



Full Circle

THE INDEPENDENT MAGAZINE FOR THE UBUNTU LINUX COMMUNITY

ISSUE #195 - July 2023

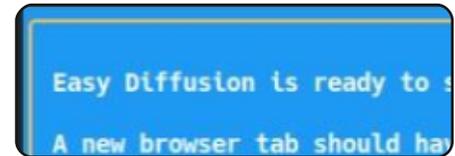


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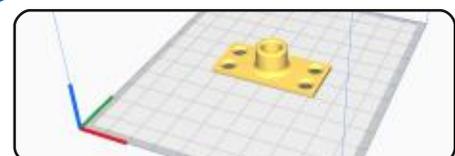
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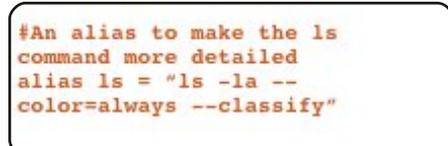
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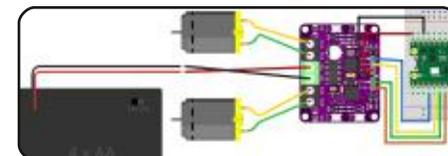
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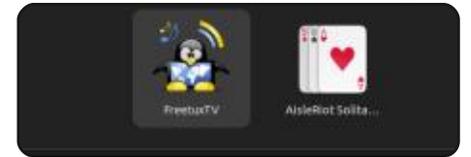
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WELCOME TO THE LATEST ISSUE OF FULL CIRCLE

Again, for your pleasure, we have; Latex, FreeCAD (the big finale), Stable Diffusion, more Micro This Micro That, and Inkscape. No Python this month I'm afraid.

For review we have Ubuntu 23.04 and a couple of streaming video apps. Erik wrote about using FreeTuxTV which made me remember Hypnotix from the Linux Mint people. So I've tacked a link to it at the end of Erik's article. I hope he doesn't mind.

Elsewhere you may notice a new ad in this issue. It's for NoStarch Press. We never charge for ads. NoStarch often send us digital review copies of books. So the ad is to thank them for their support. They've kindly added a promo code to the ad which will get you a discount. Supporting them also supports us.

Don't forget: 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.

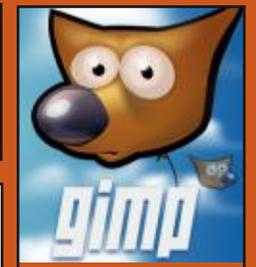
All the best for 2023!

Ronnie

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LINUX 6.4 KERNEL

RELEASED:

26/06/2023

After two months of development, Linus Torvalds released the Linux 6.4 kernel. Among the most notable changes was: the ability to create a kernel worker from the user space, the continued integration of support for the Rust language, support for the Intel LAM mechanism (Linear Address Masking), deduplication of memory pages at the process level, support for the usual iterators in BPF, support for the transition to sleep mode for RISC-V systems, the ability to trace user processes, a new mechanism for managing the memory of the kernel modules, preventing the shutdown of SELinux during operation, support for RPC, support for the uninstallation of NPC.

The new version accepted 16012 fixes from 2080 developers, patch size - 81 MB (changes affected 14220 files, added

1006924 lines of code, removed 597615 lines of code). About 43% of all changes in 6.4 are related to device drivers, about 14% of the changes are related to updating code specific to hardware architectures, 10% related to the network stack, 4% - with file systems and 3% with internal subsystems of the core.

<https://lkml.org/lkml/2023/6/25/453>

RELEASE OF LIBREBOOT 20230625:

26/06/2023

A release of free bootable firmware Libreboot 20230625 is out. The update was assigned the status of stable release (the previous stable release was published a year ago). The project develops the finished build of the coreboot project, which provides a replacement for proprietary firmware UEFI and BIOS, responsible for the initialization of

the CPU, memory, peripherals and other components of equipment, with the minimization of binary inserts.

Libreboot is aimed at building a system environment that allows you to do without proprietary software as much as possible, not only at the operating system level, but deeper. Libreboot complements Coreboot with the means to facilitate end users, forming a ready-made distribution that can be used by anyone who does not have special skills.

The new release added support for the HP EliteBook 2570p laptop, as well as the HP 8300 USDT and Gigabyte GA-G41MES2L motherboards. Work was carried out to improve stability and correct errors.

<https://libreboot.org/news/libreboot20230625.html>

FEDORA WORKSTATION 39

NEW INSTALLER:

27/06/2023

Fedora 39 proposes a web-based interface will be offered instead of the GTK library interface in Anaconda. The proposal has not yet been reviewed by the FESCo (Fedora Engineering Steering Committee), responsible for the technical part of the development of the Fedora distribution.

The Web interface uses the React JavaScript framework, PatternFly design elements and components from the Cockpit project already used in Red Hat products to configure and manage servers. Cockpit is selected as a well-proven solution for which there is a backend for interaction with the installer (Anaconda DBus). The use of Cockpit also made it possible to achieve uniformity and unify the various components of the system control. Processing the interface, the results of the

previously done work on improving the modularity of the installer were used - the main part of Anaconda was converted into modules that interact through the Dbus API, and the new interface uses a ready-made API without internal processing.

Merits of the new installer include, a simplification of the installation process, getting rid of other complications, more understandable for novice users, a simple process of reinstallation, simplification of support and development of additions. The Web interface also allows interaction through a web browser, which significantly increases the convenience of remote control installation, which does not compare to the old solution based on the VNC protocol.

Instead of the main screen with a list of actions, in the new interface there is a wizard, implying the consistent execution of certain steps without returning to the main screen.

<https://www.mail-archive.com/devel-announce@lists.fedoraproject.org/msg03077.html>

InkBox OS 2.0:

27/06/2023

InkBox OS 2.0, aimed at replacing the full-time firmware of e-book readers like Kobo and Kindle, was announced. The system components of InkBox OS 2.0 are built on the Alpine Linux 3.10 distribution, and as a user environment, the InkBox shell with an interface for reading e-books and managing the home library. The user interface is optimized to work on e-paper screens. The shell code is written in C++ using the Qt framework and distributed under the GPLv3 license.

https://www.reddit.com/r/linux/comments/14i4e29/inkbox_os_20_opensource_os_for_e_readers_is_out/

RELEASE OF BLENDER 3.6:

28/06/2023

The Blender Foundation has published the release of Blender 3.6, suitable for solving various tasks related to 3D modeling, 3D graphics, computer

game development, simulation, rendering, compositing, tracking of movements, sculptural modeling, animation and video editing. The code is distributed under the GPL license. The finished builds are formed for Linux, Windows and macOS. The release received the LTS release status with an extended support period and will be supported until June 2025.

<https://www.blender.org/download/releases/3-6/>

RELEASE OF PROXMOX BACKUP SERVER 3.0:

28/06/2023

Proxmox, known for the development of Proxmox Virtual Environment and Proxmox Mail Gateway products, has published a release of Proxmox Backup Server 3.0, which is presented as a ready-made solution for backup and recovery of virtual environments, containers and server stuffing. Installation ISO download is available for free. The components specific to the distribution are open under the AGPLv3 license. To install the updates, both the paid Enterprise

repository and two free repositories are available.

The system part of the distribution is based on Debian and OpenZFS. The software stack for backup management is written in Rust and supports incremental backups, deduplication, compression and backup encryption. The system is designed on the basis of client-server architecture - Proxmox Backup Server can be used both for local backups and as a centralized server to backup data from different hosts.

Proxmox Backup Server supports integration with the Proxmox VE platform to backup virtual machines and containers. Control of backup copies and data recovery is carried out through a web-interface.

<https://forum.proxmox.com/threads/proxmox-backup-server-3-0-available.129716/>

ORACLE AUTOMATIC

OPTIMIZATION:

29/06/2023

Oracle has introduced a `bpftune` tool designed to automatically optimize the settings of the Linux kernel, taking into account the tasks performed, the activity in the system and the nature of the load. The basis of `bpftune` is a background process, operating in the user space and using the BPF core subsystem. The project code is written in C and distributed under the GPLv2 license.

The reason for the creation of the project mentions the need to optimize self-sufficient systems designed to work with minimal administrator intervention, as well as an increase in the complexity of the modern core, which increases the labor intensity of manual

optimizations (the numerals are provided with more than 1500 `sysctl`-parameters that affect the performance and consumption of resources, and often the administrator simply copies the ready-made recipes, without checking).

`Bpftune` performs continuous monitoring of the system state, adaptively adjusts the performance-influencing kernel parameters and evaluates behavior changes to achieve the optimal result. BPF takes into account not only system-wide statistics, but also detailed details of the behavior of individual components, which, for example, allows you to adjust the settings at the level of individual sockets and devices.

<https://blogs.oracle.com/linux/post/introducing-bpftune>

UDISKS 2.10.0 WITH NVME SUPPORT:

29/06/2023

After two years of development, the release of the UDisks 2.10.0 package was announced. This includes the system background process, libraries and tools for accessing and managing disks, storage devices and related technologies. UDisks provides D-Bus API to work with disk partitions, MD RAID settings, work with block devices in the file (loop-mounting), manipulation of file systems, etc. Additionally, modules are supplied for monitoring and control of BTRFS, iSCSI, `libSageatorManagement`, LVM2 and LVM Cache. For example, UDisks is used in GNOME applications to

work with GNOME disk sections and various graphic configurators.

<https://github.com/storaged-project/udisks/releases/tag/udisks-2.10.0>

AN ADDITIONAL 4 YEARS FOR RHEL 7:

30/06/2023

Red Hat has announced the expansion of the paid extended support service (ELS, Extended Life Cycle Support), that releases updates with correction of critical problems after the end of the base 10-year support cycle. For the RHEL 6 distribution, ELS support was provided for three years, and for the RHEL 7 branch, up to four years. Thus, for RHEL 7, the possible support period will be 14 years.

In accordance with the 10-year support cycle, the RHEL 9 distribution will be accompanied until 31 May 2032, RHEL 8 until May 31, 2029, and RHEL 7 until June 30, 2024. Support for CentOS Stream 8 will last until May 31, 2024, and CentOS Stream 9 until May 31, 2027 (five years less than



DistroWatch.com

Put the fun back into computing. Use Linux, BSD.

RHEL 8 and 9).

<https://www.redhat.com/en/blog/announcing-4-years-extended-life-cycle-support-els-red-hat-enterprise-linux-7>

RELEASE OF XONOTIC 0.8.6:

30/06/2023

After a year of development, the release of Xonotic 0.8.6, a free first-person 3D shooter, took place. The project is a fork of the game Nexuiz, created more than a decade ago as a result of the conflict of the key developers of the project and the company IllFonic, after the intention to commercialize the game development process. The features of Xonotic include: good graphic capabilities, advanced 3D engine, a variety of cards, an abundance of game modes. The project code is distributed under the GPLv3+ license.

<https://xonotic.org/posts/2023/xonotic-0-8-6-release/>

RELEASE OF NITRUX 2.9:

01/07/2023

Nitrux 2.9.0, built on Debian, KDE technologies and the OpenRC initialization system, has been published. The project offers its own NX Desktop desktop, which is an add-on over KDE Plasma. Based on the Maui library for the distribution, a set of typical user applications is developed, that can be used on both desktop and mobile devices. Applimages are being promoted to install additional applications. The size of the full boot image is 3.1 GB. The project is distributed under free licenses.

The NX Desktop desktop offers a different style design, its own implementation of the system tray, notification output center and various plasmoids, such as a network connector and multimedia applet to control the volume and control the playback of multimedia content. Applications created using the MauiKit framework are the file manager Index (you can also use Dolphin), text editor Note, Station terminal emulator, VVave music player, Clip video player, NX Software Center application center

and Pix image viewer.

<https://nxos.org/changelog/release-announcement-nitrux-2-9-0/>

RELEASE OF I2P 2.3.0:

01/07/2023

The anonymous network I2P 2.3.0 and C++ client i2pd 2.48.0 were released. I2P is a multi-layered anonymous distributed network running on top of the conventional Internet, actively using end-to-end encryption that guarantees anonymity and isolation. The network is built in P2P mode and is formed thanks to the resources provided by network users, which allows you to do without the use of centrally managed servers (communications within the network are based on the use of encrypted unidirectional tunnels between the participant and peers).

On the I2P network, you can anonymously create websites and blogs, send instant messages and emails, share files and organize P2P networks. For the construction and use of anonymous networks

for client-server (sites, chats) and P2P (files, cryptocurrencies) applications, I2P clients are used. The basic I2P client is written in Java and can run on a wide range of platforms such as Windows, Linux, macOS, Solaris, etc. I2pd is an independent implementation of the I2P client in the C++ language and is distributed under a modified BSD license.

The new release eliminates the vulnerability (CVE-2023-36325)

https://geti2p.net/en/blog/post/2023/06/25/new_release_2.3.0

DARKTABLE 4.4:

02/07/2023

The release of the program for processing of digital photos, Darktable 4.4, which is timed to the decade since the first release of the project, has been published. Darktable acts as a free alternative to Adobe Lightroom and specializes in non-destructive work with raw images. Darktable provides a large selection of modules for performing all kinds of photo processing operations, allows you to maintain a database

of original photos, carry out visual navigation on available shots and, if necessary, perform operations of correction of distortions and quality improvements, all while maintaining the original image and the entire history of operations on it. The project code is written in C and distributed under the GPLv3 license. The interface was built using the GTK library. The binary builds are prepared for Linux (OBS, flatpak), Windows and macOS.

<https://www.darktable.org/2023/06/darktable-4.4.0-released/>

PEPPERMINT OS BASED ON DEBIAN:

02/07/2023

The release of Peppermint OS, built on Debian GNU/Linux (originally Peppermint OS was based on Ubuntu, but then switched to Debian). In the near future, they also plan to form builds based on Devuan, supplied without a systemd manager. The distribution offers a custom environment based on the Xfce desktop and Thunar file manager. A feature of the distribution is the orientation to

create a hybrid environment in which locally installed programs coexist with web-applications opened in individual windows without elements of the browser interface. Iso-image size 1.5 GB.

Calamares is used as an installer. Note these specific applications: hBlock ad blocker (blocking at the level of host names in DNS), application for customization of the Peppermint Hub system, configurators with an interface based on tkinter, Kumo SSB (Site-Specific Browser) for working with web-applications.

<https://peppermintos.com/2023/07/peppermint-os-debian-release/>

UNSNAP - TOOLS FOR MIGRATION OF UBUNTU FROM SNAP TO FLATPAK:

02/07/2023

The unsnap project develops a utility for converting systems based on Ubuntu from the use of snap packages to flatpak format. The utility not only replaces the package manager with flatpak, but also selects and installs flatpak analogues for already installed

snaps. Ideally, the user can get a completely similar set of applications, but installed in flatpak format. The code is written in shell and is licensed by MIT.

Migration is done in a few steps. In the first step, unsnap generates a set of shell scripts for the replacement operations. Taking into account the current state of the system, separate scripts are created to backup the snap environment, install the flatpak packet manager, activate flatpak repositories, install analogues of packages in flatpak format for the already existing snap packages, remove packages from the system in snap format and snapd tools. Before starting the automatically created scripts, the user can edit them to their liking.

The project is developed by Alan Pope, one of the developers of the Snap system, who in 2021 resigned from Canonical, after 10 years at the company. The toolkit is positioned as an experimental (pre-alpha) and limited to Ubuntu support. In the future, unsnap plans to implement support for other distributions that support the use of snap, such as Manjaro, Linux Mint, Zorin, Debian, Fedora,

Pop_OS!, KDE Neon, Raspbian, CentOS and elementary OS.

<https://github.com/popey/unsnap>

PERL 5.38.0 WITH CLASS SUPPORT:

03/07/2023

After 13 months of development, the release of a new stable branch of the Perl programming language - 5.38 was published. During the preparation, about 290 thousand lines of code, were changed. Changes affected 1500 files, 100 developers took part in the development.

The 5.38 branch was released in accordance with a fixed development schedule approved ten years ago; new stable branches once a year and corrective releases - every three months. In about a month, they plan to release the first bug-fix release, Perl 5.38.1, which will fix the most significant errors identified during the implementation of Perl 5.38.0. With the release of Perl 5.38, support for the 5.34 branch has been discontinued, updates for it can only be released if critical

security problems are detected in the future. The process of developing the experimental branch 5.39 has also begun, on which a stable release of Perl 5.40 will be built in May or June 2024.

<https://www.nntp.perl.org/group/perl.perl5.porters/2023/07/msg266602.html>

RELEASE OF RCLONE 1.63:

03/07/2023

The release of the rclone 1.63 utility, that is designed to copy and synchronize data between the local system and various cloud storages, such as Google Drive, Amazon Drive, S3, Dropbox, Backblaze B2, OneDrive, Swift, Hubic, Cloudfiles, etc, was announced. The project code is written in Go and distributed under the MIT license.

<https://forum.rclone.org/t/rclone-v1-63-0-release/39465>

DELTA TOUCH 1.0.0:

04/07/2023

The first version of the messenger DeltaTouch for the Ubuntu Touch platform, which uses Delta Chat technology to use email as a transport instead of its own servers (chat-over-email, a specialized mail client working as a messenger), is available to download. The original code is written in C++ and distributed under the GPLv3 license. DeltaTouch builds are available for download in the OpenStore catalog for Ubuntu Touch branches based on Ubuntu 16.04 and 20.04.

The developers of DeltaTouch tried to recreate the functionality of the official client Delta Chat, developed for the Android platform. Not all the conceived features have been implemented, but the basic functionality is already available. Among the unimplemented features are: HTML messages, Webxdc, DB encryption, connection status display, indicator of newly read messages, chat cleaning, working as a primary device for connecting secondary.

Delta Chat is fully controlled by

the user and is not tied to centralized services. No registration of new services is required - an existing email can be used as an identifier. If the correspondent does not use Delta Chat, he can read the message as a regular letter. The fight against spam is carried out by weeding messages from unknown users (by default, only messages from users from the address book and those who were previously sent messages, as well as responses to their own messages are displayed).

<https://delta.chat/en/2023-07-02-deltatouch>

NEW RELEASE OF RADIX:

04/07/2023

New builds of the Radix cross Linux distribution, built using the Radix.pro own build system, simplifying the formation of distributions for embedded systems, are available. Downloads are available for devices based on ARM/ARM64, MIPS and x86/x86_64 architecture. The assembly system code is distributed under the MIT license.

The next release of Radix.cross Linux has all the necessary tools for the development of programs and Web applications, including tools such as GCC, LLVM, PHP, Ruby, MariaDB, PostgreSQL, as well as Web servers Apache httpd and Nginx. A complete list of packages can be found on the FTP server in the directory with the corresponding name of the target device in the file with the '.pkglist' extension. For example, the intel-pc64.pkglist file contains a list of packages available for installation on the model x86_64 machines.

The boot images contain a local package repository and therefore the installation of the system does not require connection to the Internet. The 1.9.149 is supplemented by IDE Cambalache 0.12.1.

<https://radix.pro/platform/install/>

KDE NEON:

04/07/2023

The developers of the KDE Neon project, presented a new experimental KDE neon edition, offering a user environment based

on the KDE Plasma 6 shell. In the current form, the custom environment in KDE Neon builds with Plasma 6 is almost indistinguishable from the builds with Plasma 5.

The key change in KDE 6 is the transition to Qt 6, changing some basic default settings and supplying an updated basic set of libraries and runtime components KDE Framework 6 forming the KDE software stack. KDE Framework 6 has large API processing. In the current form of 658 KDE projects, the ability to build with Qt 6 is implemented in 333 projects. KDE Plasma 6 is expected in the autumn of 2023.

<https://blog.neon.kde.org/2023/07/04/kde-neon-plasma-6-isos/>

75% OF STEAM GAMES PLAY IN LINUX:

04/07/2023

Of the 13,306 games tested in the Steam catalog, 75% (about 10,000) have been tested or recognized as suitable to game on the Steam Deck console, the

software environment is based on Arch Linux. Interestingly, at the beginning of the year, the number of games tested on Steam Deck was 7,000 (the possibility of launching 3,000 games was confirmed in six months).

