMD)



Gregory Ducatel
Executive Director, Software Development
Sony Pictures Entertainment



Guido Quaroni
Senior Director of Engineering, 3D & Immersive
Adobe Inc.



Guy Martin
Director, Open Source & Standards
NVIDIA Corporation



Jeremy Smith
Chief Technologist
Hewlett Packard Enterprise Company



Kimball Thurston
Chief Technology Officer

Wētā FX Limited



Kwang Pyo Choi
Vice President of Software Technology
Samsung Electronics Co. Ltd.



Larry Gritz
/ Distinguished Engineer
Sony Pictures Entertainment



Mark Jackels
Director of Research Development
DreamWorks Animation



Michael B. Johnson
Innovation Architect, Pro Workflow
Apple Inc.



Paul Salvini
Global Chief Technology Officer
DNEG



Phil Parsonage
Director of Engineering
The Foundry Visionmongers Limited



Sean McDuffee
Graphics Software Engineer
Intel Corporation



Sean Wallitsch
Solutions Architect
Amazon Web Services, Inc.



Sebastien Miglio
VP Product and Engineering
Creator Tools
Epic Games, Inc



Simon Crownshaw
Worldwide Media and Entertainment Strategy Director
Microsoft Corporation

Governing Board Alternates



Alexander Wilkie
Head of R & D
Netflix



Bhanu Srikanth
Partner
Engagement,
Technology
Partnerships,
Standards
Netflix, Inc.



Carol Payne
**TAC
Representative**
Color & Imaging
Workflow Leader
Individual - No
Account



Duncan Burbidge
Epic Games, Inc



Erik Niemeyer
Intel Corporation



Greg Denton
Senior Program
Manager
Microsoft
Corporation



John Canning
Dir of Dev
Relations -
Creators
Advanced Micro
Devices (AMD)



Kevin Sprout
Director of
Developer
Relations,
Omniverse
NVIDIA
Corporation



Martine Bertrand
Senior
Researcher AI
DNEG



Morgan Prygrocki
Sr. Strategic
Development
Manager
Adobe Inc.



Rachel Rose
Director,
Research &
Development
Industrial Light &
Magic



Robert Fanner
**General Member
Representative**
Engineering
Manager -
Platform
The Foundry
Visionmongers
Limited



Sarah Connas
DreamWorks
Animation



Tony Micilotta
Senior Director,
Content Creation
Engineering
Autodesk



Youngkwan Lim
Principal
Researcher
Samsung
Electronics Co.
Ltd.

Technical Advisory Council (TAC)



Larry Gritz
Chair
Software Architect / Distinguished Engineer
Sony Pictures Imageworks



Carol Payne
Vice Chair
Color & Imaging Workflow Leader
Individual - No Account



Cary Phillips
R&D Supervisor
Industrial Light & Magic



Chris Hall
CAD focused
Radeon ProRender Solutions
Advanced Micro Devices (AMD)



Chris Kulla
Principal Rendering Engineer
Epic Games, Inc



Cory Omand
Director of Engineering, Pixar Software R&D
The Walt Disney Studios



Diego Tavares da Silva
Software Engineer
Sony Pictures Imageworks



Eric Enderton
Dir. Film Rendering Tech.
NVIDIA Corporation



Eric Reinecke
Sr. Software Engineer, Video Engineering
Netflix, Inc.



Erik Niemeyer
Senior Staff Software Enabling and Optimization Engineer
Intel Corporation



Gordon Bradley
Senior Software Architect
Autodesk



Greg Denton
Senior Program Manager
Microsoft Corporation



Jean-Francois Panisset
Consulting Engineer
Visual Effects Society



Jean-Michel Dignard
LEAD PROGRAMMER
Epic Games, Inc



Jonathan Stone
Lead Rendering Engineer, Materials and Shading
Lucasfilm



Ken Museth
Senior Director, Simulation Technology
NVIDIA Corporation



Kimball Thurston
Chief Technology Officer
Wētā FX Limited



Matthew Low
Principal Engineer
DreamWorks Animation



Michael Min
Adobe Inc.



Michael B. Johnson
Innovation Architect, Pro Workflow
Apple Inc.



Ross Dickson
Amazon Web Services, Inc.



Scott Dyer
Senior Imaging Engineer
Academy of Motion Picture Arts and Sciences



Youngkwon Lim
Principal Researcher
Samsung Electronics Co. Ltd.

