Full Circle

THE INDEPENDENT MAGAZINE FOR THE UBUNTU LINUX COMMUNITY

ISSUE #228 - April 2026

EMMABUNTUS
DEBIAN EDITION

Full Circle

THE INDEPENDENT MAGAZINE FOR THE UBUNTU LINUX COMMUNITY

HowTo

Graphics

EDITORIAL

Welcome to the latest issue of Full Circle

Once again we bring you some Latex, Godot, Inkscape and a little bit more VirtualBox. This time we're looking at how to compact those virtual disk files.

Elsewhere, we have a review of Emmabuntus Debian Edition and ArduinOS and, of course, another game. This time, Horticular. If you've ever fanicied yourself as a gardener then this might be the game for you.

It was only while editing the last page that I realised that this issue marks **NINETEEN YEARS** of Full Circle Magazine. ***That's insane!***

I'm writing this editorial the day before releasing this PDF and they've just released Ubuntu 26.04. So hopefully we'll have a review of it next issue.

Remember: the ***Full Circle Weekly News*** is available on ***Spotify*** and ***YouTube***. The more upvotes and reviews you give it on those platforms the more exposure we get. And, we have a Table of Contents which lists every article from every issue of FCM. Huge thanks to ***Paul Romano*** for maintaining: https://goo.gl/tpOKqm and, if you're looking for some help, advice, or just a chinwag: remember that we have a **Telegram** group: https://t.me/joinchat/24ec1oMFO1ZjZDc0. I hope to see you there. Come and say hello.

All the best, and here's to another 19 years!

Ronnie

ronnie@fullcirclemagazine.org

FCM PATREON : https://www.patreon.com/fullcirclemagazine

This magazine was created using :

SCRIBUS

gimp

LibreOffice
The Document Foundation

creative commons

Find Full Circle on:

facebook.com/fullcirclemagazine

twitter.com/#!/fullcirclemag

https://mastodon.social/@fullcirclemagazine

Weekly News:

https://fullcirclemagazine.org/podcasts/index.xml

https://open.spotify.com/show/6JhPBfSm6cLEhGSbYsGarP NEW

https://www.youtube.com/playlist?list=PLnv0U8wOzXu487gi5I2Isf-rQjEyKPAiF NEW

Ubuntu MATE founder departs:

30/03/2026

Martin Wimpress, co-founder and leader of the Ubuntu MATE distribution, who served as Director of Desktop Engineering at Canonical from 2019 to 2021, announced that he will step down and that he is looking for developers willing to continue working on the Ubuntu MATE distribution and who can maintain packages related to the MATE desktop environment in the Ubuntu repository.

His interests have shifted and he no longer has the time to devote to the Ubuntu MATE project. Therefore, he would like to hand over project management to developers who have the time and energy to work on Ubuntu MATE. Ubuntu MATE remains on the MATE 1.26 branch, from 2021, with unresolved issues and a shortage of developers. Ubuntu MATE 26.04 has been decided not to be granted LTS status, and its publication is uncertain – despite the start of beta testing for Ubuntu 26.10, beta builds of Ubuntu MATE 26.04 have not yet been released. Development of the MATE desktop environment has been stagnant since spring 2024.

https://ubuntu-mate.community/t/a-message-from-the-leader-martin-wimpress-a-k-a-wimpy-ubuntu-mate-co-founder/31325

Archinstall 4.0:

31/03/2026

Archinstall 4.0 has been released. Since 2021, it has been included as an option in Arch Linux ISO installation images. Archinstall runs in console mode and can be used instead of the default manual installation method. Archinstall is written in Python and is licensed under the GPLv3 license.

In the new version of Archinstall, the console user interface has been migrated to the textual library instead of curses, modernizing the look and simplifying the maintenance of many menu items. Other changes include the addition of instructions for loading an ISO image in a virtual machine, replacing pytest configuration files with the TOML format, integrating firewalld support into the firewall menu, reworking the code for installing configuration files with network settings, separating LVM handlers into a separate module, removing NTFS support for the root filesystem and redesigning the menu for asynchronous operation.

https://github.com/archlinux/archinstall/releases/tag/4.0

4MLinux 51.0 Release:

31/03/2026

4MLinux 51.0 is now available. It's a minimalist user-friendly distribution that isn't a fork of other projects and uses a graphical environment based on the JWM window manager. 4MLinux can be used as a live environment for multimedia playback and user tasks, as well as a disaster recovery system and a platform for running mini-servers. A live image (x86_64, 2.1 GB) with a graphical environment and a stripped-down console build (x86_64, 16.2 MB) are available for download.

https://4mlinux-releases.blogspot.com/2026/03/4mlinux-510-stable-released.html

Apertis 2026 release:

31/03/2026

Collabora has unveiled the Apertis 2026 Linux distribution, (based on Debian) originally designed for automotive systems but later repurposed for a wider range of electronic devices, embedded systems, and industrial equipment. Devices using Apertis include the Atari VCS gaming console, the Raspberry Pi 4 board, the R-car automotive SoCs, and the Bosch D-tect 200 wall scanner .

Reference system images are distributed for the x86_64, arm64, and armhf architectures. The distribution is modular, allowing device manufacturers to independently configure the required system environment. Both builds based on traditional DEB packages and monolithic, atomically updated images based on OSTree are supported . Maintenance for each Apertis release is one year and nine months, with a minor release containing bug fixes issued every three months.

https://www.collabora.com/news-and-blog/news-and-events/apertis-v2026-modern-foundation-industrial-embedded-development.html

Remotely exploitable vulnerabilities in the FreeBSD kernel, Vim, and Emacs:

01/04/2026

A vulnerability (CVE-2026-4747) has been fixed in FreeBSD. This vulnerability allows kernel-level code execution by sending network packets to an NFS server. The issue occurs when using the kgssapi.ko module, which implements the RPCSEC_GSS API in the kernel. In addition to the kernel, the vulnerability affects user-space applications that use the librpcgss_sec library and perform RPC server functions. Such applications, which are not part of the FreeBSD base system, can also be attacked by sending network packets.

The vulnerability was discovered by an Anthropic employee using the Claude AI assistant. The researchers who created the exploit went further and continued their experiments, using Claude to identify vulnerabilities in Vim and Emacs that could allow code execution when specially crafted files were opened in these editors. Remarkably, the model's prompts boiled down to a simple problem statement, such as "find a zero-day vulnerability in Vim that occurs when opening a file." Ultimately, the Claude model successfully identified previously unknown vulnerabilities.

https://www.reddit.com/r/netsec/comments/1s8y8pp/mad_bugs_claude_wrote_a_full_freebsd_remote/

Wayland Protocols 1.48 Release:

01/04/2026

The wayland-protocols package 1.48 has been released, containing a set of protocols and extensions that complement the core Wayland protocol and provide the capabilities needed to build composite servers and user environments.

In the new version, the xdg-session-management protocol has been added to the "staging" category, providing capabilities for restoring the state and position of windows from an interrupted session in Wayland-based environments, for example after a composite server or application crashes. The text-input protocol has been expanded to allow composite servers to implement input methods and send text to applications. For example, the no_emoji flag has been added for input without emoji, support for additional actions beyond text insertion has been implemented, the language flag has been added for transmitting language information, requests for showing and hiding the input panel have been added and the preedit_hint flag has been added for customizing the pre-editing style. They also added experimental xx-cutouts protocol for obtaining information about cutouts on the screen (for example, the area under the front camera on the smartphone screen). An

experimental xx-zones protocol has been added for creating and adding top-level windows to "zones"—environments with their own coordinate space. This protocol allows for a logical arrangement of windows, with each window positioned relative to every other window. They added an experimental protocol, xx-keyboard-filter, to allow the client to intercept selected keyboard events, modify input events, or block certain events from being passed to the focused Wayland surface.

https://www.mail-archive.com/wayland-devel@lists.freedesktop.org/msg44067.html

All Collabora employees have been expelled from the TDF:

02/04/2026

The Document Foundation (TDF), which oversees the development of the LibreOffice office suite, has expelled all Collabora employees and partners. In the last days of March, 43 members were expelled from the TDF, including key LibreOffice developers and co-founders. Seven of the 10 most significant LibreOffice developers were expelled. Of the four founders remaining in the TDF, three are not involved in the core code development. In 2025, Collabora employees contributed 45 % of all changes to LibreOffice.

Italo Vignoli, one of the founders of the Document Foundation, explained that Collabora members were excluded in accordance with the recently approved new bylaws, which prohibit employees of companies with which legal proceedings are pending. This requirement was introduced because members have historically made decisions in the interests of their employers, not the Document Foundation.

The conflict between the Document Foundation and Collabora stems from the development of the cloud edition of LibreOffice Online. In 2020, Collabora created a fork of LibreOffice Online to address branding and marketing issues and continued development in its own repository under the name Collabora Online (this was because the Document Foundation was promoting products from other companies on the LibreOffice Online page, even though those companies contributed little to the development). In 2022, the Document Foundation's board of directors decided to freeze the LibreOffice Online project, as all community developers had switched to the new project and no one was willing to continue maintaining the old repository.

In 2026, the new Document Foundation board of directors reversed the freeze, finding the previous vote to have been conducted under a conflict of interest. The re-creation of the LibreOffice Online repository as a fork of the current Collabora Online repository, along with the rebranding of all Collabora work, was perceived by a Collabora representative as vandalism against the project and a violation of the established status quo, whereby credit was reasonably distributed between the two projects.

https://blog.documentfoundation.org/blog/2026/04/01/comment-about-collabora-blog-post/

Release of /e/OS 3.6:

02/04/2026

The /e/OS 3.6 mobile platform, focused on user privacy, has been released. The platform was founded by Gaël Duval, creator of the Mandrake Linux distribution. The project supports 287 smartphone models and creates firmware builds for the most popular ones. Custom device builds have been created for OnePlus, Fairphone, Teracube, HIROH, and Pixel smartphones , distributed with /e/OS preinstalled under the Murena One, Murena 2, Murena Fairphone 4/5/6, Murena Teracube 2e, Murena Pixel 5/7, and Murena SHIFTphone 8 brands.

The /e/OS firmware is being developed as a fork of the LineageOS platform (based on Android), freed from Google services and infrastructure to prevent telemetry transmission to Google servers and enhance privacy. Among other things, it blocks implicit data transmission, such as requests to Google servers for network availability checks, DNS resolution, and time determination.

https://e.foundation/leaving-apple-google-hiroh-phone-at-mwc-discover-murena-find-e-os-3-6-is-released/

OpenCloud 6.0:

03/04/2026

OpenCloud 6.0, a platform that allows users to deploy a file sharing and content collaboration system on their own server, has been released. The project is being promoted as an open alternative to proprietary systems like Microsoft SharePoint, Google Drive, and Dropbox, and is compliant with the European Union's GDPR.

The server, written in Go, is licensed under the Apache 2.0 license and supports WebDAV, gRPC, Microsoft RESTful Web API Graph, OCS, OCM 1.1, and OpenID Connect. The server is implemented using a microservices framework and can scale from Raspberry Pi boards to large multi-server deployments.

The desktop client is written in C++ using Qt, published under the GPLv3 license, and supports builds for Windows, macOS, and Linux. The client also features built-in file synchronization and mounting of shared storage as a virtual file system. The web interface is written in TypeScript using the Vue.js framework and is licensed under the AGPLv3 license. Mobile apps are available for Android and iOS.

https://github.com/opencloud-eu/opencloud/releases/tag/v6.0.0

PostgreSQL performance issue:

04/04/2026

An Amazon engineer identified a regression specific to Linux kernel 7.0, which is expected to be released on April 13. A change in task scheduler settings resulted in a significant reduction in throughput and responsiveness when running PostgreSQL on ARM64 systems. Using kernel 7.0, performance in the pgbench "simple-update" test dropped almost twofold, from 98,565 to 50,751.

The slowdown was caused by changing the default scheduler preemption mode from PREEMPT_NONE to PREEMPT_LAZY on architectures that support it. This caused PostgreSQL to spend 55% of its CPU time calling s_lock() in user space. To address this issue, it is proposed to return PREEMPT_NONE to the default and unlink it from the ARCH_NO_PREEMPT setting.

It's still unclear what decision Linus Torvalds will make, as he adheres to the principle that the kernel should not degrade performance or break user-space compatibility. On the one hand, kernel 7.0 is in the final testing phase before release, and rolling back the scheduler settings could lead to other regressions. On the other hand, users could experience a halving of the performance of one of the most popular databases.

https://www.phoronix.com/news/Linux-7.0-AWS-PostgreSQL-Drop

KDE fractional scaling:

05/04/2026

The latest KDE weekly development report has been published, presenting changes for the KDE Plasma 6.7 branch, expected to be released in June. Fractional scaling is the hot topic.

The KWin compositing manager implements support for the experimental Wayland xx-fractional-scale-v2 protocol, which eliminates unnecessary gaps between adjacent elements on high-density screens, such as between a maximized window and a panel. The xx-fractional-scale protocol provides the ability to scale the logical coordinate system, which uses integer values, to improve positioning accuracy and increase the resolution of logical coordinates down to individual pixels. This capability addresses the limited resolution of the logical coordinate system, which is insufficient for the pixel-level positioning required for full implementation of fractional scaling in KDE.

Using the xx-fractional-scale protocol, the composite server and client can consistently use different coordinate systems (logical and pixel) when working with the wl_surface object. Logical coordinates are used to describe the size of content and window positions from the user's perspective, while pixel coordinates

reflect the actual sizes in buffers when rendering to the screen. The xx-fractional-scale protocol introduces a scaling factor (scale) that links logical and pixel coordinates, allowing for handling situations where multiple pixels correspond to a single logical coordinate unit.

https://blogs.kde.org/2026/04/04/this-week-in-plasma-ui-and-stability-improvements/

Die i486:

05/04/2026

Ingo Molnar, the maintainer of the x86 architecture, locking mechanism and task scheduler in the Linux kernel, has revived the topic of deprecating support for i486 processors in the Linux kernel and published a patch that removes the options for building the kernel with support for 486DX, 486SX, and AMD ELAN processors (CONFIG_M486, CONFIG_M486SX, and CONFIG_MELAN). The note points out that very few people use modern Linux kernel branches on legacy 32-bit CPUs, and it was impossible to find any major distributions that continue to publish kernel packages built with the "M486=y" option.

In a discussion last year, Linus Torvalds stated that he felt the time had come to remove support for the 486 CPU and saw no reason to continue wasting developer time addressing the issues these processors pose. Previously, Linus had raised the possibility of removing support for the 486 CPU in October 2022. Support for the 386 CPU was removed from the kernel in 2012.

https://lore.kernel.org/lkml/177485434762.1647592.11669999891936628676.tip-bot2@tip-bot2/

Cozystack 1.2:

06/04/2026

Cozystack 1.2, an open-source PaaS platform built on Kubernetes, is now available. The project aims to provide a ready-to-use platform for hosting providers and a framework for building private and public clouds. The platform installs directly on servers and covers all aspects of infrastructure preparation for delivering managed services. Cozystack allows you to launch and provision Kubernetes clusters, databases, and virtual machines. The platform code is available on GitHub and is distributed under the Apache 2.0 license.

The platform includes an open-source network infrastructure (fabric) based on Kube-OVN and uses Cilium for service mesh organization and MetalLB for service advertising. Storage is implemented on LINSTOR, which offers ZFS as the underlying storage layer and DRBD for replication. A pre-configured monitoring stack based on VictoriaMetrics and Grafana is included. KubeVirt technology is used to launch virtual machines, enabling the launch of classic virtual machines directly in Kubernetes containers and already includes all the necessary integrations with the Cluster API for launching managed Kubernetes clusters within a bare-metal Kubernetes cluster. Within the platform, Kafka, FerretDB, PostgreSQL, Cilium, Grafana, Victoria Metrics, and other services can be deployed with a single click.

https://cozystack.io/blog/2026/03/cozystack-1-2-opensearch-vpc-peering-and-smarter-tenant-scheduling/

Red Hat has extended paid support for RHEL minor releases to 6 years:

April 6, 2026, 1:39 PM (Moscow time)

Red Hat has announced a new paid support program, Extended Life Cycle, Premium, which will provide a 14-year support cycle for the Red Hat Enterprise Linux 8/9/10 distribution branches: 5 years of full publicly available updates + 5 years of publicly available updates with fixes for serious bugs and vulnerabilities (without adding new features or expanding hardware support) + 4 years of critical issue fixes for paid subscribers.

Long-term support for interim releases will be provided through the release itself. For example, extended updates for the May release of RHEL 10.2 will be generated until May 2032, for the

November release of RHEL 10.3 until May 2027, and for the May release of RHEL 10.4 until May 2033. The RHEL 10 branch as a whole will be supported until 2039, the RHEL 9 branch until 2036, and RHEL 8 until 2033.

https://www.redhat.com/en/about/press-releases/red-hat-enhances-enterprise-stability-red-hat-enterprise-linux-extended-life-cycle-premium

Steam Linux users on the rise:

07/04/2026

Valve has published its March report analyzing the preferences of Steam game delivery service users. The share of active Steam users using the Linux platform reached 5.33%, which is twice the figure reported in the previous month. Given that Steam has an estimated 132 million active users, 5.33% equates to approximately 7 million users. In the February report, this figure was 2.23%, in January – 3.38%, and in December – 3.58%.

March statistics from the Boiling Steam project, compiled using data from ProtonDB, demonstrate a significant increase in the popularity of Bazitte and CachyOS distributions since last year. In March, CachyOS took the top spot among Linux distributions used by gamers, with a 21.1% share, displacing Arch Linux, which had held the top spot since 2021. Bazitte's share reached 9.5%, placing it fourth.

https://www.reddit.com/r/linux_gaming/comments/1safdlk/about_the_hardware_survey_what_is_64_bit_and_0_64/

uutils 0.8:

07/04/2026

The uutils coreutils 0.8.0 (Rust Coreutils) project, a development project for the GNU Coreutils package written in Rust, has been released. coreutils includes over 100 utilities, including sort, cat, chmod, chown, chroot, cp, date, dd, echo, hostname, id, ln, and ls. The project's goal is to create a cross-platform alternative to Coreutils, capable of running on Windows, Redox, and Fuchsia platforms, among others.

Rust Coreutils is enabled by default in Ubuntu 25.10 and is used in the AerynOS (Serpent OS) and Apertis (developed by Collabora) distributions. Unlike GNU Coreutils, the Rust implementation is distributed under the permissive MIT license, rather than the copyleft GPL. The same team of developers is also developing Rust-based equivalents of the util-linux, diffutils, findutils, procps, and acl utility suites, as well as the sed and login programs.

https://github.com/uutils/coreutils/releases/tag/0.8.0

APT 3.2.0:

08/04/2026

APT 3.2.0 (Advanced Package Tool) has been released, incorporating changes accumulated in the experimental 3.1 branch. The new release will soon be integrated into Debian's Unstable and Testing branches, and will also be added to Ubuntu. APT 3.2 will be included in the release of Debian 14. The Ubuntu 26.04 beta uses APT 3.1.16, which is identical to release 3.2.0, except for corrections to the translations of built-in hints and man pages.

https://salsa.debian.org/apt-team/apt/-/tags/3.2.0

miracle-wm 0.9:

09/04/2026

Matthew Kosarek, a developer at Canonical, has released version 0.9 of the miracle-wm compositing manager, which uses the Wayland protocol and Mir compositing manager components. Miracle-wm supports tiling windows, similar to those in the i3 and Sway projects. A Waybar can be used as a panel. The project's code is written in C++ and distributed under the GPLv3 license. The finished builds are available in snap format, as well as rpm and deb packages for Fedora and Ubuntu.