According to Valve's June report on the preferences of Steam game delivery users, the share of active Steam users using the Linux platform is 1.44%. At the same time, 39.33% of all Steam Linux users use the SteamOS Holo distribution used in the Steam Deck gaming console. Arch Linux's share is 8.33%, Ubuntu 22.04.2 - 7.87%, Flatpak runtime - 6.02%, Linux Mint 21.1 - 4.55%, Manjaro Linux - 4.37%.

<https://boilingsteam.com/valve-is-accelerating-the-validation-of-games-from-2023-for-the-steam-deck-like-never-before-including-games-not-even-released-yet/>

LXD SEPERATION:

05/07/2023

The Linux Containers project team announced that the LXD container manager will now be

separately developed by Canonical. Canonical, which is the creator and main developer of LXD, after 8 years of development as part of Linux Containers, decided that LXD is more optimally developed as a corporate project, and not an independent community project. The development of other Linux Containers projects will remain unchanged.

The LXD code was transferred from the lxc/lxd repository to canonical/lxd, and the main page of the project was ubuntu.com/lxd. The continuous integration infrastructure for LXD will be transferred to the Canonical servers.

The LXD code is written in Go and distributed under the Apache 2.0 license. The LXC toolkit is used as runtime for launching containers. LXD is implemented as a background process that receives requests over the network via the REST API and supports various backends of storage (tree directories, ZFS, Btrfs, LVM), sleepshots with a status, live-migration of working containers from one machine to another and means for storing container images.

<https://groups.google.com/a/lists.linuxcontainers.org/g/lxc-users/c/NE3cGaoaVUE>

THE SOURCEGRAPH PROJECT MOVED FROM AN OPEN

LICENSE TO PROPRIETARY:

06/07/2023

The sourcegraph project, who develop an engine for nap, refactoring and code search, since version 5.1 has abandoned the development under the Apache 2.0 license in favor of a proprietary license that prohibits replication and sale, but allows copying and change in the development and testing process.

Initially, the note to the release of Sourcegraph 5.1 stated that the open edition of Sourcegraph was removed and transferred to the Sourcegraph Enterprise license. The text was later modified to say that individual parts of the Sourcegraph product had been deleted.

<https://github.com/sourcegraph/sourcegraph>

OPENKYLIN 1.0:

06/07/2023

OpenKylin 1.0 is out (Not to be confused with Ubuntu Kylin). The project is being developed by the Chinese Electronic Corporation with the participation of more than 270 different Chinese educational institutions, research centers, software and equipment manufacturers. The development is conducted under open licenses (mainly GPLv3) in repositories placed on gitee.com. Ready-made installation builds of openKylin 1.0 is made for X86_64 (4.2 GB), ARM and RISC-V architectures. The ARM builds support boards such as Raspberry Pi, Cool Pi and Chillie Pi, and the assembly for RISC-V provides support for VisonFive2, HiFive, SG2042 EVB, Lichepi4a and Lotus.

The distribution involves the UKUI (Ultimate Kylin User Interface) shell, which adheres to the classical PC desktop layout model and provides an optional tablet mode, controlled from a touch screen and supports an on-screen keyboard. Initially, the

custom shell was founded as a fork of the MATE desktop, but was subsequently completely redesigned and translated into components written in C++ using the Qt library, but partially borrowed from KDE or created from scratch.

<https://www.openkylin.top/index-en.html>

PROXMOX MAIL GATEWAY 8.0:

06/07/2023

Proxmox, known for the development of the Proxmox Virtual Environment distribution, has released the Proxmox Mail Gateway 8.0 distribution. Proxmox Mail Gateway is presented as a ready-made solution for the quick creation of a system for monitoring mail traffic and protecting the internal mail server.

Installation ISO is available for free. The components specific to the distribution are open under the AGPLv3 license. To install updates, both the paid Enterprise repository and two free repositories are available. The system part of the

distribution is based on Debian. It is possible to install Proxmox Mail Gateway components on top of already operating servers based on Debian.

Proxmox Mail Gateway functions as a proxy server that acts as a gateway between an external network and an internal mail server based on MS Exchange, Lotus Domino or Postfix. you can manage all incoming and outgoing flows of mail. All logs of correspondence are understood and available for analysis via the web-interface. Graphs are provided to assess the overall dynamics, as well as various reports and forms for information on the status of delivery. The creation of cluster configurations are supported to ensure high availability (maintaining a synchronized backup server, data synchronized through the SSH tunnel) or load balancing.

<https://forum.proxmox.com/threads/proxmox-mail-gateway-8-0-available.129793/>

IMAGINATION USES ZINK:

07/07/2023

Imagination Technologies announced the support of the OpenGL 4.6 graphics API in its GPU, implemented with the help of an open Zink driver - developed in the Mesa project repository. Zink provides OpenGL implementation on top of Vulkan, which allows you to get a hardware-accelerated OpenGL on devices that only support the Vulkan API. Zink's performance is close to the performance of OpenGL's native implementations, which allows hardware manufacturers not to spend resources on the implementation of OpenGL in their GPU and limit themselves to supporting the Vulkan API, and OpenGL. Imagination Technologies became the first manufacturer to use this scheme.

Other works show off the development of Imagination Technologies' open set of drivers to their GPUs based on the Rogue architecture. The set offers a DRM driver (Direct Rendering Manager) for the Linux kernel, a driver with the initial implementation of Vulkan 1.0 and a set of firmware

for the GPU. The Vulkan driver has already been transferred to the main line-up of Mesa, and the DRM driver is in preparation for the inclusion of the Linux kernel. In the future, you can add Zink support to this set and get a fully open graphical stack for Imagination equipment that supports OpenGL and Vulkan.

<https://blog.imaginationtech.com/imagination-gpus-now-support-opengl-4.6>

FEDORA CONSIDERING TELEMETRY:

07/07/2023

Ilffe Moloney from the development team of the Fedora (Community Platform Engineering Team) and Michael Catanzaro, the developer of the browser Epiphany and WebKitGT from Red Hat, proposed to include in Fedora workstation 40, a mechanism of collecting telemetry, taking into account the interests of users to ensure privacy. It is expected that the information collected on the systems will provide an opportunity to better understand the preferences of users and to

take them into account when making decisions related to the development of the distribution, identifying priorities in the development and improving the ease of work. The proposal has not yet been reviewed by the FESCO (Fedora Engineering Steering Committee), responsible for the technical part of the development of the Fedora distribution. The proposal may also be rejected in the process of review by the community.

Telemetry is proposed to be enabled by default for new installations, providing the possibility of disabling it before it first sends data. When updating the system from the last release, the default telemetry will be disabled. Buttons to disable will be added to the primary settings wizard and to the GNOME Control Center.

<https://lists.fedoraproject.org/archives/list/devel@lists.fedoraproject.org/thread/55H3DT5CCL73HLMQJ6DK63KCAHZWO7SX/>

UBUNTU 23.10 NEW APP MANAGER:

07/07/2023

The autumn release of Ubuntu 23.10 plans to include a new graphical interface the App Store (Software App), which prioritizes Snap packages and focuses on primary support for this format. At the same time, the new application also has the ability to work with repositories in DEB format and install individual deb-packages from local files. The application code is written in Dart language using the Flutter framework and is distributed under the GPLv3 license.

The application allows you to search and navigate through the snapcraft.io package catalog and DEB-repositories connected, allows you to manage the installation, deletion and update of applications and install firmware updates. If you have one program in deb and snap, snap is selected by default.

<https://discourse.ubuntu.com/t/pulse-13-ubuntu-desktop-engineering-update/36611>

BLENDOS 3:

07/07/2023

The release of the blendOS 3 distribution, using container insulation to ensure coexistence in one system of packages from different Linux distributions, has been published. It can install packages in APK, DEB and RPM formats from Debian 12 repositories, Ubuntu 22.04/23.04, Fedora 38, Arch Linux, Kali Linux, AlmaLinux 9 and Rocky Linux formats, as well as install Android applications from Google Play and F-Droid directories. Seven builds with user environments like GNOME, KDE, Cinnamon, Deepin, Mate, Xfce and LXQt (iso-image size is approximately 3.5 GB) was prepared.

blendOS provides a basic system environment based on Arch Linux, which is immutable and is updated in atomic mode using replacement root partitions.

<https://blendos.co/blend-os-v3/>

RELEASE PHOSH 0.29:

07/07/2023

A new release of Phosh 0.29.0, a screen shell for mobile devices based on GNOME technology and the GTK library, is out. The environment was originally developed by Purism as an analogue of GNOME Shell for the Librem 5 smartphone, but then became one of the unofficial GNOME projects and is used in postmarketOS, Mobian, some firmware for Pine64 devices and Fedora for smartphones. Phosh uses a Phoc composite server running on top of Wayland, as well as its own squeeboard keyboard. The project is distributed under the GPLv3+ license.

<https://phosh.mobi/releases/release-0.29.0/>

Q4OS 5.2:

08/07/2023

The Q4OS 5.2 distribution based on Debian and supplied with KDE Plasma 5 and Trinity desktops (continues the KDE 3.5.x codebase development) is out. Both user environments can coexist in the

same system and the user can switch between them. The distribution is positioned as undemanding on hardware resources and offering a classic desktop design. The size of the boot image is 1.1 GB (x86_64).

It includes several proprietary applications, including 'Desktop profiler' for quick installation of themes, 'Setup utility' to install third-party applications, 'Software center' to install additional programs, 'Welcome Screen' to simplify the initial configuration, Lookswitcher for quick-switching the look, scripts for installing alternative LXQT X, Xfce and LXDE environments. An application is provided to install the distribution in a separate Windows directory, which allows you to use the distribution in parallel with Windows without a separate disk partition for it.

The new release synchronized the package base with Debian 12. The Trinity desktop has been updated to 14.1 and KDE Plasma before the release of 5.27.5. By default, KDE Plasma uses the design theme used in Debian, but offer its own theme; Q4OS - Debonaire. The desktop profiler

added the ability to create your own profiles that reflect a certain state of the desktop and a pre-installed set of applications. In the coming days, they promise to form builds for 32-bit x86 (i686pae) systems. They plan to begin preparation of builds for the ARM architecture.

<https://www.q4os.org/blog.html>

RELEASE OF THE SOLUS 4.4:

08/07/2023

After two years of development, the release of Solus 4.4, not based on packages of other distributions and developing its own installer, package manager and configurator, was announced. Previously, the Budgie desktop developed as part of the distribution, but now it is allocated to an independent project. The next branch of Solus 5 will be based on SerpentOS. The project development code is distributed under the GPLv2 license, C and Vala languages. Builds with Budgie, GNOME, KDE Plasma and MATE desktops are provided. Iso-image size 2.3 GB (x86_64).

The distribution follows a hybrid development model, according to which major releases are periodically produced, in which new technologies and significant improvements are proposed, and in the interval between significant releases, the distribution runs on a rolling model.

<https://getsol.us/2023/07/08/solus-4-4-released/>

RELEASE OF GEARY 44.0:

10/07/2023

After nine months of development, the release of the Geary 44.0 email client, focused on GNOME, was published. The project was originally founded by the Yorba Foundation, which created the popular photo manager Shotwell, but the development later passed into the hands of the GNOME community. The code is written in Vala and distributed under the LGPL license. Ready-made builds will soon be prepared in the form of a flatpak package.

The purpose of the project is to create a product rich in capabilities,

but at the same time extremely easy to use and consume a minimum of resources. The email client is designed for both private use and work in conjunction with web-oriented mail services, such as Gmail and Yahoo! Mail. The interface is implemented using the GTK3+ library. SQLite database is used to store the message database, a full-text index is created to search the message database. A library based on GObject is used to work with IMAP, operating in asynchronous mode.

<https://gitlab.gnome.org/GNOME/geary/-/tags/44.0>

GIMP 2.99.16:

10/07/2023

GIMP 2.99.16, that continues to develop the future stable GIMP 3.0 branch, that is in transition to GTK3, added standard support Wayland and HiDPI. They also implemented basic support for the CMYK color model, a significant cleanup of the code base, a new API for the development of plugins added, etc. The package is available in flatpak format (org.gimp.GIMP in flathub-beta

repository), as well as builds for Windows and macOS. It is expected that the next release will be assigned the status of release candidate.

<https://www.gimp.org/news/2023/07/09/gimp-2-99-16-released/>

SUSE HAS ANNOUNCED THE CREATION OF ITS OWN FORK OF RHEL:

11/07/2023

SUSE has created its own fork of Red Hat Enterprise Linux. In the next few years, they plan to invest \$ 10 million in support of the project. The RHEL fork, referred to as Liberty Linux, plans to develop and maintain as a public project overseen by a separate non-profit organization. Access to the alternative set of RHEL-compatible source packages will be free for everyone and open to other similar projects. The new fork will not affect the development of SUSE Linux Enterprise, ALP (Adaptable Linux Platform) and openSUSE, which are still perceived as the main products and resources for their development will be

unchanged.

According to the head of SUSE, the shift to proprietary models should not be brought as a factor of competition between companies building a business around open source software. The basic principle of interaction of such companies is that they all contribute to the common good of the community, as everyone benefits from this, since the end result becomes something more than the total of individual contributions.

The Liberty Linux project was first introduced by SUSE in January 2022 as Red Hat Enterprise Linux 8, built using the Open Build Service platform and suitable for use in place of CentOS 8, whose support was discontinued at the end of 2021. The distribution was supplied with its own version of the Linux kernel, created by building the package with the kernel from the SUSE Linux Enterprise 15 distribution. The distribution was covered by technical support for SUSE and centralized management capabilities using the SUSE Manager platform.

<https://www.suse.com/news/SUSE-Preserves-Choice-in-Enterprise-Linux/>

VOID LINUX INSTALLATION BUILDS ARE AVAILABLE:

11/07/2023

New bootable builds of the Void Linux distribution are out, which is an independent project that is not based off other distributions and is developed using a rolling release model. The last builds were published a year ago.

The builds are available in variants based on Glibc and Musl system libraries. For platforms x86_64, i686, armv6l, armv7l and aarch64 designed подготовлены Live-images with Xfce work desk and basic console assembly. The builds for ARM, support BeagleBone/BeagleBone Black, Cubieboard 2, Odroid U2/U3 and Raspberry Pi boards.

Xbps (the package manager) allows you to install, delete and update applications, identify incompatibility of shared libraries and manage dependencies. The

systems developed in Void are distributed under the BSD license.

<https://voidlinux.org/news/2023/07/new-images.html>

RELEASE OF THUNDERBIRD 115:

12/07/2023

A year after the publication of the last major release, the Thunderbird 115 mail client, developed by the community and based on Mozilla, was released. The new version is classified as LTS, for which updates are released during the year. Thunderbird 115 is based on the ESR-extras release code base of Firefox 115.

<https://blog.thunderbird.net/2023/07/our-fastest-most-beautiful-release-ever-thunderbird-115-supernova-is-here/>

RELEASE OF PALE MOON 32.3:

12/07/2023

The release of Pale Moon 32.3, which was branched from the

Firefox code base to ensure higher efficiency, protect the classical interface, minimize memory consumption and provide additional customization options, has been released. Pale Moon builds are made for Windows and Linux (x86_64). The project code is licensed under the MPLv2 (Mozilla Public License).

The project adheres to the classical layout of the interface, without the transition to the integrated in Firefox 29 and 57 interfaces Australis and Photon, and with the provision of wide customization options. Removed components include DRM, Social API, WebRTC, PDF viewer, Crash Reporter, code for collecting statistics, means for parental control and people with disabilities. Compared to Firefox, the browser returned support for extensions using XUL, and the possibility of using both full and lightweight themes of design was saved.

<https://forum.palemoon.org/viewtopic.php?t=30014&p=240884#p240884>

RELEASE OF THE BOTAN 3.1.0 CRYPTOGRAPHIC LIBRARY

13/07/2023

The release of the cryptographic library Botan 3.1.0, used in the NeoPG project, fork GnuPG 2, is available. The library provides a large collection of ready-made primitives used in the TLS protocol, X.509 certificates, AEAD ciphers, TPM, PKCS-11 modules, passwords and post-quantum cryptography (hash-based signatures and McEliece-based key alignment). The library is written in C++ and is supplied under a BSD license.

<https://botan.randombit.net/news.html>

LINUX 6.5 KERNEL INCLUDES A SYSTEM CALL CACHESTAT:

13/07/2023

In the code base, on which the Linux 6.5 kernel is formed, a change was made with the implementation of a new system call "cachestat," which allows programs in the user's space to request more detailed statistics

from the page cache on the side of the kernel.

Expanding the existing "mincore" system call used to determine whether pages are present in memory, the "cachestat" call allows you to request more detailed page cache statistics and strive to provide greater scalability. The "cachestat" system call reports information such as the number of pages, dirty pages, reddish pages, newly displaced pages and pages marked for the delayed entry (writeback).

The statistics provided for files allow you to make more decisions on working with I-O going through VFS, based not only on the abstract algorithm, but also taking into account the characteristics of a particular system at a particular time.

<https://lore.kernel.org/lkml/20230626085035.e66992e96b4c6d37dad54bd9@linux-foundation.org/>

ALMALINUX MOVES AWAY FROM RHEL CLONING:

14/07/2023

The AlmaLinux project announced a change in their development strategy - the distribution will no longer be fully cloned from Red Hat Enterprise Linux and will allow for minor discrepancies in behavior (the use/absence of some individual patches will be allowed). At the same time, the project will maintain binary compatibility at the ABI level and will still be able to be used as a replacement for RHEL.

For ordinary users, changes in the use of AlmaLinux will be minimal - RHEL-compatible applications will work as before, and installed systems will receive updates with the elimination of vulnerabilities. The changes will mainly affect packet matching at the error repeat level - AlmaLinux will now make bug fixes that remain uncorrected in RHEL releases. Moreover, AlmaLinux will allow the inclusion of bug fixes that have not yet been accepted in the upstream or lowered to lower projects. AlmaLinux will transmit information about detected errors

in the upstream-projects Fedora and CentOS Stream, but now will not wait for the corrections to be accepted.

<https://almalinux.org/blog/future-of-almalinux/>

RELEASE OF PFSense 2.7.0:

14/07/2023

A new release of the compact distribution for creating firewalls and network gateways, pfSense 2.7.0 has been published. The distribution is based on the FreeBSD code base with the m0n0wall project and the active use of pf and ALTQ. There is an iso-image for amd64, size 472 MB.

The distribution is managed through a web-interface. Captive Portal, NAT, VPN (IPsec, OpenVPN) and PPPoE can be used to organize user release in a wired and wireless network. A wide range of capacity-limiting, limiting the number of simultaneous connections, filtering traffic and creating fault-tolerant CARP-based configurations is supported. Statistics are displayed in the form of charts or in tabular form. Authorization by local user,

as well as through RADIUS and LDAP are supported.

<https://www.netgate.com/blog/pfsense-2.7.0-and-23.05>

DEBIAN TO STOP SUPPORTING GNU/KFREEBS PORT:

14/07/2023

kfreebsd-amd64 and kfreebsd-i386 were removed from the archive of Debian (debian-ports) ports. However, GNU/kFreeBSD packages can still be download from the server with the gearshots. The only actively developed platform in Debian, created of a kernel other than Linux, remains Debian GNU/Hurd, which continues to form unofficial builds.

The port of Debian GNU/KFreeBSD, combining the FreeBSD kernel with a user-based glibc and GNU-Utilite-based environment, was among the officially supported ports in Debian 6 and Debian 7, but was excluded in Debian 8 and has since been in a semi-abandoned state. For example, the latest buildd for kfreebsd-amd64 and kfreebsd-i386 was made over a

year ago. Last year, ports for kfreebsd-i386 were not downloaded once, and for the kfreebsd-amd64 only 11 times. The total number of current packages for GNU/kFreeBSD has dropped to 30%.

