Full Circle

Computer

Hitachi

REVIEW
UBUNTU BUDGIE 22.10

Pardus 21.4
DISTRO REVIEW
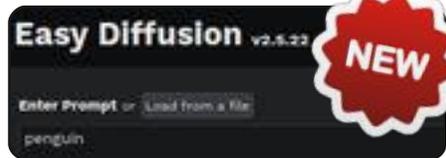
Full Circle

THE INDEPENDENT MAGAZINE FOR THE UBUNTU LINUX COMMUNITY

EDITORIAL

WELCOME TO THE LATEST ISSUE OF FULL CIRCLE

This month we have, as ever; Python, Latex, FreeCAD, and Inkscape for you. No Blender again this month as Erik has, again, been a very busy chappie. Instead, we have a new, brief, series of articles on installing and using Stable Diffusion. Think of it as a localised install of Midjourney. Give it some settings and a text prompt, and it'll generate an image for you.

Elsewhere, we have reviews of Ubuntu Budgie 22.10 and Pardus. Also a look at Splendor on a digital tabletop.

From the Ubports team we have OTA-1 of the new Touch Focal. Unfortunately, it's not on my Meizu MX4 or BQ M10 tablet as yet. So I can't review it. Maybe soon.

You might notice a few empty spaces. Well, it's up to you, our dear readers, to send in some articles. I'm running on fumes here. So, please, if you can spare a few minutes to write something it'd be much appreciated and fill some space!

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
ronnie@fullcirclemagazine.org
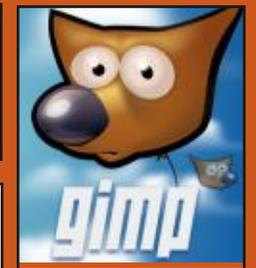
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RELEASE OF LINUX KERNEL 6.2:

20/02/2023

After two months of development, Linus Torvalds presented the Linux 6.2 kernel. Among the most notable changes: they allowed the acceptance of code under the Copyleft-Next license, improved implementation of RAID5/6 in Btrfs, continued integration of Rust language support, reduced overheads when protecting against Retbleed attacks, added the ability to regulate memory consumption during the delayed recording, for TCP added a balancing mechanism PLB (Proctive Load Balancing), a hybrid mechanism for the protection of the flow of commands (FV) and the ability to determine the data structures.Time Verification), reduced power consumption in the implementation of RCU locks.

The new version accepted 16843 fixes from 2178 developers; patch size - 62 MB (changes affected 14108 files, added 730195 lines of code, removed 409485 lines). About 42% of all changes presented in 6.2 are related to device drivers; approximately 16% of the changes have the ratio to updating code specific to hardware architectures; 12% is related to the network stack; 4% - with file systems and 3% with internal subsystems of the core.

https://lkml.org/lkml/2023/2/19/309

RELEASE OF BUDGIE 10.7.1:

20/02/2023

Buddies Of Budgie, which oversees the development of the project after its separation from the Solus distribution, has published an update Budgie 10.7.1. The user environment form the separate components supplied with the implementation of the Budgie Desktop, a set of Budgie Desktop icons, a Budgie Desktop View interface, an interface for configuring the Budgie Control Center (GNOME Control Center) and the screen keeper Budgie Screensaver (gnome-screensaver fork). The project code is distributed under the GPLv2 license. You can use distributions such as Ubuntu Budgie, Fedora Budgie, Solus, GeckoLinux and EndeavourOS to familiarize yourself with Budgie.

https://blog.buddiesofbudgie.org/budgie-10-7-1-released/

FISH SHELL IS BEING REWRITTEN IN RUST LANGUAGE:

21/02/2023

Peter Ammon, the leader of the team of developers of the interactive shell, Fish, has published a plan for the translation of the development of the project into the Rust language. They plan to rewrite, not from scratch, but gradually, module by module, to be translated from C++ into Rust. According to the developers of Fish, the use of Rust will solve problems with multithreading, get a more modern and qualitatively detecting tools, improve the safety of memory and get rid of errors, such as access to memory after its release.

It is noted that the tools for the C++ language are considered by developers as obsolete, and there are fears that the continued use of C++ in the future will increase difficulties in finding new participants in the project. The Rust language is seen as a more promising and actively developed language with an active and growing community, which is already familiar to current developers of Fish and is able to solve the problems that the project has.

During the transition period coexistence code in C++ and Rust will be provided with FFI (Foreign Function Interface). Ultimately, in the next major release, they plan to fully translate the project into the Rust language.

https://github.com/fish-shell/fish-shell/pull/9512

openSUSE Leap beta release 15.5:

21/02/2023

The development of the openSUSE Leap 15.5 has moved to the beta stage. The release is based on a basic set of packages, in line with the SUSE Linux Enterprise 15 SP 5 distribution and also includes some custom applications from the openSUSE Tumbleweed repository. For download, a universal DVD build with a size of 4.3 GB (x86_64, aarch64, ppc64les, 390x) is available. OpenSUSE Leap 15.5 is expected to be released in early June 2023.

The changes in openSUSE Leap 15.5 note the update KDE Plasma 5.27, Python 3.10, mdadm 4.2. Updated graphic stack and Mesa. The default repository is included to install the OpenH264 video codec. The Linux kernel version has not changed (5.14.21). They added the ability to quickly migrate to the new version from past releases.

https://news.opensuse.org/
2023/02/21/leap-reaches-beta-phase/

Jami "Vilagfa" is available:

22/02/2023

A new version of the decentralized communication platform Jami, distributed under the code name "Vil-gfa," is out. The project is aiming at creating a system of communications operating in P2P mode and allowing you to communicate with large groups and individual calls with a high level of confidentiality and security. Jami, formerly known as Ring and SFLphone, is one of GNU projects and is distributed under the GPLv3 license. Binary builds are prepared for GNU/Linux (Debian, Ubuntu, Fedora, SUSE, RHEL, etc.), Windows, macOS, iOS, Android and Android TV.

Unlike traditional communication clients, Jami is able to transmit messages without access to external servers between users using end-to-end encryption and authentication based on X.509 certificates. In addition to the secure messaging, the program allows you to make voice and video calls, create teleconferences, share files, have joint access to files and screen content. For video conferencing on a server with the Intel Core i7-7700K 4.20 GHz, 32 GB of RAM and 100 Mbit/s network connection, the best quality is achieved with under 25 participants. Each videoconfereral participant requires a bandwidth of about 2 Mbit/s.

https://jami.net/vil/

A plan to promote a Linux driver, Xe for Intel GPU:

22/02/2023

Daniel Vetter, an Intel engineer, published in the Linux kernel developer mailing list, they had a plan to promote patches with the implementation of the Xe driver, designed to be used with a GPU based on the Intel Xe architecture, which is used in Arc family graphics cards and integrated graphics, starting with Tiger Lake processors. The Xe driver is positioned as the basis for supporting new chips, not tied to the code to support old platforms. During 2023, they planned patches suitable for testing by enthusiasts, as well as, if possible, reviewers not associated with Intel. In an optimistic scenario, the driver will be accepted in the main composition of the core at the end of the year.

The Xe driver is built using a new architecture where they more actively use the existing components of the DRM subsystem (Direct Rendering Manager), as well as typical components of the i915 driver, not tied to a specific GPU, for example, code for interaction with screens, memory model and implementation of execbuf. The Xe and i915 drivers are scheduled to provide shared code to avoid duplication of typical components. In Mesa, OpenGGL and Vulkan on top of the Xe driver is implemented like the changes made to the existing Iris and ANV Mesa drivers.

https://lore.kernel.org/dri-devel/Y+%2Fo2a21Eym3ee%2Fa@phenom.ffwll.local/T/#m3fee000d74a8744ed65c02124587d1ada346e8bd

Release of SQLite DBMS 3.41:

22/02/2023

The release of SQLite 3.41, a lightweight DBMS, designed as

a plug-in library, has been published. The SQLite code is distributed as a public domain, i.e. can be used without restrictions and free of charge for any purpose. The financial support for SQLite developers is provided by a specially created consortium, which includes companies such as Adobe, Oracle, Mozilla, Bentley and Bloomberg.

https://www.sqlite.org/changes.html

UBUNTU WILL STOP SUPPORTING FLATPAK IN BASIC DELIVERY:
22/02/2023

Philippe Kewisch of Canonical announced the decision not to provide the ability to install packages in Flatpak format in the default configuration of the official editions of Ubuntu. The solution is agreed to by the developers of the existing official editions of Ubuntu, which include Lubuntu, Kubuntu, Ubuntu Mate, Ubuntu Budgie, Ubuntu Studio, Xubuntu, UbuntuKylin and Ubuntu Unity. Those wishing to use the Flatpak format will need to install the package separately to support it from the repository (deb-package flatpak) and, if necessary, activate support for the Flathub directory.

Starting from Ubuntu 23.04, all official Ubuntu editions will be excluded from the baseline of Ubuntu's flatpak deb package, as well as packages to provide integration with the Flatpak format in the Application Installation Center. Users of previously installed systems that used Flatpak packages will retain the ability to use this format after upgrading to Ubuntu 23.04. Users who do not use Flatpak after the default update will only have access to the Snap Store and the standard repositories of the distribution.

The main focus in the official editions of Ubuntu will now be on the promotion and development of the Snap package format. According to the developers of the distribution, the support of two competing formats only leads to fragmentation instead of focusing on improving the technologies chosen for the distribution. Support by default for Ubuntu format is expected to support the unity of the ecosystem and increase the usability of working with the distribution of new users.

https://discourse.ubuntu.com/t/ubuntu-flavor-packaging-defaults/34061

GNOME MUTTER WILL STOP SUPPORTING OLD VERSIONS OF OPENGL:
23/02/2023

The code base of the composite server Mutter, which will be used in the release of GNOME 44, has been amended to remove support for old versions of OpenGL. Drivers with support for at least OpenGL 3.1. will be required for Mutter to work. At the same time, Mutter will retain support for OpenGL ES 2.0, which will allow you to save the ability to work on old graphics cards and GPUs used on ARM boards. It is expected that the deletion of code to support outdated versions of OpenGL will simplify the maintenance of the code base and release resources when testing new functionality.

In Mesa, almost all current OpenGL drivers meet the declared conditions (openGL 3.1 support is not yet fully implemented in the drivers etnaviv (Vivante), vc4 (VideoCore Raspberry Pi), v3d

(VideoCore Raspberry Pi), ashi (Apple Silicon) and lima (Mali 400/450) drivers. It is expected that the old GPUs and ARM systems, for which drivers do not support the necessary versions of OpenGL, can be used through the use of OpenGL 2.0. For example, the old drivers for the Intel Gen3-Gen5 GPU, which only support OpenGL 2.1, can be used, as they also have support for OpenGL ES 2.0.

https://gitlab.gnome.org/GNOME/mutter/-/commit/b2579750a7173eaf20ef6a9080462 85a977ad204

THE FIRST RELEASE OF THE OPEN MULTIPLAYER GAME ENGINE AMBIENT:
23/02/2023

After a year of development, the first release of the new open game engine Ambient was presented. The engine provides runtime to create multiplayer games and 3D applications compiled in the WebAssembly and using WebGPU APIs for drawing. The code is written in Rust and distributed under the MIT license.

The key task in the development of Ambient is the provisioning of tools that simplify the development of multiplayer games and make their creation no more difficult than single-player projects. The engine initially aims to create a universal runtime that supports the development of games and applications in many programming languages where it is possible to compile into the intermediate code for WebAssembly. However, in the first version, only support for development in the Rust language has been implemented.

https://www.ambient.run/post/introducing-ambient

GITHUB SHOWING ITS MICROSOFT COLOURS:
23/02/2023

In the terms of service, GitHub added a paragraph on restrictions on comparative testing. Now, the owners of services competing with GitHub should either not prevent GitHub from carrying out comparative testing in relation to their services, or will not be able to use GitHub (including for comparative testing). The change is

aimed at countering GitHub services, the rules of which explicitly prohibit comparative testing (anti-benchmarking). The PR description notes that GitHub itself does not prohibit other services from testing GitHub products and services to compare other products. The change dates back to 31.10.2022, but has been added to the site-policy repository only now.

In addition, the GitHub rules have been amended to prohibit content and activities stimulated (or pushing for misuse) through gifts, distribution of new cryptocurrencies, tokens and credits.

https://github.com/github/site-policy/pull/648

UBUNTU 22.04.2 LTS WITH UPDATED GRAPHICAL STACK AND LINUX KERNEL:
24/02/2023

An update to the Ubuntu 22.04.2 LTS distribution has been made, which includes changes related to improved hardware support, Linux kernel and graphics stack, bug fixes in the installer and

downloader. The release also includes up-to-date updates for several hundred packages related to the elimination of vulnerabilities and problems affecting stability. Similar updates to Ubuntu Budgie 22.04.2 LTS, Kubuntu 22.04.2 LTS, Ubuntu MATE 22.04.2 LTS, Ubuntu MATE 22.04.2 LTS, Ubuntu Studio 22.04.2 LTS, Lubuntu 22.04.2 LTS, Ubuntu Kylin 22.04.2 LTS and Xubuntu 22.04.2 LTS are presented.

https://lists.ubuntu.com/archives/ubuntu-announce/2023-February/000286.html

CANONICAL AND ELEKTROBIT INTRODUCED EB CORBOS LINUX:
24/02/2023

Elektrobit and Canonical have announced a new EB corbos Linux distribution, focused on the development of electronic control units (ECU, Electronic Control Unit) for software-defined automotive equipment (SDV, Software-Defined Vehicle). The distribution provides an environment based on Ubuntu and the Linux kernel, with components to ensure compatibility with the processes

and regulations used in the automotive industry. It is expected that the new distribution will provide automakers with a solution for a level of functionality and flexibility similar to existing solutions for cloud and enterprise systems.

The product can also be used in solutions for commercial, rail and sea transport, for medical and agricultural machinery. In addition to components from Ubuntu in EB corbos Linux, an automotive software stack developed by Elektrobit is offered, including a specialized SDK, a set of utilities and source code. The distribution can be used as a POSIX-compatible operating system to create solutions based on the AUTOSAR Adaptive Platform and the EB corbos AdaptiveCore framework, fully integrated with EB corbos products and EB corbos Hypervisor.

https://ubuntu.com/blog/elektrobit-and-canonical-announce-eb-corbos-linux-built-on-ubuntu

GParted 1.5 and GParted Live 1.5:
25/02/2023

Available now is the release of Gparted 1.5 (GNOME Partition Editor), which supports most file systems and partition types used in Linux. In addition to tag management, editing and partition creation functions, GParted allows you to reduce or increase the size of existing partitions without losing the data placed on them, check the integrity of the sector tables, restore data from lost partitions and align the beginning of the section on the cylinder boundary.

The new version implemented recovery of information when checking the ExFAT file system. Fixed an error that led to an emergency end when copying NTFS to partitions larger than 2 TB. Fixed problems with the selection of the catalog when changing the size of Btrfs.

Simultaneously, the release of the Live-distribution GParted LiveCD 1.5.0, focused on system recovery after failure and working with disk partitions, was announced. The size of the images are 511 MB (amd64) and 460 MB (i686). The distribution is built on Debian Sid as of February 22 and includes a new release of the GParted 1.5.0 disc partition editor, as well as a Linux 6.1.12 kernel update.

https://gparted.org/news.php?item=247

Release of Apache NetBeans 17:
25/02/2023

The Apache Software Foundation has unveiled an integrated development environment Apache NetBeans 17, which provides support for programming languages like Java SE, EE, PHP, C/C++, JavaScript and Groovy. The finished builds are made for Linux (snap, flatpak), Windows and macOS.

https://blogs.apache.org/netbeans/entry/announce-apache-netbeans-17-released

Release of Mesa 23.0:
25/02/2023

The free implementation of the OpenGL API and Vulkan - Mesa 23.0.0 has been released. The first release of the Mesa 23.0.0 branch has an experimental status - after the final stabilization of the code, it will be released as a stable version 23.0.1.

Mesa 23.0 provides support for the Vulkan 1.3 graphics API in the anv drivers for Intel GPU, radv for AMD's GPU, tu for GPU Qualcomm and emulator (vn) mode. Support for Vulkan 1.1 is implemented in the software razzerizer lavapipe (lvp), and Vulkan 1.0 in the driver v3dv (GPU Broadcom VideoCore VI from Raspberry Pi 4).

Mesa also provides full support for OpenGL 4.6 for drivers 965, iris (Intel), radeonsi (AMD), zink and llvmpipe drivers. Support for OpenGL 4.5 is available for GPU AMD (r600), NVIDIA (nvc0) and Qualcomm Adreno (freedreno), OpenGL 4.3 for virgl (virgl virtual GPU Virgil3D for QEMU/KVM), and OpenGL 4.2 for driver d3d12 (a plug for OpenGL on top of DirectX 12).

UBUNTU MINI INSTALLATION:
27/02/2023

Employees of Canonical revealed information about a project; ubturu-mini-iso, developing a new minimalist build of Ubuntu, weighing in at about 140 MB. The main idea of a new installation image is to make it universal and present the ability to install the selected version of any official build of Ubuntu.

The project is developed by Dan Bungert, who maintained the Subiquity installer. At this stage, a working prototype of the build has already been prepared and tested, work is underway to use the official infrastructure of Ubuntu. The new build is expected to be published along with the spring release of Ubuntu 23.04. The build can be used to record on CD/USB or for dynamic download via UEFI HTTP. The build provides a text menu, with which you can select the interested edition of Ubuntu, the installation image then will be loaded into the RAM. Data on available builds will be loaded dynamically with simplestreams.

https://lists.ubuntu.com/archives/ubuntu-devel/2023-February/042485.html

RELEASE EASYOS 5.0:
27/02/2023

Barry Kauler, founder of the Puppy Linux project, has published an experimental EasyOS 5.0 distribution combining Puppy Linux technology using container insulation to run system components. Distribution management is carried out through a set of graphic configurators developed by the project. The size of the loading image is 825 MB.

The new release has updated versions of the applications. Almost all packages are built from source using the OpenEmbedded 4.0 project metadata. Support for "langpack" language packages and builds specific to certain languages are discontinued. The translations associated with the selected language are submitted to separately downloaded files. The interface language is now selected after the first download. The MoManager app is rewritten (used to translate user elements into different languages).

https://bkhome.org/news/202302/easyos-kirkstone-series-version-50.html

KDE PLASMA SWITCHES TO QT 6:
27/02/2023

The developers of the KDE project announced their intention to transfer the master-branch of the custom shell KDE Plasma to the Qt 6 library on February 28. In connection with the translation for some time in the master branch, there may be separate problems and breakages of some insignificant functions. Existing kdesrc-build environment configurations will be converted to the Plasma/5.27 branch, which uses Qt5 ("branch-group kf5-qt5" in .kdesrc-buildrc). To build a Qt6 in .kdesrc-buildrc, you should specify "kf6-qt6."

The release of KDE Plasma 5.27 was the last in the KDE 5 series and after it, the developers began to build the KDE 6 branch, a key change was the transition to Qt 6 and the supply of an updated basic set of libraries and runtime components KDE Framework 6, which forms the KDE program stack. In addition to adaptation on top of Qt 6 in KDE Frameworks 6, a large API is being processed, for example, they plan to provide a new API for working with notifications (KNotifications), simplify the use of the capabilities of libraries in environments without widgets, revise the separation of API classes and runtime services to reduce the number of dependencies when using the API.

KDE Plasma 6 is expected in the autumn of 2023. In the current form out of 580 KDE projects, the ability to build with Qt 6 has been implemented in 362 projects. Among the components that are not yet supported Qt 6 - colord-kde, falkon, k3b, kdevelop, kget, kgpg, kmix, konqueror, ktorrent, okular, aura-browser, discover plasma-remotecontrols

https://mail.kde.org/pipermail/kde-devel/2023-February/001699.html

RELEASE OF APACHE OPENOFFICE 4.1.14:
28/02/2023

A bug fix release of the Apache OpenOffice 4.1.14 office package is available, which offers 27 fixes. Ready packages are prepared for Linux, Windows and macOS. The new release has changed the coding and storage method of the master password, so before installing version 4.1.14, they recommend that you make a backup copy of the OpenOffice profile, since the new profile will break compatibility with previous releases.

https://blogs.apache.org/OOo/entry/announcing-apache-openoffice-4-110

RELEASE OF ARMBIAN 23.02:
28/02/2023

Armbian 23.02, providing a compact system environment for various single-board computers based on ARM processors, including various models of Raspberry Pi,

Oddroid, Orange Pi, Banana Pi, Helios64, pine64, Nanopi and Cubieboard based on Allwinner, Amlogic, Actionsemi, Freescale, Martax, Marvel, and Martix, and Cubieboard processors, has been releasaed.

Debian and Ubuntu packages are used to build with, but the environment is completely reassembled using its own assembly system with the inclusion of optimizations to reduce size, increase productivity and use of additional protection mechanisms. For example, the /var/log section is mounted using zram and stored in RAM in a compressed form with reset to the data on the storage once a day or at the end of operation. The /tmp section is mounted using tmpfs.

The project supports more than 30 Linux kernel builds for different ARM and ARM64 platforms. To simplify the creation of their system images, packages and distribution editions, a SDK is provided. ZSWAP is used for pups. When entering the SSH, an option is provided for the use of two-factor authentication. The composition includes the box64 emulator, which allows you to run programs

assembled for processors based on the x86 architecture. ZFS can be used as a file system. They offer ready-made packages to launch custom environments based on KDE, GNOME, Budgie, Cinnamon, i3-wm, Mate, Xfce and Xmonad.

https://www.armbian.com/newsflash/armbian-23-02/

RELEASE OF FFMPEG 6.0:
2/28/02.2023 11:19 PM

After six months of development, the FFmpeg 6.0 multimedia package is available, including a set of applications and a collection of libraries to work on various multimedia formats (recording, conversion and decoding of sound and video formats). The package is distributed under the the LGPL and GPL licences. The development of FFmpeg is carried out with the MPlayer project.

http://ffmpeg.org/download.html#releases

GIMP 2.10.34:
28/02/2023

The graphic editor, GIMP 2.10.34 was published. Packages in flatpak format are available for installation (the snap package is not ready yet). The release mainly includes bug fixes. All efforts to increase functionality are focused on the preparation of the GIMP 3 branch, which is in the testing stage of preliminary releases.

https://www.gimp.org/news/2023/02/27/gimp-2-10-34-released/

DEBIAN 12 LAUNCHED A SEPARATE REPOSITORY WITH FIRMWARE:
01/03/2023

Developers of Debian announced the testing of a new repository of non-free-firmware, in which packages with firmware were transferred from the non-free repository. In the second alpha release of the installer, Debian 12 "Bookworm" provided the possibility of dynamically requesting packages with firmware from the repository

containing non-free-firmware. The presence of a separate repository with firmware allows you to provide access to firmware without including a common repository 'non-free' in the installation media.

In accordance with the previously held general voting, the official images include both free firmware from the main repository and proprietary firmware, previously available through the non-free repository. If there is equipment that requires external firmware, the necessary proprietary firmware is loaded by default. For users who prefer only free software, at the downloading stage, you can disable the use of proprietary firmware.

https://lists.debian.org/debian-devel/2023/02/msg00335.html

RELEASE OF OPENRA 20230225:
01/03/2023

After two years of development, the release of the OpenRA 20230225 project, which develops an open engine for multiplayer strategic games based on Command & Conquer Tiberian Dawn, C&C Red Al and Dune 2000, has been published. The OpenRA code is written in C and Lua, and is distributed under the GPLv3 license. It supports Windows, macOS and Linux (AppImage, Flatpak, Snap).