Miracle-wm is intended to be useful for users who prefer a tiled layout but desire visual effects and a more vibrant graphical design with smooth transitions and colors. Configuration is defined in YAML format. To install miracle-wm, use the command "sudo snap install miracle-wm --classic."

https://github.com/miracle-wm-org/miracle-wm/releases/tag/v0.9.0

A project to test FreeBSD on laptops:

09/04/2026

The FreeBSD Foundation has launched a FreeBSD laptop testing project, created as part of an initiative to improve laptop support and enhance the FreeBSD user experience. The project aims to gather information on FreeBSD compatibility with various hardware used in modern laptops, allowing for a realistic understanding of existing issues and identifying priority areas for improvement. The results of the testing will be published on a summary page, allowing users to assess the level of support for specific laptop models in FreeBSD.

Users are encouraged to generate and submit a FreeBSD compatibility report for their systems. A script and instructions are provided for creating the report, listing features to check when booting a FreeBSD device. The results should be submitted as a pull request to the project's GitHub repository.

https://freebsdfoundation.org/blog/call-for-testing-introducing-the-laptop-integration-testing-project/

Linux version of Little Snitch:

09/04/2026

The first release of the Linux version of Little Snitch, a popular application firewall for macOS, has been released. Little Snitch provides a graphical interface for interactively monitoring application network activity and blocking unwanted network traffic. The Linux eBPF subsystem is used for traffic inspection and blocking. The eBPF programs loaded into the kernel, the function library, and the web interface are licensed under the GPLv2 license. The background process is written in Rust and licensed under a proprietary license that allows redistribution and free use.

The program includes a BPF handler loaded into the Linux kernel and a background process called littlesnitch. It is controlled via a web interface accessible by opening the page "http://localhost:3031/" in a browser. The web interface can be used as a standalone web application (PWA - Progressive Web App). It runs on systems with Linux kernel 6.12 and later.

https://news.ycombinator.com/item?id%3D47697870

SQLite 3.53:

10/04/2026

SQLite 3.53, a lightweight database management system implemented as a pluggable library, has been released. SQLite 3.52 has been cancelled. The SQLite code is distributed in the public domain, meaning it can be used without restriction and without charge for any purpose. A consortium created specifically for this purpose provides financial support for the SQLite developers.

https://sqlite.org/releaselog/3_53_0.html

Deepin 25.1:

10/04/2026

Deepin 25.1 has been released. It features the Deepin Desktop Environment (DDE), along with approximately 40 user applications, including the Deepin Music music player, Deepin Movie video player, and the Deepin Store installer and software installation center. The project was founded by a group of developers from China but has since transformed into an international project. The distribution's repository contains over 8,000 packages. The project is licensed under the GPLv3 license. The bootable ISO images are 6.8 GB in size (amd64, arm64, riscv64, and loongarch64).

Desktop components and applications are developed using C/C++ and Go. The graphical interface is built using the Qt library. A key feature of the Deepin desktop is the panel, which supports multiple operating modes. Classic mode more clearly separates open windows from suggested applications, and displays the system tray. Performance mode is somewhat reminiscent of Unity, mixing indicators for running

programs, favorite applications, and control applets (volume/brightness controls, connected drives, clock, network status, etc.). The application launcher interface offers two modes: browsing favorite applications and navigating the installed applications directory.

https://www.deepin.org/en/deepin-25-1-announcement/

Cage 0.3:

11/04/2026

Cage 0.3, a Wayland-based composite server designed to run standalone applications in kiosk mode, has been released. Cage's intended applications include home automation systems, demo stands, electronic signage, and self-service kiosks. The project's code is written in C and licensed under the MIT license.

The Cage interface is limited to a single application and the user cannot exit this application or access the operating system. The screen is bound to a single output device and all auxiliary dialogs are centered on the screen and cannot be moved or resized. Data can be inserted and retrieved via the clipboard. Applications are directly linked to the running graphical environment; for example, to create a kiosk with the Epiphany browser, simply run "cage /usr/bin/epiphany." After exiting the program, the composite server also terminates.

https://github.com/cage-kiosk/cage/releases/tag/v0.3.0

The French migrating from Windows to Linux:

11/04/2026

David Amiel, France's Minister of Budget, Public Accounts, and Civil Administration, announced plans to migrate some computers in government agencies from Windows to Linux. The migration is part of an initiative to ensure digital sovereignty and reduce dependence on non-European tech companies.

Amiel emphasized that the French government can no longer tolerate not having control over its data and digital infrastructure. The transition timeline and the Linux distribution to be deployed have not yet been specified. Workstations in the Interministerial Directorate for Digitalization (DINUM) have been decided to be the first to migrate to Linux. Ministries have been instructed to prepare their own plans by autumn to reduce dependence on non-European technologies, covering workstations, collaborative development tools, antivirus software, AI systems, database management systems, virtualization platforms, and network equipment.

https://linux.slashdot.org/story/26/04/10/1545234/frances-government-is-ditching-windows-for-linux

Trisquel 12.0:

12/04/2026

Three years after the previous release, Trisquel 12.0, a completely free Linux distribution based on Ubuntu 24.04 LTS, is now available. It's designed for small businesses, educational institutions, and home users. Trisquel has been personally endorsed by Richard Stallman, officially recognized by the Free Software Foundation as completely free, and added to the Foundation's list of recommended distributions. Installation images are available for download: 3.4 GB (MATE), 2.7 GB (KDE), 1.9 GB (LXDE), 1.5 GB (Sugar), and 79 MB (network boot), built for the x86_64, ppc64el, arm64, and armhf architectures. Updates for the distribution will be released until April 2029.

The distribution is notable for its exclusion of all non-free components, such as binary drivers, firmware, and graphical elements distributed under a non-free license or using registered trademarks. Despite the complete rejection of proprietary components, Trisquel is compatible with Java (OpenJDK) and supports most audio and video formats, including playback of protected DVDs, while using only completely free implementations of these technologies. MATE (default), LXDE, and KDE are offered as desktop environments.

https://trisquel.info/en/trisquel-120-ecne-release-announcement

Linux kernel 7.0:

13/04/2024

After two months of development, Linus Torvalds released the Linux kernel, 7.0. Some of the most notable changes inclue: rules for using AI assistants, moving Rust into the core kernel, improved swap performance, enabling PREEMPT_LAZY mode by default, filter support for io_uring operations, the new Nullfs filesystem, the fserror framework, XFS monitoring tools, remapping support in Btrfs, enabling NFS 4.1 by default, integrating the post-quantum ML-DSA cryptographic algorithm, activating AccECN in the network subsystem, and initial support for WiFi 8.

The number 7.0 was assigned because the 6.x branch had accumulated enough releases to warrant a change to the first digit of the version number (release 6.0 was originally released following 5.19). The numbering change is done for aesthetic reasons and is a formal step to alleviate the discomfort caused by the accumulation of a large number of releases in the series.

The new version incorporates 15,624 fixes from 2,477 developers, with a patch size of 56 MB (changes affected 18,053 files, adding 704,060 lines of code and removing 278,132 lines). The previous release included 15,657 fixes from 2,237 developers, with a patch size of 52 MB. About 51% of all changes in 7.0 are related to device drivers, approximately 11% of changes are related to updates to code specific to hardware architectures, 14% are related to the network stack, 5% are related to file systems, and 3% are related to internal kernel subsystems.

https://lore.kernel.org/lkml/CAHk-%3Dwj2WqpPBwpAXo8bj_Hx-NxKMRVTVMUaQis7%2BVm6XLRZiw@mail.gmail.com/T/%23u

OpenBSD renamed pfsync field after false AI vulnerability report:

13/04/2024

Theo de Raadt renamed a field in the pfsync packet header after receiving a false vulnerability report generated by AI tools. The "pfcksum[PF_MD5_DIGEST_LENGTH]" field was renamed to "spare[16]" because the AI model assumed the pfcksum name indicated that the field stored a hash or checksum of the packet contents and, since the field was not verified, assumed the code contained a vulnerability.

Teo explained that early in pfsync's development, this field was added to store a ruleset hash to optimize state checking. This idea was ultimately abandoned, but the field was retained for backward compatibility and was always filled with zeros. In the code, this field was merely referenced in the packet structure, but was neither checked nor filled.

The generated AI report claimed a vulnerability based on the assumption that the field is calculated when sending a packet but not verified upon receipt. The report explained in detail, the operating principle and the source of the problem, but in reality, it was an AI hallucination, concocted solely based on the use of the words "pfcksum" and "PF_MD5_DIGEST_LENGTH" in the code. The person using the AI to find the vulnerability didn't bother to verify the results before submitting the report.

https://undeadly.org/cgi?action%3Darticle;sid%3D20260413055845

New versions of Scribus 1.6.6 and 1.7.3:

14/04/2024

Scribus 1.6.6, has been released. This package provides tools for professional layout of printed materials, includes PDF generation tools, and supports separate color profiles, CMYK, spot colors , and ICC. The program is written using the Qt toolkit and is licensed under the GPLv2+ license. Ready-to-use binary builds are available for Linux (AppImage), macOS, and Windows. Version 1.6.6 primarily fixes bugs, cleans up the code of many plugins, improves scaling when importing documents from MS Publisher, and adds files for building in MSVC 2026 using the Windows 10 SDK.

Scribus 1.7.3 was released at the same time. Branch 1.7 is being presented as experimental; after final stabilization and readiness for widespread deployment, the stable release Scribus 1.8.0 will be based on branch 1.7. Branch 1.7 is notable

for its porting to Qt 6, dark theme support, icon conversion to SVG, a new implementation of dockable toolbars, and a redesigned color picker. Builds are available for Linux (AppImage, Flatpak), macOS, and Windows.

https://www.scribus.net/scribus-1-6-6-released/

OpenBGPD 9.1:

14/04/2024

OpenBGPD 9.1, a portable version of the routing package developed by the OpenBSD project developers and adapted for use on FreeBSD and Linux was announced. Portability is ensured by using code from the OpenNTPD, OpenSSH, and LibreSSL projects. The project supports most of the BGP 4 specifications and is RFC8212 compliant, but does not attempt to be too comprehensive, focusing primarily on the most commonly used and requested features.

OpenBGPD is being developed with the support of the regional internet registrar RIPE NCC, which is interested in bringing OpenBGPD's functionality to a point where it is suitable for use on servers for routing at inter-operator traffic exchange points (IXPs) and in creating a full-fledged alternative to the BIRD package.

https://www.mail-archive.com/announce@openbsd.org/msg00590.html

OpenSSL 4.0.0:

14/04/2024

OpenSSL 4.0.0, an implementation of the TLS protocol and various encryption algorithms, has been released. OpenSSL 4.0 is a regular support release, with updates available for 13 months. Support for the three previous OpenSSL releases (3.6, 3.5 LTS, 3.4, and 3.0 LTS) will continue until November 2026, April 2030, October 2026, and September 2026, respectively. The project's code is licensed under the Apache 2.0 License.

https://openssl-library.org/post/2026-04-14-openssl-40-final-release/

Raspbian 2026-04-13:

15/04/2024

The Raspberry Pi Project has released a new version of the Raspberry Pi OS distribution, 2026-04-13 (Raspbian). The distribution is based on Debian 13 and contains approximately 35,000 packages in the repository. The desktop environment is based on the labwc composite server, which uses the wlroots library from the Sway project. Three builds are available for download: a slimmed-down version (537 MB) for server systems, a basic desktop version (1.2 GB), and a full version with an additional set of applications (1.9 GB). Builds are available for 32- and 64-bit architectures. An update for the older Raspberry Pi OS release (Legacy) has also been created, built on Debian 12.

https://www.raspberrypi.com/news/a-security-update-for-raspberry-pi-os/

X.Org Server 21.1.22 Update:

15/04/2024

Corrective releases of X.Org Server 21.1.22 and the Device-Dependent X (DDX) component xwayland 24.1.10 have been published. These releases enable X.Org Server to run X11 applications in Wayland-based environments. These new versions address five vulnerabilities. Some of these vulnerabilities can potentially be exploited to escalate privileges on systems running the X server as root, as well as for remote code execution in configurations that use X11 session forwarding via SSH.

https://lists.x.org/archives/xorg-announce/2026-April/003678.html

Zorin OS 18.1:

16/04/2024

Zorin OS 18.1, a Linux distribution based on Ubuntu 24.04, has been released. Zorin OS 18, released six months ago, has been downloaded 3.3 million times, with approximately 80% of all downloads coming from Windows users. Updates for Zorin OS 18.1

will continue to be released until June 2029. Three ISO images (Core, Lite, and Education) are available for download, with sizes ranging from 4GB to 8GB.

Zorin OS uses GNOME as the desktop platform, with a set of custom add-ons and a panel based on Dash to Panel and Dash to Dock. Zorin Connect (based on KDE Connect) is included for desktop integration with smartphones. In addition to deb packages and Ubuntu repositories, support for Flatpak, AppImage, and Snap formats is enabled by default, with the ability to install programs from Flathub and the Snap Store.

https://blog.zorin.com/2026/04/15/zorin-os-18.1-is-released/

Draft specification for the IPv8 protocol:

16/04/2024

The first draft of the IPv8 protocol specification is posted for discussion on the website of the Internet Engineering Task Force (IETF), the organization responsible for developing internet protocols and architecture. The document, proposed by a third-party company, One Limited, was created outside the IETF standardization process and has the status of "Internet Draft" (anyone can publish such a draft, provided they comply with the formalities). IPv8 is notable for its use of OAuth2 JWT tokens for authorization of network elements and verification of each established outgoing connection via a DNS8 query (without a DNS8 query, no entry is created in the XLATE8 state table (similar to NAT), and the connection is blocked).

IPv8 addressing is similar to IPv4—the IPv4 address space is a subset of IPv8, and an IPv8 address is formed by combining the routing prefix (autonomous system number) with the IPv4 address (<asn>.nnnn). A zero routing prefix (0.nnnn) results in a regular IPv4 address that can be used to communicate with existing IPv4 networks. Essentially, each autonomous system is allocated its own IPv4 range. The IP field in the packet header specifies the version number 8, and 64 bits are allocated for the source and destination addresses—32 bits for the ASN prefix and 32 bits for the IPv4-style host address.

https://news.ycombinator.com/item?id%3D47788857

Laptop Game Server

I was speaking with a colleague in India who was going to set up his kid's laptop as a game server. While the laptop was running a different Linux distribution, not Ubuntu, I thought it would make a great article.

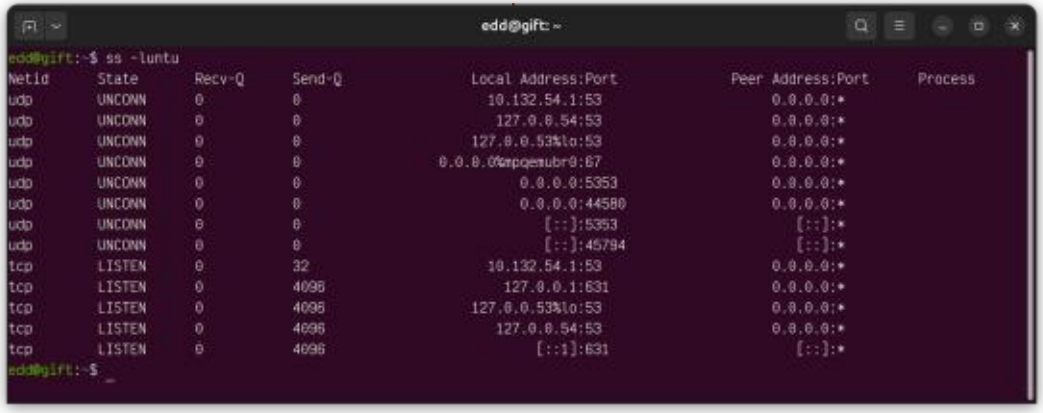
Let's first talk about ports... and I don't mean different sweet wines. We will provide a handy guide for you to interact with these elusive beasts. By now, you may have realised that you cannot interact with ports from the network settings panel in Ubuntu. You may know that ports have numbers, but you don't know why. Imagine coming up to a toll road. There are many booths and each lane is numbered. In some you can pay with cash, in some you can only pay by card, in others you can drive through with automated billing, etcetera. This is sort of like ports work on your network highway. Port numbers serve as toll booths that allow computers to send data to specific services or processes during data transfer.

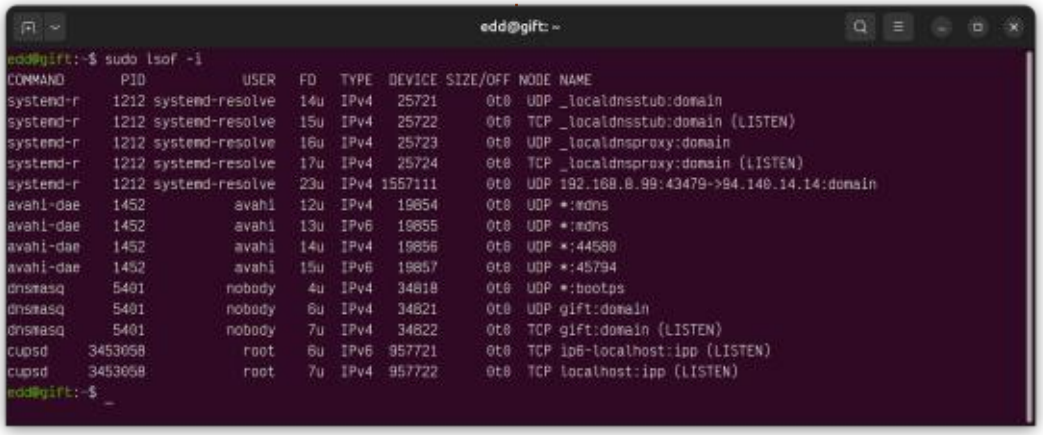
I'm not going to go down the rabbit hole that is networking, but suffice to say, your Ubuntu laptop talks to the "world" via TCP or UDP. TCP is what is known as a connection orientated protocol, and UDP as a connectionless protocol. TCP (Transmission Control Protocol) is the meticulous one, with its fancy three way handshake, (like all the cool kids do) making sure data is delivered and getting a receipt for every packet it delivers. UDP (User Datagram Protocol) is the opposite, with its devil-may-care attitude towards packets and greater speeds, due to not having to check things twice.

The way Indian scammers usually work, is they either open or get you to run a netstat command to see all the ports in use. These days, netstat is not installed in Ubuntu by default, but you can add it by running: sudo apt install net-tools

Netstat is a wonderful tool, however, it is not the only tool to view ports with. Ubuntu comes with "ss". Go ahead, type ss in a terminal and hit enter. We will focus on ss as it is default and does not require elevated privileges like netstat does. If you know netstat, you know -tuna and -tunl. If you do not, I suggest that you visit the manpage. Now for ss, (Socket Statistics) – that is basically just a quicker version of netstat. We, as Ubuntu users can memorise the options mnemonic quite easily, if you don't want to dig into the weeds. Try typing: ss -luntu (If you want to dig, the manpage is great.)

let me give you the highlights:
l – ports that you are listening on
u – UDP ports in use
n – give numeric IP addresses
t – TCP ports in use





the last “u” serves no purpose other than to make it memorable.

With computers, there are many ways to skin a cat and if you wanted to, you could even use lsof, like so:

```
sudo lsof -i
```

Any ports connected will say “established”.