<https://lists.debian.org/ZLFXP7cjnG5crpN1@aurel32.net>

RELEASE OF PODMAN DESKTOP 1.2:

15/07/2023

Red Hat has released the Podman Desktop 1.2 project, which is a graphical interface for containers, to create, launch and manage containers. The project competes with products such as Rancher Desktop and Docker Desktop, and also allows developers who do not have system administration skills to create, launch, test and publish microservices and applications developed for container insulation systems before they hit production environments. The Podman Desktop code is written in TypeScript using the Electron platform and distributed under the Apache 2.0 license. Ready-made

builds are prepared for Linux, Windows and macOS.

Integration with Kubernetes and OpenShift platforms are supported, as well as the use of a variety of runtimes to execute containers such as Podman Engine, Podman Lima, crc and Docker Engine. The environment on the local developer's system can mirror the configuration of the working environment, in which ready-made applications are running (among other things, you can simulate Kubernetes multi-node clusters and OpenShift environments on the local system). You can create add-ons to support additional engines for launching containers, Kubernetes providers and tools. For example, add-ons are available for locally running the single-node OpenShift Local cluster and connect to the OpenShift Developer Sandbox cloud service.

Tools are provided for the management of container images, work with pod and partitions, image builds from Containerfile and Dockerfile, connection to containers through the terminal, download images from OCI containers and publish their images in them, control available in

containers of resources (memory, CPU, storage). There is also support for converting container images and connecting both local container insulation engines and to Kubernetes-based external infrastructure to place their pod and YAML file generation for Kubernetes or launching Kubernetes YAML on a local system without Kubernetes.

<https://podman-desktop.io/blog/podman-desktop-release-1.2>

VECTOR INSTRUCTION OPTIMIZER FOR LLVM:

16/07/2023

A team of researchers from the University of Utah (USA) proposed the Minotaur optimizer for a set of LLVM compilers using a method based on a SMT Solver to detect missing optimizations in the intermediate code representation (LLVM IR), generated by the LLVM optimizer. Minotaur mainly targets the optimization of integer vector instructions (SIMD), both portable and specific to x86_64 systems (SSE, AVX, AVX2 and AVX-512).

As a vectorizer, the Alive2

library is used, modified to synthesize and support vector instructions used on x86_64 systems. They continues to develop the Souper project. Minotaur can find various optimizations of the application of vector instructions, missed by the OEM LLVM optimizer. When testing the additional optimized code of the libYUV library on the system with the Intel Cascade Lake CPU, the maximum performance increase was recorded by 1.64 times, but in the average acceleration was 2.2%. When testing the SPEC CPU2017 set, the acceleration was 1.3%.

<https://arxiv.org/pdf/2306.00229.pdf>

SLACKWARE LINUX IS 30 YEARS OLD:

17/07/2023

30 years ago, Patrick Volkerding introduced first release Slackware Linux distribution, which has influenced many projects and is the oldest of the current distributions. The most famous branch from Slackware is SUSE Linux. From the ongoing development of Slackware

modifications can be noted Salix, Slax, Slackel, Porteus, Zenwalk, Slackware Live Edition and Absolute Linux.

The first release Slackware was based on the Linux 0.99pl10 kernel and was built using gcc 2.4.5. The graphic environment was built using XFree-86 1.3 and the window manager was Open Look. The heyday of Slackware fell on 1994-96, in which the distribution occupied a leading position among other systems. Subsequently, projects such as Debian, Red Hat and SUSE replaced Slackware, but despite numerous forecasts of the imminent oblivion of the project, the distribution is still alive and updated.

The main reason for the long life of the distribution is inexhaustible enthusiasm Patrick Folkerding, which after 30 years remains the leader and main developer of the project. In addition, despite its considerable age, the distribution was able to maintain its identity and simplicity in the way it works.

<ftp://ftp.osuosl.org/pub/slackware/slackware64-current/ChangeLog.txt>

VOICE UPDATE FOR MOZILLA COMMON VOICE 14.0:

17/07/2023

Mozilla has updated voice datasets of Common Voice, including pronunciation examples of more than 200 thousand people. The data is published as creative commons. The proposed sets can be used in machine learning systems to build models for recognition and synthesis of speech. Compared to the previous update, the volume of speech material in the collection increased from 27.1 to 28.1 thousand hours of speech, of which 18.6 thousand hours went through the verification procedure. The number of supported languages increased from 108 to 112 (They added Pashto, Albanian, Amharic and standard Moroccan Berber languages).

The Common Voice project aims to allow joint work on the accumulation of a voice template that takes into account the diversity and the manner of

speech. Users are encouraged to voice the phrases displayed on the screen or evaluate the quality of data added by other users. The accumulated database with records of various pronunciation of typical phrases of human speech, can be used in machine learning systems and in research projects, without restrictions.

<https://commonvoice.mozilla.org/>

GNU BOOT, LIBREBOOT BOOT FIRMWARE:

17/07/2023

Leah Rowe, the main developer and founder of the Libreboot distribution, introduced the first version of a new boot firmware. GNU Boot, is a Libreboot fork adapted for compliance requirements STR Fund for completely free distributions. GNU Boot plans to be part of the GNU project as a free system environment that can be used instead of proprietary firmware. GNU Boot, like Libreboot, will be provided by Leah Rowe.

The reason for creating the fork is the discrepancy in the approach

to the acceptability of using binary components in firmware for the Libreboot project and the STR Fund. Last fall, the Libreboot project switched to more pragmatic rules on the use of binary components, which made it possible to significantly expand the range of supported hardware. The new goal of the Libreboot project was to support all the equipment supported by CoreBoot, with the exception of binary components that affect safety and reliability (for example, Libreboot uses me_cleaner for clearing Intel ME). At the same time, Libreboot lost the status of a completely free distribution from the position of the Free Software Foundation.

The GNU Boot project was a continuation of the idea tested in Censored Libreboot to create a completely free Libreboot branch. The first version of GNU Boot 20230717 included changes that have accumulated since last year's version of Libreboot 20220710, which is the latest version of Libreboot, before the adoption of the new draft rules.

<https://libreboot.org/news/gnuboot.html>

LAZYVIM 5:

18/07/2023

LazyVim 5, developing an add-on over the text editor Neovim, turning it into a complete integrated development environment, is out. To create this advanced functionality, a plugin manager is used, lazy.nvim and a set of pre-built add-ons in the Lua language. LazyVim provides a work-ready environment that combines some default settings that is optimal, in the opinion of the authors, with a simple user interface to change the configuration to your taste. The project code is written in Lua and distributed under the Apache 2.0 license.

Several dozen plugins are used for the interface and advanced capabilities of LazyVim. Among them is the engine for working with typical code templates - LuaSnip, a file manager - neo-tree, search bar - nvim-spectre, search system - telescope, Git integration - gitsigns, backlight systems - vim-illuminate and nvim-treesitter, TODO markup navigator in the comments todo-comments, a

module for integration with Github Copilot, status bar - lualine, DAP client (Debug Adapter Protocol) / nvim-dap, code formatting system indent-blankline, notification - managernvim-notify.

<https://github.com/LazyVim/LazyVim/releases/tag/v5.0.0>

COMPOSEFS ON TOP OF OVERLAYFS AND EROFS:

18/07/2023

An experimental release of the Composefs 0.1.4 file system is available. It is designed to jointly store the contents of several mounted disk images. The project is developed by Alexander Larsson, the creator of Flatpak, in order to improve the efficiency of mounting container images and placing the Git-like repository OSTree. The project code is written in C and distributed under the GPLv2 license.

Initially, the first version of Composefs was a separate FS, implemented in the form of a module for the Linux kernel. In version 0.1.4, the development approach is fully revised and the

support for the kernel module has been discontinued. Since in many ways Composefs overlaps with the existing code in the core, they decided that it will be easier to develop Composefs in the form of an add-on on a FS like OverlayFS and EROFS.

Composefs uses a content-based storage model, where the primary identifier is not the file name, but the hash from the contents of the file. A similar model provides deduplication and allows you to store only one copy of the same file found in different mounted sections.

<https://github.com/containers/composefs/releases/tag/v0.1.4>

MYSQL 8.1.0:

18/07/2023

Five years after the publication of the 8.0 branch by Oracle, there is new DBMS branch MySQL 8.1. MySQL Community Server 8.1.0, prepared for all major Linux, FreeBSD, macOS, and Windows distributions.

The new model provides two

types of MySQL branches - "Innovation" and "LTS". Both branches will include new opportunities and will be suitable for production. Innovation branch, to which MySQL 8.1 is assigned, is recommended for those who want to access new functionality earlier. These branches will be published every 3 months and maintained only until the publication of the next major release. The LTS branch is recommended for implementations that need predictability and consistency. LTS branches will be available once every two years and maintained in a regular stretch for five years, with the possibility of another three years of expanded support.

<https://blogs.oracle.com/mysql/post/introducing-mysql-innovation-and-longterm-support-lts-versions>

VIRTUALBOX 7.0.10:

18/07/2023

Oracle published a corrective release for VirtualBox 7.0.10, in which 23 bug-fixes are noted. At the same time formed update of the previous branch of VirtualBox 6.1.46 includes 14 changes,

including support for the Linux 6.4 kernel and kernel packages from RHEL 8.8, 8.9, and 9.3.

<https://www.virtualbox.org/>

RELEASE OF SURICATA 7.0:

19/07/2023

After two and a half years of development, the OISF (Open Information Security Foundation) published release of the system for detecting and preventing network intrusions Suricata 7.0. Suricata 7.0 provides inspection tools for various types of traffic. Suricata configurations allow signatures, developed by the Snort project, as well as sets of rules for Emerging Threats and Emerging Threats Pro. The source code of the project is distributed under the GPLv2 license.

<https://suricata.io/2023/07/18/suricata-7-0-0-released/>

RELEASE OF MIR 2.14:

19/07/2023

The release of the display server Mir 2.14, still developed by

Canonical, despite the rejection of Unity. Mir remains in demand in Canonical projects and is now positioned as a solution for embedded devices and the Internet of Things (IoT). Mir can be used as a composite server for Wayland, which allows you run any applications using Wayland environments based on Mir. Packages for installation are prepared for Ubuntu 22.04, 22.10 and 23.04 (PPA) and Fedora 36, 37 and 38. The project code is distributed under the GPLv2 license.

The new version added support for the "ext-session-lock-v1" Wayland extension, which determines the session locking tools and can be used to create screen savers or output the authentication dialog on a locked screen. The ability to move elements using the "Drag and Drop" in environments based on Wayland is also implemented. They added the ability to change the mouse cursor while moving the elements, as well as unified implementation of rendering platforms (RenderingPlatform), support for dispmanx platform has been discontinued.

<https://discourse.ubuntu.com/t/mir-release-2-14-0/37082>

RELEASE OF THE TRAFFIC ANALYZER ZEEK 6.0.0:

21/07/2023

A new release of the traffic analysis system for the detection of network incursions Zeek 6.0.0, previously distributed under the name Bro, has been published. Zeek is a platform for traffic analysis, focused primarily on tracking, but not limited to this application. The system code is written in C++ and is distributed under the BSD license.

The platform provides modules for the analysis and parsing of various network layer protocols of applications, taking into account the state of connections and forming a detailed log of network activity. A subject-oriented language is offered to write monitoring scenarios and detect anomalies, taking into account the specifics of certain infrastructures. The system is optimized for use in large-capacity networks. API is provided for integration with third-party information systems and real-

time data exchange.

<https://zeek.org/2023/07/13/introducing-zeek-6/>

RELEASE OF QT CREATOR 11:

21/07/2023

The release of an integrated Qt Creator 11.0 development environment, designed to create cross-platform applications using the Qt library, has been published. Both the development of classical programs in the C++ language and the use of the QML language, which uses JavaScript to define scripts, and the structure and parameters of the interface elements are set by CSS-like blocks are supported. The finished builds are available for Linux, Windows and macOS.

<https://www.qt.io/blog/qt-creator-11-released>

WHONIX 17:

21/07/2023

WhoniX 17, aimed at providing anonymity, security and

protection of private information has been released. The distribution is based on Debian GNU/Linux and uses Tor to ensure anonymity. The project is distributed under the GPLv3 license. To download there are images of virtual machines in ova format for VirtualBox(2 GB c Xfce and 1.3 GB console). The image can also be converted for use with the KVM hypervisor.

The feature of Whonix is the division of the distribution into two separately launched components - Whonix-Gateway with the implementation of a network gateway for anonymous communications and Whonix-Workstation with a desktop. Both components are delivered inside one bootable image. Network connection from the Whonix-Workstation environment is made only through the Whonix-Gateway gateway, which insulates the working environment from direct interaction with the outside world and allows only fictitious network addresses. This approach allows you to protect the user from leakage of any real IP address in the event of a web browser hacking and even when exploiting a vulnerability that gives the attacker root access to the system.

The Whonix-Workstation provides the Xfce user environment. The delivery includes programs such as VLC, Tor Browser, Thunderbird+TorBirdy, Pidgin, etc. In the Whonix-Gateway you can find a set of server applications, including Apache httpd, nginx and IRC servers. It is possible to lump protocols on top of Tor tunnels for Freenet, i2p, JonDonym, SSH and VPN.

<https://forums.whonix.org/t/whonix-17-has-been-released-debian-12-bookworm-based-major-release/16922>

UPDATE OF DEBIAN 12.1:

22/07/2023

The first corrective update of the Debian 12 distribution is out. It includes package updates released in the month and a half from the release of the new branch, and eliminated some shortcomings in the installer. The release includes 89 updates for stability issues and 26 updates for the elimination of vulnerabilities. From the changes in Debian 12.1 you can note the update to the

fresh stable versions of the packages of libreoffice, dbus, dpdk, gnome-control-center, gnome-maps, gnome-software, mutter, nvidia-graphics-drivers, postfix, qem and systemd.

Installation builds with Debian 12.1 have been prepared for installation "from scratch." The systems already installed and up-to-date receive updates present in Debian 12.1 through the OEM update system. Security fixes included in the new Debian releases are available to users as updates via security.debian.org.

<https://www.debian.org/News/2023/20230722>

CMAKE 3.27.0 BUILD

SYSTEM:

22/07/2023

A release of the cross-platform, open, CMake 3.27 CP, acting as an alternative to Autotools and used in projects such as KDE, LLVM/Clang, MySQL, MariaDB, ReactOS and Blender, has been published. CMake is notable for the provisioning of a simple scripting language, means of expanding

functionality through modules, support for caching, the availability of tools for cross-compilation, support for the generation of build files for a wide range of build and compiler systems. Also the availability of ctest and cpack utilities to determine the testing and assembly of packages, the cmake-gui utility for interactive configuration of the build parameters. The CMake code is written in C++ and distributed under a BSD license.

<https://www.kitware.com/cmake-3-27-0-available-for-download/>

THE

VIRTUALBOX NETWORKING PRIMER

Connecting and Configuring
Virtual Machines



Robin Catling

The VirtualBox Networking Primer

Connecting and Configuring Virtual Machines

The VirtualBox Networking Primer is a no-nonsense guide for the VirtualBox user taking their next steps into virtual networks.

While Oracle VM VirtualBox is a great free tool, the real power of virtualisation comes when you start connecting virtual machines to each other and to the wider world. Software development, sales, education and training are just some of the areas in which network access to virtual machines offers endless opportunities. But the world of computer networks is filled with complex technical jargon.

Complete with principles, practice, examples and glossary, The VirtualBox Networking Primer takes the frustration and confusion out of connecting real-world projects.

Author: **Robin Catling**

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COMMAND & CONQUER

Written by Erik

BACK NEXT MONTH



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.



HOW-TO

Written by Greg Walters

Python In The Real World - Pt.142

BACK NEXT MONTH



Greg Walters is a retired programmer living in Central Texas, USA. He has been a programmer since 1972 and in his spare time, he is an author, amateur photographer, luthier, fair musician and a pretty darn good cook. He still is the owner of RainyDaySolutions a consulting company and he spends most of his time writing articles for FCM and tutorials. His website is www.thedesignatedgeek.xyz.



HOW-TO

Written by Jon Hoskin

In part five of An Introduction to Stable Diffusion, we will learn to install Automatic1111 and be introduced to a different interface. We will also use this new interface to generate and modify images.

The current version of Easy Diffusion is 2.5.39 beta version and includes Seamless tiling as the added feature. I started Easy Diffusion from the command line and the below information appeared while loading. It indicates Easy Diffusion would automatically open in a browser window. On my Ubuntu Studio installation, that did not happen, possibly because I am running Brave as my default browser.

Having had some issues with Easy Diffusion, I installed the Automatic1111 version which is apparently more popular. As the name implies, Easy Diffusion is

indeed easier to use for a new user and the interface more obvious. Automatic1111 is more capable if less user friendly. I will therefore start using both in comparison and when possible present both interface screens for comparison purposes.

First, we must get the Automatic1111 version installed. Go to the install page: <https://github.com/AUTOMATIC1111/stable-diffusion-webui> and go to mid-page where installation information can be found. There you will find procedures for Windows, Apple and Linux operating systems. It seemed more difficult to install on Linux in the past but now just install the Python dependencies for Debian, Red Hat or Arch based OSes then run the provided command in the directory desired and it will be installed. Run Automatic1111 by typing in:

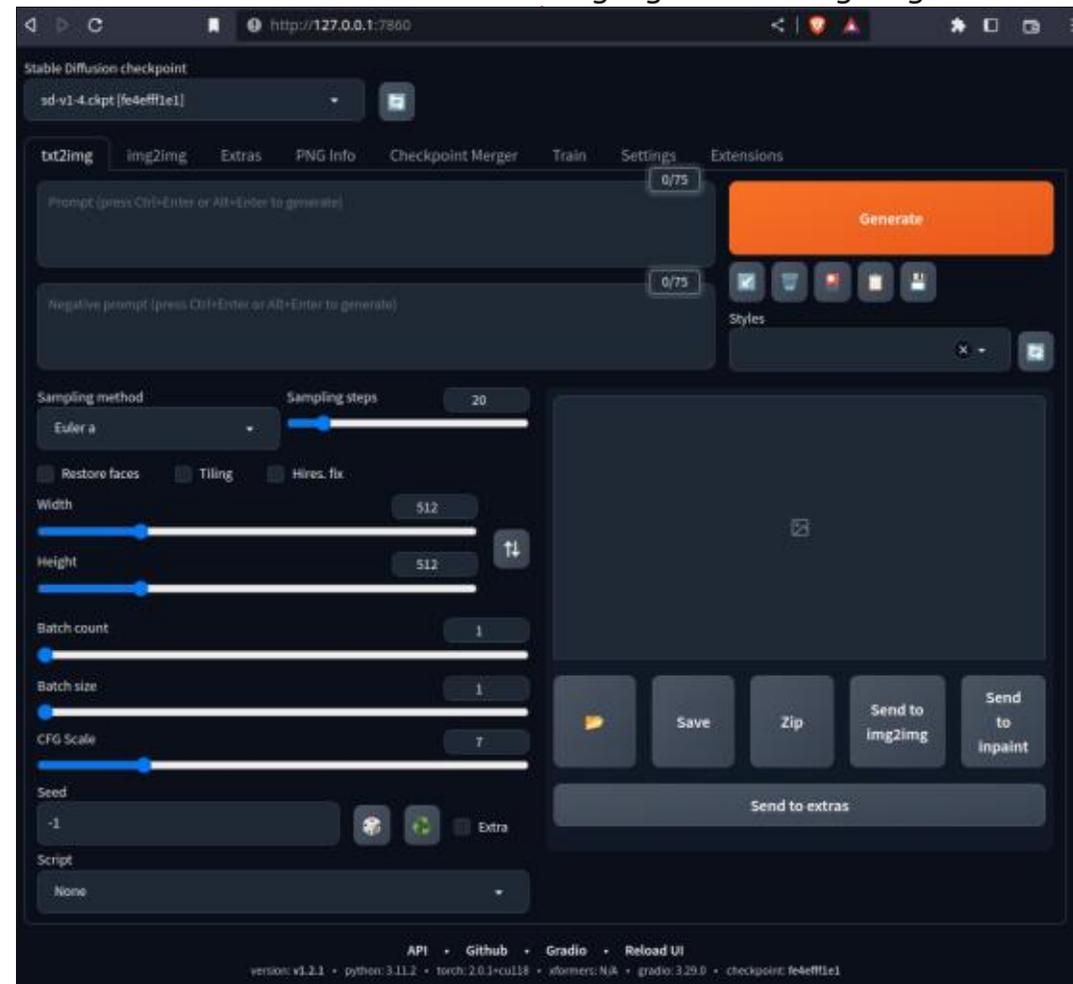
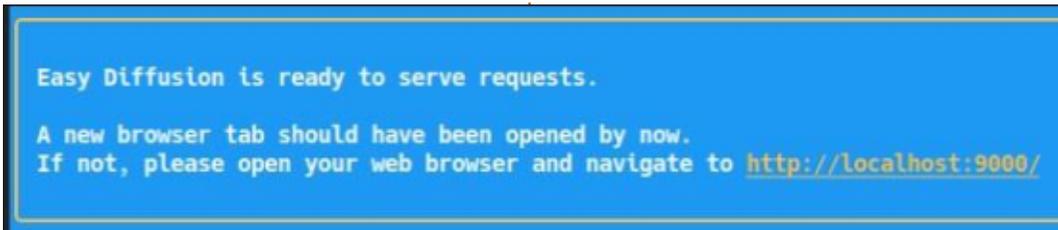
`webui.sh`

in your terminal and opening a browser tab and going to the indicated URL:

`http://127.0.0.1:7860`

It should then bring up a considerably different Stable Diffusion interface:

You will notice a series of tabs near the top with txt2img highlighted and img2img to the



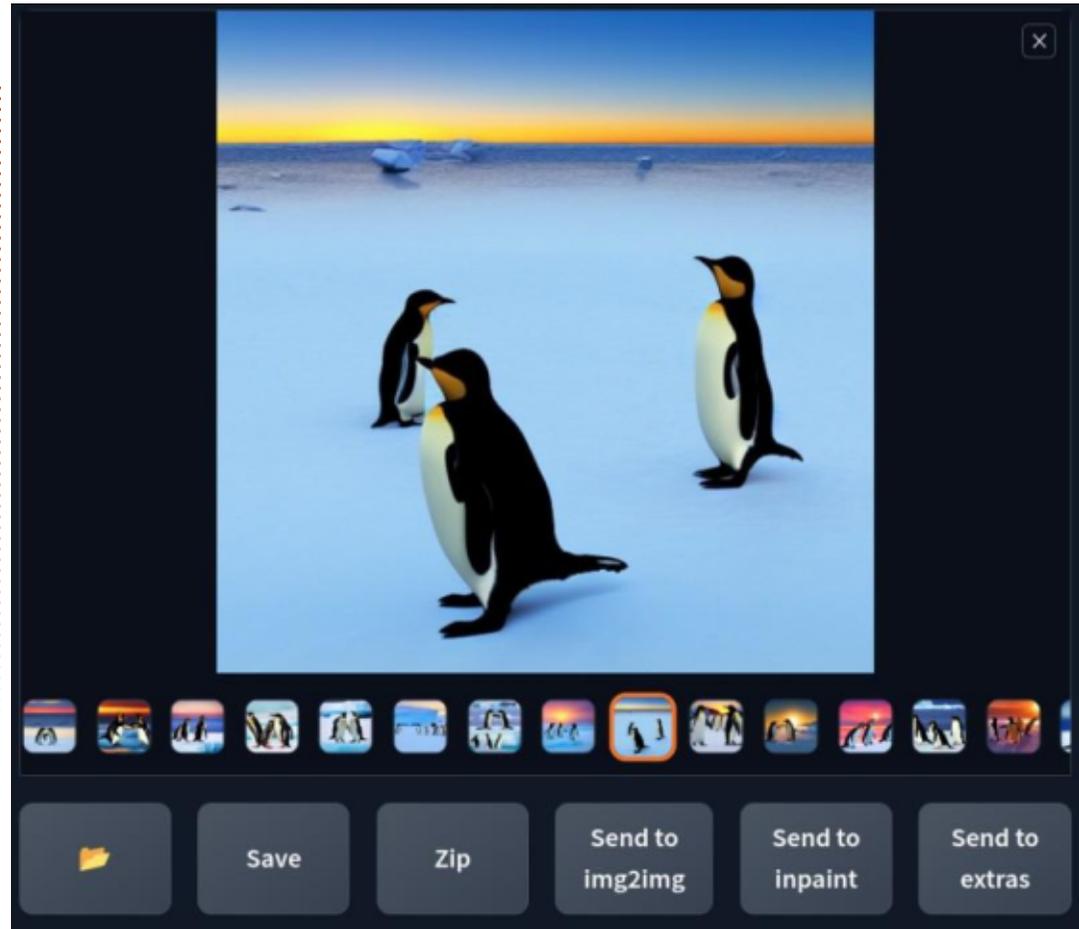
HOWTO - STABLE DIFFUSION



right. We will use these options to first make an image and then modify it. With txt2img selected create an image by typing in an appropriate description. In the following example, I used: penguins dancing in Antarctica, sun going down, rough seas, photo-realistic. You can use the default 512x512 size and Sampling steps

of 20. I also used a batch count of 20 to create a variety of images and -1 as the seed produces a random number each time as shown by placing the cursor over the option (shown above).

Also indicated at the bottom of the page is the current version of Automatic1111 (v1.2.1) and



versions of dependencies. Use the single graphic generated or pick out one of the batch generated. If you have batch produced several then one of the graphics is a grid of all generated as shown, twenty in my case. You can scroll through the batch and find one of interest (bottom left).

When the large version of the desired graphic is shown instead of

the grid of all, select the Send to img2img button (shown above).

The graphic should then be seen in the img2img interface. You can then make the graphic wider by moving the slider or typing in the desired width, doubling it to 1024. Batch count should be changed to one and you can press the Generate button.

HOWTO - STABLE DIFFUSION

Look carefully at the newly generated graphic. It is not the same and seems very distorted. Making it more accurately reflect the original is done by maximizing the CFG scale to 30 and reducing the Denoising strength to zero in the img2img interface (top right).

After Generating the modified version the result is a very similar graphic but everything seems to

have been stretched. There are ways to modify the generated graphic but it may still seem a bit of an art to get the desired result. One of the new updates is for image tiling which may also be utilized to make a wider graphic. We will address some of the numerous options as we go forward (bottom right).



Copy image to:

Resize mode
 Just resize Crop and resize Resize and fill Just resize (latent upscale)

Sampling method: Euler a | Sampling steps: 20

Restore faces Tiling

Resize to | Resize by

Width: 1024 | Height: 512

Batch count: 1 | Batch size: 1





HOW-TO

Written by Robert Boardman

Latex Pt.23

Last time, I showed how to get started making a book. I had several files with some recipes in them and used the include command to get Latex to import them into the book as the PDF is generated. I noted there were some problems with this first iteration that need to be fixed. I pointed out situations I intend to correct.

1) For example the fraction in 3 1/2 cups flour needs to look like a fraction. I could write it as a decimal but that would cause confusion. "Does 3.5 mean 3 1/2 or 35 cups?" So I need to change the 1/2 so Latex formats it as 1/2. (All other fractions should be reformatted as well.)

2) There is at least one file currently included that has more than one recipe in it. I want to separate each recipe into a different tex file and a different include so I can arrange the recipes in the order I want.

3) I will probably add "chapters" which will be section dividers:

perhaps meat, eggs, vegetables, soup, fish, etc. or perhaps sections for dishes from different parts of China.

I finished fixing item 2 quickly. Each recipe is now in a separate chapter. One file had three recipes in it. Fixing this meant cutting and pasting each recipe into a separate file.

Fixing item 1 was straightforward but tedious. I had to review every recipe file looking for fractions. Then I had to change the type entry 1/2 into a real fraction using the function $\frac{\text{numerator}}{\text{denominator}}$. Because this is an inline Latex math function it has to be surrounded by dollar signs. Using TexStudio made the typing error-free. I simply typed $\frac{}{}$ and TexStudio filled in the correct syntax. I could have also used the Math menu item and selected fraction. Once the first fraction had been written it was simple to copy and paste it over and over and over and ... in every file. Of course I had to make sure I used the correct value of the

fraction when I replaced it. For example the difference between 1/2 cup and 3/4 cup can be significant.

After fixing those two items the book is starting to look a little more professional. As I went through each recipe.tex file I noticed some inconsistencies in the recipes. Different recipes had different amounts and kinds of text between the title (chapter name) and the Ingredients list. Some had a short description or story in text. Others had preparation times and / or servings and other auxiliary cooking information.

Some recipes used a capital T for tablespoon and a lower case t for teaspoon. Some used Tbsp, others used Tb or tb or tbs for tablespoon. There was not as much variation for teaspoon.

Should 1 unit be singular and multiple units plural or all units singular? For example should the sequence be: 1 cup, 2 cups or 1 cup, 2 cup?

A few recipes had units in the metric system, most did not. This has something to do with the source and age of the recipes I selected. Recipes from American and most Canadian cookbook writers until very recently have always used Imperial units. Cookbooks from outside North America for sale in North America may use Imperial units only or Imperial units with the equivalent metric units in brackets.

Of course if you are putting together a family history or a novel or a play your book will not have the same presentation "issues" this cookbook has. Nevertheless you need to pay attention to consistency in chapter structure, headers and footers, fonts, etc. Inconsistency in presentation is a hallmark of amateurs at work.

Headings for dividers between sections are easy to put in place. Arrange the recipes into the desired order. Decide what you are going to call each section. Then make a new file with the

appropriate name (sectionbuns.tex). I might have a section for buns. Its file will look like:

```
\chapter{Buns}
```

and include an introduction to this part of the book. What is considered a “bun” in Chinese cuisine? Which areas of the country feature buns in their meals? General features of buns and bun recipes, etc.

I would save it as sectionbuns.tex. Then put a new include statement in the main file for the book that would say:

```
\include{sectionbuns}
```

That would generate two new pages. The first page would automatically be on the right side (odd-numbered page). The second page it generates is a blank page on the left side (even numbered page) because the next include starts a new chapter and every new chapter starts with a right hand page by default. This is a default built into the style sheet for Latex books.

As long as I keep all the

information about buns to two pages I can take advantage of the empty generated page by either writing a lot of information about buns or inserting an image, perhaps a photo of different types of buns.

Note: If you set the documenttype to article you cannot use the chapter instruction. However, each new “section” (chapter) of your book will start on the next page, no blank pages. There are no left and right pages in an article.

I do not like the number of blank pages generated by the chapter element. I want to eliminate as many of these blank pages as possible. Having different recipes on facing pages (left and right) is a layout used in many cookbooks. I can make that change by changing the chapter instruction in each recipe to section. Since the include instruction has a built-in page break between each included file this will generate what I want for pages. The problem with this is in the Table of Contents. By default chapters are numbered 1, 2, 3, etc. sections are numbered as 0.1, 0.2, 0.3, etc. Also by default section names are in smaller type than

chapters in the Table of Contents. If I use the instruction \section* the sections will not be numbered, they will also not be listed in the Table of Contents.

I decided to set up and work with a compromise. I am not completely happy with it but it satisfies my major criteria. All of the recipes are listed in the Table of Contents. There are dividers for each type of recipe. There are no blank pages between recipes. It will be possible to insert new recipes into the book without a major reworking of the code. The compromise is as follows.

1. Each dividing page (section divider) will start with the instruction \chapter{type of food}.
2. Each recipe will start with the instruction \section{name of recipe}.

You can see the effect of this choice in the image shown top right and also in the snippet from a sample recipe (bottom right).

I prefer to have no numbering for either chapters or sections. However, that requires editing the style sheet for the book or finding

a premade template at ctan.org that already uses a style sheet I prefer. Another option is to write a macro in the book file which makes my preferred changes. Perhaps I will have time to work with one of these options for another issue.

```
fcm195cook02.tex X steambuns.tex X
1= \section{Steamed Bun Dough}\label{steamedbuns}
2 \label{Buns}This is basic recipe for making
   the steamed bun dough used in Char Siu Bao
3
4 Yields 24 buns
5= \section*{Ingredients}
6= \begin{itemize}
7 \item 1 package dried yeast or 1 cake fresh
   yeast
8 \item 1 cup lukewarm water
9 \item 4s\frac{1}{2}s cups flour
10 \item s\frac{1}{4}s cup sugar
11 \item 2 tablespoons Crisco or vegetable oil
12 \item s\frac{1}{2}s cup boiling water
13 \item 2 tablespoons sesame seed oil
14 \end{itemize}
15= \section*{Instructions}
16= \begin{enumerate}
17 \item Dissolve yeast in lukewarm water. Add 1
```

KILOBYTE MAGAZINE

Kilobyte Magazine is a fanzine for 8bit enthusiasts. It covers consoles, computers, handhelds and more, as well as new games for old systems. If you grew up with Commodore, Atari, Sinclair or Amstrad, this magazine is for you.

<https://retro.wtf/kilobytemagazine/>



Correction: This article includes a fix to address an issue with the code published last month which failed to work if Inkscape inserted the `<script>` tag near the top of the SVG file.

Last time I demonstrated how to write a small chunk of JavaScript that can be added to a multi-page Inkscape file in order for all the pages to be viewable in a web browser by appending `#page-2` to the URL (without the quotes, and replacing `2` with the relevant page number). That's a useful step forward, but Inkscape lets you explicitly name pages, so it would be nice if we could use those names in the URL, rather than a generic string. This month I'm going to extend the existing script to add exactly this capability. But before I do, I need to address an issue that was discovered by 'dwhall' on the official Inkscape forum.

Although I tested the code

```
10 function createViewElements() {
11     const inkNS = 'http://www.inkscape.org/namespaces/inkscape';
12     const svgNS = 'http://www.w3.org/2000/svg';
13     const pages = document.getElementsByTagNameNS(inkNS, 'page');
14
15     Array.from(pages).forEach((page, idx) => {
16         const x = page.getAttribute('x');
17         const y = page.getAttribute('y');
18         const w = page.getAttribute('width');
19         const h = page.getAttribute('height');
20         const viewBox = `${x} ${y} ${w} ${h}`;
21
22         const view = document.createElementNS(svgNS, 'view');
23         view.setAttribute('id', `page-${idx + 1}`);
24         view.setAttribute('viewBox', viewBox);
25         page.appendChild(view);
26     });
27 }
28
29 window.addEventListener('load', createViewElements);
```

extensively before writing the previous article, dwhall was unable to get it working in their own files. With a bit of digging, I was able to track the problem down: my test files had the `<script>` tag inserted at the end of the file, whereas theirs was inserted near the start. I'm not sure why this difference occurred – we had both used various Inkscape releases, and I'd also made some manual edits while testing the code, so the difference could potentially have been introduced in a number of different ways. Having the `<script>`

tag near the start meant that the JS was being executed before the SVG content had finished being read and rendered, so the call to `getElementsByTagName()`, for example, was failing to return the correct elements. That same code worked fine when it was at the bottom of the file.

One solution to this is to manually move the `<script>` tag to the end of the file – but that involves editing XML in a text editor, which is not a very user-friendly approach. Instead I've

modified the code by wrapping it all in a function, named `createViewElements()`. That stops the code running immediately as the JavaScript is parsed, but we still need some way to make sure it still runs once the page has loaded. The answer to this is to add a line at the end, outside the function, which listens for the browser's `'onload'` event, and responds by calling the function.

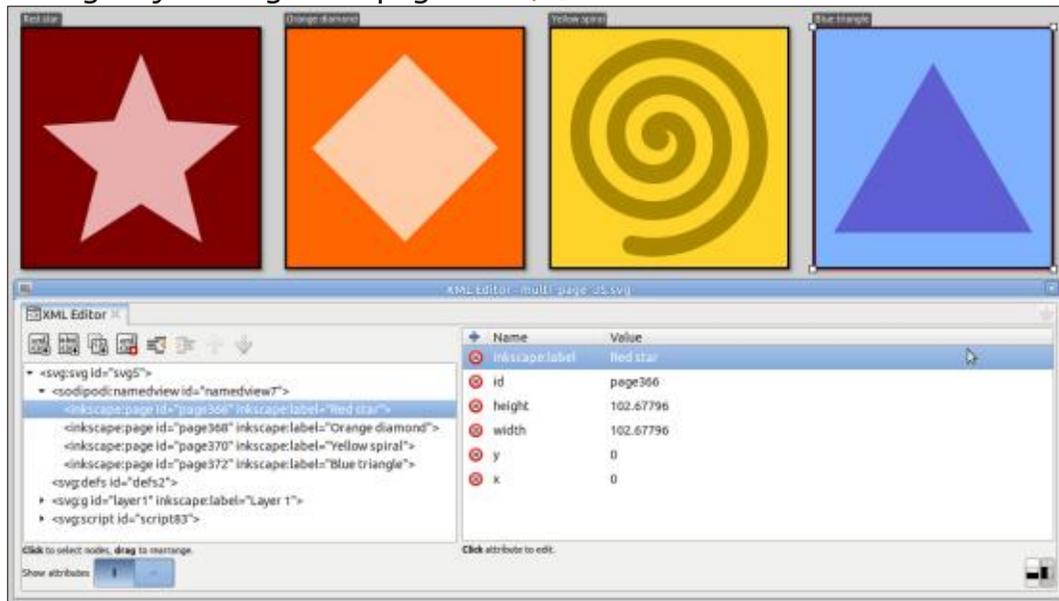
With these changes in place, the code now looks like that shown above.

I've added line numbers to make it clearer which parts of the code I'm referring to in the rest of this month's article, but I'm using the convention from my BASIC days back in the 80s of incrementing the numbers in tens so that I can squeeze new lines of code in-between as necessary. Do not include any line numbers when entering this code into Inkscape! I've also removed the `console.log()` calls that I'd previously left in, for brevity. If your own code still contains them it won't cause any problems.

If we're going to make this code support named pages, we'll need to begin by naming some pages in

Inkscape, then open the XML editor to see how those values are stored in the file. Using the same demo page as last time, I've given each page a name based on its contents – 'Red star', 'Orange diamond' and so on.

It may not be very obvious by the time this screenshot has been resized and compressed to fit the magazine's PDF file, but if you do this yourself you'll quickly find that the page names are stored as part of the `<inkscape:page>` element (no surprise there!), in an attribute called 'label' which is also in the 'inkscape' namespace. The use of the namespace on the attribute seems a little unnecessary to me, given that the whole element is



```
160     page.appendChild(view);
161
162     if (label !== null) {
        // More code to go in here...
169     }
170 });
```

non-standard and in a custom namespace already, but we have to work with the format we've got, not what we think it should be.

We'll need to extract the page names into JavaScript variables for further processing. In reality our code already works on one page at a time, courtesy of the `forEach()` loop, so we actually only need to get the name from the attribute in the page that's currently being processed. We've already used the `getAttribute()` function to extract attribute values, but this time we've also got that pesky namespace to deal with. That requires the `getAttributeNS()` function which is exactly the same, but takes a namespace as the first parameter. Despite this small difference, we'll keep all the attribute-getting code together, resulting in the insertion of line 105:

```
105 const label =
page.getAttributeNS(inkNS,
'label');
```

It's entirely possible that the `label` attribute doesn't exist on a particular page. You should be free to just add labels to some pages and not others, without the code breaking. Fortunately, `getAttributeNS()` won't just fall over in that case, but rather it will return a JS null value. So if 'label' ends up holding a string, we know that the page had a label applied, whereas if it is null, there was no page label. We can use that to write an 'if' statement containing code that should only run if a label is present. This goes inside the end of the existing loop, so the file looks like this (top right).

Note the jump in line numbers after 162, as we'll need more than just a single line of code in this section. The first thing we'll need to do in here is to ensure that the label is valid for use as the ID for a `<view>` element. IDs have pretty strict rules about what characters they're allowed to contain, whereas Inkscape page labels are

far more lax. We'll take a rather basic approach to this problem: we'll just replace every character that's not alphanumeric with an underscore.

```
163 const idLabel =  
label.replace(/\W/g, '_');
```

This calls the JS `replace()` method on our string, passing it two parameters. The second is pretty obviously the replacement string we want to use, but what about that first one? That's a JavaScript regular expression – similar to those that you may be familiar with from `grep` or `sed` on the command line, but with some significant differences in syntax. In JS a regular expression is delimited by slash characters (`/`) in much the same way that a string is delimited by quotes. So the actual regular expression itself is just the `\W` between those slashes. What does that mean?

