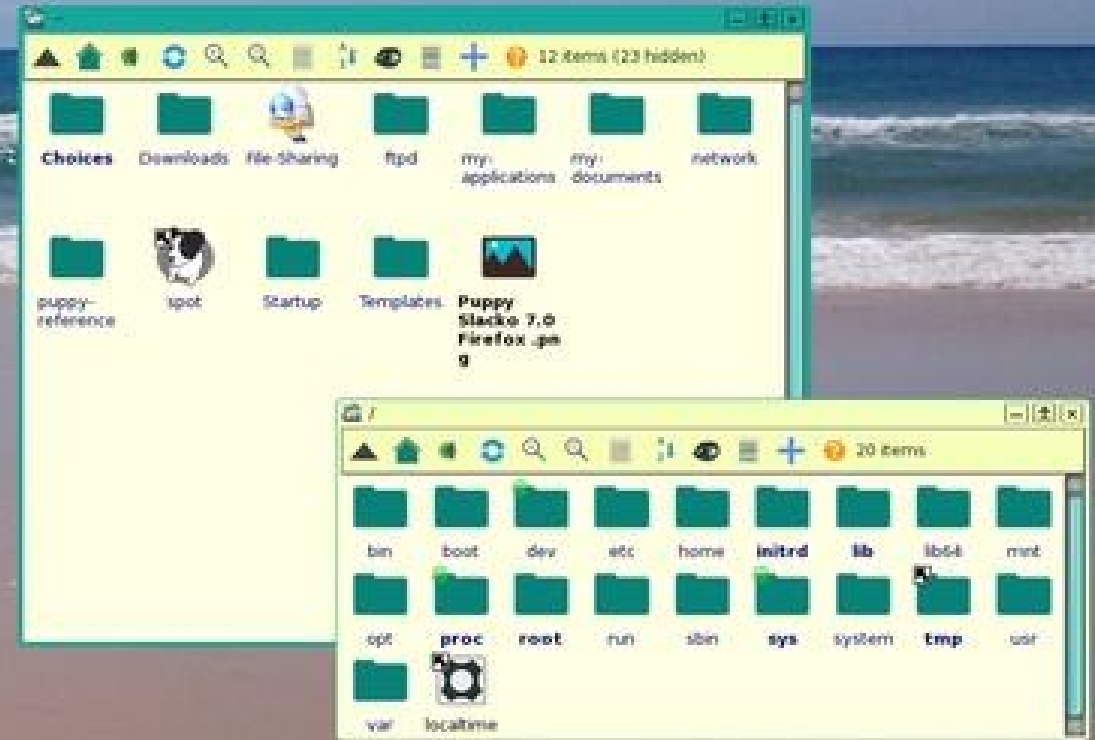
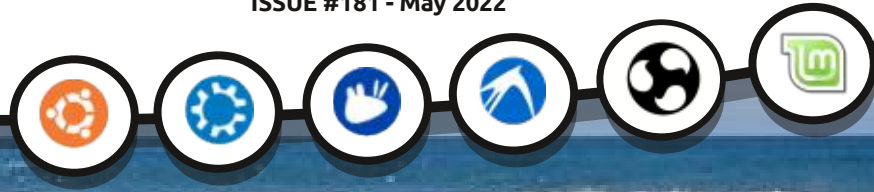




Full Circle

THE INDEPENDENT MAGAZINE FOR THE UBUNTU LINUX COMMUNITY

ISSUE #181 - May 2022



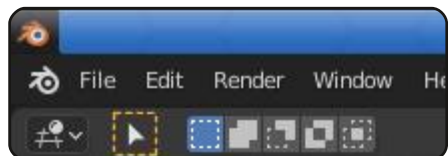
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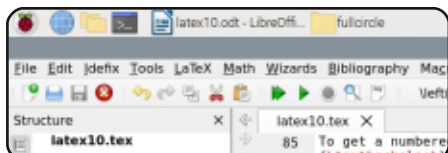
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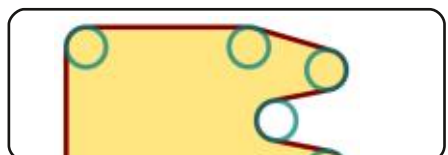
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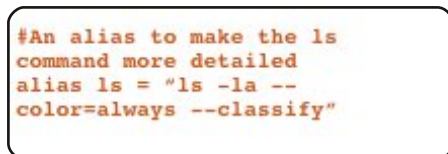


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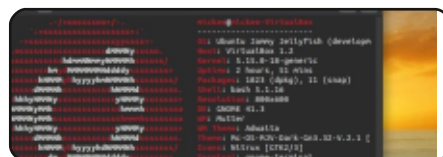
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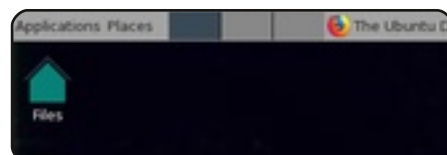
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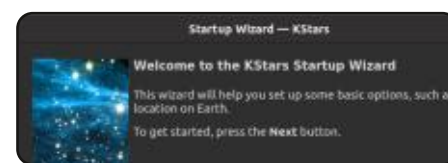
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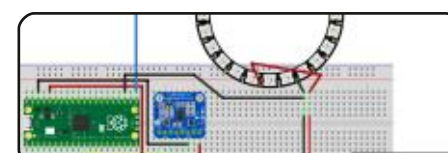
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WELCOME TO THE LATEST ISSUE OF FULL CIRCLE

We have a full quota for you this month: Python, Latex, Inkscape, Blender, and lots of other goodness.

The big news this month is, of course, the release of Ubuntu 22.04 (and it's close relatives). And, as per previous releases, we have a suite of reviews from Adam. But this time with a twist. Each month he's going to review an official 22.04 flavour, but also a completely non-Debian based distro. This month: **Puppy Linux Slacko 7**. It doesn't use Debian. It doesn't use apt/apt-get. It doesn't use GNOME. It's very different, and I hope you enjoy the review, and change of scenery.

You may also notice the return of Latex HowTo's? Reader Robert is taking over from this month. In other series news: sorry about the long gap between GUI articles. The author has checked in and is a bit busy at the moment, but it will return. Honest!

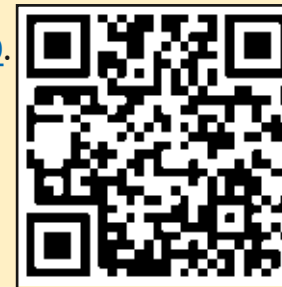
The new website seems to be holding up well so far. I'm hoping that we can soon switch off the old Wordpress site, give it a retirement party with a gold watch, and switch the beta site to being the real deal. It's at: <https://beta.fullcirclemagazine.org>

Don't forget: if you're looking for some help, advice, or just a chit chat: remember, we have a **Telegram** group: <https://t.me/joinchat/24ec1oMFO1ZjZDc0>. I hope to see you there. Come and say hello.

Anyway, all the best, and stay safe!

Ronnie

ronnie@fullcirclemagazine.org



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CANONICAL INTRODUCES STEAM SNAP FOR EASIER ACCESS TO GAMES ON UBUNTU:

04/30/2022

Canonical spoke about plans to expand the capabilities of Ubuntu as a platform for running gaming applications. Note that the development of the Wine and Proton projects, as well as the adaptation of the BattlEye and Easy Anti-Cheat anti-cheat services, already allow many games that are available only for Windows to run on Linux. After the release of Ubuntu 22.04 LTS, the company intends to work hard to make it easier to access games in Ubuntu and improve the ease of launching them. The development of Ubuntu as a convenient environment for running games is one of the priorities, and the company intends to hire additional staff to achieve this goal.

The first step towards making games easier to access on Ubuntu was to publish a pre-release snap

package with the Steam client. The package provides a ready-made environment for running games, which don't allow you not to mix the dependencies necessary for games with the main system and get a pre-configured actual environment that does not require additional configuration.

<https://ubuntu.com//blog/level-up-linux-gaming-new-steam-snap>

UNITY 7.6.0 CUSTOM SHELL RELEASE:

05/01/2022

The developers of the Ubuntu Unity project, who develop an unofficial edition of Ubuntu Linux with the Unity desktop, have published the release of Unity 7.6.0, which is marked as the first major release in 6 years after Canonical ceased development of the shell. The Unity 7 skin is based on the GTK library and is optimized for efficient vertical space use on widescreen laptops. The code is distributed under the GPLv3 license.

The last major release of Unity 7 was published in May 2016, after which only bug fixes were added to the branch, and support was carried out by a group of enthusiasts. In Ubuntu 16.10 and 17.04, in addition to Unity 7, the Unity 8 shell was included, translated to the Qt5 library and the Mir display server. Canonical originally planned to replace the Unity 7 shell, which uses GTK and GNOME technologies, with Unity 8, but plans changed and Ubuntu 17.10 returned to the regular GNOME with the Ubuntu Dock, and the development of Unity 8 was discontinued.

The development of Unity 8 was picked up by the UBports project, who develop their own fork under the name Lomiri. The Unity 7 shell was abandoned for some time, until in 2020 it was again in demand in the unofficial edition of Ubuntu - Ubuntu Unity. The Ubuntu Unity distribution is being developed by Rudra Saraswat, a 13 year-old from India.

<https://ubuntuunity.org/>

FWUPD 1.8.0, FIRMWARE DOWNLOAD TOOLKIT AVAILABLE:

05/01/2022

Richard Hughes, the creator of the PackageKit project who is actively involved in the development of GNOME, has released the fwupd 1.8.0 package, which offers a background process for firmware updates and the fwupdmgr utility for managing firmware, checking for new versions, and downloading firmware. The project code is written in C and distributed under the LGPLv2.1 license. At the same time, it was announced that the LVFS project had reached the milestone of 50 million firmware updates delivered to users.

The project provides a service for OEMs and firmware developers to upload firmware to a special centralized LVFS (Linux Vendor Firmware Service) directory that can be used on Linux distributions using the fwupd toolkit. Currently,

the catalog offers firmware for 829 types of devices (more than 4000 firmware) from 120 manufacturers. The use of a centralized directory eliminates the need for manufacturers to package distributions and allows the transfer of firmware in a ".cab" archive with additional metadata, which is also used when publishing firmware for Windows.

fwupd supports both the automatic firmware update mode, without the need to perform any actions on the part of the user, and the operation after confirmation or user request. Fwupd and LVFS are already used in RHEL, Fedora, Ubuntu, SUSE, Debian and many other distributions for automated firmware updates, and are also supported in GNOME Software and KDE Discover applications. Reminder, fwupd is not limited to desktop systems and can also be used to update firmware on smartphones, tablets, servers, and IoT devices.

<https://blogs.gnome.org/hughsie/2022/04/28/fwupd-1-8-0-and-50-million-updates/>

RELEASE OF TRINITY R14.0.12 DE:

01.05.2022

The Trinity R14.0.12 desktop environment has been released, continuing the development of the KDE 3.5.x and Qt 3 codebase. Binary packages will soon be available for Ubuntu, Debian, RHEL/CentOS, Fedora, openSUSE and other distributions.

Among the features of Trinity, one can note its own tools for managing screen parameters, a udev-based layer for working with devices, a new interface for configuring devices, switching to the Compton-TDE composite manager (a fork of Compton with TDE extensions), improved network configurator and user authentication mechanisms. The Trinity environment can be installed and used at the same time as more recent releases of KDE, including the ability to use already installed KDE applications in Trinity. There are also tools for correctly displaying GTK programs without violating the uniform design style.

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

KAOS 2022.04

DISTRIBUTION RELEASED:

02.05.2022

KaOS 2022.04, a rolling release aimed at providing a desktop based on recent releases of KDE and applications using Qt. Of the distribution-specific design features, one can note the placement of a vertical panel on the right side of the screen. The distribution is developed with Arch Linux in mind, but maintains its own independent repository of more than 1500 packages, and also offers a number of its own graphical utilities. The default file system is XFS. Builds are published for x86_64 systems (2.8 GB).

<https://kaosx.us/news/2022/kaos04/>

MICROSOFT HAS JOINED THE WORK ON THE OPEN 3D ENGINE:

02.05.2022

The Linux Foundation has announced that Microsoft has joined the Open 3D Foundation (O3DF), which was established to continue the co-development of

the Open 3D Engine (O3DE) after it was developed by Amazon. One has to wonder how many back doors and tracking systems will now be covertly built into it. Microsoft was among the top contributors, along with Adobe, AWS, Huawei, Intel, and Niantic. A Microsoft representative will serve on the Governing Board of the O3DF. The total number of members of the Open 3D Foundation has reached 25.