You could obviously use other third-party tools as well, but that is beyond the scope of this article.

Savvy Ubuntu users like yourselves use UFW. If you have never, just type ufw in a terminal and hit enter. It will give you an error, but it will also tell you all the commands that you can use. If you look down that list to allow and deny, you will see that they end in ARGS. This means that the use of allow or deny requires additional arguments.

So now we can use that knowledge to open a port in our firewall. For instance:

```
sudo ufw allow 3389
```

this opens port 3389 (RDP port)

Now for the terminology, you created a “rule” - to close this open port now, you need to delete this rule that you just created.

Type:

```
sudo ufw delete allow 3389
```

You don’t need to block this port, when you delete the rule, the port is automatically blocked as this is the default state.

So, using what we know, we can check a port that your game server requires. For argument’s sake, let's say the game needs port 9005 open. You can use ss to take a look, like so:

```
ss -lntu | grep :9005
```

or using lsof, like so:

```
sudo lsof -i :9005
```

Does this make sense and are you comfortable using one of those two?

Did you run into issues?? Check to see the status of UFW, like so:

```
sudo ufw status
```

You can always reload the rules, like so:

```
sudo ufw reload
```

In the next issue we can take this a bit further. If anyone has a game server they wish us to install, misc@fullcirclemagazine.org, but hurry, you have less than thirty days to get us to make your own CnC. If we do not get any in time, we will continue being generic.

Erik has been in IT for 30+ years. He has seen technology come and go. From repairing washing machine sized hard drives with multimeters and oscilloscopes, laying cable, to scaling 3G towers, he's done it.

Compact Virtualbox Disks

Written by Bruce Goodman

In **FCM#227**, Erik presented a tutorial on re-sizing VirtualBox guest OS disks. There is another VM-related disk maintenance task that is good to do periodically - compacting guest OS's 'vdi' file. These have a habit of expanding over time. This slow growth is tolerable when the VM is a distro you want to have a look at or test, but VMs performing a server role need to be backed up regularly, and any bloat in the vdi files wastes both time and space. I have had one expand from 11.5 GB to 15.3 GB. So, compacting every now and again is worthwhile.

Compacting virtual disk files can't be done from the VirtualBox GUI; we need to run commands in the terminal, and the VM must be stopped. So the sequence is; stop the VM, compact the vdi file, and start the VM again.

We will use the VBoxManage command to do the compaction. This command has a huge number of parameters, and it takes quite a while to get comfortable with using it. To get a feel for the complexity, run this command to pipe the options to a text file;

```
VBoxManage --help >VBoxManage-options.txt
```

and you get a 37 KB file to peruse.

I will use a VM of Xubuntu 25.04 that was created after Adam's review of the distro in FCM#224. I allocated a maximum virtual disk file size of 30 GB.

First, I open a terminal and cd into the folder holding this VM's files. To list the installed virtuals;

```
VBoxManage list vms
```

```
"Windows 10" {ac5985ea-0903-499a-913e-445b8f502ed3}
"Xubuntu 25.10" {4acb090d-5421-48c5-a10e-15a544db9779}
"Server Ubuntu" {2732575c-3e41-4b36-9b57-9b807a194de1}
"Deepin 25" {cb99d947-cdf6-4be9-bb55-7975cb090370}
```

and we can see which ones are currently running;

```
VBoxManage list runningvms
```

```
"Xubuntu 25.10" {4acb090d-5421-48c5-a10e-15a544db9779}
```

We need to stop the VM;

```
VBoxManage controlvm "Xubuntu 25.10" poweroff
```

```
0%...10%...20%...30%...40%...50%...60%...70%...80%...90%...100%
```

We check the size of the vdi file before compacting it;

```
ls -lh *.vdi
```

```
..... 8.4G Mar 29 13:29 'Xubuntu 25.10.vdi'
```

Now we run the command to compact;

```
VBoxManage modifymedium --compact ./'Xubuntu 25.10.vdi'
```

```
0%...10%...20%...30%...40%...50%...60%...70%...80%...90%...100%
```

In my example the compaction took less than 10 secs. Now we can start the VM again;

```
VBoxManage startvm "Xubuntu 25.10"
```

```
Waiting for VM "Xubuntu 25.10" to power on...
VM "Xubuntu 25.10" has been successfully started.
```

Now we can check the post-compact vdi file size;

```
ls -lh *.vdi
```

```
..... 5.2G Mar 29 19:36 'Xubuntu 25.10.vdi'
```

The vdi file shrunk from 8.4 GB to 5.2 GB; that's a significant saving.

You can collect up the commands used in this sequence into a bash script to make life a little simpler next time your vdi files need a little care. Be aware though that the VBoxManage command must be run under your credentials. Running it as root will fail. So if you create a script to automate the steps in compacting your VM vdi files, and you want to schedule it using either cron or a systemd timer, you need to ensure the script runs as you, not root.

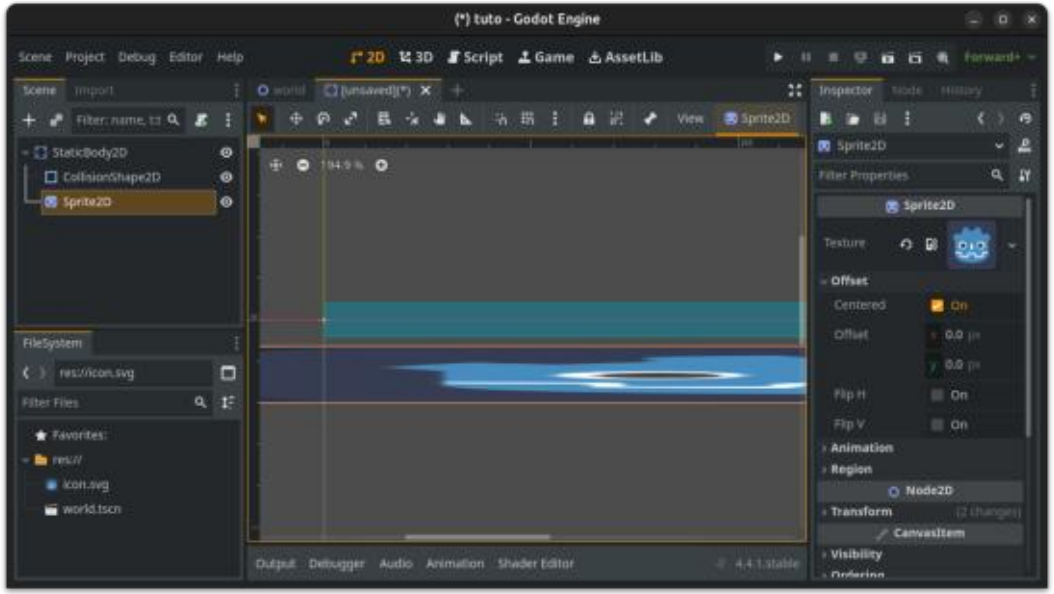
Godot Intro Pt.6

OK, in the last issue, we placed a sprite. Why? Because we need a visual representation, it won't be fun playing a game with invisible players and enemies and obstacles now...

First observation, placing order matters. We placed our sprite after our collision shape, and the icon was placed over the collision shape. If we swap the two, the reverse is true and the collision shape is placed over the sprite. This will be true for all your compound objects that you create. You can test this out, by dragging the collision shape before and after the sprite. Just don't drag it as a child of the sprite (as a branch of the sprite and not the StaticBody2D). This is a common mistake you need to be aware of, because it is easy to miss.

We are not too worried about placement in our tutorial, as collision shapes are not displayed when the scene is run, unless we specifically turn it on.

Let's go ahead and drag the sprite into the shape of a floor. (Rectangle)



Repeat for the collision shape. As you can see, mine is randomly placed. This is our first mistake that we will fix, and I'll explain why along the way. Since this is just an object and not a level or world, it is sort of a blueprint for floors. We can go to our main "world" node and import as many floors as we like, however, since the collision shape and sprite do not align, if I were to drop something on the floor, it would stop at the collision shape, as that is where objects interact. That is why it is important that objects be on their own, in their own scene. That way, when I need to correct all the placed floors in my world, I just do it once, here, on the "blueprint". We will go there in the future, but let us get something to drop onto the floor.

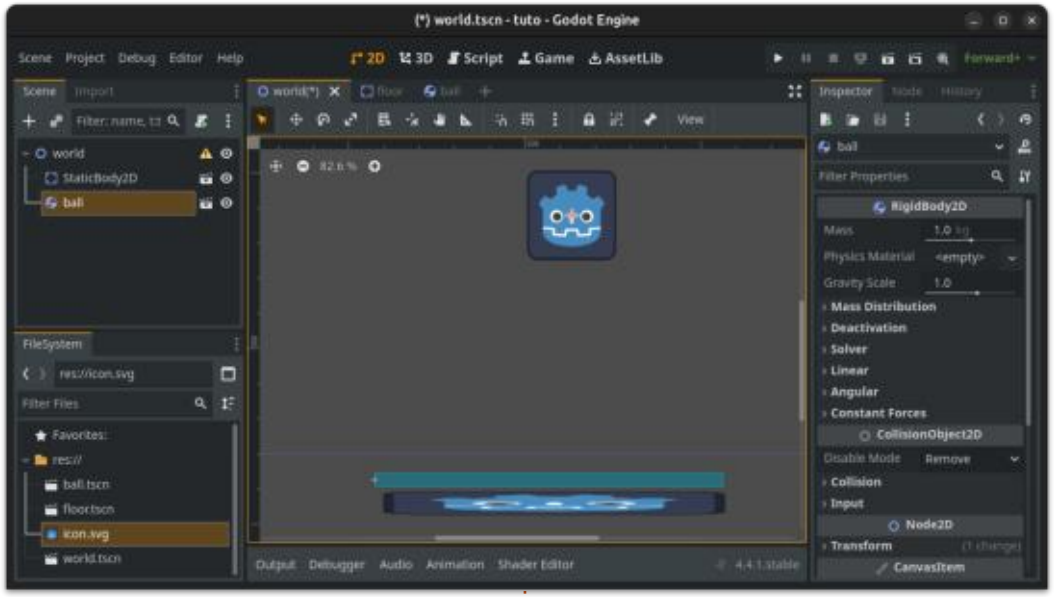
We can start by making a new scene (you remember how to do that?) and we will name it ball. I was going to say rock, but I want it to bounce, to show you something. Just like with the floor, I want you to go ahead and rinse and repeat what we did for the floor, the only difference will be instead of a StaticBody2D, the base node will be a RigidBody2D. Why you may ask? Well, the answer is in the description of the RigidBody2D. Read it before adding it. You can leave the collision shape as rectangle and leave the icon square. Round is a social construct...LOL.

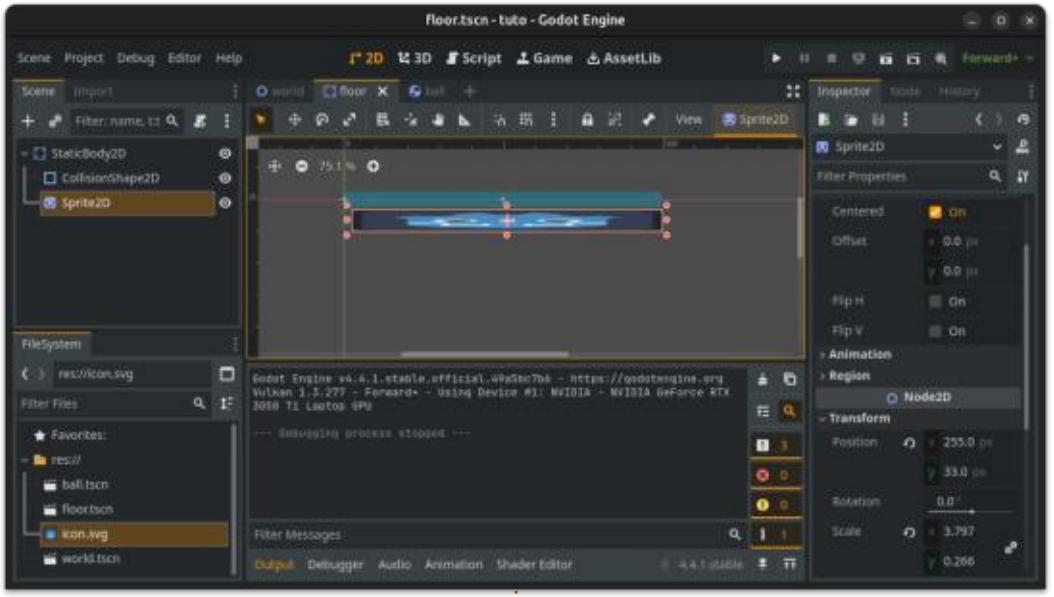
So why am I not showing you how to do it? I have already explained the process, step-by-step and you should be able to do it from there, also doing is learning.

Right, now we have the basics, a level screen, floor tile and a ball. Each of the objects have a collision shape attached to them, so they can interact with each other. How they interact with each other is determined by their node type.

I hope you saved each object as their own .tres file.

Now we can make some magic happen. Click on your "world" or "level" or "bob" scene, the first one you made. Eyes left, to the scene tree and click on the chain link icon (next to the plus). Select the floor





and place it. Now make sure that the top-most node is selected and repeat the process for the ball.

This is where things are slightly different, you see, when you "link" an object, you can move that linked object simply by clicking and dragging it. You don't have to worry that you will accidentally drag the collision shape off, only. This is why I told you to make scenes as blueprints in their own .tres files.

Now hit F6, which is "run current scene" and watch your ball drop like a rock... and in my case, hover above my floor. Hit stop. Now instead of me faffing on my world screen, I go back to my floor tab, and click on any of my objects in my scene tree, then eyes right, to the inspector, and I try to find something named "Transform" which is a property of a Node2d, not a sprite.

A quick way to make it all line up, is to hit the reset button next to "position". And my sprite will jump back to (0,0). Now I do that with my collision shape too, and viola! Both are aligned and I save my changes.

If I were to go back to my "world" tab again and hit F6 – my square ball now drops onto my floor perfectly.

But it is a "ball", shouldn't it bounce? Why does this damn thing not read my mind?

Let's go to the ball scene again and click on the RigidBody2D we named "ball", then eyes right again. The RigidBody2D has different properties, the first being "mass". If we change this to zero, the ball does not fall. You will also see the "Gravity Scale". They are both "1.0", but I want you to play with them and go back to "world", and when you press F6, observe the changes. It sure is fun in the negative ranges. Now reset it all back to 1.0 and save.

The other two I want you to go play with, are under "Linear" -> "Velocity" and "Angular" -> "Velocity". This applies a constant force to our ball. To experience it better, I suggest turning gravity to 0. All of this can be done in the "ball" scene. That is how you test out things before committing them.

Velocity, however, does not equal force, so you will see "Constant Forces" in the list as well. This will add or subtract a force vector, *all the time. Just like you learned in school, if you apply a constant force to a moving object, you have acceleration, and your ball will move faster and faster as it moves.

Right, now that you played with the settings, you may have noticed we found no “bounce”. We only have a paperweight named “ball”. This really tripped me up when I tried to make a “Pang!” clone. I can tell you that it is not apparent. I got quite frustrated. To save you the hassle, look at “Physics material” and it is <empty>. Let’s give it one, click on “New Physics Material” and it will now say, “New Physics Material”... yay?

Hidden menu time again! Click on the words to reveal the menu. This is why you need to do it with me, as it will create muscle memory. Suddenly, we have “Bounce” as an option! Please play a bit, but we will want “1.0” as our value. Why? Because we want it to bounce back to its origin. Save and F6 to see your handiwork. In the game “Pang”, the balls of a certain size, all bounce a certain height and don’t go lower. Now I want you to go to your “floor” and see if you can find a similar setting.

Nice note to end on: we have a bouncing ball, on a floor, without one line of code! You have learned where to look in the inspector for settings related to your objects. In the next issue we will see how to work with what we have.

As always, misc@fullcirclemagazine.org if you want to lay an egg.

Erik has been in IT for 30+ years. He has seen technology come and go. From repairing washing machine sized hard drives with multimeters and oscilloscopes, laying cable, to scaling 3G towers, he's done it.

Another month, another set of topics for Latex. Yay! This time I will look at a few of the topics at ctan.org that start with "S". I discovered there are quite a few languages in this topic: Samin (Scandinavia), Sanskrit (India), Scottish Gaelic (Scotland), Serbian (Serbia et al), Slovak (Slovakia), Slovenian (Slovenia), Somali (Somalia), Sorbian (Germany), Spanish (many countries) and Swedish (Sweden and Finland). There is also a topic for typesetting as done in Switzerland. You may be aware there are four official languages in Switzerland: German, French, Italian and Romansh. I do not work with any of these language-specific or country-specific packages.

The first topic that caught my eye was the security topic. There are eleven packages listed in security. A few are to encrypt documents. I do not know much about cryptography so I avoided these. There is a package called "censor" which allows the user to redact portions of documents. Redaction is the replacement of characters with black boxes so it looks like someone has gone through the document and used a black marker to cross out words. Redaction is used to hide sensitive or private information when private documents are viewed by people who should not see that information. Not all redacted documents are generated by security forces (police for example). Redaction can be used to hide commercial information from competitors.

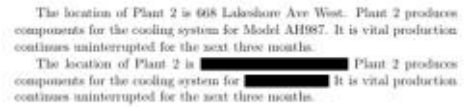
The censor package was updated about one year ago. The twenty-page documentation is clear, with lots of examples of both code and the results of using the code. Censor can redact individual words, phrases, paragraphs, entire tables or individual table cells, math equations and others. The size of the blackout can be adjusted if desired. This looks like a very useful package for those who are required to work in secure environments or with secure documents. A sample is included with this column.

```
\usepackage{censor}

\begin{document}

The location of Plant~2 is
668 Lakeshore Ave West. ...

The location of Plant~2 is
\censor{668 Lakeshore Ave
West.} ...
```


The location of Plant 2 is 668 Lakeshore Ave West. Plant 2 produces components for the cooling system for Model AH987. It is vital production continues uninterrupted for the next three months.
The location of Plant 2 is [redacted] Plant 2 produces components for the cooling system for [redacted] It is vital production continues uninterrupted for the next three months.

There are nine packages listed in the Spell topic. Four were designed to run in DOS and Windows: amspell, fourspell, jspell. Texspell. One was built to run on VMS-VAX, one runs on Macintosh systems: excalibur. Ispell has been superseded by Aspell. (You may already be familiar with Aspell.) The last one, spelling, runs with LuaTex so I cannot test it on my system. I use TexStudio for my Latex work. It has a built-in spell checker. Of course, spell checkers are only useful if you know the correct spelling of the word you are trying to type.

When I look at the list of packages in the Statistics topics I wish I had learned more statistics and economics. Then I could make more sense out of the short package descriptions listed here. My problem is not so much understanding the descriptions, the words make sense. However I do not know how to illustrate the use of most of these packages. Unlike most of the others the econometrics package is easy to use, I have no idea when I would need to use it.

The econometrics package contains commands for notation in econometric writing. It follows the standards proposed in a paper by Abadir and Magnus in 2002. (If you want the full citation go to ctan.org and search for the econometrics package.) Sets can be indicated using the single upper case letters C, N, Q, R and Z. Vectors are named with lower case Latin and Greek letters, matrices by upper case Latin and Greek letters. There is a list of about fifteen constants, distributions and other symbols

which can be generated by the package. There are many other short-form commands for many other terms in common use in economics, econometrics and statistics. There are some samples available as part of this column.