Behind the Screens

aswf.io/behind-the-screens



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

Academy Software Foundation



Contributed By

Lucasfilm



Contributed By

Academy Software Foundation



open shading language

Contributed By

Sony Pictures Imageworks



Contributed By



Contributed By

Foundry



Contributed By

Sony Pictures Imageworks



Contributed By

Sony Pictures Imageworks and Google Cloud



Contributed By

Lucasfilm



Contributed By

Open Effects Association



OpenImageIO

Contributed By

Larry Gritz



Contributed By

Pixar Animation Studios



Contributed By

Dreamworks Animation



Contributed By

The Academy of Motion Picture Arts and Sciences



Contributed By

Allan Johns

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

The screenshot shows the ASWF Landscape website interface. At the top, there are navigation links for 'EXPLORE' (underlined) and 'STATS'. A search bar with placeholder text 'Type / to search items' and icons for search, download, and refresh are located above the main content area. Below the search bar, there are buttons for 'Filters', 'GROUP: Open Source Projects', 'ASWF Members', and 'ASWF Projects'. The interface uses a 'Grid' view mode and has zoom controls ('ZOOM: - +').

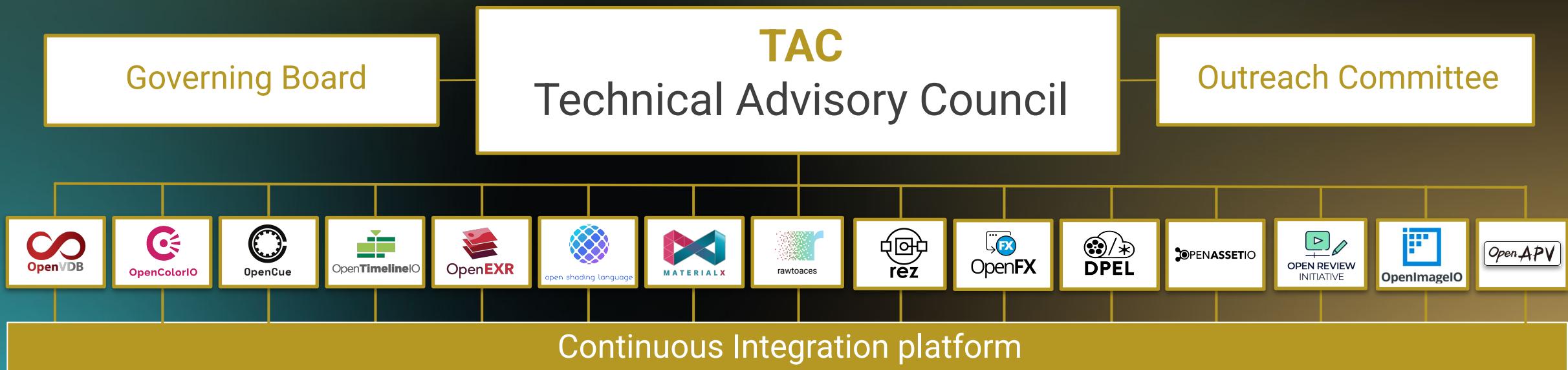
The main content area is organized into several sections:

- Image Formats, I/O, and Processing Libraries:** Includes icons for OpenEXR, OpenImageIO, OpenAPV, RIS, depix, FFmpeg, gatling, THE OPTIE PROJECT, libitm, openMVG, pfstools, Ptex, PySceneDetect, sequencer, and three.js.
- Display and Review:** Includes icons for OPEN REVIEW INITIATIVE, ASWF SANDBOX, t!Render, JERI, mrv2, and Open RV.
- Color Science:** Includes icons for OpenColorIO and rawtoaces, along with logos for ACES, ALEMBIC, COLOUR, and wetaFX PhysLight.
- Interactive Compositing and Painting:** Includes icons for AUTHORITY FX, Aton, CinePaint, gimp, NATRON, and PhotoFlow.
- Scenes and Geometry:** Includes icons for DPEL, /* ACADEMY SOFTWARE FOUNDATION USD Working Group, ALEMBIC, MESHROOM, AliceVision, COLLADA, ONEG, OpenSubdiv, OpenFlipper, OpenMesh, PhysX by NVIDIA, and USD.
- Software Foundation and System Administration:** Includes icons for rez, ASWF LANGUAGE INTEROP, ASWF WORKING GROUP, AUTHORITY FX, ForestFlow, Lumis, pyString, QtPyConvert, and Scala Migrations.
- Pipelines and Frameworks:** Includes icons for OPEN, AYON, blender, vortex, gaffer, kdenlive, Olive, Google Cloud OpenProductionCore, PRISM, TACTIC, adl, trackchannel parser, openannotation.io, and timecode.
- Timelines and Animation:** This section is partially visible at the bottom right.