Since the source code was opened, about 14,000 changes have been made to the O3DE engine, covering about 2 million lines of code. Every month, 350-450 commits from 60-100 developers are fixed in the project repositories. The main goal of the project is to provide an open, high-quality 3D engine for the development of modern AAA-class games and high-fidelity simulators that can work in real time and provide cinematic quality.

The Open 3D Engine is a revised and improved version of Amazon Lumberyard's previously developed proprietary engine based on CryEngine technologies licensed from Crytek in 2015. The engine includes an integrated environment

for game development, a multi-threaded photorealistic rendering system Atom Renderer with support for Vulkan, Metal and DirectX 12, an extensible 3D model editor, a character animation system (Emotion FX), a prefab development system, a real-time physics simulation engine, and math libraries using SIMD instructions. The visual programming environment (Script Canvas), as well as the Lua and Python languages, can be used to define game logic.

The engine is already used by Amazon, several game and animation studios, and robotics companies. Some games based on the engine; New World and Deadhaus Sonata. In total, more than 30 modules are offered, supplied as separate libraries, suitable for replacement,

integration into third-party projects and use separately. For example, thanks to modularity, developers can replace the graphics renderer, sound system, language support, network stack, physics engine, and any other components.

<https://www.linuxfoundation.org/press-release/the-open-3d-foundation-welcomes-microsoft-as-a-premier-member-to-advance-the-future-of-open-source-3d-development/>

DEBUGGER RELEASE GDB 12

02.05.2022

GDB 12.1 debugger released (first release of 12.x series, 12.0 branch used for development). GDB supports source-level debugging for a wide range of programming

languages (Ada, C, C++, D, Fortran, Go, Objective-C, Modula-2, Pascal, Rust, etc.) on various hardware (i386, amd64, ARM, Power, Sparc, RISC-V, etc.) and software platforms (GNU/Linux, *BSD, Unix, Windows, macOS).

<https://sourceware.org/pipermail/gdb/2022-May/050077.html>

ORACLE PUBLISHES SOLARIS 10 TO SOLARIS 11.4 APPLICATION MIGRATION TOOL

02.05.2022

Oracle has published a sysdiff utility that makes it easy to port legacy applications from Solaris 10 to a Solaris 11.4-based environment. Due to Solaris 11's transition to the IPS (Image

Packaging System) packaging system and the end of support for SVR4 packaging, direct porting of applications with existing dependencies is difficult, despite maintaining binary compatibility, so until now one of the easiest migration options has been to run a separate isolated environment Solaris 10 inside a Solaris 11.4 system.

The sysdiff utility allows you to select application-related files and move them to a Solaris 11.4 environment without wasting resources on maintaining a separate isolated zone with Solaris 10. Sysdiff parses the specified Solaris 10 environment and generates IPS packages for executables, libraries, data, files configuration and other components not related to the operating system. The prepared IPS packages are natively adapted to run in a Solaris 11.4 environment and access files used in a Solaris 10 environment. The utility only supports running from Solaris 11.4, so if you need to migrate individual installations from Solaris 10 running on top of the hardware, they must first be converted to the isolated solaris10 environment running on Solaris 11.4.



Distrowatch.com

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

<https://blogs.oracle.com/solaris/post/sysdiff-moving-legacy-oracle-solaris-10-3rd-party-apps-to-114>

TAILS 5.0 RELEASED:

03.05.2022

The release of a specialized distribution kit Tails 5.0 (The Amnesic Incognito Live System), based on Debian and designed to provide anonymous access to the internet, has been announced. Anonymous exit to Tails is provided by the Tor system. All connections, except traffic through the Tor network, are blocked by default by the packet filter. Encryption is used to store user data in the save user data between runs mode. An iso image has been prepared for download, capable of working in Live mode, 1 GB in size.

https://tails.boum.org/news/version_5.0/index.en.html

RELEASE OF SEAMONKEY 2.53.12, TOR BROWSER 11.0.11 AND THUNDERBIRD 91.9.0:

05/04/2022

The SeaMonkey 2.53.12 set of Internet applications has been released, which combines a web browser, an email client, a news feed aggregation system (RSS / Atom) and a WYSIWYG html page editor, Composer, within one product. The Chatzilla IRC client, the DOM Inspector web development toolkit, and the Lightning calendar are offered as preinstalled add-ons. The new release brings fixes and changes from the current Firefox codebase (SeaMonkey 2.53 is based on the Firefox 60.8 browser engine, porting security-related fixes and some improvements from current Firefox branches).

At the same time , a new version of Tor Browser 11.0.11 was released, focussing on anonymity, security and privacy. The release is in sync with the Firefox 91.9.0 ESR codebase, which fixes 11 vulnerabilities. Updated version of NoScript add-on 11.4.5 . Hiding the "What's New" link in the About dialog. Removed the built-in obfs4-bridge.

Additionally, the corrective release of the Thunderbird 91.9.0 mail client, with the return of support for the SHA-1 algorithm for

OpenPGP digital signatures. In Thunderbird 91.8.0, the RNP library used in the OpenPGP implementation was updated to version 0.16.0, which disabled support for the MD5 and SHA-1 algorithms. Since OpenPGP keys based on SHA-1 are still in use, and real attacks on OpenPGP digital signatures are problematic, it was decided to return the ability to use SHA-1 in Thunderbird. To further enhance security, RNP 0.16.0 includes code for detecting collisions in SHA-1. Notable among other changes in Thunderbird 91.9.0 is the addition of a warning when ignoring unsafe attributes specified in the OpenPGP key, such as fields based on the MD5 algorithm.

<https://www.seamonkey-project.org/>

<https://blog.torproject.org/new-release-tor-browser-11011/>

<https://www.thunderbird.net/en-US/thunderbird/91.9.0/releasesnotes/>

ENTHUSIASTS HAVE PREPARED A STEAM OS 3 BUILD FOR REGULAR PCs:

04.05.2022

An unofficial build of the Steam OS 3 operating system has been published, adapted for installation on regular computers. Valve uses Steam OS 3 on Steam Deck game consoles and initially promised to prepare builds for regular hardware, but the release of official Steam OS 3 builds for non-Steam Deck devices has been delayed. Enthusiasts took the initiative into their own hands and, without waiting for Valve, independently adapted the recovery images available for Steam Deck for installation on conventional equipment.

After the first boot, the user is offered a Steam Deck-specific initial setup interface (SteamOS OOBE, Out of Box Experience), through which you can set up a network connection and connect to your Steam account. Through the "Switch to desktop" menu in the "Power" section, you can launch the full KDE Plasma desktop.

In the proposed test build, the

initial setup interface, the basic Deck UI interface, switching to the KDE desktop mode with the Vapor theme, power consumption limit settings (TDP, Thermal Design Power) and FPS, proactive shader caching, installing packages from SteamDeck pacman repositories mirrors, Bluetooth. For systems with AMD GPUs, AMD FSR (FidelityFX Super Resolution) technology is supported to reduce image quality loss when scaling to high resolution screens.

The packages supplied as part of the original package have been left unchanged as far as possible. In the differences from the original builds of Steam OS 3, there were inclusion of additional applications, such as the VLC multimedia player, Chromium, and the KWrite text editor. In addition to the regular Linux kernel package for Steam OS 3, an alternative Linux 5.16 kernel from the Arch Linux repositories is offered, which can be used in case of boot problems.

Full support is currently provided only for systems with AMD GPUs that support the Vulkan and VDMA APIs. To work on systems with Intel GPUs, after the initial boot, you need to roll back to

the previous versions of the Gamescope composite server and MESA drivers. For systems with NVIDIA GPUs, you need to load the build with the nomodeset=1 flag, disable Steam Deck session launch (remove the /etc/sddm.conf.d/autologin.conf file) and install proprietary NVIDIA drivers.

<https://github.com/bhaiest/holoiso/releases/tag/beta2>

MICROSOFT OPEN SOURCES THE BASICALLY OBSOLETE 3D MOVIE MAKER:

04.05.2022

Microsoft has open-sourced 3D Movie Maker, a program that allows children to create movies by placing 3D characters and props in pre-configured environments, as well as adding sound effects, music, and dialogue. The code is written in C++ and published under the MIT license. The program was developed in 1995, but remains in demand by enthusiasts who continue to publish films in 3MM format, as well as develop mods and expansions with the implementation of new scenes, characters and props.

The code is restored from the Microsoft archive and published as is, without adaptation for assembly with current compilers (Visual C++ 2.0 is required for assembly) and work on modern hardware. Microsoft has also received consent to open source the code used in the BRender 3D engine program. The BRender code in the 3D Movie Maker repository is published as of 1995, but newer versions are available for download - BRender-1997 and BRender-v1.3.2, open source under MIT licenses. However, the SoftImage SDK is not included, which must be obtained separately.

<https://github.com/microsoft/Microsoft-3D-Movie-Maker>
<https://3dmm.com/>

CISCO HAS RELEASED CLAMAV 0.105:

04.05.2022

Cisco has released a major new release of the free antivirus suite ClamAV 0.105.0 and has also published patch releases of ClamAV 0.104.3 and 0.103.6 with vulnerabilities and bug fixes. Recall that the project passed into the hands of Cisco in 2013 after the

purchase of Sourcefire, which develops ClamAV and Snort. The project code is distributed under the GPLv2 license.

<https://blog.clamav.net/2022/05/clamav-01050-01043-01036-released.html>

RELEASE OF PROXMOX VE 7.2:

04.05.2022

Proxmox Virtual Environment 7.2 is released, a specialized Linux distribution based on Debian aimed at deploying and maintaining virtual servers using LXC and KVM, and capable of acting as a replacement for products such as VMware vSphere, Microsoft Hyper-V and Citrix hypervisor. The size of the installation iso-image is 994 MB.

Proxmox VE provides the means to deploy a turnkey, web-managed industrial grade virtual server system for managing hundreds or even thousands of virtual machines. The distribution has built-in tools for backing up virtual environments and out-of-the-box clustering support, including the ability to migrate virtual environments from one node to another without

stopping its operation. Some features of the web-interface: support for secure VNC-console; access control to all available objects (VM, storage, nodes, etc.) based on roles; support for various authentication mechanisms (MS ADS, LDAP, Linux PAM, Proxmox VE authentication).

<https://forum.proxmox.com/threads/proxmox-ve-7-2-released.108969/>

OPENMEDIAVAULT 6 IS AVAILABLE:

05/05/2022

Two years since the formation of the last major branch, a stable release of the OpenMediaVault 6 distribution has been published, which allows you to quickly deploy network storage (NAS, Network-Attached Storage). The OpenMediaVault project was founded in 2009 after a split in the FreeNAS distribution camp, along with the FreeBSD-based classic FreeNAS, a fork was created, the developers then set themselves the goal of moving the distribution to the Linux kernel and the Debian package base. OpenMediaVault installation images for x86_64

architecture (868 MB) are available for download.

<https://www.openmediavault.org/?p=3201>

APACHE OPENOFFICE 4.1.12 RELEASED:

05/05/2022

After seven months of development and eight years since the last major release, Apache OpenOffice 4.1.12 has been released with 10 fixes. Ready-made packages are prepared for Linux, Windows and macOS.

<https://cwiki.apache.org/confluence/display/OOOUSERS/AOO+4.1.12+Release+Notes>

GITHUB WILL SWITCH TO MANDATORY TWO-FACTOR AUTHENTICATION:

05/05/2022

GitHub has announced a decision to move all users of the GitHub.com service involved in code development to the mandatory use of two-factor authentication (2FA) by the end of 2023. According to GitHub, gaining access to

repositories by attackers as a result of account hijacking is one of the most dangerous threats, since in the event of a successful attack, hidden changes can be made in popular products and libraries used as dependencies.

The new requirement will increase the security of the development process and secure repositories from malicious changes due to leaked credentials, using the same password on a compromised site, hacking the developer's local system, or using social engineering methods. According to GitHub statistics, only 16.5% of active users of the service currently use two-factor authentication. By the end of 2023, GitHub intends to disable the ability to submit changes without using two-factor authentication.

<https://github.blog/2022-05-04-software-security-starts-with-the-developer-securing-developer-accounts-with-2fa/>

KUBERNETES 1.24 RELEASED:

05/05/2022

A new release of the Kubernetes 1.24 container orchestration platform is available, which allows you to manage a cluster of isolated containers as a single entity and provides mechanisms for deploying, maintaining and scaling applications running in containers. The project was originally created by Google, but then transferred to an independent site curated by the Linux Foundation. The platform is positioned as a universal solution developed by the community, not tied to individual systems and able to work with any application in any cloud environment. The Kubernetes code is written in Go and distributed under the Apache 2.0 license.

Features are provided for infrastructure deployment and management, such as DNS database maintenance, load balancing, distribution of containers across cluster nodes (migration of containers depending on changes in load and service needs), application-level health checks, account management,

updating and dynamic scaling of a running cluster without stopping it. It is possible to deploy container groups with update and undo operations for the entire group at once, as well as logical splitting of the cluster into parts with resource sharing. There is support for live migration of applications that can be stored on both local storage and network storage systems.

