Ubuntu Unity 23.04
REVIEW

REVIEW

UBUNTU UNITY 23.04

Full Circle

THE INDEPENDENT MAGAZINE FOR THE UBUNTU LINUX COMMUNITY

EDITORIAL

Welcome to the latest issue of Full Circle

For your pleasure this month we have; Python, Stable Diffusion, Latex, Micro This Micro That, Inkscape, and we continue the short series on trying Linux using various methods.

Adam continues his look at the 23.04 series with a look at Ubuntu Unity. The second distro review is a look at PikaOS. For games, I'm taking a look at Littlewood. I'm a sucker for a good farming, crafting, RPG, game. Can Littlewood cut it? Read on...

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

This magazine was created using :

SCRIBUS

gimp

LibreOffice
The Document Foundation

creative commons

Find Full Circle on:

facebook.com/
fullcirclemagazine

twitter.com/#!/fullcirclemag

https://mastodon.social/
@fullcirclemagazine

Weekly News:

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

http://www.stitcher.com/s?
fid=85347&refid=stpr

http://tunein.com/radio/Full-
Circle-Weekly-News-p855064/

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

RELEASE OF BODHI LINUX 7.0:

21/08/2023

The release of Bodhi Linux 7.0, supplied with the desktop environment of Moksha, was announced. Moksha is developing as a code base fork of Enlightenment 17 (E17), created to continue the development of Enlightenment as a lightweight desktop, (as a result of disagreement with the policy of the project development) with the entourage of Enlightenment 19 (E19) and deterioration of the code base. Two installation images are offered for download: the usual (1.3 GB) and the most recent Linux kernel (1.3 GB).

https://www.bodhilinux.com/2023/08/21/introducing-bodhi-linux-7-0-a-landmark-release/

P2P VPN 0.10:

22/08/2023

The release of P2P VPN 0.10 was released - an implementation of a decentralized virtual private network running on the Peer-To-Peer principle, where participants are connected to each other, and not through a central server. Network members can find each other through a BitTorrent tracker or through other network members. The project continues to develop the original P2PVPN app (author Wolfgang Ginolas), which has not been updated since 2010. The source code of P2P VPN is written in Java and in part in C, and is distributed under the LGPL 3.0 license.

https://gitlab.com/Monsterovich/p2pvpn/-/releases/0.10

TRACES OF MALICIOUS ACTIVITY ON THE INKSCAPE DOWNLOAD SERVER:

21/08/2023

The developers of the NixOS distribution drew attention to the appearance of traces of malicious activity on the host media.inkscape.org, used to load the free vector graphics editor Inkscape. In the catalog " /dl/resources/file/ " from which the download of the official issues of Inkscape (/dl/resources/file/file/inkscape-1.3.tarxz) there appeared an index file with the registration form at an Online-casino, sending data to WhatsApp number 855717520276. Potentially, the files given to Inkscape could be compromised during the attack. There are no comments on the incident from representatives of the Inkscape project yet.

https://discourse.nixos.org/t/inkscape-possible-domain-compromise/32008

Update here: https://gitlab.com/inkscape/inkscape-web/-/issues/647

RELEASE OF UBUNTUDDE 23.04:

23/08/2023

A release of UbuntuDDE 23.04 (Remix) wass published, based on the Ubuntu 23.04 code base and supplied with the DDE (Deepin Desktop Environment) graphical environment. The project is an unofficial version of Ubuntu, but the developers are trying to get UbuntuDDE to be included among the official editions of Ubuntu. Iso-image size 3.5 GB.

UbuntuDDE offers the latest release of the Deepin desktop and a set of specialized applications developed by the Deepin Linux project, including the Deepin File Manager, the DMusic music player, DMovie's video player and the DTalk messaging system. In Deepin Linux the difference is the processing of the design and

delivery instead of the catalog-shop of the Deepin application like Ubuntu Software Center with support for packages in Snap and DEB. Kwin, developed by the KDE project is used as a window manager.

https://ubuntudde.com/blog/ubuntudde-remix-23-04-lunar-release-note/

THE LIBREOFFICE PROJECT DATE-LINKED VERSIONING:
23/08/2023

In accordance with the previously approved plan, the LibreOffice project switched to a new version numbering scheme, tied to dates, reflecting the year and month of the release. The next release after LibreOffice 7.6 will be LibreOffice 24.2, the number indicates the release is in February 2024. It will be followed by the version 24.8, scheduled for August 2024.

Numbering based on the release date is more convenient for users who can immediately assess the relevance of the version used and understand the time of its creation. For developers, the new scheme is suitable due to the planned preparation model of releases, where the date of the next release is initially known. In addition, the new scheme is more optimal in terms of marketing, as it signals that significant improvements are promoted in each issue, and not only in individual iconic branches.

https://wiki.documentfoundation.org/ReleaseNotes/24.2

RELEASE OF QEMU 8.1:
23/08/2023

As an emulator, QEMU allows you to run a program built for one hardware platform on a system with a completely different architecture, for example, to execute an application for ARM on an x86-compatible PC. In virtualization mode in QEMU, the performance of code in an isolated environment is close to the hardware system by directly executing instructions on the CPU and the use of the Xen hypervisor or KVM module.

The project was originally created by Fabrice Bellard to enable the launch of x86 Linux executables on architectures other than x86. Over the years, support for complete emulation for 14 hardware architectures has been added, and the number of hardware devices emulated has exceeded 400. During the preparation of version 8.1, more than 2,900 changes from 250 developers were made.

https://lists.nongnu.org/archive/html/qemu-devel/2023-08/msg03802.html

OPENMANDRIVA ROME 23.08:
25/08/2023

OpenMandriva published the release of OpenMandriva ROME 23.08, the editorial office of the distribution using the rollomg releasee model. The proposed version allows you to access new versions of packages developed for the OpenMandriva Lx 5 branch, without waiting for the classical distribution. To download, iso-images with size of 1.8-2.9 GB with KDE, GNOME and LXQt desktops are prepared, supporting Live mode. Builds for KDE and LXQt are prepared in x86_64 and "znver1" variants (assembly optimized for AMD Ryzen, ThreadRipper and EPYC processors). Builds with KDE are supplied in trimmed (1.9 GB) and full versions (2.8 GB). There is also a server build, as well as images for the boards RaspberryPi 4 and RaspberryPi 400.

https://www.openmandriva.org/en/news/article/openmandriva-rome-23-08-and-a-glimpse-of-omlx-5-0

RELEASE OF KALI LINUX 2023.3:
24/08/2023

Kali Linux 2023.3, based on Debian and designed to test systems for vulnerabilities, auditing, analysis of residual information and detection of the consequences of attack, is out. All original developments created within the distribution are distributed under the GPL license and are available through their public Git repository. Several variants of images, 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.

https://www.kali.org/blog/kali-linux-2023-3-release/

ALMALINUX REPOSITORY WITH ADDITIONAL PACKAGES:
25/08/2023

The AlmaLinux project has announced the creation of two new repositories that will publish packages that differ from Red Hat Enterprise Linux. In the Synergy repository, the supply of additional packages began, initially missing in the RHEL package database and the EPEL repository, but in demand by AlmaLinux users. Synergy is presented as an addition to the EPEL, so in the case of a similar package in the EPEL, its version from AlmaLinux will be removed from Synergy.

Currently, the Synergy repository has already published packages with the custom Pantheon environment developed by the Elementary OS project. The composition also includes accompanying applications and components such as zeitgeist, rygel, plank, gala, folks pantheon, gupnp, switchboard, xcursorgen, granite, mdbtools, malcontent, libgd, libgda, libadwaita-1.0.0, dee and bamf. In addition, Linux Mint utility Warpinator, designed for encrypted file sharing between two computers was added. The repository is suitable for use in AlmaLinux OS 8 and 9, as well as in any other distributions based on RHEL 8.x and 9.x, including RHEL and CentOS.

The Testing repository will contain packages to eliminate vulnerabilities that have not yet been released by Red Hat for the RHEL package base. The repository is designed for early access to fixes in AlmaLinux OS 8 and AlmaLinux OS 9, but is not recommended for use in working environments, as the corrections proposed in it have not passed the full stage of testing.

https://almalinux.org/blog/new-repositories-for-almalinux-os-synergy-and-testing/

DEBIAN AND UBUNTU CREATED A REPOSITORY WITH FRESH VERSIONS OF THE

LINUX KERNEL:
25/08/2023

Stéphane Graber, leader of the Linux Containers project, a member of the Ubuntu technical board and a member of the team responsible for the release of Ubuntu, announced the creation of the Zabbly repository. It began publishing packages with fresh releases of the Linux kernel for Debian and LTS releases of Ubuntu. The presented repository will allow Ubuntu and Debian versions of the kernel, newer than the kernels delivered through the regular system of updates.

As the reason for creating a new repository, it is noted that it is necessary to provide users with the ability to use kernels with the latest drivers and wider equipment support. (When no drivers are available for new hardware)

https://stgraber.org/2023/08/24/stable-linux-mainline-builds/

UBUNTU DESKTOP DEVELOPMENT PLANS:

25/08/2023

Canonical has published an overview of the development of the Ubuntu Desktop distribution. The article also mentions that more than 6 million active users use Ubuntu builds for desktops (data based on monthly sections of update delivery statistics). Judging by the rating of Stack Overflow, the Ubuntu Desktop distribution is used by 27.28% of the 87 thousand developers surveyed (for comparison, Debian use 8.39% of respondents, Arch Linux - 8.06%, Fedora - 4.37%, RH - 2.14%, Chrome OS - 1.88%, BSD - 0.96%). Among the active Linux users of the Steam gaming service, the share of Ubuntu 22.04.2 is 7.38%, SteamOS - 42.07%, Arch Linux - 7.94%, Linux Mint 21.1 - 3.84%, Manjaro Linux - 4.29%.

https://canonical.com/blog/ubuntu-desktop-charting-a-course-for-the-future

OpenTF HAS CREATED A FORK OF TERRAFORM:

The organization 'OpenTF' has been announced that it will develop a fork of the configuration management and automation platform for the maintenance of Terraform infrastructure. The development is planned to be transferred to the Linux Foundation for the further development of the platform. This on a neutral platform Cloud Native Computing Foundation with the participation of companies and enthusiasts interested in the project. Joining the Linux Foundation will ensure that the platform is open and protect the project from changes in the policies of individual companies. Currently, all the necessary documents have been prepared to join the project to the Linux Foundation. 108 companies, 11 projects and 416 individual developers announced their support for the new organization and their intention to participate in the development of the fork.

As the reason for the creation of the fork is the transfer products to a proprietary license BSL 1.1, restricting the use of code in cloud systems competing with HashiCorp products and services. The purpose of the OpenTF project is to preserve the fully open character of the Terraform platform and continue to distribute it under a free license. The new project will also simplify the participation of third-party companies and enthusiasts in the development and decision-making

https://opentf.org/announcement

RELEASE OF MAGEIA 9:

27/08/2023

Two and a half years after the last major release, the release of the Linux distribution Mageia 9 was published, in which an independent community of enthusiasts develops fork of the Mandriva project. 32-bit and 64-bit installations (4.3 GB) and a set of Live images (3.4-3.8 GB) based on GNOME, KDE and Xfce are available for download.

https://www.mageia.org/en/9/

RELEASE OF ANTIX 23:

28/08/2023

The release of the lightweight Live distribution AntiX 23, built on Debian and focused on the outdated equipment, was announced. The release is based on Debian 12, but comes without a systemd manager and with eudev instead of udev. Runit or sysvinit can be used for initialization. The user environment is IceWM by default, but fluxbox, jwm and herbstluftwm are additionally included in the delivery. Iso-image size: 1.8 GB (full, includes LibreOffice and 4 window managers - IceWM, fluxbox, jwm and herbstluftwm), 1 GB (base), 527 MB (without graphics) and 252 MB (networking). Builds are prepared for x86_64 and i386 architectures.

https://antixlinux.com/antix-23-released/

LINUX 6.5 KERNEL:

28/08/2023

After two months of development, Linus Torvalds released the Linux 6.5 kernel.

NEWS

Among the most notable changes: support for the Intel TPMI power management mechanism, the cachestat system call, the continuation of the integration of Rust support, support for the Unaccepted Memory protocol, support for RISC-V vector instructions, the "fprobe-events" mechanism, the transfer to the outdated SLAB memory distribution mechanism, the "data-only" mode in Overlayfs, the mount mode "beneath."

The new version accepted 14674 fixes from 2016 developers, patch size - 78 MB (changes affected 17646 files, added 1294205 lines of code, removed 930515 lines). About 32% of all changes in 6.5 are related to device drivers, about 26% of the changes are related to updating code specific to hardware architectures, 8% are associated with network stack, 2% with file systems and 2% with internal kernel subsystems.

https://lkml.org/lkml/2023/8/27/348

KnotDNS 3.3.0 with DNS support over QUIC:
28/08/2023

KnotDNS 3.3.0, high-performance authoritative DNS server (recursor is made as a separate application), which supports all modern DNS capabilities, is out. The project is being developed by the Czech register of CZ.NIC, written in Xi and distributed under the GPLv3 license.

KnotDNS is characterized by a focus on the high performance of query processing, for which multi-threaded, and for the most part non-blocking implementation, scales well on SMP systems. There are features such as adding and removing zones on the fly, transferring zones between servers, DNS on top of HTTPS, DDNS (dynamic updates), NSID (RFC 5001), EDNS0 and DNSSEC extensions (including NSEC3), response intensity limits (RRL).

https://www.knot-dns.cz/2023-08-28-version-330.html

Release of the ToaruOS 2.2:
29/08/2023

A release of the Unix-like operating system ToaruOS 2.2, written from scratch and supplied with its core, loader, standard C-library, packet manager, user space components and graphical interface with a composite window manager, was published. The project was originally developed at the University of Illinois as a research work in the field of creating new composite graphic interfaces, but then transformed into a separate operating system. The project code is written in the C language and distributed under the BSD license. For download they prepared a live-image, size 6.3 MB, which can be tested in QEMU, VMware or VirtualBox.

The ToaruOS is based on a kernel using a hybrid modular architecture that combines a monolithic base and tools for the use of downloadable modules, which formalize most of the existing device drivers, such as disk drivers (PATA and ATAPI), EXT2 and ISO9660, framebuffer, keyboards, mouse, network cards (AMD PCnet FAST, Realtek RTL8139 and Intel's PROM's. The core supports Unix streams, TTY, virtual FS, pseudo-FS / proc, multithreading, IPC, ramdisk, ptrace, shared memory, multitasking and other typical features. It is also the basis for distibutions like Pony OS.

https://github.com/klange/toaruos/releases/tag/v2.2.0

Regolith 3.0:
30/08/2023

The user environment, Regolith Desktop 3.0 was released, developed by the developers of the Linux distribution of the same name. Regolith is based on GNOME session management technologies, i3 window manager and Picom and Sway composite servers. The project is distributed under the GPLv3 license. Packages for Ubuntu 20.04/22.04/23.04 and Debian 11/12 have been prepared for download.

The project is positioned as a modern desktop environment, developed for faster execution of typical actions through optimization of processes and

elimination of unnecessary disorder. The goal is to provide a functional but minimalistic interface that can be customized and expanded depending on the user's preferences. Regolith may be of interest to beginners, accustomed to traditional window systems, but want to try the frame methods(mosaic) layout of windows.

https://www.freelists.org/post/regolith-linux/Regolith-Desktop-30-general-availability-announcement

MidnightBSD 3.1:
30/08/2023

A release of the desktop-oriented MidnightBSD 3.1 operating system, 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. As an alternative, the installation of Ravenports ports are supported

https://www.justjournal.com/users/mbsd/entry/33943

Vivaldi 6.2 release:
30/08/2023

The Vivaldi 6.2 browser was released. Vivaldi builds are prepared for Linux, Windows, Android and macOS. Changes were made to the Chromium codebase, the project is distributed under an open license. The browser interface is written in JavaScript using the React library, Node.js platform, Browserify and various ready-made NPM modules. The implementation of the interface is available in the source text, but under a proprietary license.

In the new version, the developers did a lot of work on code optimization, which allowed significant speed up of the browser. In particular, the new desktop version was integrated with the React API, as a result the opening of a new window accelerated by 37% compared to the previous version of the browser, and 64% compared to the 2018 Vivaldi browser. The tests were carried out on a clean profile on the machine with a 2GHz Intel Core i3 processor. The developers of the browser are talking about the great prospects of this technology and plan to use it to speed up the operation of other components and functions of the browser. This will significantly increase the speed of the browser and the level of comfort of users with active work on the network.

https://vivaldi.com/blog/vivaldi-on-desktop-6-2/

JetBrains announces support for Wayland in IDE IntelliJ:
31/08/2023

JetBrains has announced the implementation of the Wayland support protocol in the IntelliJ open platform and integrated development environments. The changes are important for all developers of graphic applications in the Java language, as they also cover the addition of Wayland support in OpenJDK. After including the changes to one of the future releases of OpenJDK, Java programs will be able to run directly in Wayland-based environments without using the XWayland layer. JetBrainsRuntime 21, the Fork of OpenJDK 21 with built-in Wayland support used in JetBrains products, is already available for testing.

https://blog.jetbrains.com/platform/2023/08/wayland-support/

ReiserFS declared obsolete in Linux kernel:
31/08/2023

The codebase, of the Linux 6.6 kernel, a change wass accepted that translates the implementation of the ReiserFS file system from the category of supported to outdated (Obsolete) file system. Previously, the issue of deleting the ReiserFS file system from the Linux kernel was discussed in February 2022 and led to the addition to the kernel 5.18 of the note on obsolescence (Deprecate) for ReiserFS. The intention to stop its support until 2025 and recommendations are to translate existing environments into btrfs, xfs or ext4. The reason for the transfer of ReiserFS to the category of outdated, stated as the desire to reduce the labor costs for the maintenance of file-based change systems associated with the support of a new API for mount, iomap and folios.

They also mentioned stagnation as a reason, the unresolved problem of 2038 date issue and the lack of fault tolerance opportunities offered by modern FS to protect against damage in case of emergency completion or compromise. The ReiserFS user base is estimated to be insignificant and constantly shrinking. The last major distribution supporting ReiserFS remained openSUSE, but a year ago, openSUSE developers stopped supporting this FS in the Tumbleweed repository (in SUSE support was discontinued 5 years ago).

https://git.kernel.org/pub/scm/linux/kernel/git/torvalds/linux.git/commit/?id=1500e7e0726e963f64b9785a0cb0a820b2587bad

Release of LXD 5.17:
01/09/2023

Canonical has unveiled new versions of the LXD 5.16 and 5.17 container management system, formed after the transformation of LXD from a project developed by the Linux Containers community, into a corporate project fully controlled by Canonical. The LXD code is written in Go and distributed under the Apache 2.0 license.

The LXD 5.17 version implements the ability to delegate namespaces in ZFS, which allows the container to access the management of its dataset in ZFS. The toolkit added support for copying the partition snapshot to another host with a new partition on it. In the recovery utility they added the definition of unknown storage pools and recreating records in the database. LXD 5.16 added support for the download of a virtual machine from the ISO image, IP Address Management information and changes in the properties of lxc objects.

https://canonical.com//blog/lxd-5-17-is-now-available

Release of NGINX Unit 1.31 application server:
01/09/2023

The NGINX Unit 1.31.0 application server has been published, where a solution is being developed to enable web applications to run in various programming languages (Python, PHP, Perl, Go, JavaScript/Node.js, WebAssembly and Java). NGINX Unit can run several applications in different programming languages at the same time, the launch parameters can be changed dynamically without the need to edit configuration files and restart. The code is written in C and is distributed under the Apache 2.0 license. The features of NGINX Unit can be found in the announcement of the first version.

https://unit.nginx.org/news/2023/unit-1.31.0-released/

Linux From Scratch 12.0 and Beyond Linux From Scratch 12.0:
02/09/2023

The new editions of Linux From Scratch 12.0 (LFS) and Beyond Linux From Scratch 12.0 (BLFS) edits, as well as LFS and BLFS with systemd systemd management, are presented. In Linux From Scratch, instructions are given to create a basic Linux system from scratch, using only the source code of the necessary software. Beyond Linux From Scratch complements LFS instructions with information on how to build and configure about 1,000 software packages covering various applications, from DBMS

and server systems, to graphic shells and media players.

