FEDORA ASAHI REMIX: BRINGING FEDORA TO APPLE SILICON MACS

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WHO ARE WE?

Davide Cavalca

- Contributor and package maintainer in Fedora and CentOS
- Member of Fedora Asahi SIG
- Member of Fedora Cloud and Fedora Server WGs
- Co-chair of CentOS Hyperscale SIG
- Member of CentOS Alternative Images SIG
- CentOS Board Director
- Production Engineer, Linux Userspace at Meta Platforms, Inc.

Neal Gompa

- Open Source Advocate
- Contributor and package maintainer in Fedora and CentOS
- Member of Fedora Engineering Steering Committee (FESCo)
- Chair of Fedora Asahi and KDE SIGs
- Member of Fedora Workstation, Fedora Cloud, and Fedora Server WGs
- Co-chair of CentOS Hyperscale SIG
- Member of CentOS Alternative Images SIG
- Member of KDE, e.V.
- Co-host of the Sudo Show podcast
- Owner and Principal at Velocity Limitless
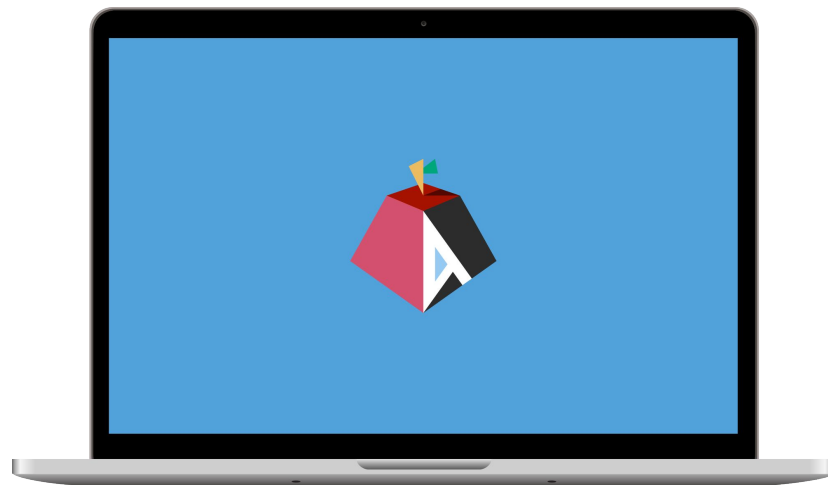
FEDORA ASAHI OVERVIEW

FEDORA ASAHI

Fedora Asahi SIG

The Special Interest Group (SIG) packages and maintains the software used to support Apple Silicon platforms on Fedora Linux.

We develop and maintain variants of Fedora media for Apple Silicon platforms.

Asahi Linux logo used with permission.

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FEDORA ASAHI REMIX

Fedora Asahi Remix

This Remix is a special derivative of Fedora Linux that is optimized around Apple Silicon hardware.

Core changes:
- Custom kernel derived from the Fedora kernel with Asahi patches
- Custom mesa derived from the Fedora packaging with Asahi patches
- Custom u-boot derived from the Fedora packaging with Asahi patches
- Fedora Asahi Remix branding

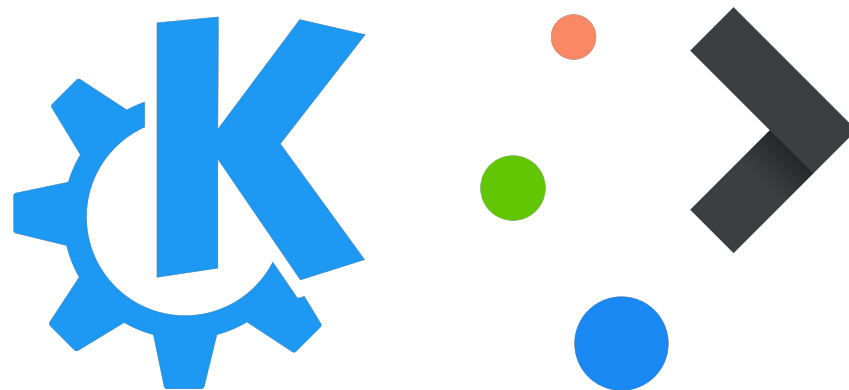The Remix comes in KDE, GNOME, Server, and Minimal flavors.