The code for the example is shown top right.

$N = set\ of\ natural\ numbers$

$a = vector\ a$

$\beta = vector\ beta$

$mJ = matrix\ J$

$e = Euler's\ constant$

$\mathrm{Bin} = Binomial\ distribution$

$\frac{df}{dx}\ \frac{\partial f}{\partial x} = should\ be\ obvious$

$\mathrm{int} = integer\ part$

The three additional packages are required and must be loaded as packages. The econometrics package will not load them on its own. Note the use of \]...\] to tell Latex each line contains math. Without a math command ($...$ or \(...\) or \]...\]) the code will generate errors.

Some of the symbols and operators can be generated using amsmath and amssymb without econometrics. This package puts the commonly used math symbols and operators in one standard package.

I took a look at the statistics package. My knowledge of statistics stops with being able to generate graphs from data and recognizing a few of the resulting curves. This package intimidates me. It will generate tables and graphs from raw data: frequency tables, distribution functions, bar graphs, histograms, part graphs and more. The author claims "every part of the generated tables or graphs is customizable." The documentation is fifty-five pages long, Twenty-seven pages are devoted to helping users take full advantage of the available features.

There is another package for statistics with only six pages of documentation. It provides commands for a long list of "operators" used in statistics which are not available in the amsmath package. However the documentation lists all the available

```
\usepackage{econometrics}
\usepackage{amsmath,amssymb,bm}
\begin{document}
      \[\SN = set~of~natural~numbers \]
      \[ \va = vector~a \]
      \[ \vbeta = vector~beta \]
      \[mJ = matrix~J \]
      \[ \e = Euler's~constant \]
      \[ \Bin = Binomial~distribution \]
      \[ \deriv{f}{x} ~ \pderiv{f}{x} = should~be~obvious\]
      \[ \ip  = integer~part \]
```

shortcut commands. The lists are not useful to me because I do not write papers on this subject.

There is a topic called std-conform. It contains a long list of packages, most of them are styles or classes for specific institutions like the Bern University of Applied Sciences or the University of Western Australia. Some have more common applicability like Apa7 and Isomath. I did not explore any of these packages. These packages show how widespread the use of Latex is.

I wondered why there is a subdocs topic. It is quite easy to divide a long work into sub documents and then combine all the sections when the document is compiled. Because of the required coding it is not possible to compile a sub-document separately from the main document. That means a writer cannot find coding errors in one sub-document without generating a PDF for all the sub-documents. A writer can exclude compilation of all sub-documents by commenting out the unnecessary ones but this can be inconvenient or tedious. The childdoc package resolves these issues. However it uses a special syntax which must be followed exactly. Read the documentation carefully before using this package. (I chose not to give an example since the code and the resulting PDF would use a lot of space.)

Because of my background in science and math I was attracted to the subsup list of packages. Most of the time simply using textsubscript and textsuperscript commands will serve the purpose. In math mode the underscore can be used to indicate subscripts and the caret for superscripts. Isotopes require sub-

```
\usepackage{nuc}
\begin{document}
     Subscripts normally indicated using textsubscript{text} and textsuperscript{text}:
x\textsubscript{2}\textsuperscript{5}. This is not adequate in some situations.
     A short demonstration of nuclear isotope notation using the ''nuc'' package.
     \H{2}, \H{3}, \C{12}, \C{14}
```

and superscripts on the left side of the element. The “nuc” package provides a macro which only requires the atomic mass and the element symbol to generate complete isotope notation. The examples show the deuterium and tritium isotopes of hydrogen as well as two isotopes of carbon.

Subscripts normally indicated using textsubsc
scripttext: x_2^5. This is not adequate in some situat
A short demonstration of nuclear isotope notati
${}^{2}_{1}\mathrm{H}$, ${}^{3}_{1}\mathrm{H}$, ${}^{12}_{6}\mathrm{C}$, ${}^{14}_{6}\mathrm{C}$

For those readers interested in something more trivial, some relief from academia, there are some Sudoku packages and a package for generating crosswords in the Sudoku topic. I took a look at the package called Sudoku. It will generate a 9x9 grid quickly and easily. There are several options available to change the different features of the generated grid. You can read about them in the documentation.

Latex can be used to have fun as well as assist with work projects.

There are several interesting topics under the letter T. Join me next time to learn more about the fascinating and complex tools available in Latex.

An example of the sudoku package. This is obviously not a genuine puzzle.

2	5		3		9		1	
2	5		3		9		1	
2	5		3		9		1	
2	5		3		9		1	
2	5		3		9		1	
2	5		3		9		1	
2	5		3		9		1	
2	5		3		9		1	
2	5		3		9		1	

```
\usepackage{sudoku}
\begin{document}
     An example of the Sudoku package. This is obviously
not a genuine puzzle.
     \begin{sudoku}
          |2|5|  | 3| |9| |1|.
          |2|5|  | 3| |9| |1|.
          |2|5|  | 3| |9| |1|.
          |2|5|  | 3| |9| |1|.
          |2|5|  | 3| |9| |1|.
          |2|5|  | 3| |9| |1|.
          |2|5|  | 3| |9| |1|.
          |2|5|  | 3| |9| |1|.
          |2|5|  | 3| |9| |1|.
     \end{sudoku}
```

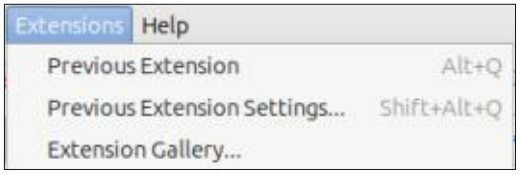
Inkscape - Part 168

As well as the core functionality, Inkscape can be enhanced through the use of extensions. These are external programs that process your Inkscape document and return a modified version. As you might imagine, the scope of what "process" and "modified version" mean is vast: in theory an extension could do just about anything to your document. This allows extensions to provide features that are well outside the capabilities of the core application, often filling very specific niches.

Extensions are made available from within Inkscape through the Extensions menu and its many sub-menus. The standard distributable packages come with a large number pre-installed. I've looked at some of these in the past, but extensions have come and gone over the years, and there are many that I haven't covered previously.

I'm therefore going to spend some time looking at each of the extensions that ship by default with the AppImage release of version 1.4.3 that I'm running on my Ubuntu Mate machine. If my older articles still apply, I'll direct you towards them (there's no point reiterating the same content, even if it would do wonders for my word count). For the rest, I'll try to give at least a cursory overview of their functionality, if I can – and go into more depth if it's warranted.

Let's get started at the top of the Extensions menu with the first three items – which aren't actually extensions themselves.



The 'Previous Extension' entry is only enabled if you've previously run an extension in your current editing session. Selecting this will re-run the last extension you executed, with the same parameters. This can be useful for extensions that have an incremental effect, and may need to be run several times to get your desired result. It's also useful if you need to undo the effects of an extension in order to move items around, or change your selection – but otherwise want to run it again with the same settings.

If you don't want to use the same settings, the second entry has you covered. This will also re-run the previous extension, but will show the settings dialog, if the extension has one. Inkscape follows classic UI tradition in showing an ellipsis ('…') after the name of any extension that has a settings dialog, so you can identify which ones will require additional input before you run them. This does mean that selecting this entry will behave differently based on whether or not the last extension you ran falls into that category. If it does, the dialog will be shown – providing you with an opportunity to cancel the operation. If it doesn't then this menu item behaves the same as the first one, and will just run the last-used extension with no further input required, but also no opportunity to change your mind before the operation takes place.

The "Extension Gallery" is a new addition to Inkscape 1.4, which I covered in detail in FCM #219. It provides a more visual interface for running extensions, compared with a hierarchical list of names. This dialog is particularly useful for searching for an extension by typing its (partial) name, but I have some doubts whether the gallery view offers much more insight into the effects of most extensions than the names alone.

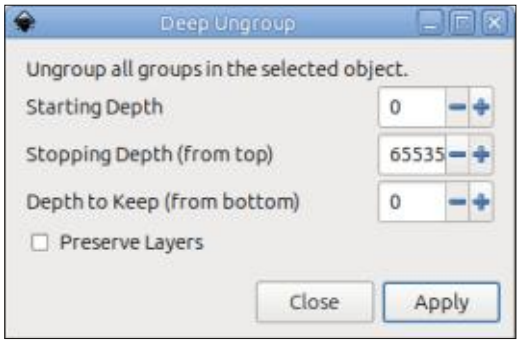
At the very bottom of the Extensions menu is another administrative tool that's not an extension. It's the "Manage Extensions…" entry, which is supposed to open an extensions manager dialog for installing additional extensions from the internet. Unfortunately, this crashes quite reliably on my machine, regardless of the version of Inkscape I use (and I have many to choose from). Even the packaged DEB copy of 1.2 that I installed from the Ubuntu repositories has the same problem, so it's not limited to the AppImage versions, and appears to be due to some missing dependencies on my

machine. As such, I'm not in a position to describe this dialog any further at this time.

Let's move on to the extensions themselves, starting from the top…

Arrange > Deep Ungroup…

I described this extension in some detail back in FCM #131, and very little has changed since then. The UI has gained a single extra control: a checkbox labelled 'Preserve Layers'.



Remembering that SVG has no real concept of layers, and that Inkscape fakes them by using SVG groups (<g> elements) with a custom attribute, the addition of this checkbox makes sense. With this enabled, ungrouping will only occur within layers, but those special layer-groups themselves will not be flattened further. This provides a good compromise between being able to ungroup deeply nested objects in your drawing while still preserving the higher-level structure.

It may seem like an obvious choice to just enable this checkbox as a matter of course. Depending on the source of your deeply nested objects, however, this may not be the best option. Now that Inkscape has a unified 'Layers and Objects' dialog that shows the groups and layers in a single interface, it's a lot easier to make a judgement call as to whether preserving layers is worthwhile. Some third-party clipart, or programmatically generated files such as chart exports, can be so deeply nested that the easiest option is just to ungroup everything, and sort out re-creating the layers you want afterwards.

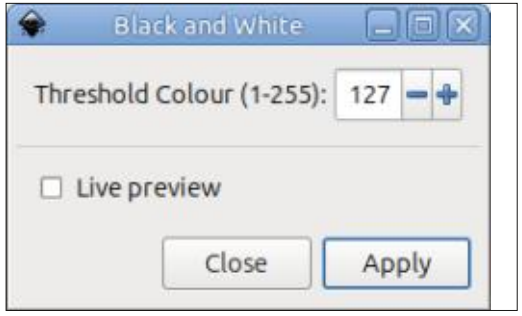
One option that isn't always considered is to copy the deeply nested parts that you're interested in to a separate file, ungroup them there, then re-group them as a single-level group before copy-pasting them back into the original document. This might be useful, for example, for dealing with a single deeply-nested clipart object in the otherwise fairly shallow structure of your own document.

Arrange > Restack…

This was also covered in detail in FCM#131, but has not changed at all in the intervening years, as far as I can tell.

Color > Black and White…

This simply changes the fill and/or stroke colors of your objects to black or white, based on the threshold value you provide. It's well worth using the 'Live preview' option, as the result of this operation isn't as predictable as you might expect. The human eye is more sensitive to some colors than others, so the threshold required for red objects won't be the same as that required for green ones, for example.



Inkscape now provides color pickers using the OKHSL format, which makes it easier to select colors with similar perceived intensity (though not as good as OKLAB, which Inkscape doesn't offer yet, although it is supported in modern CSS). However, it's important to note that the selected value is still stored using RGB format, and it's those values that this extension operates on. In other words, even using the OKHSL picker won't cause this extension to behave in a more predictable way, unfortunately.

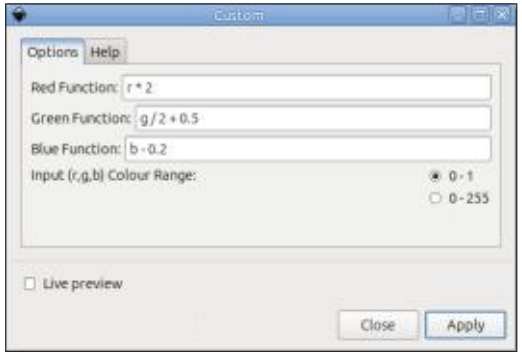
Color > Brighter

This makes the colors of the selected objects brighter. But just a little bit. There's no UI to select the amount of the brightness increase, so it's a good candidate for repeated use of the 'Previous Extension' menu entry. For my test document, I found I needed to run this extension 5 times to make an obvious change to my image.

Again, this operates on the RGB values, so suffers the same issues with human perception as most of these color extensions.

Color > Custom...

This lets you apply a custom function to each of the R, G and B components of the selected objects' fill and stroke colors. As with the other color extensions you can't specify whether the change should only affect the fill, the stroke, or both, which is rather a shame.



The functions you supply are rather limited in syntax. You can add, subtract, multiply and divide – but trying something more complex such as "sin r" (which I tried in various formats) will fail with an error dialog.

An obvious use is something like "r / 2" in the R channel while leaving the G and B values alone, to halve the value of the red component of the color. But you can also combine the different channels: "r / g", for example, to divide the red component value by the green component value, perhaps even putting the result back into the B channel.

Whether or not this level of control is actually useful to you is another matter. I suspect that it's probably too complex for most users, but also not powerful enough for anyone who really has a need to alter the color channels more programmatically.

Color > Darker

The counterpart to Color > Brighter, working in the same way. Especially when dealing with brighter colors, the effects of this one appear to kick in with fewer iterations.

Color > Desaturate

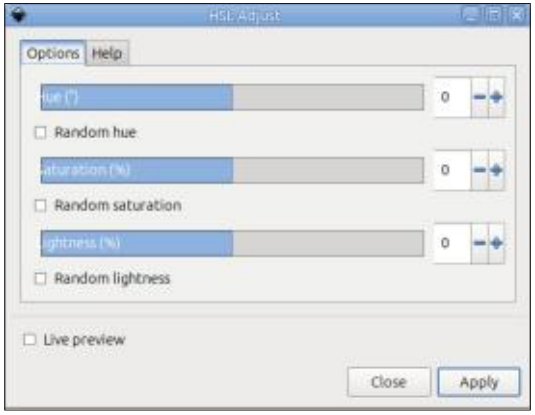
This converts your fill and stroke colors to their desaturated equivalents – the same as if you opened the HSL color picker and dragged the S slider to zero. There are no controls to adjust the effect, and this can also suffer from human perception issues. For example, although a 100% green tone appears to be much brighter than 100% blue to the human eye, they both map to the same desaturated value with this extension.

Color > Grayscale

This extension converts the fill and stroke colors to their grayscale equivalents. It's not clear exactly what algorithm is used to perform this mapping, but the results do a better job of maintaining the perceptual differences in the original colors than the Desaturate extension does.

Color > HSL Adjust...

This one was mentioned in FCM #130, but not covered in much detail. This can perhaps be thought of as a more intuitive version of the Color > Custom… extension, in that it works using the HSL color model, rather than RGB. Internally your RGB fill and stroke colors are mapped to their equivalent HSL values, then the components adjusted based on your selections in the dialog. Finally, the modified values are mapped back to RGB to update the colors in the drawing.



Each slider lets you adjust the amount that is added to, or subtracted from, the Hue, Saturation and Lightness channels, with an option to simply randomise the corresponding value instead. The Hue slider ranges from -360° to +360°, while Saturation and Lightness allow up to ±100%.

In most cases you'll probably only want to change one of the three channels. Adjusting Hue will let you re-color your objects while keeping them perceptually similar in brightness and saturation. Adjusting Saturation will let you intensify the colors, or subdue them. Adjusting Lightness will make your colors lighter or darker.

As you may have guessed, this Extension can be used to replicate some of the functionality of others

I've talked about (and some yet to come), but with a greater degree of control and the ability to check out a live preview first. Adjusting the Lightness value is broadly equivalent to using the Color > Brighter or Color > Darker extensions multiple times. Reducing the Saturation value to zero is equivalent to the Color > Desaturate extension.

I do have two small complaints about the UI of this extension. The first is that, given that you'll often only want to adjust a single value, it would be useful to have buttons to reset the sliders to zero. As it stands, you have to manually make that change for the channels that you don't want to be adjusted – which is a particular pain if you've got the Live Preview option selected.

The second is that it would be nice to have a button to re-trigger the random number generator. With the current design, you can use the Live Preview option to see a randomised result before you commit to accepting it, but if it's not what you want and you'd like to try again, you have to adjust one of the UI elements (e.g., nudging a slider up or down by 1) to re-trigger the randomiser. An explicit button to do this would be more discoverable.

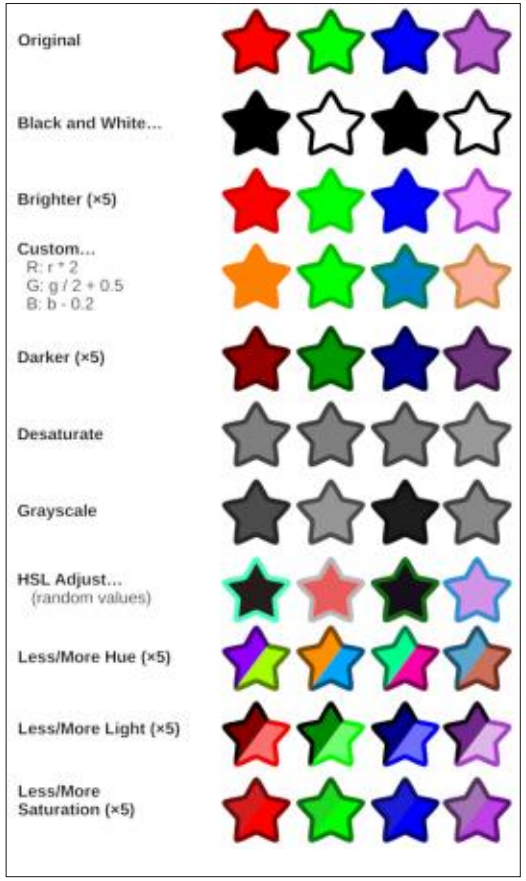
Despite those misgivings, this is a far more useful extension than the non-interactive equivalents.

Color > Less/More Hue, … Light, … Saturation

This title refers to six different extensions, starting with Color > Less Hue and working through all the combinations until you get to Color > More Saturation. Note that the extension names use 'Light' for some reason, but they're still talking about the 'Lightness' component of the HSL color model.