The new version added support for resources from the "C&C Remaster Collection" kit, as well as preliminary support for the game Tiberian Dawn HD. Improved implementation of the game Dune 2000 and added new missions for the game Red Alert. A new hierarchical mechanism for finding the paths has been implemented, which has made it possible to significantly increase performance on large maps. The implementation of multiplayer network game has been significantly improved, units have become more responsive with different delay settings. For mod developers, a new format of maps is offered with support for previewing the entire map (minimart) and the ability to use mp3 and ogg sound formats is implemented.

http://www.openra.net/news/release-20230225/

RELEASE OF GODOT 4.0:
02/03/2023

After four years of development, the release of the free game engine Godot 4.0, suitable for creating 2D- and 3D games, was released. The engine supports a simple learning language of game logic, a graphical environment for game design, a one-click game deployment system, wide animation and simulation of physical processes, a built-in debugger and a system for identifying bottlenecks in performance. Game engine code, game design environments and related development tools (physical engine, sound server, 2D/3D rendering backends, etc.) distributed under the MIT license.

The original code of the engine was opened in 2014 by OKAM, after ten years of development of a proprietary professional-level product that was used to create and publish many games for PCs, game consoles and mobile devices. The engine supports all popular stationary and mobile platforms (Linux, Windows, macOS, Wii, Nintendo 3DS, PlayStation 3, PS Vita, Android, iOS, BBX), as well as the development of games for the Web. Ready to run binary builds are available for Linux, Android, Windows and macOS.

https://godotengine.org/article/godot-4-0-sets-sail/

RELEASE OF SCUMMVM 2.7.0:
03/03/2023

After 6 months of development, the release of a free cross-platform interpreter of classic quests ScummVM 2.7.0, replacing executables for games and allows you to perform many classic games on platforms for which they are not originally intended, is available. The project code is distributed under the GPLv3+ license.

In total, it is possible to launch more than 320 quest games, including games from LucasArts, Humongous Entertainment, Revolution Software, Cyan and Sierra, such as Maniac Mansion, Monkey Island, Broken Sword, Myst, Blade Runner, King's Quest 1-7, Space Quest 1-6, Discworld, Simon the Sorcerer, Beneath Steel Sky,

Lure of the Temptress and The Legend of Ky. Supports the launch of games on Linux, Windows, macOS, iOS, Android, PS Vita, Switch, Dreamcast, AmigaOS, Atari/FreeMiNT, RISC OS, Haiku, PSP, PS3, Maemo, GCW Zero, etc.

https://www.scummvm.org/news/20230226/

GNOME SHELL AND MUTTER HAVE COMPLETED THE TRANSITION TO GTK4:
04/03/2023

The GNOME Shell and the composite manager Mutter have been fully transferred to the GTK4 library and got rid of the rigid dependence on the GTK3. In addition, the dependence of gnome-desktop-3.0 was replaced by gnome-desktop-4 and gnome-bg-4, and libnma to libnma4.

In general, GNOME remains tied to the GTK3, as not all applications and libraries are ported to GTK4. For example, the GTK3 remains WebKit, libpeas, libibus, document viewer Evince, Totem video player, image viewer Eog, Boxes, Connections, Simple-scan, File-roller, Photos and System Monitor.

https://gitlab.gnome.org/GNOME/mutter/-/merge_requests/2864

GTK 4.10 IS AVAILABLE:
05/03/2023

After six months of development, the multi-platform toolkit was released to create a graphical user interfaces - GTK 4.10.0. GTK 4 is developing as part of a new development process that is trying to provide application developers with a stable and supportable API that can be used without fear that applications will have to be redesigned every six months due to changes to the API in the next GTK branch.

https://gitlab.gnome.org/GNOME/gtk/-/tags

RELEASE OF LIBREELEC 11.0:
06/03/2023

A new release of the LibreELEC 11.0 project, who develop a fork of OpenELEC, is out. The user interface is based on the Kodi media center. To download, images are prepared for USB drive or SD cards (32-bit x86, Raspberry Pi 2/3/4, various devices on chips Rockchip, Allwinner, NXP and Amlogic). Assembling size for architecture x86_64 - 226 Ð œÐ'.

With the help of LibreELEC, you can turn any computer into a media center, which is no more difficult to work with a DVD player or a set-up. The basic principle of the distribution "everything just works," to get a completely ready-to-work environment, it is enough to simply download LibreELEC to a Flash drive. The user does not need to take care of maintaining the system in the current state - the distribution uses an automatic download and installation system, activated when connecting to the internet. It is possible to expand the functionality of the distribution through a system of add-ons, which are installed from a separate repository developed by the developers of the project.

The distribution is not based on other distributions. In addition to the capabilities of Kodi, the distribution provides a number of additional functions aimed at maximum simplification. For example, a special configuration add-on is being developed that allows you to configure network connection settings, control the parameters of LCD-screens, allow or prohibit the automatic installation of updates. There are also functions like the use of the remote control (possibly control both via the infrared port and via Bluetooth), joint access to files (built by the Samba server), the built-in BitTorrent-client Transmission, automatic search and connection of local and external drives.

https://libreelec.tv/2023/03/06/libreelec-nexus-11-0-0/

RELEASE OF APT 2.6:
07/03/2023

The APT 2.6 (Advanced Package Toolk) package management toolkit is out, taking changes from the experimental 2.5 branch. In addition to Debian and its derivatives of distributions, the APT-RPM fork is also used in some distributions based on the rpm packet manager, such as PCLinuxOS and ALT Linux. The new release is integrated into the Unstable

branch, will soon be moved to the Debian Testing branch and will be included in the release of Debian 12, and will be added to the package base of Ubuntu.

https://github.com/Debian/apt/releases/tag/2.6.0

RELEASE OF AUDACIOUS 4.3:
07/03/2023

The release of the lightweight music player Audacious 4.3, which was forked from the project, Beep Media Player (BMP), which is a fork of the classic XMMS player, is out. The release comes with two user interfaces: GTK and Qt. The builds are prepared for various Linux distributions and Windows.

https://audacious-media-player.org/news/56-audacious-4-3-released

RELEASE OF APACHE 2.4.56:
08/03/2023

Apache 2.4.56, which presents 6 changes and eliminated 2 vulnerabilities associated with the possibility of "HTTP Request Smuggling" attacks on front-end backend systems that wedge the contents of other users" requests processed in the same stream between the frontend and backend, is out. The attack can be used to bypass access restriction systems or substituting a malicious JavaScript code in a session with a legitimate site.

The first vulnerability (CVE-2023-27522CVE-2023-27522) affects the module mod_proxy_uwsgi and allows the proxy side to divide the response into two parts through the subsistence of special characters in the backend HTTP header.

The second vulnerability (CVE-2023-25690) is present in mod_proxy and manifests itself when using some overwrite query rules using the RewriteRule directive provided by the mod_rewrite module, or certain templates in the ProxyPassMatch directive. The vulnerability may lead to a request through proxies of internal resources accessed through a proxy prohibited, or by poisoning the cache content.

https://downloads.apache.org/httpd/Announcement2.4.html

NEW VERSION OF SAMBA 4.18.0:
09/03/2023

The release of Samba 4.18.0, which continued the development of the Samba 4 branch with a full implementation of the domain controller and Active Directory service, compatible with the implementation of Windows 2008 and can serve all supported Microsoft versions of Windows-clients, including Windows 11, was announced. Samba 4 is a multifunctional server product that also provides the implementation of the file server, print service and identification server (winbind).

https://lists.samba.org/archive/samba-announce/2023/000630.html

PLAN TO PROMOTE FLATHUB AS AN INDEPENDENT APP STORE:
09/03/2023

Robert McQueen, head of the GNOME Foundation, has published a plan for the development of the Flathub, catalog and repository of self-sufficient packages in Flatpak format. Flathub is positioned as an independent platform for assembling applications and their direct distribution to end-users. It is noted that at present, the Flathub catalog contains about 2,000 applications, where more than 1,500 participants are involved. Every day, about 700,000 downloads of applications are recorded.

The key tasks for the further development of the project is the evolution of the Flathub from an assembly service to the catalog store of applications, forming the ecosystem of the distribution of Linux applications, taking into account the interests of various participants and projects. Much attention is paid to the issues of increasing the motivation of participants and financing projects published in the catalog, where they plan to implement systems for collecting donations, selling applications and getting paid subscriptions. According to Robert McQueen, the greatest obstacle in the promotion and development of the Linux desktop is the economic factor, and the introduction of a

system of donations and sales of applications will stimulate the development of the ecosystem.

https://discourse.flathub.org/t/flathub-in-2023/3808

ALT P10 UPDATE:

10/03/2023

The eighth release of the ALT Tenth Platform is out. Most starters are live-builds that allow you to familiarize yourself with the main graphical environments and window managers available for ALT operating systems and install the system if necessary. Builds based on a stable repository are designed for experienced users. Starter kits differ from distributions by a large number of available options and less images, as well as license conditions (GPL) and the schedule of release (about one quarterly).

The live-iso is available for x86_64, i586 and aarch64. The builds are based on Linux kernels version 5.10.170/ 5.15.96; some images use other variants specified in particular. Other architectures are also specified separately.

https://lists.altlinux.org/pipermail/community/2023-March/688890.html

RELEASE OF GNU OCTAVE 8:

11/03/2023

GNU Octave 8.1.0 (the first release of the 8.x branch) was released, providing an interpreted language that is largely compatible with Matlab. GNU Octave can be used to solve linear problems, nonlinear and differential equations, calculations using complex numbers and matrices, data visualization, and mathematical experiments.

https://octave.org/news/release/2023/03/07/octave-8.1.0-released.html

RELEASE OF RETROARCH 1.15:

12/03/2023

The release of the RetroArch 1.15 project, that develops a superstructure for emulation of various game consoles, has been published, allowing you to run classic games with a simple unified graphical interface. The use of emulators of consoles such as Atari 2600/7800/Jaguar/Lynx, Game Boy, Mega Drive, NES, Nintendo 64/DS, PCEngine, PSP, Sega 32X/CD, SuperNES, etc. Gamepads from existing game consoles, including the Playstation 3, Dualshock 3, 8bitdo, XBox 1 and XBox360, as well as general purpose gamepads such as the Logitech F710, are supported. The emulator supports such advanced capabilities as multiplayer games, save states, improvement of the quality of the image of old games with the help of shaders, rewinding the game back, hot connection of game consoles and video streaming

https://www.libretro.com/index.php/retroarch-1-15-0-release/

RELEASE OF helloSystem 0.8.1:

12/03/2023

Simon Peter, creator of the AppImage format, published the release of helloSystem 0.8.1, based on FreeBSD 13 and positioned as a system for ordinary users, which can be switched to by macOS fans dissatisfied with Apple's policy. The system is devoid of the complicities inherent in modern Linux distributions, is under the full control of the user and allows you to feel comfortable to former users of maccOS. For familiarization with the distribution, a loading image with a size of 941 MB (torrent) was released for download.

The interface resembles macOS and includes two panels - the top with the global menu and the bottom with the application panel. To form a global menu and status bar, the panda-statusbar package developed by the CyberOS distribution (formerly PandaOS) is used. The Dock application panel is based on the cyber-dock project, also from CyberOS developers. To manage files and place shortcuts on the desktop, a Filer file manager based on pcmanfm-qt from the LXQt project is being developed. By default, the Falkon browser is offered, but Firefox and Chromium are optionally available. Applications are delivered in self-sufficient packages, like in MacOS. To run applications, a launch utility is used, which finds the program and analyzes errors in execution.

The project is developing a series of its own applications, such as a configurator, installer, mountarchive utility for mounting archives to the FS tree, a data recovery utility with ZFS, an interface for burning disks, a network setting utility, a screenshot utility, a Zeroconf server browser, an indicator for setting the volume, a utility for setting the boot environment. Python and Qt library are used for development. Among the supported components for the development of applications in order of preference are PyQt, QML, QML, KDE Frameworks and GTK. ZFS is used as the main file system, and UFS, exFAT, NTFS, EXT4, HFS+, XFS and MTP are supported for mount.

https://github.com/helloSystem/ISO/releases/tag/r0.8.1

RELEASE OF SCILAB 2023.0.0:
13/03/2023

The release of Scilab 2023.0.0, the computer mathematics environment, that provides a similar language to Matlab and a set of functions for mathematical, engineering and scientific calculations, has been published. The package is suitable for professional application and use in universities, providing tools for a variety of calculations: from visualization, modeling and interpolation to differential equations and mathematical statistics. It supports scripts written for Matlab. The project code is supplied under the GPLv2 license. The finished builds are for Linux, Windows and macOS.

https://www.scilab.org/news/scilab-2023.0.0-has-been-released

OPENCHATKIT RELEASED:
13/03/2023

OpenChatKit toolkit is out, aimed at simplifying the creation of chatbots for specialized and general use. The system is adapted to perform tasks such as answering questions, conducting multi-stage dialogues, generalization, retrieval of information, classification of text. The code is written in Python and distributed under the Apache 2.0 license. The project includes a ready-made model, code for training your model, utilities for testing the results of the model, the means to supplement the model with context from the external index and adapt the basic model to solve their own problems.

The basic bot is offered with a basic machine learning model (GPT-NeoXT-Chat-Base-20B), built using a language model covering about 20 billion parameters and optimized for conversational communication. For training of the model, they used data obtained from the LAION, Together and Ontocord.ai projects.

A system is offered to expand an existing knowledge base that can extract additional information from external repositories, APIs and other sources. For example, you can update information using data from Wikipedia and news feeds. Additionally, a model for moderation, trained using 6 billion parameters, based on the GPT-JT model, designed to filter unacceptable issues or limit discussions within certain topics, is available.

https://www.together.xyz/blog/openchatkit

RELEASE OF THE GIT 2.40:
14/03/2023

After three months of development, the release of Git 2.40 was published. Git is one of the most popular, reliable and high-performance version management systems, providing flexible non-linear development tools based on branching and merging branches. To ensure the integrity of history and the resistance to changes in the "backstage" it uses implicit hashing of the entire previous history in each commit, and it is also possible to certify the digital signatures of the developers of individual tags and commits.

Compared to the previous release, the new version accepted 472 changes, prepared with the participation of 88 developers, of which 30 took part in the development for the first time.

https://lkml.org/lkml/2023/3/13/1087

RELEASE OF NFTABLES 1.0.7:
14/03/2023

The release of the batch filter nftables 1.0.7, unifying the filter interfaces for IPv4, IPv6, ARP and network bridges (targeted to replace iptables, ip6table, arptables and ebtables), was announced. The nftables package includes packet filter components that work in the user's space, while at the kernel level is provided by the nf_tables subsystem, which is part of the Linux kernel starting from release 3.13. At the kernel level, only a common interface is provided, independent of a specific protocol and providing basic functions to extract data from packets, perform data operations and flow control.

Directly filtering rules and protocol-specific handlers are compiled into the bytecode in the user's space, after which the bytecode is loaded into the kernel using the Netlink interface and executed in the kernel in a special virtual machine reminiscent of BPF (Berkeley Packet Filters). This approach allows you to significantly reduce the size of the filter code, working at the core level and carry all the functions of parsing rules

and logic of working with protocols into the user's space

https://www.mail-archive.com/netfilter-announce@lists.netfilter.org/msg00256.html

QUBES 4.1.2:
14/03/2023

An update of the Qubes 4.1.2 operating system, that implements the idea of using the hypervisor for strict isolation of applications and components of the OS (each class of applications and system services work in individual virtual machines) has been announced. To start working, you need a system with 6 GB of RAM and 64-bit CPU Intel or AMD with support for VT-x technology EPT/AMD-v RVI and V-Td/AMD IOMMU, preferably the presence of NVIDIA and AMD GPU's are not well tested). The size of the installation image is 6 GB.

Applications in Qubes are divided into classes depending on the importance of the data being processed and the tasks being solved. Each class of applications

(for example, work, entertainment, banking operations), as well as system services (network subsystem, firewall, storage, USB stack, etc.), work in separate virtual machines running using the Xen hypervisor. In this case, these applications are available within one desktop and are allocated a different color, for clarity, of the window frame. Each environment has access to read to the base root FS and local storage, which does not intersect with the storages of other environments.

https://www.qubes-os.org/news/2023/03/15/qubes-4-1-2/

SHATTERED PIXEL DUNGEON 2.0:
14/03/2023

The release of Shattered Pixel Dungeon 2.0, a turn-based computer roguelike game, for you to pass dynamically generated dungeon levels, collecting artifacts, training the character and hitting monsters. The game uses pixel graphics in the style of old 8-bit games. The game continues to develop the original code of the Pixel Dungeon project. The code is

written in Java and distributed under the GPLv3 license.

In version 2.0, a new character is added - a Duelist, which, unlike previously available characters (warrior, sorcerer, thief and female hunter) has its weaknesses and strengths (high efficiency in close combat and advanced ability to master any weapon). The character, depending on experience, can occupy one of two subclasses, has 26 talents to strengthen the player and 3 separate abilities that provide special strength in the final battle. The player is invited to pass 26 underground floors with unique enemies and level schemes. There are more than 100 room types, 100 types of weapons and equipment, 60 types of enemies, 30 traps and 5 main villains.

https://shatteredpixel.com/blog/shattered-pixel-dungeon-v200.html

FEDORA LINUX 38 HAS MOVED TO BETA TESTING:
15/03/2023

Testing of the beta version of Fedora Linux 38 has begun. Beta-release marked the transition

to the final testing stage, in which only correction of critical errors are allowed. The release is scheduled for April 18. The release covers the Fedora Workstation, Fedora Server, Fedora Silverblue, Fedora IoT, Fedora CoreOS, Fedora Cloud Base and Live Ambass supplied in the form of spins with the user environments like KDE Plasma 5, Xfce, MATE, Cinnamon, LXDE, Psh, LXQ, Budgie and Sway. The builds are made for x86_64, Power64 and ARM64 architectures.

https://fedoramagazine.org/announcing-fedora-38-beta/

RELEASE OF FOR KALI LINUX 2023:
15/03/2023

The distribution is based on Debian and is designed to test systems for vulnerabilities, auditing, residual information analysis and detection of attacks or attackers. All original code created within the distribution are distributed under the GPL license and are available through the public Git repository. Several variants of iso-images, measuring 459 MB, 3 GB and 3.9 GB, have been

prepared for download. Builds are available for i386, x86_64, ARM (armhf and armel, Raspberry Pi, Banana Pi, ARM Chromebook, Odroid). By default, the Xfce desktop is offered, but the KDE, GNOME, MATE, LXDE and Enlightenment e17 are optionally supported.

Kali includes one of the most complete sets of tools for computer security professionals, from web-based software testing and wireless network intrusion to data readers from RFID chips. It includes a collection of exploits and more than 300 specialized security checks, such as Aircrack, Maltego, SAINT, Kismet, Blueggbuer, Btcrack, Btscanner, Nmap, p0f. In addition, the distribution includes means to speed up password selection (Multihash CU Brute Forcer) and WPA keys (Pyrit) through the use of CUDA and AMD Stream graphics cards, which allow the use of GPU graphics cards NVIDIA and AMD for computing operations.

https://www.kali.org/blog/kali-linux-2023-1-release/

DOCKER HUB SCRAPS FREE SERVICE FOR ORGANIZATIONS DEVELOPING OPEN PROJECTS:
16/03/2023

The developers of some open projects, placing container images in the Docker Hub catalog, received a notification of termination of the service by subscription "Docker Free Team," previously provided free of charge to organizations that oversee open projects. The possibility of free personal placement of images by individual developers is preserved. Officially supported images of open projects will also be kept for free.

According to Docker, the change will affect about 2% of users who are recommended to switch to a paid tariff ($420 per year) by April 14, or to fill out an application for participation in the Docker-Sponsored Open Source Program initiative, which allows you to access the Docker Hub for actively updated open projects that meet the criteria of the Open Source Initiative, developed in public repositories and not receiving commercial benefits from their code (projects that are not allowed to donate funds)

After April 14, access to private and public image repositories will be limited, and the accounts of organizations are frozen (personal accounts of individual developers will continue to operate). In the future, within 30 days, the owners will be given the opportunity to resume access after the transition to the paid tariff, but then the images and accounts of the organizations will be deleted, and the names will be reserved to prevent re-registration by the attackers.

In the community there was a fear that the deletion could disrupt the operation of various infrastructures tied to the images of containers loaded from the Docker Hub, since there is no plan of which images of which projects will be removed (the warning about the upcoming termination is displayed only in the personal account of the owner of the image) and there is no guarantee that the image used will not disappear. In this regard, open projects using Docker Hub are recommended to explain to users whether their images will be stored in the Docker Hub or will be transferred to another service, such as the GitHub

Container Registry.

Update: Docker has publicly announced the closure of the "Free Team" program and assured that the already published public images will continue to be distributed and will be removed only if their owner decides to remove them from the Docker Hub. It is also clarified that "Free Team" users can transfer their accounts to a simpler but more free personal subscription type. To do this, you need to send an application to the support service.

https://blog.alexellis.io/docker-is-deleting-open-source-images/

AMAZON LINUX 2023:
16/03/2023

Amazon announced the first stable release of a new general-purpose distribution - Amazon Linux 2023 (LTS), optimized for cloud environments and supporting integration with tools and advanced features of the Amazon EC2 service. The distribution replaced the Amazon Linux 2 product and differs in the departure from the use of CentOS in favor of the Fedora Linux

packages. Builds are for x86_64 and ARM64 (Aarch64) architectures. Despite the primary focus on AWS (Amazon Web Services), the distribution is also supplied in the form of a universal image of a virtual machine that can be used on a local system or in other cloud environments.

The distribution uses a predictable tracking cycle, involving new major releases every two years with the release of intermediate quarterly updates. Each major release is an offshoot from the current release of Fedora Linux. The intermediate releases plan to include new versions of some in-demand pakages, such as Python, Java, Ansible and Docker, but these versions will be delivered in parallel, in a separate name space.

The total support time for each release will be five years. The user will be provided with the ability to bind to the state of repositories and independently select the tactics of installing updates and switching to new releases.

Amazon Linux 2023 uses components from Fedora 34, 35 and 36, as well as CentOS Stream 9. The distribution uses its own kernel,

based on the LTS core 6.1 from kernel.org and supported independently by Fedora. Updates for the Linux kernel are released using "live patching" technology, which makes it possible to eliminate vulnerabilities and apply important bug fixes to the core without rebooting the system.

https://aws.amazon.com/blogs/aws/amazon-linux-2023-a-cloud-optimized-linux-distribution-with-long-term-support/

DEBIAN 12 MOVED TO SOFT FREEZE:
17/03/2023

The developers of Debian reported the transfer of Debian 12 to the stage of soft freeze before the release, in which the process of transferring key packets and packages without autopkgtests from unstable to testing is completely stopped and the stage of intensive testing and correction of blocking release problems began. The soft freezing stage is considered as a necessary intermediate stage before full freezing, covering all packages. Full freezing will be made a few weeks

before the release, the exact date has not yet been determined.

This is the third stage of the freezing - the first stage was completed on January 12 and led to the termination of "transitions" (an update of packages requiring adjustment of dependencies in other packages, which leads to the temporary removal of packages from Testing), as well as the termination of the update of the packages required for the build-estul (build-essential). The second stage began on February 12 and was associated with the cessation of the reception of new source packages and the closure of the possibility of re-entering the previously deleted packages.

Debian 12 is expected to be released in the summer of 2023. Currently, there are 258 critical errors blocking the release (a month ago there were 392, two months ago - 637).

https://lists.debian.org/debian-devel-announce/2023/02/msg00003.html

NordVPN opens Linux client and library code with MeshNet implementation:

17/03/2023

NordVPN announced the opening of the client's source code for the Linux platform, the Libtelio network library and the Libdrop file sharing library. The code is open under the GPLv3 license. The programming languages Go, Rust, C and Python were used.