Fedora logo trademarked by Red Hat, Inc. in the United States and other countries.

FEDORA ASAHI REMIX KDE

The flagship experience

This variant is a partnership of the Fedora Asahi SIG and the Fedora KDE SIG, along with upstream Asahi Linux contributors.

- Includes a curated collection of KDE software to demonstrate the quality of the ecosystem
- Aims to provide quality KDE Plasma Desktop experience largely based on upstream defaults
  - Minor branding and usability tweaks
  - Mozilla Firefox as the browser
  - FirewallD and SELinux for security

KDE, the K Desktop Environment logo, and the KDE Plasma logo are registered trademarks of KDE, e.V.

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FEDORA ASAHI REMIX GNOME

A polished experience

This variant is a derivative of Fedora Workstation for Apple Silicon platforms.

- Includes a mostly vanilla GNOME experience
  - Minor branding and usability tweaks
  - Mozilla Firefox as the browser
  - FirewallD and SELinux for security

The GNOME logo is a trademark of the GNOME Foundation..

FEDORA ASAHI REMIX SERVER AND MINIMAL

Mac servers and clouds…

These variants are intended to be used for headless and automated provisioning environments.
- The Server variant provides the software and configuration similar to Fedora Server Edition
- The Minimal variant provides a barebones Fedora environment to be used with automation for custom setups.

Credit: Fedora Websites Team.

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HOW IT ALL BEGAN

APPLE SILICON LINUX PORT ANNOUNCED

Hector Martin starts…

Hector announces the effort to port Linux to Apple Silicon with a Patreon project to raise $4,000 to get started on November 30, 2020.

[The goal is met overnight](#).

The Asahi Linux project is announced on Christmas Day 2020.

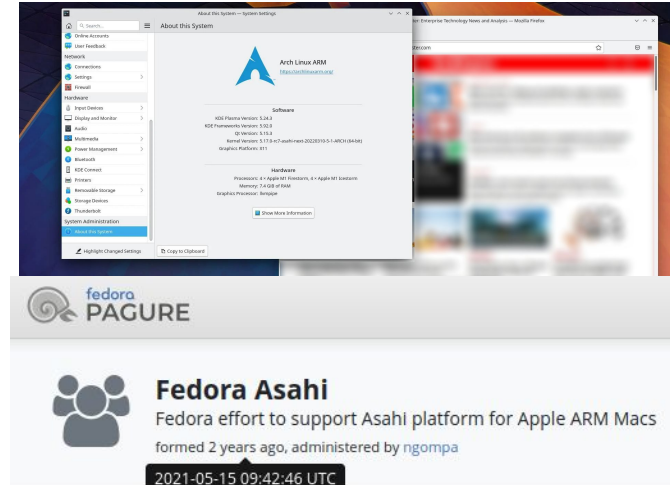*Article from MacRumors on Hector Martin starting the Asahi Linux project: https://www.macrumors.com/2020/11/30/linux-apple-silicon-port-patreon/*

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ASAHI ARCH ALPHA / FEDORA ASAHI BEGINS

Two parallel tracks...

By early 2022, [the Asahi Arch Alpha was released](#) for M1 and M1 Pro/Max systems.

The Fedora Asahi project is created in 2021, but initial porting efforts begin in 2022 due to difficulties acquiring hardware.

The first Asahi Fedora images are made in early September 2022 using [the KIWI image build tool](#).