Beyond Linux From Scratch 12.0 noted 1543 updates, including GNOME 44, Xfce 4.18.1, KDE Plasma 5.27.7, KDE Gears 23.08, LibreOffice 7.6, Fmpeg 6.0, Inkscape 1.3, Thunderbird 115.2.0, Firefox 115.2.0, SeaMonkey 2.53.17, GIMP 2.10.34, IceWM 3.4, IGD, I, 3, I, 3, 3, 3, 3, 3,2.0, Postfix 3.8.1, Exim 4.96, BIND 9.18.18, Apache httpd 2.4.57, etc. They added LXQt user environment. An alternative method of building a compact version of the Qt library, using fewer dependencies, was proposed. In the next release, support for the user environment LXDE and ReiserFS (reiserfsprogs) file system are scheduled for termination.

https://lists.linuxfromscratch.org/sympa/arc/lfs-announce/2023-09/msg00000.html

Armbian 23.08:
02/09/2023

A release of Armbian 23.08, which provides a compact system environment for various single-board computers with processors based on ARM, RISC-V and x86 architectures, including various models of Raspberry Pi, Odroid, Orange Pi, Banana Pi, Helios64, pine64, Nanopi and Cubieboard based on Allwinner, was announced.

Debian and Ubuntu are used to form builds, 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, written 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. When entering 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. 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-23-8/

Release of Nitrux 3.0:
03/09/2023

Nitrux 3.0, built on Debian, KDE technologies and the OpenRC initialization system, has been published. The project offers its own NX Desktop desktop, which is an add-on over KDE Plasma. A set of typical user applications is developing, which can be used on both desktop and mobile devices, based on the Maui library. AppImages is being promoted to install additional applications. The full image is 3.3 GB. The project is distributed under free licenses.

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

https://nxos.org/changelog/release-announcement-nitrux-3-0-0/

Development of Servo transferred to the Linux Foundation Europe:
11/09/2023

The development of the browser engine Servo has officially been managed by the non-profit organization, Linux Foundation Europe. It will develop as an independent browser engine on a neutral platform with the involvement of community from interested developers and companies.

The Servo project was created in 2012 by Mozilla as part of an

experiment to improve security and enhance Firefox multithreading. In 2013, Samsung joined the development. In 2020, Mozilla fired the team that developed Servo and handed it over under the wing of the Linux Foundation. After that, the development of the engine was in stagnation for about two years. In 2023, Igalia, a member of the Linux Foundation Europe, joined the development of Servo. Under the auspices of the Linux Foundation Europe, Igalia managed to assemble a new team of engineers for the development of Servo.

Servo is written in Rust and is distinguished by support for multithreaded rendering of web pages, as well as paralleling operations with DOM (Document Object Model). Firefox has already integrated some parts of Servo, such as a multithreaded CSS engine and WebRender drawing system.

https://servo.org/

THE MOJO PROGRAMMING LANGUAGE
11/09/2023

The developers of the Mojo programming language have opened access to the Mojo SDK toolkit, which allows you to compile projects on the local system. The Mojo SDK builds for the Linux platform has been prepared for download. Registration on the project site is required. The original code of the compiler and other parts of the project are planned to be opened after the completion of the design of the internal architecture.

The Mojo SDK includes the components required for the development of Mojo applications, including the compiler, runtime, an interactive REPL shell for assembling and running programs, an addition to the Visual Studio Code (VS Code) code editor, with support for auto-addition, codefringing and syntax highlighting, a module for integration with Jupyter for building and launching a Mojo notebook. In the near future, a debugger will also be added to the composition, supporting step-by-step debugging and inspection of programs.

The Mojo project is being developed under the direction of Chris Lattner, the founder and chief architect of the LLVM project and the creator of the Swift programming language.

https://www.modular.com/blog/mojo-its-finally-here

OVER 1.5 MILLION COPIES OF LIBREOFFICE 7.6 DOWNLOADED IN TWO WEEKS:
11/09/2023

The Document Foundation has published statistics on the release of LibreOffice 7.6. It is reported that in the first two weeks of the LibreOffice 7.6.0 release, it was downloaded from the project site 1.587 million times (the statistics do not take into account users of distributions using LibreOffice from regular repositories).

If we contrast that to the old Apache OpenOffice project, the last version of Apache OpenOffice was 4.1.14, published in February, it was downloaded 791 thousand times in the first two weeks, and 1.85 million times since, despite the project being in deep stagnation.

https://blog.documentfoundation.org/blog/2023/09/11/1-5-million-downloads-of-libreoffice-7-6/

RELEASE OF FHEROES2 - 1.0.8:
11/09/2023

The fheroes2 1.0.8 project is available, which recreates the Heroes of Might and Magic II engine from scratch. The project code is written in C++ and distributed under the GPLv2 license. Starting the game requires files with game resources, which can be obtained from the original game Heroes of Might and Magic II.

https://github.com/ihhub/fheroes2/releases/tag/1.0.8

AN OPENSUSE SLOWROLL DISTRIBUTION TO REPLACE OPENSUSE LEAP:
12/09/2023

The openSUSE project began the development of a new openSUSE Slowroll distribution, created off the openSUSE Tumbleweed distribution, but differing in the slower continuous program version update cycle. It is expected that new versions of openSUSE Slowroll will be formed once every months or two, with the interim permanent publication of package updates with bug fixes and vulnerabilities. Ready-images are prepared (4.4GB) for x86_64 architecture.

openSUSE Slowroll is positioned as an intermediate option between the constantly updated openSUSE Tumbleweed and the conservative openSUSE Leap, both based on SUSE Enterprise Linux packages. Updates are planned to be first transferred to the Factory/Tumbleweed repository and after some time, allotted for inspection and identification of problems, then automatically transfered to the Slowroll repository. Thus, Slowroll can be considered as a variant of Tumbleweed, where packages will have a certain delay on stabilization.

https://en.opensuse.org/openSUSE

RELEASE OF SYSLINUXOS 12.1:
12/09/2023

A new release of the SysLinuxOS 12.1 distribution, built on Debian 12 and optimized for system integrators and administrators, is available. You can download builds with GNOME (4.8 GB) and MATE (4.9 GB). The environment works in Live mode, but also supports installation on the disk with the help of the Calamares installer.

It includes a selection of pre-installed applications for monitoring and diagnosis of a network, tunneling traffic, launching a VPN, remote access, intrusion detection, security checks, simulating networking and traffic analysis, which can be used immediately after downloading the distribution to a USB drive. Included applications are: Wireshark, Etherape, Ettercap, PackETH, Packetsender, Putty, Nmap, GNS3, Lssid, Packet Tracer, Wine, Virtualbox, Teamviewer, Anydesk, Remmina, Zoom, Skype, Packetsender, Sparrow-Wifi, Angry Ip Scanner, Fast-cli, Speed, Speed, ip, ip, ip,jails, Cacti, Icinga, Monit, Nagios4, Fail2ban, Wireguard, OpenVPN, Firefox, Chrome, Chromium, Microsoft Edge and Tor Browser. In the new release, the Linux kernel has been updated to version 6.4.

https://syslinuxos.com/syslinuxos-12-1-released/

RELEASE OF RCLONE 1.64:
13/09/2023

The release of the rclone 1.64 utility, which is an analogue of rsync, designed to copy and synchronize data between the local system and various cloud storages, such as Google Drive, Amazon Drive, S3, Dropbox, etc, was announced. The utility can be used to store encrypted backups in cloud systems, transfer data between cloud storages, mount cloud storage to local directories and present multiple cloud FS as one whole. The project code is written in Go and distributed under the MIT license.

https://forum.rclone.org/t/rclone-v1-64-0-release/41649

FEDORA 40 PLANS TO STOP X11 SUPPORT IN KDE:
14/09/2023

Iffe Moloney of the Fedora Community Platform Engineering Team has published a plan for the transition to KDE Plasma 6, user environment in the spring release of Fedora 40. The plan was prepared with the participation of Fedora developers from the KDE SIG team, who are responsible for the support of KDE packages for Fedora. They say that the transition to KDE 6 will completely stop the session support based on the X11 protocol, leaving only Wayland. Support for launching X11 applications in a Wayland-based session will be provided with the XWayland DDX server. The proposal has not yet been reviewed by FESCo (Fedora Engineering Steering Committee), responsible for the technical part of the development of the Fedora distribution.

https://lists.fedoraproject.org/archives/list/devel-announce@lists.fedoraproject.org/thread/I3O6DZCT6WFGF5SQ2IPJSYAVBGZ3N47U/

UBUNTU 23.10 AND ZFS:

14/09/2023

In the installers used to install Ubuntu 23.10 server and desktops, it will support installation using the ZFS file system, on the root partition. In Ubuntu Desktop, this feature was present earlier, but was removed in Ubuntu Desktop 23.04 due to the use of a new installer written in Dart and a user interface based on the Flutter framework.

One of the drawbacks of the new installer, which is also used in Ubuntu Server, was the lack of ZFS support, but in the 23.10 release, this will be eliminated, with one caveat - until the ability to create encrypted partitions ZFS is implemented. By default, all versions of Ubuntu continue to offer the Ext4 file system, and support for ZFS is positioned as

experimental.

Just know that lawyers are involved at this stage.

https://github.com/canonical/ubuntu-desktop-installer/issues/2312

FREE DOWNLOAD MANAGERBACKDOOR:

14/09/2023

Researchers from Kaspersky Lab have identified a malicious deb-package package for the download manager, Free Download Manager (FDM), distributed through the de.fdmpkg.org repository, which was referred to by the official website of the project after the hack. The harmful code that sent confidential information and credentials was called through the handler, run by the package manager post install. The FDM version with malicious insertion was published in January 2020 and was distributed through the official website of the project (freedownloadmanager.org) at least until the site's update in 2022.

The developers of Free

Download Manager reported that they had started the proceedings and announced measures to strengthen the protection of infrastructure, which will prevent such incidents in the future. Users who installed the Linux-build of FDM from 2020 to 2022, should check their systems for the presence of malware and change all passwords used. According to preliminary data, in 2020, the project site was hacked and the attackers changed the content of the page with a link for download. The original reference was replaced by the deb.fdmpkg.org repository controlled by attackers.

https://www.freedownloadmanager.org/blog/?p=664

RELEASE OF POSTGRESQL 16 DBMS:

15/09/2023

After 11 months of development, a new stable branch of the PostgreSQL 16 DBDD was published. Updates for the new branch will be released for five years until November 2028. Support for PostgreSQL 11.x, the

oldest supported branch, will be discontinued on November 9.

https://www.postgresql.org/about/news/postgresql-16-released-2715/

RELEASE OF LKRG 0.9.7:

15/09/2023

LKRG 0.9.7 (Linux Kernel Runtime Guard) a module designed to detect and block attacks and violations of the integrity of the kernel structures. For example, the module may protect against unauthorized modifications to the operating core and attempts to change the authority of user processes (defined application of exploits). The module is suitable for both the protection against exploits of already known vulnerabilities of the Linux kernel (for example, in situations where it is problematic to update the kernel in the system), and to resist exploits for as yet unknown vulnerabilities. The project code is distributed under the GPLv2 license. You can read about the features of the LKRG implementation in the first announcement of the project.

NEWS

RELEASE WINE 8.16:
16/09/2023

An experimental release of the open implementation of WinAPI - Wine 8.16, was announced. Since the release of version 8.15, 33 error reports have been closed and 489 changes have been made.

https://www.winehq.org/announce/8.16

DENTOS 3.2 NETWORK OPERATING SYSTEM:;
16/09/2023

The release of the network operating system, DentOS 3.2, based on the Linux kernel and designed for switches, routers and specialized network equipment, was published. The project was originally founded by Amazon for the network equipment in its infrastructure, but then came

under the patronage of the Linux Foundation. Key participants in the project, included companies such as Delta Electronics, Marvell, NVIDIA, Edgecore Networks and Wistron NeWeb (WNC). The DentOS code is written in C and distributed under the Eclipse Public License.

The system is available for switches based on Marvell and Mellanox ASIC's, with up to 48 10-gigabit ports. It supports various ASIC and network data processors, including the Mellanox Spectrum ASIC chips, Marvell Aldrin 2 and Marvell AC3X with the implementation of hardware packet redirection tables.

https://github.com/dentproject/dentOS/releases/tag/v3.2

LIBADWAITA 1.4 LIBRARY:
17/09/2023

The GNOME project has published a release of the Libadwaita 1.4 library, which includes a set of components for the style design of the user interface that meets the GNOME HIG (Human Interface Guidelines).

The library includes ready-made widgets and objects for building applications that match the general GNOME style, which can adapt to screens of any size. The library code is written in C and distributed under the LGPL 2.1+ license.

The libadwaita library is used in combination with GTK4 and includes components of the Adwaita design theme used in the GNOME, which were taken from the GTK to a separate library. The removal of GNOME visual design elements to a separate library, allows one to develop the changes necessary for GNOME separately from GTK, whichin turn allows GTK developers to focus on basic things, and GNOME developers to more quickly and flexibly promote the necessary changes in style design, without affecting GTK itself.

The library includes typical widgets covering various interface elements such as lists, panels, editing blocks, buttons, tabs, search forms, dialog boxes, etc. The proposed widgets allow you to create universal interfaces that function organically on both large PC and laptop screens, and on small touch screens of

smartphones. The application interface changes dynamically depending on the size of the screen and the input devices available. The library also includes a set of Adwaita styles that align the appearance with GNOME recommendations, without the need for manual adaptation.

https://blogs.gnome.org/alicem/2023/09/15/libadwaita-1-4/

RELEASE OF WEBKITGTK 2.42.0:
18/09/2023

The release of a new stable branch of WebKitGTK 2.42.0, a 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'd know GNOME (Epiphany) browser. Previously, WebKitGTK was used in

the Midori browser, but after the transfer of the project to the Astian Foundation, they created a fundamentally different product with the same name Midori, but based on the Electron and React platform.

https://webkitgtk.org/2023/09/15/webkitgtk2.42.0-released.html

ANGIE 1.3.0, A RUSSIAN NGINX FORK:
18/09/2023

The high-performance HTTP server and a multi-protocol proxy server Angie 1.3.0, branched from Nginx by a group of former project developers who resigned from the F5 Network company, has been published. The original Angie code are available under a BSD license. The project received compatibility certificates with the Russian Red OS operating systems, Astra Linux Special Edition, Alt and FSTEC versions of Alt.

The development is supported by a company named "Webserver", formed last fall and received an investment of $1 million. Among the co-owners "Webserver":

Valentin Bartenev (leader of the team that developed the product Nginx Unit), Ivan Poluyanov (former head of frontland developers Rambler and Mail.Ru), Oleg Mamontov (head of the technical support team NGINX Inc) and Ruslan Yermilov (Rus.FreeBSD.org).

https://github.com/webserver-llc/angie/releases/tag/1.3.0

RELEASE OF RPM 4.19 PACKAGE MANAGER:
19/09/2023

After a year of development, they released the package manager, RPM 4.19.0. The RPM4 project is being developed by Red Hat and is used in distributions such as RHEL (including derivative projects CentOS, Scientific Linux, AsiaLinux, Red Flag Linux, Oracle), Fedora, SUSE, openSUSE, ALT Linux, OpenMandriva, Mageia, PCLinuxOS, Tizen and many others. Previously, the RPM5 project created an independent development team that is not directly related to RPM4 and is currently abandoned (not updated since 2010). The project code is distributed under the licenses of

GPLv2 and LGPLv2.

http://rpm.org/

IT'S BEEN 32 YEARS SINCE THE FIRST RELEASE OF THE LINUX 0.01 KERNEL:
19/09/2023

It has been 32 years since the first release of the Linux kernel. The 0.01 core was the size of 116 Kb in compressed form (62 Kb after repackaging from tar.Z to tar.gz), which included 88 files and contained 10239 lines of source code. According to Linus Torvalds, it is the moment of publication of the 0.01 core, not the day of the announcement of the working prototype, is the real birthday of Linux.

https://lkml.org/lkml/2023/9/17/253

BCACHEFS ADDED TO THE LINUX-NEXT KERNEL:
20/09/2023

The linux-next branch, which tests the future releases of the

Linux kernel, added the Bcachefs file system code. Earlier, Kent Overstreet, author of Bcachefs and a Linux kernel block caching system on BCache SSDs, sent Linus Torvalds a pull request to include the Bcachefs code in the core of the Linux kernel, but Linus rejected them and recommended that they should be evaluate the suitability of the proposed patches in the experimental Linux branch. In case of successful review of Bachefs, it can be included in the core 6.7, which is expected to be released in December.

The purpose of the development of Bcachefs is to achieve the performance level of XFS, as well as reliability and scalability. [While providing additional features inherent in Btrfs and ZFS, such as the inclusion in the partition of several devices, multi-layer layouts, RAID, caching, transparent data compression (LZ4, gzip and ZSTD modes), status cuts, and the ability to record the amount of the data5/6), storage of information in encrypted form (used by ChaCha20 and Poly1305Poly1305)]. In terms of performance, Bcachefs is ahead of Btrfs and other file systems based on the Copy-on-Write mechanism,

and demonstrates the speed close to Ext4 and XFS.

https://bcachefs.org/

APACHE PINOT 1.0:
20/09/2023

The Apache Software Foundation has released OLAP storage, Apache Pinot 1.0, designed to perform analytical requests. The Pinot project was originally developed by LinkedIn and in 2015 was handed over for further joint development to the Apache Foundation. The repository is laid out to the constant addition of new data and is designed to provide minimum and predictable delays to use the storage to handle real-time requests. The project code is written in Java and distributed under the Apache license.

Apache Pinot provides horizontal scalability and provides means to achieve fault tolerance and survivability in case of software and hardware errors. Replication and backup processes are built directly into the processing cycle of data added to

the storage. On the one hand, this approach makes it much easier for the architecture, but, on the other hand, leads to a delay between adding data and their availability for requests. Data in the repository can be downloaded from different sources, starting with Hadoop and regular files to receiving information from online sources such as Kafka. Apache Helix is used to control the Pinot cluster.

https://pinot.apache.org/blog/2023/09/19/Annoucing-Apache-Pinot-1-0/

OPENTF RENAMED OPENTOFU:
20/09/2023

The project to create a fork of the configuration management and automation platform for the maintenance of the Terraform infrastructure was renamed from OpenTF to OpenTofu to avoid Hashicorp trademarks. The "tf" extension was replaced by "Tofu" as the combination of "tf" is already used in Terraform file extensions, in variables and functions in code, as well as in the names of TFC (Terraform Cloud)

and TFE (Terraform Enterprise) products. Since OpenTofu is positioned as a product for enterprises, the creators of the fork decided to exclude all potential risks associated with possible lawsuits for trademark infringement and Hashicorp's trademark and intellectual property.

Official adoption was announced and at the same time OpenTofu is one of the Linux Foundation projects. The development of a fork on a neutral platform under the auspices of the Linux Foundation will guarantee the preservation of the open nature of the platform, protect the project from changes in the policy of individual companies and simplify the participation of third-party companies. 147 companies and 734 individual developers announced their support for the new organization and their intention to participate in the development of the fork. The companies that joined the OpenTofu initiative have allocated resources for the development of the fork, equivalent to the work of 18 full-time engineers over the next 5 years (for comparison, the last two years in HaCshiorp

Terraform was developed 5 engineers).

https://www.terraform.io/

GNOME 45:
20/09/2023

After six months of development, the GNOME 45 desktop is available. Specially, openSUSE-based Live-builds and openSUSE installation images prepared under the GNOME OS initiative are offered for quick evaluation of the GNOME 45. GNOME 45 is also included in the experimental builds of Ubuntu 23.10 and Fedora 39.

https://foundation.gnome.org/2023/09/20/introducing-gnome-45/

FEDORA LINUX 39 BETA:
21/09/2023

Beta version of the Fedora Linux 39 has began testing. Beta marked the transition to the final testing stage, where only correction of critical errors is allowed. The release is scheduled

for October 17. The release covers Fedora Workstation, Fedora Server, Fedora Silverblue, Fedora IoT, Fedora CoreOS, Fedora Cloud Base, Fedora Cloud Base, Fedora Onyx and Live builds supplied in the form of spins with user environments like KDEs Plasma 5, Xfce, MATE, MATE, Cinnamon, LXD, PCE, LXQt, Budgie and Sway. The builds are for x86_64, Power64 and ARM64 architectures only.

https://fedoramagazine.org/announcing-fedora-39-beta/

LOCAL VULNERABILITY IN THE NETWORK SUBSYSTEM OF THE LINUX KERNEL:
22/09/2023

The Linux kernel network subsystem identified a vulnerability (CVE-2023-42752), which allows one, through manipulations with network sockets in the user's space, to overwrite the contents of the kernel memory, which can potentially be used to execute some of their code by an unprivileged user at the kernel level. The vulnerability is local and cannot be exploited remotely on

the network. The inclusion of the SMAP (Supervisor Mode Access Prevention) mechanism in the kernel blocks the problem.

https://www.openwall.com/lists/oss-security/2023/09/18/3

BOTTLEROCKET 1.15:
22/09/2023

The release of Bottlerocket 1.15.0, developed with the participation of Amazon for the efficient and secure launch of isolated containers, has been published. The tools and control components of the distribution are written in the Rust language and distributed under MIT and Apache 2.0 licenses. Bottlerocket is launched in the Amazon ECS, VMware and AWS EKS Kubernetes clusters, as well as the creation of arbitrary builds and editors that allow the use of various orchestration tools and runtime for containers.