The Linux client provides a command-line interface to manage the connection to NordVPN servers, allows you to select a server from the list, taking into account the desired location, change the protocol settings and enable Kill Switch mode, which blocks network access in the event of a connection with a VPN server. The client supports the use of NordLynx protocols (based on WireGuard) and OpenVPN. To change the settings of the firewall, iptables is used, iproute routing, for tunneling tuntap connections, and to define the names in DNS - systemd-resolved. Ubuntu, Fedora, Manjaro, Debian, Arch, Kali, CentOS and Rasbian distributions are supported.

https://nordvpn.com/blog/nordvpn-linux-open-source/

Release of WebKitGTK 2.40.0 and Epiphany 44 web browser:

17/03/2023

The release of a new stable branch WebKitGTK 2.40.0, the port of the browser engine WebKit for the GTK platform is out. WebKitGTK allows you to use all WebKit capabilities through GNOME-oriented software interface based on GObject and can be used to integrate web-conceivable tools into any applications, from the use in specialized HTML/CSS parsers, to the creation of full-featured web browsers. Of the well-known projects using WebKitGTK, you can note the regular GNOME (Epiphany) browser. Previously, WebKitGTK was used in the Midori browser, but after the transfer of the project to the Astian Foundation, the old version of Midori on WebKitGTK was abandoned and by creating an offshoot from the Wexond browser created a fundamentally different product with the same name Midori, but based on the Electron and React platform.

https://webkitgtk.org/2023/03/17/webkitgtk2.40.0-released.html

Release of LLVM 16.0:

19/03/2023

After six months of development, the release of the LLVM 16.0 project - GCC-compatible toolkit (compilers, optimizers and code generators) was presented, compiling programs in the intermediate bitcode RISC-like virtual instructions (low-level virtual machine with multi-level optimization system). The generated pseudocode can be converted by a JIT compiler into machine instructions at the run time of the program.

https://discourse.llvm.org/t/llvm-16-0-0-release/69326

The release of Libreboot 20230319.

20/03/2023

The free bootable firmware Libreboot 20230319 was released. The project gives us the finished the coreboot project, which provides a replacement of 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 the formation of a system environment that allows you to completely do without proprietary software, not only at the operating system level, but also firmware. Libreboot not only cleans the coreboot from proprietary components, but also supplements it with means to facilitate the use of end-users, forming a distribution that can be used by any user who does not have special skills.

https://libreboot.org/news/libreboot20230319.html

RELEASE OF DRAGONFLYDB 1.0:

20/03/2023

The release of the data caching and storage system in Dragonfly RAM was released, that manipulates the data in the key/value format and can be used as a lightweight solution to speed up the operation of highly loaded sites, cache the slow requests to the DBMS and intermediate data in RAM. Dragonfly supports Memcached and Redis protocols, which allows you to use existing client libraries and transfer code to Dragonfly projects using Memcached and Redis.

Compared to Redis in Dragonfly, with typical loads in the environment of Amazon EC2 c6gn.16xlarge managed to achieve a 25-fold increase in performance (3.8 million requests per second). Compared to the Memcached in the AWS environment, c6gn.16xlarge Dragonfly was able to perform 4.7 times more requests per second for recording (3.8 million versus 80,000) and 1.77 times more requests per second for reading (3.7 million vs. 2.1 million).

https://github.com/dragonflydb/dragonfly/releases/tag/v1.0.0

RELEASE OF GNU COREUTILS 9.2:

21/03/2023

A stable version of the GNU Coreutils 9.2 basic system utilities is available, which includes programs such as sort, cat, chop, chown, chroot, cp, date, dd, hostname, id, ln, l, etc.

https://www.mail-archive.com/info-gnu@gnu.org/msg03156.html

RELEASE OF cURL 8.0:

21/03/2023

The utility for obtaining and sending data over a curl network is 25 years old. A new major branch of cURL 8.0 has been built in honor of this event. The first release of the past line in curl 7.x was formed in 2000 and since then the code base has increased from 17 to 155 thousand lines of code, the number of command line options has been brought to 249, support for 28 network protocols, 13 cryptographic libraries, 3 SSH libraries and 3 HTTP/3 libraries. The project code is distributed under the Curl license (MIT license option).

Shortly after release 8.0.0, version 8.0.1 was released with a hot-fix leading to emergency completion in some test scenarios.

https://daniel.haxx.se/blog/2023/03/20/curl-8-0-1-because-i-jinxed-it/

RELEASE OF APACHE CLOUDSTACK 4.18:

21/03/2023

The Avache Cloud CloudStack 4.18 platform was released to automate the deployment, configuration and maintenance of a private, hybrid or public cloud infrastructure (IaaS, infrastructure as a service). The CloudStack platform was handed over to the Apache Foundation by Citrix, who received the project after the acquisition of Cloud.com. Installation packages are prepared for CentOS, Ubuntu and openSUSE.

CloudStack does not depend on the type of hypervisor and allows you to use simultaneously, Xen (XCP-ng, XenServer/Citrix Hypervisor and Xen Cloud Platform), KVM, Oracle VM (VirtualBox) and VMware in one cloud infrastructure. For user base management, storage, computing and network resources, a web-interface and a special API are offered. In the simplest case, the cloud infrastructure based on CloudStack consists of one control server and a set of computing nodes, which organize the execution of guest OS in virtualization mode. In more complex systems, the use of a cluster of several control servers and additional load balancers is supported. At the same time, the infrastructure can be divided into segments, each of which operates in a separate data center.

https://blogs.apache.org/cloudstack/entry/apache-cloudstack-4-18-0

NEWS

TRISQUEL 11.0:
22/03/2023

The release of the free Trisquel 11.0 Linux distribution, based on the Ubuntu 22.04 LTS packet base and focused on small businesses, educational institutions and home users, has been released. Trisquel is personally approved by Richard Stallman, officially recognized by the Free Software Foundation as a fully free and listed in recommended distributions. Installation images, measuring 2.2 GB and 1.2 GB (x86_64, armhf, arm64, ppc64el) are available for download. The release of updates for the distribution will be carried out until April 2027.

The distribution is notable for the exception to supplying any proprietary components, such as binary drivers, firmware and graphic design elements distributed under a proprietary license or using registered trademarks. Despite the complete rejection of proprietary components, Trisquel is compatible with Java (OpenJDK), supports most audio and video formats, including secure DVDs, using only completely free data

implementations. MATE (default), LXDE and KDE are available as desktops.

https://trisquel.info/en/forum/trisquel-11-released

PALE MOON 32.1:
22/03/2023

The release of Pale Moon 32.1, which was forked from the Firefox code base to ensure higher performance, protect the classical interface, minimize memory consumption and provide additional customization options, was announced. Pale Moon builds for Windows and Linux (x86_64) can be downloaded. 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. You can note DRM, Social API, WebRTC, PDF viewer, Crash Reporter, code for collecting statistics, means for parental control and people with

disabilities from the remote components. Compared to Firefox, the browser returned support for extensions using XUL, and the possibility of using both full and lightweight themes.

https://forum.palemoon.org/viewtopic.php?t=29594&p=237830#p237830

RELEASE OF PEERTUBE 5.1:
22/03/2023

A decentralized platform for video hosting and video broadcasting, PeerTube 5.1 was launched. PeerTube offers an independent alternative to YouTube, Dailymotion and Vimeo, an independent of individual providers, using a content distribution network based on P2P communications and linking visitors" browsers. The project is distributed under the AGPLv3 license.

https://joinpeertube.org/news/release-5.1

RELEASE OF MYLIBRARY 2.1:
22/03/2023

MyLibrary 2.1 was released. The program code is written in the C++ programming language and is available (GitHub, GitFlic) under the GPLv3 license. The graphical user interface is implemented using the GTK4 library. The program is adapted to work in Linux and Windows. A ready-made package is available for Arch Linux users in AUR.

MyLibrary catalogs book files in fb2, epub, pdf, djvu, both available directly and packed in archives, and creates its own database without changing the source files and changing their positions. Control of the integrity of the collection and its changes is carried out by creating a database of hash-totem files and archives.

https://github.com/ProfessorNavigator/mylibrary/releases/tag/v2.1

GNOME 44:
22/03/2023

After six months of development, the GNOME 44 desktop environment is available. For a quick assessment of the capabilities of GNOME 44, specialized Live-builds based on openSUSE and an installation image prepared under the GNOME OS initiative are offered. GNOME 44 is also included in the experimental builds of Ubuntu 23.04 and Fedora 38.

https://foundation.gnome.org/2023/03/22/introducing-gnome-44/

MOZILLA LAUNCHES MOZILLA.AI PROJECT FOR OPEN MACHINE LEARNING SYSTEMS:
23/03/2023

Mozilla has established a startup, Mozilla.ai, and has invested $30 million in it. The goal of Mozilla.ai is to build an ecosystem to simplify the development of credible, independent, and open projects related to machine learning and artificial intelligence. The startup intends to unite like-minded people who believe that artificial intelligence-related developments should be transparent, controlled and open.

Mozilla.ai will provide developers, researchers and product creators with a separate site, separated from large corporations and educational institutions, and allow the independent, decentralized and trustworthy ecosystem to be jointly built. As for the development, the first stage will focus on tools to improve the safety and transparency of generative machine learning models, such as the GPT-4, and to guarantee the correctness of the information they display.

https://blog.mozilla.org/en/mozilla/introducing-mozilla-ai-investing-in-trustworthy-ai/

RELEASE OF TEX LIVE 2023:
23/03/2023

The release of the distribution TeX Live 2023, created in 1996 from the teTeX project, was announced. TeX Live is the easiest way to deploy infrastructure for preparing scientific documentation, regardless of the operating system used. To download, the build (4 GB) TeX Live 2023, which contains a working Live environment, a full set of installation files for various operating systems, a copy of the CTAN repository (Comprehensive TeX Archive Network), a collection of documentation in different languages

https://tug.org/texlive/

UBUNTU 20.04.6 LTS DISTRIBUTION UPDATE:
23/03/2023

The release includes only accumulated package updates related to the elimination of vulnerabilities and problems affecting stability. Versions of the kernel and programs correspond to version 20.04.5.

The main purpose of the new release is to update the installation images for the amd64 architecture. The installation image solves the problems associated with the recall of keys in the process of eliminating the vulnerability in the GRUB2 downloader. Thus, the ability to install Ubuntu 20.04 on systems with UEFI Secure Boot has been resumed.

It makes sense only for the old equipment to use the presented build, and for new systems, the release of Ubuntu 22.04.2 LTS is more relevant. The systems installed earlier can get all changes present in Ubuntu 20.04.6 through the regular update installation system. Support for the release of updates and security patches for the server and desktop editions of Ubuntu 20.04 LTS will last until April 2025, after which another 5 years will be available within the framework of separate paid support (ESM, Extended Security Maintenance).

https://lists.ubuntu.com/archives/ubuntu-announce/2023-March/000287.html

RELEASE OF PROXMOX VE 7.4:
24/03/2023

The release of Proxmox Virtual Environment 7.4, a specialized

Linux distribution based on Debian GNU/Linux, aimed at deploying and maintaining virtual servers using LXC and KVM, and able to replace products such as VMware vSphere, Microsoft Hyper-V and Citrix Hypervisor. Installation size of installing iso-image 1.1 GB, was announced.

Proxmox VE provides means to deploy a fully finished system of virtual servers of industrial level with a web-based interface designed to manage hundreds or even thousands of virtual machines. The distribution has built-in tools for backing up virtual environments and available out-of-box support for clustering, including the ability to migrate virtual environments from one node to another without stopping production. Features of the web-interface include: support for secure VNC consoles; control of access to all available objects (VM, storage, nodes, etc.) role-based; support for various authentication mechanisms (MS ADS, LDAP, Linux PAM, Proxmox VE authentication).

https://forum.proxmox.com/threads/proxmox-ve-7-4-released.124614/

RELEASE OF THE MIDNIGHTBSD 3.0:
25/03/2023

The release of the desktop-oriented operating system MidnightBSD 3.0, based on FreeBSD with elements ported from DragonFly BSD, OpenBSD and NetBSD, was announced. The base desktop environment is based on GNUstep, but users have the ability to install WindowMaker, GNOME, Xfce or Lumina. To download, a 1 GB (i386, amd64) installation image was prepared.

Unlike other FreeBSD desktop builds, MidnightBSD OS originally developed as a FreeBSD 6.1-beta fork, which in 2011 was synchronized with the code base FreeBSD 7 and subsequently absorbed many features from FreeBSD 9-12 branches. The packages in MidnightBSD use the mport system, which uses SQLite database to store indices and metadata. Installation, deletion and search of packages is carried out using a single command mport.

https://www.justjournal.com/users/mbsd/entry/33919

PWN2OWN 2023 SHOWS 5 HACKS IN UBUNTU:
25/03/2023

The results of the three days of the Pwn2Own 2023 competitions, held annually at the CanSecWest conference in Vancouver, were summed up. Working exploits of previously unknown vulnerabilities were demonstrated for Ubuntu Desktop, Apple macOS, Oracle VirtualBox, VMWare Workstation, Microsoft Windows 11, Microsoft Teams, Microsoft SharePoint and Tesla. A total of 27 successful attacks exploiting previously unknown vulnerabilities have been demonstrated. The attacks used the latest stable releases of applications, browsers and operating systems with all available updates and in the default configuration. The total amount of remuneration paid was $1,035,000 and a car. The team that scored the most points received $530,000 and the Tesla Model 3 car.

The competition demonstrated five successful attempts to exploit previously unknown vulnerabilities in Ubuntu Desktop, undertaken by different teams of participants. The problems were caused by the double release of memory (one prize of 30 thousand dollars), an appeal to memory after liberation (one premium of 30 thousand dollars), incorrect working of indexers (one prize of 30 thousand dollars). The two demonstrations used already known, but not corrected vulnerabilities (two prizes of $15,000). In addition, a sixth attempt was made to attack Ubuntu, but the exploit did not work.

https://www.zerodayinitiative.com/blog/2023/3/23/pwn2own-vancouver-2023-day-two-results

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**
Publisher: Proactivity Press
ISBN13 : 9781916119482

Amazon US link:
https://www.amazon.com/dp/1916119484?ref_=pe_3052080_397514860

Amazon UK link:
https://www.amazon.co.uk/VirtualBox-Networking-Primer-Connecting-Configuring/dp/1916119484/ref=sr_1_1?dchild=1&keywords=virtualbox+networking+primer&qid=1600253699&s=books&sr=1-1

Kobo:
https://www.kobo.com/us/en/ebook/the-virtualbox-networking-primer

COMMAND & CONQUER

Written by Erik

Welcome back to another edition of FCM! This issue, we will look at something I have put off personally, and if you did too, it is time to sit down with the Ubuntu n00bs.

Honestly, I should have moved forward, but muscle memory...

Yes, I still use net-tools, even if it is deprecated. I don't want to have the net-tools package chat with you; instead, I want us to look at the more modern network tools that ship with Ubuntu. Rather those that ship with any modern Linux distribution.

Just like the hostname and hostnamectl commands confuse n00bs, I suppose the network commands in Ubuntu can be confusing to some, especially when you do not use them that often. On the other side of the coin, you may have old farts like me who are just more comfortable with the older commands, and do not have need for the newer ones. What I do love about the newer commands is that you can use the abbreviated forms like in CISCO IOS. ;-)

We can start with ip. Type: man ip - to me please. Here you can see that the command is broken into three sections, with help.

Now if you did not know about the shortcuts, the ip command does seem like a lot of typing, for instance here is the TL;DR page:

Who in their right mind would want to type out: ip –brief address ?? OK, we have established that I am lazy, but no more lazy than the next person – who could not be bothered using Windows or

Mac online with all its spying. Oh wait, that is most people. Anyway, the point I am trying to make is that when you see the commands that are more like stories instead of commands, which are you more likely to type?

Consider:
`ifconfig eth0 down`
vs
`ip link set eth0 down`

It is already two words more. That is two more things to remember, and you have to remember that, if you leave out

'set', it will not work. Now that I have explained my past reluctance in using the new way of doing things, let me show you around, or should I say, "stay a while and listen..."

While I am not as old as Horadric, I feel that way using old Linux commands, so let's shoot the breeze.

Type: 'ip address' and press enter in your terminal. Now type 'ip a' and press enter. What is the difference in the output? So, even

though we are typing two words, to do what one word used to do, we can shorten it to four keystrokes. Here we go, not wasting my precious time gets them bonus points. Though I did say it was like CISCO IOS, I meant superficially. For instance, we have 'ip route' and 'ip rule'. In CISCO IOS, you need to type until the command is unique. Typing: 'ip r' would give you an error. In Ubuntu, typing 'ip r' is 'ip route'. Just be aware of this difference if you have used something like CISCO IOS before.

Now, even though this is great, there is a trap here. Consider the image below.

This is great once you are salted, but when learning, this is cryptic. WTH is "l ls"? It is even worse when the font is horrible, another reason I implore you to use nerd fonts. The command is: 'ip link ls up', which tells us which adapters are up. This is great in things like firewalls or

servers, where you have more than one interface, but you may not use it at home much. As you can see from my example, the loopback interface, which is always up, is listed with my network interface in the vm, enp0s3. (You may see eth1). This will come with practice, and you should not try to remember all the shortcuts. For now, type ip link, and challenge yourself to shorten it next month, after you have used it this month. We know 'ls' is list, so de-constructing the command is not hard. This is my advice for anything, if you can do it backwards, you know it. Yes, I mean that literally.

Looking back at the man page, we will see: ip, options, object, command. Which means I can do something like this: ip a add 192.168.1.100 dev enp0s3 – Now while that may look like gibberish to an Ubuntu n00b, it will most certainly work if your network interface is named enp0s3, like

mine is. I can change my IP address with this command, but as soon as I reboot my VM, it will be back to default. Remember this, so if you are following along and you typed it, and your VM's network connection is gone, and you are unsure how to fix it, know that it is temporary. Logic tells me that if I have an add, I must have a remove. Want to venture a guess on how to "remove" the ip address you just gave your virtual adapter? Nope, it is not rem, remove nor r, it is del for delete. Recall that r is route here. This is what I want you to take away here – type out the full commands now, as a n00b, and in a month or two's time, when you shorten them, you have a grasp as to why you are doing it one way and not another.

Let's quickly look at the output I have, and I will point out another thing you may need.

```
2: enp0s3:
<BROADCAST,MULTICAST,UP,LOWER
_UP> mtu 1500 qdisc fq_codel
state UP mode DEFAULT group
default qlen 1000 link/ether
08:00:27:b4:a6:6f brd
ff:ff:ff:ff:ff:ff
```

If you do not know much about networking, that is fine, but you may run into a situation where you

have a faster or slower line than the average, and your ISP support agent may want you to change the mtu. This is your packet size (Maximum Transmission Unit) that your card transmits. Say you are out in the bundu's, and you have some wireless connection, your ISP may ask you to lower your mtu. Just like before, we can use the man page (ip, options, object, command) to change it. I would type ip l set mtu 1100 dev enp0s3
• That is ip link (as we will be fiddling with the link)
• The set command – as we will set something, in our case, the mtu
• The new value
• And lastly the device we wish to act upon.

If all this made sense to you, great! If not, please go ahead and play with the ip command. If you would like me to broaden this penny tour, let us know at misc@fullcirclemagazine.org

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.
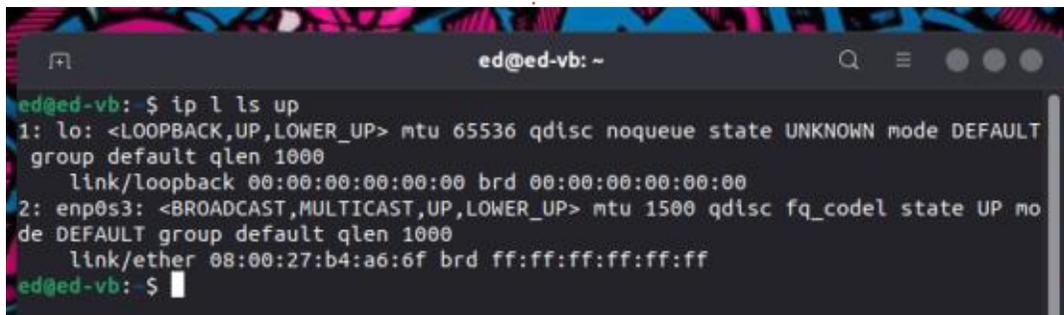

```
ed@ed-vb: ~                          Q  ≡  ● ● ● ●
ed@ed-vb:~$ ip l ls up
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN mode DEFAULT
group default qlen 1000
    link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00
2: enp0s3: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc fq_codel state UP mo
de DEFAULT group default qlen 1000
    link/ether 08:00:27:b4:a6:6f brd ff:ff:ff:ff:ff:ff
ed@ed-vb:~$
```

When a friend of mine saw last month's article, he asked if I could do something on Midi. I thought that would be a fun article, so here it is…

Let's take a quick look at the history of Midi.

Way back in 1981, the first MIDI standard was created. In 1982, the Prophet-600 synth was the first synth to feature the standard. MIDI was designed as a method for connecting various pieces of electronic musical equipment. And it's done the job pretty well for over 40 years.

The original spec was to use 2 5-pin DIN connectors, one for input and one for output. That was changed to allow a Thru port, which takes the input data and sends it directly out to other equipment. These days, this has been extended again to support USB ports.

Midi is all about messages. There is no actual audio or sound sent by MIDI. Let's take a look at the types of messages sent.

When you press a key on a midi keyboard, the controller in the keyboard sends an event message that not only has the pitch of that key, but it tells the sound module (synth) to start playing the note. Once you let up on the key, another message to stop playing that note. There are also messages that correspond to the velocity (how hard the key was "hit"), the aftertouch or how hard the key was held down, the pitch bend, pan, modulation, volume, and any other controllable functions.

MIDI supports a total of 128 notes which range from C five octaves below middle C to G ten octaves above middle C. It also supports 16 channels (for 16 separate devices), as well as 128 patches (or programs), MIDI clock pulses, and timing sync signals between the various pieces of equipment. In addition to all of that, there are System Exclusive (SysEx) messages that are designed to send messages specific to a manufacturer's equipment that contain a manufacturer specific ID and commands that can be safely ignored by devices not of the manufacturer's product list. You can see that MIDI is a rather busy protocol.

I went out on the Internet searching for Python libraries that handle Midi and I found a number of them. The best one looked to be a package called Mido. The github repository can be found at https://github.com/mido/mido.

```
python3 -m pip install mido
```

You will also need Fluidsynth if you want to listen to the midi files.

```
sudo apt-get install fluidsynth
```

You also need to have at least one soundfont file for Fluidsynth. These files contain information on each of the instruments that the midi file should play. You can check your /usr/share/sounds/sf2 folder for these files. The most popular file is named FluidR3_GM.sf2 and the GM stands for "General Midi". If you don't have them, check your software manager or the Internet. Most of them are available for free.

I then decided to throw together a quick program that will look for certain messages, capture that data, and finally print them out. These messages are called meta messages and carry information about the name of the track (which often holds the name of the instrument, but not always), the tempo of the song, the key signature, the time signature, and more.

I named the program mido_test.py just as a test bed. While the code shows the "default" midi file to work with is "cantaloop.mid", the output examples will use the file "Bob_Seger_Turn_The_Page.mid". It is a good example of how a Midi file can be used for more than just music.

It turned out that it worked well enough that I felt ok using it as a demo. As always, we start with the import section of the program.

HOWTO - PYTHON

```python
import sys
import os
import subprocess
import mido
from mido import MidiFile,
Message, tempo2bpm

import shared
```

Notice I import a file called shared. If you are not familiar with this trick, it's simply an empty file named shared.py that is used to limit the number of globals used in a program and to share variable data between different program modules. We have only one module, but it's a neat trick, so I used it this time.

Next we have the main function called work_it() shown top right.

We start by calling a function called ports that mido uses to determine where to send the midi data, assuming we use that portion of the library. I don't, I send the data directly to Fluidsynth, but we'll see that later on.

Then, we define the filename of the midi file we are interested in, and pass that to the MidiFile function of mido and get back an object called mid.

We set the outport for the mido library, then we set up the shared variables. You need to initialize any shared variables before you try to read them, so I set everything we might possibly use in this function.

```python
    outport =
"TiMidity:TiMidity port 0
128:0"
```

```python
setup_vars()
```

Next, we send the mid object to the parse_midi_file function that will grab each message, and if that message is a meta message, it will grab the information. Only some of the messages really have information that I wanted, but I do look at all of the meta messages that come through.

Once the file has been read, I print out the tempo, time signature, key signature, the information for each track, and the length of the song in minutes/seconds (shown middle right).