In the command line world you might be familiar with character classes in regular expressions – special values such as `[:alnum:]` which match against the range of alphanumeric characters (equivalent to `[a-zA-Z0-9]`). JS has its own set of character classes,

```
130 const view = document.createElementNS(svgNS, 'view');  
140 view.setAttribute('id', `page-${idx + 1}`);  
150 view.setAttribute('viewBox', viewBox);  
160 page.appendChild(view);
```

with the closest match to `[:alnum:]` being `\w` (lower-case 'w'). This actually matches not only alphanumeric characters, but also the underscore character. No, I don't know why they decided to throw an arbitrary underscore into the mix, but that's the way it works. Each of these character classes has an inverse, using the upper-case version of the letter. So the `\W` used in our code matches any character that is NOT an alphanumeric character or an underscore.

The 'g' at the end of the regex is a flag that turns this into a 'global' regular expression. All that means is that it will apply to all the substrings that match, not just the first one. Without this a label such as "Red star #1" would be transformed into "Red_star #1". With this one extra character the transformation becomes "Red_star__1" instead. Note that both the second space and the hash character are transformed, resulting in a double-underscore in the final string. If you prefer to

collapse sequences of multiple matching characters down to a single underscore, replace the regex with `\W+/g` instead. The additional '+' will cause the `\W` to not just match a single character, but any consecutive sequence of one or more characters, replacing entire spans of non-alphanumerics with a single underscore. I think this is usually a little more user-friendly, so I'll include the '+' in the final code.

Now that we've got an ID-friendly name, we can create the new `<view>` element, just like we did last time. In fact, the code will be virtually identical, which makes it a prime target for moving out into a separate function. For our purposes we want a function that takes the strings for the ID and `viewBox` as parameters, as well as a reference to the current `<page>` element. It will create the new `<view>` and append it to the `<page>`, as before. The current code looks like this (above).

Let's extract lines 130 to 160

into a function, which we'll put between the end of the existing function (line 180) and the event listener (line 200). The main change in this code is that the ID that we previously generated on line 140 is now going to be passed in to the function call, so on line 184 below we use the parameter name. We'll also move the `svgNS` variable (previously on line 30, now on line 183) as it's only used by the `createElementNS()` function and no longer needs to exist in the main function (next page, top right).

If you've kept up so far, then well done! It's time to take a break and test the new functionality. You should be able to access each page either by appending `#page-n` to the URL (e.g. `file.svg#page-3`) or by appending a hash followed by the page label, with non-alphanumerics replaced by underscores. With my test file, appending `#Orange_diamond` to the URL produces this (image shown next page, bottom left).

HOWTO - INKSCAPE

I've opened the developer tools and switched to the Inspector in order to see what's actually happened in the document. Sure enough, each of my `<inkscape:page>` elements now contains two children, both `<view>` elements, with an ID corresponding to the page number, and another corresponding to the label. Either can be used as a fragment identifier in the URL to give exactly the same result.

You can stop there if you want. We've achieved the goal we set for ourselves, of being able to access pages by their label. But with little effort we can make this script even more useful. There's a way we can apply those additions to the file,

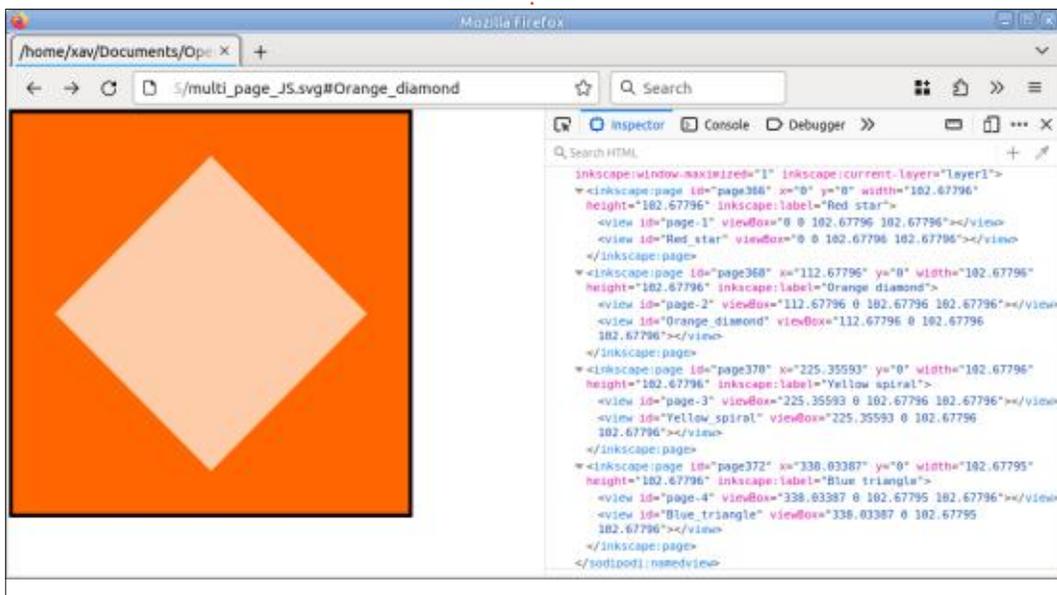
```
180 }
181
182 function insertSVGView(page, id, viewBox) {
183   const svgNS = 'http://www.w3.org/2000/svg';
184   const view = document.createElementNS(svgNS, 'view');
185   view.setAttribute('id', id);
186   view.setAttribute('viewBox', viewBox);
187   page.appendChild(view);
188 }
189
200 window.addEventListener('load', createViewElements);
```

Now we can replace lines 130-160 with a single call to the new function, as follows:

```
130   insertSVGView(page, `page-${idx + 1}`, viewBox);
170 });
```

Save the file and make sure it still works as it did previously. Assuming it does, then our last step is to call the new function inside our 'if' block, creating another `<view>` element if the page has a label. This is as simple as it sounds – just adding a new line after we've created the ID:

```
162 if (label !== null) {
163   const idLabel = label.replace(/\W/g, '_');
164   insertSVGView(page, idLabel, viewBox);
169 }
```



permanently.

Currently our SVG file has a significant limitation. The `<view>` elements are created dynamically when the JavaScript runs – but JS only runs when we load the SVG file directly, or via an `<object>` tag, neither of which are common in today's web. More often our files are pulled into a page via an HTML `` tag, or a CSS `url()` function, and in those cases we can't use fragment identifiers unless we manually edit the file to add

`<view>` elements as described a couple of articles ago.

One workaround to this is to add the code from this article, load the SVG directly into a web browser, and then save the page (with a new name) from within the web browser. That creates a new file that contains the current version of the document – i.e. the one which contains the `<view>` elements that the code created. We've just automated the task of adding the new elements to the

HOWTO - INKSCAPE

file, avoiding the need for our error-prone manual editing.

That works, but leaves us with a small problem. The new file already contains the additional <view> elements... but it also still contains the code that creates new <view> elements. If that file is loaded directly into a browser, all the new <view> elements get created again, resulting in twice as many as we wanted. Here's how it looks in the Firefox developer tools (bottom left).

To fix this we need to modify the function that creates the <view> elements to test for the existence of the ID in the page. If it already exists then the function just exits before creating any new elements. Otherwise it carries on as before. We can achieve this with a couple of lines at the top of the function. They go after line 182, but as I've already used the line numbers after that, I'll show them without numbers in the code below (it was the same in the 80s – the

idea of numbering in tens falls down as soon as you need to insert 11 new lines!). Shown top right.

The first line assigns null to the 'foundID' variable if the ID does NOT already exist in the page. Otherwise it assigns a reference to the element. The second line then tests 'foundID' and returns from the function if it's not null (i.e. if the element already exists).

With that in place, our enhanced function is complete. Here's a breakdown of how to use it:

- Create a multi-page Inkscape document.
- Optionally add labels to some or all of the pages.
- Add this entire JS script via the Document Properties dialog.
- Save the file.
- Load it directly into a web browser. That triggers the creation of the extra <view> elements.
- Save it from the web browser, fixing those new elements into the file.

Now you can load it any way you want, and access the additional pages with a fragment identifier based on the page number or label.

Finally, next page, here's the complete code we ended up with. No line numbers this time, to make it easier for you to copy and paste it into Inkscape.

```
<?xml version="1.0" encoding="UTF-8" standalone="no" ?>
<inkscape:page id="page366" x="0" y="0" width="102.67796"
height="102.67796" inkscape:label="Red star">
  <view id="page-1" viewBox="0 0 102.67796 102.67796"></view>
  <view id="Red_star" viewBox="0 0 102.67796 102.67796"></view>
  <view id="page-1" viewBox="0 0 102.67796 102.67796"></view>
  <view id="Red_star" viewBox="0 0 102.67796 102.67796"></view>
</inkscape:page>
```

```
function createViewElements() {
  const inkNS = 'http://www.inkscape.org/namespaces/inkscape';
  const svgNS = 'http://www.w3.org/2000/svg';
  const pages = document.getElementsByTagNameNS(inkNS, 'page');

  Array.from(pages).forEach((page, idx) => {
    const x = page.getAttribute('x');
    const y = page.getAttribute('y');
    const w = page.getAttribute('width');
    const h = page.getAttribute('height');
    const label = page.getAttributeNS(inkNS, 'label');
    const idLabel = label.replace(/\W+/g, '_');
    const viewBox = `${x} ${y} ${w} ${h}`;
    insertSVGView(page, `page-${idx + 1}`, viewBox);

    if (label !== null) {
      const idLabel = label.replace(/\W/g, '_');
      insertSVGView(page, idLabel, viewBox);
    }
  });
}

function insertSVGView(page, id, viewBox) {
  const foundID = document.getElementById(id);
  if (foundID !== null) return;

  const svgNS = 'http://www.w3.org/2000/svg';
  const view = document.createElementNS(svgNS, 'view');
  view.setAttribute('id', id);
  view.setAttribute('viewBox', viewBox);
  page.appendChild(view);
}

window.addEventListener('load', createViewElements);
```



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](https://twitter.com/PeppertopComics)



HOW-TO

Written by Ronnie Tucker

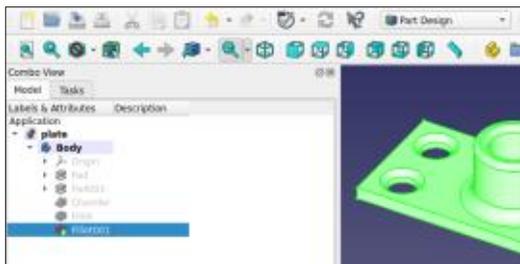
FreeCAD - Part 7

OK, so you've got a thing, but how do you get it to your printer? Well, I'm glad you asked.

First things first: FreeCAD is only for making the object. It won't prepare or send an object to your printer. For that, you need something like Ultimaker Cura (<https://ultimaker.com/software/ultimaker-cura>). It will take the object and 'slice' it. It will then export a gcode file that tells your printer how to print each slice.

EXPORT

I'm pretty sure we covered saving a FreeCAD thing, but if not: File > Save As. Exporting is different. It will make a file that has your thing as a finished model. If you need to go back and edit something then you need the FreeCAD file.



First, make sure you have the last thing in the left panel selected. Otherwise, FreeCAD won't export.

Do a File > Export and save as an STL file. This is pretty much the standard for 3D printing models.

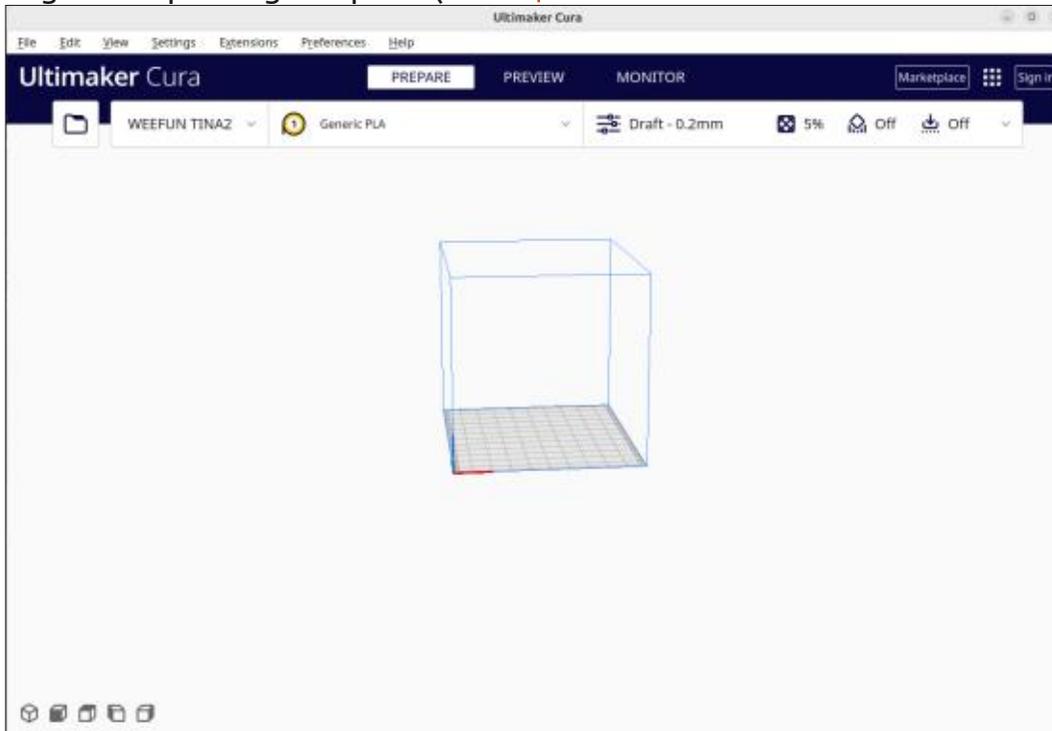
SLICING

As I mentioned previously, We're now done with FreeCAD with regards to printing this plate (as

I've called it).

Load up Cura. I'm using the Applmage version. So a double click on the downloaded file will start it.

The next part is outwith this series, but you need to give Cura your printer settings. Cura comes with a huge list of printers that it supports. If your printer isn't on the list then maybe contact the makers and ask if they have a Cura



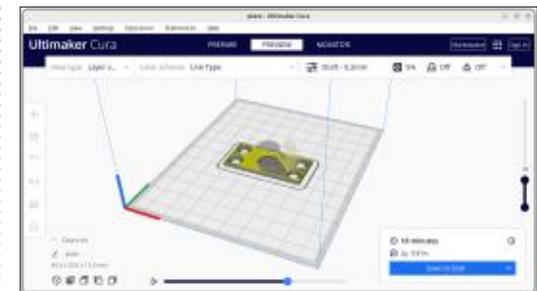
settings file. The makers of my Tina2 supplied a Cura settings file which was nice.

Head to the Cura menu and click File > Open File(s) and select the



STL file.

Last thing is to click the 'Slice' button to have Cura analyse the model to see how it should be printed. It'll give you a print estimate time (which is a nice feature), but click Preview to see



what the printer will do.

HOWTO - FREECAD

In this window you can view each slice and using the sliders show exactly what the printer will do.

Last thing to do is click 'Save to Disk' and save the sliced model as a gcode file.

Now it's a case of getting the gcode file to the printer. In my case I copy it to a memory card and pop that into the printer, choose the file on the little screen, and click print. Then it's a case of making a cuppa and coming back after, in this case, about 15 minutes.

THERE'S MORE TO CURA

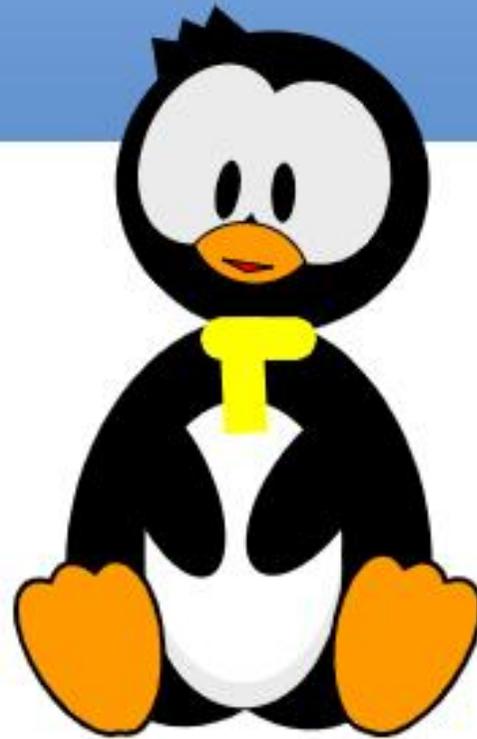
I've greatly simplified the Cura process here as this series is focusing on FreeCAD. With Cura you can have different adhesion for the printing process (skirt, platform, etc.), different infill amounts (for saving PLA by making the object hollow, but still sturdy), supports (for overhanging parts). The list goes on.

Well, that's about it for this series. I hope you enjoyed it. I have to be honest and say I don't know enough about FreeCAD to write more parts. If you know more about FreeCAD and would like to continue the series, feel free to email me:

ronnie@fullcirclemagazine.org

The Daily Waddle

**roses are red, coffee
is black,
i haven't had it yet,
so you'd better
stand back!**





BACK NEXT MONTH



MICRO THIS MICRO THAT

Written by Greg Walters

Part 20

Last month, I promised that we would be looking at a motor drive using the RPi Pico-W. And for once, that's what we will do.

We'll need a number of parts for this project. Here is a part list.

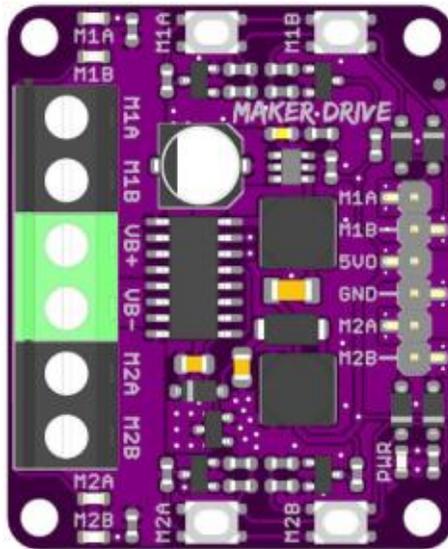
Qty	Part
2	Toy Motors
1	Maker Drive
1	AA Switchable Battery Holder
1	RPi Pico
1	Breadboard
6+	Jumpers

In reality, you need only one motor to see the project work, but it is more impressive with two, and, in reality, since the motors are less than \$1 USD each, it's easy to get two. You can also use more.

Also, you can substitute a RPi Pico-W for the RPi Pico, since for this project, we won't be using the WiFi or Bluetooth, but for later projects, the Pico-W will be needed.

Before we get started with the wiring, let's take a close look at the MakerDrive board.

On one side of the board is a six position terminal block. This is where you will connect the motors and the battery pack (or 5-volt source). One motor goes to the top two terminals, the other to the bottom two terminals and the battery pack to the center terminal.



On the other side of the board are six male pins that will allow

connections to the RPi Pico. The top two pins go to a pair of pins that will control the first motor, the bottom two go to another pair of pins that control the second motor, and the middle two pins to +5 VDC and ground on the Pico.

Next page (top right) is the actual wiring of the project for this month.

To make things simple for you, here is a table (below) that shows

where each pin should connect.

Once you have the project wired, we normally would be able to jump into the code, but we need to understand how the code will work first.

PWM

Knowing Pulse-Width Modulation (PWM) is very important to understand how the project works.