1.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.

Academy Software Foundation Structure





The Croods; courtesy of DreamWorks Animation



openvdb.org



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

- 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

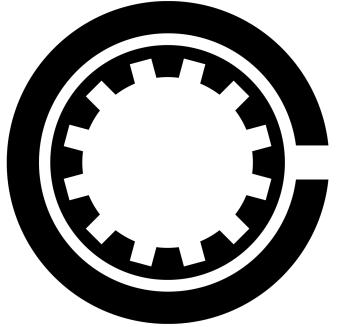


Spider-Man™: Into the Spider-Verse; all images courtesy of Imageworks

- 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.

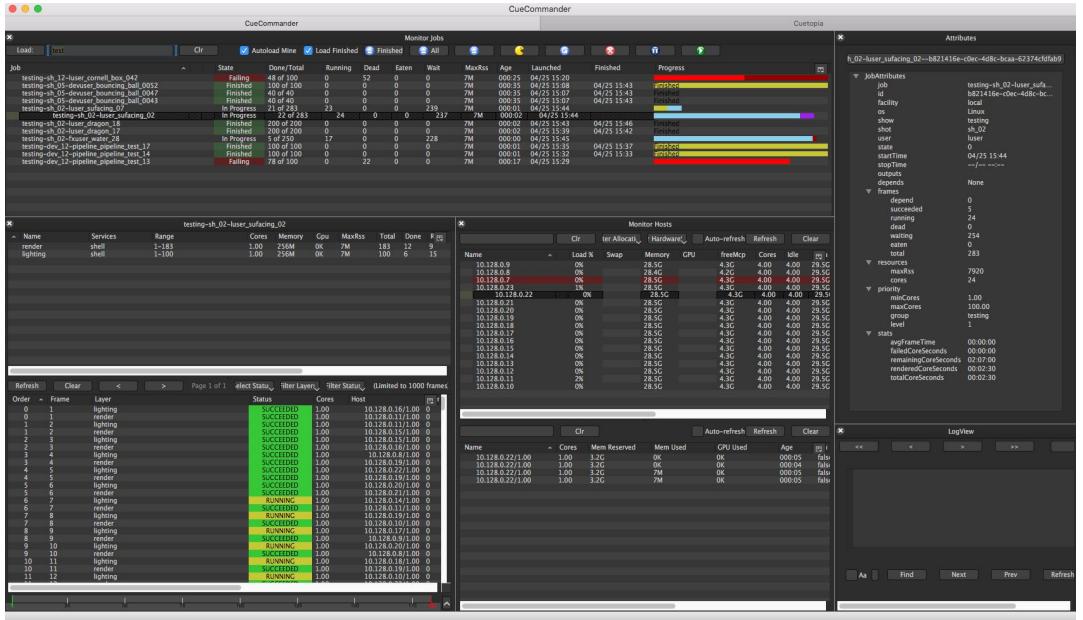


Smurfs: The Lost Village; courtesy of Sony Pictures Imageworks



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

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.



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

Image courtesy of Pixar Animation Studios.



OpenTimelineIO

opentimeline.io

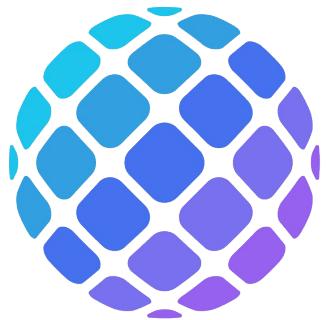
- Joined ASWF in July 2019.
- Developed by Pixar Animation Studios.
- Open source interchange format for editorial timeline information – clips, timing, tracks, transitions, metadata etc.
- Key contributors include Pixar, Netflix, DreamWorks, Autodesk.
- In Public Beta



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.