Finally, the midi file is sent to Fluidsynth for it to play the midi file. I use subprocess to send it out. Easy, but it does create a blocking call. If you want to terminate the play function, simply do a <Ctrl> C in the terminal window (bottom

```python
def work_it():
    ports()
    filename = "cantaloop.mid"
    # filename = "Fantasy.mid"
    # filename = "Moondance.mid"
    # filename = "MARS11=1.mid"
    # filename = "Bob_Seger_Turn_The_Page.mid"
    mid = MidiFile(filename)
```

```python
    parse_midi_file(mid)
    print(f"{shared.tempo=}")
    print(f"{shared.time_signature=}")
    print(f"{shared.key_signature=}")
    print(f"{shared.tracks}")
    songlength = mid.length
    print(f"Song length: {int(songlength/60)} minutes,
{int(songlength%60)} seconds.")
```

```python
    sound_font = "FluidR3_GM.sf2"
    subprocess.call(
        [
            "fluidsynth",
            "-a",
            "alsa",
            "-m",
            "alsa_seq",
            "-i",
            "-g",
            "0.2",
            sound_font,
            filename,
            "-r",
            "44100",
        ]
    )
```

right).

You need to pass the name of the soundfont file that contains all the instruments that Fluidsynth will use to play the midi file.

Now we will look at the setup_vars function. Again, this sets up the different variables. I'll only include a short snippet of the function here (next page, top right).

Now for the important function, the parse_midi_file() function. Again, I'll only include a portion of the function for brevity (middle right).

We use the mido library to step through each message in the Midi file. There are only a few messages that I was interested in when I designed the program. One of them is the track_name message (bottom right).

Here is what the message itself looks like when mido passes it back.

```
mesg="('track_name',
name='Soft karaoke', time=0)"
```

```
mesg="('track_name',
name='Electric Piano',
time=0)"
```

Notice that while the track name contains the name of that track, it doesn't necessarily contain the actual instrument name that the soundfont uses. That comes from a non-meta message called program_change. In addition, you need to check another message called control_change as well, just in case the instrument is in a bank other than bank 0. (I know this doesn't make much sense without a whole lot of explanation on the midi format and the soundfont format as well. Maybe we'll look at those in a future article).

Anyway, you can see I convert the actual message to a string, then parse the string to pull out the information that I'm interested in.

Another message that I was interested in is the tempo or number of beats per minute of the song. The midi format specifies that the tempo is saved as the number of microseconds per quarter note. Luckily, mido provides a function called tempo2bpm to convert this to "human readable" information (bottom left).

```python
def setup_vars():
    shared.trackname = ""
    shared.tracknumber = ""
    shared.tracks = []
    …
    shared.tempo = ""
    shared.midi_port = ""
    shared.time_signature = ""
    shared.key_signature = ""
    shared.sequencer_specific = ""
```

```python
def parse_midi_file(filedata):
    for i, track in enumerate(filedata.tracks):
        for msg in track:
            if msg.is_meta:
                mesg = str(msg)
                mesg = mesg[11:]
```

```python
            if "track_name" in mesg:
                pos = mesg.find("name=") + 6
                pos2 = mesg.find("'", pos + 1)
                tn = mesg[pos:pos2]
                print(f"Track: {i} Name: {tn}")
                trackinfo = [i, tn]
                shared.tracks.append(trackinfo)
```

Time signature is also a message I was interested in. This is normally seen as a fraction that shows how many of a particular note value are contained in each measure. For example, if the time signature is 4/4, that means that the measure can hold up to 4 quarter notes (one per beat). It also means that if the measure has a whole note it will

```python
        elif "set_tempo" in mesg:
            # Tempo is in microseconds per beat (quarter note). You can use
            # :py:func:`bpm2tempo` and :py:func:`tempo2bpm` to convert to and from
            # beats per minute. Note that :py:func:`tempo2bpm` may return a floating
            # point number.
            pos1 = mesg.find("tempo=") + 6
            pos2 = mesg.find(",", pos1)
            tempo = mesg[pos1:pos2]
            timesig = (4, 4)
            # print(f"tempo={tempo} - timesig={timesig}")
            bpm = int(mido.midifiles.tempo2bpm(int(tempo)))
            print(f"Track: {i} - tempo: {bpm}")
            shared.tempo = bpm
```

take all 4 of the beats. If you are old enough to remember the song Money by Pink Floyd, that song has a time signature of 7/4, which means there are 7 beats (quarter notes) in each measure. We have to obtain the numerator and denominator to use this information (top right).

The final message I was really interested in was the key signature, which is used to determine how many sharps or flats there are in the scale for this song. A key of C, means that there are normally no sharps or flats, so the scale is C, D, E, F, G, A, B. If the key is G, that means that there is one sharp in the scale, so it would be C, D, E, F#, G, A, B (middle right).

Yes, most of this information is really interesting to only a musician, but I am one, so it's important to me. No apologies.

After I got the parsing function done, I threw together a GUI version of the program that looks something like that shown bottom left.

This gives me the ability to choose the midi file I'm interested in and see the track names, song

```python
elif "time_signature" in mesg:
    pos1 = mesg.find("numerator=") + 10
    pos2 = mesg.find(",", pos1)
    pos3 = mesg.find("denominator=") + 12
    pos4 = mesg.find(",", pos3)
    # print(f"{pos1}-{pos2} = {pos3}-{pos4}")
    num = mesg[pos1:pos2]
    denom = mesg[pos3:pos4]
    tsig = f"{num}/{denom}"
    print(f"Track: {i} - Time Sig: {tsig}")
    shared.time_signature = tsig
```

```python
elif "key_signature" in mesg:
    pos1 = mesg.find("key='") + 5
    pos2 = mesg.find("'", pos1)
    # print(f"{pos1}-{pos2}")
    keysig = mesg[pos1:pos2]
    print(f"Track: {i} key_sig: {keysig}")
    shared.key_signature = keysig
```

Midi Info version 0.1.2 - Moondance.mid

Tracks:
```
1 - MOON DANCE
2 - C2-P28-Clean Guitar
3 - C3-P67-Saxes
4 - C4-P33-Bass
5 - C5-P12-Lead Vocal
6 - C6-P74-Flute
7 - C10-Drums & Percussi
```

Song Length:	4 minutes, 36 seconds.
Time Signature:	4/4
Key Signature:	C
Tempo:	130
Midi File Type:	1

Midi Info version 0.1.2 - MARS11-1.mid

Tracks:
```
0 - MARS HOLST THE PLANETS
1 - Data
2 - Piccolo
3 - Flutes
4 - Oboes
5 - English Horn
6 - Bass Oboe
7 - B-flat Clarinets
8 - Bass Clarinet
9 - Bassoons
10 - Contrabassoon
11 - French Horns
12 - French Horns
13 - Trumpets
14 - Trumpets
15 - Trombones
```

Song Length:	7 minutes, 5 seconds.
Time Signature:	3/4
Key Signature:	C
Tempo:	76
Midi File Type:	1

length, time signature, etc. easily, in one quick glance, as well as play the file if I want. I used a scrolled listbox to hold the track names for songs that have many tracks, like the Mars midi file.

The Mars midi file uses 27 (28 if you consider track 0) different tracks and instruments. In addition, there are many tempo changes as well.

I've included the GUI file source as well as a few sample midi files in the repository.

Admittedly, Midi is a very old format and many of the free and publicly available files out there on the Internet are either incomplete, klutzy and badly done, don't correctly follow the format, or a combination of all three. However, there are lots available that are very well done.

You might ask why anyone would bother, since MP3 and WAV files are so readily available. I for one, use the midi files as what are called "backing tracks". With Midi, and a proper player, you can turn off any of the tracks so they don't play so you can practice vocals, keyboards, drums, guitar, or any other instrument for a song. Many beginner musicians and semi-professionals use this while the rest of the band is not available. With the proper software, you can vary the speed, change the key of the song without affecting the timing of the notes, and much more. So while Midi is not quite as popular any more, it still is a very powerful tool for musicians.

One of the things that I REALLY enjoy doing (when I have some free time) is to load a midi file in LMMS and change the instruments for some of the tracks. I've done some very interesting things with midi files for Mars (by Gustav Holst (actually ALL of the available Planets files)), and for Pictures At an Exhibition by Modest Mussorgsky way back in 1874. If you are a fan of artists like Isao Tomita or Wendy Carlos (Switched on Bach), you can change the instruments into really strange, but enjoyable pieces of work, without having to touch a keyboard. If you don't know what LMMS is, check out Full Circle Magazine issues 165 to 173 (January 2021 to September 2021) written by our own ErikTheUnready. They are a great introduction to using LMMS to create electronic music! (Thank you Erik!)

You can find the code at my repository at https://github.com/gregwa1953/FCM-191 .

End note: If you have issues with not being able to play midi files on your system, you might try to install the FluidSynth Midi Synthesizer plugin for VLC and/or TiMidity which, according to the website (https://timidity.sourceforge.net/#info)... "TiMidity++ is a software synthesizer. It can play MIDI files by converting them into PCM waveform data; give it a MIDI data along with digital instrument data files, then it synthesizes them in real-time, and plays. It can not only play sounds, but also can save the generated waveforms into hard disks as various audio file formats."

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

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This is the first of several articles on Stable Diffusion, a graphics program that uses artificial intelligence to create exciting and creative graphics. At its core from the viewpoint of a newbie, Stable Diffusion (SD) is a program which can create graphics of various types from text or prompts. Understanding how and why it works is unnecessary. It requires very little knowledge to get started, although the output, while almost always interesting, is somewhat uncontrollable with first attempts.

Stable Diffusion (SD) comes in various flavors and options, some are Internet based, which generally make a transition from free as in beer, to free as in speech. A browser-based user interface appears to be the norm. The free downloadable version peaked my interest initially, and is usable with the most computer hardware. Speed of graphic generation is dependent on hardware, ideally an NVIDIA card with VRAM. Thus limited capability is reflected in generation time and size (512 x 512 px by default.)

I started with the NMKD SD (https://nmkd.itch.io/t2i-gui) on a Windows desktop, and I wondered about using my Ubuntu Studio laptop. When I saw another very simple installation, I downloaded it to give it a try. My desktop was more capable than the laptop but didn't have a supported graphic card either.

Installation is very easy. Go to the Stable Diffusion UI v2 website (https://stable-diffusion-ui.github.io/), select the download button and follow the simple instructions. After downloading the installer file, extract it, go to the created folder (the download folder by default) and open a terminal window in that directory and run:

```
./start.sh (or) bash start.sh
```

It will begin downloading everything needed, about 10.2 GB and opens Firefox or a tab if already open. By default the generic prompt opens "a photograph of an astronaut riding a horse" which will be created by clicking on the Make Image button as noted on the opening instructions. (To uninstall, simply deleting the stable-diffusion-ui folder) Closing the application, the browser tab and restarting will automatically upgrade the installation with the newest version – currently 2.5.22, thus a reason to not run it continuously.

Now that you have it working, what can you do with SD? It is a bit daunting at first but trying out a few options and prompts is easy enough. I will expand on the user interface in another article but you can simply type in "penguin" in the Enter Prompt area and click on Visual Style below the Image Modifiers (Art Styles, tags, etc) area, select Art Nouveau (or other option) by clicking on the PLUS sign when your cursor is over the Art Nouveau option. Then click on the Make Image button. The result is interesting if not impressive. Generated images can be

automatically saved via the Settings tab at the top of the Easy Diffusion window.

You soon begin to wonder exactly how difficult it is to create graphics that are more impressive, especially for those who think they have limited artistic abilities. Open art (https://openart.ai/) is a great place to start, it allows you to "Search 10M+ of prompts, and generate AI art and AI images via Stable Diffusion" and other similar software like DALL·E 2. If you need inspiration, you will find it there. They also provide information in a downloadable PDF book: (https:// openart.ai/promptbook). SD has already been used to create Plasma Desktop Wallpaper which you can find using Discover and searching for Stable Diffusion. Keep in mind that a prompt not written for SD may not give you the same results as shown. A warning - you might not want to start looking at this if you have limited time.

I used the prompt "penguin on surfboard holding sign" to create a graphic I modified with the text FCM at the top and Stable Diffusion at the bottom. The penguin is a graphic partially on the surfboard although I had wanted it riding the

surfboard. There were three letters initially at the top which I deleted and used Inkscape to add the text shown. I will provide a deeper understanding and further information next time, including an analysis of the user interface.

I am providing another graphic generated SD with the same intent to show how it interpreted what I was thinking "penguin standing on skateboard with sign and ocean background" in an unexpected manner. Using SD is clearly a science and an art.

I collect postage stamps. Stamps are collected and displayed in stamp albums much like printed photos used to be stored and displayed in photo albums. In stamp albums, each stamp issued by a country is allocated space. That space is usually indicated by a black line around it. Often there is a short description of the stamp's contents, its colour, and other distinguishing marks. Sometimes, it is necessary to make a new page for the album to contain a special issue or an issue not included by the manufacturer of the album.

For shows and exhibitions, collectors will build a display around a particular theme or special interest; for example, the various cancellation marks issued by one post office for the last hundred years, or the variations in a particular issue due to differing manufacturing restraints in war time. These special displays require custom display pages. These custom pages can include space for both the stamps, and text describing the stamp's special features or features of interest.

These custom pages can be made in word processors which can be fairly straightforward or difficult, depending on the word processor. They can also be made in software designed for image editing or desktop publishing. Again this can be straightforward or difficult, depending on the software and the abilities of the user. We will attempt the same in Latex / Tex.

We will try to generate a page with a couple of places for special items. I will think of them as stamps but you can think of them as places for images of any kind or any other kind of content. Each place for the stamp will have a border around it of one point (a "point" is a typesetter's measure, there are almost exactly 72 points to an inch). In addition to the boxes for the stamps (or images) there will be captions under the boxes. We also need to have one or more places where text can be inserted.

This work could be done with Latex tools we have already discussed: tables and graphics. Tables could be used for the boxes.

Captions could be put into the row under the main box. Unlike word processors, tables in Latex can be placed beside one another. We could also make an image the desired shape and size, or even make only one image and use features in Latex to set the height and width of the box. Images can have captions of course. Rather than reusing some of what we have already learned, we are going to explore other features in Latex. We are going to play with Tex boxes, and the many ways this primitive tool can be controlled.

The starting point is the following:

```
\documentclass{article}
\usepackage{inputenc, graphicx}
\begin{document}
    \fbox{inside the fbox}
\end{document}
```

The fbox makes a box enclosing the text and puts a single line frame around it. The frame is 0.2pt thick, by default. The text is 3pt away from all four frame lines. It is easy to use, but it is difficult to specify the size of the fbox .

A better element to use is framebox. Its syntax is: \framebox[width][position]{text}. The [width] option dictates the width of the box and the [position] parameter sets the position of the text inside the box. Width uses standard length units, position uses l, c, r and s – the last is for stretched. Stretched is similar but not identical to fully justified.

To set the thickness of the frame, we need to use setlength and fboxrule before using framebox. To change the distance

```
\documentclass{article}
\usepackage{inputenc, graphicx}
\begin{document}
    \setlength\fboxrule{1.0pt}
    \setlength\fboxsep{20mm}
%Stamps are measured in mm, 20mm from frame at top and
20mm from frame at bottom gives 40mm.
    \framebox[25mm][c]{Issue 8}
\end{document}
```

between the text and the frame, use fboxsep also with setlength.

This will generate a frame which is 25mm wide and 40mm high, with "Issue 8" in the center. Now we have to find the tools to position the frame in the correct location on the page. Using the code above will put the frame at the left margin.

Putting the framebox inside a minipage allows for much greater control of the position of the framebox. Here is the revised code – after adding a few more bits and pieces.

Figure 1: Issue 8
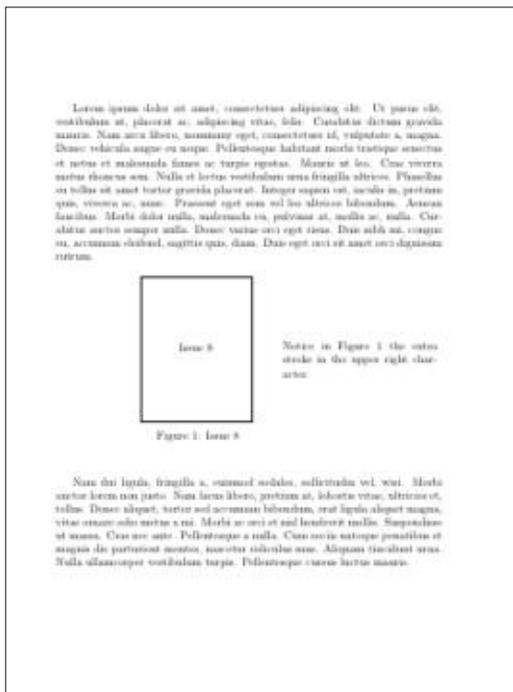
```
% Sample stamp display page in LaTeX
\documentclass{article}
\usepackage{graphicx, caption, lipsum}

\begin{document}
%\lipsum[1] requests 1 paragraph of simulated text.
    \lipsum[1]

%Two line breaks required to keep last line of simulated text with second last line.
\bigskip
%\bigskip adds empty space between paragraph and frame

    \hspace{2cm}    \begin{minipage}{0.3\textwidth}
%\framebox(xdimen,ydimen)[position]{text}
        \framebox(35mm,45mm)[c]{Issue 8}
        \captionof{figure}{Issue 8}
        \label{fig:nature}
    \end{minipage}
    \hspace{0.05\textwidth}
    \begin{minipage}{0.4\textwidth}
    Notice in Figure \ref{fig:nature} the extra stroke in the upper right character.
    \end{minipage}
%Requires two line breaks to put space between box – caption and the next paragraph.

\vspace{1cm}
\lipsum[2] %Requests second paragraph of simulated text.
\end{document}
```

I have put comments in the code to help guide you. Anything that starts with a percent sign is a comment in Latex / Tex.

It is supposed to be possible to alter the thickness of the line around the box but I have not been able to do so when using framebox in a minipage. If I use fbox in a minipage, I can change the line's thickness but then it is not possible to have a caption.

Next issue, I plan to show off some of Latex's abilities to format mathematical expressions. Following that, I hope to show you some of its features for drawing chemical formulae.

As usual if you have any questions about Latex, send them in, and I will do my best to find answers for you. Have fun with Latex. It is a very powerful typesetting application with a steep learning curve.

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/

It's hard to believe that I'm now onto my third article about the changes and additions that Inkscape 1.2 brought to the Fill & Stroke dialog, yet there's still plenty to write about. I love that: this dialog is one of the most frequently used parts of Inkscape for almost any workflow, so the fact that the developers have chosen to put some serious effort into improving it should bring benefits to every user. Previously, I looked at the new color pickers and the return of a gradient editor. Now it's time to turn my attention to the changes in the Stroke Style tab. Let's begin by comparing the old version, 1.1 (below left) to the new version, 1.2 (below right).

I sense you may be a little disappointed with that grand reveal. On the surface little has changed. The Markers buttons now show a thin line when no marker is selected, and the order of the Join buttons has changed to better match that of the Cap buttons, but otherwise things are about the same, right?

In truth, there have been two significant additions to this tab, but they both hide behind pop-up menu buttons. The first is the Dashes pop-up, which now shows as a two-column list, making it easier to see all the dash options at once, especially on smaller screens.
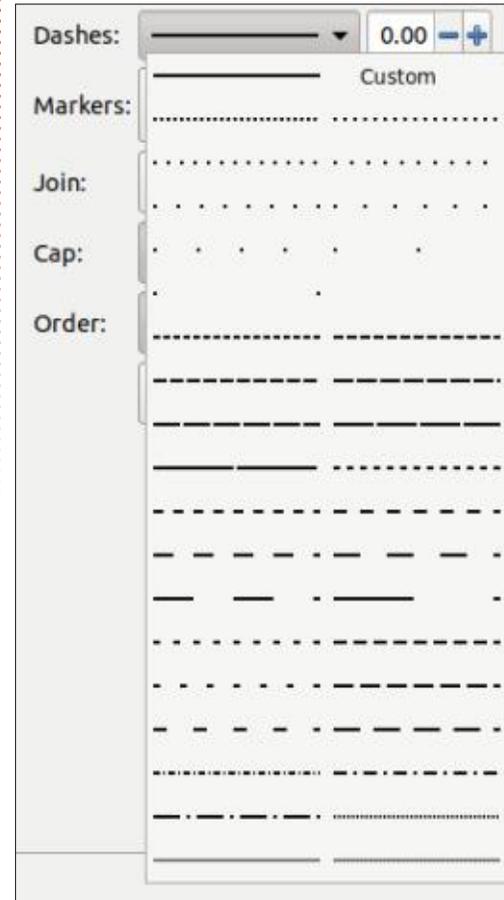
While I like the idea of a two-dimensional display for the dashes, I'm not sure the current arrangement works terribly well. The 'order' of the entries runs along the rows first, rather than the columns. This makes it difficult to see the relationship between groups of patterns that were previously vertically adjacent to each other. Using a column-first order would have been a better choice, I think. Better still would be to take the new design a step further with a three-column layout: one for dots, one for dashes, and one for mixed patterns.

The Custom option, which used to live at the bottom of the list, has been promoted to the top – and with good reason. In earlier versions of Inkscape, this was a misleading option to say the least. It was more of an output than an input; an indicator, rather than a control. If you were to load an SVG file with a custom dash pattern, then Inkscape would switch to this option in the UI. But manually selecting it for your own Inkscape-drawn lines did nothing, and certainly didn't allow you to create a custom dash pattern (other than via a trip to the XML editor). That has now changed, and selecting this option expands the fields in the dialog a little, adding a 'Pattern'

field.

The content of this field needs a little explanation, if you're not intimately familiar with the way dash patterns are defined in SVG. It takes a series of space separated numbers. The first number is the length of the first dash (or dot – which is really just a small dash in this case). The second number is the length of the space that follows it. The third is the length of the second dash, and the fourth is the space that follows that. And so it continues, with odd entries defining the lengths of the dashes, and even entries defining the length of the spaces.

Fortunately there is a shortcut built into the spec to make your life a little easier. There's no need to list enough entries to cover the entire length of your path: the pattern is automatically repeated for you. Entering '1 2 3 4' is exactly the same as entering '1 2 3 4 1 2 3 4 1 2 3 4…'. But this also has a significant effect if you enter a series with an odd number of entries: this automatic repeating

means that it's the same as entering a series with an even number, in which the second half is a duplicate of the first. So '1 2 3' becomes '1 2 3 1 2 3…'. The significance of this is that any odd entry in the first half (denoting a dash) turns into an even entry in the second half (denoting a space), and vice-versa.

From this you might have worked out that the simplest dash pattern is just a single number. '5', for example, would actually be equivalent to writing '5 5 5 5…' - i.e. a series of equally sized dashes and spaces, each 5 units in length.

Ah yes, the units. You may have noticed that all my examples have been simple numbers with no units. The SVG spec states that the numbers are all in 'user units', which should relate to the viewBox used in the SVG. Unless you've been messing around with that in the Document Properties dialog, Inkscape will generally set the viewBox dimensions to be the same as the document size. So if your document is defined in mm (e.g. an A4 page), then each 'user unit' will be 1mm. At least that's the theory. But, in practice, it doesn't seem to work like that, so you're probably

best just using a bit of trial and error to get the parts of the pattern to be the lengths you want.

The SVG spec also supports percentages in the dash pattern, but Inkscape does not appear to do so. Percentages are actually less useful than you might expect for this purpose. It would make sense for percentages to be based on the length of the path segment. That would allow you to enter a single value of '20%' in order to get three equal length dashes (with two matching spaces between them), which exactly fills the length of the path. But for reasons that I can't fathom, the SVG spec uses the size of the viewport (i.e. the window) as the basis for calculating percentages, making them practically useless, in my opinion.

There's a workaround for that limitation, in SVG terms. You can add a 'pathLength' attribute to a <path> element which tells the renderer to override the actual path length when performing some calculations – such as defining the dash pattern. By setting pathLength to 100, any values entered in the dash pattern should therefore work as percentages. Here's an example SVG file which draws a 90 unit long path, but uses pathLength to tell the browser to treat it as 100 units, so that the dash pattern value (in the 'stroke-dasharray' attribute) is effectively treated as 20% of the path length.