Pico Pin	GPIO	MotorDrive	BatteryPack	Motor
4	2	Male Pin M1A		
5	3	Male Pin M1B		
6	4	Male Pin M2A		
7	5	Male Pin M2B		
38	-	Male Pin Gnd		
40	-	Male Pin 5DC		
		TermBlock VB+	Red	
		TermBlock VB-	Black	
		TermBlock M1A		Motor1 Wire1
		TermBlock M1B		Motor1 Wire2
		TermBlock M2A		Motor2 Wire1
		TermBlock M2B		Motor2Wire2

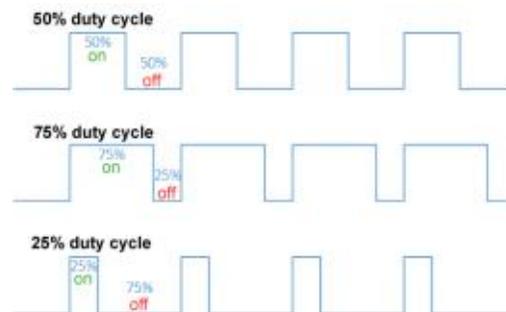
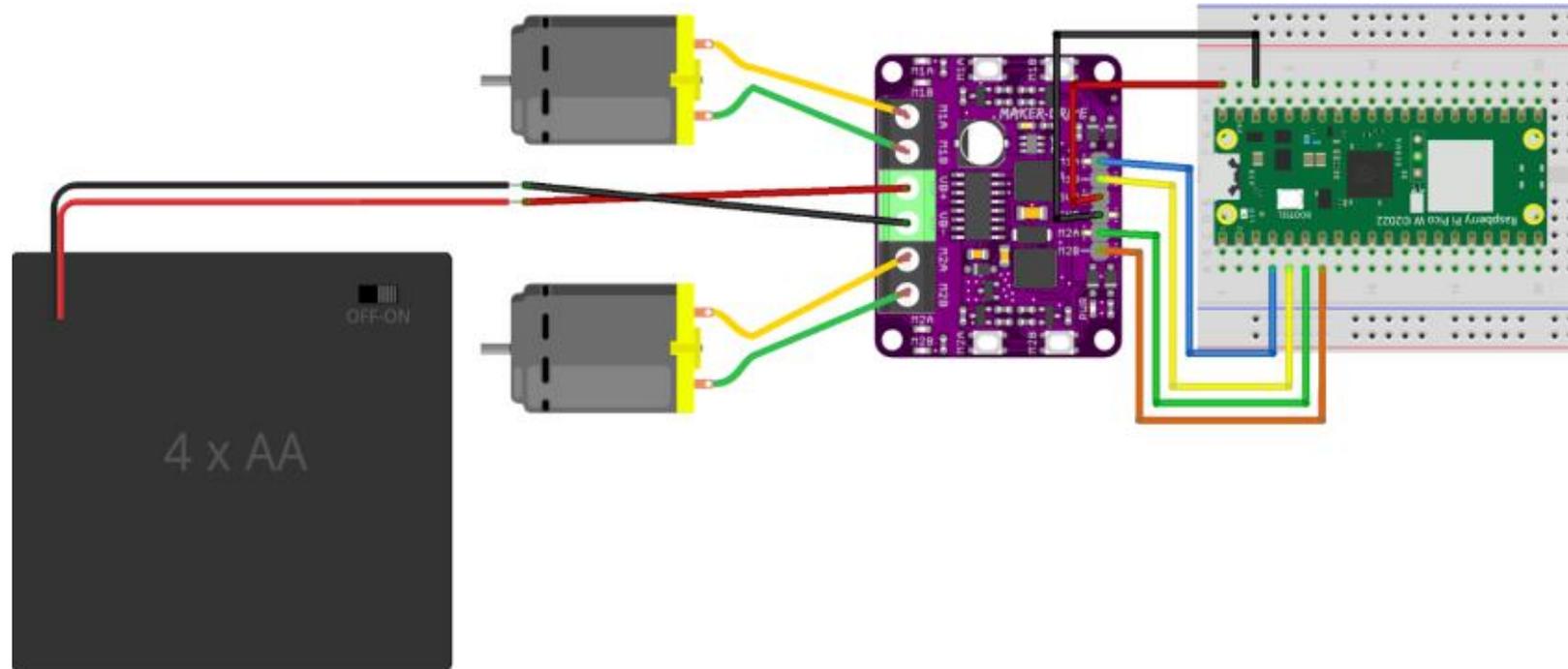
MICRO THIS MICRO THAT

The output of digital pins of the microcontroller can only be On or Off, a 1 or a 0. For us to be able to control the MakerDrive board, we need to provide not only an On signal, but we need to control the speed of the motors as well.

Normally, to control the speed of the motor(s), we would provide a variable voltage. The higher the voltage, the faster the motor runs, and the lower the voltage, the slower the motor speed. But as I just said, we don't have a way to provide the voltage in an analog manner. If we just set the drive signal for the motor to an On state, the motor would run at full speed as long as the On state exists.

This is where PWM comes in. By sending pulses of 1's and 0's, we can make the motor think that we are sending an analog voltage.

The following image is from https://en.wikipedia.org/wiki/Pulse-width_modulation and should give you a good visual idea of what is going on.



THE CODE

First the driver code (top right). The driver module is saved as "motor_driver.py"

The convert function basically takes the value and converts it to

```
class motor_driver():
    def __init__(self, M1A, M1B, M2A, M2B):

        self.M1A = machine.PWM(machine.Pin(M1A), freq=1000)
        self.M1B = machine.PWM(machine.Pin(M1B), freq=1000)
        self.M2A = machine.PWM(machine.Pin(M2A), freq=1000)
        self.M2B = machine.PWM(machine.Pin(M2B), freq=1000)
```

In the `__init__` function, we define the PWM pins and the frequency for each. The frequency is set to 1000 pulses per second. We define the duty cycle when we call the speed function.

```
# Will return a integer
def convert(self, x, in_min, in_max, out_min, out_max):
    return (x - in_min) * (out_max - out_min) // (in_max - in_min) + out_min
```

MICRO THIS MICRO THAT

an integer (code shown top right).

The speed function takes two integer values (one for the left motor and one for the right), and uses the convert function to turn this into the duty cycle value for the PWM signal. The above code is for the left motor and the code bottom right is for the right motor.

We tell the two motors to run at speed 50 (50%) which would, if the motors were to be connected to wheels, move forward. We keep that speed for 5 seconds (the sleep(5)) before doing something different (see below).

The last block of code then runs the left motor for 5 seconds, the right motor for 5 more seconds, and then backwards (-50,-50) for another 5 seconds, and then stops. That's about it. You can find the MakerDrive from Cytron at <https://www.cytron.io/p-maker-drive-simplifying-h-bridge-motor-driver-for-beginner>. It's a good all-round

h-bridge driver, and costs only about \$5 USD.

As I usually do, I've created a repository at https://github.com/gregwa1953/FCM195_MTMT to hold the code files.

Until then, as always; stay safe, healthy, positive and creative!



Greg Walters is a retired programmer living in Central Texas, USA. He has been a programmer since 1972 and in his spare time, he is an author, amateur photographer, luthier, fair musician and a pretty darn good cook. He still is the owner of RainyDaySolutions a consulting company and he spends most of his time writing articles for FCM and tutorials. His website is www.thedesignedgeek.xyz.

```
motor.speed(0, 50)           # turn left at speed 50
utime.sleep(5)
motor.speed(50, 0)          # turn right at speed 50
utime.sleep(5)
motor.speed(-50, -50)       # move backward at speed 50
utime.sleep(5)
motor.brake()                # brake the motor
```

```
def speed(self, speedLeft, speedRight):
    speedLeft = self.convert(speedLeft, 0, 100, 0, 65534)
    speedRight = self.convert(speedRight, 0, 100, 0, 65534)
    if speedLeft > 0:
        self.M1A.duty_u16(speedLeft)
        self.M1B.duty_u16(0)
    else:
        self.M1A.duty_u16(0)
        self.M1B.duty_u16(abs(speedLeft))
```

```
if speedRight > 0:
    self.M2A.duty_u16(speedRight)
    self.M2B.duty_u16(0)
else:
    self.M2A.duty_u16(0)
    self.M2B.duty_u16(abs(speedRight))
```

Finally, we have the brake function which simply sets both motors to a 0 speed.

```
def brake(self):
    self.speed(0, 0)
```

Now the demo code. This module is named "drive_motor.py".

```
from motor_driver import *           # import motor_driver
library

# Drive Motor

motor = motor_driver(4, 5, 2, 3)      # M1A = 4, M1B = 5,
M2A = 2, M2B = 3
```

Here we define the GPIO pins for each motor.

```
motor.speed(50, 50)                 # move forward at
speed 50

utime.sleep(5)                       # sleep 5 second
```



Linux on Your iPad

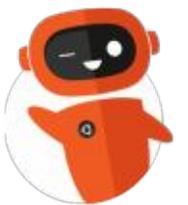
For as low as \$4.95, you can have your own personal Linux cloud computer in minutes on any device.





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Written by UBports Team



THE DAILY WADDLE

CAN'T INSTALL LINUX ON
YOUR WEED WHACKER?
IT'S BECAUSE IT'S
CUTTING EDGE
TECHNOLOGY





MY STORY

Written by AuntieE

Security Lapse

In FCM#188 (December 2022), a 'My Opinion' article by Erik concerning security and how to be safe on your computer, was published. When I read it (actually, I probably translated it for the French magazine), I felt as though I was pretty safe, according to his guidelines, although having a password for every important email address (doctor, dentist, etc) is beyond me in my senior years.

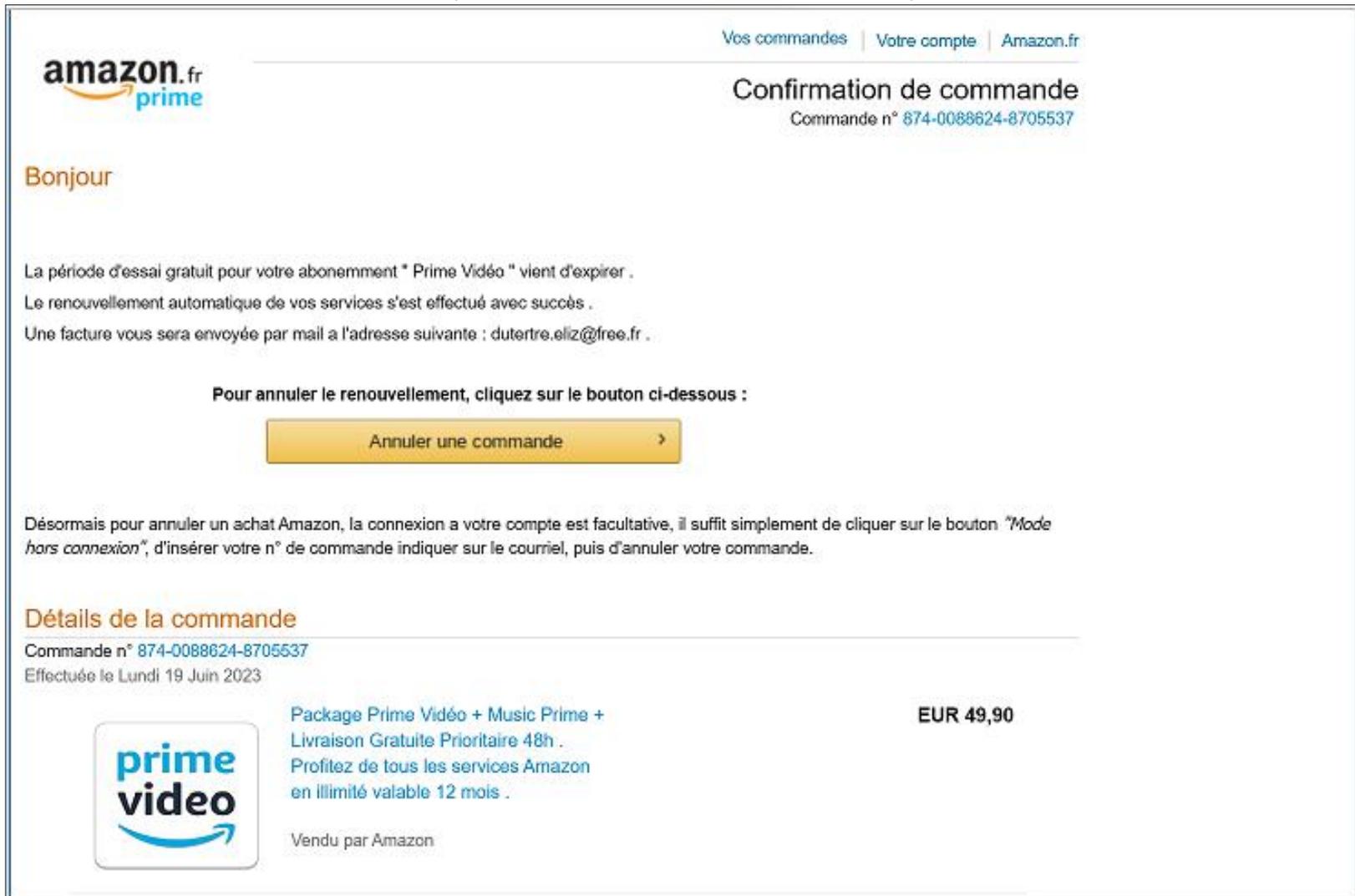
Because of a recent experience, I have become far more humble. On the 19th of June, I received an email from Amazon thanking me for having subscribed to Amazon Prime after my trial month and telling me that the subscription would go into effect on the 21st for 49.95 euros per year. If, however, I wanted to cancel it, I had only to click on the typical yellow Amazon button to go to a website (the address of which was Amazon.fr (plus a whole bunch of weird letters), and go through the moves.

It is true that, after ordering something a bit before, I had found

that I had somehow subscribed to a trial month of Amazon Prime, BUT, as far as I knew, I had immediately canceled its conversion into a true subscription. For that reason, the

email sent to my email address for Amazon disturbed me no end. The sender (Amazon Prime) looked legitimate. The cancellation button looked legitimate. And so I clicked

on it and found myself faced with another "legitimate" yellow button with a contextual menu that gave various choices of my reason for a cancellation. And I picked one –



MY STORY

something like My Subscription was a mistake...

Then I gave my name, my address, and my PASSWORD to Amazon. Can you believe this? When I think about it, I certainly can't. On the right, there was a space to fill out my credit card information. Above that, there was a spiel as to how protected this was, encrypted, and so on and so forth. At the top of the space to fill in, was the right expiration date for a Visa gift card I had registered with Amazon. So I went to get my "real" Visa card. They requested, not only the number, but also the expiration date and that three-digit number on the back. What could that possibly be for (ha ha ha)?

My mind finally kicked in and I realized that this whole thing definitely couldn't be legitimate, so I erased everything and stopped. Thank goodness! I then went onto my legitimate Amazon account where there was no mention at all of Amazon Prime. On the other hand, on one of the pages, I found that Amazon said clearly that they would never request either your password or your credit card number. (Of course you register a number to pay for legitimate

purchases, but that is quite a different kettle of fish.)

Tip number one: If you get any unexpected request in an email "from Amazon", begin by going onto your own bona fide Amazon account. Yes, I know, I'm assuming you do have an account on Amazon, but it's so convenient that many people do these days.

Tip number two: If your email account has a site for your emails as webmail (mine is on Zimbra), go there and check out the email you just received. When I did that, it turned out that the message that looked totally legitimate came from a really strange address in, of all places, Japan.

My next task was informing Amazon of this. It took a while to navigate through their pages, but I finally came to one where an address was given: stop-spoofing@Amazon.com so, as requested, I sent them the full weird URL that was purportedly theirs. They have since thanked me for letting them know and reminded me to change my password to their site.

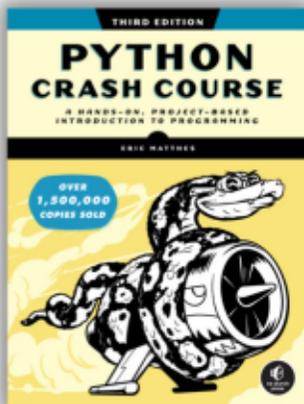
Interestingly enough, when I

went onto Amazon for the first time since the mess, I had to go through a session of, not double, but triple, authentication so I think I can assume that they took my report quite seriously.

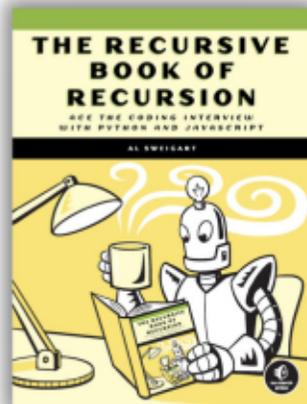
I know that this article is not about Ubuntu, but I felt it was worth writing so that none of our readers who are wholly confident in their security measures will fall into the same well-wrought trap that I did. It was an awful, guilt-making, experience, and one that you definitely want to avoid.



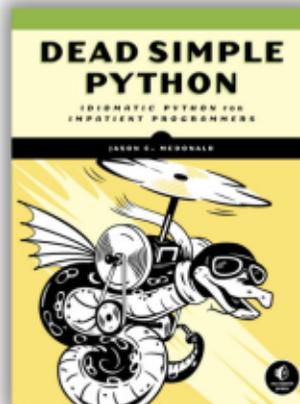
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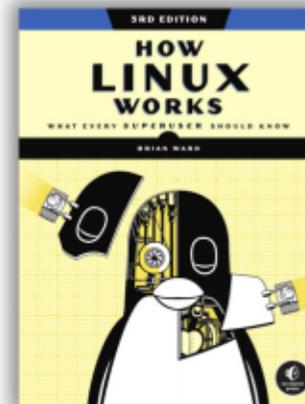
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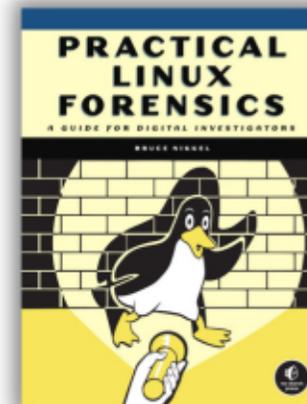
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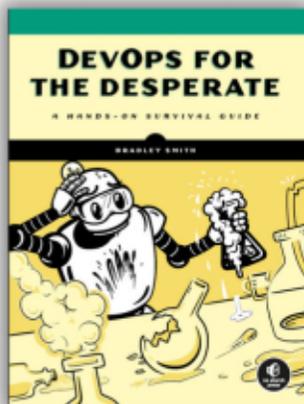
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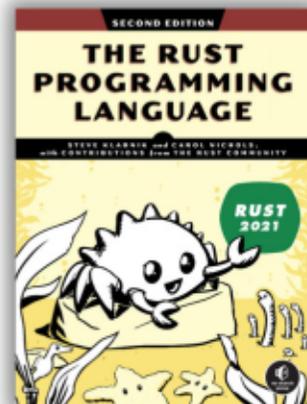
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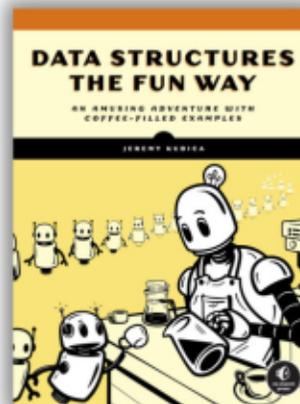
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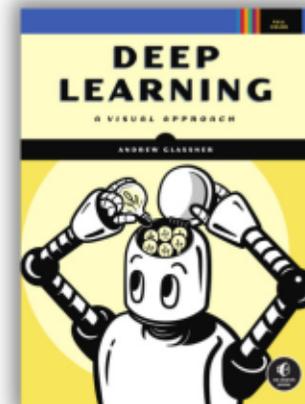
DevOps for the Desperate
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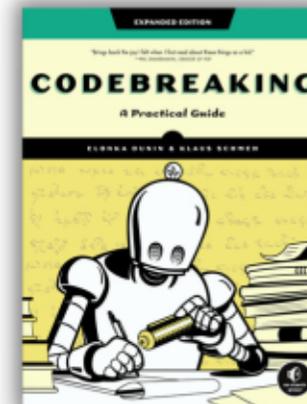
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HOW-TO

Written by Ronnie Tucker

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 800 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.