Asahi Arch Alpha screenshot from Wikipedia, sourced from The Register.
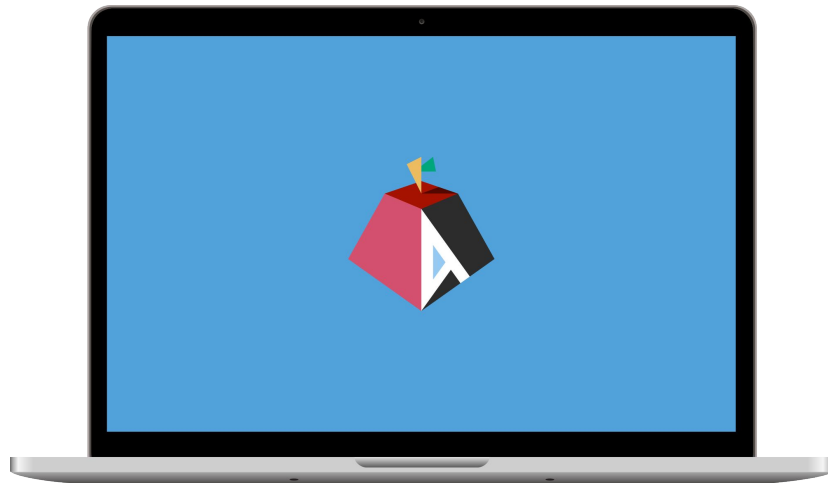
WHERE WE ARE TODAY

FEDORA ASAHI CURRENT STATUS

Broad support for ARM Macs

Today, Fedora Asahi Remix has good coverage of Apple Silicon hardware:
- Device support: All released M1 and M2 laptops and desktops (except Mac Pro)
- Firmware support: All on v13.5
- Hardware accelerated graphics by default
- Camera and touch bar support
- Speaker support (except iMac)
- HDMI output (over physical HDMI port)

More details on the Asahi Linux website.

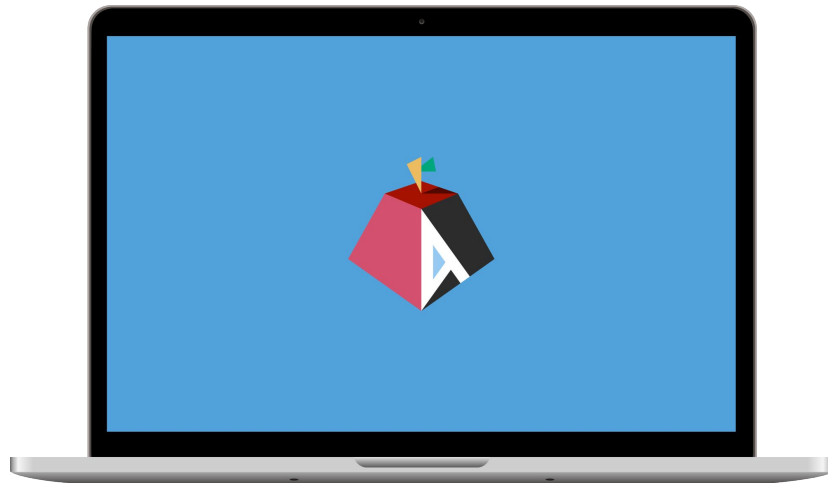*Asahi Linux logo used with permission.*

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FEDORA ASAHI CURRENT STATUS

Broad support for ARM Macs

A few things are **not** supported (yet!),
some of note:

- Microphone
- HDMI audio support
- DP Alt Mode, Thunderbolt / USB4,
  DisplayPort
- SEP, TouchID

Detailed status on the Asahi Linux wiki.

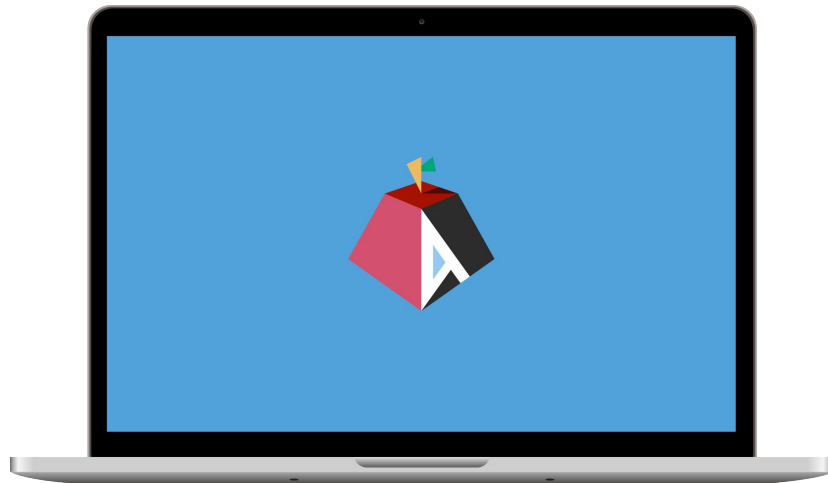*Asahi Linux logo used with permission.*

FEDORA ASAHI CURRENT STATUS

New features

First-class audio support
- Speaker protection
- Psychoacoustic bass extender
- Optimized DSP chain out of the box via PipeWire and WirePlumber

More details in the Asahi Linux blog.