The distribution provides an atomically and automatically updated indivisible system image, including the Linux kernel and a minimum system environment,

including only the components needed to run the containers. The system manager, Glibc library, assembly tools are involved in the environment Buildroot, GRUB loader, network configurator, runtime for isolated containerd containers, Kubernetes container orchestration platform, aws-iam-authenticator and Amazon ECS agent.

Container orchestration tools are supplied in a separate control container that is enabled by default and operated via API and AWS SSM Agent. The basic image does not have a command shell, an SSH server and interpreted languages (for example, there is no Python or Perl) - the means for the administrator and debugging tools are placed in a separate service container, which is also disabled by default.

https://github.com/bottlerocket-os/bottlerocket/releases/tag/v1.15.0

BETA-RELEASE OF UBUNTU 23.10:
23/09/2023

The beta-release of the Ubuntu 23.10 "Mantic Minotaur" distribution is out, after the full freezing of the package base was made, and the developers switched to the final testing and error correction. The release, which is an intermediate release, with updates for 9 months, is scheduled for October 12. Ready test images are created for Ubuntu, Ubuntu Server, Lubuntu, Kubuntu, Ubuntu Mate, Ubuntu Budgie, Ubuntu Studio, Xubuntu, UbuntuKylin (edition for China), Ubuntu Unity, Edubuntu and Ubuntu Cinnamon.

https://lists.ubuntu.com/archives/ubuntu-announce/2023-September/000295.html

ARCH LINUX MOVES TO YESCRYPT FOR PASSWORD HASHES:
23/09/2023

The developers of Arch Linux announced the change of the default scheme of passwords from

SHA512 to yescrypt. They also announced the transition to storage of umask settings in the configuration file /etc/login.defs instead /etc/profile. The Argon2 algorithm was also considered in the quality of the password hashing option, which won the Password Hashing Competition in 2015, but it is not used in Arch Linux as it is not supported in the libxcrypt library used in PAM.

Yescrypt expands the capabilities of classic scrypt support for the use of high RAM consumption circuits and reduces the efficiency of attacks using GPU, FPGA and specialized chips. Yescrypt's security is ensured by the use of already proven cryptographic algorithms SHA-256, HMAC and PBKDF2.

https://archlinux.org/news/changes-to-default-password-hashing-algorithm-and-umask-settings/

RELEASE OF VISOPSYS 0.92:

23/09/2023

After two years of development, the Visopsys 0.92 (VISual OPerating SYStem) visual operating system was released. The system code is designed from scratch and is distributed as source code under the GPLv2 license. The downloadable Live image takes up 23 MB.

The graphical subsystem, with which the user interface is formed, is integrated directly into the OS kernel, while the work in the console mode is also supported. FAT32 is offered from the read/write file systems, the read mode is additionally supported by Ext2/3/4. Visopsys implemented multitasking, multithreading, network stack, dynamic binding, support for asynchronous input/output and virtual memory. A type of application and standard C-library has been prepared. The core works in a 32-bit protected mode and is decorated in a massively monolithic style (all compiled, without module support). The files are executed in the ELF standard format. There is built-in support for JPG, BMP and ICO images.

https://visopsys.org/news/

RELEASE OF GECKOS 2.1:

24/09/2023

After 4 years of development, the GeckOS 2.1 operating system was published, aimed at using on systems with eight-bit MOS 6502 and MOS 6510 processors used in the Commodore PET, Commodore 64 and CS/A65 PCs. The project has been developing by one author since 1989, written in assembler and C, and is distributed under the license of GPLv2.

The new version has improved the implementation of ps and ls utilities, added setinfo application to change information about the tasks performed, created utilities kill, hexdump, wc and more, proposed a new command interpreter lsh. Improved port operation for C64, PET and CBM 8x96 platforms. There is also a return port for the CS/A65 platform.

https://github.com/fachat/GeckOS-V2/tree/v2.1.0

RELEASE OF RETROARCH 1.16:

24/09/2023

The release of the RetroArch 1.16 project, which develops an add-on for emulation of various game consoles, that allows you to run classic games using a simple unified graphical interface, has been published. There are emulators for 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, saving the state, 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-1-16-0-release/

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

After choosing a web server from our previous CnC, the next thing you may need is a Github account. I know some are going batty wanting your personal information and credit card numbers (looking at you Gitlab!!!), but we do not play that game. We will put this out in a recipe for you to follow. We will just touch on the basics, and if you play with what we have shown you, you will be a lot more comfortable with git.

1. Go to github.com and click on sign up.

2. Go to proton.me and create an email just for this.
3. Use the free proton account to sign up at github.
4. Do **not** click the enterprise button.
5. Fill in the details, choose student, and finally click "Continue for free".
6. I don't care if the Pope himself blesses the website, never give your real details anywhere.

The process will complete and you will end up on a dashboard, like so (below):
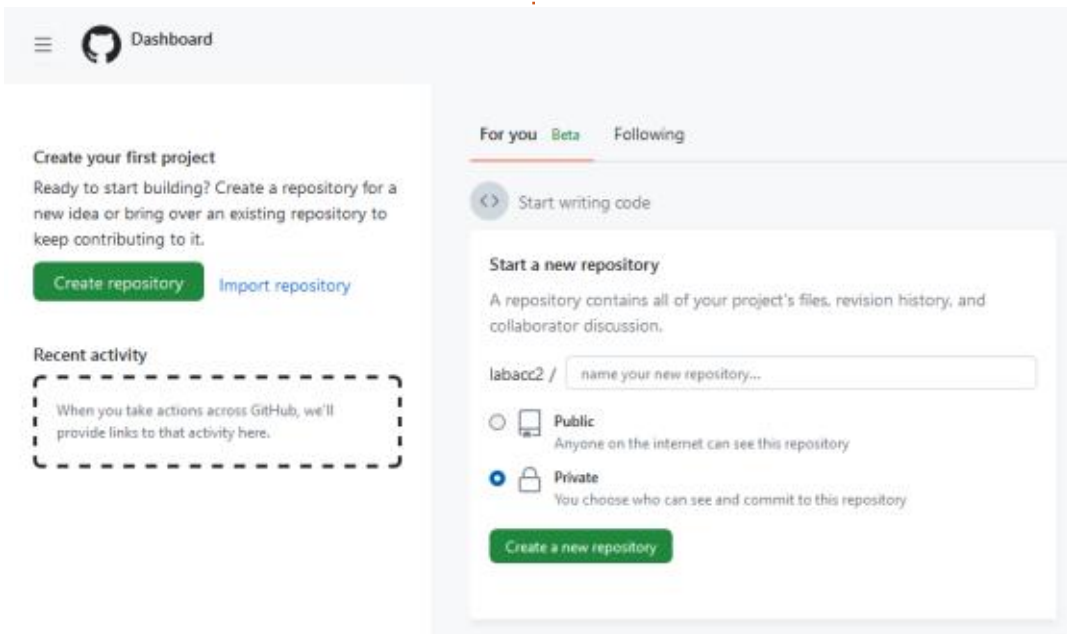
While this may look daunting, it is not. The green "create repository" buttons are there to help you create a codepage for you. Now it does not have to be CODE!! You can store your napalm recipes here. Just choose a name that means something if you come back to it in a year. While hailzoltan, may be a funny name for a repository, dudewheresmycarquotes may be

better, but it is up to you in the end.

I named mine FCMtut1, and was greeted by this window (below). Man, you can see UI design is not the focus in Github! Since we are n00bs, and have never used Git before, we definitely do not want to mess things up by clicking something we are unfamiliar with… right?
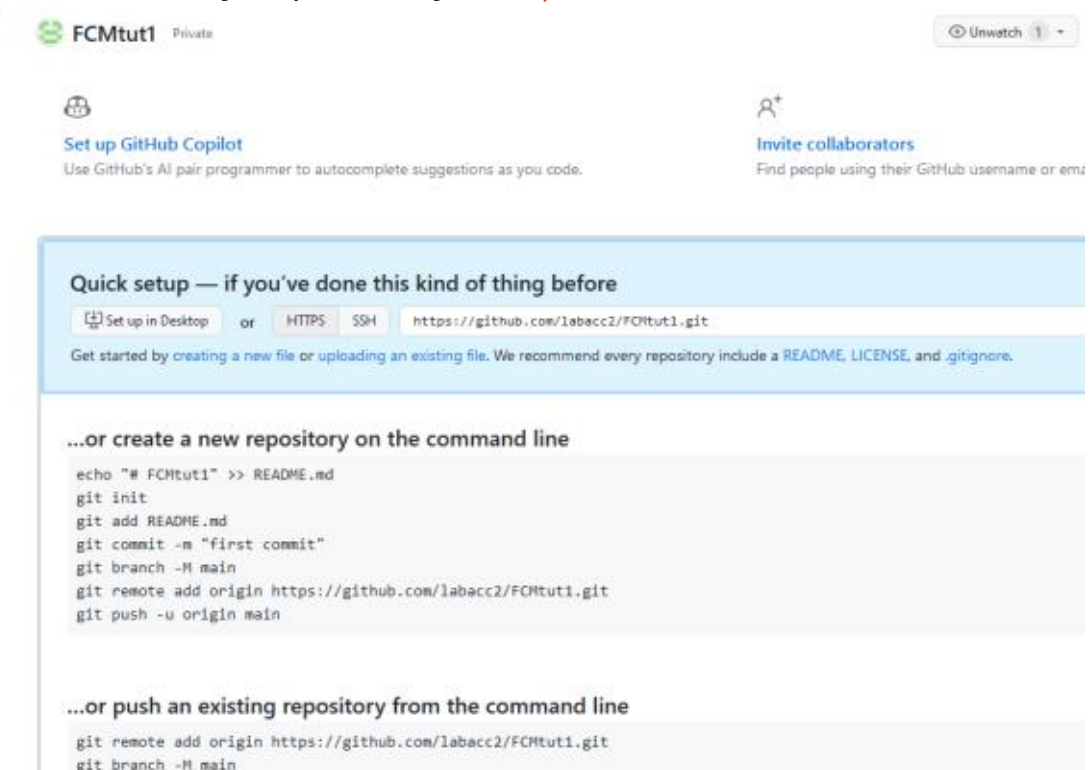
COMMAND & CONQUER

You may also have received an email pointing you here: https://docs.github.com/en/get-started/quickstart/set-up-git?email_source=welcome - but unless you know, it is all gibberish.

Though we HAVEN'T done this before, the best place to start is in that blue box… "creating a new file"

Each project you create is going to need a name, it can be as simple as quotes.txt. It can be a code project, myhomepage.html, whatever, go ahead and experiment (below).

Once you are done faffing around, you may have noticed a big green "commit changes…" button to the right. Think of this as the save button. For someone who has never seen this before, it may seem scary or retarded, but like anything, you will get used to it.

Then this pops up:
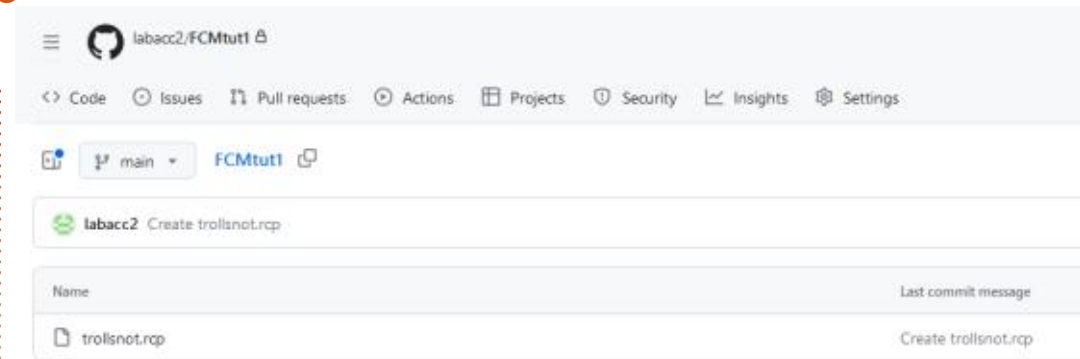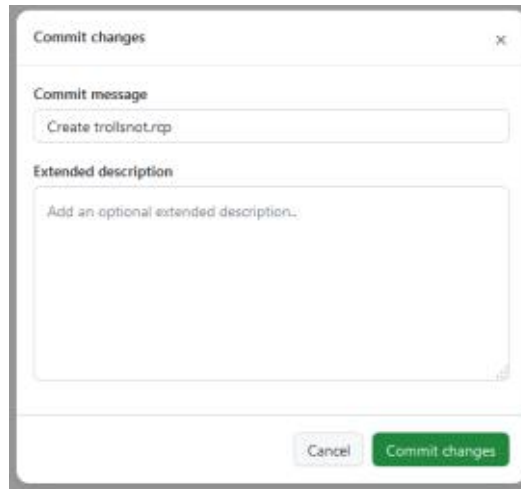
Honestly, if you use git for poems or whatever, you don't need to add anything in here, but this becomes important when you share your repository with other people. They have no idea what you did, and this is one way to tell them. This could also be important in the future for you too, you may see the commit message saying "changed the cache size" or even refer to a ticket logged by a user asking for a feature. It's like a label on a bottle of wine, I mean all red wines look alike and you cannot tell a Shiraz apart from a Merlot by looking at it.

Click "Commit changes" and instead of just saving the file like other editors, you will be thrown back to what looks like an index (shown above).

If you hover over the name or commit message, you will see that

it is clickable, and clicking the name will bring you right back to the editor.

This is all fine and dandy for your crochet patterns, but we are going to be making things on our Ubuntu machines and we want it to go to Github, without having to either copy paste and log into the website or click upload file. We want things streamlined!!

Open up your terminal and type:

```
sudo apt install git
```

Voila! You now have git.

Now if you have never used git before, you will probably use it at some stage. Here is an example. I want to change my icons on Ubuntu and I'm going to be lazier than usual. Please follow along to
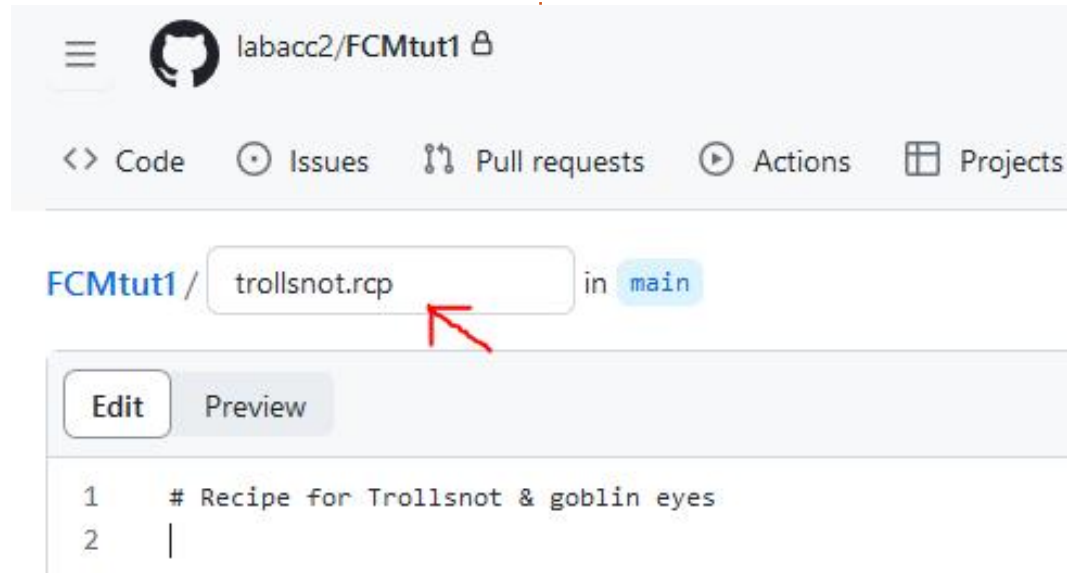
COMMAND & CONQUER

see how easy it actually is. We will use it in this series, so don't skip over it.

Your destination is: https://github.com/vinceliuice/WhiteSur-icon-theme

On this page I want you to expand the "code" button and click the copy button next to the address like that shown below.

In the terminal type:

```
git clone <paste the link here>
```

like shown top right.

Hit Enter and wait for it to complete. What happened is that you just got all Vince's files (this is what happens when you make your repository "public"). You can now cd into the directory that it just created for you, and run the install.sh executable. (Don't worry, it is safe, I checked and you can too!). If you have the Gnome-tweaks tool installed, you can change your icon theme to WhiteSur. This is only one way of using git, but it goes both ways, with git you can upload as well as download. It makes working on a project easy for multiple users at
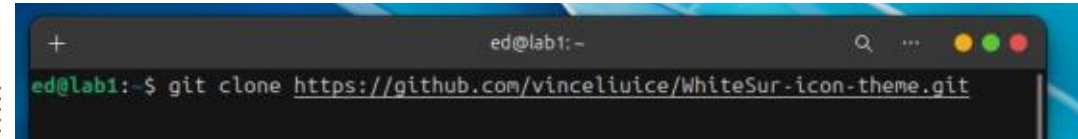
once. I will not go into explaining the nitty-gritty of git, unless someone wants me to? In that case, you know the drill, misc@fullcirclemagazine.org, or reach out to me on Telegram.