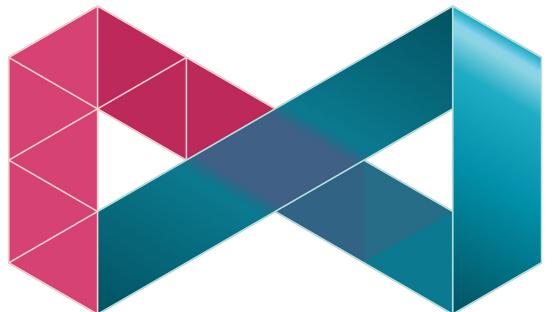
ILM Production tests using
MaterialX



ILM UNIFIED



STANDARD SURFACE



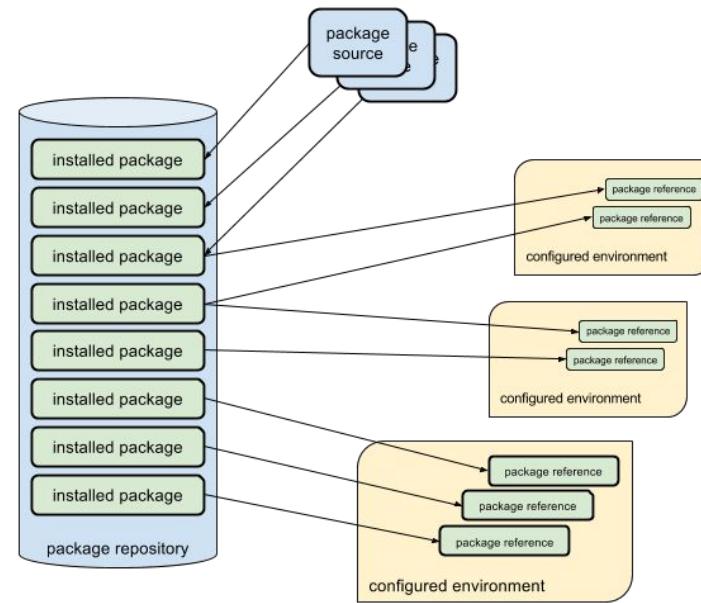
M A T E R I A L X

materialx.org

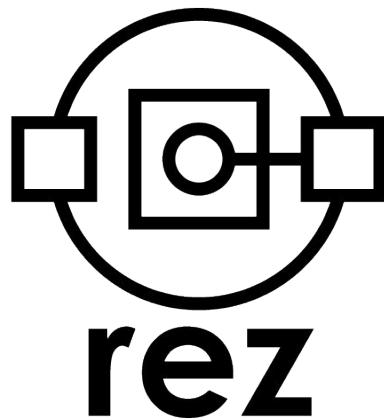
- Joined ASWF in March 2021.
- Open standard for representing rich material and look-development content in computer graphics, enabling its platform-independent description and exchange across applications and renderers.
- Launched at Industrial Light & Magic in 2012, MaterialX has been a key technology 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



openeffects.org

- 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.

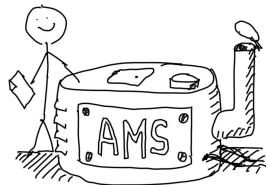


Launching with ASC Standard Evaluation Material II (StEM2), Animal Logic's ALab Phase 2, Intel's Volumetric Clouds Library and AWS character Noa.



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



Autodesk's RV Player

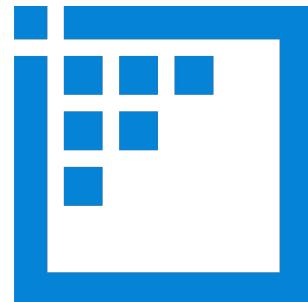


openreviewinitiative.org

An 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.



Miles Morales (Shameik Moore) and Gwen Stacy (Hailee Steinfeld) take on The Spot (Jason Schwartzman) in Columbia Pictures and Sony Pictures Animation's **SPIDER-MAN™: ACROSS THE SPIDER-VERSE**.



OpenImageIO

openimageio.org

OpenImageIO is a library for reading and writing images, and a bunch of related classes, utilities, and applications. There is a particular emphasis on formats and functionality used in professional, large-scale animation and visual effects work for film. OpenImageIO is used extensively in animation and VFX studios all over the world, and is also incorporated into several commercial products.

Working Groups

- CI
- Diversity and Inclusion
- Language Interop
- USD
- Zero Trust

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.io/>

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 and #ASWF

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THANK YOU!
Learn more at aswf.io

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