<https://kubernetes.io/blog/2022/05/03/kubernetes-1-24-release-announcement/>

NEXTCLOUD HUB 24 COLLABORATION PLATFORM AVAILABLE:

05/06/2022

Nextcloud Hub 24 platform is out, which provides a self-sufficient solution for collaboration between employees of enterprises and teams developing various projects. At the same time, the Nextcloud 24 cloud platform underlying the Nextcloud Hub was published, which allows you to deploy cloud storage with support for synchronization and data exchange, that provides the ability to view and edit data from any device anywhere in a network

(using a web interface or WebDAV). The Nextcloud server can be deployed on any hosting that supports PHP scripting and provides access to SQLite, MariaDB/MySQL or PostgreSQL. Nextcloud source is distributed under the AGPL license.

In terms of tasks to be solved, Nextcloud Hub resembles Google Docs and Microsoft 365, but allows you to deploy a fully controlled collaboration infrastructure that operates on its own servers and is not tied to external cloud services. Nextcloud Hub combines several open add-on applications over the Nextcloud cloud platform into a single environment, allowing you to work together with office documents, files and information for planning tasks and events. The platform also includes add-ons for email access, messaging, video conferencing and chats.

User authentication can be performed both locally and through integration with LDAP / Active Directory, Kerberos, IMAP and Shibboleth / SAML 2.0, including using two-factor authentication, SSO (Single-sign-on) and linking new systems to an account entries by QR code. Version control of

changes allows you to track changes in files, comments, sharing rules and tags.

<https://nextcloud.com/blog/nextcloud-hub-24-is-here/>

APPLE HAS PUBLISHED THE CODE FOR THE KERNEL AND SYSTEM COMPONENTS OF MACOS 12.3:

05/06/2022

Apple has published the source code for the low-level system components of the macOS 12.3 operating system (Monterey) that use free software, including Darwin components and other non-GUI components, programs, and libraries. A total of 177 source packages have been published.

The XNU kernel code is available, the source published in the form of code slices associated with the next release of macOS. XNU is part of the open Darwin project and is a hybrid kernel that combines the Mach kernel, components from the FreeBSD project, and the IOKit C++ API for writing drivers.

A few days ago, public components used in the iOS 15.4 mobile platform were also published. The publication includes two packages - WebKit and libiconv.

<https://opensource.apple.com/releases/>

RELEASE OF THE GCC 12 COMPILER SUITE:

05/06/2022

After a year of development, the release of the free GCC 12.1 compiler suite has been announced, the first major release in the new GCC 12.x branch. Under the new release numbering scheme, version 12.0 was used during development, and shortly before the release of GCC 12.1, the GCC 13.0 branch was already forked, from which the next major release of GCC 13.1 will be rolled. On May 23, the project will celebrate 35 years since the formation of the first release of GCC.

<https://gcc.gnu.org/pipermail/gcc-announce/2022/000171.html>

THE DEB-GET UTILITY, OFFERING APT-GET-LIKE FUNCTIONALITY FOR THIRD- PARTY PACKAGES:

05/06/2022

Martin Wimpress, co-founder of the Ubuntu MATE edition, a member of the MATE Core Team, has published a deb-get utility that offers apt-get-like functions for working with deb packages distributed through third-party repositories or available for direct download from sites projects. In deb-get, typical package management commands such as update, upgrade, show, install, remove, and search are available, but the packages themselves are not downloaded from the distribution's repositories, but directly from repositories and sites maintained by software manufacturers.

In fact, deb-get is a bash script that defines the rules for downloading and updating more than 80 popular programs distributed directly or through their own repositories. Some of these programs are not included in the regular repositories of

distributions, for example, due to licensing restrictions. Another part of the programs from the list is available in the regular repositories, but the versions presented in the repositories may be far behind the actual releases distributed directly.

The deb-get utility allows you to use the usual commands to install and update these programs, making it possible not to look for the download location of each program, not to manually install a deb package, and not to worry about keeping track of updates. APT repositories, packages on GitHub release pages, PPA repositories, and download sections on websites are supported as installation sources.

https://twitter.com/m_wimpress/status/1521806830707560448

CHINA INTENDS TO TRANSFER STATE INSTITUTIONS AND STATE- OWNED ENTERPRISES TO LINUX:

05/06/2022

According to Bloomberg, China intends to stop the use of computers and operating systems of foreign companies in state institutions and state enterprises within two years. It is expected that the initiative will require the replacement of at least 50 million foreign-brand computers, which are ordered to be replaced with equipment from Chinese manufacturers.

According to preliminary data, the prescription will not apply to components that are difficult to replace, such as processors. Despite the development of China's own chips, most Chinese manufacturers continue to use Intel and AMD processors in PCs. Microsoft software is recommended to be replaced with Linux-based solutions developed by Chinese manufacturers.

After the information about the

initiative of the Chinese government, the shares of HP and Dell, which occupy a significant share of the Chinese market, fell by about 2.5%. While shares of Chinese manufacturers such as Lenovo, Inspur, Kingsoft and Standard Software, rose in price.

<https://www.bloomberg.com/news/articles/2022-05-06/china-orders-government-state-firms-to-dump-foreign-pcs>

RELEASE OF NEW STABLE BRANCH TOR 0.4.7

05/06/2022

The release of the Tor 0.4.7.7 toolkit used in the anonymous Tor network is presented. Tor 0.4.7.7 is recognized as the first stable release of the 0.4.7 branch, which has been in development for the past ten months. The 0.4.7 branch will be maintained as part of the regular maintenance cycle - updates will be discontinued 9 months later or 3 months after the release of the 0.4.8.x branch.

<https://blog.torproject.org/congestion-ctrl-047/>

RELEASE OF TOYBOX 0.8.7:

07.05.2022

The release of the Toybox 0.8.7 system utilities set has been published, BusyBox designed as a single executable file and optimized for minimal consumption of system resources. The project is being developed by former maintainer BusyBox and distributed under the BSD license. The main purpose of Toybox is to enable manufacturers to use a minimalistic set of standard utilities without opening the source code of modified components. In terms of capabilities, Toybox still lags behind BusyBox, but 299 basic commands (220 fully and 79 partially) have already been implemented out of 378 planned.

<https://github.com/landley/toybox/releases/tag/0.8.7>

**PATCHES FOR THE LINUX
KERNEL WITH RUST
LANGUAGE SUPPORT:**

08.05.2022

Miguel Ojeda, author of the Rust-for-Linux project, has

proposed the release of v6 components for Rust device driver development for Linux kernel developers to consider. This is the seventh edition of the patches, if we include the first version, published without a version number. Rust support is considered experimental, but is already included in the linux-next branch and mature enough to start working on creating abstraction layers over kernel subsystems, as well as writing drivers and modules. The development is funded by Google and the ISRG (Internet Security Research Group), which is the founder of the Let's Encrypt project and promotes HTTPS and the development of technologies to increase the security of the Internet.

<https://lkml.org/lkml/2022/5/7/13>

**THE WERON PROJECT
DEVELOPING VPN BASED ON
THE WEBRTC PROTOCOL:**

08.05.2022

The first release of Weron VPN has been published, which allows you to create overlay networks that combine geographically dispersed hosts into

one virtual network, the nodes of which interact directly with each other (P2P). The creation of virtual IP networks (layer 3) and Ethernet networks (layer 2) is supported. The project code is written in Go and distributed under the AGPLv3 license. Ready builds are prepared for Linux, FreeBSD, OpenBSD, NetBSD, Solaris, macOS and Windows.

The key difference from projects such as Tailscale, WireGuard and ZeroTier is the use of the WebRTC protocol for the interaction of nodes in a virtual network. The advantage of using WebRTC as a transport is the higher resistance to blocking VPN traffic, since this protocol is actively used in popular video and audio conferencing programs such as Zoom. WebRTC also provides out-of-the-box tools for accessing hosts running behind NATs and bypassing corporate firewalls using the STUN and TURN protocols.

Weron can be used to create single trusted networks that connect local hosts with systems running in cloud environments. The low overhead of using WebRTC in low latency networks also makes it possible to create secure home

networks based on Weron to protect traffic between hosts within local networks. An API is provided for developers to create their own distributed applications with features such as automatic connection resumption and the establishment of multiple communication channels at the same time.

<https://github.com/pointfx/weron/releases>

**PHOTOFLARE 1.6.10 IMAGE
EDITOR RELEASED:**

09.05.2022

After almost a year of development, the release of the Photoflare 1.6.10 image editor has been published. The developers are trying to find the optimal balance between functionality and user-friendliness of the interface. The project was originally founded as an attempt to create an open and multi-platform alternative to the Windows PhotoFiltre application. The project code is written in C++ using the Qt library and distributed under the GPLv3 license.

The program is aimed at a wide

range of users and provides typical features for editing images, painting with brushes, applying filters, applying gradients and color correction, as well as advanced features such as processing a group of images in batch mode. For example, PhotoFlare allows you to change the format and size, apply filters, rotate the image, equalize brightness and saturation in several selected files at once. (bulk editing)

The new version adds a tool for precise image rotation. Added an option to turn off aspect ratio snapping when resizing the canvas. Improved rendering performance. Fixed an issue with showing an indicator in the KDE system tray.

<https://github.com/PhotoFlare/photoflare/releases/tag/v1.6.10>

GNOME PROJECT STRATEGY IN 2022:

05/10/2022

Robert McQueen, CEO of the GNOME Foundation, unveiled new initiatives aimed at attracting new users and developers to the GNOME platform. It is noted that in the past, the GNOME Foundation focused on increasing the

relevance of GNOME and technologies such as GTK, as well as accepting donations from companies and individuals close to the free and open source ecosystem. New initiatives are aimed at attracting people from the outside world, getting to know the project from third parties, and looking for new opportunities to attract investment in the GNOME project.

<https://discourse.gnome.org/t/evolving-a-strategy-for-2022-and-beyond/9759>

THE LITESTREAM PROJECT, IMPLEMENTING A REPLICATION SYSTEM FOR SQLITE:

10.05.2022

Ben Johnson, author of BoltDB NoSQL storage, introduced the Litestream project, which provides an add-on for organizing data replication in SQLite. Litestream does not require any changes to SQLite and can work with any application that uses this library. Replication is handled by a separately executed background

process that tracks changes in files from the database and transfers them to another file or to external storage. The project code is written in Go and distributed under the Apache 2.0 license.

All interaction with the database is done through the regular SQLite API, i.e. Litestream does not directly interfere with work, does not affect performance, and cannot damage the contents of the database, which distinguishes Litestream from solutions such as Rqlite and Dqlite. Changes are tracked through the inclusion of a WAL-log ("Write-Ahead Log") in SQLite. To save storage space, the system periodically aggregates the flow of changes into slices (snapshots) of the database, on top of which other changes begin to accumulate. The time for creating slices is specified in the settings, for example, you can create slices once a day or once an hour.

As the main areas of application of Litestream, the organization of secure backups and the distribution of the read load on several servers are mentioned. You can migrate your change stream to Amazon S3, Azure Blob Storage, Backblaze B2, DigitalOcean Spaces, Scaleway

Object Storage, Google Cloud Storage, Linode Object Storage, or any external host that supports SFTP. In case of damage to the contents of the main database, the backup copy can be restored from the state corresponding to the specified point in time, a certain change, the last change, or a given slice.

<https://fly.io/blog/all-in-on-sqlite-litestream/>

MICROSOFT RELEASES CBL- MARINER 2.0:

10.05.2022

Microsoft has published the first stable update of the new branch of the CBL-Mariner 2.0 (Common Base Linux Mariner) distribution, which is being developed as a universal base platform for Linux environments used in cloud infrastructure, edge systems and various Microsoft services. The project is aimed at unifying the Linux solutions used in Microsoft and simplifying the maintenance of Linux systems for various purposes up to date.

The new release is notable for a major update of software versions.

This includes updated versions of the Linux kernel 5.15 (kernel 5.4 was used in the 1.0 branch), systemd 250, glibc 2.35, GCC 11.2, clang 12, Python 3.9, ruby 3.1.2, rpm 4.17, qemu 6.1, perl 5.34, ostree 2022.1. The base repository includes components for building a graphical interface, such as Wayland 1.20, Mesa 21.0, GTK 3.24 and X.Org Server 1.20.10, which were previously shipped in a separate coreui repository. They also added kernel builds with PREEMPT_RT patches for use on real-time systems.