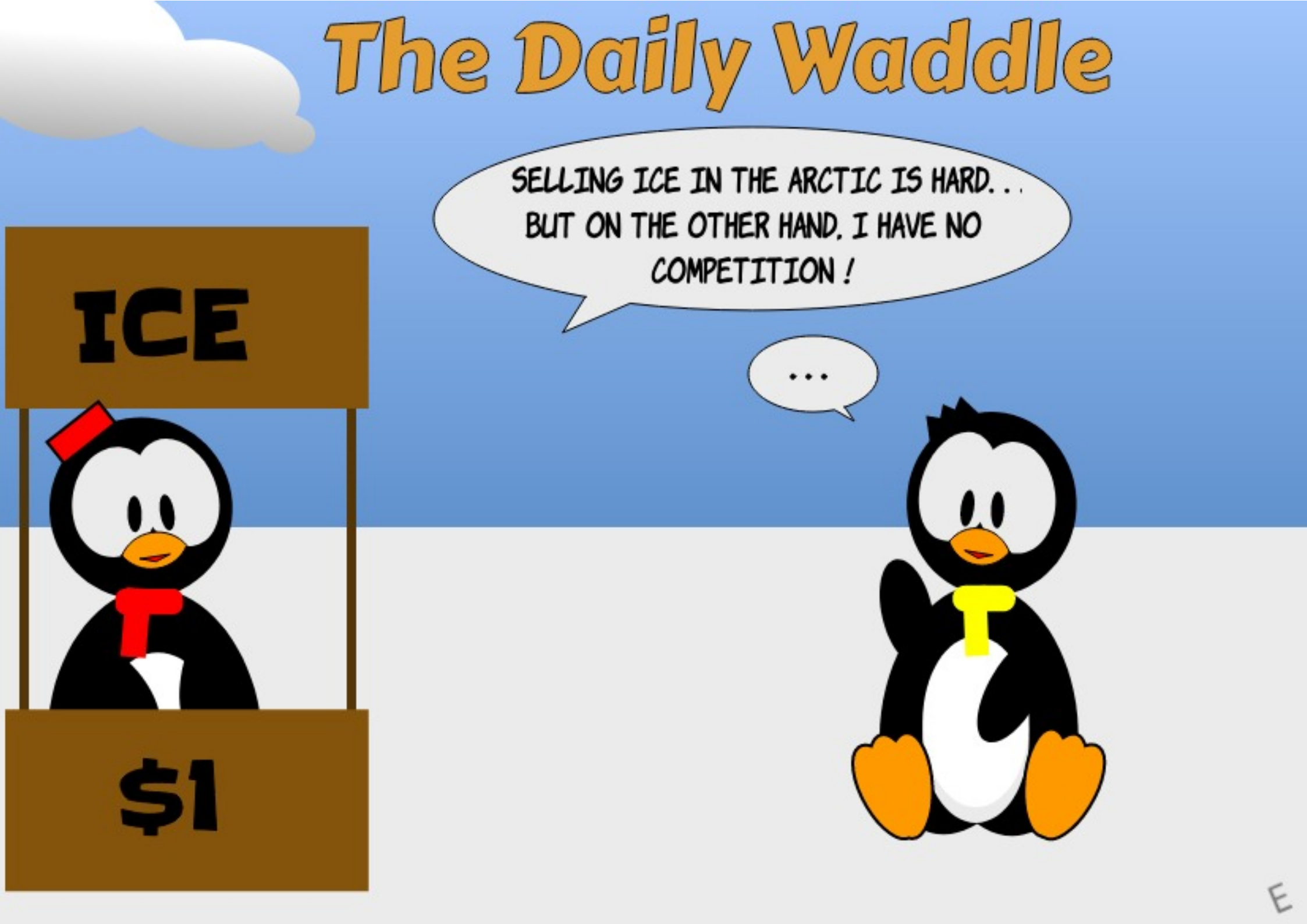
All six of these are simply the non-interactive versions of nudging the sliders in the HSL Adjust… extension and, as such, are pretty useless compared with having a UI with the Live Preview option.

I'll finish up this instalment with an image that shows the effect of the color extensions I've discussed here, so far.



Mark uses Inkscape to create comics for the web (www.peppertop.com/) as well as for print. You can follow him on Twitter for more comic and Inkscape content: **@PeppertopComics**

The Daily Waddle



shells.com

Linux on Your iPad

For as low as $4.95, you can have your own personal Linux cloud computer in minutes on any device.

GET IT ON macOS | Get it on Windows 10 | Download for Linux | Download on the App Store | GET IT ON Google Play

Moksha Warp

*Joseph Wiley is the nephew of the lead dev of the Bodhi Linux project and a future leader within the project. - **Moss***

For years, the Linux desktop has been playing a high-stakes game of "telephone". Every time a window moves or a video plays, your computer copies that data from the application, hands it through multiple compositing steps, passes it to the compositor, and finally pushes it to your monitor. This "Middleman" approach costs you battery life, generates heat, and adds those tiny micro-stutters we've all learned to ignore.

I set out to change that with the Wayland-to-X11 Asynchronous Runtime Proxy, or simply: Warp.

The Search for a Chassis

I looked at the field. I wanted to build a modern, high-performance pipeline for the whole X11 ecosystem, but I quickly realized that Moksha was one of the only candidates with an architecture flexible enough to handle this level of hardware-direct control. It's one of the few desktop "engines" that doesn't get in the way of the hardware. While other desktops are buried under layers of rigid toolkits, Moksha's structure allowed me to reach down into the "guts" of the Linux graphics stack.

Engineering the "Warp"

The result is Moksha Warp. By leveraging modern kernel technologies like dmabuf and KMS, Warp creates a specialized "Direct-to-Hardware" path. Instead of the CPU acting as a bottlenecked post office for every frame, Warp intelligently identifies high-demand windows and "warps" their data directly to the graphics hardware.

We aren't just keeping the lights on for X11; we're introducing a Near Zero-Copy pipeline that targets the specific overhead that usually slows down older systems. By reducing the number of times a frame is copied in memory, Warp aims to provide a measurable boost in responsiveness and thermal efficiency, even on hardware that's seen a decade of service.

The Strategy of Selective Acceleration

Modern compositors aim for zero-copy rendering where possible, but the reality is that hardware has physical limits. Moksha Warp doesn't hide behind a "one-size-fits-all" promise. Instead, we are building the orchestration logic that intelligently assigns your limited hardware resources to the windows that need them most. It's not about forcing every window into a zero-copy path; it's about doing the right things perfectly to maximize the performance of the entire desktop.

From Research to Reality

The "impossible" part (bridging the X11 architecture to modern KMS) has already been validated by the prototype. However, the jump from a research prototype to a stable, daily-driver integration within Moksha is the steepest climb for a solo developer.

The core logic is sound, but the final mile is where the real work begins. To reach a production-ready state, we need to implement full Overlay Plane support for peak efficiency and harden the resource lifecycle to ensure the system remains rock-solid during rapid window transitions.

The Path Forward

The prototype is functional, and the foundation is laid. We are looking for contributors to help refine this low-overhead X11 pipeline on GitHub. Beyond the code, if you'd like to support the project's infrastructure and sustainability but lack the time or technical skills, feel free to visit my Open Collective or Liberapay pages. Your support keeps the R&D moving and the lead developer at the desk.

We aren't just maintaining a desktop; we're proving that with the right plumbing, the classic Linux desktop still has its best days ahead of it.

Links

Moksha Warp Demo 1 video:
https://www.youtube.com/watch?v=u13_XfL_JUc

GitHub:
https://github.com/flux-abyss/moksha-warp

Ko-Fi (donations):
https://ko-fi.com/fluxabyss

UBPORTS DEVICES

Written by UBports Team

UBports at Installfest Czech Republic

On the 28th-29th March we were at Installfest, Prague. https://installfest.cz/if26

We had our own booth and several devices on show and to try.

Adam Havelka was there for UBports with Vojtech and said: "*It went very well, people seem to be more interested every year like more and more crowds every event I am at.*"

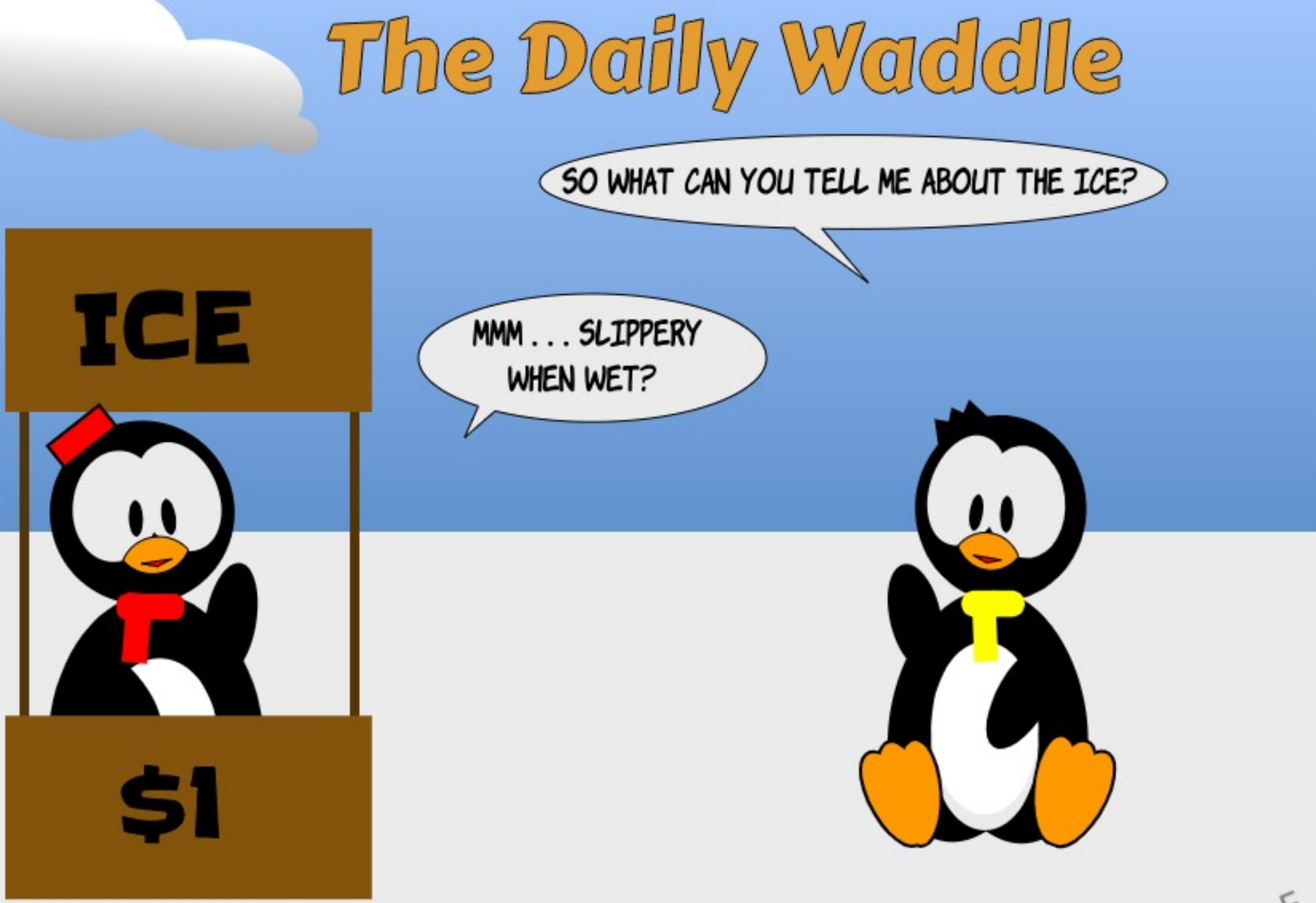
Another event to put in the diary: https://www.linuxdays.cz/2026/

Ubuntu Touch Q&A 179 and 180 are available in video and audio versions.
https://ubports.com/blog/ubports-news-1/ubuntu-touch-q-a-179-3985

https://ubports.com/blog/ubports-news-1/ubuntu-touch-q-a-180-3986

Ubuntu Touch Q&A 185 is available in both blog and audio versions.
https://ubports.com/blog/ubports-news-1/ubuntu-touch-q-a-185-3992

The Daily Waddle



Open Source Christmas

In a previous issue, I mentioned that I'd talk about the Vista fiasco. To understand that, you need to understand that Microsoft is driven by profit alone. Each iteration of Windows needs something the last did not have, making your hardware obsolete. This forces you to not only buy new software, but also hardware. This alone is the reason people are moving to Linux. I mean, with the prices of hardware, who has money to spend every three years for new computers? E-waste is not a joke. If we turn the clock back 20 years, to 2006: lots of people just bought new computers, and suddenly there was this Longhorn on the horizon.

To understand the issue, let's examine Windows XP's requirements:

What are the system requirements for Windows XP?

"*To run Windows XP, you would need at least a 233-megahertz (MHz) processor, 64 megabytes (MB) of random-access memory (RAM), and 1.5 gigabyte (GB) of available hard disk space. However, it is recommended to have a faster processor, 128 MB of RAM, and more storage for optimal performance.*"

At the time, we were rolling out new machines with Pentium 4 processors and 1GB of RAM (The base machines, however shipped with 256/512MB's of RAM), and laptops with the Centrino certification, running at 2Ghz with 512MB of RAM and 128/256MB, for the base machines. This was more than Windows XP needed and people's computers ran fast, with the base specs of machines so far over the required needs of XP. I was forced to use Windows XP, as the Windows 2000 that I used and liked, was not supported when it came to directx, or whatever it was, I needed at the time. I recall a lot of people buying new machines and playing games with things like positional audio and running multimedia applications without issue. The only issue was the pesky viruses and anti-virus software.

The mainboards at the time had the graphics on the board and you could set it in the BIOS from 16-128Mb memory. TV tuners were all the rage and ran fine on 512MB of memory.

Switching from Windows 2000 was not too painful as XP only used a bit more resources to do the same things. Switching from XP to Vista was not so easy.

What are the system requirements for Windows Vista?

"*To run Windows Vista, you need a personal computer (PC) with at least a 1 gigahertz (GHz) processor, 1 gigabyte (GB) of random-access memory (RAM), 15 GB of free hard disk space, and a DirectX 9-compatible graphics card with a windows display driver model (WDDM) drive*"

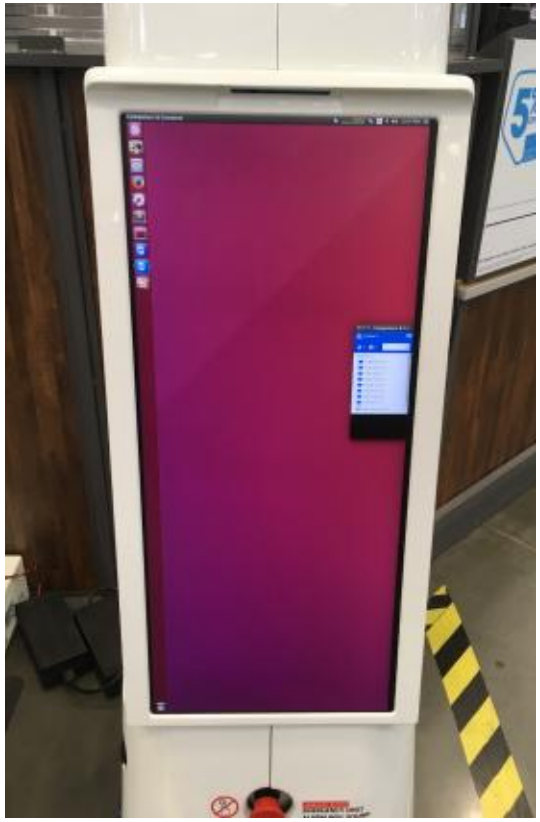
Quickly compare the two. The problem was that these specs just ran Vista: as soon as you loaded office, you were screwed. If you had 512MB of memory, which was almost a luxury on XP, Vista just barely ran. Given that at the time, most main boards sold only supported 4x128MB memory modules and the newer boards maximum memory capacity was 2GB, you can see the issue. Machines went to retailers with Vista on with 512MB RAM and it looked OK on the retail shop floor. As soon as the customer got the machine home and added anything to the machine, like say his TV tuner, it would bottom out, causing customers to bring the machines back. I remember telling management we needed 2GB of memory, but was told to "make it work" as I can't know better than Microsoft and Microsoft says these specs work and our current specs are the minimum. This meant that you did not load any drivers where a device worked natively with Vista. The drivers would increase performance, say like the graphics drivers, but loading them on a minimum spec machine caused it to bottom out. People who just bought, say, TV tuners, found that

these no longer worked on Vista as it was not supported (the equivalent of streaming boxes now).

A lot of people switched to Ubuntu during this time and it worked great, but they could not run their accounting software or games libraries, so they begrudgingly bought machines with the memory maxed at 2Gb or stayed with Windows XP. Normies just did not know anything about Linux. They expected a money-free version of Windows when you tried to tell them about Linux. This is so bad that people will say Windows is better, just because they do not know how to even use Linux, but won't admit it. For me, it's like

seeing someone eat from the garbage can and tell you how much better it is than your fresh sandwich.

As much as people tell you the percentage of OS use is Microsoft 90%, it's not. Maybe on the desktop PC market, but in essence Linux is a lot more prevalent than you think. In the defense and aerospace industries, like NASA, it's almost all Linux. Why? It's a lot more robust than any other operating system and it has lots of software that assist in data processing. I even recall hearing that the ISS computers that matter, all run Linux. In the manufacturing industry, it is a mixed bag, but when you take into account all the embedded Linux stuff, it is also the top dog. In a famous tire brand company, the tire testing machines from Germany all still run Damn Small Linux! All the companies I have ever worked for that do anything on the internet, those servers are Linux. Sure, internally the servers are Microsoft, like Exchange server, but the machines hosting your websites and the machines controlling the battery management systems and the machines running your firewalls are Linux. Android is another famous one. I bet most normies do not have the foggiest they are using Linux on their phones. In scientific circles it is also a mixed bag, but the ones doing the work, like at the LHC, it's all Linux. Motor vehicle and airplane infotainment...Linux. While I have never seen or worked anywhere satellites are made, I hear that they, too, run Linux, meaning there is more Linux above your head than any other operating system. All the top supercomputers also run Linux. Smart TV's and smart watches? Linux. Speaking of those Chromecasts, et cetera, what do you think they run? The projectors and printers and switches and routers and security cameras...embedded Linux. The digital signage is also a mixed bag, but predominantly Linux and on and on. These days, if you don't know linux, you are behind, because it is literally everywhere.



Erik has been in IT for 30+ years. He has seen technology come and go. From repairing washing machine sized hard drives with multimeters and oscilloscopes, laying cable, to scaling 3G towers, he's done it.

Write For Full Circle Magazine

Guidelines

The single rule for an article is that **it must somehow be linked to Ubuntu or one of the many derivatives of Ubuntu (Kubuntu, Xubuntu, Lubuntu, etc).**

Rules

• There is no word limit for articles, but be advised that long articles may be split across several issues.

• For advice, please refer to the **Official Full Circle Style Guide**: http://bit.ly/fcmwriting

• Write your article in whichever software you choose, I would recommend LibreOffice, but most importantly - **PLEASE SPELL AND GRAMMAR CHECK IT!**

• In your article, please indicate where you would like a particular image to be placed by indicating the image name in a new paragraph or by embedding the image in the ODT (Open Office) document.

• Images should be JPG, no wider than 1200 pixels, and use low compression.

• Do not use tables or any type of **bold** or *italic* formatting.

If you are writing a review, please follow these guidelines :

When you are ready to submit your article please email it to: articles@fullcirclemagazine.org

Translations

If you would like to translate Full Circle into your native language please send an email to ronnie@fullcirclemagazine.org and we will either put you in touch with an existing team, or give you access to the raw text to translate from. With a completed PDF, you will be able to upload your file to the main Full Circle site.

REVIEWS

Games/Applications

When reviewing games/applications please state clearly:

• title of the game
• who makes the game
• is it free, or a paid download?
• where to get it from (give download/homepage URL)
• is it Linux native, or did you use Wine?
• your marks out of five
• a summary with positive and negative points

Hardware

When reviewing hardware please state clearly:

• make and model of the hardware
• what category would you put this hardware into?
• any glitches that you may have had while using the hardware?
• easy to get the hardware working in Linux?
• did you have to use Windows drivers?
• marks out of five
• a summary with positive and negative points

You don't need to be an expert to write an article - write about the games, applications and hardware that you use every day.