Cool, now knowing what git is may be a little demystified for other n00bs, like I was when I first picked up a copy of FCM back in the day. Also I now have a cool new icon set – check it out! :)

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.
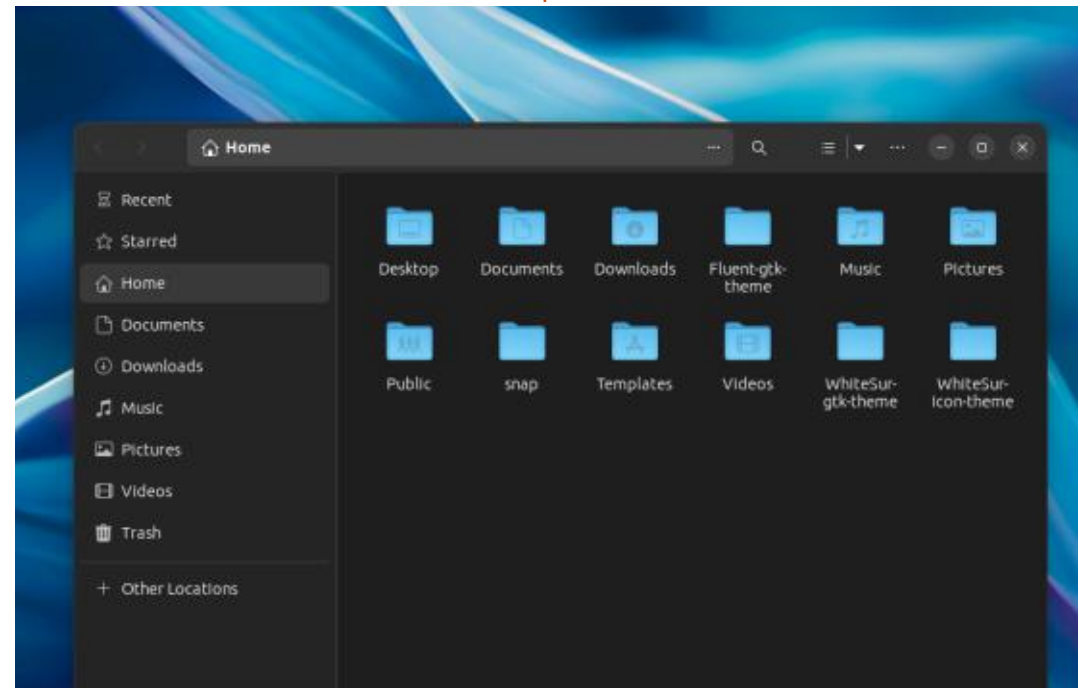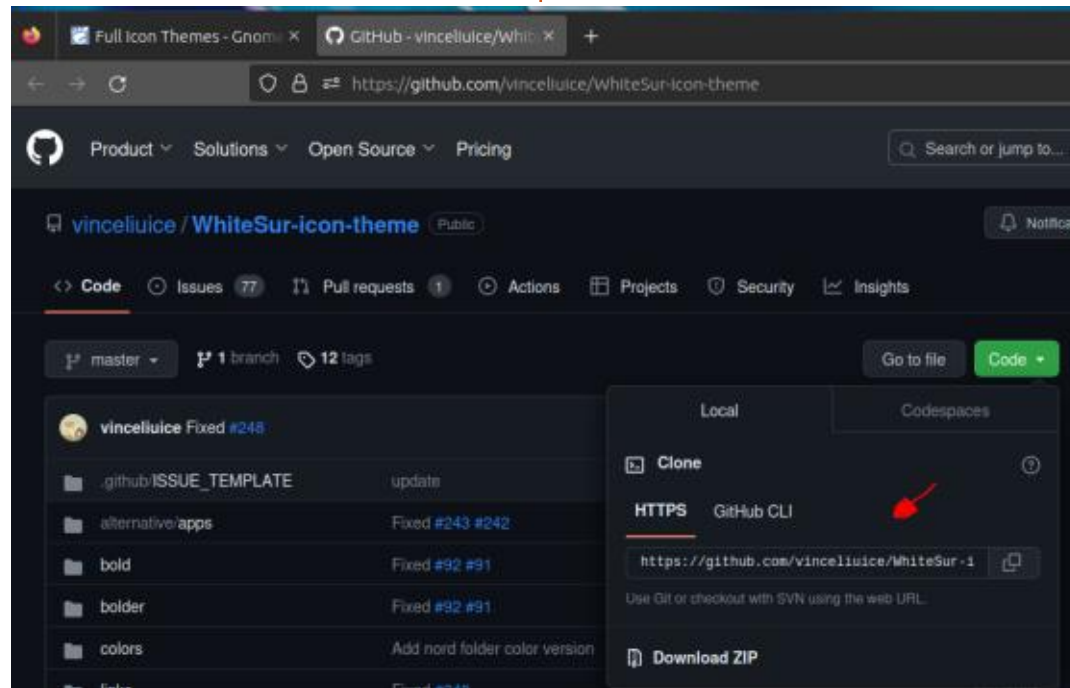
Hello again, fellow Beings. I come again to you from the remote land of Central Texas.

As the article title suggests, I'm going to be talking about PAGE again. This time, I will show you how to push the envelope and add Tcl widgets WITHOUT using a Custom widget.

If you are at all familiar with PAGE, you might know that there are a couple of "normal" widgets that PAGE doesn't include in its toolbox. While that leaves a gap in PAGE and its set of widgets that you can use, there has never been a great request for support for those widgets, which is one reason they haven't been added before now.

What widgets would I be talking about? The Menubutton and the OptionMenu widgets.

Let's take a quick look at each of these to see what benefits they give us.

MENUBUTTON

The Menubutton widget is like having a normal menubar-type menu but on a button.
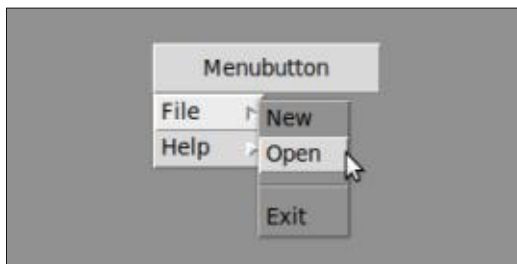
You can use all the "normal" menu items on a Menubutton. This includes cascade, command, separators, checkbuttons, and radiobuttons. In addition, you can include accelerators, images, and create column breaks.
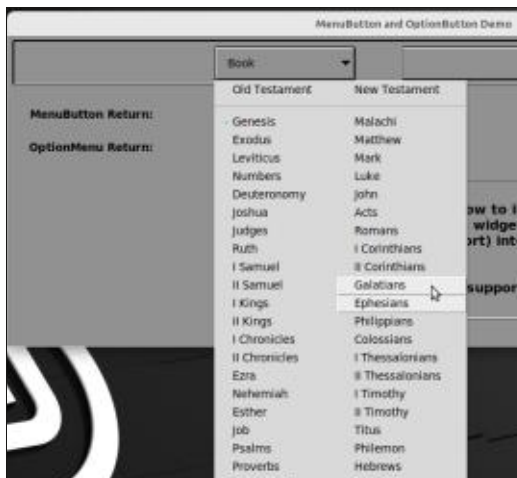

The image above shows a very long menubutton option set that represents all of the books of the King James Bible version, grouped into the Old testament books and New testament books, split with a column break between, and each column has a "header" which is made up of a disabled menu item. Each of the menu items are Radiobutton items, which immediately return an integer value that can be looked up in the list that created the menu that represents the selection the user makes.

OPTIONMENU

The OptionMenu widget is like a low-tech combobox widget.

When you click on the dash on the side, you get a dropdown with your options.
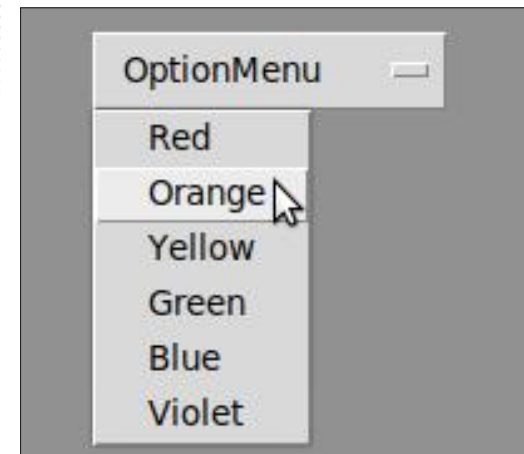
THE PROJECT

I actually created two fairly similar projects for this month, but I'm going to go over only one of them. (Could you hear Ronnie give out a sigh of relief there?) However, I'm going to include them both in the repository for this month. The one we will look at here is a simple project that can be found in the repository under the name of "mb_om_demo.py". I won't go too deep into the creation of the project under PAGE, since it will be fairly obvious how I created it.

Basically there are four labels
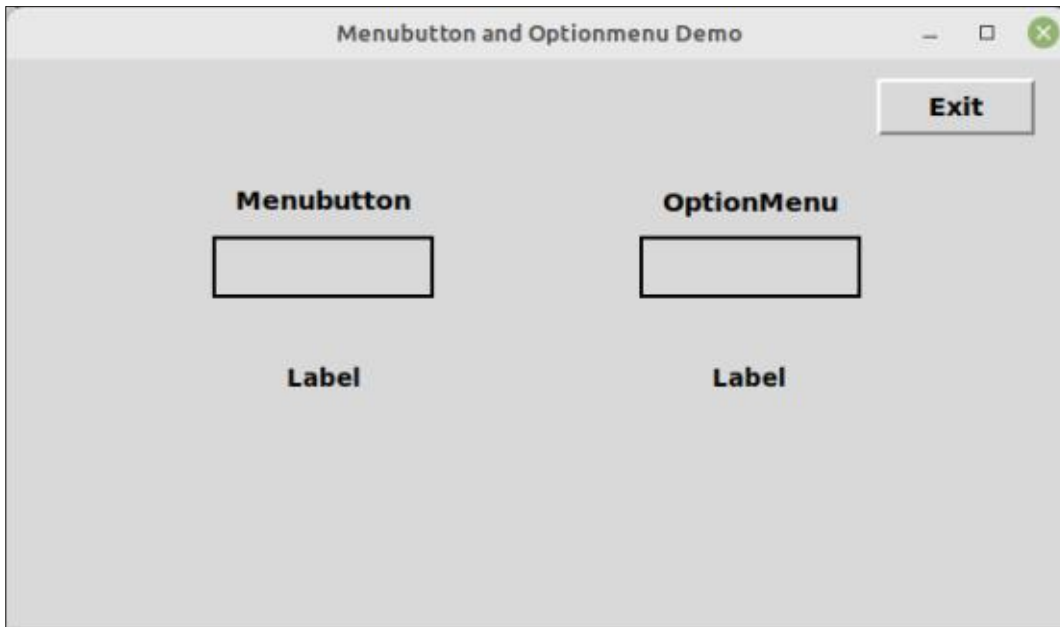
(two static and two dynamic), one button (the Exit button) and two frames. The frames are the empty boxes in between the two sets of labels. I used the "solid" relief for the frames. This way, when you are designing the form, you know exactly where the frames are. I designed the project under PAGE 7.6, so the .tcl file is included.

All of the heavy work is done in the support module, so we don't risk breaking the project by modifying the GUI module. As I always do, I inserted a line in the main function to call the startup function right before the program is shown on the screen.

As you can see (top right) there are two functions for each of our special widgets. One that sets up the items that the widgets will show, and one that actually creates the widget on the toplevel form for us. There are also two additional functions, which are the callback handlers.

So, we'll start with the

setup_menubutton_items() function (bottom below).

This simple function just creates a list of strings that will be used to populate the Menubutton widget. While this code could easily have been included in the creation function, I decided to break it out into its own function, and to do the same thing for the items for the OptionMenu widget (below).

One thing to notice here. The items for the Menubutton are in a list. The items for the OptionMenu is a tuple. This is important as you will see in a little bit.

```python
def startup():
    setup_menubutton_items()
    setup_optionmenu_items()
    create_menubutton()
    create_optionmenu()}
```

Now we will create the Menubutton widget and stick it into the proper Frame(below).

The first thing we do to create the Menubutton widget is to define a couple of global variables, one for the carTypes, which we just defined in the setup_menubutton_items function, and the other named selection, which will be a type of tk.IntVar,

```python
def create_menubutton():
    global carTypes
    global selection
    # Set the container frame to flat relief
    _w1.mbFrame.configure(relief="flat")
    selection = tk.IntVar()
```

```python
def setup_optionmenu_items():
    global optionlist
    optionlist = ("Red", "Orange", "Yellow", "Green", "Blue", "Violet")
```

```python
def setup_menubutton_items():
    global carTypes
    carTypes = ["Chevy", "Oldsmobile", "Chrysler", "Jeep", "Toyota"]
```

since our menu items will all be of the radiobutton type. Then we set the frame relief from solid to flat, to make the frame invisible. Finally, we make the actual assignment of the tk.IntVar. Again, we will do this so the user's selection will immediately be handled and to cut down on the number of callback functions.

Next, we create the actual widget. Then we will use the Pack geometry manager to "shove" the widget into the frame and force it to completely fill the frame. The name of the MenuButton instance is mnuBtn. We'll use this every time we need to reference it. Notice that we don't use the normal _w1. prefix, since we created this not PAGE.

```
    mnuBtn =
ttk.Menubutton(_w1.mbFrame,
text="Items")
```

```
    mnuBtn.pack(expand=True,
side="top", fill="both",
anchor="nw")
```

Now (top right) we have to define the menu object that will be attached to the menu button.

The last thing we do for the Menubutton is to define a counter variable, and walk through the list of carTypes, and then create the radiobutton menu item with the name of the car type, the callback, the value of the counter variable which we set as the value that will be passed back to the callback, and the name of the variable which in our case is selection. Finally, bottom right, we add one to the counter variable.

We start off with the same kind of code we did for the Menubutton widget. Define the globals, set the relief for the frame from solid to flat, and define the tk.StringVar for our return value.

The next line is technically not needed, since it sets the display portion of the OptionMenu to

```
    mnuBtn.menu = tk.Menu(
        mnuBtn, disabledforeground="black", tearoff=0
    )
    mnuBtn["menu"] = mnuBtn.menu
```

"Options". If we don't do that, it just won't display anything.

```
    returnval.set("Options")
```

Finally, we do the creation of the instance of the OptionMenu button and finally pack the widget into its frame, just like we did with the Menubutton widget.

However, notice that in the options for the widget, we use *optionlist as the "list" of options to display. Remember that I said we need to make this a tuple, not a list. The reason for this is that you

can provide each item separately as the syntax line below shows…

```
w = ttk.OptionMenu(parent,
variable, choice 1 , choice
2 , ...)
```

If we were to use a straight list, the options will all be placed on the same line instead of a dropdown set of items. There might be a reason for you to want to do this, but I can't imagine one (next page).

That's it. Now I have to say that the OptionMenu widget is REALLY a whole lot easier to deal with than

```
        cntr = 0
        for car in carTypes:
            mnuBtn.menu.add_radiobutton(
                label=car, command=menubutton_callback, value=cntr, variable=selection
            )
            cntr += 1
```

That does it for the Menubutton widget. Now we'll deal with the OptionMenu widget, which is actually much easier.

```
def create_optionmenu():
    global optionlist
    global returnval
    # Set the container frame to flat relief
    _w1.omFrame.configure(relief="flat")
    returnval = tk.StringVar()
```

```
optMenu = ttk.OptionMenu(
    _w1.omFrame, returnval, None, *optionlist, command=optionmenu_callback
)
optMenu.pack(expand=True, side="top", fill="both", anchor="nw")
```

Now we have the callback functions. First for the Menubutton, which simply gets the value of the menu item the user selected and fills that into the Label below the Menubutton.

```
def menubutton_callback(*args):
    global carTypes, selection
    which = selection.get()
    _w1.mbReturnValue.set(carTypes[which])
```

And finally, the callback for the OptionMenu widget. It basically does the same thing as the callback for the Menubutton.

```
def optionmenu_callback(*args):
    global returnval
    which = returnval.get()
    print(f"OptionMenu returned {which}")
    _w1.omReturnValue.set(which)
```

There is one more callback for the Exit button, which I'll throw in here just for fun.

```
def on_btnExit(*args):
    if _debug:
        print("mb_om_demo_support.on_btnExit")
        for arg in args:
            print("    another arg:", arg)
        sys.stdout.flush()
    sys.exit()
```

the MenuButton. If you've ever created a menu by hand in Tkinter, you know it is not a painless process and often not worth all the work. You can see what I mean in the second project. If you run back to the first image in the article, you will see the Menubutton example. I really did this as a proof of concept more than for any real need. I would probably use a popup menu created in the PAGE menu editor before I would hand code a menu for a Menubutton.

The whole purpose in this project was to show you that with a little work (well, a LOT of work in the case of the Menubutton) and digging, you can use any widget that Tkinter provides even if PAGE doesn't support it.

I've put the code for this month's project in a github repository at https://github.com/gregwa1953/FCM-197.

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

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

In part seven of An Introduction to Stable Diffusion, we will look at new releases and more. The current release of Easy Diffusion is 2.5.48 beta (1 August), which should automatically update to the new version, or to beta if selected in the settings, whenever you restart. We will also compare Easy Diffusion with Automatic1111, which is an interface for Stable Diffusion.

The beta version interface of Easy Diffusion (ED), and its issues, will be addressed. The open image modifiers section at the lower-left of the interface panel is now at the top-right, and is replaced with a new +Image Modifiers button. It cleans up the look, but, for newbies, it may make options less obvious. If you select Image modifiers, you then choose from the listing previously found in Easy Diffusion.

One of the desirable changes is on the Image Size line. At the far right, just beyond the Height option, is another icon, and selecting it brings up a list of options that you have previously used. It's a quick way to select 1024 x 1024, for example. In the beta release, even with the 'Fix incorrect

contents ^
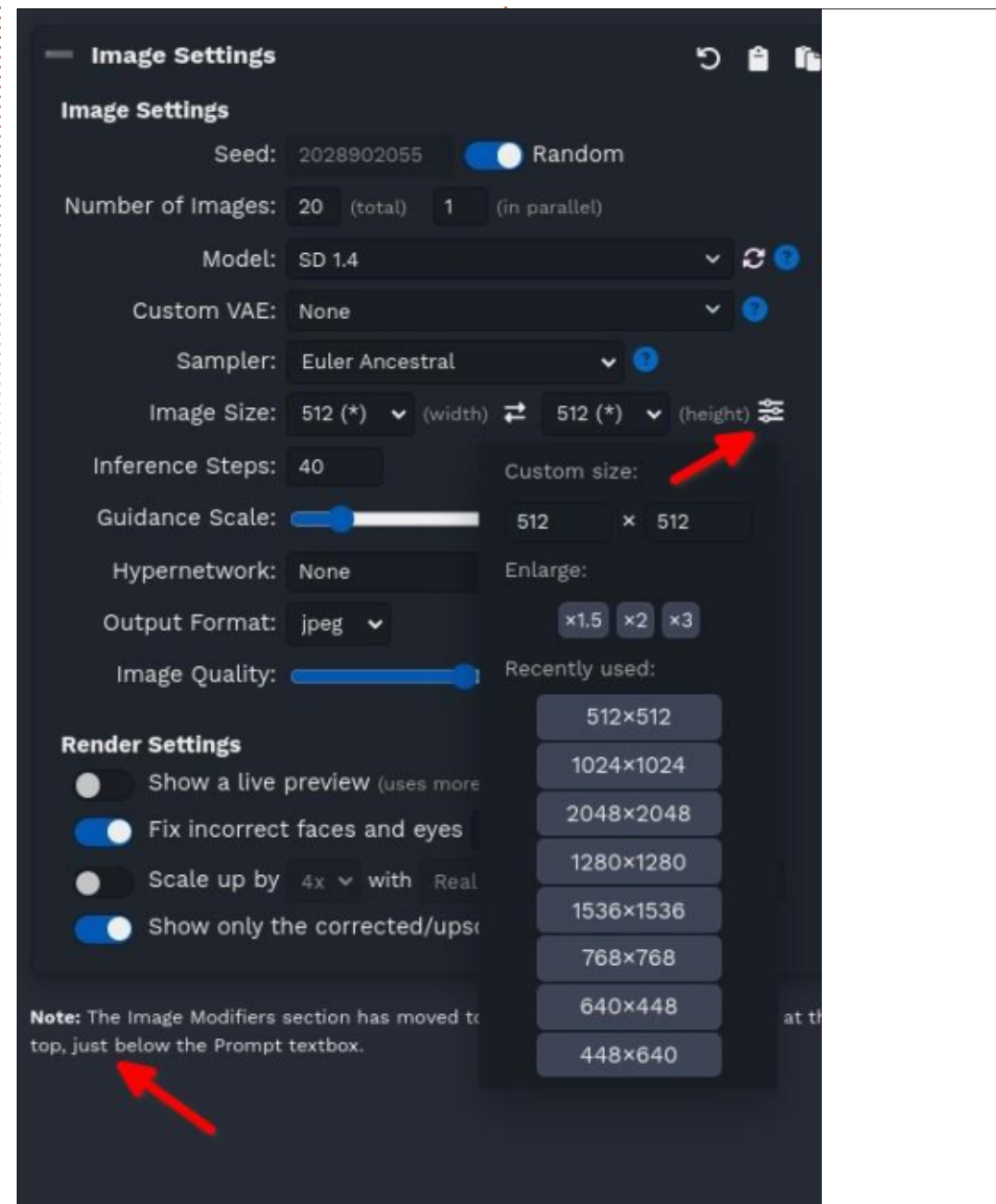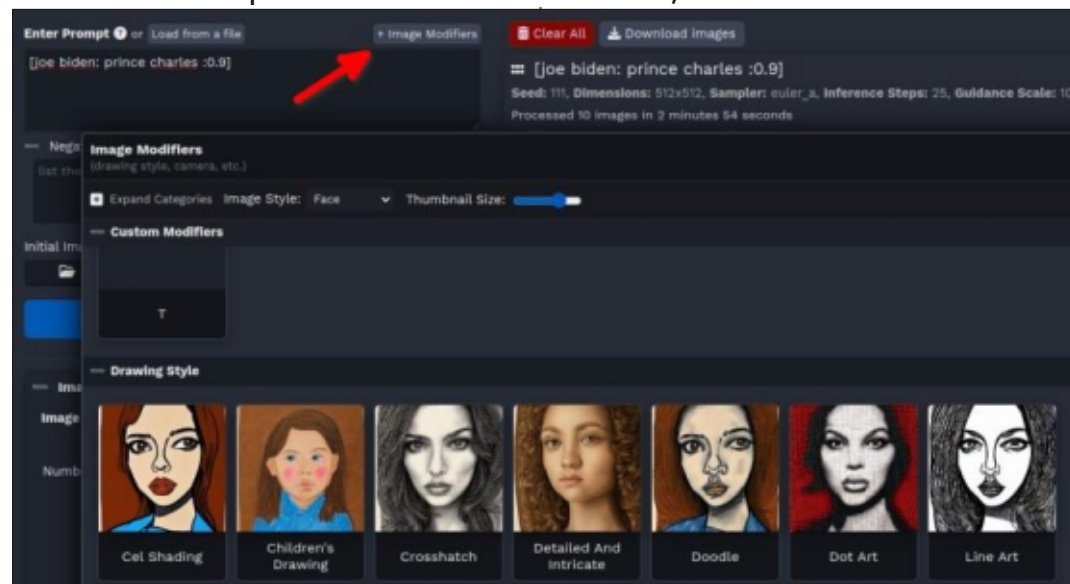
HOWTO - STABLE DIFFUSION

faces and eyes' selected under Render Settings option, you might be disappointed by the results. Probably the 512 x 512 is the way to go until that rendering option is working correctly. At the bottom of the right-hand panel is also a note indicating the image modifier can be found at the top.