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FEDORA ASAHI CURRENT STATUS

New features

First conformant OpenGL 4.6
implementation
- Blender support
- Games!
- Better than macOS

More details on [Alyssa's blog](#)

Blender "Wanderer" demo by Daniel Bystedt, licensed CC BY-SA.

FEDORA ASAHI CURRENT STATUS
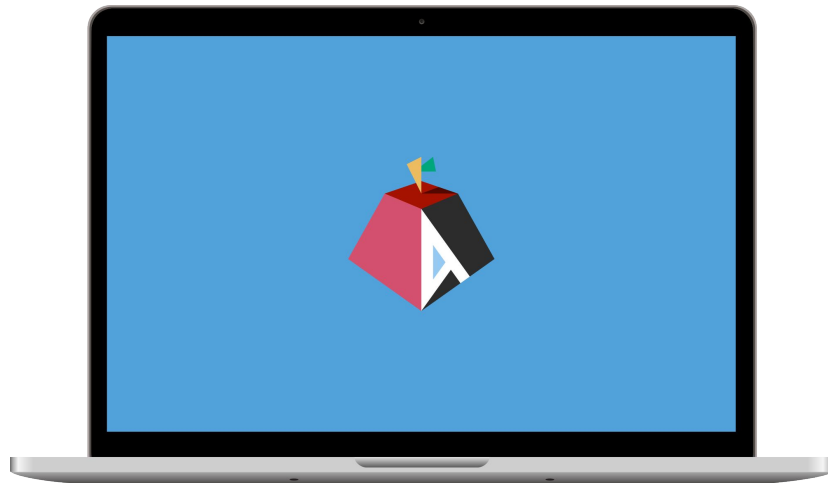
Asahi-relevant Fedora work

Fedora KDE uses Wayland from beginning to end
- [F34 Change to use Plasma Wayland](#)
- [F35 Change to sdl12-compat for SDL1 applications](#)
- [F38 Change to use SDDM Wayland](#)

Fedora uses PipeWire
- [F34 Change to use PipeWire](#)
- [F35 Change to use WirePlumber with PipeWire](#)

Fixes to various packages to support ARM systems running with 16K page sizes (e.g. Chromium, WebKitGTK, QtWebEngine, etc.)
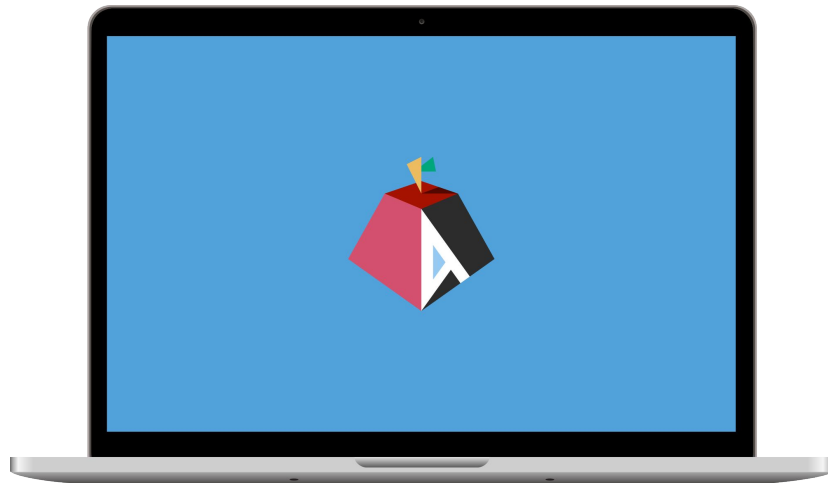
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FEDORA ASAHI RELEASE

The Asahi Linux flagship!

Fedora Asahi Remix is the flagship distribution, developed in partnership between Asahi Linux and the Fedora Project.

The "official" stable release based on Fedora Linux 39 released in December 2023.