REVIEW

Written by Adam Hunt

Lubuntu 23.04

Here we are, in the center of the development cycle. Lubuntu 23.04 is the middle one of three interim releases – all leading to the next Long Term Support (LTS) version which will be out in April, 2024.

Lubuntu 23.04 was released on 20 April, 2023, and is the 27th Lubuntu version and the 10th one with the LXQt desktop. If you think this means that Lubuntu has reached a level of stability, you would be correct, as this interim release, similar to the last release, includes only a few small changes. All of this points to the next interim release, due out on 12 October, 2023, and the LTS not being dramatically different from this version. Overall, small incremental changes are a good way to proceed and keep the users happy.

INSTALLATION

I downloaded the Lubuntu 23.04 ISO file from the official source via BitTorrent. It proved to be 2.9 GB in size, which is bigger

than the last release of 2.7 GB. All of the Ubuntu family of releases have been getting bigger recently, but Lubuntu less so than many of the others, For example, Ubuntu 23.04 is now up to 4.9 GB to download!

Once I had the ISO file, I completed an SHA256 sum check on it to make sure I had a good download, and then used a USB stick equipped with Ventoy 1.0.91 to boot it up, and that worked perfectly.

NEW

When you boot up Lubuntu 23.04, it looks the same as all the recent LXQt releases, with the default window theme of Lubuntu Arc and the blue ePapyrus icons that are all very familiar to Lubuntu users.

The list of what is new in Lubuntu 23.04 is fairly short. This release uses LXQt version 1.2.0, based on the Qt 5.15.8 toolkit, with a few components from 1.2.1, such as the PCManFM-Qt file manager. LXQt 1.3.0 has been released but

came out too late for the “freeze date” for Lubuntu 23.04, and so it is programmed to show up in the next release, Lubuntu 23.10.

This version has a new audio controller, PipeWire, which replaces PulseAudio, as it has better Bluetooth support and other useful features.

Also new is Picom, a derivative of the Compton X compositor used for visual effects such as desktop transparency. Picom actually replaces Compton in use but, unlike its predecessor, it is enabled by default. It can still be disabled if needed however, at Menu -> Preferences -> LXQt Settings -> Session Settings.

The XScreenSaver boasts a new default screensaver called GL Matrix, a sort of binary language rainfall. This replaces the rather hypnotic “Flurry” which caused some display issues on some types of hardware. If you miss Flurry, it is still installed and available, you just need to select it. I suspect these days many people just set the



REVIEW

screensaver to “black screen”, as screensavers do feel like a bit of a throwback to the 1990s.

One thing that is not new is the Lubuntu installer which remains Calamares 3.3 Alpha 2. The developers have determined that it is working well and doesn't need replacing.

As in most Lubuntu releases, there is fresh artwork including two new “Lunar Lobster” wallpapers from Lubuntu team member Aaron Rainbolt. Aside from the two lobster wallpapers, there are 11 others to choose from, including some from recent Lubuntu releases. In addition to the wallpaper choices, there are 19

window themes and 13 different icons sets. With so many options, you can easily customize your Lubuntu installation to look the way you want.

APPLICATIONS

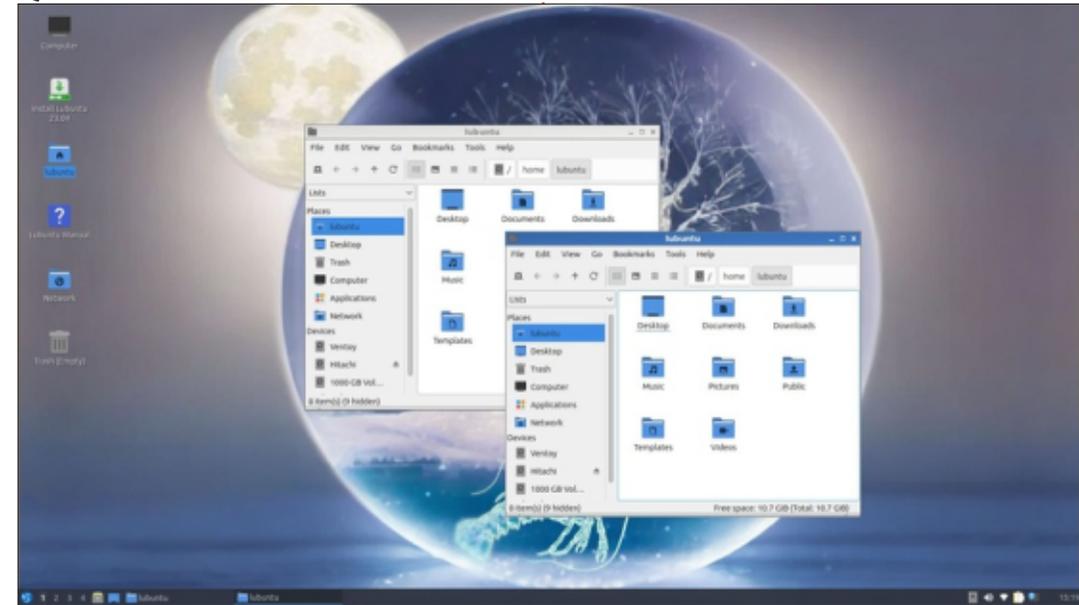
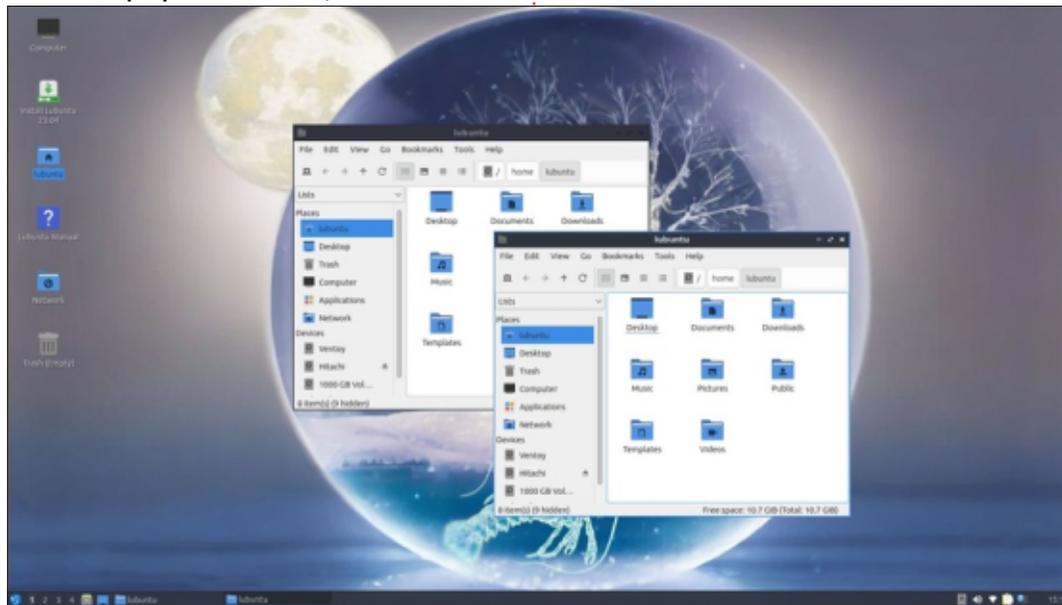
Some of the applications included with Lubuntu 23.04 are: 2048-qt 0.1.6 simple lightweight game*
Bluedevil 5.27.4 bluetooth connector
Discover Software Center 5.27.4 package management system
FeatherPad 1.3.5 text editor
Firefox 111.0.1 web browser**
ImageMagick 6.9.11.60 image editor*

Kcalc 22.12.3 calculator
KDE partition manager 22.12.3 partition manager
LibreOffice 7.5.2 office suite, Qt interface version
Lubuntu Update Notifier 0.5.4 software update notifier*
LXImage-Qt 1.2.0 image viewer and screenshot tool
LXQt Archiver 0.7.0 archive manager
Muon 5.8.0 package manager*
Noblenote 1.2.0 note taker*
PCManFM-Qt 1.2.1 file manager
PipeWire 0.3.65 audio controller
Qlipper 5.1.2 clipboard manager*
qPDFview 0.5.0 PDF viewer
QTerminal 1.2.0 terminal emulator
Qtransmission 3.00 BitTorrent client, Qt interface version*
Quassel 0.14.0 IRC client*

ScreenGrab 2.5.0 screenshot tool
Skanlite 22.12.3 scanning utility
Startup Disk Creator 0.3.16 (usb-creator-kde) USB boot disk maker*
VLC 3.0.18 media player
Wget 1.21.3 command line webpage downloader*
XScreenSaver 6.02 screensaver and screen locker*

* Indicates the same version as used in Lubuntu 22.10
** supplied as a snap, so version depends on the upstream package manager

Other than updated versions, there have been no changes to the suite of applications provided in Lubuntu 23.04.



REVIEW

As in previous LXQt releases, Lubuntu 23.04 does not come with a webcam application, email client, CD/DVD burner, photo editor or video editor, although these can all be found in the repositories, if needed.

CONCLUSIONS

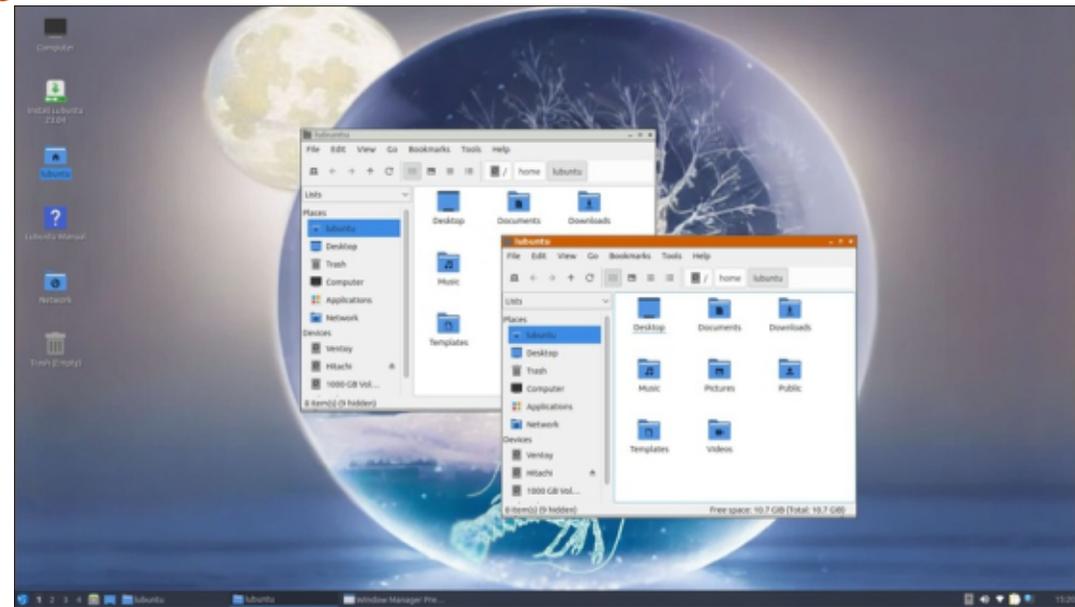
With Lubuntu 23.04, we have the second of three planned interim releases in this cycle with just some small, incremental changes. At this point, I think it is safe to expect a few changes in the last interim release or the LTS version. When you have a distribution that is as well-developed and polished as

Lubuntu is these days, I think that this approach is a good one. Most Lubuntu users seem pretty happy and don't see much need for large changes.

The next release will be Lubuntu 23.10, due out on 12 October, 2023. We'll have a look at that one and see what it brings, as it will be the last stop before the spring 2024 LTS version.

EXTERNAL LINKS

Official website:
<https://lubuntu.me/>





REVIEW

Written by Erik

FreeTuxTV (and Hypnotix)

During a social gathering at work, one of our HR people switched to Spanish and told us how it was that she spoke the language. Though I understood her well enough, I found myself sputtering when I wanted to reply. It was then that I remembered that the last time I even spoke Spanish was more than 30 years ago. So I decided I have to brush up a bit. When the internet went mainstream here, I used to listen to radio from other countries, but I suppose we have moved on from there too. I decided to give TV a go. Whilst most of my friends just get all the streams added via Android, I decided to use my laptop. I supposed there would be free streaming somewhere, but it would be nice to have it in one place. Enter FreeTuxTV. To be honest, I have not sat down and watched TV in years, maybe more than 10, so it felt like a completely new feeling. (I have a friend, bless his heart, who would give me all the highlights – what to watch, etc. - and fill my external hard drive with said chart toppers.)

Installation:

You will have to add a PPA repo:

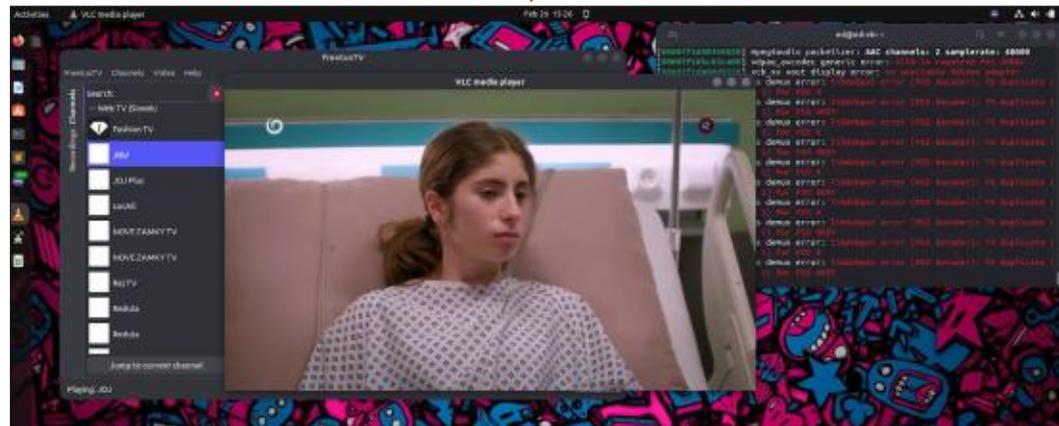
```
sudo add-apt-repository
ppa:freetuxtv/freetuxtv
```

```
sudo add-apt-repository
ppa:freetuxtv/freetuxtv-dev
```

```
sudo apt install freetuxtv
```

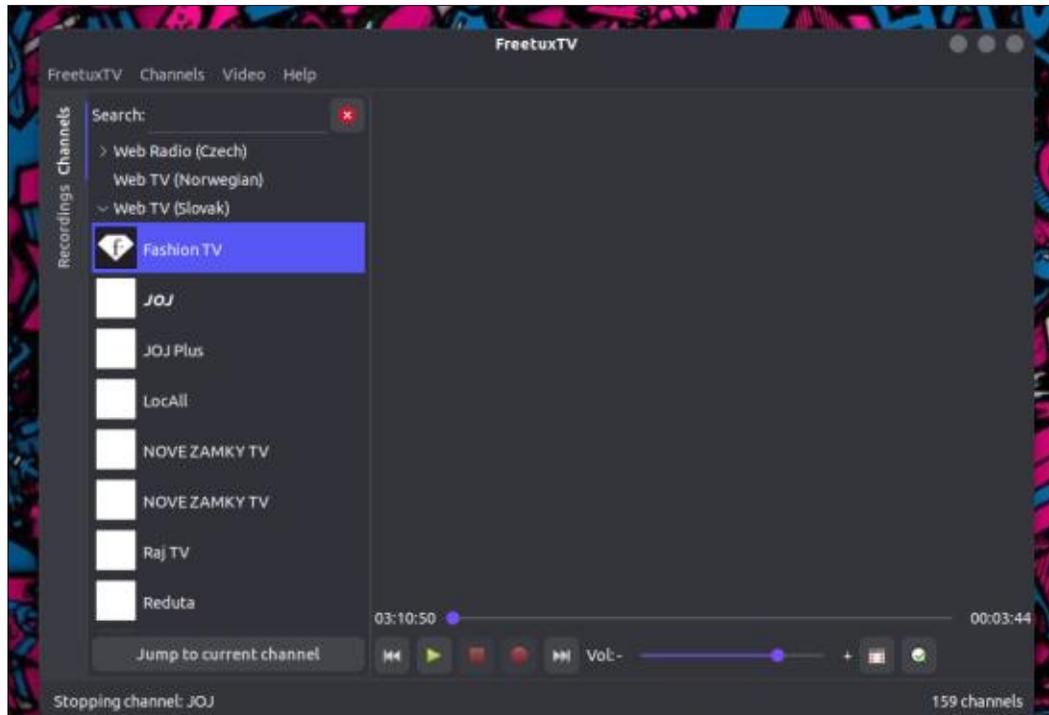
And.... You are ready to launch the program with:

```
freetuxtv
```



You should then be greeted by a "station chooser". Simply pick a

station and accept. Don't worry, you can add or remove them later on the settings, so it does not matter what you choose.



The interface will have "channels" and "recordings" down the side, allowing you to stream from the interwebs or from your own server.

I installed this on Vanilla Ubuntu to test, and did not try it on Kubuntu, Xubuntu, etc, but in the flagship release, the play button launches VLC player. I don't know how I feel about this, as I wanted an all in one, like QMPlay2.

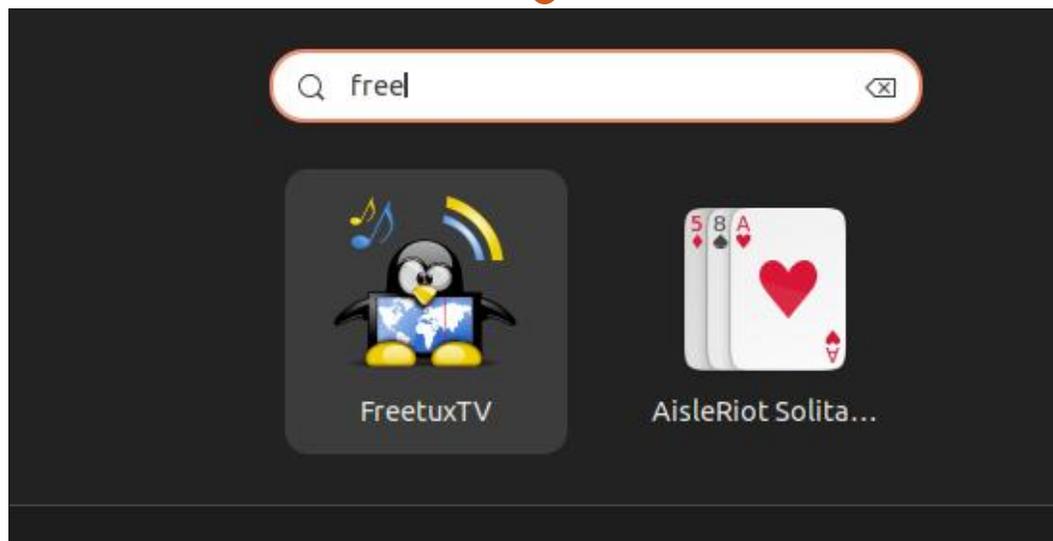
As you can see from this image (top), I have a floating VLC player

REVIEW

over the application. I suppose you want to watch full-screen when you watch TV. On their Github page, the image looks a little different, with the viewport embedded in the program. The issue with that is, once maximised, you struggle to make it small again. Even the mighty esc-key is no match for the will of VLC to own your screen.

As you can probably see, I launch it via the command-line. I'm not trying to be a neckbeard here, I simply use it to see if a channel will play or not. You see, if you load it via the launcher, sometimes, you don't know if a channel is buffering, or not going to play at all. With the command-line, you can immediately see if the channel is found or not.

It is not to say that the launcher is not cute as heck.



Just like other TV viewers, you periodically need to update the TV database. (Well it updates radio too, but you know what I mean, right?)