Missing is one helpful feature. Previously holding the cursor over an option would indicate the purpose, and a short suggestion about how to use it. For a newbie, that was very helpful and hopefully will be available in the non-beta release.

Both Easy Diffusion and Automatic1111 do have a similar problem. If you're wanting to use the newly released SDXL 1.0 model, you are likely to be disappointed as the video ram suggested is 16 GB which is a dramatic upgrade for most user machines and even gamer computers. While I have also seen suggestions that as a bare minimum you need 4 GB of VRAM. when using eight, I still get errors running out of VRAM and stopping image generation. Perhaps as pared down versions of the SDXL model (it's 6+ GB) are created, the extra RAM might not be required.

Automatic1111 is another interface to Stable Diffusion and seems to have a larger following although there are trimmer interfaces. It was upgraded to 1.5.1 and can now run the SDXL 1.0 model if you have enough VRAM and the suggested 24 GB of RAM. Without the extra VRAM, however, it means I have the same error problem as ED. We will delve into this interface in later articles because it's still useful for smaller models.

Using the Automatic1111 interface of Stable Diffusion, I have blended two faces. For example one could blend Prince Charles with Joe Biden; King Charles the III is a relatively new name for the reigning monarch, and I am not sure that earlier models were created with that update. The prompt:

[prince charles : joe biden :0.9]

essentially says after 10% of the sampling steps, swap the sampling steps from Prince Charles to Joe Biden. Thus if there were 20 sampling steps, the first two were for prince Charles and the last 18 were for Joe Biden resulting in the graphic being more like Joe Biden. The three generated oil paintings below are:

Prince Charles : Joe Biden :0.9,
Prince Charles : Joe Biden :0.5,
Prince Charles : Joe Biden :0.1.

A similar prompt works with ED. Next time we will look deeper into the Automatic1111 interface unless other critical updates worthy of discussing are released.

Now that the main body of the cookbook is starting to look like the way we want it, we will give some attention to what Tex calls the back matter. In this instalment, we will add an index and a glossary. The index will list on what pages certain ingredients are found. If the cook knows what they have on hand, they can find one or more recipes that use that particular ingredient. For cooks with experience of Chinese recipes, the glossary may not be needed, but there may be some cooks who need short explanations about what a particular ingredient is or what a particular method requires.

Like some other tasks we have already done, making an index requires a few additions to the main cookbook file, and additions to every recipe. The additions to the main cookbook file are quite simple. There are only three new instructions.

`\usepackage{makeidx}`

`\makeindex`

Both must appear in the preamble, and

`\printindex`

will appear at the location where we want the index to appear. The printindex instruction starts a new page, and puts the chapter title "Index" at the top of the page.

Words (or phrases) that should be listed in the index are identified using the command \index{...}. Of course, we must put the word or phrase into the curly braces, not the three dots. This is the process that needs to be done in each recipe. The index instruction can be used anywhere on the page where the key word appears. I find it convenient to put it right beside the ingredient name but it can be placed at the beginning or end of the list of ingredients, or even at the beginning or end of the recipe (as long as the recipe fits on one page). The index indicates the page where the key word is found.

When the main cookbook file is processed, each recipe file is output in turn. The index instruction makes a file of all the index key words and the page references. This generated file has the same name as the file with the makeindex instruction, and the file extension (file type) is idx. In our case, we get a file called fcm196index.idx. That file has to generate a sorted file which can be used by the printindex instruction to generate the index in the final PDF file. This second generated file has the same name as the idx file, but the file type (file extension) is now ind.

There is a menu item in TexStudio which will generate the necessary ind file. It is called Index, and is in the Tools menu. In Gummi, look in the Document menu for the Make Index item. Other GUIs for Tex should have a similar item somewhere in their menus.

After generating the ind file, then process the main file again in order for the printindex instruction to use the ind file and print the index in the chosen location.

To summarize:

1/ Compile / process the main file to generate a PDF and an idx file.
2/ Run makeindex to generate an ind file.
3/ Compile / process the main file to generate the final version of the PDF with an index.

There are options for the index instruction which will make the index entry look the way you wish. Here are some examples.

`\index{flour} will display     flour, 4`

`\index{flour!wholewheat}`

will indent wholewheat as a sub-entry under flour followed by the page number. Sub-entries can go to a maximum of three levels (two exclamation marks)

`\index{pork|see{meat}}`

will give an entry without a page number that points the user to another index entry. 'See' can be replaced with 'seealso' to get See also in the index. The vertical line before see (or seealso) is required.

A number of packages on CTAN have additional functionality beyond that provided by makeidx. I refer you to ctan.org for more information about other packages as well as about other options for formatting index (page ranges, adding colour and text formatting, etc).

GLOSSARY

In textbooks and other books of instruction, a glossary is a list of words or terms (almost always in alphabetical order) with explanations or definitions. The words or terms listed are often words or terms that occur repeatedly in the text. To define or explain the words or terms over and over would be tedious for the author, and boring for the reader. So those words and terms are gathered together in one section of the book, usually at the end before the index.

In Tex / Latex, a glossary is also a list of words or terms with definitions. As far as I can tell from the very limited information available, a Latex glossary is not a separate section in the back matter the way an index is. Instead it is a list of substitutes for acronyms which the user enters in the text. If the user types some instruction when the text is converted to a PDF the instruction expands to its full form. For example, if I use \tlx in several places it might expand to Tex/Latex in this article.

For the cookbook to have a traditional glossary, it needs to be set up as a chapter. I have built a separate file, and use the include instruction to add it to the back matter.

There is a separate environment which can be used to show terms and definitions. I have included a screenshot of the glossary chapter tex file so you can see the code. In Latex terms, what I used is a description list. It follows the patterns for the numbered and bulleted lists described in a much earlier article (FCM #181). The begin{} and end {} instructions start and stop the list. In a description list, the item instruction has two parameters: the term and the description. If you use the GUI TexStudio, you will have guidance in building lists and most other Latex instructions.

Look at the percent symbol in the glossary. There is a small detail you may have skipped over. In the code, there is a backslash before the percent symbol. Percent symbols can be used to specify certain Latex commands. If you wish to use it as a mathematical symbol, as I did in the glossary, then put the backslash in front of it.

AUTHOR'S SUGGESTION

If you are serious about using Latex/Tex for your own work, then I strongly urge you to join TUG, the Tex Users Group (tug.org). There is an annual subscription fee of $105

which has a $30 discount for students, seniors and residents of countries with modest economies. There is an additional $30 discount if you want an electronic membership, no materials will be shipped to you. Being a member entitles you to both printed and electronic versions of the latest edition of The Latex Companion. This is a two-volume work which contains more information about Latex than anyone will ever use. Each of the two volumes is about 950 pages, truly doorstop-sized encyclopedias. Even if you do not join TUG, the website has some resources you might use. Do not forget ctan.org has thousands of packages that can modify your installation of Tex/Latex so that it does what you need.

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/

If the Page tool was the headline new feature for Inkscape 1.2, the equivalent for the recently released 1.3 version has to be the Shape Builder tool. It's modelled on the same feature in Adobe Illustrator, but I don't have enough experience with that program to be able to describe how the two tools might differ. Instead, I'll describe its usage from the assumption that you have some experience with Inkscape, but without further reference to its proprietary counterpart.

The Shape Builder can be thought of as a convenient way to perform certain Boolean operations between objects. There's nothing that can be done with the Shape Builder that wasn't previously possible with the existing tools, but anyone who has worked on complex designs using Boolean operations will be familiar with the need to plan multiple steps ahead, often duplicating objects that are otherwise removed as part of the operation. In many cases, the Shape Builder will greatly simplify such workflows.

Let's look at the simplest of examples, in the form of a Boolean 'intersection' operation. For these first few examples, we'll just use a couple of overlapping circles, to which I've given thick coloured strokes to make them stand out. Be absolutely clear, however, that all these operations are taking place on the areas bounded by those strokes, not on the strokes themselves. This same behaviour would occur with thinner strokes, or even with filled shapes that have no stroke at all.
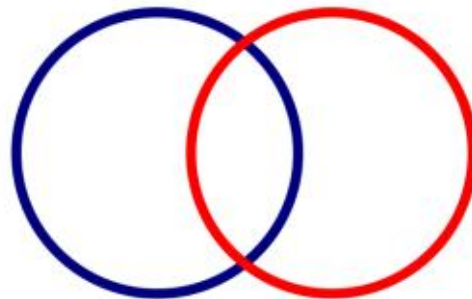
If we're starting with an intersection operation, let's first have a quick reminder of how to do this the Boolean way.
• Select both circles.
• Select the Path > Intersection menu entry.
• What remains is the common area between the two shapes – the part in the middle:
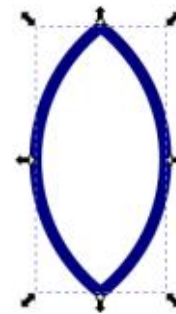
Notice that the resultant shape has adopted the style of the object on the bottom of the z-stack, resulting in a blue border. Now let's do the same thing using the Shape Builder tool, which can be found near the top of the toolbar, just below the Node tool. The default keyboard shortcut for it is 'X'.

As before, the first step is to select both objects that will contribute to the shape you're building. If you have nothing selected, Inkscape will present a small warning message when you switch to the Shape Builder. It is possible to use the tool with only a single object – though doing so only really makes sense if that object is a self-intersecting path. More usually, you'll want to select two or more objects before switching to the tool. When you do so, the original objects will be hidden and replaced with simple gray outline versions of the shapes. The rest of your drawing is also hidden, to avoid any confusion as to which objects are being used.
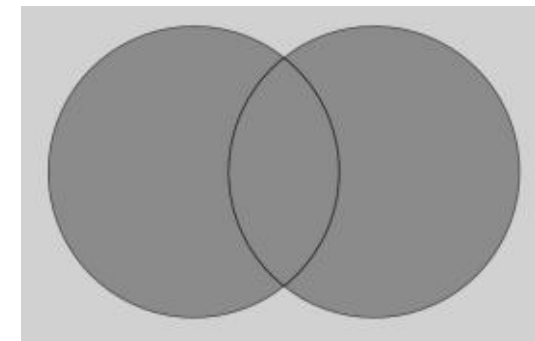
Moving the mouse over the shapes will highlight each individual section, rather than whole objects. In this case, therefore, there are three areas that can be highlighted as the

mouse moves over them, including the central piece we're interested in.
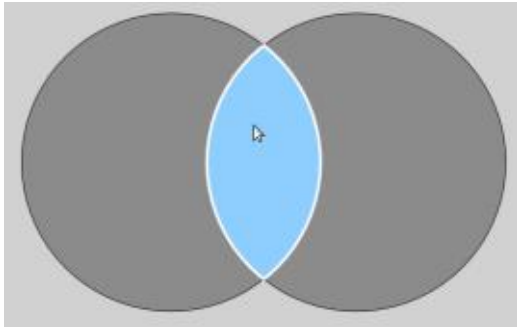
If you click on a section, it will change to a different shade of blue, indicating that it will be included in the final shape that you're building. In this case, we want only a single part, so click the central section, then press the Enter key to confirm that you're done. There's also a confirmation button in the tool control bar, and switching to the Selector tool also has the same effect. In either case, we're left with just the intersecting part of the original shapes.
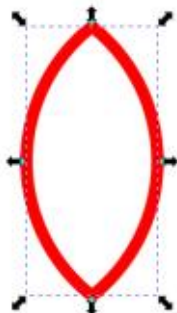
One important thing to note is that the outline of the shape is red this time, rather than blue. The Shape Builder uses the style of the topmost element in the z-stack to set the styles of the resultant object, not the bottom element as was the case with the Boolean operator.

Let's try another Boolean operation: Path > Exclusion, which will leave us with a shape consisting of the left and right parts of the two circles, but not the section where they overlap – essentially the exact opposite of Intersection. This time I've added some fill colors to the circles, to emphasise what actually remains.

Our final result is a path that consists of two sub-paths. That fact may not be entirely obvious, but it is possible to disentangle these two small moons from their kiss (e.g. with Path > Break Apart). The Boolean operation has done a very good job of cleanly removing the central part without introducing many new nodes.

Doing the same thing with the Shape Builder is simultaneously both extremely simple, and rather

complex. You see, for such a basic operation, there are actually several ways to proceed, depending on exactly what you want to be left with. The most obvious is to hold Shift while clicking on the central section in order to remove it from the final result, rather than adding it:

• Select both circles.
• Switch to the Shape Builder tool.
• Shift-click on the central section.
• Press Enter to accept the shape:
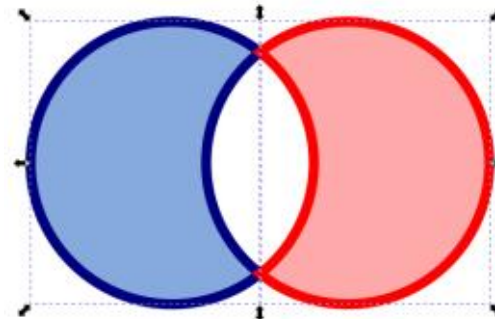
Well, it's kind-of the same thing. Except we don't actually have a single path this time, but rather our two original paths have both had a section cut from them.

Instead of Shift-clicking to remove the central section, an alternative approach is to click on both the left and right sections, leaving the middle one un-selected so that the Shape Builder view

looks like this:
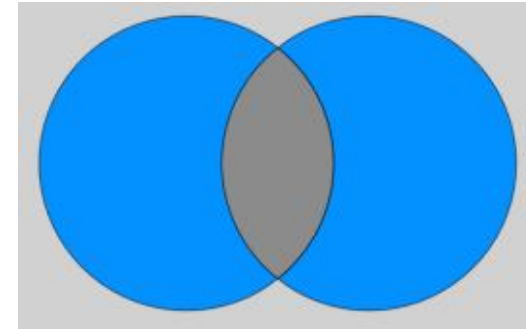
But, when you hit Enter, you'll find that you end up with exactly the same two objects as above, each with a section cut out.

Suppose you really, really want to end up with a single complex path (i.e. one with sub-paths), but have an aversion to using Path > Combine for some reason. The Path Builder can actually produce a single path, but it requires a slight change of operation. Instead of clicking on each segment, you have to drag from one to another.

• Select both circles.
• Switch to the Shape Builder tool.
• Click and hold in the left-hand section.
• Drag the mouse to the right-hand section (avoiding the middle section).
• Release the mouse button.
• The two sections will be selected. Press Enter to confirm.

The result this time is that the selected sections have been combined into a single path, looking more like the Boolean version.
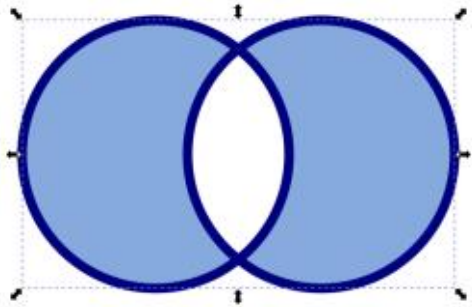
Looks can be deceiving, however. Switch to the Node tool, and you'll see that the Shape Builder has a tendency to create a lot of additional nodes. And I do mean a lot. This problem is already on the developers' radar, so hopefully version 1.3.1 might improve matters – but I still wouldn't be surprised to see more nodes from this tool than from the Boolean operations.
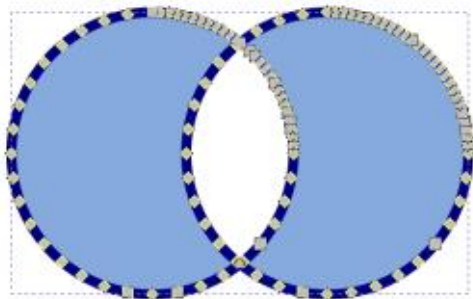
There's another interesting point to note when combining segments like this. Look at the result if I drag from the right segment to the left one, rather than left-to-right.
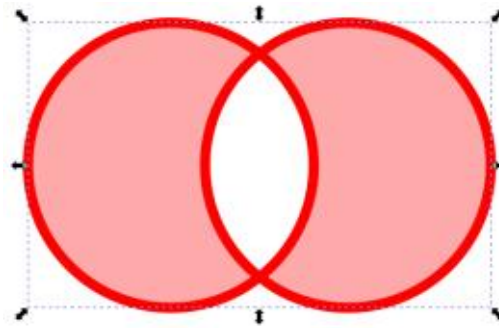
Looks rather more red, doesn't it? This provides us with another rule of Shape Building: when combining multiple segments, the style of the final result will be taken from that of the first segment selected.

The difference in behaviour between clicking segments and dragging over them means we can also use the Shape Builder to emulate the behaviour of another stalwart of the Boolean operations: union.

• Select both circles.
• Switch to the Shape Builder tool. Click and hold in the left-hand section.
• Drag the mouse through the middle to the right-hand section, selecting all three.
• Release the mouse button.
• Press Enter to confirm.

The result is that all the selected segments are combined into a single path. But although the results may look visually similar, again the Shape Builder leaves us with a lot of unnecessary nodes. This image shows the result of using the Boolean union (top) compared with the Shape Builder (bottom):
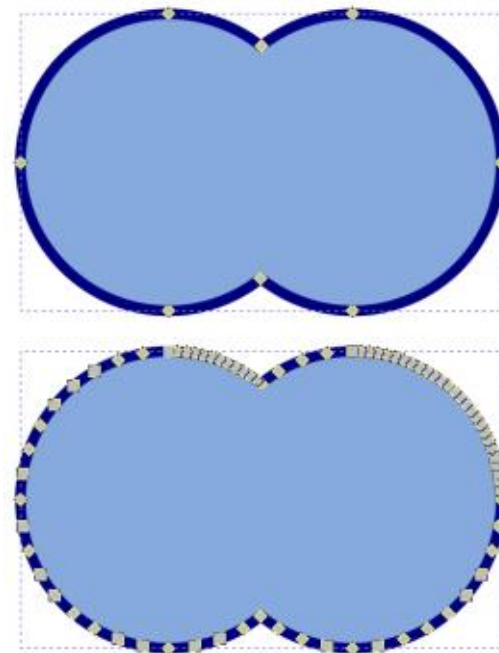
Given this obvious difference, you may be wondering what is the advantage of the Shape Builder when compared with the traditional Boolean operations. For simple operations that require only two objects, I think the Booleans, and related operations, are still the best way to go. But once you start combining multiple objects in complex ways, it's hard to argue against the simple click and drag approach of the Shape Builder.