The top line is the output when this path is rendered in Firefox. You can see that there are three equally

```
<svg viewBox="0 0 100 10" xmlns="http://www.w3.org/2000/svg">
  <path d="M5,5 h90" stroke="red" stroke-dasharray="20" pathLength="100" />
</svg>
```
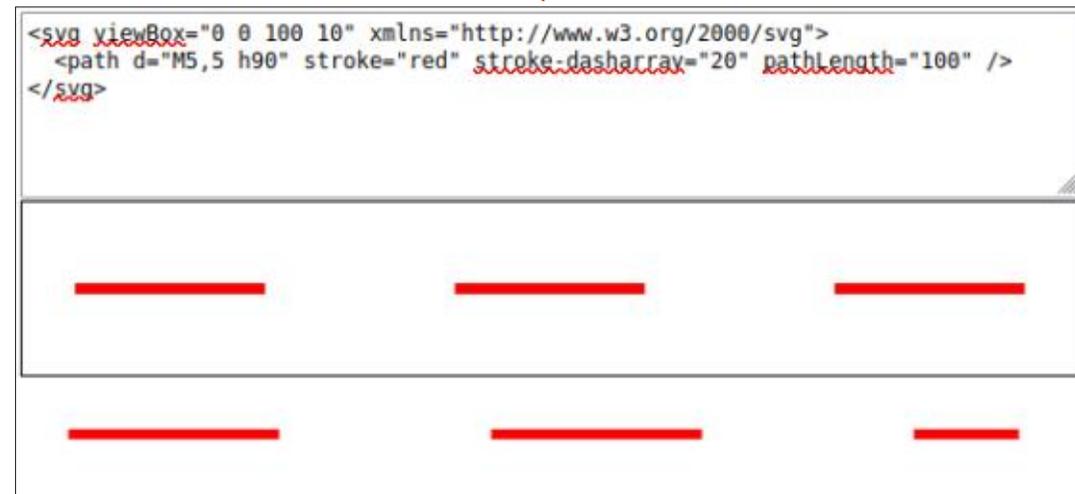
sized dashes, with two equally sized spaces between them, as expected. The bottom line is the same file rendered in Inkscape. The pathLength attribute is ignored, so the pattern does not fit exactly into a 90 unit path, resulting in longer dashes and spaces, with the last dash being cut-off. It's a real shame that this attribute isn't honoured in Inkscape, as it's the only way to create dash patterns that always fit the path exactly. For now you're stuck with some trial and error in the dash pattern field, and you'll have to resign yourself to repeating the process any time the path length changes.

You may have noticed that the dash pattern always starts with a value for the first dash, with the first space coming after it. What if you want your pattern to start with a space, followed by a dash? There's no way to specify that in the pattern itself, but the spinbox to the right of the Dashes pop-up button lets you apply an offset to the rendering of any dash pattern, whether it's one of the built-in options or a series of your own devising. This can be used to nudge your pattern forwards or backwards to make it start with a space rather than a dash (or,

indeed, with a half-dash or quarter-space, or any other adjustment you care to make).
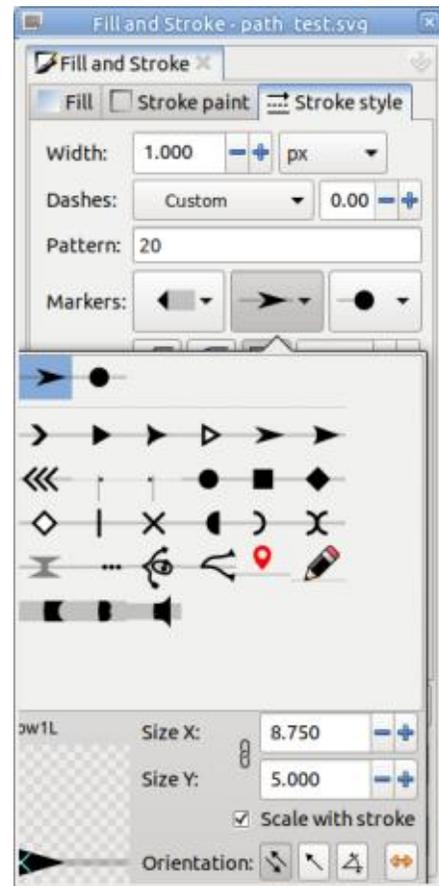
Moving on from dashes, the pop-ups for the start, mid and end markers have also seen a major overhaul in version 1.2, turning markers into a hugely more versatile tool than they previously were. Unfortunately, if you're on a small screen, you might find a bit of a problem with the new UI. My

personal preference for dialogs is to have them floating in separate windows, rather than docked to the main window. This goes doubly for a small screen, as it gives me the ability to move them out of the way easily or, courtesy of my window manager, to 'shade' them (i.e. collapse them to just the title bar) when I'm not actively using them. But if you try to open one of these pop-ups when the Fill & Stroke dialog has been reduced to its smallest practical size, you will find that many of the controls are cut off.
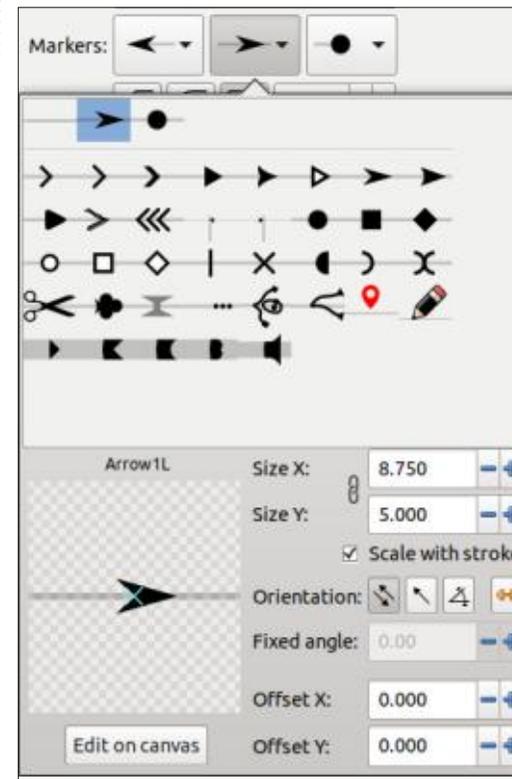
The only workarounds for this that I've found are to either make the dialog larger, or to dock it at the side of the Inkscape window. In either case, clicking one of the marker fields will open the full pop-up.

Until you select a marker type, the bottom half of the dialog will be disabled. The first icon, at the top-left of the pop-up, is always just a thin gray line. This is the 'no-marker' option, and is the thing to click if you wish to remove the current marker selection. Following that, on the top line, is an entry for each marker definition that is currently used in the document. This makes it much easier to re-use the same marker for the start and end of the line, or to maintain consistency throughout a document. Do note, however, that using this option will 'link' all the uses of that marker to a single reference in the SVG; if you subsequently edit one of the markers (see below), all the linked versions will also change. For that reason it's often best to choose your marker from the lower part of the palette, not from this 'currently used' section, if you think there's any chance you might want to edit

any of the markers later. This section will wrap onto multiple lines, if necessary, and is also where you'll find any custom markers you've created using the Object > Objects to Marker menu entry.

Below a horizontal separator that, oddly, doesn't stretch to the full width of the pop-up, you'll find the complete set of markers that are built into Inkscape. Unfortunately, I haven't been able to find a practical way to edit this collection. If you need to use the same custom markers regularly, the best approach seems to be to create your own default SVG file or template which contains them.

There are some interesting things to note about the marker icons in this section. The first is that each is presented with an associated gray line. This represents the stroke of the path on which the marker will be applied, and carries a couple of useful bits of information: the relative size of the marker compared with the line (e.g. those on the last row are the same width as the stroke thickness, so appear more like line caps than markers), and the position of the marker relative to the line (e.g. the pencil is

offset to one side of the path).

It's also worth noting that the position of each icon on the gray line, and the direction the marker faces, will be different depending on whether you're selecting a start, end, or mid marker. For example, with mid markers, the gray line passes right through them, whereas for the others, the icon shows the marker placed at the appropriate end of the line. This is a subtle bit of UI design, but it helps to make more sense of how the final marker will appear in your document.

Once you've selected a marker, the bottom section becomes enabled to allow you to edit it to some extent. The options are mostly self-explanatory, and the preview pane on the left gives you a good idea of what the end result will look like as you play around with the spinboxes. The 'Orientation' buttons in the middle are worth some extra explanation, though.

These all deal with which direction the marker will face in. For some shapes, such as circles, these will make little or no difference. But for something like an arrow head, these buttons are essential to

ensure that your markers point in the right direction.

The second button is the simplest to explain: this makes the marker point in the direction of the path, from start to end. With this enabled, using an arrow head as a start marker will show it as pointing in the direction of the path's end, which is probably not what you want in this case. For mid and end markers, however, this is usually likely to be the best choice.

The first button behaves similarly, but flips the direction by 180° for start markers. If you find your start maker is pointing the wrong way, switch between the first and second buttons as necessary. Initially you might think that the last button is the right one to use in this case, but it's probably not. That button flips the actual path definition, not the way it's used in one specific instance – which means it also flips the direction of any other uses of that marker within the document (i.e. if you selected the same entry using the 'current document' line of markers at the top of the pop-up).

The third button simply allows you to specify a fixed angle for the

marker. Note that this is an absolute angle, not relative to the path direction. For example, if you set this to -90° to make mid-marker arrows point upwards, they'll point directly upwards for every node, regardless of the twists and turns of your path. If you actually need a marker to run at an angle that is relative to the path direction, rather than the page, you'll need to create your own marker that is suitably oriented, use Object > Objects to Marker, choose it in the pop-up, and make sure to use the first or second button in this section.

In the bottom-left of the pop-up is an 'Edit on canvas' button. Click this and the on-canvas version of the marker will gain some basic editing handles. If you have multiple mid markers, these handles will appear on the first one. Using any of the three square handles you can resize the marker (hold Ctrl to scale proportionately); the circle is used to rotate it; the diamond in the middle can be used to move it, adjusting the offset from the path.
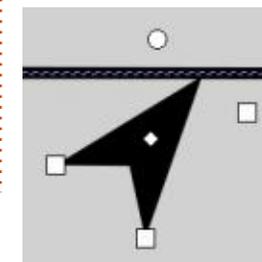
This will usually be a more intuitive way to adjust the size, position and rotation of the markers. Note that adjusting the rotation will automatically switch the 'Orientation' option to the third button, so steer clear of that circular handle if you need your marker to follow the direction of the path.

Finally, a note on color. SVG2 defines two keywords, 'context-stroke' and 'context-fill', as a shorthand for the stroke and fill color of the current object, respectively. Many of the markers make use of these to determine what color(s) should be used to render them. As a general rule, arrows and terminators tend to follow the stroke color (which is usually what you want), while the markers which appear with a white fill in the pop-up also use the fill color (which may not be what you want at all). If you wish to use different colors for your markers, you'll need to dig around in the XML editor, find the marker definition, then drill down to the path itself (or some other part of the design, as needed) and modify the style attribute. It's not for the faint-hearted, so make sure you save a backup of your file before

you start messing around with the XML editor like this.

A particularly fine example of the context-stroke keyword at work is in the marker that looks like a pencil. This combines the keyword with some translucent panels in order to create a pencil whose body matches the stroke color of your path, but which still has some shadows and highlights based on that same color.

At the opposite end of the spectrum is the marker that looks like a location pin from a mapping site. This is hard-coded to always be red. If you want it to match your stroke color (or fill color), find it in the <defs> section of the XML editor, drill down to the path that's inside the <marker> element, and change the 'style' attribute so that the 'fill' property is 'context-stroke' (or 'context-fill') instead of

'#ff0000'. As an example, here is an image in which I've set the start marker to a fill color of 'context-stroke', left the mid marker as the default red, and set the end marker to a hard-coded value of '#009900'.

These new features in the Fill & Stroke dialog initially seem like small changes, but I'm sure you can see that they open up a lot of the possibilities that SVG offers, but which were previously hard to use within Inkscape. It's a shame that changing the colors of markers requires a trip to the XML editor, and the technical knowledge that comes with that, but most users probably won't need that level of control anyway.
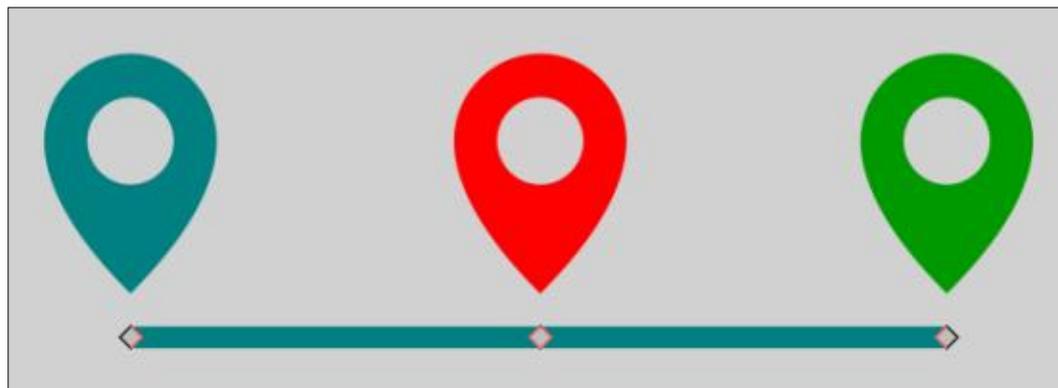
So, you've got your plate with four holes? Good. Now I'll bet you did those additional two the same as the other two? Well, let me show you another, quicker, way.

Here's my two additional holes.

I'll select the outline of the one 05mm constrained hole, then the two new ones. Now select the equals icon. That's them set to the same diameter. So now changing that one circle will change the diameter of all four.

To set them in place, I'll use a new thing: constrain horizontally/vertically. No, not the ones we used last time as they're for distance. I'll select the center point of the top-left circle, then the center point of the top-right one, and click the constrain horizontal icon. Just looks like a red minus-sign.

So now those two circles are lined up. If I do the top-right and

Constrain horizontally

Create a horizontal constraint on the selected item
(Sketcher_ConstrainHorizontal) (H)
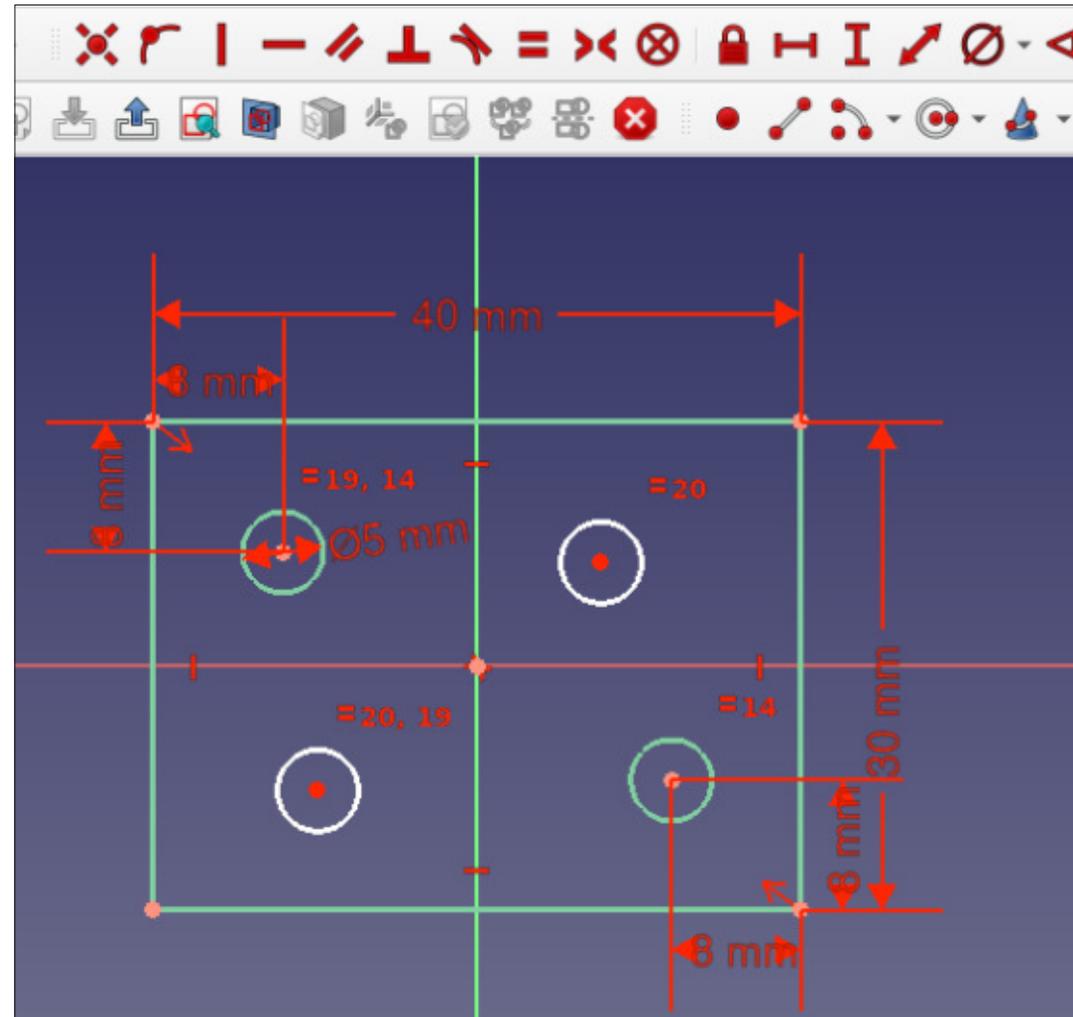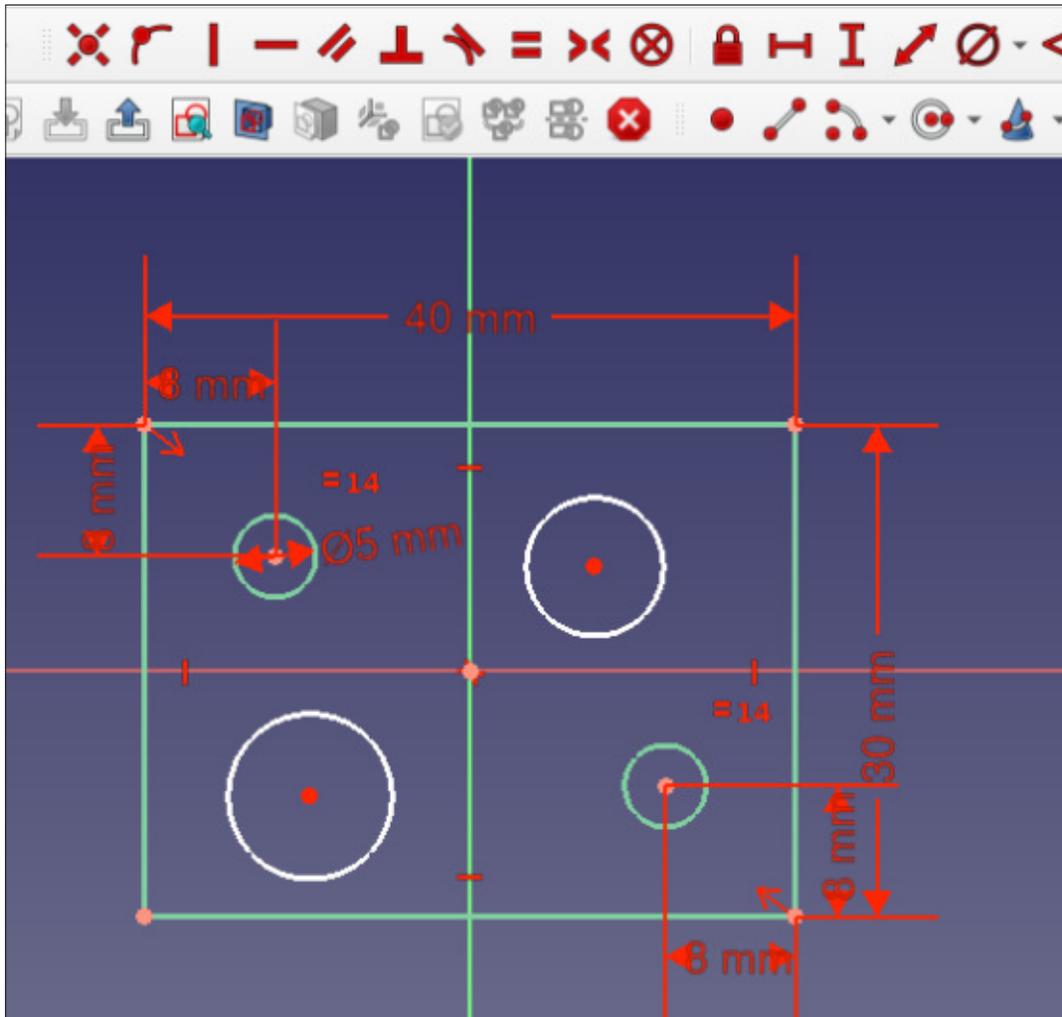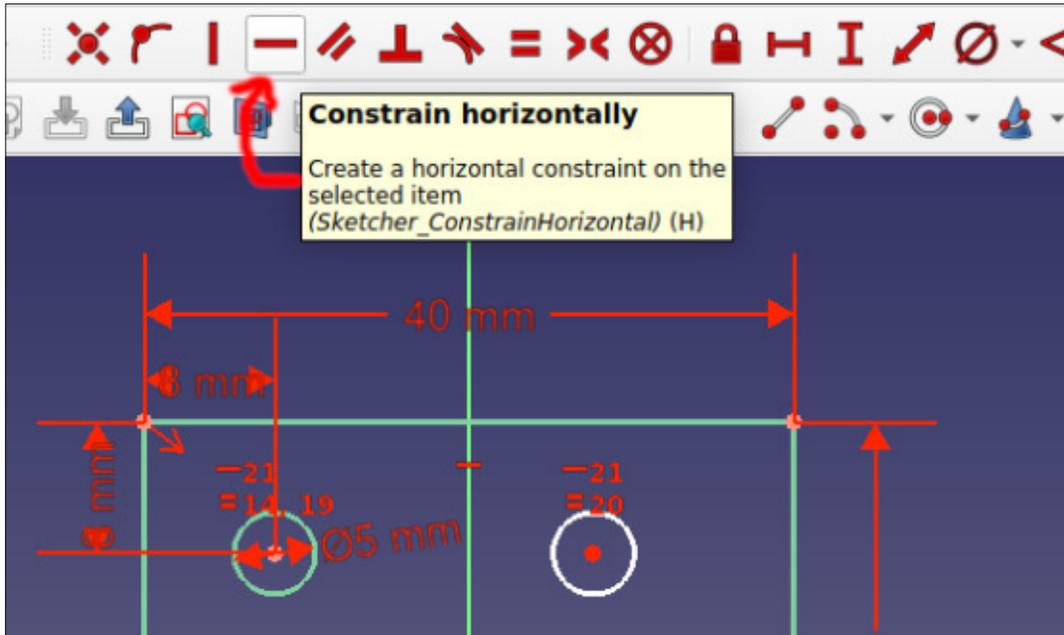
bottom-right center points and do a vertical constraint, then that'll lock that top-right one in place now.