Emmabuntüs Debian Edition 6 1.01

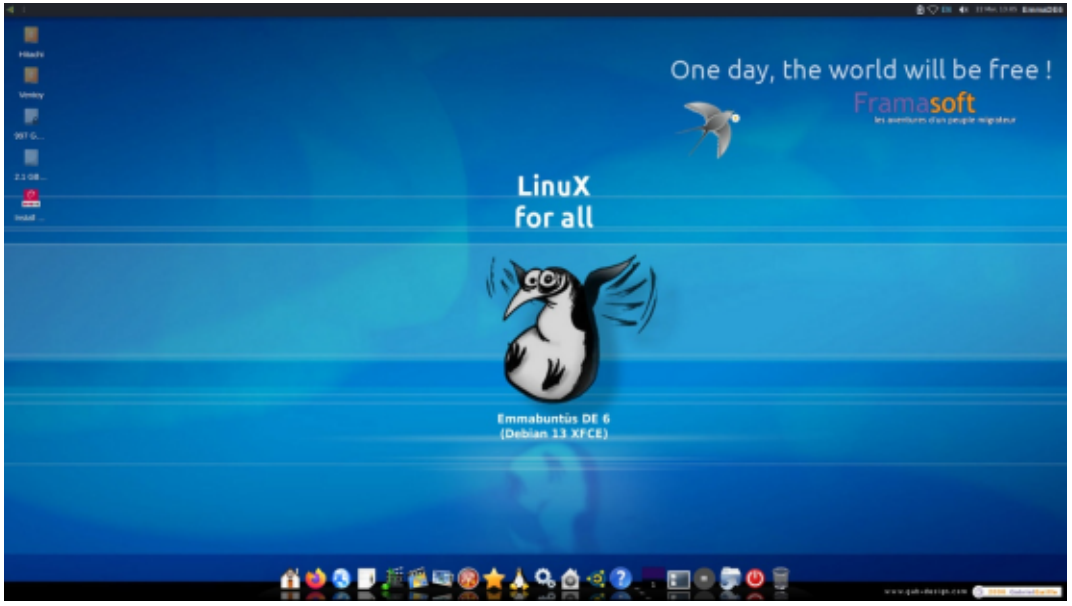
Emmabuntüs was last reviewed by Full Circle Magazine in December, 2017 in FCM#128 by Lucas Westermann. At that time, Emmabuntüs was at its Debian Edition 2 release. Now, nine years later, it is time for an update on this interesting project and a look at what it has to offer.

Emmabuntüs is a Linux distribution that I have been wanting to look at for several years. It has an interesting name, an interesting history and in many ways it embodies the altruistic goals of Linux and the larger free software movement. These reasons alone justify a fresh review, so let's dive in and see what Emmabuntüs is all about and whether it makes a good, general purpose desktop distribution.

Background

Emmabuntüs is developed by a group who call themselves "Le collectif" Emmabuntüs, which is based in France. The project has been around since 2011 and had its first release in 2012.

The group explains its aims: "This distribution was designed from the start to facilitate the refurbishment of computers donated to humanitarian organizations, particularly the Emmaus communities, and to encourage beginners to discover GNU/Linux, while also extending the lifespan of the hardware to limit waste caused by the overconsumption of raw materials. Emmabuntüs is used for computer reuse by numerous organizations in France and Africa."



Its name results from its association with the Emmaus communities plus initially being based on Ubuntu 10.10, with its GNOME 2 desktop. Later it was based on Xubuntu with the Xfce desktop and, since February 2016, it has been based on Debian with Xfce, but the original name remains the same.

The Emmaüs community is an international solidarity movement founded in 1949, in Paris by Abbé Pierre, a Catholic priest and Capuchin friar, to combat poverty and homelessness. The Emmabuntüs project also collaborates with a number of organizations with complementary goals including Debian-Facile, Blabla Linux, Tugaleres.com, Jerry – Do It Together, JerryClan Ivory Coast, YovoTogo, JUMP Lab'Orione, Friends of the Earth, Festival de la Récup, Trira (TRI Rhône-Alpes), THOT, Ailleurs Solidaires and Eisenia among many others. It works with the Lilo search engine to generate funds to support computer projects for schools in Africa, as Lilo returns 80% of its advertising revenue to charities that promote its use. To support the existing computer labs in Northern Togo and to establish new ones, in 2023 the Emmabuntüs collective decided to donate 100% of its Lilo revenue to YovoTogo & JUMP Lab'Orione. So, it is much more of a social movement, rather than just a Linux distribution.

The current version, Emmabuntüs DE6, ships with the Xfce desktop by default, but also includes the LXQt desktop as a built-in alternative, using these

lighter weight desktops to keep older hardware in use.

One of Emmabuntüs' aims is that it can be installed without any internet connection, so the "Full" ISO file download includes everything possibly needed, although that does make it a fairly hefty 4.6 GB download.

Introduced with the release of Debian Edition 6 is a smaller "Core" ISO download, which is only 2.8 GB and which omits some of the very extensive list of default applications, as well as educational software and accessibility features. The Core download does include an interface to selectively install applications and other features from the Full version, though.

As a size comparison, the latest Xubuntu release, Xubuntu 25.10, which uses the same Xfce desktop, is slightly larger at 4.7 GB and it comes with a lot fewer default applications.

Getting Emmabuntüs

I downloaded the ISO for "Emmabuntus Debian Edition 6 Full – 64 bits (Debian 13 XFCE/LXQt amd64)" using BitTorrent provided by Linux Tracker, although HTTPS downloads are also available directly from SourceForge. The BitTorrent download actually ran quite quickly.

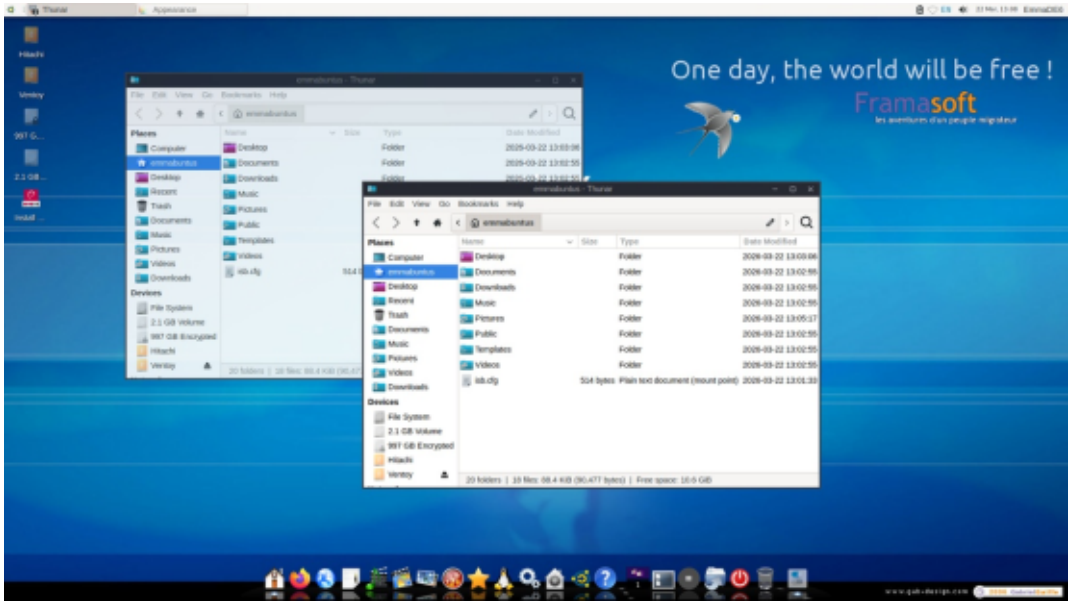
Three checksums are provided for each download: MD5, SHA1 and SHA256, which is a nice touch. SHA256 is the most secure choice of the three, so I used it to confirm that my download was accurate.

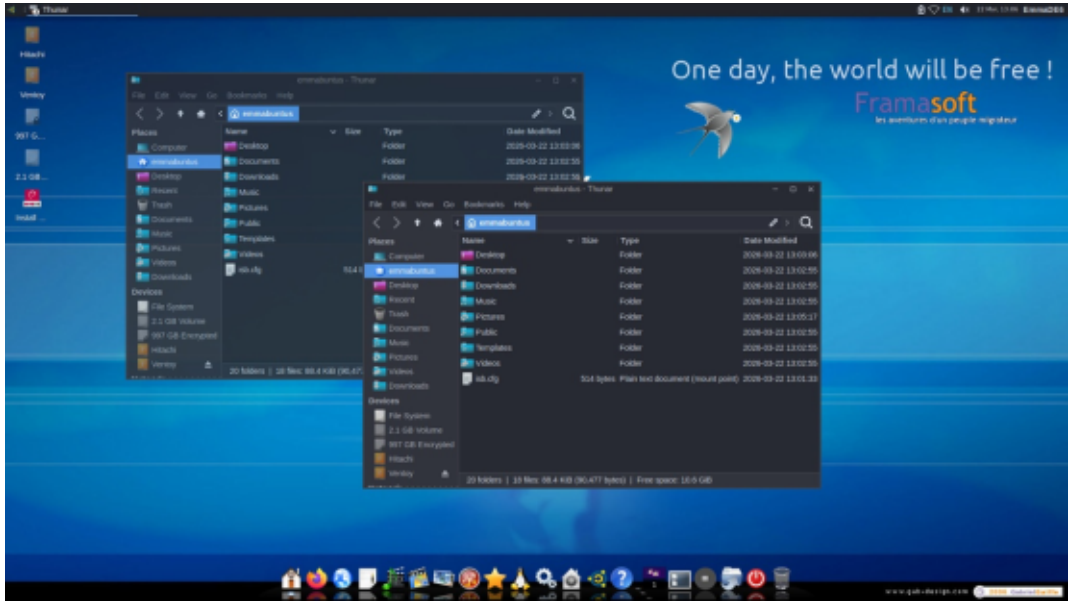
Also provided is a .txt file for download that lists all of the included packages, a useful tool. In case they are needed, Emmabuntüs includes all of their old version downloads as well. You can't fault the organization for completeness or attention to detail!

Installing

Emmabuntüs recommends using Ventoy to boot up the ISO file for live session testing and installation and even includes it on the ISO itself for installation on a USB stick. I already had a stick equipped with Ventoy 1.1.10 and so just dropped the ISO file onto that for boot-up, which worked perfectly, as expected. Emmabuntüs is officially supported by Ventoy, as is its parent distribution, Debian.

Oddly, the distribution did not support the wifi card for drivers on my 15 year old desktop computer, although the previous release Emmabuntüs Debian Edition 5 did.





System requirements

The last published hardware requirements were for the older Emmabuntüs 4 release and are:

Processor: Intel or AMD (2.0 GHz or faster), minimum Dual Core
RAM: 1 GB minimum for 32-bit versions, or 2 GB minimum for 64-bit versions
Hard drive: 80 GB minimum, more to allow for installing other software and your data
Video card: nVidia, ATI, Intel, SiS, Matrox
Sound card: Sound Blaster, AC97 or HDA compatible
Other: DVD drive required or a PC that can boot from the USB port

I will note that almost any computer used for web browsing these days really needs a minimum of 8 GB of RAM.

Trying out Emmabuntüs

Emmabuntüs Debian Edition 6 1.01 is 64-bit only. Previous releases included 32-bit support, but that has ended now. It is probably worth noting that 32-bit computers are mostly at least 20 years old now so it probably is time to move on.

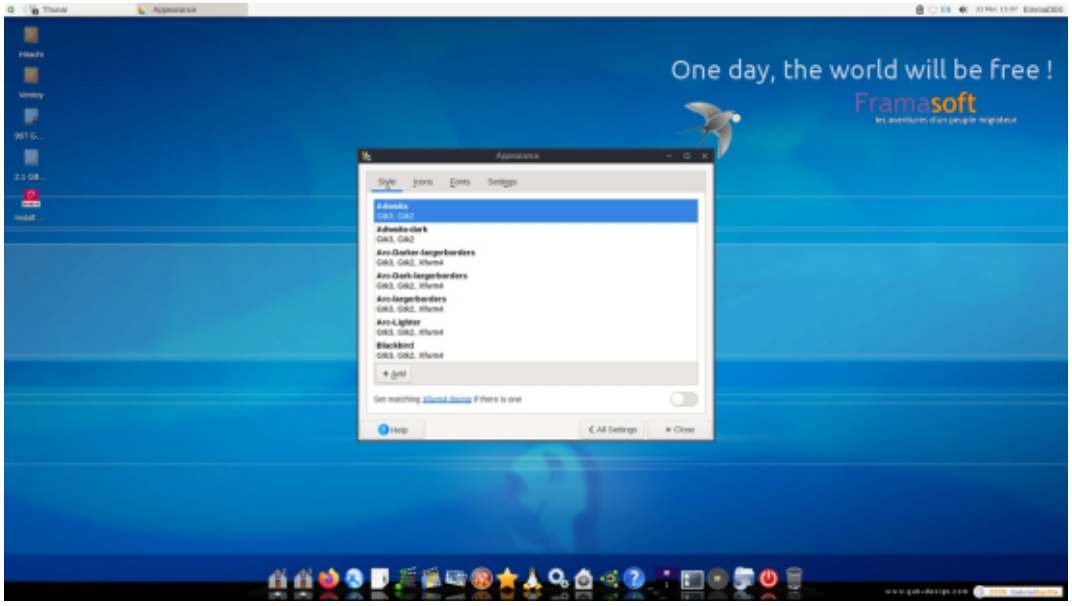
As I noted above, this release introduces the use of two different downloads: "Full" and "Core". The Full ISO file is a better fit for educational institutions and Emmabuntüs' other charitable installations, while the Core version is probably a better choice for personal use, particularly for experienced users.

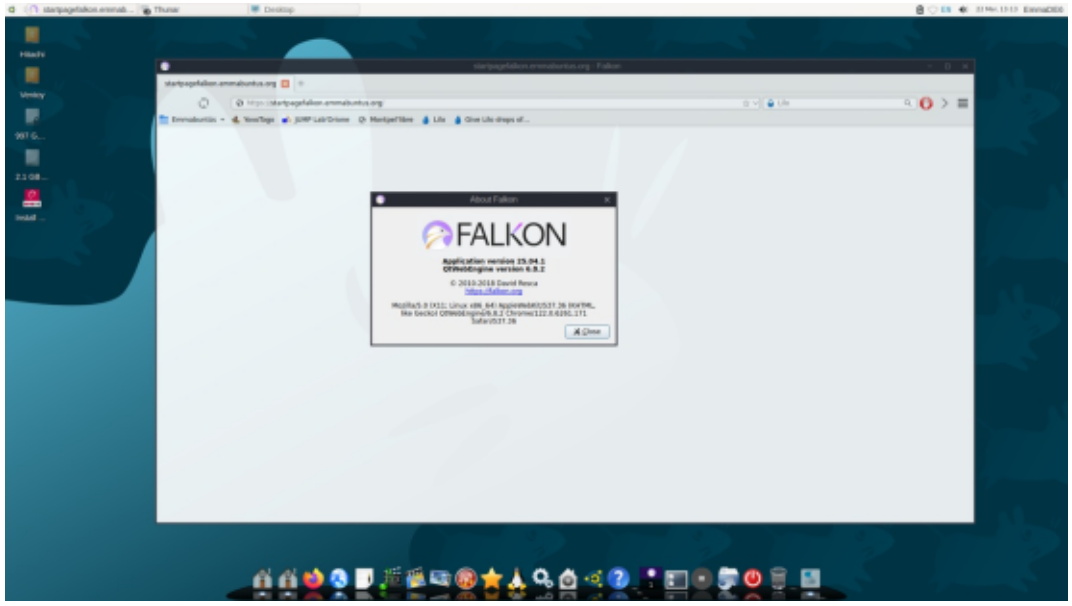
Based on Debian 13.4 Trixie, this release includes the default Xfce 4.20 and optional LXQt 2.1 desktop environments and it runs on the Linux 6.12 LTS kernel.

Booting up to the Xfce desktop is quick and the result is a pretty stock Xfce interface, with the addition of the very “Mac-like” Cairo dock. It will certainly be an easy transition for both Mac and Windows users.

Settings

Emmabuntüs' Full ISO includes a wide range of accessibility features aimed at making computing easier for disabled people, especially the visually disabled. They have been working with the Togolese Federation of Associations of People with Disabilities (FETAPH) to develop and test these. In fact, they provide a whole manual on how to use these features. The Core edition does not include these but Emmabuntüs also notes, "sighted and visually impaired users will also be able, from the Core edition, to install accessibility features via a dedicated audio-guided interface. This interface is activated





automatically when starting in accessibility mode, making it easier for them to set up the appropriate tools."

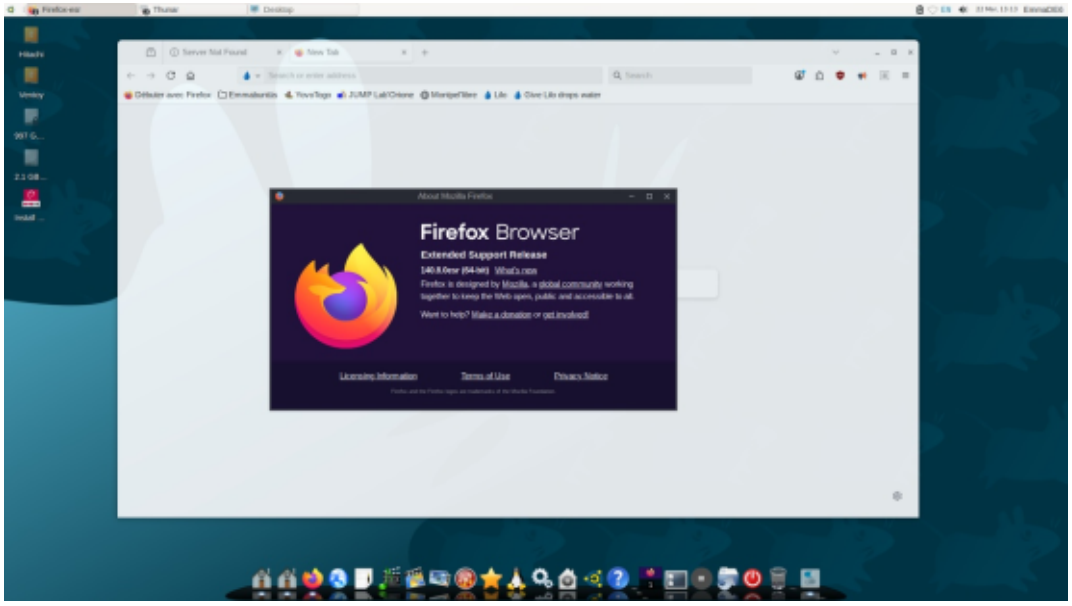
It also includes a wide range of the usual Xfce desktop user customization features, including 11 window color themes and a choice of 53 included wallpapers.