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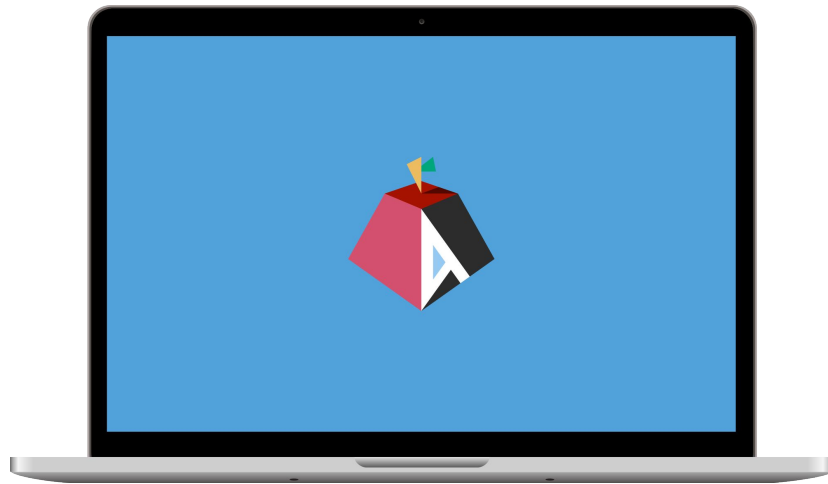fedora-asahi-remix.org

NEXT UP

ASAHI UPSTREAM EFFORTS

Working through patches...

Asahi Linux platform patches are (slowly!) getting reviewed and integrated in various projects (kernel, u-boot, mesa, etc.)

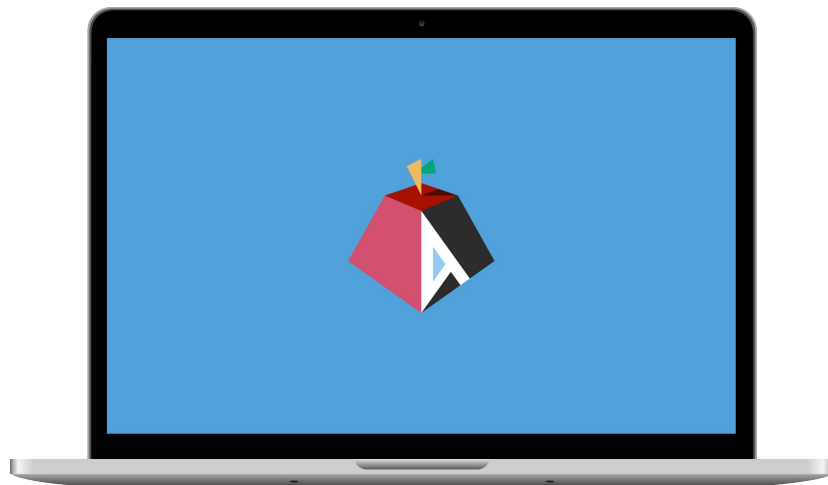Most of this effort is driven by Hector Martin, Mark Kettenis, Alyssa Rosenzweig, and Asahi Lina.

Asahi Linux logo used with permission.

FEDORA ASAHI SIG EFFORTS

Working through packages...

One of the main focuses is on reducing the packaging delta between Fedora Asahi and upstream Fedora packages that have been forked by the Asahi SIG.

Some effort has succeeded thus far, more to come on this...

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FEDORA ASAHI SIG

Join Us

- Fedora Asahi Remix:
  fedora-asahi-remix.org
- Documentation
  docs.fedoraproject.org/fedora-asahi-remix/
- Project issue tracker:
  pagure.io/fedora-asahi/project

- Mailing list:
  asahi@lists.fedoraproject.org

- Forums:
  discussion.fedoraproject.org/c/neighbors/asahi

- Matrix: #asahi:fedoraproject.org

Support Us

- Sponsor Hector Martin (Asahi Linux) on GitHub:
  https://github.com/sponsors/marcan

- Sponsor Neal Gompa (Fedora Asahi Remix) on GitHub:
  https://github.com/sponsors/Conan-Kudo

- More information at
  https://asahilinux.org/support/

QUESTIONS?