Same deal for the bottom-left circle.
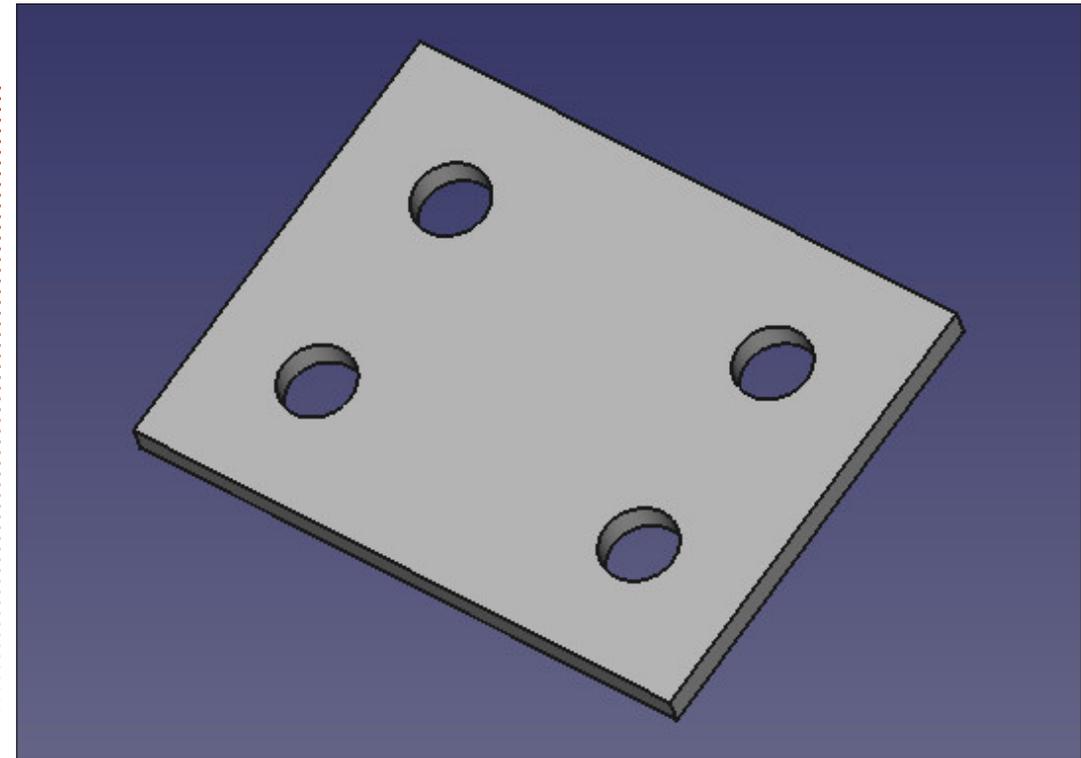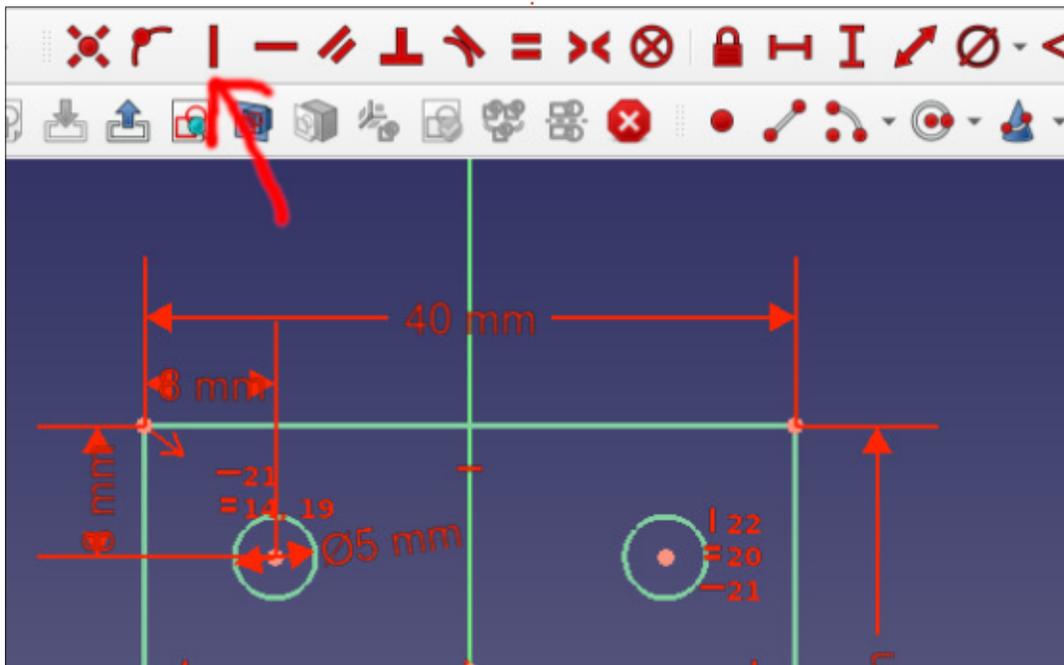
And that's me locked down.

Clicking Close will take me back to the Part design workbench. Looking good.

Let's end this part by making it look a bit more fancy. While in the Part design workbench, we want to click one of the top outlines of one of the holes. Let's say top-left. It'll

Chamfer

Chamfer the selected edges of a shape
(PartDesign_Chamfer)
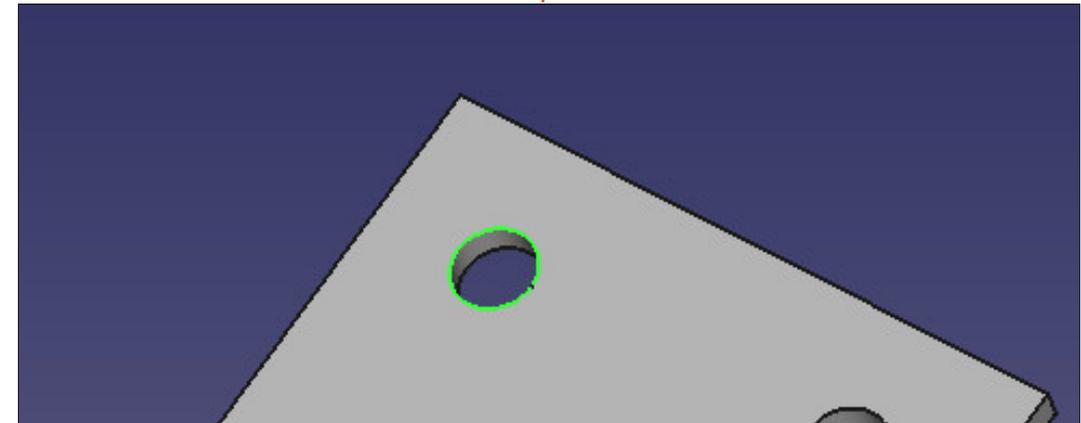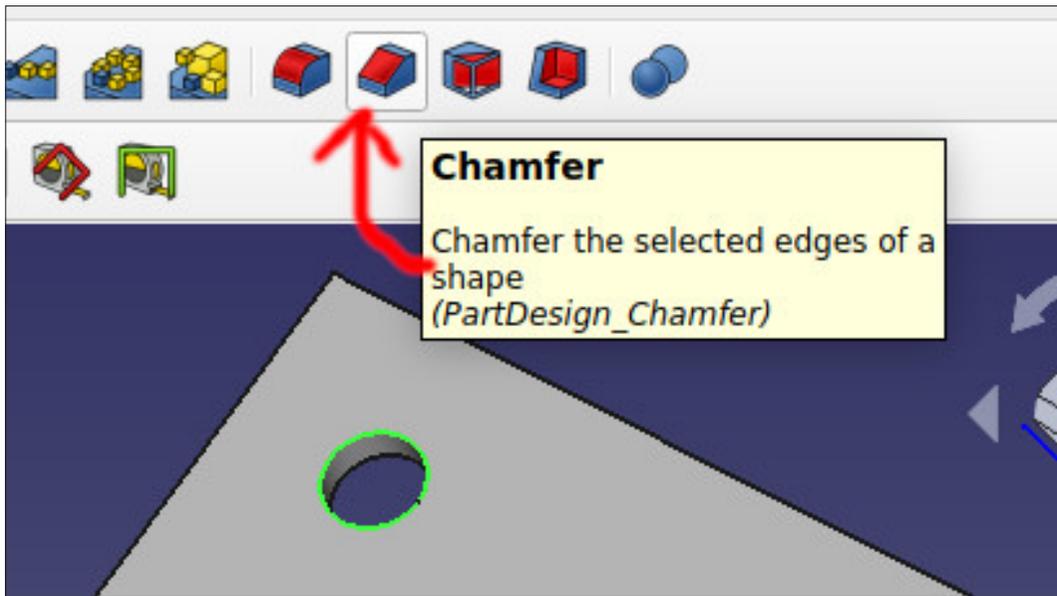
go green.

Now click the red chamfer icon.

Nice! That'll let the screw head sit level with the plate. The items on the left panel will let you edit the size of the chamfer. Or, let's
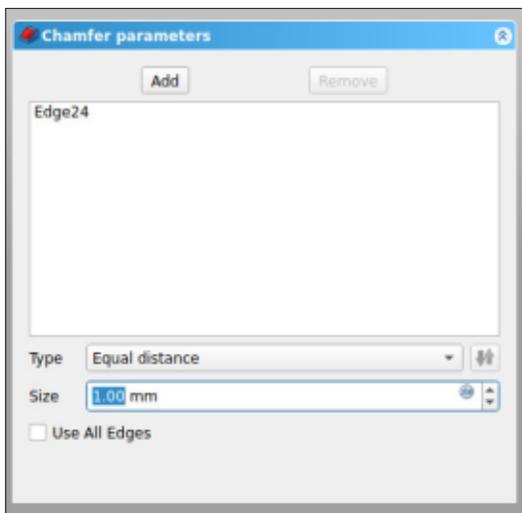
click the Add button and click on the outline of the other three circles. You only need to click Add once. When you've clicked all the outlines you click OK to end adding.

Note on the left panel that Chamfer is now added to the list. Think of this as a list of past actions that you can still jump back to.

Next time, we'll add more to the plate.

Now I'm not saying you need to, but feel free to click on a top edge of the plate and choose the fillet icon (beside chamfer). Just saying...
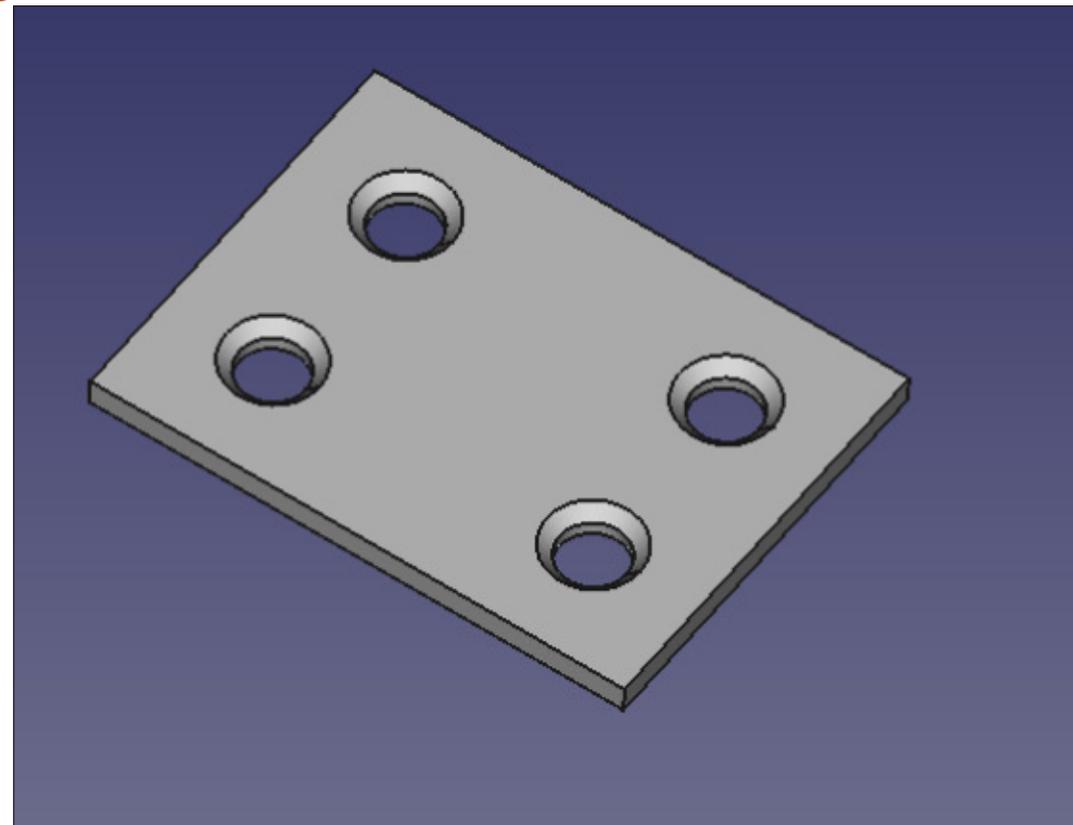
Ronnie is the founder of Full Circle and, somehow, still editing this thing. He also paints, draws and does woodcarving in his spare time.
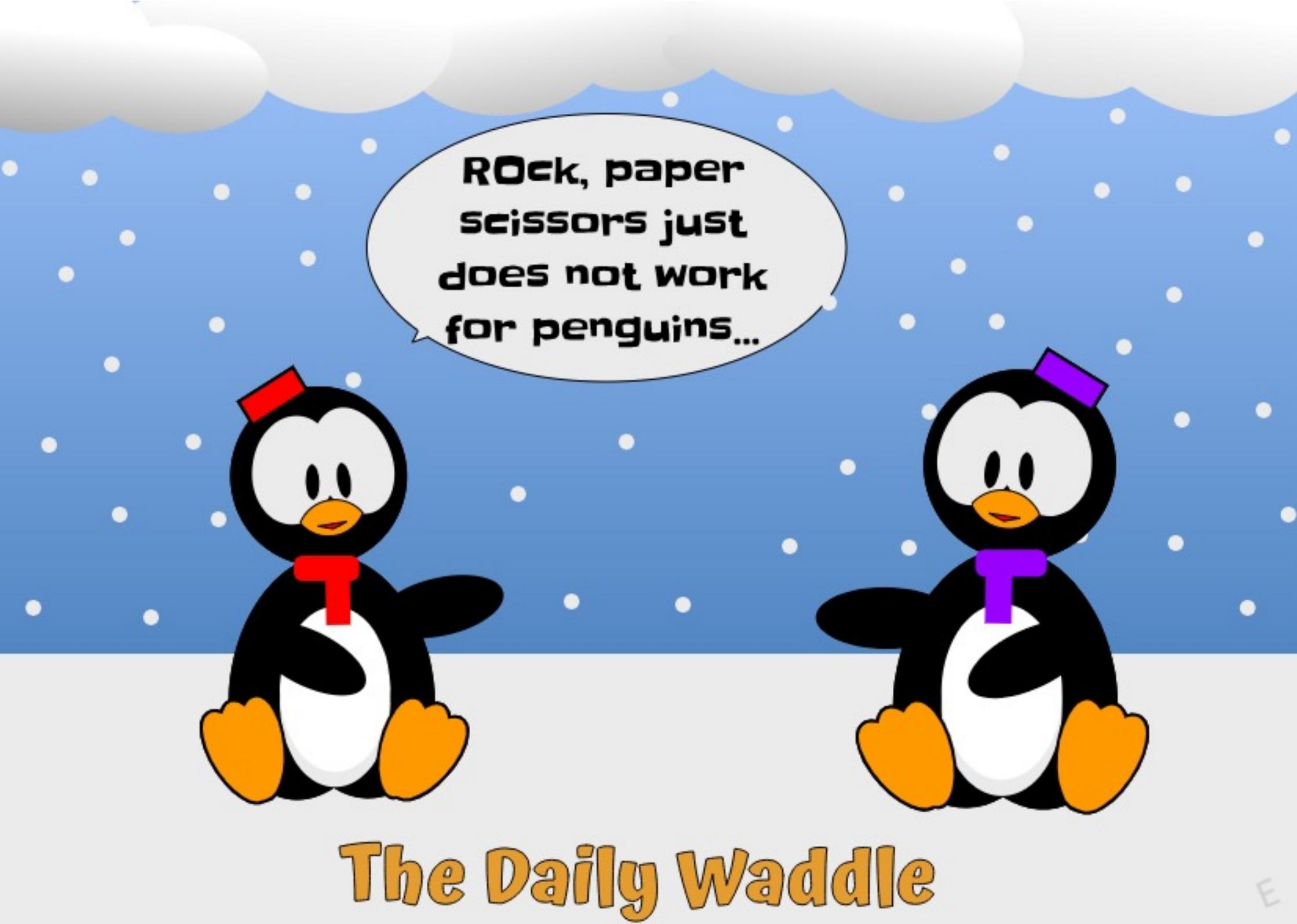
BACK NEXT MONTH
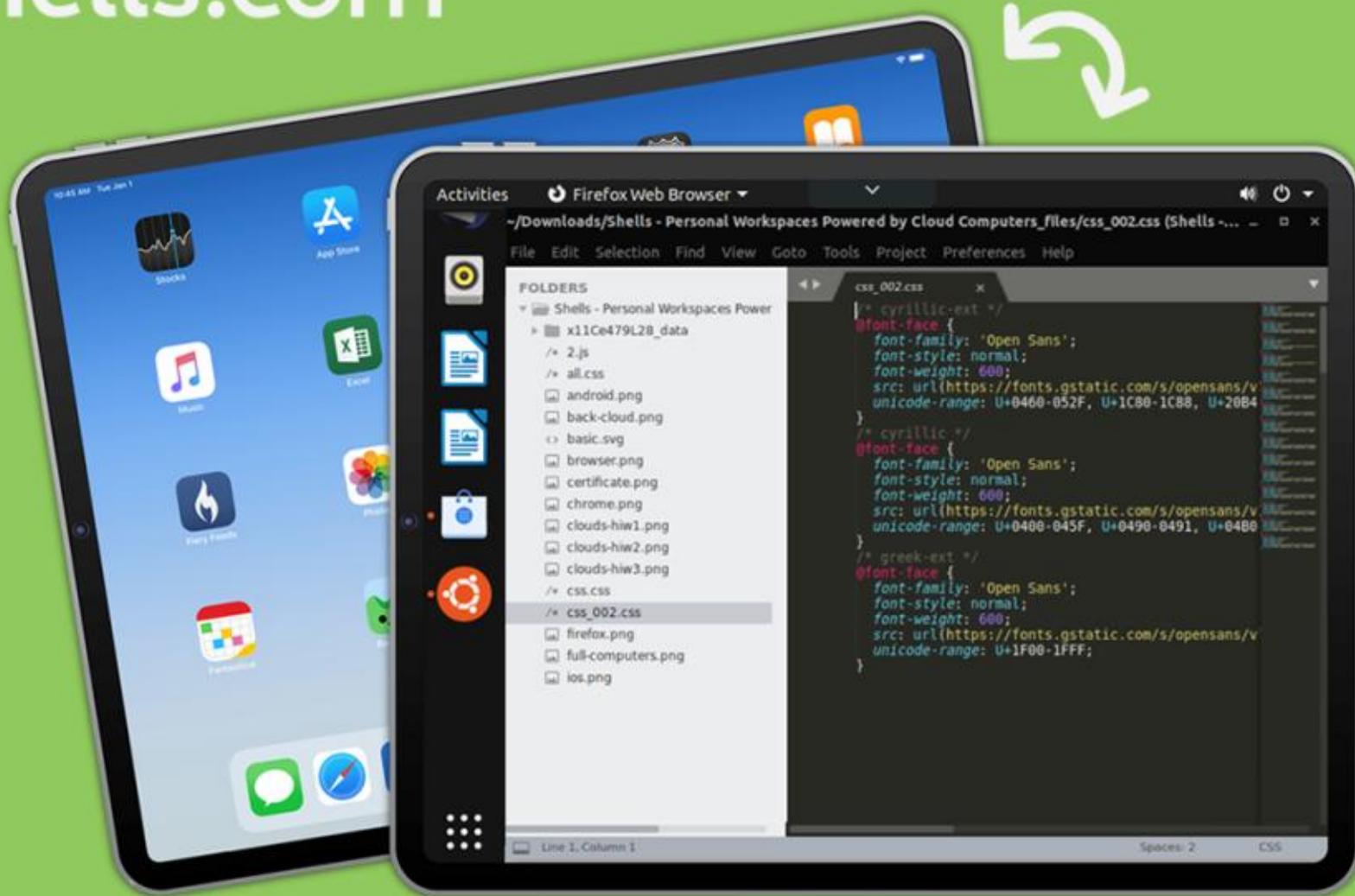
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Today we are extremely happy to announce the release of Ubuntu Touch OTA-1 Focal, the very latest update to the system! OTA-1 will be available on the following supported Ubuntu Touch devices:

• Fairphone 4
• Google Pixel 3a
• Vollaphone 22
• Vollaphone X
• Vollaphone

Other UT devices that currently run Focal might not have all features working yet with OTA-1 depending on the exact status of their port., but you are free to try if you wish. Your comments are welcome here

The Pine64 PinePhone, PinePhone Pro and PineTab are updated independently of the rest of these devices. The stable channel for the PinePhone and PineTab will not receive an update labeled "OTA-1".

WHAT'S NEW?

NOTE: This is the first OTA for Ubuntu 20.04 (Focal) with major features, this is an Opt-In and not mandatory update. The next OTA-2 will be mainly ironing out bugs and making it even more stable. When our reference devices prove stable enought we will start to roll out the OTA's for community devices.

MAJOR CHANGES:

• Use Ubuntu 20.04 (focal fossa) as base OS.

• Support Android 9+-based devices.

• Fork Unity8 as Lomiri and make it available to distributions other than Ubuntu (many components have been renamed to land properly in the Lomiri namespace).

• Switch from Upstart to Systemd.

• Localization platform (i18n) moved to the hosted weblate service.

• Move our development platform from Github.com to Gitlab.com.

• Use Ayatana Indicators instead of Ubuntu Indicators.

• Move from Anbox to Waydroid (pre-installed for Android 9+ and mainline kernel devices).

• New porting style for device porters (overlay store method).

• Support building many components against GCC-12 and Qt 5.15. (Make the project future-ready).

MOST IMPORTANT BUG FIXES

Some devices would not mute the phones microphone during phone calls.

Context menu fix in Morph Browser (amend context menus from Morph and QtWebengine interfering with one another).
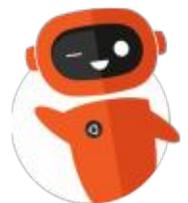
Website: https://astian.org/midori-browser-desktop/download-midori-browser-desktop

Price: Freemium

Blurb: "*A fast and secure lightweight browser available for your desktop computer. In addition, it fully respects your privacy and protects your information.*"

I like Midori, so it was quite a surprise for me to find they had a new version and sponsor. I went to the link above and got myself a copy. Only, I could not get it downloaded at first. You get a pop-up with some licence garbage, and nothing happens. Clicking all over in the block almost had me give up when I clicked a slightly darker square and it downloaded. (It is a lot harder to see depending on screen brightness).
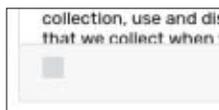
It is this small grey box.

When it comes to things being sponsored by large companies, I know it is a business decision. The business of a company is to make money. How do they make money off a free product? Yes, that's right, by selling you. This faffing with the download window had me taking a gander at the privacy policy. It's not that I expected anything different. Even if they say they do not do X, they do, they all lie. We can look at all the no-log VPN companies who have all been caught selling your logs or even saving them for the three letter government agencies. Speaking of the devil, there is another in the news today.

From the Privacy policy:
• Information We Collect:

• We will collect and process the following personal information about you:
  • Name
  • Email
  • Mobile
  • Social Media Profile
  • Payment Info
• If the Service or our company is merged or acquired with another company, your information will be one of the assets that is transferred to the new owner.

OK, so we now know it is a big information mining operation and we should not add any of the above information into it, let's proceed.

I tried both the .deb-file and the AppImage. The operation seems identical in both cases. I did not have a USB authentication token to test on the AppImage, so I don't know if it will work, but I suspect not, as all the other browsers in a sandboxed environment do not support it either. There are no tool tips if you hover over a tab, so there is no way of quickly seeing what is in that tab, other than clicking on it.

From what I gather, it is based on Electron, which means a Chrome base. To test, I went to the Chrome web store, downloaded some add-ons, and installed them. They all worked perfectly. This just seems like a long way around to use Chrome. Or maybe, it is to add all their spying ... erm telemetry options on top of that of Google. As you can tell, my trust in this product is a fat zero. This is amplified by all the "privacy" quotes on the home page that mean about as much as a politician's promises.