<https://github.com/microsoft/CBL-Mariner/releases/tag/2.0.20220426-2.0>

FEDORA LINUX 36

DISTRIBUTION RELEASED:

10.05.2022

Fedora Workstation, Fedora Server, CoreOS, Fedora IoT Edition and Live builds are ready for download, delivered in the form of spins with different desktop environments, like KDE Plasma 5, Xfce, MATE, Cinnamon, LXDE and LXQt. Builds are generated for x86_64, Power64, ARM64

(AArch64) architectures and various devices with 32-bit ARM processors. Publishing of Fedora Silverblue builds are delayed.

<https://fedoramagazine.org/announcing-fedora-36/>

RED HAT ENTERPRISE LINUX 9:

10.05.2022

Red Hat has released the Red Hat Enterprise Linux 9 distribution. Ready-made installation images will soon be available to registered users of the Red Hat Customer Portal (you can also use CentOS Stream 9 iso images to evaluate the functionality). The release is built for the x86_64, s390x (IBM System z), ppc64le, and Aarch64 (ARM64) architectures. The sources for the Red Hat Enterprise Linux 9 rpm packages are located in the CentOS Git repository. In accordance with the 10-year support cycle for the RHEL 9 distribution, it will be maintained until 2032. Updates for RHEL 7 will continue to be released until June 30, 2024, RHEL 8 until May 31, 2029.

<https://www.redhat.com/en/about/press-releases/red-hat-defines-new-epicenter-innovation-red-hat-enterprise-linux-9>

DOCKER DESKTOP IS AVAILABLE FOR LINUX:

11.05.2022

Docker Inc announced a Linux version of the Docker Desktop application, which provides a graphical interface for creating, running and managing containers. Previously, the app was only available for Windows and macOS. Linux installation packages are prepared in deb and rpm formats for Ubuntu, Debian and Fedora distributions. Additionally, experimental packages for ArchLinux are offered and packages for Raspberry Pi OS are being prepared for publication.

Docker Desktop allows you to create, test and publish microservices and applications running in container isolation systems on your workstation through a simple graphical interface. It includes components such as Docker Engine, CLI client, Docker Compose, Docker Content Trust, Kubernetes, Credential

Helper, BuildKit, and Vulnerability Scanner. The program is free for personal use, for education, for non-commercial open projects, and for small businesses (less than 250 employees and less than \$10 million in revenue per year).

<https://www.docker.com/blog/the-magic-of-docker-desktop-is-now-available-on-linux/>

PALE MOON BROWSER 31.0 RELEASED:

11.05.2022

Pale Moon 31.0 web browser has been published, which forked from the Firefox codebase to provide higher performance, preserve the classic interface, minimize memory consumption and provide additional customization options. Pale Moon builds are generated for Windows and Linux (x86 and x86_64). The project code is distributed under the MPLv2 (Mozilla Public License).

The project adheres to the classic layout of the interface, without switching to the Australis interface integrated in Firefox 29, and with the provision of extensive customization options. Removed

components include DRM, Social API, WebRTC, PDF viewer, Crash Reporter, statistics collection code, parental controls, and people with disabilities. Compared to Firefox, the browser retains support for XUL technology and retains the ability to use both full-fledged and lightweight themes.

<https://forum.palemoon.org/viewtopic.php?t=28245&p=227357#p227357>

EUROLINUX 8.6 RELEASED, COMPATIBLE WITH RHEL:

12.05.2022

The EuroLinux 8.6 distribution has been released, prepared by rebuilding the source of Red Hat Enterprise Linux 8.6 distribution packages and being fully binary compatible with it. Installation images are prepared for download, 11 GB (appstream) and 1.6 GB in size. The distribution can also be used to replace the CentOS 8 branch, which was discontinued at the end of 2021.

EuroLinux builds are distributed both for a paid subscription and for free. The paid and free subscription builds are identical, built at the

same time, include the full set of system features, and allow you to receive updates. The difference between a paid subscription comes down to the provision of technical support services, access to errata files and the ability to use additional packages, including tools for load balancing, high availability and creating reliable storage.

<https://en.euro-linux.com/blog/eurolinux-8-6-released/>

NVIDIA OPEN SOURCE VIDEO DRIVERS FOR LINUX KERNEL:

12.05.2022

NVIDIA has announced the open source of all kernel modules supplied in its proprietary video driver suite. The code is open source under the MIT and GPLv2 licenses. The ability to build modules is provided for the x86_64 and aarch64 architectures on systems with the Linux 3.10 kernel and newer releases. Firmware and user-space libraries such as the CUDA, OpenGL, and Vulkan stacks remain proprietary.

It is expected that the publication of the code will lead to

a significant increase in the usability of NVIDIA GPUs on Linux systems, enhance integration with the operating system, and simplify the delivery of drivers and debugging problems. The developers of Ubuntu and SUSE have already announced packages based on open modules. Having open modules will also make it easier to integrate NVIDIA drivers with systems based on non-standard custom builds of the Linux kernel. For NVIDIA, open source will improve the quality and security of Linux drivers through greater community engagement and the ability for third-party review and independent audits.

<https://developer.nvidia.com/blog/nvidia-releases-open-source-gpu-kernel-modules/>

MULTIPASS 1.9, A TOOLKIT FOR DEPLOYING UBUNTU IN VIRTUAL MACHINES:

13.05.2022

Canonical has published the release of the multipass 1.9 toolkit, designed to simplify the installation of different versions of Ubuntu in virtual machines running on Linux, Windows and macOS

FULL CIRCLE WEEKLY NEWS



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RSS: <http://fullcirclemagazine.org/feed/podcast>



virtualization systems. Multipass allows a developer to run the desired version of Ubuntu in a virtual machine with one command without additional settings, for example, to experiment or test the operation of their application. Linux uses KVM to run a virtual machine, Hyper-V on Windows, and HyperKit on macOS. It is also possible to use VirtualBox to run virtual machines. The project code is written in C++ and distributed under the GPLv3 license. For a quick installation of multipass in Ubuntu, a snap package has been prepared .

Multipass independently extracts the required operating system image and keeps it up to date. Cloud-init can be used for configuration. It is possible to both mount disk partitions in a virtual environment (the "multipass mount" command) and transfer individual files between the host system and the virtual machine (the "multipass transfer" command). Full integration of the installed virtual machine with the main desktop is supported (application icons, system menu and notifications are added).

The new version implements the ability to authenticate the client to

run multipass as an unprivileged user. For the macOS platform, support for putting virtual machines into sleep mode has been added and the ability to launch a local mini-cloud (binding running virtual environments with network interfaces of the host system giving access to virtual machines from external networks) has been provided.

<https://ubuntu.com//blog/linux-on-mac-with-multipass-1-9>

GOOGLE LAUNCHES TEAM TO HELP OPEN SOURCE PROJECTS IMPROVE SECURITY:

13.05.2022

Google has announced that it has joined the Linux Foundation's OpenSSF (Open Source Security Foundation) initiative to improve the security of open source software. As part of its involvement, Google has created and will fund a separate "Open Source Maintenance Crew" of engineers that will work with maintainers of critical open source projects on security enhancements.

The work will use the "Know, Prevent, Fix" concept, which defines methods for managing vulnerability remediation metadata, patch control, sending notifications of new vulnerabilities, maintaining a database of information about vulnerabilities, tracking the linking of vulnerabilities to dependencies, and analyzing the risk of exploitation of vulnerabilities through dependencies .

<https://blog.google/technology/safety-security/shared-success-in-building-a-safer-open-source-community/>

RELEASE OF ONLYOFFICE DOCS 7.1 OFFICE SUITE:

13.05.2022

ONLYOFFICE DocumentServer 7.1 has been published with the implementation of a server for ONLYOFFICE online editors and collaboration. Editors can be used to work with text documents, spreadsheets and presentations. The project code is distributed under the free license AGPLv3 .

At the same time, ONLYOFFICE DesktopEditors 7.1 was released,

built on a single code base with online editors. Desktop editors are designed as desktop applications that are written in JavaScript using web technologies, but combine client and server components in one set, designed for self-sufficient use on the user's local system, without resorting to an external service. For collaboration at your own facilities, you can also use Nextcloud, which provides full integration with ONLYOFFICE.

<https://www.onlyoffice.com/blog/2022/05/discover-onlyoffice-docs-v7-1/>

DEADBEEF 1.9.0:

13.05.2022

DeaDBeeF 1.9.0 music player is available for download. The player is written in C language and can work with a minimal set of dependencies. The code is distributed under the Zlib license. The interface is built using the GTK library, supports tabs and can be extended through widgets and plugins.

Among the features: automatic transcoding of text encoding in tags, an equalizer, support for cue

files, a minimum of dependencies, the ability to control via the command line or from the system tray, the ability to load and display covers, a built-in tag editor, flexible options for displaying the desired fields in the lists of songs, support for streaming Internet radio, playback without pauses, the presence of a plug-in for transcoding content.

https://deadbeef.sourceforge.io/posts/deadbeef_1.9.0_is_out.html

ALT WORKSTATION K 10.0:

13.05.2022

The release Alt Workstation K 10, supplied with a graphical environment based on KDE Plasma, is out. Boot images are prepared for x86_64 architecture. The build based on KDE was the final one in updating the entire line of Alt distributions to the tenth branch of the platform. In December 2021, "Alt Server", "Workstation", "Education", Simply Linux, "Virtualization Server" distributions were released.

An important feature is the ability to boot from the Alt Workstation K disk in Live mode.

Like other operating systems from the Alt OS family, the distribution is equipped with the Alterator graphical interface for system configuration, which allows you to manage users and groups, view system logs, add printers, configure network, and much more. The system successfully works with Active Directory. Support for applying group policies is implemented using the Samba 4.14 server. Alt Workstation K 10 contains all the tools for performing office tasks - a web browser, an office suite of text editors and spreadsheets, as well as players and editors for sound and video.

<https://lists.altlinux.org/pipermail/altlinux-announce-ru/2022/000033.html>

NETWORKMANAGER 1.38.0 RELEASED:

05/14/2022

A stable release of NetworkManager 1.38.0 is available to simplify network settings for the user. Plugins for VPN support (Libreswan, OpenConnect, Openswan, SSTP,

etc.) are developed within their own development cycles but work well with NetworkManager.

<https://networkmanager.dev/blog/networkmanager-1-38/>

IPTABLES PACKET FILTER RELEASE 1.8.8:

14.05.2022

The classic iptables 1.8.8 packet filter management toolkit release has been published, the development has lately been focused on components to maintain backward compatibility - iptables-nft and ebtables-nft, which provide utilities with the same command line syntax as in iptables and ebtables, but translating the resulting rules into the nftables bytecode. The original iptables software suite, including ip6tables, arptables, and ebtables, was deprecated in 2018 and has already been replaced by nftables in most distributions.

<https://www.mail-archive.com/netfilter-announce@lists.netfilter.org/msg00241.html>

RELEASE OF TRUENAS 13.0:

14.05.2022

After a year and a half of development, iXsystems introduced TrueNAS CORE 13, a distribution for the rapid deployment of network storage (NAS, Network-Attached Storage). TrueNAS CORE 13 is based on FreeBSD 13, featuring integrated ZFS support and web-based management built using the Django Python framework. FTP, NFS, Samba, AFP, rsync and iSCSI are supported to organize storage access, software RAID (0,1,5) can be used to increase storage reliability, LDAP/Active Directory support is implemented for client authorization. The size of the iso image is 900MB (x86_64). Alongside this, the TrueNAS SCALE distribution is being developed, using Linux instead of FreeBSD.

<https://www.ixsystems.com/blog/meet-truenas-13-your-datas-new-home/>

SERIOUS SAM CLASSIC GAME ENGINE UPDATED FOR LINUX:

16.05.2022

The game engine for Serious Sam Classic 1.10 has been published, allowing you to run the first and second parts of the first-person shooter Serious Sam on modern systems. The original Serious Engine code was open-sourced by Croteam under the GPL in 2016 to celebrate the game's 15th anniversary. At launch, you can use game resources from the original game. In the changes, there is support for screen modes of 16:9, 16:10 and 21:9, as well as a solution to the problem with the timer in 64-bit mode.

Additionally, the Serious Sam Alpha Remake engine is being developed with the implementation of an alternative modification of the game -

"Serious Sam Classic The First Encounter". Ported additions to the game include: SE1-ParseError, SE1-TSE-HNO, SE1-TFE-OddWorld, SE1-TSE-DancesWorld, se1-parseerror, se1-tse-hno, se1-tfe-oddworld, se1-tse-dancesworld. The author also promises to publish a number of other additions, if there is

interest.

<https://github.com/tx00100xt/SeriousSamClassic>

RELEASE OF ROCKY LINUX 8.6:

05/17/2022

Rocky Linux 8.6 has been released, aimed at creating a free RHEL build that can take the place of the classic CentOS, after Red Hat stopped supporting the CentOS 8 branch ahead of schedule at the end of 2021, and not in 2029, as originally intended. This is the third stable release of the project, recognized as ready for production deployments. Rocky Linux builds are prepared for x86_64 and aarch64 architectures.