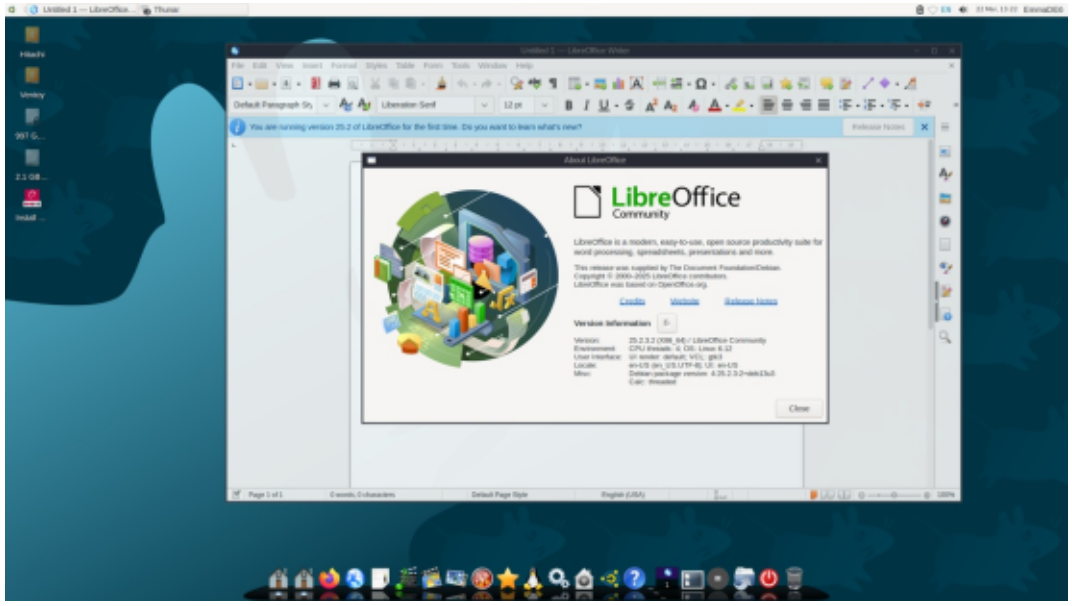
The Cairo dock has three different modes which can be selected at installation or later on from the settings. These modes are labeled child, beginner and expert, but in use are all pretty similar.

Applications

Some of the applications included with Emmabuntüs Debian Edition 6 1.01 Full are:

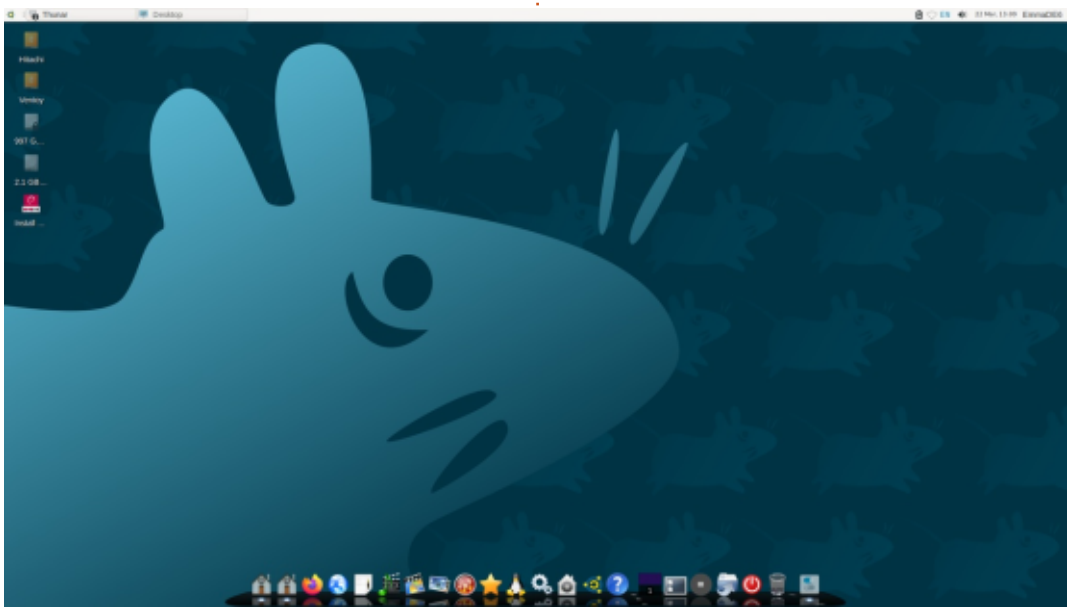
Ancestris 12.0.12685 genealogy application
Ark 25.04.3 file archiver
Asunder 3.0.1 audio CD ripper
Audacity 3.7.3 audio editor
BleachBit 4.6.2 file deleter
Calibre 8.5.0 ebook reader
Clementine 1.4 rc-2 music player
Drawing 1.0.2 raster image editor
Evince 48.1 PDF viewer
Falkon 25.04.1 web browser
File Roller 44.5 file archiver
FileZilla 3.68.1 file transfer protocol client
Firefox 140.8.0 ESR web browser
Gcompris 25.0 game
Gdebi 0.9.5.8 package installer
Geany 2.0 programming text editor
Gimp 3.0.4 image editor
GNOME Calculator 41.2 calculator
GNOME Disks 46.1 disk manager
GNOME Disk Usage Analyzer 48.0 disk usage and available space
GNOME Packages 43.0 (gnome-packagekit) graphical distribution neutral package manager
GNOME Software 48.3 software installer and updater
GNOME Sudoku 48.1 game
Gnote 48.0 note-taking application
GPartEd 1.6.0 disk partition manager
gPodder 3.11.3 podcast client
gscan2pdf 2.13.4 scanner for creating multipage PDFs
gThumb 3.12.7 image viewer
Guvcview 2.2.1 webcam
Gufw Firewall 24.04.0 firewall controller
HandBrake 1.9.2 video format converter
Handytri 0.5 file sorter
HardInfo2 2.2.10 system information and benchmarker
HomeBank 5.8.6 accounting
Htop 3.4.1 system use statistics
Image Magick 7.1.1 command line image editor
Inkscape 1.4 vector graphics editor
Kaffeine 2.0.19 media player
KDE Connect 25.04.2 wireless communications and data transfer between devices
Kdenlive 24.12.3 video editor
KeyPassXC 2.7.10 password manager
Ktuberling 25.04.0 game
LibreOffice 25.2.3.2 complete office suite





Luanti 5.10.10 game
LXImage-Qt 2.1.1 image viewer
OnBoard 1.4.1 white board
OpenBoard 1.7.3 white board
PDF Arranger 1.11.1 PDF editor
Pidgin 2.14.14 IRC client
qlipper 5.1.2 clipboard manager
Redshift 1.12 screen colour temperature adjuster
Scratch 3.29.1 simplified programming language for children
Scribus 1.6.3 desktop publishing
Sweet Home 3D 7.5 architectural design
Synaptic 0.91.7 package management
Thunar 4.20.2 file manager
Thunar Bulk Rename 4.20.2 bulk file renaming
Thunderbird 140.8.0 ESR email client
Timeshift-gtk 24.06.6 system restore tool
Transmission 4.1.0-beta.2 BitTorrent client
TuxMath 2.0.3 math game
TuxPaint 0.9.34 raster graphics editor for children
TuxTyping 1.8.3 keyboard instruction
Ventoy 1.1.10 ISO bootable USB creator
VLC 3.20.23 media player
Xfburn 0.7.2 CD/DVD creator
xfce4-screenshooter 1.11.1 screenshot tool
xfce4-terminal 1.1.4 terminal emulator

I think that this is the most extensive list of default applications I have ever seen in a Linux distribution. There is a lot of duplication here like two image viewers, two web browsers and three package managers, but the aim, even for an off-line installation, is to give a range of choices and it does accomplish that. If this list looks like there would be much that you would need to delete, then it may make sense to install the smaller Core version and then just add what you need instead.



Because these applications come from a wide variety of desktops, projects and sources, the end result is not what I would call a "well-integrated" desktop experience, but a bit of a mash-mash of applications, some of which fit well into the Xfce desktop and some which don't, but at least everything does work. Given the huge number of applications included, this is probably hard to avoid.

Conclusions

Overall Emmabuntüs DE6 is a great release, with a lot going for it in both its Full and Core versions. What you get is a well thought out and complete Xfce distribution (with LXQt as an option, too) with a lot of applications and accessibility features included. The Full version probably makes sense for refurbishing old computers to be used for charitable donations in off-line, educational or institutional settings, while the Core version is probably more suitable for personal use. Either way, it is a good general desktop operating system and an easy introduction to Linux for beginners.

Probably best of all, in using Emmabuntüs, is the feeling of contributing to a bigger and more altruistic project, whether you are preparing old donated computers for use, or just using the Lilo search engine to funnel some financial support back into the project.

External links

Official website:
https://emmabuntus.org/

Adam Hunt started using Ubuntu in 2007 and has used Lubuntu since 2010. He lives in Ottawa, Ontario, Canada, in a house with no Windows.

ArduinOS

When it comes to Linux variations attempting to look like Windows 7/10/11, there's no shortage of contenders. Variations include Lindows/Linspire, ZorinOS, DeepinOS, Linux Mint Mate, Winux/LinuxFX/Wubuntu/WindowsFX (yes, that last OS mentioned has changed names over the years) and AnduinOS.

AnduinOS?

Never heard of it? Join the crowd. In fact, it's been around about a year or so and has distinguished itself by cracking the Distrowatch top 20 ranking system, much to the surprise of its creator, Anduin Xue (complete background at Anduin Xue).

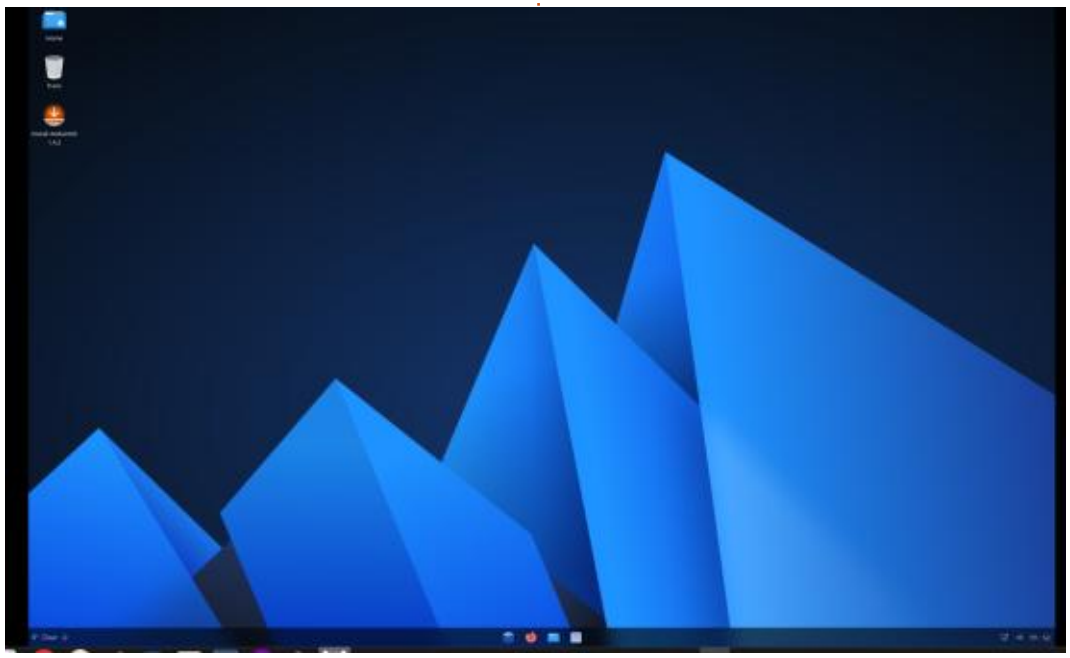
Although he worked for Microsoft as a software engineer, he had an interest in creating his own Ubuntu based Linux variation and, best as I can tell, has done so more as a hobby than a mainstream effort.

The end result of his labors is best described in one word - minimal.

And it's based upon, you guessed it, the Windows 11 desktop but with a stylized Gnome environment.

At 1.8GB, it's a good 4+ GB smaller than the Ubuntu it's based upon and substantially lighter than any of the other MS lookalikes I mentioned earlier.

You can find the downloads at anduinos.com, but do be aware you've got your choice of two offerings - LTS (support until 2029) and the newest (support expires in June, 2026).



What's unusual is the treatment of the downloads offered - the LTS gets the leftover parts of the page while the short support version gets highlighted much more. And, the newest version gets the "Recommended" marker in blue.

So, I opted for the newer version with less support.

Word to the wise here - go with the torrent download as whatever server this OS is on is bog slow, as in 2 hours for a 1.8GB download slow. The torrent version took less than a minute.

As with Ubuntu, you can play with the live version first and it was very quick to boot in my trials, but nothing beats a full install, which I'll get to shortly.

Yeah, sort of looks like Windows 11 complete with the weather app in the lower left corner (but no garbage news included) and the app taskbar across the bottom center. And parked off in the bottom right is your usual notifications about battery, wifi, etc.

Don't like the wallpaper? You have your choice of light or dark and that's it. Easy enough to remedy that later on, though.

Now, what about included apps? Firefox is there, but that's about it for the ubiquitous standards. LibreOffice? Nope. Thunderbird or any email app? Not here. You do

get Gnome Chess, though! And I see Rhythmbox and Shotwell, too. Bringing up the end of included apps is Terminal, Text Editor, Transmission, and Weather (along with a video player).

Live versions only go so far and, although there was a heading for "App Store" it wasn't doing anything when clicked.

I instead opted for a full install. My machine of choice was my Dell 7490 with i7 processor, with 32GB RAM and 1TB SSD.

I kid you not, the time to full installation after I entered my user ID and password was no more than 5 minutes. It was so quick I was sure an error had been encountered and the process was abandoned. Instead, it booted and was ready to go almost immediately (after the usual updates). And everything seemed to work, even the webcam and trackpad.

Once settled in, it was off to the included App Store. The "App Store" app is a link that opens Firefox and heads to Install an App Store - AnduinOS Documentation where you are given instructions to add the Flatpak and/or Snap package handlers.

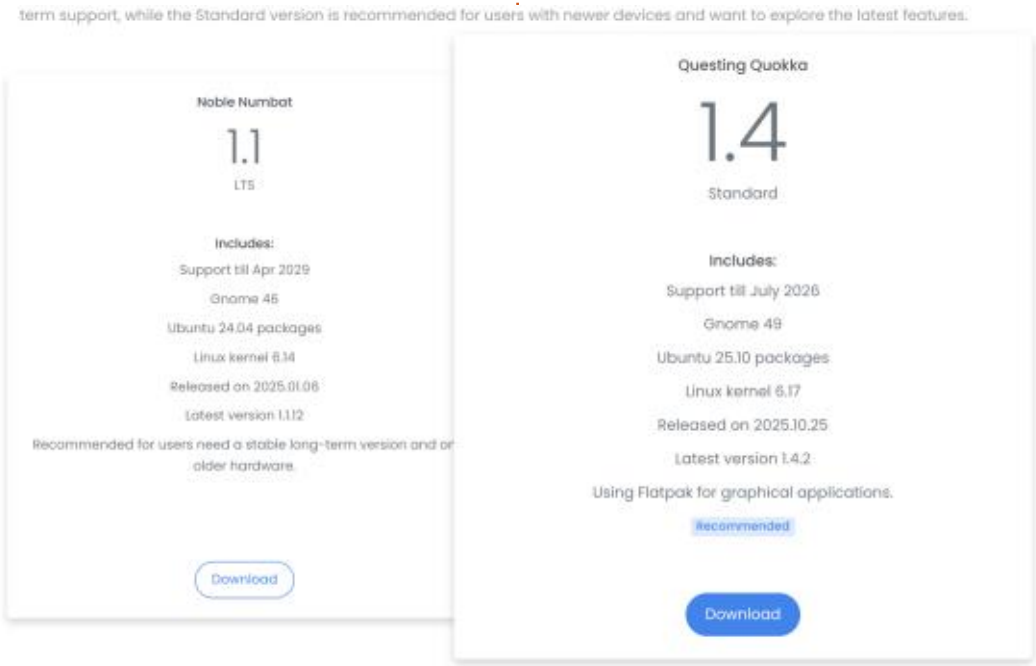
To be fair, the instructions are concise and I soon had two app stores to pick from.

But here is where things got dicey. Some apps, in both stores, showed as available but refused to install. No explanation, they just stopped shortly after starting a download. Is this a Gnome issue? Possibly a kernel bug? I could live with that, but it happened several other times, too. Games, productivity apps, etc.

I cleared the cache and made sure no extra garbage was lurking in the background. Did updates as instructed but yet nothing seemed to work. Apps, to a small degree, refused to install. No explanations given - it was just a failure for some apps (Flatpak and Snap, by the way).

If that was the only issue, I'd have minimal complaints, but things started going wonky.

Fractional screen sizing is a no-go with the Gnome desktop, at least here. It not only failed to work, it locked up my laptop and required a forced reset.



So, I installed the Cinnamon desktop environment and that alleviated the fractional sizing issue. Sort of a long way to get around the problem, but it worked.

In fact, the apps that wouldn't load before installed under the Cinnamon desktop, so it must be an issue with the Gnome desktop used (49).

Then came the shutdown issues.

While boot times were blazingly fast, shutdown and restart issues cropped up early on, for either Gnome or Cinnamon.

In the Gnome environment, the shutdown or restart times were averaging over 2 minutes, and the Cinnamon version was just as bad, and sometimes worse (nearly 5 minutes one time).

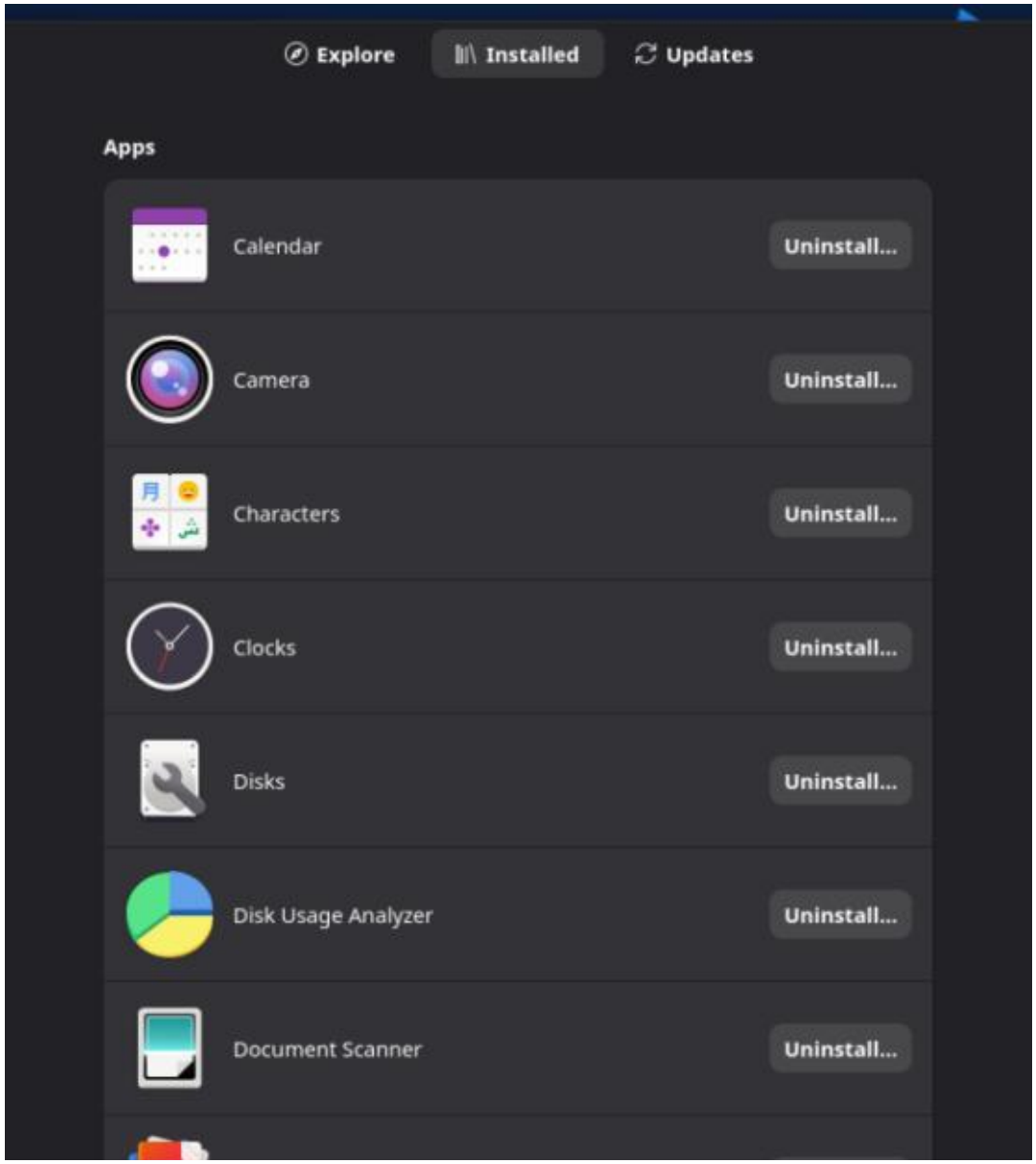
And I thought ZorinOS was bad when it started averaging 15 seconds.