I have been running it for a while now and it seems to run on par with Chromium and/or Brave in memory usage and speed, but slower than Slimjet. The thing that differentiates it, is the integration. It looks more like a Gnome product. This makes it aesthetically pleasing, which is a big (and its only) plus, but the immediate minus to that is that right-clicking an address is blocked, meaning I have to resort to highlighting it and use CTRL+C to copy it. It supposedly has its own built-in ad-blocking, but I found this to be laughable, even with Steven

MY OPINION

Black's host file, it was about as useful as wet single-ply toilet paper. Since there is no way to turn off spell-checking, I do not recommend entering any passwords into the browser either.

For dumb normies, this is probably OK, but if you are a Linux user, this is not. A company who wants my email, my mobile, and my social media, is probably up to no good. I say probably, as it is 99% assured, but there is that 1%.... Oh who am I kidding?

The takeaway here is; Midori-ng is not Midori. It is another hoovering application trying to cash in on the information-selling business. Admittedly, it is a multi-billion dollar industry, and Astian are just trying to get their slice of the pie. I would have trusted them more if they were upfront about it and not faking all the privacy notices on their home page. For the love of Mike, do not install the Android application! I went to the source code page and it was empty, making me believe this is not open source either (https://osdn.net/projects/midori-ng/scm). To be fair, I read that it was, on another website and I see such claims on their official website.

In the end, it is just Chrome with fewer settings, more hidden junk, and some better Linux integration, thanks to Electron.

As it stands now, my recommendation is to avoid it.

Do you disagree with anything? misc@fullcirclemagazine.org

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.
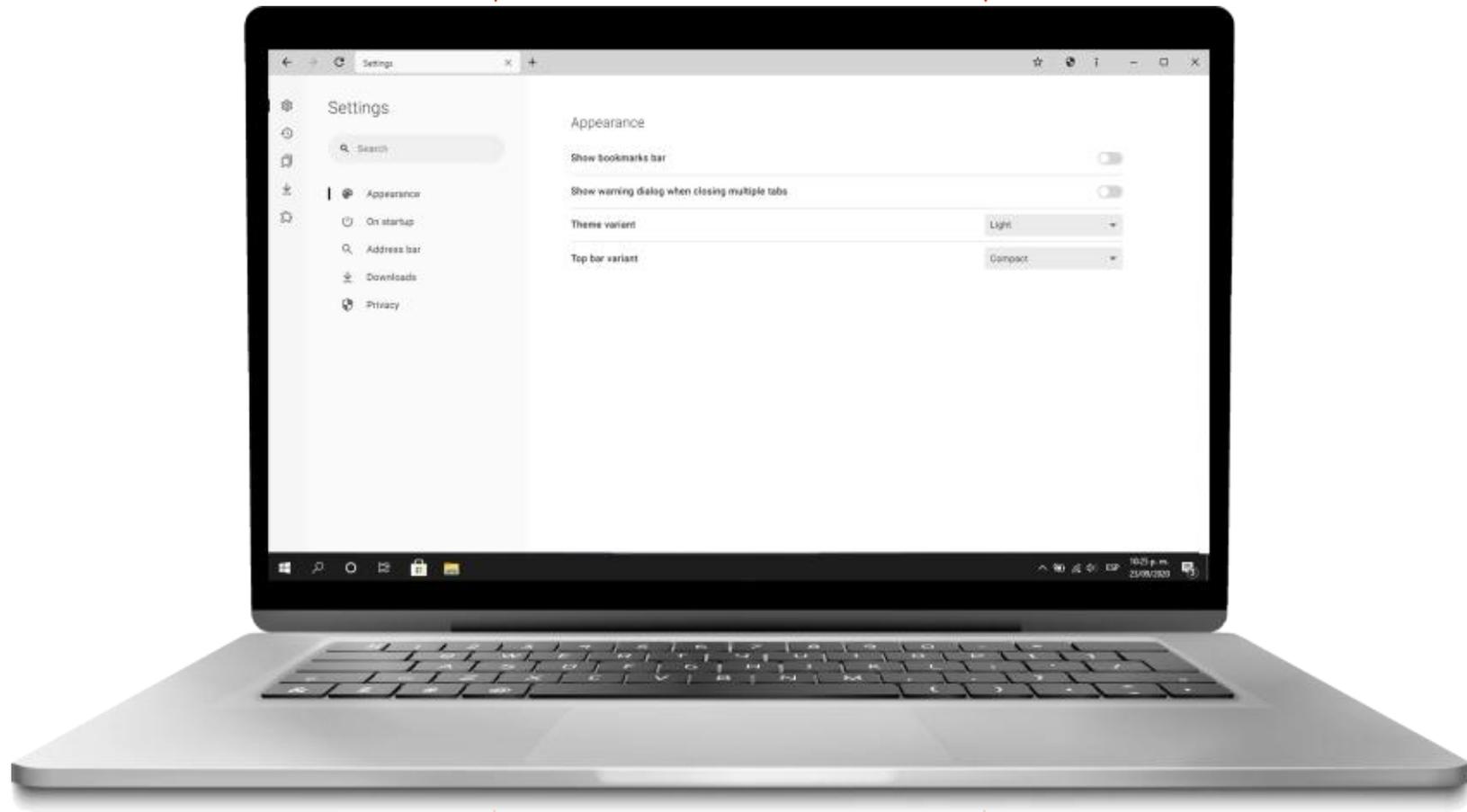
GUIDELINES

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**: https://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 <u>not</u> 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 <u>don't</u> need to be an expert to write an article - write about the games, applications and hardware that you use every day.

With their 22.10 "Kinetic Kudu" release, the Ubuntu Budgie developer team seem to be bucking the trend that has been set by the other Ubuntu flavors. Most of the other flavors have started off this new development cycle with an interim release with only some very small changes, pointing to a cycle of just some incremental adjustments before the next long term support (LTS) version comes out in April, 2024. But not so with Ubuntu Budgie 22.10; this distribution's developers have dived right into some substantial changes right at the beginning of the cycle. This is actually a good way to approach development, with the big changes in the first interim release, using the next two to refine things prior to the LTS release, which is all about getting everything right for the users.

In a way, a raft of changes is a bit unexpected, as Ubuntu Budgie 22.10 is the 13th release for this distribution and the 11th since it became an official Ubuntu flavor. You expect big changes when a distribution is new and fewer as it gains maturity.

Released on 20 October, 2022, Ubuntu Budgie 22.10 is an interim release which is supported for just nine months, until July, 2023.

INSTALLATION

I downloaded the ISO file for Ubuntu Budgie 22.10 from the official source on http://cdimage.ubuntu.com/ubuntu-budgie/. The download is 3.1 GB in size and I retrieved it via BitTorrent. Once done, I carried out an SHA256 sum check on it from the command-line to ensure a good download.

I dropped the Budgie ISO file onto a USB stick equipped with Ventoy 1.0.82 and booted it up from there. Ubuntu Budgie is officially listed as supported by Ventoy and, as expected, it ran with no issues.

SYSTEM REQUIREMENTS

The recommended minimum system requirements for Ubuntu Budgie 22.10 have not changed and remain:


Intel or AMD 64-bit processor
4 GB RAM

NEW

Ubuntu Budgie 22.10 starts with a new version of the Budgie desktop, 10.6.4, which brings a number of refinements. These include improved fractional scaling and a revised Budgie Control Center, which is based on Gnome Settings.

There is also a new "preferred style" in the Budgie Desktop Settings that allows setting a dark or light style for the Gnome 42 and libhandy-based applications. It should be noted that this feature is still a "work-in-progress" at the Budgie desktop project.

The Budgie menus have also been re-worked. There are still two selectable menu styles, grid view and category view. The former is pretty slow and clunky to find applications on, as it has five menu pages to click through to find anything. The category view is a bit
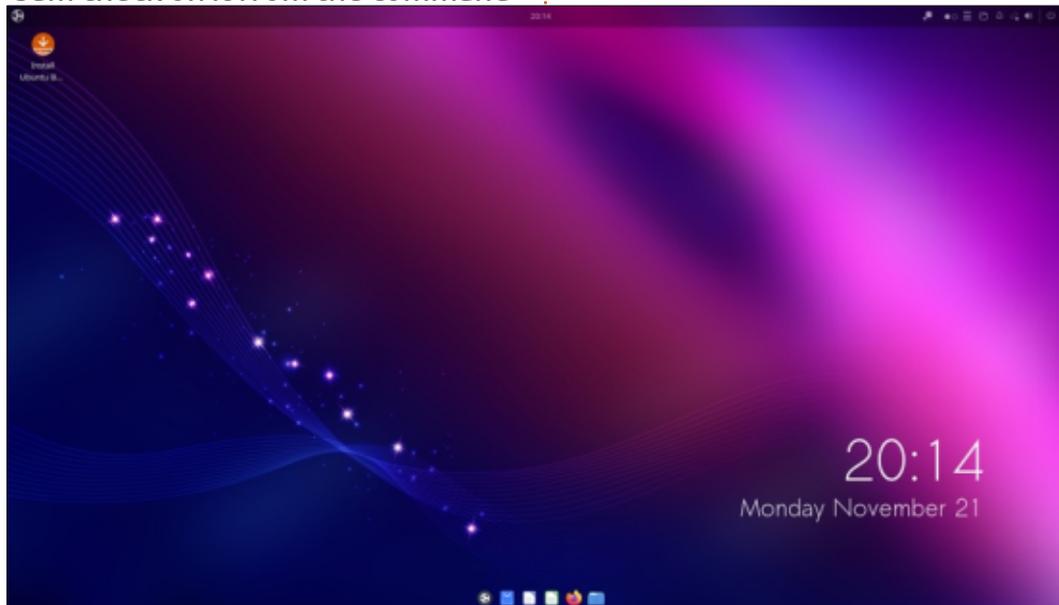
better, but, overall, it is still quicker to use the search box to find an application, as long as you know what you are looking for. The Budgie menus are still a weak point compared to almost any other Linux desktop these days.

The same as Ubuntu 22.10, Ubuntu Budgie 22.10 has changed its audio controller from PulseAudio to PipeWire, which should bring some more hardware support and performance improvements.

Ubuntu Budgie 22.10 also now fully supports the WebP image format in both its image viewer and file manager. This is useful as WebP is becoming more common as an image format and may eventually replace JPG, GIF and PNG.

This release includes 12 wallpapers to choose from, but, interestingly, the default wallpaper is the same one used for the last eight releases, since 19.04. While the provided wallpapers do cover a variety of styles, unlike in the other Ubuntu flavors, none feature a kudu, so the developers get points for avoiding that bandwagon.

Also, many more small changes are incorporated, which are too numerous to mention.

SETTINGS

As in past releases, Ubuntu Budgie's user settings are scattered far and wide. Some are in the Budgie Control Center, while others are in Budgie Desktop Settings, Budgie Extras, and Budgie Makeovers & Layouts, all of which are in turn split between Accessories and System Tools on the main menu.

Are you looking for the preferences for the Budgie dock, Plank? They are found via a ctrl+right click on the dock menu. I had to do a web search to figure that out, or I never would have found it. Once you find where all the settings are hidden away, it is not too hard to customize your desktop, but Budgie does have a steep learning curve when it comes to user settings.

Budgie Desktop Settings is where you find the window theme selection, oddly under Style - Widgets. There are 14 window themes provided, with the default theme Pocillo-dark, named for the diminutive Latin-American cup of coffee. There are better light themes provided, including Pocillo-light. Overall, this release does have more light theme choices than in the past, so if you are not a fan of dark themes, then Ubuntu Budgie 22.10 will be appealing.

If you don't want to customize your Budgie installation piecemeal by choosing a window theme,
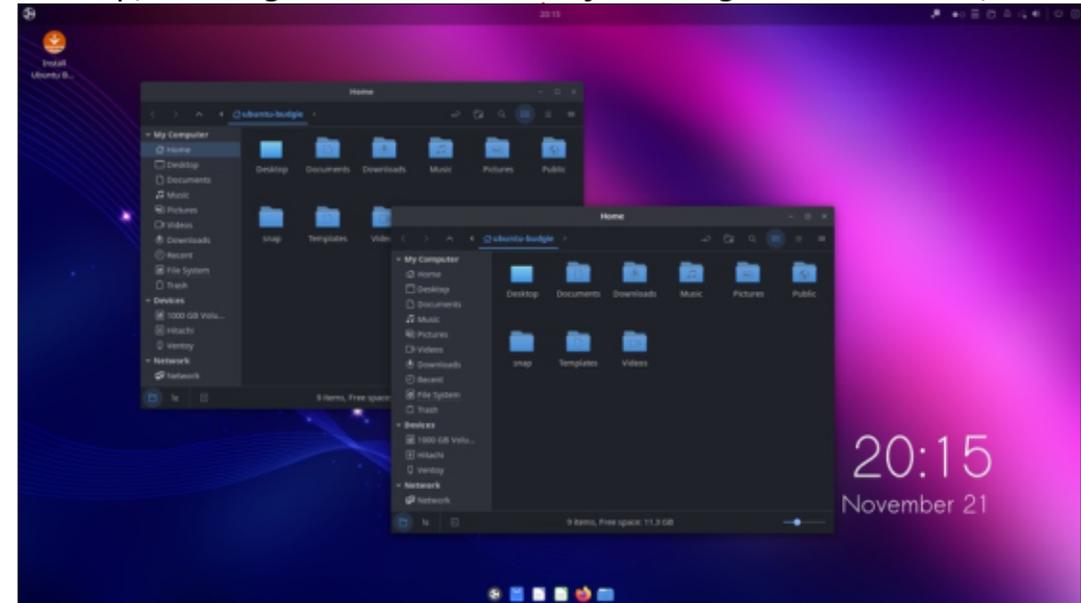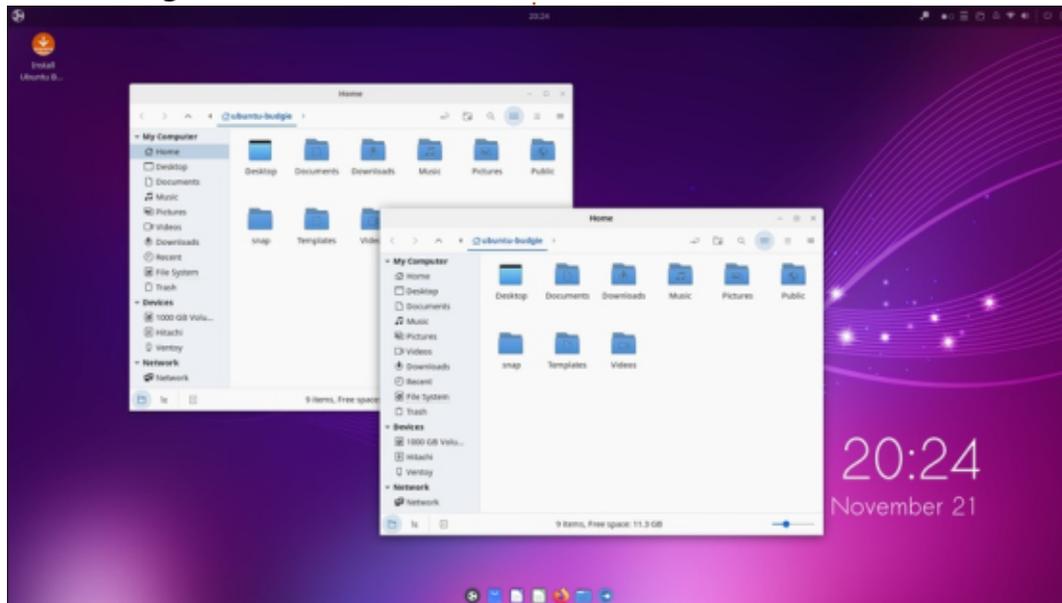
wallpaper, and icon set, all separately, then Budgie Makeovers & Layouts is where you find one-button wallpaper, window theme, and icon packages. There are eight packages to choose from, although only three of these are actually installed. The others have to be downloaded for use, although there are buttons provided for that.

Budgie Extras is where the desktop applets are hidden away. 39 applets are now included, two more than in the last release. These add small programs, like clocks and other functionality, to the desktop.

APPLICATIONS

Some of the applications included with Ubuntu Budgie 22.10 are:

Archive Manager (File Roller) 43.0 archiver
Atril 1.26.0 PDF viewer
Budgie Screenshot Applet screenshot tool
CUPS 2.4.2 printing system
Deja Dup 43.4 back-up tool
Document Scanner (Simple Scan) 42.5 optical scanner
Drawing 1.0.1 image editor
Firefox 106.0 web browser**
Goodvibes 0.7.2 internet radio
Gnome Disks 43.0 disk manager
Gnome Software 43.0 package management system
Gparted 1.3.1 partition editor
Gpodder 3.11.0 podcast player
gThumb 3.12.2 image viewer

Guvcview 2.0.8 webcam application
LibreOffice 7.4.2 office suite
Lollypop 1.4.35 music player
Mate System Monitor 1.26.0 system resource monitor
Nemo 5.4.3 file manager
Parole 4.16.0 movie player
Pipewire 0.3.58 audio controller
Text Editor (gedit) 42.2 text editor
Thunderbird 102.3.3 email client
Tilix 1.9.5 terminal emulator
Transmission 3.00 bittorrent client*

* indicates same application version as used in Ubuntu Budgie 22.04 LTS
** supplied as a snap, so version depends on the upstream package manager

Many of these applications are new to the default mix.

Removed this time are:
Celluloid movie player (replaced by Parole)
Cheese webcam application (replaced by Guvcview)
Document Viewer (Evince) PDF viewer (replaced by Atril)
Gnome Calendar desktop calendar (not replaced)
Gnome Maps desktop calendar (not replaced)
Gnome Screenshot screenshot tool (replaced by Budgie Screenshot Applet)
Gnome System Monitor system resource monitor (replaced by Mate System Monitor)
PulseAudio audio controller (replaced by PipeWire)
Rhythmbox music player (replaced
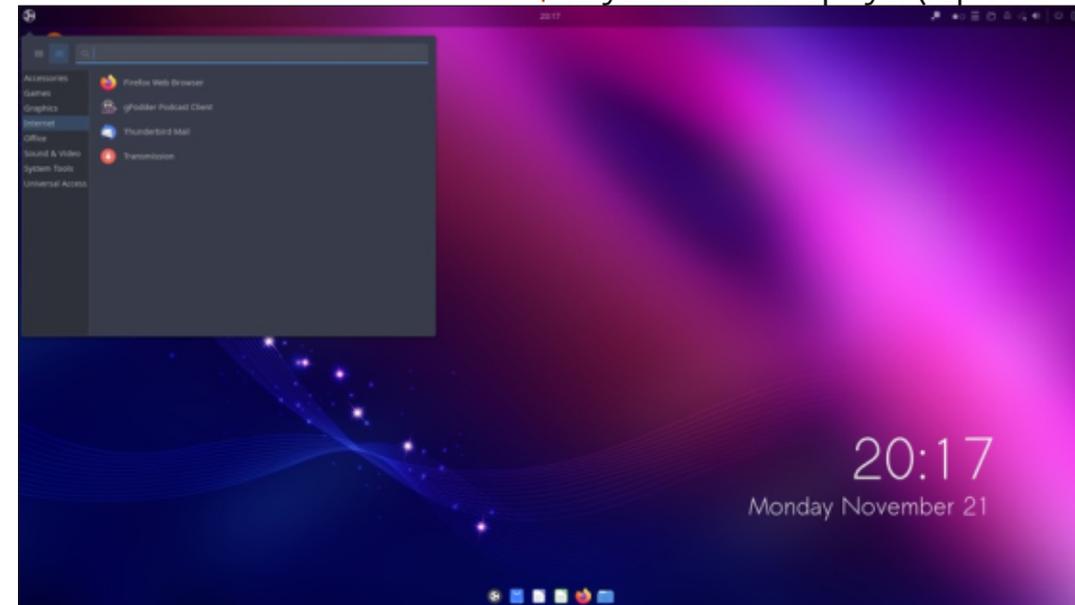
by Goodvibes, Gpodder and Lollypop)

Only Gnome Calendar and Maps were removed and not replaced, the rest were swapped for equivalent applications from other desktops. The developers explain that the reason for all these changes is to avoid Gnome applications which use libadwaita, which they indicate makes it harder to gain a common look. The current mix of applications certainly shows a trend of moving away from Gnome applications and more towards Mate. Expect to see more adjustments in the application mix over this development cycle, as many of the remaining Gnome applications have been flagged for future assessment.

The Ubuntu Budgie file manager is Nemo, from the Mate desktop. It works quite well but is still missing a bulk file renaming capability. This has been promised, but it is still a pretty important feature to be missing today.

The Ubuntu Budgie 22.10 web browser remains the same as all the other Ubuntu flavors, including Firefox as a Snap format package. LibreOffice 7.4.2 is the office suite and it is supplied complete except for the database application, LibreOffice Base.

This release continues to use the Gnome text editor, gedit 4.2,

although the Budgie developers list its future in the distribution as "undecided". This iteration has seven syntax highlighting schemes, including four light and three dark themes. As always, gedit includes spell checking by default.

CONCLUSIONS

Overall Ubuntu Budgie 22.10 is a good release and one that seems to portend further changes coming over this development cycle before we get to the next long term support release, Ubuntu Budgie 24.04, due out in April, 2024.

With more light theme options, Ubuntu Budgie 22.10 should have a

wider user appeal than some past versions. Its one weak spot remains its scattered user settings, but perhaps we will see that addressed over time as well.

EXTERNAL LINKS

Official website:
https://ubuntubudgie.org/

Adam Hunt started using Ubuntu in 2007 and has used Lubuntu since 2010. He lives in Ottawa, Ontario, Canada, in a house with no Windows.
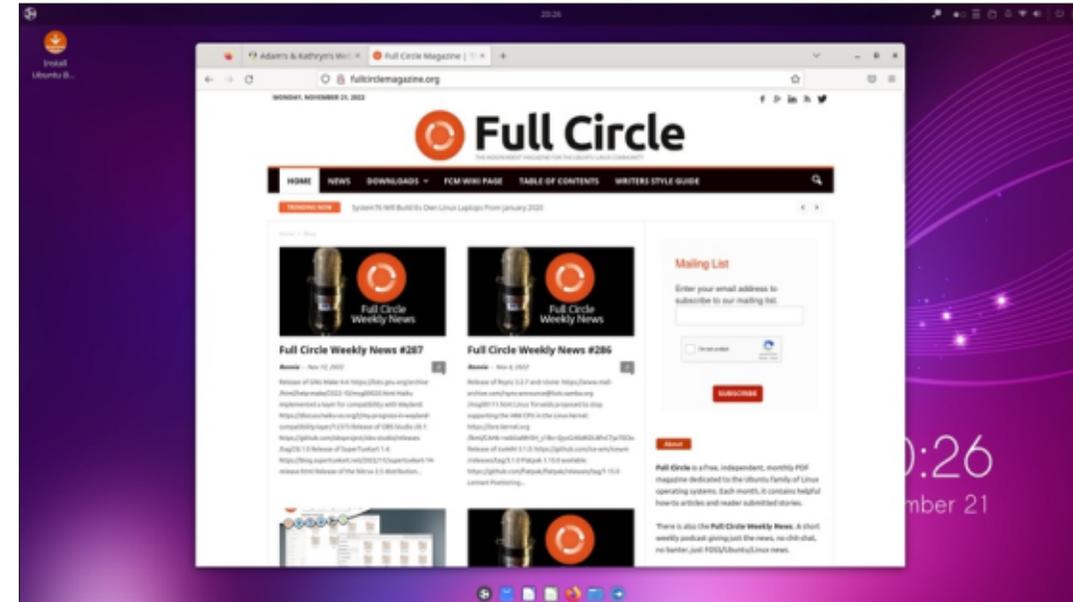
As part of our continuing look at some Debian-based Linux distributions, this month we review Pardus. This is a distribution that has been around since 2005, and has the backing of the Government of Turkey. In fact it was intended from the start as a distribution for use by Turkish government departments, its military, schools, and other institutions. The good news is that it is a good, general use, desktop distribution, which anyone can download and use for free.