The project is being developed under the leadership of Gregory Kurtzer, founder of CentOS. Ctrl IQ, a \$26 million commercial company, was created to develop advanced products based on Rocky Linux and support the development community of this distribution. The Rocky Linux distribution itself is promised to be developed independently of Ctrl IQ, under community control. Companies

such as Google, Amazon Web Services, GitLab, MontaVista, 45Drives, OpenDrives and NAVER Cloud also joined the development and financing of the project.

<https://rockylinux.org/news/rocky-linux-8-6-ga-release/>

RELEASE OF INKSCAPE 1.2:

17.05.2022

After a year of development, Inkscape 1.2 has been published. The editor provides flexible drawing tools and provides support for reading and saving images in SVG, OpenDocument Drawing, DXF, WMF, EMF, sk1, PDF, EPS, PostScript, and PNG formats. Ready builds of Inkscape have been prepared for Linux, macOS, and Windows.

<https://inkscape.org/news/2022/05/16/inkscape-12/>

FREEBSD 13.1 RELEASE:

17.05.2022

After a year of development, FreeBSD 13.1 has been released. Install images are available for amd64, i386, powerpc, powerpc64, powerpc64le,

powerpcspe, armv6, armv7, aarch64, and riscv64 architectures. Additionally, builds have been prepared for virtualization systems (QCOW2, VHD, VMDK, raw) and Amazon EC2, Google Compute Engine and Vagrant cloud environments.

<https://download.freebsd.org/ftp/releases/ISO-IMAGES/13.1/>

QT COMPANY'S CTO AND QT LEAD MAINTAINER LEAVE THE PROJECT:

05/18/2022

Lars Knoll, the creator of the KHTML engine developed for KDE, which was based off the Safari and Chrome browser engines, announced his resignation as CTO of Qt Company and chief maintainer of Qt after 25 years in the ecosystem of this project. According to Lars, after his departure, the project will remain in good hands and will continue to develop in accordance with the same principles. The motive for leaving is the desire to try to do something other than the Qt framework, which he has been doing since his student days.

His new place of work will be a startup created together with one of the founders of Trolltech. Details about the new project are not yet given, it is only mentioned that it is not related to the C++ language and developer tools. Until the end of June, Lars will continue to work on Qt at the same pace, but then he will switch to a new project and will devote much less time to Qt, but he will not completely leave the community, he will remain available on mailing lists and is ready to advise other developers.

In addition to the position of CTO of Qt Company, Lars also announced his resignation as the leader (chief maintainer, Chief Maintainer) of the Qt project. He will continue to maintain the Qt Multimedia module. Volker Hilsheimer is proposed to be appointed as the new leader of Qt, who is engaged in Qt full-time, knows all the technical nuances, has connections in the Qt Company, enjoys authority among developers and is a supporter of the development of Qt as an open project. Volker is Director of Research and Development (R&D), Graphics and User Interface at Qt Company.

<https://lists.qt-project.org/pipermail/development/2022-May/042477.html>

FIRST RELEASE OF THE OPENSUSE LEAP MICRO DISTRIBUTION:

05/18/2022

The developers of the openSUSE project have announced the first release of a new edition of the openSUSE distribution, "Leap Micro", based on the work of the MicroOS project. The openSUSE Leap Micro distribution is marketed as a community version of the commercial SUSE Linux Enterprise Micro 5.2, which explains the unusual first version number, 5.2, which was chosen to synchronize release numbers in both distributions. The openSUSE Leap Micro 5.2 release will be supported for 4 years.

Builds for x86_64 and ARM64 (Aarch64) architectures are available for download, supplied both with an installer (Offline builds, 370MB in size) and in the form of ready-made boot images: 570MB (preconfigured), 740MB (with Real-Time kernel) and 820MB. Images can run under Xen and KVM

hypervisors, or on top of hardware, including Raspberry Pi boards. For configuration, you can use the cloud-init toolkit to pass settings on every boot, or Combustion to set settings on first boot.

<https://lists.opensuse.org/archives/list/project@lists.opensuse.org/thread/Q7Q54ZGTLFHRAHD43I7KWQ2CXKNHM5OB/>

RED HAT ENTERPRISE LINUX 9 AVAILABLE FOR DOWNLOAD:

19.05.2022

Red Hat has announced that it is ready to upload the installation images and repositories of the Red Hat Enterprise Linux 9 distribution. The release of the new branch was officially announced a week ago, but the builds were published with a slight delay. The sources for the Red Hat Enterprise Linux 9 rpm packages are located in the CentOS Git repository. Ready-made installation images are available only to registered users of the Red Hat Customer Portal, but you can also use the iso images of the CentOS Stream 9 project, which is used as the base for building RHEL

9, to evaluate the functionality. An overview of the innovations in RHEL 9 can be found in the text of the initial announcement; 'new branch'.

<https://access.redhat.com/announcements/6958409>

ORACLE LINUX 8.6 RELEASE AND UNBREAKABLE ENTERPRISE KERNEL 7 BETA: 05/19/2022

Oracle has released the Oracle Linux 8.6 distribution based on Red Hat Enterprise Linux 8.6. An 8.6 GB iso-image prepared for x86_64 and ARM64 architectures (aarch64) is distributed for download without restrictions. For Oracle Linux, unlimited and free access to the yum repository with binary package updates with bug fixes and security issues is open. Separately supported Application Stream modules are also available for download.

The new version of Oracle Linux proposes the release of the Unbreakable Enterprise Kernel R6U3 kernel, which stabilizes support for the WireGuard protocol, expands the capabilities

of the io_uring asynchronous I/O interface, improves support for nested virtualization on systems with AMD CPUs, and expands NVMe support. Other than that, the functionality of the Oracle Linux 8.6 and RHEL 8.6 releases is completely identical (the list of changes in Oracle Linux 8.6 repeats the list of changes in RHEL 8.6).

<https://blogs.oracle.com/linux/post/announcing-the-release-of-oracle-linux-8-update-6>

RELEASE OF MESA 22.1:

05/19/2022

After two months of development, the release of the free implementation of the OpenGL API and Vulkan- Mesa 22.1.0 was published. The first release of the Mesa 22.1.0 branch has an experimental status - after the final stabilization of the code, a stable version 22.1.1 will be released.

In Mesa 22.1, support for the Vulkan 1.3 graphics API is available in the anv drivers for Intel GPUs, radv for AMD GPUs, and the lavapipe software rasterizer. Vulkan 1.2 is supported in emulator mode

(vn), Vulkan 1.1 in Qualcomm GPU driver (tu), and Vulkan 1.0 in Broadcom VideoCore VI (Raspberry Pi 4) GPU driver. Mesa also provides full OpenGL 4.6 support for the 965, iris (Intel), radeonsi (AMD), zink, and llvmpipe drivers. OpenGL 4.5 support is available for AMD (r600) and NVIDIA (nvc0) GPUs, and OpenGL 4.3 for virgl (Virgil3D virtual GPU for QEMU/KVM) and vmwgfx (VMware).

<https://lists.freedesktop.org/archives/mesa-dev/2022-May/225791.html>

MYBEE 13.1.0, HAS BEEN PUBLISHED:

05/19/2022

The release of the free distribution MyBee 13.1.0, built on FreeBSD 13.1 technologies and providing an API for working with virtual machines (via the bhyve hypervisor) and containers (based on FreeBSD jail), has taken place. The distribution is designed to be installed on a dedicated physical server. Installation image size - 1.7GB

The basic MyBee installation provides the ability to create,

destroy, start and stop virtual environments. By creating their own microservices and registering their endpoints in the API (for example, microservices of snapshots, migrations, checkpoints, cloning, renaming, etc. can be easily implemented), users can design and extend the API for any task and create specific solutions.

In addition, the distribution includes a large number of profiles of modern operating systems, such as Debian, CentOS, Rocky, Kali, Oracle, Ubuntu, FreeBSD, OpenBSD, DragonflyBSD and NetBSD, ready for immediate use. Network and access configuration is carried out using the cloud-init (for *Unix OS) and cloudbase (for Windows) packages. Also, the project provides tools for creating your own images. One example of a custom image is a Kubernetes cluster, also run via an API (Kubernetes support is provided by the K8S-bhyve project).

The high speed of deployment of virtual machines and the operation of the bhyve hypervisor allows the distribution in the single-node installation mode to find application in application testing tasks, as well as in research

activities. In the case of combining several MyBee servers into a cluster, the distribution can be used as a base for building private clouds and FaaS / SaaS platforms. Despite the presence of the simplest API access control system, the distribution is designed to work only in trusted environments.

<https://myb.convectix.com/>

APACHE OPENMEETINGS 6.3 WEB CONFERENCING SERVER

AVAILABLE:

20.05.2022

The Apache Software Foundation has announced the release of the Apache OpenMeetings 6.3 web conferencing server, which allows you to have audio and video conferencing over the Web, as well as collaboration and messaging between participants. Both webinars with one speaker and conferences with an arbitrary number of participants simultaneously interacting with each other are supported. The project code is written in Java and distributed under the Apache 2.0 license.

The new release focused on fixing bugs and preparing for the transition to JDK 17 (JRE 11 will be deprecated in the future and JRE 17 will become mandatory). Problems with the new versions of the Safari browser are solved. The libraries supplied have been updated to the latest versions. Of the visible changes, the unification of dialogs for confirming operations was added.

<https://blogs.apache.org/openmeetings/entry/openmeetings-v6-3-0-fixes>

THE VIRTUALBOX NETWORKING PRIMER

Connecting and Configuring
Virtual Machines



Robin Catling

The VirtualBox Networking Primer

Connecting and Configuring Virtual Machines

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

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

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

Author: **Robin Catling**

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Amazon US link:

[https://www.amazon.com/dp/1916119484?
ref=pe_3052080_397514860](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](https://www.amazon.co.uk/VirtualBox-Networking-Primer-Connecting-Configuring/dp/1916119484/ref=sr_1_1?dchild=1&keywords=virtualbox+networking+primer&qid=1600253699&s=books&sr=1-1)

Kobo:

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



COMMAND & CONQUER

Written by Erik

For this issue, I would like us to look at software. Not just any software, but Ubuntu software. When I get software for Ubuntu, I prefer it to be packaged in the .deb format. Many years ago I had such a bad experience with Red Hat and .rpm and dependency hell, that has put me off rpm to this day. That was when a friend introduced me to Debian and the simplicity that was its package manager. I was so impressed that I would use alien to convert the packages to rpm, believing they were superior. You see, back in the day the propaganda had you believe Red Hat was the gold standard. (And we were all young and dumb.)

For .deb files, my favourite tool is gdebi. The amount of information at your fingertips is amazing. If you never used gdebi to inspect a .deb file, what have you been doing with your life?

Here I have an example, and you can see 4 tabs, Description, Details, Included files and Lintian output. This allows you to drill down and see "inside" the package, but I am

getting ahead of myself. This is supposed to be a whistle wetter.

For now, I would like you to open a .deb file with file roller or your favourite archiver. This is where you will notice slight differences in the same .deb package for pure Debian and Ubuntu and other Debian derivatives. This is the reason why people tell you not to install Ubuntu packages in Debian. There

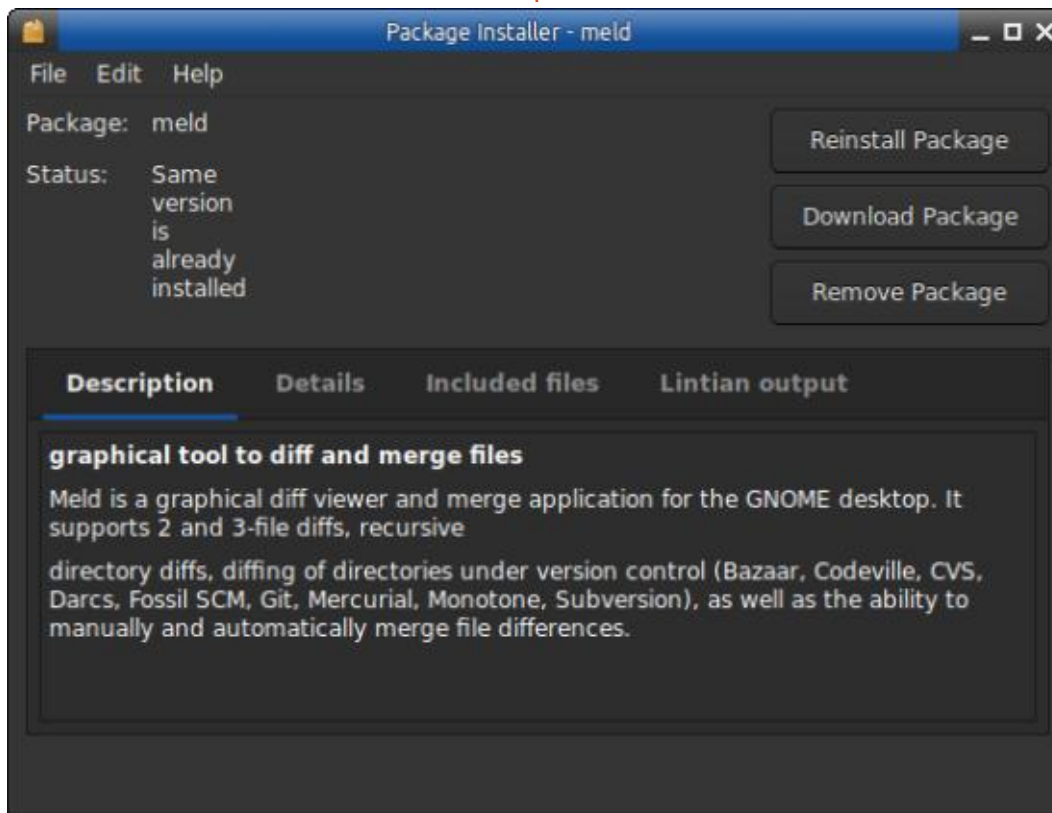
is some homework for you - grab a pure Debian file and an Ubuntu file of the same package, something small, like sound converter or a terminal emulator and compare them by opening them with your archiver and we can talk bout them in the next issue?