One thing to be aware of as you work with more complex shape combinations is that you can use Ctrl-Z while in the Shape Builder tool to step back through your selections. This can be useful if you accidentally select or remove a segment you didn't mean to, and spot it immediately. If you don't see the error until you've made other selections, however, you're out of luck: there's no way to undo the selection or removal of an arbitrary individual segment. If you really aren't happy with the selections you've made, the Escape key, or the cancel button on the tool control bar, will abort the Shape Builder operation entirely. If you accept the shape, but you're not happy with the end result, a
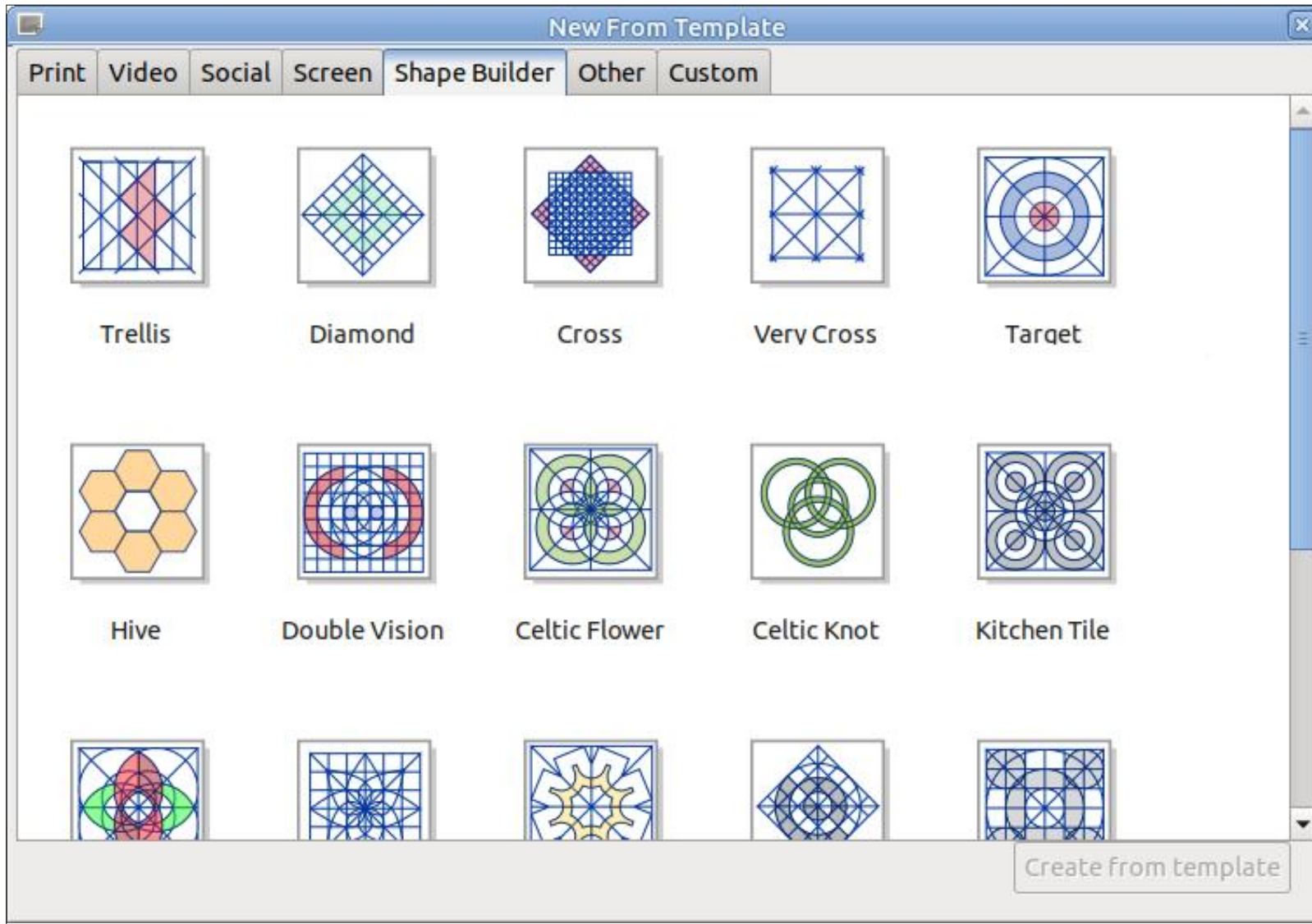
quick Ctrl-Z will revert your objects back to how they were previously.

Finally, if you really want to get a feel for the power and flexibility of this new tool, why not use the File > New from Template… menu entry which opens a new page template dialog that includes a 'Shape Builder' tab filled with some complex overlapping paths that are ideal for experimentation.

BACK NEXT MONTH

Greetings yet again, my fellow beings. I come to you again, beaming across the Ether.

For a few months now, I've been wanting to discuss a program called rshell written by Dave Hylands, or better known to the MicroPython community as dhylands. Back in 2015, he released the very first version of rshell to connect to the pyboard microcontroller. In his words "rshell allows you to copy files to and from the pyboard's file system, show the contents of files, and to use the repl."

There is a lot that this little program can do, and I use it off and on – mainly to do bulk file copies to and from my various Microcontrollers. So far, I've used it on ESP8266, ESP32, Wio Terminal and of course my RPi Pico/Pico-W boards. It's a really easy way to move files back and forth and you can do a whole lot more.

So, let's look at rshell in the real world.

```
greg@earth:~/Desktop/Pico-W/backoffs/picoW_sep06_2023$ ls /dev/tty*
/dev/tty    /dev/tty18  /dev/tty28  /dev/tty38  /dev/tty48
/dev/tty58 /dev/ttyprintk  /dev/ttyS18  /dev/ttyS28
…
/dev/tty17  /dev/tty27  /dev/tty37  /dev/tty47  /dev/tty57
/dev/ttyACM0  /dev/ttyS17    /dev/ttyS27  /dev/ttyS9
greg@earth:~/Desktop/Pico-W/backoffs/picoW_sep06_2023$
```

First, you need to install it, and since it's written in Python, we can use pip/pip3.

```
pip3 install rshell
```

Once we have rshell installed, we'll use it to back up one of our Microcontrollers, in my case one of my RPi Pico-W boards.

In a terminal (you can use the same one that you use to install rshell), you need to go to your Micropython backup folder. Don't have one yet? So make one. I have one for each of my main board types. In my case, it's on my desktop as "Pico-W". I create a sub-folder each time I back up a board by date, and if I need to back up different boards on the same day, I create additional folders within that day's folder.

Now, connect your board to your usb port and make sure you know where it is. Use

```
ls /dev/tty*
```

to find it.

So, shown above, mine is on /dev/ttyACM0, which is where any of my RPi Pico boards almost always show up.

Now startup rshell (shown below).

```
greg@earth:~/Desktop/Pico-W/backoffs/PicoW09092023$ rshell -p /dev/ttyACM0
Using buffer-size of 32
Connecting to /dev/ttyACM0 (buffer-size 32)...
Trying to connect to REPL   connected
Retrieving sysname ... rp2
Testing if ubinascii.unhexlify exists ... Y
Retrieving root directories ... /BMP180-oled.py/ /BMP180Test.py/ /bmp180.py/ /
i2c_scan_all.py/ /i2cscan.py/ /i2cscan2.py/
Setting time ... Sep 09, 2023 04:49:47
Evaluating board_name ... pyboard
Retrieving time epoch ... Jan 01, 1970
Welcome to rshell. Use Control-D (or the exit command) to exit rshell.
/home/greg/Desktop/Pico-W/backoffs/PicoW09092023>
```

MICRO THIS MICRO THAT

```
/home/greg/Desktop/Pico-W/backoffs/PicoW09092023> ls /pyboard
BMP180-oled.py  BMP180Test.py   bmp180.py      i2c_scan_all.py i2cscan.py      i2cscan2.py
/home/greg/Desktop/Pico-W/backoffs/PicoW09092023>
```

Now let's copy everything from the Pico into our empty folder on the desktop.

```
/home/greg/Desktop/Pico-W/backoffs/PicoW09092023> cp /pyboard/*.* .
Copying '/pyboard/BMP180-oled.py' to '/home/greg/Desktop/Pico-W/backoffs/PicoW09092023/BMP180-oled.py' ...
Copying '/pyboard/BMP180Test.py' to '/home/greg/Desktop/Pico-W/backoffs/PicoW09092023/BMP180Test.py' ...
Copying '/pyboard/bmp180.py' to '/home/greg/Desktop/Pico-W/backoffs/PicoW09092023/bmp180.py' ...
Copying '/pyboard/i2c_scan_all.py' to '/home/greg/Desktop/Pico-W/backoffs/PicoW09092023/i2c_scan_all.py' ...
Copying '/pyboard/i2cscan.py' to '/home/greg/Desktop/Pico-W/backoffs/PicoW09092023/i2cscan.py' ...
Copying '/pyboard/i2cscan2.py' to '/home/greg/Desktop/Pico-W/backoffs/PicoW09092023/i2cscan2.py' ...
/home/greg/Desktop/Pico-W/backoffs/PicoW09092023>
```

That's it. A complete backup of our Pico device, in a few seconds, with a single command. Now, let's say you want to delete everything from the Pico and start fresh.

```
/home/greg/Desktop/Pico-W/backoffs/PicoW09092023> rm /pyboard/*.*
/home/greg/Desktop/Pico-W/backoffs/PicoW09092023>
```

To verify that we have wiped the filespace of the Pico, just do another 'ls /pyboard'.

```
/home/greg/Desktop/Pico-W/backoffs/PicoW09092023> ls /pyboard
/home/greg/Desktop/Pico-W/backoffs/PicoW09092023>
```

Since our Pico has now been wiped, let's push everything back.

```
/home/greg/Desktop/Pico-W/backoffs/PicoW09092023> cp *.* /pyboard/.
Copying '/home/greg/Desktop/Pico-W/backoffs/PicoW09092023/i2cscan2.py' to '/pyboard/i2cscan2.py' ...
Copying '/home/greg/Desktop/Pico-W/backoffs/PicoW09092023/i2c_scan_all.py' to '/pyboard/i2c_scan_all.py' ...
Copying '/home/greg/Desktop/Pico-W/backoffs/PicoW09092023/BMP180Test.py' to '/pyboard/BMP180Test.py' ...
Copying '/home/greg/Desktop/Pico-W/backoffs/PicoW09092023/i2cscan.py' to '/pyboard/i2cscan.py' ...
Copying '/home/greg/Desktop/Pico-W/backoffs/PicoW09092023/bmp180.py' to '/pyboard/bmp180.py' ...
Copying '/home/greg/Desktop/Pico-W/backoffs/PicoW09092023/BMP180-oled.py' to '/pyboard/BMP180-oled.py' ...
/home/greg/Desktop/Pico-W/backoffs/PicoW09092023>
```

MICRO THIS MICRO THAT

And verify that everything went back, do another 'ls /pyboard'.

```
/home/greg/Desktop/Pico-W/backoffs/PicoW09092023> ls /pyboard
BMP180-oled.py  BMP180Test.py   bmp180.py      i2c_scan_all.py i2cscan.py      i2cscan2.py
/home/greg/Desktop/Pico-W/backoffs/PicoW09092023>
```

Of course you can copy and delete more, by using the normal terminal commands.
You can even do a 'ls -al' command to get the mount point listing in a single column view.

```
/home/greg/Desktop/Pico-W/backoffs/PicoW09092023> ls -al /pyboard/*.*
  1839 Sep  9 00:01 BMP180-oled.py
  1312 Sep  9 00:00 BMP180Test.py
  6898 Sep  9 00:00 bmp180.py
    12 Sep  9 00:30 board.py
   684 Sep  9 00:00 i2c_scan_all.py
   286 Sep  9 00:43 i2cscan.py
   150 Sep  9 00:00 i2cscan2.py
/home/greg/Desktop/Pico-W/backoffs/PicoW09092023>
```

Now let's jump into the REPL. Type "repl" in your terminal

```
/home/greg/Desktop/Pico-W/backoffs/PicoW09092023> repl
Entering REPL. Use Control-X to exit.
>
MicroPython v1.20.0-450-g3637252b7 on 2023-09-06; Raspberry Pi Pico W with RP2040
Type "help()" for more information.
>>>
>>>
```

Now we are connected. Let's verify what's on the Pico. Notice that rshell displays the root directory when you get connected, but I like to use the "ls" command just to verify. When you start up rshell, the microcontroller you are connected to is mounted as / pyboard. So we need to use the command 'ls /pyboard' (previous page, top).

Now we are in the REPL shell. You can run Micropython commands directly from the shell, one line at a time. We'll type in a short program that will allow us to toggle the onboard LED.

```
>>> from machine import Pin
>>> led = Pin("LED", Pin.OUT)
>>> led.toggle()
>>> led.toggle()
>>>
```

To leave the REPL, type <Ctrl>X.

```
>>>  ^X
/home/greg/Desktop/Pico-W/
backoffs/PicoW09092023>
```

If you are not in the REPL, you can use cat to view the contents of a file (next page, bottom right).

Now go back to the REPL and we can update the MicroPython version with the "latest and greatest" version. You have to download the newest version from the MicroPython.org site. The latest nightly build, as I'm writing this, is v1.20.0-450 built on 2023-09-06. Save it somewhere convenient and go back to the REPL in your terminal. You can use the REPL command "machine.bootloader()" to put the board into the bootloader mode.

MICRO THIS MICRO THAT

Note that your terminal might seem to "freak out", but that's normal. I've reformatted the terminal output for ease of viewing (top right).

Once you have this, press <Enter> in the terminal and you will receive the original prompt again.

```
serial port /dev/ttyACM0
closed

/home/greg/Desktop/Pico-W/
backoffs/picoW_sep06_2023>
```

Then re-enter the REPL (middle right).

That's it. You've successfully updated your MicroPython version without having to go through the normal "unplug | hold down the bootsel button | plug in" process.

If you don't want to keep using "pyboard" as the name of your board, you can name your board whatever you wish.

```
/home/greg/Desktop> echo
'name="pico"' > /pyboard/
board.py

/home/greg/Desktop>
```

You have to use <Ctrl>C to

```
>>> machine.bootloader()
autoconnect: /dev/ttyACM0 action: remove
USB Serial device '/dev/ttyACM0' disconnected
autoconnect: /dev/ttyACM0 action: add
Connecting to /dev/ttyACM0 (buffer-size 32)...
Trying to connect to REPL   connected
Retrieving sysname ... rp2
Testing if ubinascii.unhexlify exists ... Y
Retrieving root directories ... /BMP180-oled.py/ … /wlan_routers_list.py/
Setting time ... Sep 06, 2023 04:00:47
Evaluating board_name ... pyboard
Retrieving time epoch ... Jan 01, 1970
```

disconnect and then reconnect rshell to get this to take effect (next page, top right).

From now on (as long as the board.py file exists on the microcontroller), you can use "pico" to refer to the board instead of "pyboard".

What's in the "magical" board.py file? Actually, very little. We'll use cat to look at the file contents.

```
/home/greg/Desktop/Pico-W/
backoffs/PicoW09092023> cat /
pico/board.py

name="pico"
```

I prefer to keep the mount point at /pyboard, since I use rshell with my RPi Pico boards (both plain and W), my ESP8266 boards, my ESP32 boards, and my WIO terminal. Trying to remember to use a

```
/home/greg/Desktop/Pico-W/backoffs/picoW_sep06_2023> repl
Entering REPL. Use Control-X to exit.
>
MicroPython v1.20.0-450-g3637252b7 on 2023-09-06;
Raspberry Pi Pico W with RP2040
Type "help()" for more information.
>>>
>>>
```

different board name each time is a bit beyond the capabilities of my old brain.

If you need to edit a file on the

microcontroller (now named pico in my case), you can use the command "edit /pico/{filename}". We'll try editing the 'i2cscan.py' file.

```
/home/greg/Desktop/Pico-W/backoffs/PicoW09092023> cat /
pyboard/i2cscan.py
# i2cscan.py
# Searches the i2c bus for i2c devices

import machine
# sda = machine.Pin(8)
# scl = machine.Pin(9)
sda = machine.Pin(4)
scl = machine.Pin(5)
i2c=machine.I2C(0)   #,sda=sda,scl=scl,freq=400000)
devices=i2c.scan()
if devices:
    for dev in devices:
        print(hex(dev))
```

MICRO THIS MICRO THAT

We are now in a vim editor. Any changes that you want to save, press <esc> then ":wq". If you didn't make changes, you can exit by pressing <esc> then ":qa".

Finally, to quit rshell, use <Ctrl>C.

That's about it. You can go to the rshell github repository (https://github.com/dhylands/rshell) to find all the possible commands you can use.

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

```
greg@earth:~/Desktop/Pico-W/backoffs/PicoW09092023$ rshell -p /dev/ttyACM0
Using buffer-size of 32
Connecting to /dev/ttyACM0 (buffer-size 32)...
Trying to connect to REPL  connected
Retrieving sysname ... rp2
Testing if ubinascii.unhexlify exists ... Y
Retrieving root directories ... /BMP180-oled.py/ /BMP180Test.py/ /bmp180.py/ /board.py/ /
i2c_scan_all.py/ /i2cscan.py/ /i2cscan2.py/
Setting time ... Sep 09, 2023 05:31:10
Evaluating board_name ... pico
Retrieving time epoch ... Jan 01, 1970
Welcome to rshell. Use Control-D (or the exit command) to exit rshell.
/home/greg/Desktop/Pico-W/backoffs/PicoW09092023>
```

Now let's verify that the board isn't mounted as pyboard anymore.

```
/home/greg/Desktop> ls /pyboard
Cannot access '/pyboard': No such file or directory
```

So let's try doing a 'ls /pico'.

```
/home/greg/Desktop/Pico-W/backoffs/PicoW09092023> ls /pico
BMP180-oled.py  BMP180Test.py   bmp180.py       board.py        i2c_scan_all.py
i2cscan.py      i2cscan2.py
/home/greg/Desktop/Pico-W/backoffs/PicoW09092023>
```

```
greg@earth: ~/Desktop/Pico-W/backoffs/PicoW09092023
greg@earth: ~/Desktop/Pico-W/backoffs/PicoW09092023 14

# i2cscan.py
# Searches the i2c bus for i2c devices

import machine
# sda = machine.Pin(8)
# scl = machine.Pin(9)
sda = machine.Pin(4)
scl = machine.Pin(5)
i2c=machine.I2C(0)  #,sda=sda,scl=scl,freq=400000)
devices=i2c.scan()
if devices:
    for dev in devices:
        print(hex(dev))
```

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

Linux on Your iPad

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

Previously we downloaded the ISO file for Linux Mint 21 Cinnamon Edition, created a bootable USB flash drive using this file, and looked at how to try out the features of the distro by simply booting into the live-USB version of Mint. This time, we will use the ISO file to create a Linux virtual machine (VM) directly on our Windows 10 desktop using Oracle's VirtualBox virtualization software package.

From the VirtualBox web site (https://www.virtualbox.org), click on the blue box labelled Download VirtualBox 7.0. On the following page, we will download two files, firstly VirtualBox-7.0.4-154605-Win.exe, using the Windows hosts link under VirtualBox 7.0.4 platform packages. We will also download Oracle_VM_VirtualBox_Extension_Pack-7.0.4.vbox-extpack, using the All supported platforms link under VirtualBox 7.0.4 Oracle VM VirtualBox Extension Pack.

We can install VirtualBox by double-clicking on VirtualBox-7.0.4-154605-Win.exe and accepting the defaults offered by the installation wizard. The installation proceeds very rapidly and we click on Finish to complete the process. Running the newly-installed program displays the main VirtualBox window.

Our first task is to install the extension pack that we downloaded. The process is pretty simple; we just double-click on the file Oracle_VM_VirtualBox_Extension_Pack-7.0.4.vbox-extpack. However, if you are running Windows on a regular user's account, note that there is no Run as administrator option; you must be actually logged in as an administrator to install the extension pack. Once again, a wizard guides us through the installation process. Note also that it is necessary to read (or at least scroll down to the end of) the licence agreement before the I Agree button is activated. Once the installation is complete, control is returned to the main program window, and we are ready to create our first virtual machine.

First, we need to set up the parameters for the VM. Clicking on the New icon brings up a dialogue box where we can enter Linux Mint 21 as the Name of our machine and then browse, using the drop-down menu in ISO Image, for our downloaded distro file linuxmint-21-cinnamon-64bit.iso. This sets Type as Linux and Version as Ubuntu (64-bit). While the latter designation may seem odd given that we are installing Mint, we should be aware that Linux Mint is based on Ubuntu Linux so the selection is not unreasonable.

Clicking on Next brings up a further dialogue box where we can customize our installation. We can overwrite the Username and

MY OPINION

Password with values that make sense to us rather than leaving the default entries. We should also select the Guest Additions checkbox that will optimize the installed OS. The wizard doesn't seem to like the Hostname of Linux Mint 21 so, in order to continue with the installation, we need to remove the spaces and make this entry LinuxMint21 before we can click on Next.

The subsequent screens set up the parameters for the VM, including the amount of memory, the number of processors, and disk size, In this first instance of installing a VM, we will accept the default values for all of these and just keep clicking on Next to continue until we reach the Summary screen where we can click on Finish.