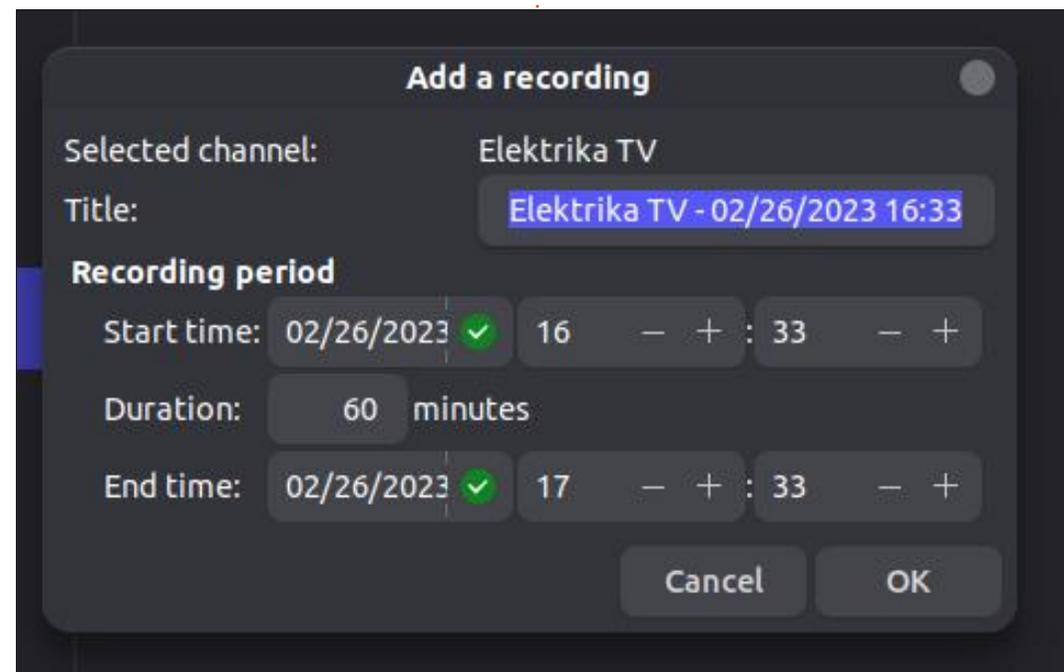
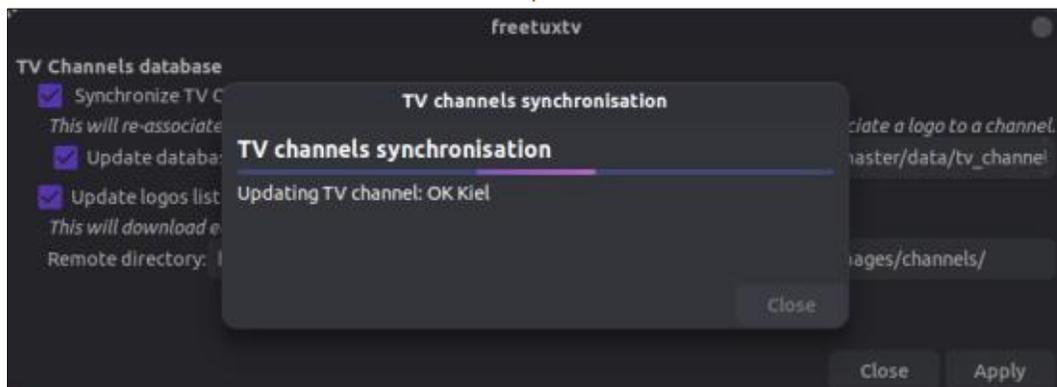
I suggest making this your first action, before trying to watch TV or listen to radio. This may take a while, but it is worth the wait.

The awesome part is that you can record live TV, or, in our case, streamed TV. You simply hit the record button and off you go. This is where the floating VLC window

sort of gets in the way. I suppose there are keys to record, but a newbie to the program will try to record from the red record button. On the positive side, you can choose the time-frame you would like to record, should you be making supper when your favourite show is on.

I apologise for having so many images, but one gets to grips much better once you see something.

I would like to see more channels in the future, maybe add those that require usernames and passwords, and let the user decide. It comes equipped with a proxy



REVIEW

setup, allowing you to watch movies and series on retarded channels that geoblock you.

The github page mentions that it supports Tvheadend, but you can access that only via recordings. (I suppose it does make sense, as Tvheadend is a DVR, but it does connect directly to cable etc.)

Oh well. FreeTuxTV gets an A for effort, a B for execution, and a C for ease of use – I'll tell you why. I fiddled around and could not figure out how to add my own custom channels. You see they expect you to add a group. Maybe I'm too 'old n crusty', or maybe it could be a bit more user friendly when trying to import a web channel. Either way, it would also be greatly appreciated if someone could have a private list we could just import, like with Kodi. *wink-wink, nudge-nudge.

Just to add that the Linux Mint team does an app called **Hypnotix** which is something similar.

You can install it from: <https://github.com/linuxmint/hypnotix>



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.



LETTERS

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ubuntuforums.org/forumdisplay.php?f=270

JUST SOME THINGS

It is an utmost pleasure to get the latest edition of FCM on the due date. I am so happy to see my story in FCM. I'm glad that the story is published as it was. I'll be sending an article about my favourite applications on Ubuntu shortly. I'll also be writing about KiCad once I get rid of revamping my website. In the editorial, you mentioned that you have installed Linux Mint. I am glad that you liked it. Here two weeks ago I upgraded Ubuntu to 23.04 on the workstation. It's quite stable.

I am astonished to learn that Erik is going to write about Nginx in the next issue. Now I am waiting for a full-length Nginx guide. I really needed to improve a few sysadmin skills. After all, analogue electronics is sarcastically boring.

Robert's Latex how-to article in this issue will for sure help me soon when I begin writing a research paper. I haven't read Micro This Micro That as yet. I only took an overview and I now need to

talk to my younger brother who implemented a similar obstacle avoidance sensor in his RaspberryPi project.

This time I have a question to ask Erik which I am writing to Q&A email for him to answer. That was all for now. I wish everybody at FCM a great time ahead.

Abdul-Jabbar Bozdar

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 is such a lot, and I do them, first-come-first-served.

The trend lately is immutable file systems and contained packages like Snap & Flatpak. While this is all well and good, I think we are missing out on that frugality. When SSD's came along and they made a big difference, but were very pricey, I had hoped that we would return to a more sane situation, where OS's did not make your machine slower. Boy was I wrong. This just gave licence to lazy programmers & programming and quality to drop even further in favour of quantity. Let me explain.

My 2011 mac mini with mountain lion boots and works just as fast the latest Mac's with SSD's and more memory. My old 2nd generation i5 with spinning rust and Solus 1.2 (It think) boots faster than most of my new machines with super fast SSD's and the latest OS's. Yes, I have a 486 that boots to Dos so fast off a slow drive, it will make modern PC's heads spin. We have all this extra power and speed and everything just gets slower. Windows is a classic example, though we all know that. Their driver bloat is so bad – I just did some updates on Dell laptops I was going to push out and the DRIVER updates were bigger than a Linux distro!! Frugality breeds innovation, you can look at the demo scene to see what I mean, people still do demo's in 4k!!! Everyone is now jumping on the AI bandwagon, yes, it is coming to a distro near you! My Ubuntu updates for Warty Warthog were kilobytes in size, now I download 100 Megabytes in browser alone, every second day. I feel Linux is now moving the windows / Mac way too. I just want my machine to

work, without telemetry, built into my drivers, without having to accommodate every last java framework, without fake AI nonsense, without adverts and Kardashian crap pushed to my desktop, don't you? Is it too much to ask?

Q: I migrated from Windows (spying) to Mac (can't upgrade) and from Mac to Ubuntu. I like the Mac way of doing things, but the file layout is a mess, I prefer my file manager like Windows 7, not just alphabetical. <removed> It says I have Thunar, but I have tried ROX too. Can I make them more Window-sy? <removed>

A: I suggest sticking with Thunar and if you look in the preferences, you will see "sort folders before files" (Under the Edit-menu) That should make it like your picture.

Q: Sometimes when I am like 3 ft from my huawei router, I get disconnected and sometimes I am

on the edge of the property and no disconnects. I am using Ubuntu 22.04 and my machine is Model name: 12th Gen Intel(R) Core(TM) i9-12900HK. I don't have this issue at my sister's house and her router is in the kitchen with appliances running.

A: Have you considered that someone – a neighbour perhaps – is disconnecting you on purpose? I'd check for other WiFi signals if I were you and maybe move your channel or when you had the disconnects, change your password, as by the time that password is cracked, it won't be valid. See: https://en.wikipedia.org/wiki/Wi-Fi_deauthentication_attack

Q: This may sound strange, but I was wondering if there was a way I could interact with my monitor via Ubuntu. My laptop has brightness settings from the battery icon, so there must be a way for me to talk to this AOC?

A : I did a bit of searching and found this: <https://www.ddcutil.com/#> -how good it is, I cannot tell you as I have never used it. "ddcutil is a Linux program for managing monitor settings, such as brightness, color levels, and input source. Generally speaking, any setting that can be changed by pressing buttons on the monitor can be modified by ddcutil."

Q : My friend sends me pictures from his retarded iPhone. I open his messages in WhatsApp web and can't see what they are. Is there a way to convert them?

A : If memory serves, it is HEIC images. (or something) You can install GIMP and open the image with it. It will ask you to convert upon opening. Click convert. Once visible EXPORT the image and choose JPEG or PNG or whatever you prefer for the output. (at the bottom)

Q : I am running Xubuntu 23.04 Lunar Lobster on my old 8gb laptop. I am wondering how to pin something to the taskbar like windows please?

A : It is not that simple, as the "taskbar" in XFCE is a "panel" and you can have many. What you need to do is create a "launcher" on the panel you want to use as your "taskbar". So it will be right click, -> panel, -> panel preferences, -> items.

Q : Is there a way to do half scaling? I have a 4k monitor and a 2k monitor. I only see 1x, 1.5x and 2x? I want them both to be the same.

A : Instead of scaling your one screen down, how about scaling the other up? If all else fails, you can choose "custom" and use the plus and minus buttons.

Q : Is there a way I can search for files in both my Ubuntu and Windows partitions? I am dual booting Ubuntu 23.04 and Windows 11.

A : Probably not from Windows side – but if the drive is mounted by Ubuntu, you should be able to see the windows files, even index them with a tool like fsearch. (Dual booting creates two

partitions both readable by Ubuntu but not by Windows.)

Q : Hey, my laptop wakes by itself, in my backpack, so that when I take it out the whole chassis is hot. I am running Ubuntu 22.04.

A : This is a tough one as you do not give any details. It could be software, some program or daemon that runs every x minutes or it could be as simple as your laptop locks via magnets in the casing and there is something opposing those.

Q : I travel a lot and I would like to play the UK lottery every day. However, most VPN's I have used are blocked by them. My son-in-law said that Ubuntu may be the way to go as I only know Windows. I have Ubuntu installed in a Virtual machine, but I do not see how to set up a VPN?

A : OK, Ubuntu can have a VPN added via the network connection icon, or if your VPN provider provides an installation file, you can install it that way. However, Ubuntu in no way affects the computer at the other end of

your VPN, or it's IP address, for that matter. I think your son-in-law meant an Ubuntu VPS in the UK. (Something completely different)

Q : I boot with the latest live iso 20,04,6 and it works, but when I try to install Ubuntu, it shows no hard drives. Windows is on it currently. <removed screenshot>

A : There can be multiple reasons for this – the drive may be in a mode in the BIOS/UEFI that needs a driver, yes believe it or not Linux does not always see everything. You may have a legacy boot version and your system is set for UEFI, in which case you need the UEFI installer ISO. Your installation media may be corrupt, etc. I suggest starting by grabbing the latest version and trying that, if it works, it may just be a kernel thing, (Your PC may be too new)

Q : hey, recently I started updating via the command line and I noticed errors. Firstly there is a brave error, Skipping acquire of configured file 'main/binary-i386/Packages' as repository 'https://brave-browser-apt-release.s3.brave.com stable

Q&A

InRelease' doesn't support architecture 'i386' and secondly there is one with "unknown" instead of release. How can I fix this?

A: The first one indicates that you have a repository that has i386 included, you can see if you find it in your sources, if not, don't worry, it is a non-system breaking thing. (It may be a PPA or the way you installed it) The second one points to a manual install, lets say with wget or curl. This error means it will not update with the rest of the system and you will need to do it manually.

Q: For some reason we have our keyboards set to UK layout. Normally it will not be a problem, but there is only one slash. I have tried the on-screen keyboard and verily, the other slash is missing. Now obviously I expect things to be in different places, but this dell 7420 only has a small keyboard, so I'm not finding it. I know I can use alt-codes, but they don't work on the login screens.

A: If your policies keep changing the keyboards to UK, you can live with it, the other slash on a UK

keyboard layout is still where it is on the US layout. You just need to press ctrl or alt or both when pressing it or else you get an octothorpe if memory serves.



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.



TABLETOP UBUNTU

Written by Josh Hertel



BACK NEXT MONTH



Josh Hertel is a husband, father, mathematics educator, tabletop gamer, techie, and geek.

<https://twitter.com/hertelj1>



UBUNTU GAMES

Written by Ronnie Tucker

Voxel Tycoon

Steam: https://store.steampowered.com/app/732050/Voxel_Tycoon/

Price: £21

A little while ago, I took the notion to fire up OpenTTD (an open source version of the old classic Transport Tycoon Deluxe). It was nice, and brought back many fond memories, but it made me wonder if there's a modern equivalent. Is Voxel Tycoon 'the one'? Read on...

STARTING

On first load, you go through the usual stuff of generating a unique (voxel) map with several towns already populating the map. Since the map is voxels, it's theoretically infinite. At the start, you have access to only a certain area within the map. That will expand with your empire.

The basic idea is to link the towns to the resources they need – using road or rail. You then start your company by hauling the goods

from the area to the town. Of course, you have only a certain budget to start with. So planning is key!

Since the map, and everything on it, is 3D, you can zoom in and examine the towns and to carefully place your pick-up and drop-off points. You need to say 'this truck will go here, pick up (fully), then go here, and drop off (fully or not, it's up to you)'. You can, thankfully, copy/paste vehicles and save routes to apply to other vehicles.

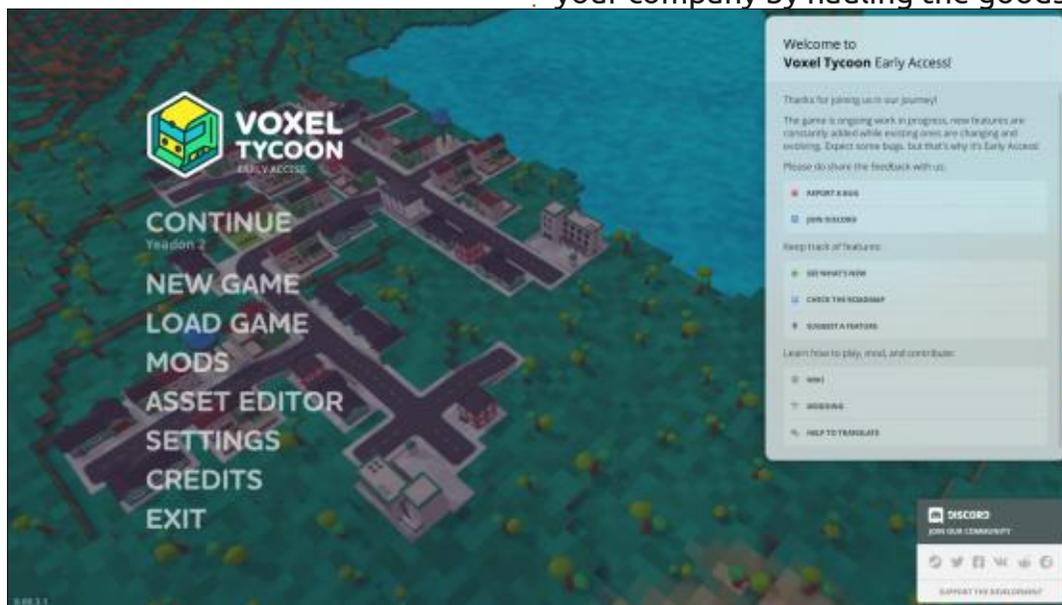
BRANCHING OUT

Of course, it's not all resources. You also need to set up bus routes with depots and bus stops. But will it be profitable? That's all part of the planning.

Only when you can afford it, do you move into trains.

CONCLUSIONS

I've been playing this for only about a week, but I love it. It starts off nice and simple with just a road/two, and a few trucks transporting



UBUNTU GAMES

wood or ore, but it soon gets to be a bit more tricky when you start thinking about running buses. Then trains? Well, that soon starts eating into your profits.

It may look simplistic, visually, but there's plenty of detail in there. You can examine your truck's speed, profit, and the like. This lets you decide if that truck is running at a loss or profit.

I have to drop it a star since the tutorial is so short. It shows you how to get started with a couple of roads and trucks, very little about adding buses, and doesn't even mention trains, and the trains are the tricky part with lights and so on. Really, the tutorial should run

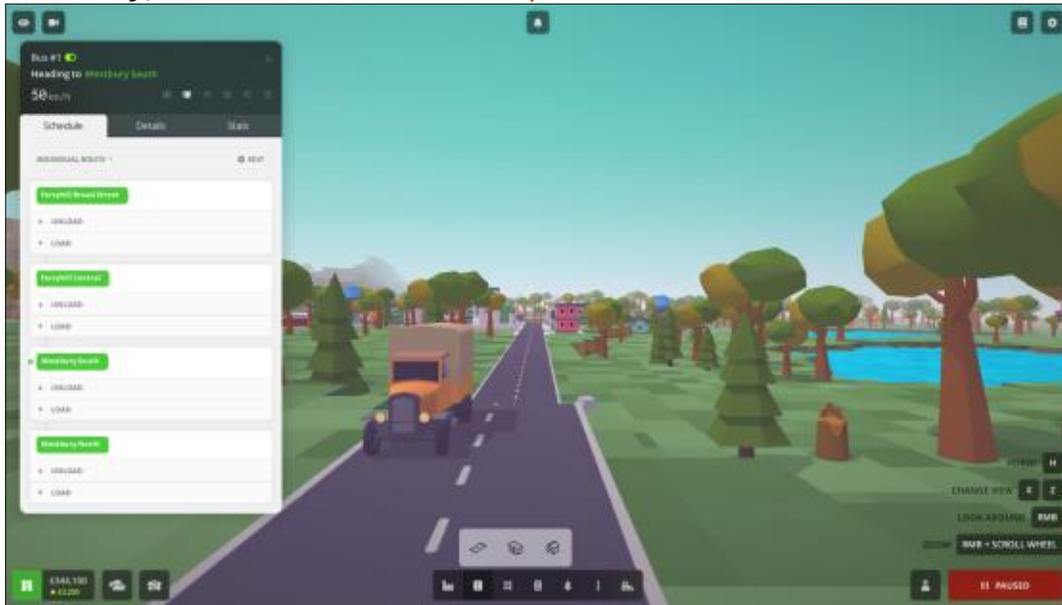
you through all these things. Another minor gripe is when a vehicle says it can't complete its route. Why? Yes, it's inevitably my fault, but a hint on the problem would be nice.

My favourite part is that you can ride in the vehicles! Yes, you can even toot the horn.

So, is this the spiritual successor to TTD and OpenTTD? I think so, yes. It's the same idea and depth with a modern look. And it's not too resource intensive – which is good. My Entroware all-in-one doesn't have a 3D graphics card and it plays this perfectly.



Ronnie is the founder of Full Circle and, somehow, still editing this thing. He also paints, draws and does woodcarving in his spare time.





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The current site was created thanks to **Lucas Westermann** (ex-Command & Conquer) who took on the task of completely rebuilding the site, and scripts, from scratch, in his own time.

The Patreon page is to help pay the domain and hosting fees. The yearly target was quickly reached thanks to those listed on this page. The money also helps with the new mailing list that I set up.

Several people have asked for a PayPal (single donation) option, so I've added a button to the right side of the website

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



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