Most of you would have known only the software centre, as by default, that is what Ubuntu

opens .deb files with. Now you can add another tool to your arsenal, namely Synaptic package manager. This will also gladly install your .deb files. Lastly I want to bring packagekit to your attention. As you can see, you have a lot of options when working with .deb files.

From the command prompt, most of you would know apt (or apt-get) to install your software. I am here to tell you that dpkg is just as easy, with: `dpkg -i <.deb file>` and Bob's your uncle. It is intuitive with -i for install and -r for remove. Though the software centre is easy, it abstracts from installation messages. Since the .deb files are standardized (to an extent) you can write your own bash scripts to update your system. Examples of this are not hard to find. (<https://www.addictivetips.com/ubuntu-linux-tips/make-updating-ubuntu-simpler/>)

When I first started with Debian packages, you used the tool dpkg to install them. I still have nightmares about `dpkg --reconfigure` though...



COMMAND & CONQUER

The difference in all of these package managers are the way they handle dependencies. Apt being the 'top dog' at the moment.

To see the dependencies you would need to use the terminal instead, you see, software centre just goes ahead with -y install option. A GUI tool like gdebi allows you to see that your .deb file may need more. (Notice the Details-button)

This is where "new" package formats like Snap and AppImage make worrying about these things obsolete. I like to see boot messages whizz by, I like to see what else my .deb file needs. I like to look at my Lintian output, before installing anything, as I do not install a file when I see things like this: W: jellyfin-server: executable-not-elf-or-script usr/lib/jellyfin/bin/Microsoft.Extensions.Configuration.Xml.dll -but I may just be 'old skool'.

To realise that all of this information comes from a simple .deb file is nothing short of amazing. When you start treating your .deb files as information carriers and not just installers, there is another world opening up

to you.

Now we could talk about all the command line options for these package managers to handle the humble .deb file, but I am sure you are familiar with the man command, besides I will link you at the end of the article as there is no point in reinventing the wheel.

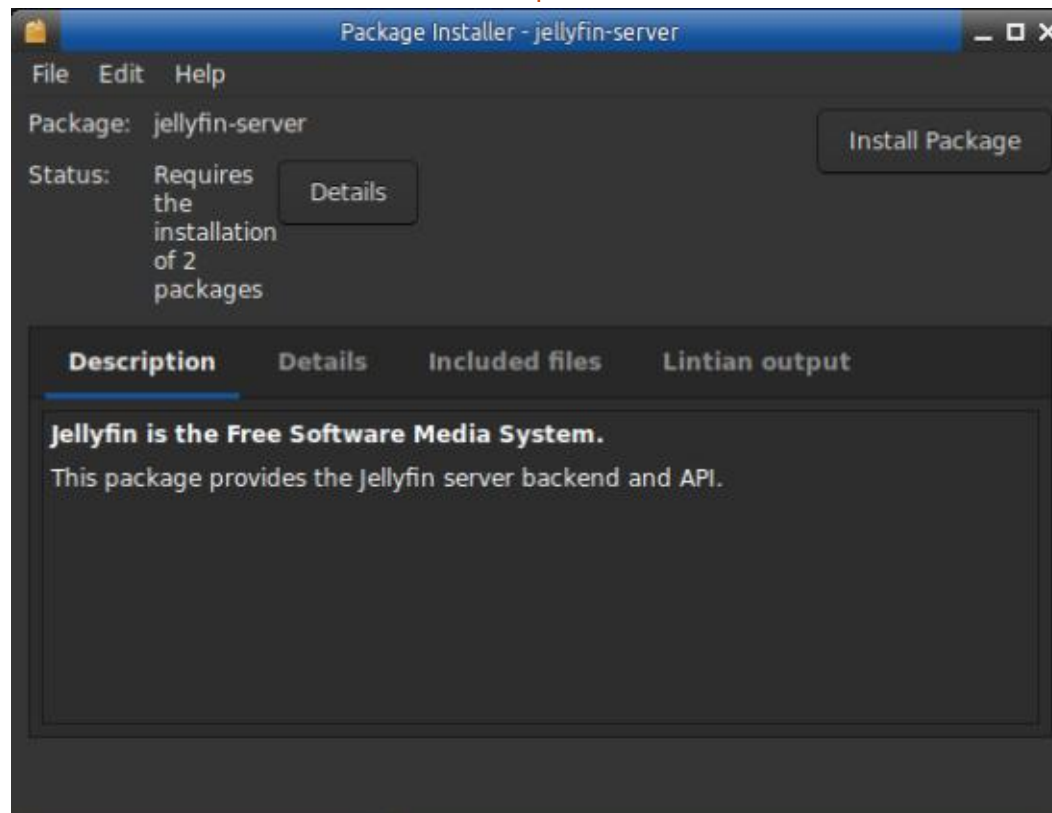
I suppose I cannot leave you with only this titbit of information. You have the power at your fingertips! You can build your own

deb-files. You need to install some .deb files to build some .deb files. HEH! Type the following in a terminal: `sudo apt install dpkg-dev` and `sudo apt install devscripts -to start`. I won't be walking through making a deb-file this issue as I have taken up enough space, but why don't you?

Hopefully I have set the ball rolling on multiple fronts and if you would like to take a side trip down this road, why not let us know: misc@fullcirclemagazine.org

FURTHER READING:

<https://www.digitalocean.com/community/tutorials/ubuntu-and-debian-package-management-essentials>



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.



During the creation of PAGE 7.4, I had created a widget demo that included almost every widget that PAGE supports. This includes the Tk widgets, the ttk themed widgets, the enhanced widgets, and even a demonstration of using the custom widget. I decided to use a TNotebook with four tabs, one for each type of widget, and one that has a few tricks.

During my creation of the demo, I realized I really didn't have a low-level grasp of Styles and Themes. The subject is poorly documented, even in the Tcl/Tk world, and where there is documentation, many times the documentation is incorrect.

Many programmers who use Tkinter either love or hate the ttk widgets, styles and themes. Many, like me, avoid the ttk widgets unless it's an absolute necessity. When I am designing a GUI, more times than not, I will use the "standard" Tk widgets and use only the TCombobox, TNotebook, TNotebook, and the Treeview. Dealing with themes and styles is

just too time consuming, at least in my mind, to be productive.

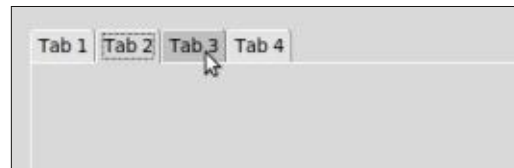
Part of the confusion for many programmers is what exactly are Themes and what are Styles.

Styles concern the look and feel of a single widget. A Theme is a collection of Styles that share attributes like background colors and foreground colors, across many ttk widgets.

While that is pretty easy to understand, for Linux, there are only four predefined Themes for the ttk widgets. They are Alt, Clam, Classic and Default. Those who use Windows have a couple of extra themes, but they aren't available to Linux or Mac users, and the Mac has its own Themes that aren't available to Linux or Windows users. And if you want to make your own, or at least modify one of the defaults, the documentation that exists is SO convoluted that it is often easier and more productive to just ignore the ttk widgets and deal with the Tk widgets. There are extra packages that a programmer can

use to add more Themes, but many of them don't seem to take many attributes of the widgets into consideration, so while they look good in general, things like the background of the TLabel doesn't match the background of the container (or form) and there's no obvious way to change it. To make matters worse, some of the containers, like the TFrame or TLabelframe, often don't get a visible border.

One of the most frustrating parts of creating the widget demo was fighting the TNotebook colors for the tabs. Take a look at this image:



You can see that Tab 2 is the current or selected tab, Tab 3 is sort of highlighted when the mouse is over the tab, and the other two are somewhat obvious that you aren't dealing with them at the moment. But if you are color challenged, like

me, it's not always obvious. Wouldn't it be better to be able to present your user with something like this:



It is immediately obvious that Tab 1 is the current tab, Tabs 2, 4 and 5 are just "hanging out", and Tab 3 is the one that the mouse is hovering over. You might not like the color selection, but it makes a big visual difference. But how to do it?

Digging into the GUI.py file that PAGE creates gave me the first clue (see the code, next page, bottom right).

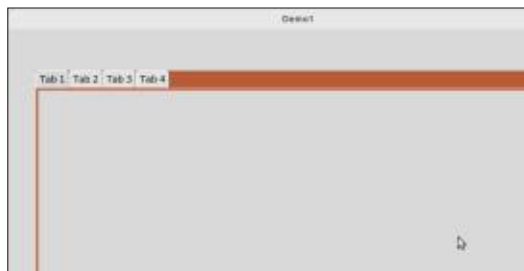
The style.configure method allows you to set the basic background and foreground colors, but what does the style.map method do and why would I do it?

Well, with a bunch more digging around in various documentation and websites, I found out that

the .map method allows you to set different colors to different states for the widget. So in the above code, the “selected” state is when the tab is actually selected and the “active” state is when the mouse is hovering over the tab. Notice that for the moment, we are only talking about the TNotebook tabs. But what about the other tabs that are “just hanging out”. That took some more digging to answer. It turns out that there is another state called “!active” that covers those tabs. Once I figured the hex codes for the colors I wanted I was ready.

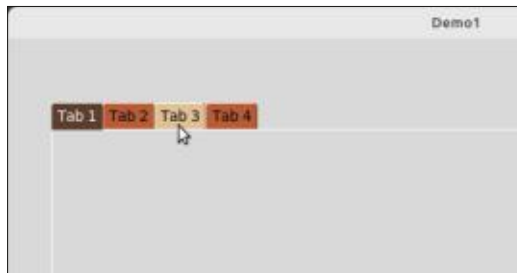
When I went to code it (shown top right), being the lazy programmer I am, I threw together a quick test program in PAGE with just a TNotebook on it and then created a startup function to set the colors and assign them to the widget.

When I ran the program, I was disappointed.



I quickly went back to the documentation and various websites to try to figure out what I was missing. It turns out that just setting the TNotebook map applies only to the actual Notebook portion. If I wanted to set the colors, I had to specify that the map was for the tabs (shown middle right).

When I ran it this time, low and behold, it worked!



Then I tried to apply my new trick to other ttk widgets. Unfortunately, again, I was taking things for granted. For the most part, each ttk widget has its own set of attributes that the map can handle. For example, take the simple lowley TButton (next page, top right).