The main program window now shows that a Linux Mint 21 virtual machine is available, and this is automatically powered up to display a second window showing the GRUB (Grand Unified Bootloader) menu. We can then press Enter to use the first menu option Start Linux Mint 21 Cinnamon 64-bit to fire up Mint 21 as our VM.

A pop-up message indicates Mouse integration. Clicking on this text displays details of the advisory which tells us that the guest OS (Linux Mint) supports mouse pointer integration. This simplifies use of the mouse in both the VM and on the Windows 10 desktop as the operations between the two are completely seamless. Otherwise, it is necessary to "capture" the mouse pointer in the VM and subsequently restore the mouse function to the Windows desktop using various control-key sequences. To remove the advisory message, click on the Delete finished notifications icon in the top-right corner of the pop-up window.

Now, while we appear to have a virtual machine running Linux Mint, we haven't actually installed Linux on the VM. The current state is like booting a computer using a live-USB. However, before we do install Linux, let's first check that we have an Internet connection.

Click on the icon in the panel to run the Firefox web browser. Two tabs will be displayed, one indicating Welcome to Firefox, and the other headed Firefox Privacy

Notice. Selecting this second tab shows that the page has been loaded from https://www.mozilla.org/en-US/privacy/firefox/ which confirms that we have web connectivity.

So, now let's double-click on the Install Linux Mint icon on the VM's desktop, and start the installation process of the Linux Mint operating system.

A Welcome screen offers us an option to read the release notes for Mint 21, but we can readily forego this. Instead, note that the default selection for language is English so we can simply press Continue to proceed. Similarly, the subsequent screen has English (US) as the default entry for the Keyboard layout, so once again we can press Continue.

On the next screen, check Install multimedia codecs and press Continue.

The subsequent screen is labelled Installation type, and wants to know on which disk or partition Linux is to be installed. The default is Erase disk and install Linux Mint. Normally, when using the computer's hard disk, I would

opt to install Linux on a separate partition; however, since we are using a virtual machine, running on a virtual disk, it is perfectly fine to use the entire virtual disk for the installation. Pressing Install Now brings up a screen asking Write the changes to disk? At which point we can once again press Continue.

Now a screen asks Where are you? for which Toronto may be the default (based on the location of your Internet Service Provider's server). The actual city is irrelevant since Linux really wants to know in which time zone you are located. Responding with Toronto establishes EST/EDT.

The final user-input screen wants entries for Your Name, Your computer's name, Pick a username, and Choose a password. Enter your preferred values for each of these items. You can use anything you wish for your name and the computer's name. The username must begin with a lowercase letter although, subsequently, you will not normally be prompted for the username (i.e. entering the username is not required to login to the system). Note that, by default, the checkbox labelled Require my password to login is

activated. So, if you accept this default, make special note of the login password that you selected as this will be required to log in (and for any subsequent root operations). With the data entries complete, press Continue one last time.

A series of information screens is now displayed as a progress bar indicates that the installation of the OS is proceeding. Eventually, an Installation Complete pop-up dialogue box asks Continue Testing or Restart Now. We will restart the VM and proceed with trying the features of Linux Mint just as though we have installed the operating system on a real computer.

We can ignore the instruction to remove the installation medium. The VM reboots and requests the password that we selected during the installation. The first screen includes the Welcome to Linux Mint tutorial. You can click through the items listed on the left-side menu, but it's also useful to uncheck the box labelled Show this dialog at startup on this initial screen to prevent the information being repeated ad nauseum.

The final screen should look familiar. It's basically the first screen that is displayed when a live-USB is booted, minus the option to install Linux (which we have just done!). However, the Linux VM performs pretty much like a version of Linux installed on a hard disk. In particular, the virtual hard drive allows files to be created and stored. It will even retain these files when the VM is shut down, and so provides a more real-world Linux experience.

Our next step will be to physically install Linux on our computer's hard drive; however, we are going to do this in a way that will preserve the Windows' installation, and allow the use of either operating system.
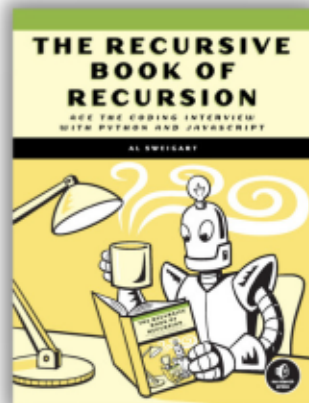
Alan is a computer enthusiast based in the Great White North where he maintains LinuxNorth blog at: https://linuxnorth.wordpress.com
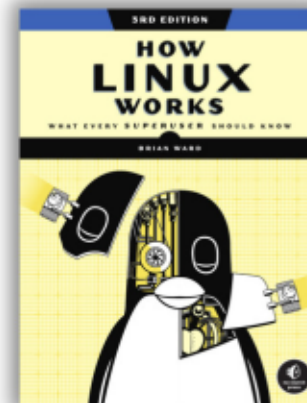
Tech Books Made Better

no starch press®

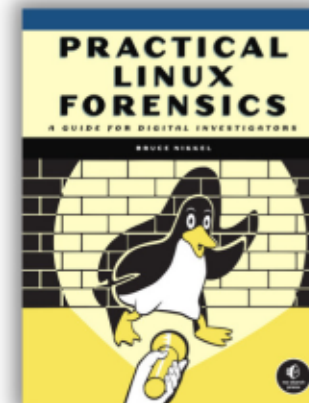**Python Crash Course, 3rd Edition**
9781718502703
$44.99 PB | 552 pages

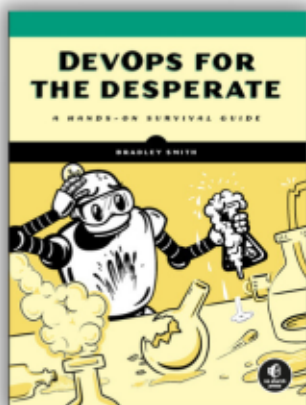**The Recursive Book of Recursion**
9781718502024
$33.99 PB | 328 pages

Dead Simple Python
9781718500921
$59.99 PB | 752 pages

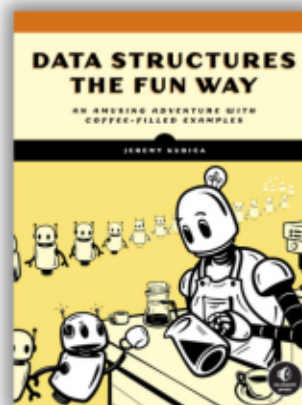**How Linux Works, 3rd Edition**
9781718500402
$49.99 PB | 464 pages

Practical Linux Forensics
9781718501966
$59.99 PB | 400 pages

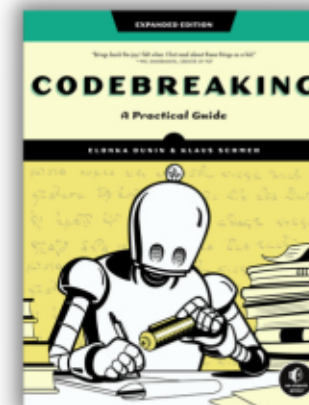**DevOps for the Desperate**
9781718502482
$29.99 PB | 176 pages

The Rust Programming Language, 2nd Edition
9781718503106
$49.99 PB | 560 pages

Data Structures the Fun Way
9781718502604
$39.99 PB | 304 pages

Deep Learning
9781718500723
$99.99 PB | 776 pages

Codebreaking
9781718502727
$29.99 PB | 488 pages

GUIDELINES

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

RULES

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

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

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

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

• Images should be JPG, no wider than 800 pixels, and use low compression.

• Do <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.

This seventh release of Ubuntu Unity, version 23.04, was released on 20 April, 2023. The middle one of three interim releases leading to the next Long Term Support (LTS) release, this is also its second release as an Ubuntu official flavor.

In terms of how this development cycle is proceeding, the news is all good. Ubuntu Unity seems to have found its footing and some better stability in its list of default applications.

As an interim release, Ubuntu Unity 23.04 is supported for nine months, until January, 2024.

INSTALLATION

As an official flavor, Ubuntu Unity is now hosted on the Ubuntu servers and that is where I downloaded the ISO file using BitTorrent. Once downloaded, I carried out an SHA256 sum check on it from the command-line, to ensure the file was good.

This ISO proved to be relatively small at 3.3 GB, at least compared to Ubuntu 23.04 at 4.9 GB, and Kubuntu 23.04 at 5.0 GB.

To test Ubuntu Unity 23.04, I dropped the ISO file onto a USB stick equipped with Ventoy 1.0.91 and booted it up from there. Ventoy makes testing Linux distributions a breeze, as it does all the hard work of unpacking the ISO on boot up.

SYSTEM REQUIREMENTS

Ubuntu Unity does not specify any system requirements, but it is probably safe to assume that it is the same as Ubuntu 23.04, a minimum of:

    2 GHz dual-core processor
    4 GB of RAM

NEW

This new edition of Ubuntu Unity includes a fresh version of the Unity user interface, 7.7.0, out only on 18 April, 2023.

This new version of Unity includes some bug fixes, but it also changes the shape of the "dash" (main menu). Whereas

previously it was in a "landscape" layout, now it is "portrait" and opens on the left side of the screen. On the applications menu, this means that you will have to scroll vertically to see to the end of the list of applications. While different from the previous Unity dash, I am not convinced it is an improvement. Could the menu not use the whole screen or would it just look too much like the current menu on Ubuntu?

Unity 7.7.0 also introduces a redesigned top panel, with transparency by default and improved adaptation to light themes. It is also a bit thicker than panels past.

Also new is indicator-notification, running by default, which is supposed to make sure you don't miss any notifications. In my testing, I found it annoying and obtrusive to have to close each notification individually. With other Ubuntu flavors, the notifications simply pop up and then disappear.

This release has also brought a

new widget implementation, called UWidgets, although none were available to try out at release time.

Also new: Ubuntu Unity now has a merchandise shop up and running on HelloTux, so fans can get Ubuntu Unity shirts.

SETTINGS

As in past releases, 23.04 has its settings a bit spread out. The basics are in the usual Settings menu, with some in the "brush" panel icon for quick access. These include a choice of ten accent colors and two window themes, Yaru and the default Yaru-dark. The Unity Tweak Tool has many more

options, including the addition of two more window themes, the classic Ambiance and Radiance, 36 icon sets, and seven cursor styles. There are lots of user customization choices here and they do work fine once you locate them.

Since the code name for this release is Lunar Lobster, it should not be a surprise that there is a new default wallpaper with a lobster on it. In fact, Ubuntu Unity 23.04 has 17 wallpapers provided, 7 of which have lobsters.

APPLICATIONS

Some of the applications

included with Ubuntu Unity 23.04 are:
Archive Manager (File Roller) 43.0 file archiver*
Atril 1.26.0 PDF viewer*
Cheese 44.0 webcam application
CUPS 2.4.2 printing system*
Document Scanner (Simple Scan) 44.0 optical scanner
Firefox 111.0.1 web browser**
GDebi 0.9.5.7 .deb package installer*
Gnome Disks 44.0 disk manager
Gnome Screenshot 41.0 screenshot tool*
Gnome System Monitor 44.0 system resource monitor
Gnome Terminal 3.48.0 terminal emulator
Gparted 1.3.1 partition editor*
Image Viewer (Eye of MATE) 1.26.0

image viewer*
LibreOffice 7.5.2 office suite
Nemo 5.6.3 file manager
Pluma 1.2.6 text editor*
PulseAudio 16.1 audio controller*
Remmina 1.4.29 remote desktop client
Rhythmbox 3.4.6 music player*
Shotwell 0.30.18 photo manager
Startup Disk Creator 0.3.16 USB ISO writer
Synaptic 0.91.3 package management system
Thunderbird 102.10.0 email client
Transmission 3.00 bittorrent client*
Unity 7.7.0 interface
Unity Tweak Tool 0.0.7 settings manager*
VLC 3.0.18 media player

* indicates same application
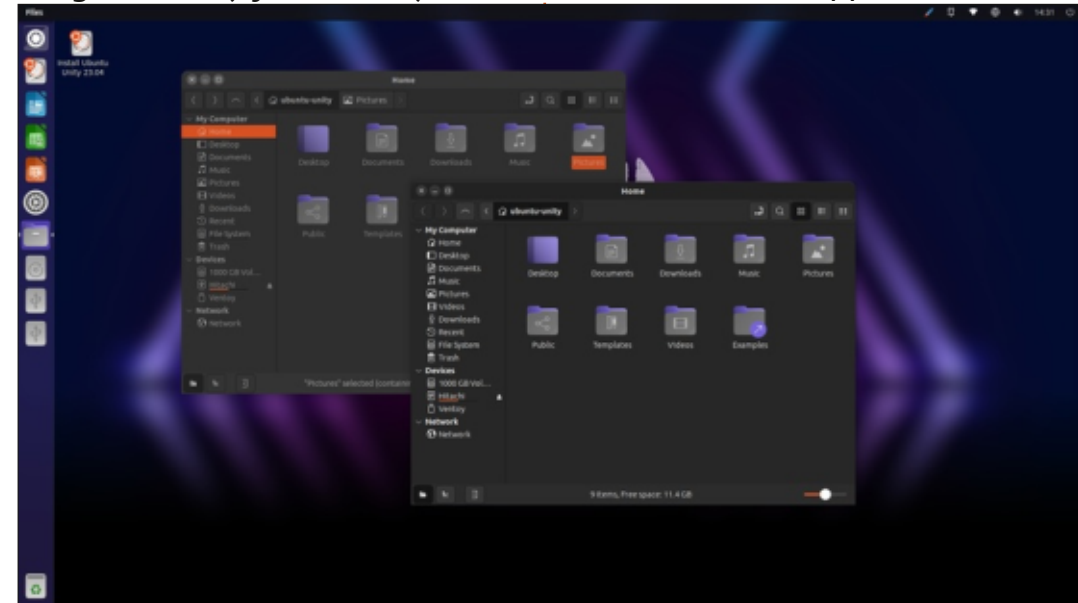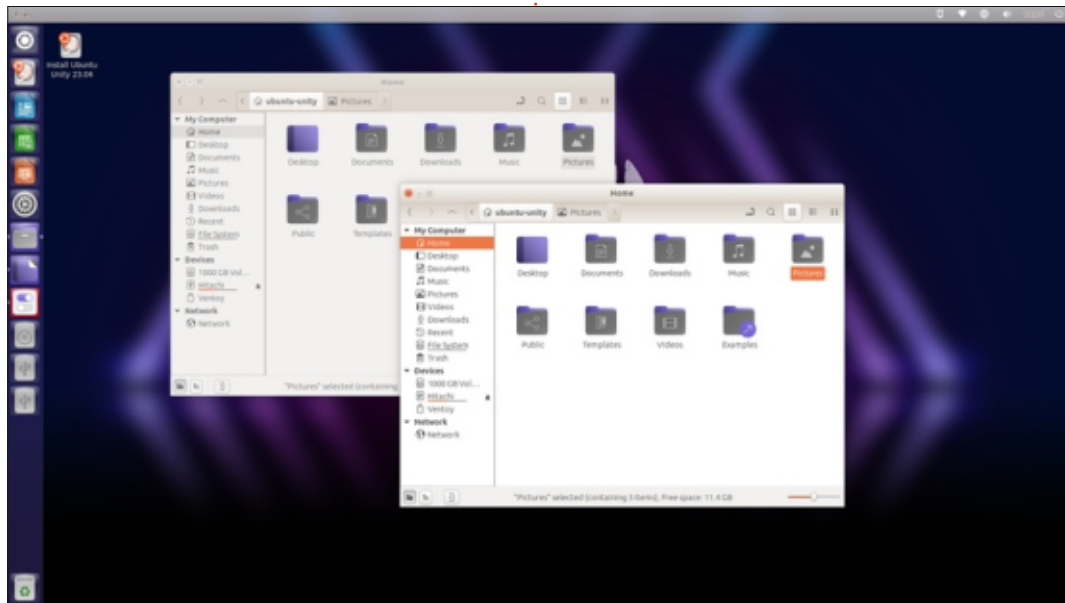
version as used in Ubuntu Unity 22.10.

** supplied as a snap, so version depends on the upstream package manager.

Ubuntu Unity 23.04 is still using PulseAudio as its audio controller and has not switched to PipeWire yet, unlike Ubuntu and Kubuntu.

I am pleased to report that the previous rapid switching of applications, in and out and back in again, seems to have ended, at least in Ubuntu Unity 23.04. Over the past few releases, it had been a bit dizzying, as applications appeared and disappeared, only to reappear again in later releases – and all without explanation in the

release announcements. The development team now seems to have decided on a suite of default applications and that is a positive step.

It is not mentioned in the Ubuntu Unity 23.04 release announcement, but the only change to the default application lineup this time is the addition of the Stacer system monitor and optimizer application.

This release continues with Nemo from the Cinnamon desktop environment as its file manager. Nemo works well, and has nice controls, but still lacks bulk file renaming which really is a needed feature.

LibreOffice 7.5.2 is included, too. Like all of the other Ubuntu flavors, it is missing only the LibreOffice Base database application which is probably the least used LibreOffice component. It can be installed from the Ubuntu repositories if needed.

CONCLUSIONS

With its wide variety of user customization, Ubuntu Unity is clearly trying to differentiate itself from mainstream Ubuntu, which is notable for being very limited in this respect. In fact, Ubuntu Unity rivals Kubuntu for its myriad of user setting choices.

With the suite of chosen default applications seemingly now reaching a state of stability, Ubuntu Unity 23.04 sets a good tone for this development cycle. I am interested to see if there are many more changes coming in the next interim release which will be Ubuntu Unity 23.10, due out on 12 October, 2023, and then in the final product for this cycle, Ubuntu Unity 24.04 LTS, due out in April, 2024.

EXTERNAL LINKS

Official website:
https://ubuntuunity.org/

Ubuntu Unity HelloTux merchandise shop:
https://www.hellotux.com/ubuntu-unity
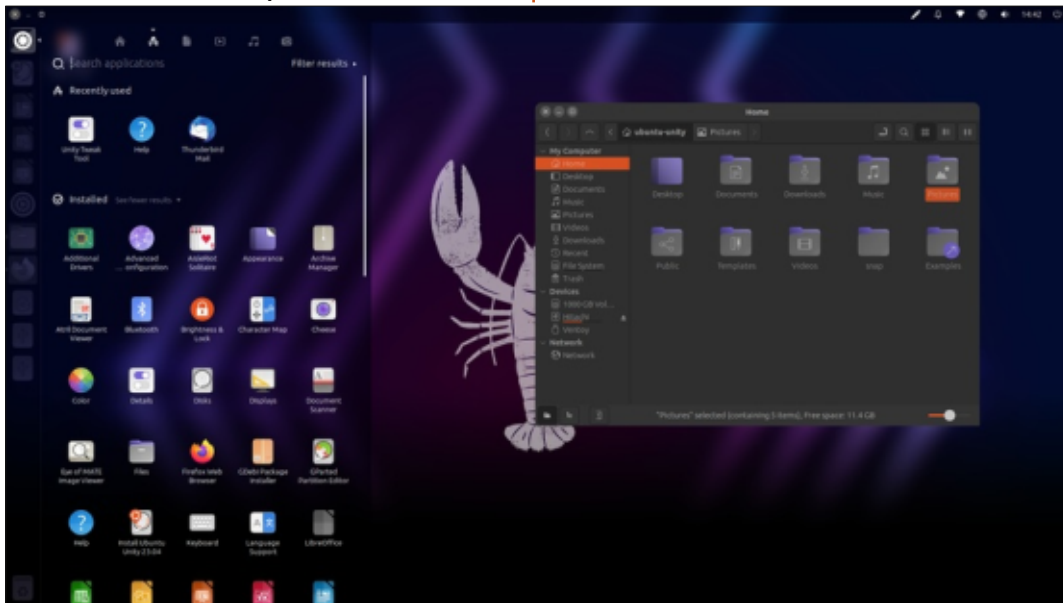
Adam Hunt started using Ubuntu in 2007 and has used Lubuntu since 2010. He lives in Ottawa, Ontario, Canada, in a house with no Windows.

Website: https://pika-os.com/

Price: Free!

Blurb: "*PikaOS is a gaming focused Linux distribution, focussing on ease of use and high compatibility. Using the know-how from Nobara, combined with a Ubuntu base (sic), PikaOS is almost unrivaled in software compatibility. Our repository is also extremely fast, globally, thanks to Cloudflare's CDN. They also power our global ISO mirrors and status page.*"

Kubuntu and gaming? I had to test this out.