So, would I recommend AnduinOS?

While I hate to disparage anybody else's hard work (especially when I've never done any better), I

can't see this as being anything more than a novelty at this time. It requires a great deal of work to become workable and, if you can't install the apps you may want without adding another desktop, you may as well go to another OS.

Plus, if it's a hobby, who is to say if it'll still be around a couple years from now?



LETTERS

If you would like to submit a letter for publication, compliment or complaint, please email it to: letters@fullcirclemagazine.org.
PLEASE NOTE: some letters may be edited for space.

Join us on:

https://mastodon.social/@fullcirclemagazine

twitter.com/#!/fullcirclemag

linkedin.com/company/full-circle-magazine

ubuntuforums.org/forumdisplay.php?f=270

Full Circle Needs You!

Without reader input **Full Circle** would be an empty PDF file (which I don't think many people would find particularly interesting). We are always looking for articles, reviews, anything! Even small things like letters and desktop screens help fill the magazine.

See the article **Writing for Full Circle** in this issue to read our basic guidelines.

Have a look at the last page of any issue to get the details of where to send your contributions.

Q&A

Compiled by EriktheUnready

If you have a Linux question, email it to: questions@fullcirclemagazine.org, and Erik will answer them in a future issue. Please include as much information as you can about your query.

Welcome back to another edition of Questions and Answers! In this section, we will endeavour to answer your Ubuntu questions. Be sure to add details of the version of your operating system and your hardware. I will try to remove any personally identifiable strings from questions, but it is best not to include things like serial numbers, UUIDs, or IP addresses. If your question does not appear immediately, it is just because there are many waiting, and I do them first-come-first-served.

For context, I do the QnA's well in advance, this gives me time to look up things for unanswered questions. At the time of writing, October 2025, it seems (I say "seems", I have yet to confirm) there is some instructor in India, who is giving out this amazing advice. If you change the readme.md file on an open source project, your name is added to that project as if you were part of it. (https://youtu.be/ukRizbUhfeM)

(https://github.com/expressjs/express/pulls?page=2&q=is%3Apr%20is%3Aclosed) While she may, or may not, have had good intentions, thousands of people have been putting in pull requests, fixing spelling mistakes for readme.md files. There have been many who just made things worse, as they do not have a good grasp of the English language. This brings me to the 'HIV' of the software world, licensing. You see, when a project needs to change a license, as everyone is a contributor, they all need to agree on the change. You now introduce hundreds of thousands of eager newbies, who followed some youtuber's advice, who need to be contacted and have to agree if a license needs to change. Since they only added a comma to the readme.md file, what do they know of the software? One of the reasons the Linux kernel is still GPL2, is that there are thousands of contributors, who would have to agree to the change. Now imagine you were running a small project, and suddenly there are 5000 names added as they all contributed an update to the readme.md file. Imagine trying to get 5000 people to agree. This creates nightmares, the only other way to do it would be to fork your own project! I don't know if I'm over-thinking this, but I feel we are heading towards a "Boaty McBoatface" in open source, am I wrong?

Q: How do I stop a Snap from updating permanently? https://snapcraft.io/docs/managing-updates Been there, done that, still not permanent. Neither is this: https://askubuntu.com/questions/1131182/how-can-i-disable-automatic-update-for-a-single-snap-in-ubuntu

A: Nice to see you putting effort in. The solution is simple. Try this:

```
snap refresh --hold=forever chromium
```

obviously replacing "chromium" with your app.

Q: I have almost exclusively used Xubuntu since it launched, but it seems to be falling behind KDE and Gnome, so I have switched to Gnome. One of the things I feel is not as well implemented is the screen brightness. I can go low, when charging the battery, but nowhere near as low as with XFCE. Where can I set the dimming to go even lower than the default?

A: I honestly don't know, but an easy fix for me was to get another Gnome extension to compliment the one already there in Ubuntu. You can try this to see if it is to your satisfaction: https://extensions.gnome.org/extension/5943/soft-brightness-plus/

Q: I have standard Ubuntu and I use the arcmenu gnome extension for my menu. I recently installed RapidRaw for my photos and it places it inside the other category and not the graphics category inside my menu. Arcmenu does not allow me to move items or drag items to other categories.

How can I set this right?

A: You can still use your favourite menu editor, like menulibre or alacarte or whatever. I suggest installing menulibre and finding the offending application. Then once you click on it, bottom right, there is a plus "+" icon. Click that, choose your category (use another to see what you need) and click save. Once complete, it should be fixed in arcmenu too, or alternatively, you can find the ".desktop" file and edit it yourself.

Q: I'm running Ubuntu LXLE "Focal Fossa," which has been a total lifesaver for my old laptop. I wanted to dist-upgrade and it said that I needed security updates first with esm-infa enabled. How can I enable that? Could this be why my previous dist-upgrade from 16.04 failed?

A: As for the first part of your question, you need an Ubuntu One account and then you sign up for the extended upgrades. See: https://ubuntu.com/blog/ubuntu-20-04-lts-end-of-life-standard-support-is-coming-to-an-end-heres-how-to-prepare . As to the second part of your question, I cannot say, it depends when you tried the upgrade.

Q: My situation is dire. I have set update checking to "never" on my Ubuntu 24.04 machine, yet it does not seem to respect my settings. You see, I recode lots of videos with Handbrake. I set my processing queue then leave the computer to do its thing. Then when I return, sometimes the software updater will have launched and when it does, handbrake just closes. Problem is, if I run journalctl -xe | grep handbrake, there is no mention of it crashing, but I have seen it a few times now, with my own eyes, it simply closes. I have to restart and re-setup my queue.

A: I can imagine the frustration, software updater is called from "/usr/bin/update-manager". If you don't use it, you can uninstall it or rename it if you do. I'm thinking it may be called by lvfs? You can disable that in the following file sudo nano /etc/fwupd/fwupd.conf . I cannot think of another reason it should pop up by itself.

Q: I would like some help with Discover rather than my OS please. I tried asking ChatGPT, but the stuff it tells me to do, I can't, as Discover crashes before I can tick the boxes. If I choose relaunch, I just get another crash notifier in my taskbar. I'm sort of at wits end now. I want to throw the laptop out the window.

A: OK... But I still don't know what the error is that you are getting? So let me generalise, Discover is controlled via ~/.config/discoverrc , so you should be able to add entries there. For instance, if I use the problem of the ^^^ previous question, I could add:

```
sudo sed -i 's/^\[fwupd\]/[fwupd]
\nDisabledPlugins=lvfs/' /
etc/fwupd/fwupd.conf
```

and it would add that entry to the configuration file, which should override a tick box inside of Discover. Just remember to restart after making changes.

Q: Why is it that in Files, when I click on 'other locations' I can see my drive has 511GB free, but when I check with df-h, I only see 476GB free? That's quite a big difference?

A: In one, you are seeing your entire drive, in the other, you are seeing your partition. When you use 'df', look at the first column, 'size', and it should be smaller than the full drive that "other locations" is showing you. Hope that helps.

Q: When I use disk usage analyzer, I can see the little color wheel and my only choices are ring or tree. However, I saw a video of a webinar, where the display had the rings labelled. Everyone tells me I'm dreaming, but I definitely saw it.

A: Simply move your mouse pointer to the center of the ring. Have fun!

Q: If I open the log utility on Ubuntu Gnome, I see this error == Cannot retrieve headers for https://cdimage.ubuntu.com/ubuntu-core/20/stable/current/ubuntu-core-20-amd64.img.xz:

Operation canceled 20 == What does this mean? I have looked in my software updater and I do not see anything under installable cd-rom/dvd-rom???

A: First, click on that line that says 20 at the end, it will expand into 20 messages. Now click on any one of the lines below it. A pop-up box will appear with the same message, but with one extra, right at the top, it will say "sender". The sender is the offending application, trying to reach out to that URL (which is an official repo).

Q: I live out in the sticks and I have to use mobile internet. The problem is that the IPs are rotated, so sometimes I cannot access sites as cloudflare just outright blocks me, claiming the "owner of the website" blocked me kind of BS. I don't want to run up a bill with a VPN provider who is going to sell all my data anyway. Is there a way around this? I tried some proxy addons for Firefox, but they are painfully slow. Should I install the Cloudflare addon in Ubuntu 24.04?

A: I'm not familiar with the Cloudflare addon, but I can suggest that you search for your site inside of Startpage. Startpage will offer you the option to "visit the site anonymously". They hide all your data like your IP for you and you can access the website without middlemen.

Q: I have a doozie, I tried to install thonny and pyvenv with pip3, for a course. However, I can't get the $PATH to stick. I tried googling it, but all the advice is just WRONG. Please help. I go, export PATH="$PATH:/home/francois/.local/bin, which is what the helper text suggested and I can see it is there, with echo $PATH. Then I reboot, and it is gone. I tried askubuntu, I tried stackexchange, I tried others too, but all talk about .bashrc and .profile. I have neither. Source ~/.profile does nothing as there is no such file. I'm pulling my hair out. I'm still on Ubuntu 20.04.

A: Mmm... Sounds like an upgrade. Try:

```
sudo nano /etc/environment
```

Now add your path variable, save and log out and in. It should stay.

Erik has been in IT for 30+ years. He has seen technology come and go. From repairing washing machine sized hard drives with multimeters and oscilloscopes, laying cable, to scaling 3G towers, he's done it.

Website: https://horticulargame.com/

Price: $9-19 (can be more)

Blurb: "*Horticular is a relaxing garden-builder that begins with mysterious gnomes summoning you. Their wish? For you to breathe new life into a long-lost garden, abandoned by its previous caretaker.*

Enter a magical world where you build up and expand a lush garden at your own pace. In your journey, you attract adorable animals to inhabit every corner; uncover helpful upgrades; and assist quirky characters for rewards and story development—all while juggling decay and fending off corruption sent by your nemesis!"

The game has a base game as well as DLC, "Frozen Frontier: Tundra Creatures and Plants" that may double the price of the base game.

Again we went with the GOG version as the installers are great. First we will talk about the base game. Though the DLC was released in March of 2025, we are only now (September 2025) getting to actually play the game, so we are going into it blind. We knew it was sort of like Terra Nil.

Installation

The main installer is 199MB to download and the DLC is 4.5MB. Launching the GOG installer and installing the game was quick. Even on a low end laptop. The installer did not try to call home, which is great.

Sound and Music

The non-base game (bundle edition?) that includes the DLC, comes with a soundtrack in MP3 and FLAC formats. Honestly, it is one of those soundtracks that works in-game, but not really as a stand alone album. If you are bandwidth constrained, don't bother downloading it, unless you are looking for music to fall asleep to. It's not *bad, it is actually good, but somehow it reminds us of hotel music, you know, that soft music in the background in the lounge or bar, during the early evening. You can listen to the soundtrack here: https://www.youtube.com/watch?v=RXjlnAyI_4Y

The game sounds are bright and charming, making you feel welcome in your own game.

Graphics

Just like Terra Nil, this is a pixelated graphics game. Some people do not like pixel graphics games, so you have been warned. However, it is not trying to be faux 8-bit. Instead it reminds us of Roller coaster Tycoon, or Theme Park because of the viewing angle as well. We do like isometric games, but they need to be done in a way that your view is not obstructed. The developer describes the game as a spiritual successor to Viva Piñata, but we have no idea what that is. If that makes sense to you, great. Though the pixel art is not outstanding, it is good, but that rubber stamp thing is a bit tired. What do we mean by that? Well,

when you place an object the second and third time, it is 100% the same thing. Some games overcome this by placing a variant down, of the stone or plant out of a few templates, so that everything does not look the same. Some games will create a new graphic if 2 or more of the same thing is placed next to each other. Just like the sounds, it is adequate for the game, but it could be better.

Gameplay

If the sound and graphics are 6/10, this is where the game shines, with 9/10 gameplay. There is a story and we do recommend that you play through the story mode, before playing on endless mode. You need to know that the game is a 'sim' game that leans into decorations. If you got the game via Steam, you would also need to complete the game on hard mode, to get all your achievements, should you be an achievement hunter. Because the game is a cozy builder, it works well on endless mode, so your time on the game will vary greatly. Though it is a cozy game, there are enemies, but once you have completed the game in story mode and hard mode, the enemies just become an annoyance. We understand they are meant to bring some stress into the game, but it is almost like garden pests. Well... This is a garden game...

Just like Terra Nil, you need to create the right conditions for animals to move into your garden. (Wouldn't it be grand to have your own nature preserve?) In the beginning, you have no idea what they are and you discover them as you play. This gives the game that sort of 'exploration vibe'. You also get a bit of a 'puzzle vibe', as animals will not move in, if they do not have the correct neighbours. This gives you goals other than just making things pretty. If you get stuck, I'm sure there will be plenty of game guides by the time you read this. The game saves your progress every morning in the game world, just BTW.

The game's learning curve is not steep at all and new things are introduced very gradually. One can even say that the game leans into the idle game genre, as you start to get your own workers who can also zap those nasty invaders, the game almost plays itself. You don't have to worry about finances too much, though in the beginning, the shop feels expensive, but it all balances out. The financial stress angle is also very low. It's just a gate keeper, to keep you from messing with too many items at once. The game features friendly fire and you may notice that friendly fire is not friendly at all. If you don't like hurting animals, be careful!

Re-playability is a thing, as there is a bit of randomness as well as the

fact that you can play on harder modes. Each run will be different and you can try out things that you learned in your last run.

If you have a Steam Deck, the game is Steam Deck certified, and looks really good on the small screen. This is a family game, where almost every member of the family can have a go and enjoy the game.

The DLC is a bit harder and there are only half as many Steam achievements as the base game. As you can see from the name, it features frozen terrain and a new story, but the main game loop is the same. It does come with one new mechanic and that is temperature based unlocks and temperature based challenges. The plants and animals are also different from the base game. This switch-up breathes new life into the game. The DLC is not a must buy, but if you enjoyed the base game, you will enjoy the DLC. If you are looking for a chilled experience that will last all day, look no further than this.

The only thing we are still puzzled by is the game icon. No one is sure what it is.

Erik has been in IT for 30+ years. He has seen technology come and go. From repairing washing machine sized hard drives with multimeters and oscilloscopes, laying cable, to scaling 3G towers, he's done it.

PATRONS

Monthly Patrons

Alex Crabtree
Alex Popescu
Andy Garay
Bill Berninghausen
Bob C
Brian Bogdan
Carl Andersen
CBinMV
Darren
Dennis Mack
Devin McPherson
Doug Bruce
Duncan Bell
Elizabeth K. Joseph
Eric Meddleton
Francis Gernet
Gary Campbell
George Smith
Henry D Mills
Hugo Sutherland
Jack
Jack Hamm
Jason D. Moss
Joao Cantinho Lopes
John Andrews
John Malon
John Prigge
Jonathan Pienaar
Joseph Gulizia
j s
JT
Katrina
Kevin O'Brien
Lee Allen
Lee Layland
Leo Paesen
Linda P
Mark Shuttleworth
Moss Bliss
Norman Phillips
Oscar Rivera
Paul Anderson
Paul Readovin
Rino Ragucci
Rob Fitzgerald
Robin Woodburn
Roy Milner
Scott Mack
Sony Varghese
Taylor Conroy
Tom Bell
Tony
Tony Hughes
Vincent Jobard
Volker Bradley
William von Hagen

Single Donations

2025:
Louis W Adams Jr
Borso Zsolt
Brian Kelly
Frits van Leeuwen
Randy Brinson
Frank Dinger
Robert JERÔME
Yvo Geens

2026:
Louis W Adams Jr

The current site was created thanks to **Arun** (from our Telegram channel) who took on the task of completely rebuilding the site, from scratch, in his own time.

The Patreon page is to help pay the domain and hosting fees. The money also helps with the new mailing list.

Several people have asked for a PayPal (single donation) option, so I've added a button below.

A big thank you to all those who've used Patreon and the PayPal button. It's a HUGE help.

patreon
https://www.patreon.com/fullcirclemagazine

Donate with PayPal
https://paypal.me/ronnietucker

donorbox
https://donorbox.org/recurring-monthly-donation

HOW TO CONTRIBUTE

FULL CIRCLE NEEDS YOU!

A magazine isn't a magazine without articles and Full Circle is no exception. We need your opinions, desktops, stories, how-to's, reviews, and anything else you want to tell your fellow *buntu users. Send your articles to: articles@fullcirclemagazine.org

We are always looking for new articles to include in Full Circle. For help and advice please see the **Official Full Circle Style Guide**: http://bit.ly/fcmwriting

Send your **comments** or Linux experiences to: letters@fullcirclemagazine.org
Hardware/software **reviews** should be sent to: reviews@fullcirclemagazine.org
Questions for Q&A should go to: questions@fullcirclemagazine.org
Desktop screens should be emailed to: misc@fullcirclemagazine.org
... or you can visit our **site** via: fullcirclemagazine.org

FCM#229

Deadline:
Sunday 10th May 2026
Release:
Friday 29th May 2026

Full Circle Team

Editor - Ronnie Tucker
ronnie@fullcirclemagazine.org

Webmaster -
admin@fullcirclemagazine.org

Editing & Proofreading
Bert Jerred, Bruce Goodman, Gord Campbell, Jim Dyer, Matthew Bailey, Matthew Bulfinch, Mike Kennedy, Moss Bliss, Roy Milner, Sam Daniel, Sony, Theo Van Oosten, Victor Moisey and Wayne Solberg

Our thanks go to Canonical, the many translation teams around the world and **Thorsten Wilms** for the FCM logo.

For the Full Circle Weekly News:

You can keep up to date with the Weekly News using the RSS feed: https://fullcirclemagazine.org/podcasts/index.xml

back on Spotify:
https://open.spotify.com/show/6JhPBfSm6cLEhGSbYsGarP

and now on YouTube:
https://www.youtube.com/playlist?list=PLnv0U8wOzXu487gi5I2Isf-rQjEyKPAif

EPUB Format - Most editions have a link to the epub file on that issue's download page. If you have any problems with the epub file, email: mobile@fullcirclemagazine.org

FCM PATREON : https://www.patreon.com/fullcirclemagazine