Developed by the Scientific & Technological Research Council of Turkey (TÜBİTAK) and the National Academic Network and Information Center (ULAKBİM), the first installable release was on 4 February, 2005 and was based on Gentoo Linux. Early versions featured the KDE desktop. Later on, many more desktops were added, including Gnome, Cinnamon, Deepin and Xfce.

Pardus has since moved to a Debian Stable base, and today offers the Gnome and Xfce desktops. There are also versions for server, education and ETAP, which is designed for "interactive boards in educational institutions". Being Debian-based, the initialization system is systemd.

At one time, there was also a community-developed version of Pardus, called Pardus Topluluk (which is Turkish for "community"), but it has not seen a release in five years and is listed on DistroWatch as "dormant".

To evaluate one of the desktop releases, I had a look at the 21.4

Gnome version which was released on 27 December, 2022.

Naturally, Pardus is mostly developed for use in the Turkish language, but it does offer other languages. The live session can be done in either Turkish or English.

The distribution gets its name from the Latin term for leopard, which is Panthera Pardus. The logo for Pardus features a very droll-looking leopard, and there is, of course, leopard theming throughout.

Getting Pardus

I downloaded the Pardus 21.4 Gnome ISO file from the official website via HTTP, as there is no BitTorrent option.

The download is 2.5 GB in size, which compares to 3.8 GB for Ubuntu 22.10, which uses a similar desktop.

The website download page provides a simple text file with the MD5 sum for testing the download to make sure it is uncorrupted. Hidden away in the release notes are also SHA256 and SHA512 sums, which are much more secure than MD5 sums and thus preferable for use.

Installing

As usual, I did not install Pardus for evaluation, but dropped the ISO file onto a stick equipped with Ventoy 1.0.87, and booted it up from there.

Pardus is listed as a tested and

supported distribution on Ventoy, and it worked as advertised, booting to a live session featuring a leopard-themed wallpaper.

SYSTEM REQUIREMENTS

Pardus has different minimum system requirements for each version. The Gnome version lists:
64-bit 2.0 GHz processor
2048 MB of RAM (2 GB)
15 GB of hard disk space
Graphics processor capable of supporting 1366×768 resolution with 16 MB of VRAM

The Xfce version is lighter in requirements, needing only:
64-bit 1.0 GHz processor

1048 MB of RAM (2 GB)
8 GB of hard disk space
Graphics processor capable of supporting 1024×768 resolution with 16 MB of VRAM

All Pardus versions are 64-bit, as 32-bit was retired some years ago.

TRYING OUT PARDUS

Pardus 21.4 Gnome uses the Gnome desktop, but it is not strictly stock.

The first thing you notice on boot-up is that it has a desktop dock on the left side of the screen, similar to Ubuntu. This is the Dash to Dock extension, which is also

found by default on SpiralLinux. This extension takes the dash menu page launcher and moves it to the desktop. It also provides controls for dock transparency, icon size, and "intelligent" hiding when a window touches the dock, or it can be turned off entirely, reverting to the default Gnome behavior. The extension is configurable from the Included Gnome Tweaks interface.

Looking though the main Gnome menu shows that Pardus comes with a collection of custom utilities. These include the Pardus Greeter, which allows setup changes, Pardus Boot Repair, Pardus Image Writer (for ISOs), Pardus Java Installer, Pardus Package installer (similar to Gdebi, for installing .deb files),

Pardus Power Manager, and the Pardus USB Formatter for changing the file system on a USB stick. There is also a very "Windows-like" Pardus My Computer application which includes access to networking. The Pardus Software Center is a replacement for Gnome Software, although it lacks some functionality, like showing the software which is installed. These custom utilities are all useful things to have, although none provide any unique functions that are not available elsewhere within Gnome. They seem to be included mostly to make it easier for users to transition from Windows.

Other than these customizations, Pardus runs and
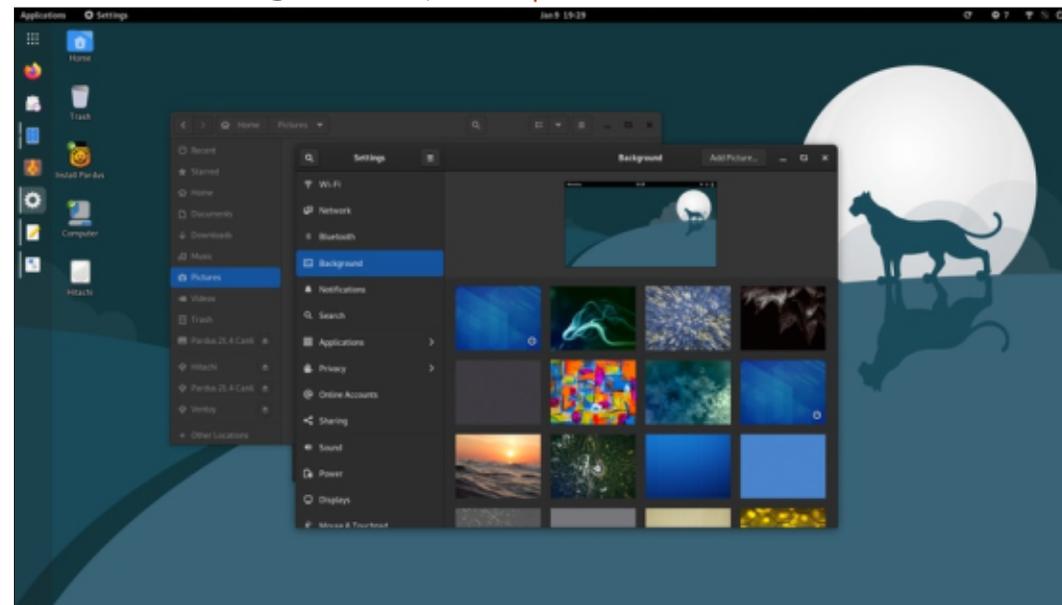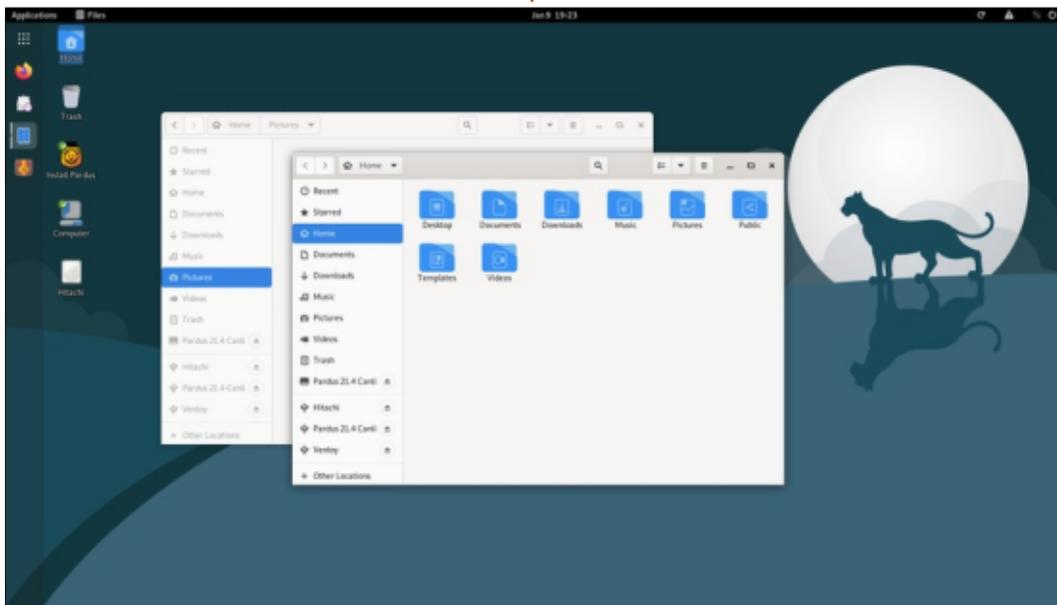
works just like any other Gnome desktop distribution. Its smaller ISO size does seem to translate into it running quickly. You never feel like you are waiting for things to happen.

The look is a serious enterprise desktop, with no rough edges, which is pretty much what you would expect in a government-sponsored distribution that has an 18 year history behind it and was mostly developed for internal government use. It runs well and works right.

Perhaps the weakest part of the Pardus experience is the official website, which is slow to load each page, and contains very little information anyway.

SETTINGS

Pardus is provided with both the usual Gnome Settings interface and also with Gnome Tweaks, which does tend to spread out the settings between the two. For instance, Settings is where you find the wallpaper choices and 52 of them are provided. The assortment includes some leopard themed ones, of course, plus some scenery and some abstract designs.

Tweaks is where you find the window themes, and six of those are provided, two of which are dark themes. The default theme is called "Pardus"; it's a light theme, very similar to Adwaita light.

Overall, there should be enough setting choices to keep most Gnome users happy.

APPLICATIONS

Some of the applications included with Pardus 21.4 are:
Archive Manager (file-roller) 3.38.1 archiver
Brasero 3.12.2 CD/DVD burner
CUPS 2.3.3 printing system
Document Viewer (evince) 3.38.1 PDF viewer
Document Scanner (simple-scan) 3.38.1 optical scanner
Evolution 3.38.1 email client

Files (nautilus) 3.38.2 file manager
Firefox 102.6.0-esr web browser
Gnome Disks 3.38.2 disk manager
GIMP 2.10.22 image editor
Gnome Drawing 1.0.1 image editor
Gnome Screenshot 3.38.0 screenshot tool
Gnome System Monitor 3.38.0 system monitor
Gnome Terminal 3.38.3 terminal emulator
Gnome Tweaks 3.34.0 settings manager
Gnome Videos 3.38.0 video player
Gparted 1.2.0 partition editor
Image Viewer (Eye of Gnome) 3.38.2 image viewer
LibreOffice 7.0.4 office suite
PulseAudio 14.2 audio controller
Text Editor (gedit) 3.38.1 text editor
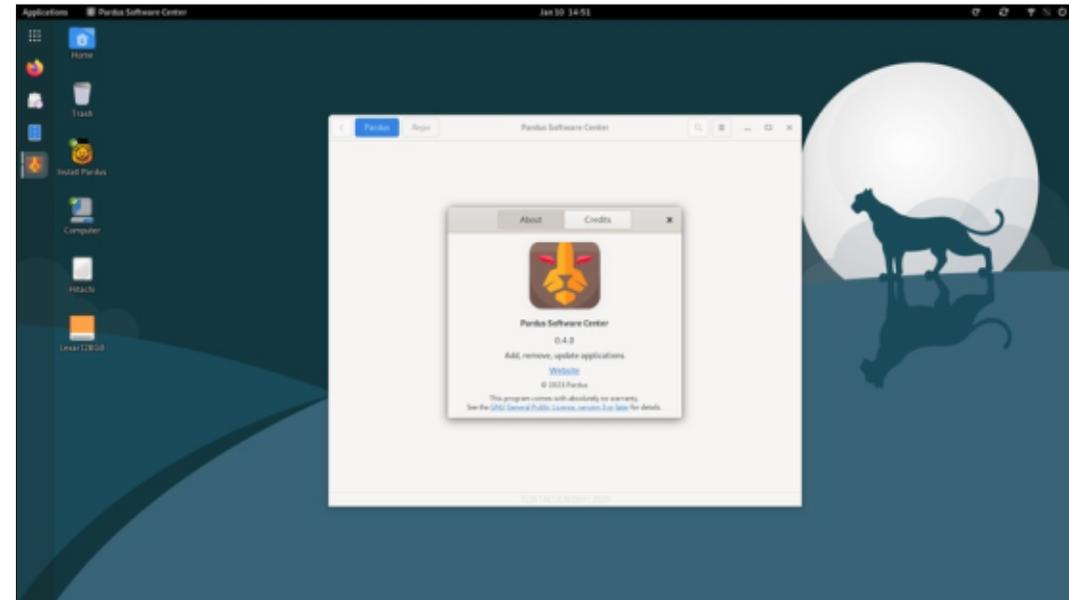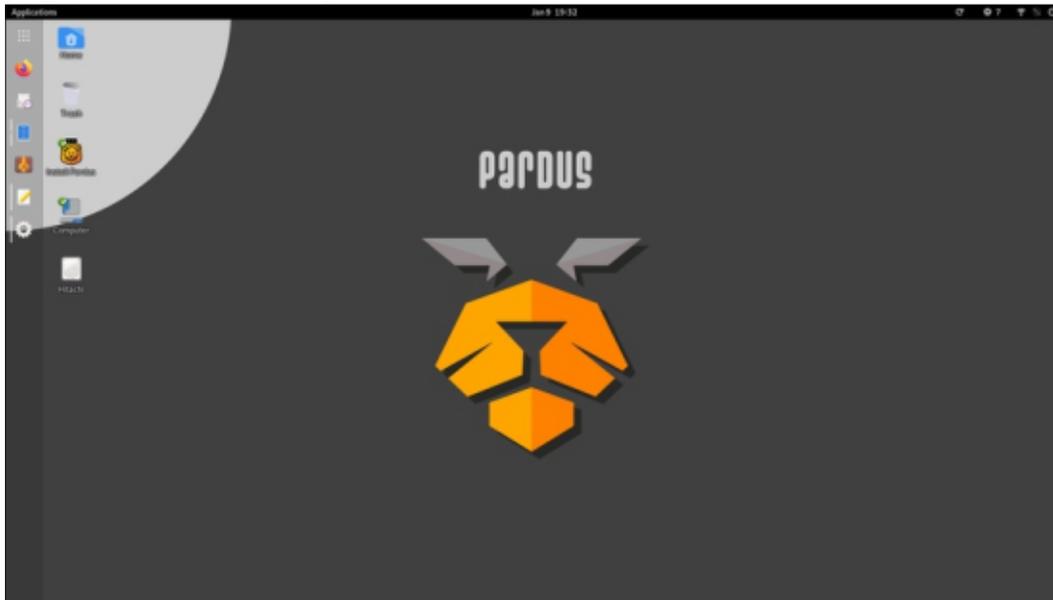
Synaptic 0.90 package manager
Systemd 247.3 init system
Wget 1.21 command line webpage downloader
VLC 3.0.18 media player

This set of applications comes from Debian Stable, so these are not the most recent versions of most applications. Debian Stable's collection of applications are intended to be well-tested and stable, rather than cutting edge. Again, in an enterprise environment this is desirable.

All of the packages provided are .deb files, which is why you get Firefox-ESR (Extended Support Release), rather than the regular Firefox package, which would require a Snap package or other solution. In fact, there are no Snaps here at all.

The mix of applications provided is quite good, and includes some useful ones which are often not provided by default in other distributions, such as the GIMP image editor. Missing is a BitTorrent client, and perhaps an IRC client. An anachronistic inclusion is the Brasero CD & DVD writer, but perhaps these are still used in Turkey these days?

LibreOffice is included, lacking only the LibreOffice Base (database) and Math (math formula writer) components, neither of which are commonly used. Both can be installed from the repositories if needed.

Package management is done via the Pardus Software Center, a modern style "software store", which looks very similar to Gnome Software. Also provided is Synaptic, which, unlike the Pardus Software Center, has more tools – like a list of software installed. Because the underlying system is APT, it can also be managed from the command-line, as on any Debian-based system.

The Pardus software repositories include most of the expected free software packages and also a few surprises, like Google Chrome for Linux, for example, which is non-free software. I can note that it is not installed by default, though. There is even the Ventoy2Disk application for testing out new distributions!

Conclusions

Pardus is a very mature project and, with government sponsorship and development by some large institutions for their own use, what you get is a very solid distribution, with no rough edges. In Turkey, a large number of government departments, educational institutes, and segments of the military are already using this as their daily work desktop, so it has to be good, and easy to use.

For the home Linux user Pardus offers a pre-configured and customized Debian distribution that is ready to work right from installation, and with some tools and utilities that make life a bit easier. As a bonus, for a Gnome desktop, it is smooth and responsive.

External links

Official website:
https://www.pardus.org.tr/en/home/
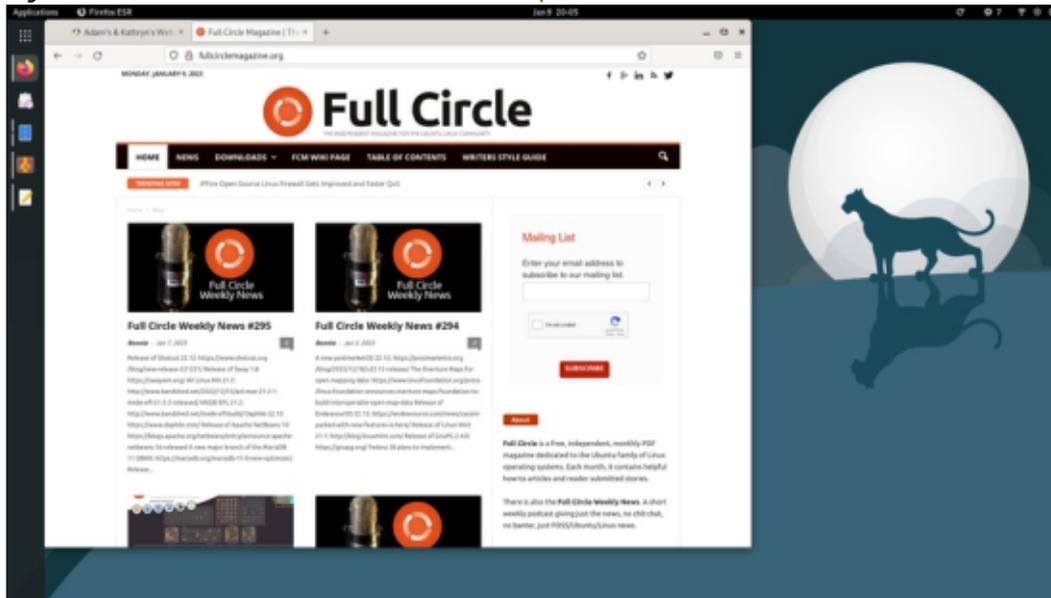
Adam Hunt started using Ubuntu in 2007 and has used Lubuntu since 2010. He lives in Ottawa, Ontario, Canada, in a house with no Windows.

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⚠ 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.

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.

_____

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.

It's time for more Tabletop Ubuntu. In this second installment, I am discussing a game that I have played so many times in real life that the components show noticeable wear. The digital version of Splendor was developed by Days of Wonder and is a port of the tabletop game of the same name designed by Marc André and published by Space Cowboys. At the time of this writing, Splendor is available on Steam for $9.99. The game is listed as Windows only, but runs great using Proton Experimental.

Splendor is a casual strategy game with rules that are simple to learn. It offers an easy introduction to the themes of engine-building and resource management. The digital version has an online multiplayer wide worldwide leaderboards and a ranking system. It also provides pass and play mode. However, the reason I enjoy Splendor on Ubuntu, and the reason I am writing about it, is because of the solo mode and scenario-based challenges. Before I get into the details of these modes,

let's talk about gameplay.

In Splendor, you take on the role of a rich merchant during the Renaissance. I personally do not find the theme to be particularly engaging or important to the gameplay itself in the base game. It does provide a reason for naming components (gems, gold, nobel tiles, prestige points) and set artistic style. However, it also has a clear connection to ideas of colonialism and exploitation of resources (e.g. Whose land are players "developing" with development cards?). Thus, I think

reworking the theme for the base game would be welcomed by many. That said, the expansions and challenge mode, build on the theme in ways that make it unlikely that any change will happen.

Each turn, a player can take one of three actions: collect tokens called gems, buy and build a development card, or reserve one card. There are five types of gems: emerald, sapphire, ruby, diamond, and onyx. If collecting gems, players choose to either take two gems of one type or three gems each of a different type.

Buying a card requires paying its cost in gems. Each card produces a single gem and may provide victory (prestige) points. There are three levels of development cards (green, yellow, blue) with each level having a higher cost and providing more victory points. As players buy development cards, the visible cards are replenished until the stack runs out. Once purchased, the card is added to your playing area and will provide a gem each subsequent turn. Resources gained from cards are produced each turn but unused resources do not carry over to subsequent turns. The final action, reserve a card, allows you to take one development card and place it face down for building during a subsequent turn. This action can be used to reserve a card for yourself or to prevent other players from gaining a particular game. In addition to the card, you also acquire a gold token, which acts as a wild token and can be used in place of any gem.

In addition to gaining victory points through buying

development cards, players can earn points through noble tiles. Each noble tile shows a set of gems that players must produce to claim the tile and a number of victory points that will be awarded. For example, the tile pictured requires having development cards that produce three emerald, three ruby, and three onyx. The first player who meets the required conditions is awarded three victory points.

In addition to the classic mode, Splendor offers four expansions: The Cities, The Strongholds, The Trading Posts, and The Orient. Each expansion changes the game in different ways through new mechanics and objectives. They are worth checking out if you enjoy the original.

As I mentioned, my reasons for discussing Splendor are the solo mode and challenge modes. Both build on the base game and offer new options without adding new mechanics. Solo mode allows you to play the base game against three types of AI: balanced, opportunistic, or specialized. There is also a setting to randomize the AI type or make it secret. Solo mode is a great way to play a game of Splendor in 15 minutes. The AI are fun to play against and at a level where making a few missteps will cost you the game. They also do a good job of always taking the development cards that you want.

Challenges are based on "historically-accurate background stories…set in the 15th to 16th centuries" and come in two varieties: duels and campaigns. Duels set the player against famous monarchs from history with specific objectives and constraints. For example, a few of the specifics in the duel against Mary, Queen of Scots, the player must score 12 prestige points, the challenge must be completed in less than 1 minute of play time, there are only 4 tokens per stack and they are not returned to the stack once spent, and noble tiles are only worth 1 point.

Campaigns have the player work through specific game setups that are informed by historical events. Each campaign features six scenarios that are connected to historical events. For example, the first scenario in the London campaign is called The War of the Roses. I find that both challenge modes enhance the game by setting up new objectives, changing rules, and introducing constraints.

Overall, Splendor strikes a nice balance of strategy and speed. Although others might find the online and pass and play modes to be enjoyable, I think the solo and challenge modes are really what make it worth a look. By building on existing mechanics and creating new constraints, the app extends an interesting game into the virtual tabletop space.

Josh Hertel is a husband, father, mathematics educator, tabletop gamer, techie, and geek.
https://twitter.com/herteljt
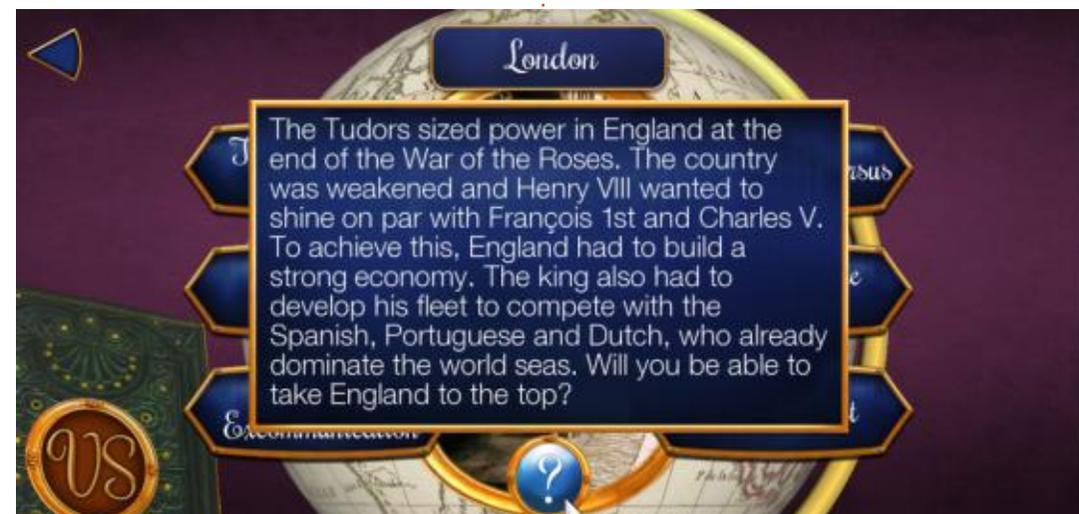
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