Firstly, it's pretty. Secondly, it seems to be made by people saying "birb", and while this is cute on 4chan with other 13-year-olds, it should not be used in the real world.

To be fair, it is not what I expected. It is also a "gaming distro" without any games installed. It did, however, have unnecessary services running by default. I could turn them off, sure, but that means it is not fully optimized for gaming, I have to optimize it. The secret sauce in the distribution comes from the PikaOS Hub. Think of it as a welcome screen for gamers. I would have liked to see Oibaf make the list, but it did not. A tuned Kernel (Xanmod) is responsible for some of the niceties, making it as sleek as possible, but there is *some waste – maybe only ship it with five fonts, for instance, and lose wacom and print manager

daemons? This does not mean there isn't any potential here, because there is!

I feel audio is overlooked here, These are places that Windows still leads the way. Other than my gaming drivers, I need audio control and fan control in Linux.

Now I did not dig into the PikaOS team, as sometimes it does not matter, as the work speaks loudest.

From what I have told you so far, I hope you picked up on the sway, almost like a cyclist weaving through traffic. Positive, negative, positive, negative, and to be fair, some problems are Linux in general. I tried the distro on a Dell XPS 9720 and 9520, and while they are not "gaming" machines, the 3050ti graphics card puts up a good show (until it gets hot and the fans take too long to ramp up). As you can see by my latest screenshot, I have been running it for a while, and it certainly has gotten better in leaps and bounds. The 17-inch laptop seems to take everything harder, and I am not sure why. On the 15-inch, sound plays in live mode, but not on the 17-inch. The 15-inch has smooth mouse movements, while the 17-inch has jerks and so forth. Both laptops were new and unused before this, so I'm not sure if it is a hardware issue. I installed vanilla Ubuntu and updated the firmware, but there was no change.

You have the option of using either X11 or Wayland, but I suspect Wayland is the better one
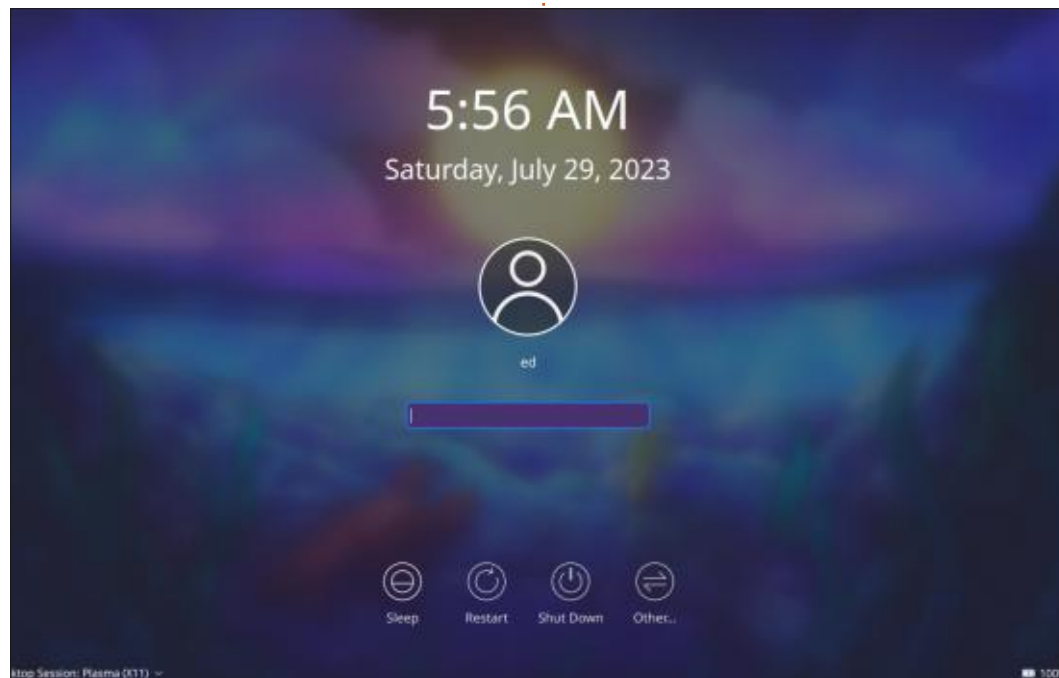
for modern gaming, while X11 is fine for retro gaming. The default is X11.

If I compare apples with apples, I can clearly see there has been work done. Running the same game on Linux Lite 6.2 and PikaOS, things already run smoother even on the simpler games. The first few games I ran, ran so nice, I wondered if it was better than on Windows 10 / 11. A game I previously could run on Vulkan on Windows did not want to any more, so I could not tell, but I suspect it ran better.

Though I missed things like Lutris out of the box, nothing was difficult to install, as it is all provided via the PikaOS Hub.

For shits 'n giggles, I fired it up in Virtualbox and here it surprised me. This time I compared it to KDE Neon, to keep the Desktop Environment the same. I did not expect any games to run. In fact, on KDE neon, games paged, instead of scrolling. In PikaOS, I could actually still play. Now I don't want to create any false expectations, There were sections where the display jerked, but I played without it feeling like I was in a VM, rather

than older hardware. Chained Echoes is not the most demanding game, but I chose it because it has lots of horizontal and vertical scrolling. I honestly expected more paging and screen artifacts. This was so unexpected that I tried a few games with edge scrolling, and lo and behold! It worked. (Virtualbox version 7).

There is definitely some voodoo happening in the background here, and my first impression of the OS was so wrong, that I rewrote the whole article. What is weird here is that, according to the Github page, there has been no movement in months, so is it Ubuntu's gaming

initiative bringing about these changes? We will have to wait and see.

It is important to note that PikaOS is not an Ubuntu Flavor, nor is it a finished project; it is very much a work-in-progress. I would keep my eye on this one if I were you. I am certainly expecting big things.

PikaOS is to Ubuntu what Nobara is to Fedora, or something in that ballpark.

I do not like waste, and it feels like a waste to me when I update here. My test laptops have Nvidia

graphics cards, but I see AMD drivers & firmware being downloaded using the provided update software. While I suppose it is not an issue for most people, I would like to see something that allows you to remove the stuff you do not need. Remember, this is supposed to be a gamer-centric distribution, you want the bare minimum.

Unlike Vanilla Ubuntu, PikaOS prefers Flatpaks over Snaps, which is preinstalled and ready to roll. I'm still running the version with the mintupdate (broken as all heck), which has been fixed in the meantime, but requires a reinstall on my part.

The only part that has not changed, and I'm keeping from my original article, is that it includes APX. This puzzles me. From the latest updates, you may note: "Added more containers to apx", and I can only ask why? Is it because of the VanillaOS fork? These guys are on a good path, they should avoid boaty mcboatface (if you know, you know).

As always, misc@fullcirclemagazine.org if you have a different experience.

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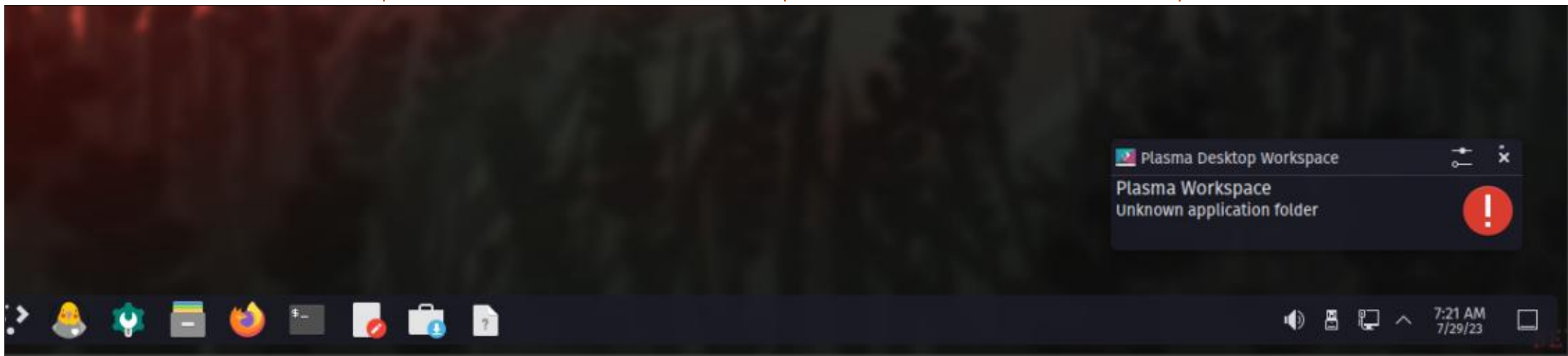
LETTERS

Join us on:

facebook.com/ fullcirclemagazine

twitter.com/#!/fullcirclemag

linkedin.com/company/full-circle-magazine

ubuntuforums.org/ forumdisplay.php?f=270

FULL CIRCLE NEEDS YOU!

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

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

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

Q&A

Compiled by EriktheUnready

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

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

At work, we ship our notebooks with an account for the company and an account for the user. There is nothing sinister about it, the idea behind this is that, when the user returns the laptop, we simply delete the user and all its folders, and the laptop can be farmed out to another person. At least 50% of the time, someone will want to log into the company account – asking for the password, whilst, right in front of them, their name is displayed in big letters. Others will come up with the most outlandish issues, thinking they are not administrators and they need the company account password to do something. Now, most of our machines are Macs, and the rest are Ubuntu. A quick look in the Mac user settings will tell you that your account is an Admin account, but, somehow, that elusive account password just bugs people. There is literally nothing in that account, it just serves as an entry point to delete their profiles later. Its presence on the login screen is like a carrot to the proverbial donkey. Yet, when companies install certificates – say at McDonalds, they will eagerly click yes, without reading – thereby compromising their computers or phones. You also have to understand that all these people get security training at least once. Many of them are developers who are supposed to know better. Guys, don't compromise your Ubuntu installation by running commands that you do not know, or install certificates that allow people to access your network traffic, no matter what. Be safe. Black Friday is almost upon us, so do not fall for tricks, especially if you shop online. As you can see from the above, even people who should know better, do stupid things. Be sceptical, always!

————————————————

Q: Hi, I keep seeing errors like: E: Package 'whatever I typed' has no installation candidate. I'm following a tutorial on making Ubuntu look like MacOS and I keep getting stuck.

A: There may be multiple reasons, but the main one would be finger problems, ie, you typed it wrongly, so the best way to see is start typing, say, "python", or whatever you are trying to install, and when you hit the last letter, in this case "n", press tab twice. If the program you wanted does not show up, you may need to add a PPA (Personal package archive) or get it elsewhere.

Q: On the dock in a fresh install of Ubuntu 22.04, these two app icons are precisely the same with different icons. Both programs do the same job. <removed>

A: Yup, update:

```
sudo apt update && sudo apt upgrade –y
```

or get a later version of your installation media (22.04.3) to fix that.

Q: I have flagship Ubuntu 22.04 in Virtualbox on Voyager Linux, and I started noticing graphical glitches like this <removed>. What could be the cause? Everything was working fine for almost an hour before it happened. The only things I have installed have been extensions for Gnome.

A: In Virtualbox settings, turn off all "acceleration" in the graphics options, and try again, if you are still stuck, when you log in, switch from Wayland to X11 via the small gear in the bottom-right.

Q: I would like to create an alias of the command with sudo for

updating to like -u, is it possible to create something like that for a user?

A : I'd suggest rather writing a script, place it in your usr/bin, and run it like a command.

Q : My setup is as follows, I have a notebook on a stand, but the notebook has only a small keyboard. I have a wireless keyboard plugged in that has all the extended keys. On my numeric keypad, when I hit the "del" key, instead of a period, I see a comma. My Ubuntu is up-to-date, and my LibreOffice is up-to-date. Google is not helping much as the fixes involve "setxkb", but that is not available in the latest Ubuntu.

A : The issue is LibreOffice related, but I'll tell you where to go since you have been searching. In LibreOffice, go to tools-> Options -> Language Settings, and look for Decimal Separator Key. If the tick is on, turn it off and vice-versa.

Q : Why is it that when I start a program in the terminal (to see debug output), and I close that terminal, the program also closes, unlike Windows 10? I'm new to

Kubuntu. Someone suggested I go add an & at the end, but it still does not work. We are trying to install some games to play (that worked in Windows XP) that don't work in Windows 10.

A : OK, here is the short version. Unlike windoze, your desktop environment is running in a TTY. (In the old days, you needed to type startx for the GUI.) So, when you open another TTY (terminal), it sits in another process. When you terminate that process, it takes whatever is running inside it to the great beyond. On your keyboard, press CTRL+ALT+F2 and see what happens. To return, press CTRL+ALT+F7.

Q : I have been running Ubuntu WSL for over a year now and I am satisfied; how can I make this my default (instead of windows) please? I can't stand the forced updates any more.

A : WSL is "Windows Subsystem for Linux" and not Linux. Back up your data to an external drive, and install Ubuntu with the "erase disk" option. This will ensure that NTFS gets replaced by EXT4. Once complete, you can copy documents to documents, music to music and

so forth, just make sure you do not overwrite the folders that Ubuntu has.

Q : I can't get xdotool to work in Ubuntu 22.04. I recently updated – as 16.04 was a little stale – and did not take this into account, only my apps. I print envelopes, so I need to perform certain actions over and over. Can you help me?

A : I saw somewhere that xdotool was replaced with ydotool for Wayland. https://gabrielstaples.com/ydotool-tutorial/#gsc.tab=0 or https://askubuntu.com/questions/1413829/how-can-i-install-and-use-the-latest-ydotool-keyboard-automation-tool-working-o

Q : When I'm playing a Steam game on Windows, I can press F12 to take a screenshot, but, with the same game on Ubuntu 22.04, that function does not exist. I press F12 and nothing happens. Someone suggested it may be that I'm offline, and I tested it on Windows and F12 does not work when I'm offline. How do I keep Ubuntu online long enough to take a screenshot?

A : I think we are looking at correlation here, not causality. I suspect in Ubuntu, you are running in Wayland, and Wayland has issues with things like screenshots at the moment, as all those utilities were written for X. Try booting into a X11 session, and try that again. On windows, the technology is different – i.e. DirectX, and you probably run on Vulcan for the Linux version. Post this question in the Steam forums for your game.

Q : I was renaming files and in my haste I typed = by mistake and then hit \ which is right next to delete, before hitting enter. Now I have a weird filename on my Ubuntu server that I cannot delete. Rm says there is no such file, but it exists.

A : You have to use quotes around the filename when you delete the file.

Q : First of all, I don't have sudo permissions, so I can't install anything. It's a long story, so don't ask. So is there a way I can play sound on Ubuntu without a graphical user environment??

Q&A

A : Type sox at the command prompt, and if you get something back, you are good to go. See: https://ubunlog.com/en/sox-reproduce-mp3-terminal/

Q : I have installed some packages with Gdebi and see: a newer package is available in the repository, but I want this version. Can I see what versions they are then? (The newer versions have stuff added to them that I don't particularly like, but I still want to know).

A : You can try:

`apt policy perl`

for instance, replacing perl with your application.

Q : Suspend, Hybernate or Hybrid Sleep is not working in XUbuntu 22.04 on a Dell 9510. I found some posts online that claim it's the nVidia drivers, but I don't have any proprietary drivers installed, just mesa. There is nothing I can see in the BIOS that would prevent this. Closing the lid and putting it in my bag just gets me a hot laptop when I get home. Any ideas?

A : I found something online: https://askubuntu.com/questions/1483865/suspend-not-working-ubuntu-22-04 (very similar, you?). Though it is the opposite of what you want, I suspect it is a bug in Xubuntu, as I am sure our ones at work do suspend with vanilla Ubuntu. I will check and let you know.

Q : I'm following this, https://docs.docker.com/engine/install/ubuntu/, to get docker installed, but frustration is making me pull my hair out. <removed> <removed>. Also just tried dpkg <removed>, and Ubuntu Jammy 22.04 (LTS) is in the list, I don't understand why they don't update the tutorial if they change something. Help me please.

A : Thanks to user *@Daniel* –

`sudo apt install docker.io`

and it is done!

Q : Question, I installed Ubuntu flavours in VirtualBox on my laptop, but I do not have any internet connection. I can not ping anything. What am I doing wrong here? I tried different versions but still no internet connection. I do not have a firewall running <removed>.

A : Try switching from NAT to bridged adapter in your VirtualBox network settings per virtual machine.

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.

BACK NEXT MONTH

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

contents ^

Steam: https://store.steampowered.com/app/894940/Littlewood/

Price: £12

Blurb: "*The world has already been saved. Now it's time to rebuild your town, learn new hobbies, and forge lifelong friendships in this peaceful and relaxing RPG*".

Think Stardew Valley with big chunky characters and that's a good start.

INTRO

The game starts with your character waking up to be told that you saved the world, but you can't remember a damn thing. Now, it's up to you and the villagers to rebuild the village.

BUILDING

In true RPG style, you can talk to the village residents, and (in true RPG style) they move the story forward by explaining things and giving you your first jobs to get you into the game.

What makes this different from Stardew Valley et al is that you can, at any time, alter the layout of the village by raising and lowering land, moving trees, and the like.

Like other games of this ilk, you have to gather resources and craft items, collect and sell items (including fishing), and to help you in your endeavours, you can 'hang out' with a villager – where they'll follow you around the village and help in gathering things.

CONTROLS

You control your character (and the menus) with the WASD keys, and use ESC to bring up the menu which grants you access to ITEMS, BUILD MODE, JOURNAL etc. Using something (or selecting a menu item) is done using SPACE. Nothing complicated here.

TIME

Again, like similar games, you have a day cycle that is advanced either by plodding along until it's dark, or you can sleep to go into the next day. Your menu has access to the calendar which is marked

Willow: You can move objects out of the way in Build Mode to make room for the Marketplace.

with various reminders. Certain fish/bugs can be caught only at certain times of the day/month/year, and, obviously, some things are worth more than others to sell.

CONCLUSION

Fair warning in case you think about buying this game: it looks like (from Steam comments) that this game has been abandoned by the developers. It's fine. It works. But just don't expect updates (it seems). Which is a shame, as I'm sure there's more they could have added. That aside: this is a great little game. It's soothing and peaceful. There isn't any rush, and the island modding from the start

is a great idea.

I have to deduct a star for it being abandoned.

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

PATRONS

Monthly Patrons

Alex Crabtree
Alex Popescu
Andy Garay
Bill Berninghausen
Bob C
Brian Bogdan
CBinMV
Darren
Dennis Mack
Devin McPherson
Doug Bruce
Elizabeth K. Joseph
Eric Meddleton
Gary Campbell
George Smith
Henry D Mills
Hugo Sutherland
Jack
Jack Hamm
Jason D. Moss
Joao Cantinho Lopes
John Andrews
John Malon
John Prigge
Jonathan Pienaar
Joseph Gulizia
JT
Katrina
Kevin O'Brien
Lee Allen

Lee Layland
Leo Paesen
Linda P
Mark Shuttleworth
Moss Bliss
Norman Phillips
Oscar Rivera
Paul Anderson
Paul Readovin
Rino Ragucci
Rob Fitzgerald
Robin Woodburn
Roy Milner
Scott Mack
Sony Varghese
Taylor Conroy
Tom Bell
Tony
Vincent Jobard
Volker Bradley
William von Hagen

Single Donations

2023:
Floyd Smith
Richard Almeida
Gavin Thompson
Raymond Mccarthy
Michael Grugel
Linda Prinsen
Thomas A Lawell

Ronald Le Blanc
Ronald Eike
Kenneth Martin
Lance Jacob
Roberto Machorro Mejia
Paul Radovan
Christopher LaSota

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

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

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

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

https://www.patreon.com/fullcirclemagazine

https://paypal.me/ronnietucker

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

HOW TO CONTRIBUTE

FULL CIRCLE NEEDS YOU!

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

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

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

FCM#198
Deadline:
Sunday 08th Oct 2023.
Release:
Friday 27th Oct 2023.

For the Full Circle Weekly News:

You can keep up to date with the Weekly News using the RSS feed: http://fullcirclemagazine.org/feed/podcast

Or, if you're out and about, you can get the Weekly News via Stitcher Radio (Android/iOS/web):
 http://www.stitcher.com/s?fid=85347&refid=stpr

and via TuneIn at: http://tunein.com/radio/Full-Circle-Weekly-News-p855064/

Getting Full Circle Magazine:

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

Issuu - From Feb. 2023 Issuu are removing all free items with 50+ pages. So most (if not all) issues of FCM will vanish.

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