The Tcl code shows that the TButton does have a map method,

```
def startup():
    style = ttk.Style()
    bg1 = '#5c3d2e'
    bg2 = '#e0c097'
    bg3 = '#B85c38'
    fg1 = 'white'
    fg2 = 'black'
    fg3 = 'black'
    style.map('TNotebook',
             background=[('selected', bg1), ('active', bg2),
                          ('!active', bg3)],
             foreground=[('selected', fg1), ('active', fg2),
                          ('!active', fg3)])
```

```
def startup():
    style = ttk.Style()
    bg1 = '#5c3d2e'
    bg2 = '#e0c097'
    bg3 = '#B85c38'
    fg1 = 'white'
    fg2 = 'black'
    fg3 = 'black'
    style.map('TNotebook.Tab',
             background=[('selected', bg1), ('active', bg2),
                          ('!active', bg3)],
             foreground=[('selected', fg1), ('active', fg2),
                          ('!active', fg3)])
```

```
_bgcolor = '#d9d9d9' # X11 color: 'gray85'
_fgcolor = '#000000' # X11 color: 'black'
_compcolor = 'gray40' # X11 color: #666666
_ana1color = '#c3c3c3' # Closest X11 color: 'gray76'
_ana2color = 'beige' # X11 color: #f5f5dc
_tabfg1 = 'black'
_tabfg2 = 'black'
self.style = ttk.Style()
if sys.platform == "win32":
    self.style.theme_use('winnative')
self.style.configure('.', background=_bgcolor)
self.style.configure('.', foreground=_fgcolor)
self.style.configure('.', font="TkDefaultFont")
self.style.map('.', background=
    [('selected', _compcolor), ('active', _ana2color)])
```

but the various states are far different from the TNotebook Tabs. There is an active state, a disabled state, and a readonly state. (Why would a TButton need a readonly state? I don't know, but it apparently does.) So I reworked the code a bit for the TButton and came up with this (bottom right).

When I then ran my program, I was disappointed again. The TButton had the default gray background and black text color set. When I moved the mouse over the TButton, it did change to background #2. I knew I was close, so I looked at the documentation a bit more closely. I remembered that I had to set the background and foreground separately from the map statement.

```
_w1.TButton1.configure(background=bg1, foreground=fg1)
```

That, however, didn't do it either. Then I remembered that I have to override the style defaults (dull gray background and black foreground). This is "explained" (somewhat) in the New

Mexico Tech Tkinter documentation. It turns out that I can create a special style and apply that to my button by using the style attribute (shown bottom left).

That worked!

For more on the "Trials and Tribble-ations" of my long and arduous journey learning how to master Styles and Themes with ttk widgets in Tkinter, please see next month's article. I'll save the code portions for then.

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

```
style.configure('MyTButton.TButton',
                background=bg1,
                foreground=fg1)
_w1.TButton1.configure(style='MyTButton.TButton')
```

```
ttk::style configure TButton -background color
ttk::style configure TButton -foreground color
ttk::style configure TButton -font namedfont
ttk::style configure TButton -focuscolor color
ttk::style map TButton -background \
    [list active color disabled color readonly color]
ttk::style map TButton -foreground \
    [list active color disabled color readonly color]
```

```
ttk::style configure TButton -bordercolor color
ttk::style configure TButton -lightcolor color
ttk::style configure TButton -darkcolor color
```

```
style.map('TButton',
          background=[('active', bg2), ('disabled', 'gray76'),
                      ('readonly', 'firebrick2')],
          foreground=[('active', fg2), ('disabled', fg1),
                      ('readonly', fg3)])
```



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



HOW-TO

Written by Erik

Blender Pt.6

Fire up Blender and let's start! If you saved your project from the last issue, open that, if not, grab the previous issue and quickly make our basic shape. With any cartoon character, the eyes are very important. They convey a lot more than you realize. In blender, if the eyes are the same, we can simply make two from one, by mirroring. We will use the same recipe from the last issue to make an eye (one - Because we will mirror it). Make sure you are in object mode (top-left) before continuing.

Tip: If you see points with lines between them, you are in edit mode.

So, add > mesh > uvsphere.

The sphere is created inside our body-shape. Oh no! (you know it is there, because of the orange circle that appeared - shown bottom left).

Last issue, I told you the 'four arrows' symbol to the left is move, if you hover your mouse over it, you will see the shortcut key is G.

Tip: if you want to move the selected object in one of the planes, you press G, followed by the direction, X, Y, Z, and it will move only on that plane. I moved mine on the X-axis, but it does not matter as we have an all-round same shape.

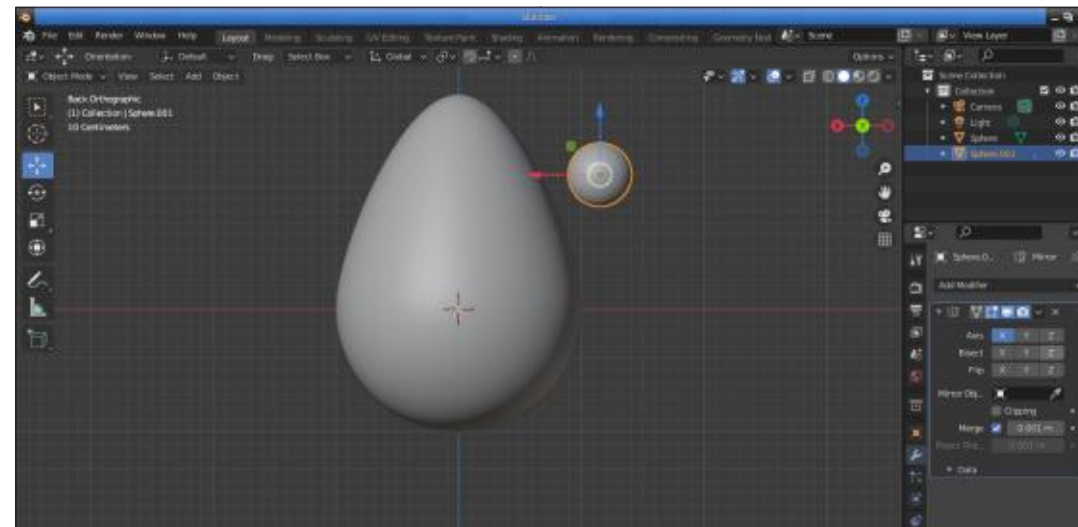
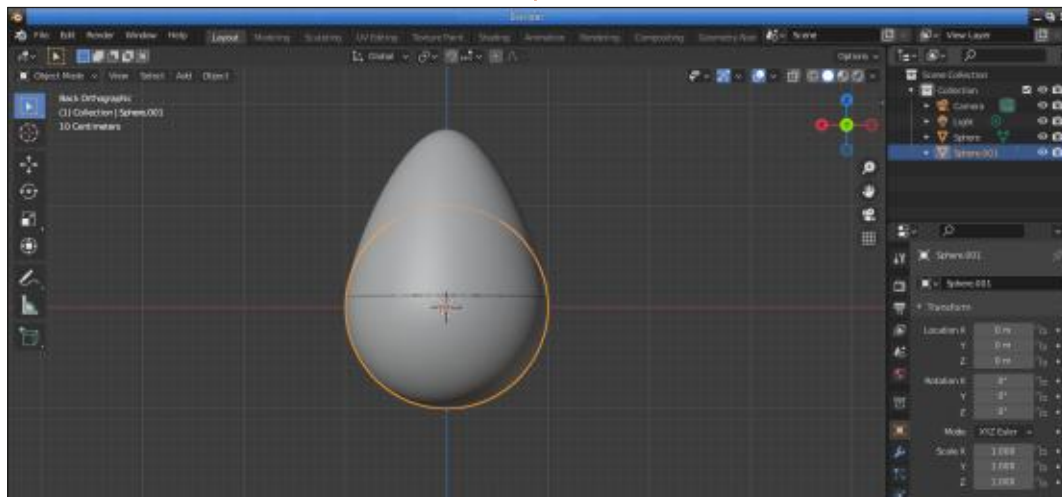
Move the sphere out and resize it by right-clicking. Erm. No resize. You need to look at the bar on the left and use scale to resize. Click inside the sphere and drag. Until it is more-or-less eyeball size. I say this as cartoons have varying sized eyes. Now for the magic. Position the eye outside of your body object, and, on the bottom-right, find the spanner. "Modifiers" and click add modifier. Find mirror and click on that. You should see something like the image shown bottom right.

Now I know this looks confusing, but soon it won't. You may say, but I clicked "mirror" and it did not

mirror?

Tip: Any time you make a mistake on an object, go to the scene collection in the top-right and delete it.

It did not seem to have mirrored, as it mirrors around that center point inside your object. The origin or pivot point should be outside of the object for you to get a physical mirror of the shape. So, how does one move an object without moving the origin? Simply, you don't – again pay attention to the terminology used. You need to move the mesh, not the object. So change from object-mode to edit-



HOWTO - BLENDER

mode and move your mesh. Now repeat the mirror.

Tip: If you have moved the mesh, and mirrored it, and you still do not see the second mesh, mirror it on another axis.

If you moved your mesh on green, which is the Y-axis, you need to mirror it on the same axis. If you moved it on red, which is the X-Axis, you need to mirror it on that.

Change to move (G), and move the eyes into place (more-or-less). So you know they are eyeballs later.

You can also use the scale now again, and notice how the scale works from the spot between the two meshes. You can also, for

instance, grab the blue – Z-axis line and elongate both eyes at once, if you do not want them round. These are all things you can try on your own.

I want you to move the eyes into the body and position them so that just the right amount sticks out that makes it look good to you. If at any point you are unsure, use the middle mouse button to rotate your camera and use the arrows to slide the eyes inwards. (Remember we just slid them (it) out, so they can just slide back nicely).

Now for the beak, we can also stick to a simple shape, a cone. Or I could teach you a bit about shaping meshes. Let's go with the latter. (If I go over my allotted space in the magazine, please send the editor a

message saying you like this and we should not cut it –

misc@fullcirclemagazine.org)

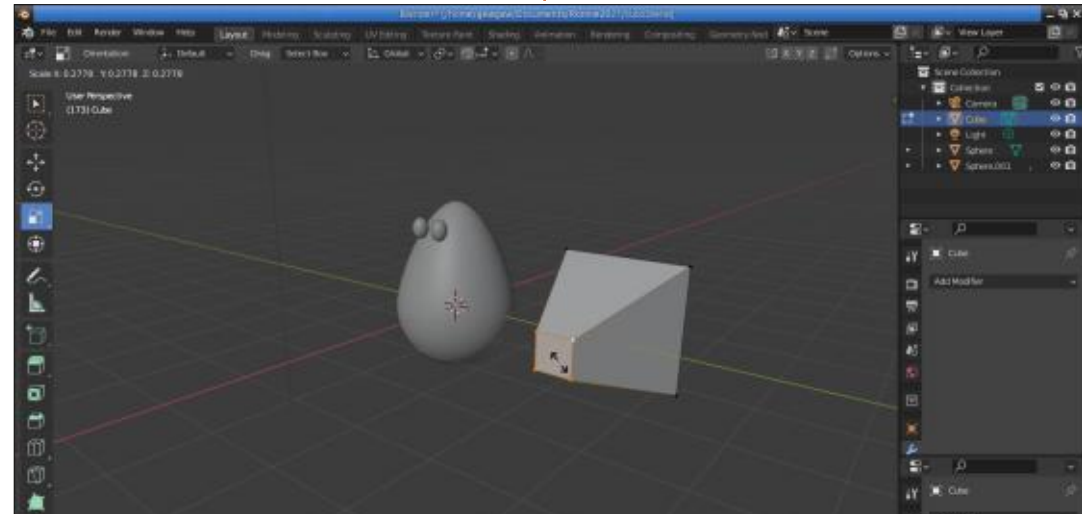
[What allotted space? We don't have a limit! He's trying to stitch me up readers - Ronnie]. You are welcome to use the cone for a beak, if it pleases you; nothing is set in stone. The first method you can use to make a beak-shape, is to select the front-facing square on the cube and simply resize it really small. This creates a pyramid-like shape. You simply go into edit mode, select the four dots on each of the corners of the cube, whilst holding down shift and resize it once you have selected all four. Actually go ahead and try that now. Hold down shift, select the four black dots, they will turn orange. Once done, click on scale and drag your mouse inside the shape.

You can then select the whole mesh and resize it to be a beak.

OR...

We can select the front four dots on the mesh, and zip them down to the center point on the mesh. When I say center point, I mean the orange dot you can see in the middle of the cube. Now the merge command will be new to you. It is easy to remember, you press the M-key. Hover your mouse over the very first option, it says "merge selected vertices at center". Click that and you will be left with a pyramid. Hold it right there.

If you have seen the angry birds movie, or seen the adverts for it,



HOWTO - BLENDER

you will know what I am talking about; if not, find it on the interwebs. The red bird in the poster has a diamond-shaped beak. A diamond is simply a pyramid at 45 degrees. We can split it in two later. To rotate a mesh, we press the R-key, but here is where you need to pay attention. You need to assess which axis you need to rotate it around. In our case it is simple, if you rotate it around the wrong axis, simply press undo and try again. However, try to learn to pay attention to the color of the lines in your mesh.

Back to the tutorial. You need to change modes – click on the little mouse pointer on the left-hand side

bar and click on your mesh. Now press the A-key. The whole mesh should change color. Press the R-key for rotate and type in 45 and press enter. The pyramid should have turned into a diamond shape. Now here is that catch I was talking about. If you were looking head-on like me, the rotation will be correct, if not, you need to press X, Y, Z before typing in the angle.

You can also make your view like mine, simply by clicking on the color of the axis you are working on in the top-right view sphere. If this is too difficult for you, use a cone for a beak - it works just as well. I just want you to be creating, having fun and learning at the same time.

Now, let's scale this sucker and plonk it on its nose. Now, because my body is egg-shaped and not quite pear-shaped, I will have to push these shapes into the body a little further, so I may need to scale them up a bit to have just the amount sticking out that I want.

I am going to leave you here, as I am over my space and I want to leave space for others in the magazine. (Though this is so much fun, I could go on for days!).

Join us in the next issue for more blender shenanigans.

Complaints? Compliments? Let

us know:

misc@fullcirclemagazine.org

UPDATE: This series was done during Q2 of 2020, and Blender has jumped a few versions, but I put it to the test and it is still 100% valid.



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





HOW-TO

Written by Robert Boardman

Latex Pt.10

Erik covered a lot of ground quickly in the previous nine articles about Latex. By the way the “X” in TeX is pronounced in the same way as the German or Scottish “ch” – very similar to the English “k”. It is quite different from the “x” in Texas. So Latex sounds like “latek”, and does not rhyme with the synthetic fabric Spandex.

To start my part in this series, I am going to step back a bit from typing code and define some basic Latex terms. If you have ever typed HTML code (not just used some software to generate HTML code), you should notice some similarities between HTML and Latex. Latex pre-dates HTML by more than ten years, perhaps Berners-Lee was familiar with Latex when he designed HTML.

Environment: There can be many working environments in a Latex document. Any time you use `\begin{something}` you are working in an environment. Environments are like container elements in HTML. There must always be a

matching `\end{...}` for every `\begin{...}`. One advantage of using an IDE like TeXstudio is it completes or closes the environment for you so you do not get a compiling error.

Erik has already introduced you to these environments: document, figure, table, tabular, abstract, equation. Environments can be called within each other. For example, you can put a figure environment, inside a tabular environment, inside a table environment. Environments have to be closed in the reverse order they are opened. Using this example, figure was opened last, and so it must be closed first, then tabular is closed, then table is closed – like this (top right).

As you know, if you have followed this series, every Latex project has to start with the document environment. All other environments are used with the document environment.

Unlike word processors, Latex forces a document to have one consistent structure or style or

```
\begin{table}
  \begin{tabular}
    \begin{figure}
      some figure or graphic
    \end{figure}
  \end{tabular}
\end{table}
```

“look”. People use Latex because of this built-in consistency. Two documents with identical preambles will have exactly the same look. That has enormous benefits for organizations. If you are writing a note to your favourite aunt, this consistency probably does not matter. If your writing represents your employer, it is (or should be) very important to your employer that your documents look the same as the documents produced by your colleagues.

This consistency also means that, if you change the preamble, then the look of your document changes. If you write an article for Journal A, you will use Journal A’s Latex style. If Journal A decides not to publish your article, you can change the preamble to match Journal B’s Latex style and submit it to Journal B without making any

other changes in your document. Doing the same thing in a word processor is almost always much more work.

In Part 7, FCM#174, Erik already showed a C.V. style from latextemplates.com. We will do some more work with styles later in this series. This time, I am going to introduce two other environments, the ones used for lists. In word processors (and in web pages), you may have built two types of lists: numbered lists and bulleted lists.

In Latex numbered lists are built in the “enumerate” environment. The code looks like this:

```
\begin{enumerate} which must
be closed with
\end{enumerate}
```

To get a numbered list, each item starts with the command

\item. It does what you would expect: starts an item in the list. Items are enumerated by numbers by default. If you wish to use numbering other than standard Arabic numerals, then insert \usepackage{enumerate} in the preamble of your document, the block between documentclass[]{} and begin{document}. Then you can use a variety of “numbers” for the items in the list: for example lower and Upper case Roman numerals, or lower and Upper case letters. You can also add parentheses, or periods, or text, [Example i]. The modification to the numbering scheme is placed between square brackets after \begin{enumerate} [...]

The environment for the other type of list is “itemize”. It is used for what are normally called “bulleted lists”. It also uses the command \item for each item in the list. \item can have the type of bullet in square brackets if the writer wishes to use something other than the default bullet which is a small black circle. For example to have a dash in front of each item use \item[-] (shown second down on the right, and in the image bottom right)

Remember the % sign starts a comment which is visible in the Latex code but not in the final PDF.

As in word processors and HTML, Latex lists can be nested. If

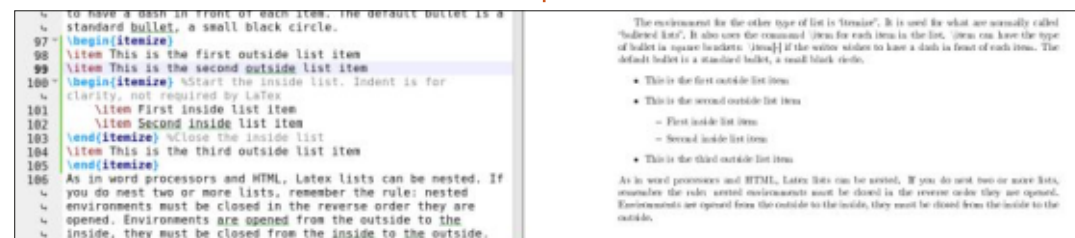
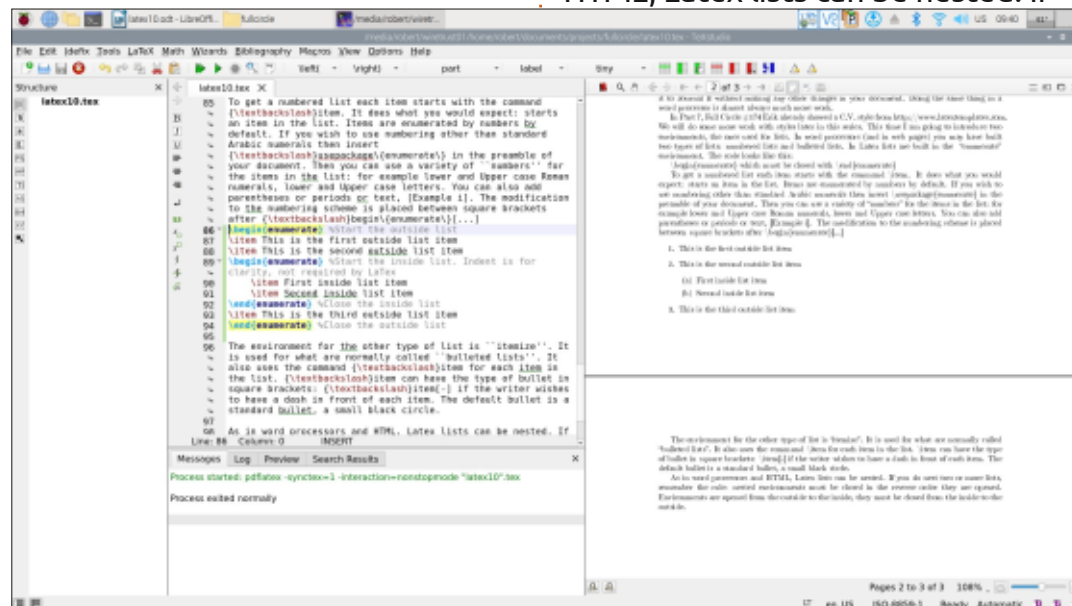
```
\begin{enumerate} %Start the outside list
\item This is the first outside list item
\item This is the second outside list item
  \begin{enumerate} %Start the inside list. Indent is
    for clarity, not required by LaTeX
    \item First inside list item
    \item Second inside list item
  \end{enumerate} %Close the inside list
\item This is the third outside list item
\end{enumerate} %Close the outside list
```

```
\begin{itemize}
\item This is the first outside list item
\item This is the second outside list item
\begin{itemize} %Start the inside list. Indent is for
  clarity, not required by LaTeX
  \item First inside list item
  \item Second inside list item
\end{itemize} %Close the inside list
\item This is the third outside list item
\end{itemize}
```

you do nest two or more lists, remember the rule: nested environments must be closed in the reverse order they are opened. Environments are opened from the outside to the inside, they must be closed from the inside to the outside.

Bulleted lists and numbered lists can be nested in each other. If you

add \usepackage{enumerate} to the preamble of your documents (the block between documentclass{...} and begin{document}), you can vary the numbering used in lists (see code next page top left, and image bottom left).




```
\begin{enumerate}[a] %Start the outside list
\item This is the first outside list item
\item This is the second outside list item
  \begin{itemize} %Start the inside list. Indent is for
    clarity, not required by LaTeX
    \item First inside list item
      \begin{enumerate}[i.]
        \item sub-list item one
        \item sub-list item two
      \end{enumerate}
    \item Second inside list item
  \end{itemize} %Close the inside list
\item This is the third outside list item
\end{enumerate} %Close the outside list
```

107	<code>\begin{enumerate}[a] %Start the outside list</code>	
108	<code>\item This is the first outside list item</code>	
109	<code>\item This is the second outside list item</code>	
110	<code>\begin{itemize} %Start the inside list. Indent is for</code>	
111	<code>clarity, not required by LaTeX</code>	
112	<code>\item First inside list item</code>	
113	<code> \begin{enumerate}[i.]</code>	
114	<code> \item sub-list item one</code>	
115	<code> \item sub-list item two</code>	
116	<code> \end{enumerate}</code>	
117	<code>\item Second inside list item</code>	
118	<code>\end{itemize} %Close the inside list</code>	
119	<code>\item This is the third outside list item</code>	
120	<code>\end{enumerate} %Close the outside list</code>	
121		

As in word processors and HTML, LaTeX lists can be nested. If you do nest two or more lists, remember the rule: nested environments must be closed in the reverse order they are opened. Environments are opened from the outside to the inside; they must be closed from the inside to the outside.

a) This is the first outside list item

b) This is the second outside list item

- First inside list item
 - sub-list item one
 - sub-list item two
- Second inside list item

c) This is the third outside list item



Robert has been involved with computers since dBase IV and Novell Netware 2. He recently retired from over twenty years teaching computer skills to college students.



HOW-TO

Written by Mark Crutch

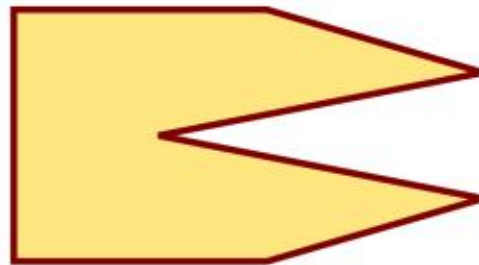
Although it's not yet out as I write, by the time you read this article Inkscape 1.2 will have been released. This version is a major update that contains a huge number of changes and additions, and will likely provide plenty of topics for this column for many months to come. But let's not get ahead of ourselves – we haven't even finished looking at all the new Live Path Effects (LPEs) that were added to 1.0 and 1.1 yet!

CORNERS (FILLET/CHAMFER)

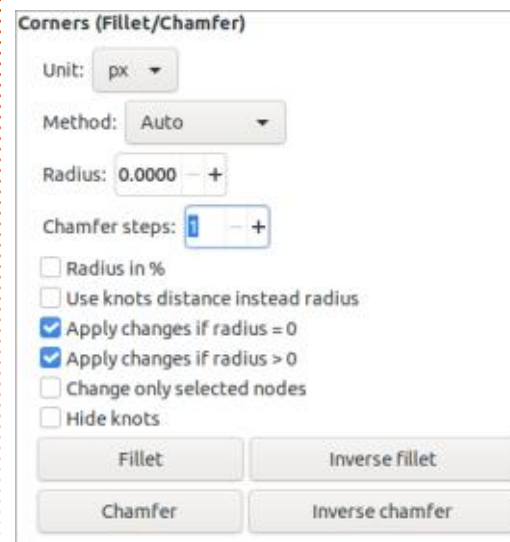
Consider two perpendicular lines meeting to form a 90° corner. Often that sharp transition from one line to the other is exactly what you want. But sometimes a design calls for something more gradual: an intermediate straight-line segment at 45°, or a rounded section that seamlessly joins the two lines. Creating such gradual corner transitions is known as chamfering or filleting, respectively, with the newly inserted path being referred to as the chamfer (for straight path segments) or fillet (for curved

lines). Unsurprisingly, the “Corners (Fillet/Chamfer)” LPE is the tool to use when you want to quickly add such shapes to your paths.

As always, let's take a look at an example of this effect in action. Of course that means we'll need a suitable path to work on, such as this shape which has a selection of obtuse, acute and right angles so you can easily see how Inkscape applies the LPE in these different cases.



Adding the effect to a path like this probably won't produce an immediately obvious result, but that's just down to the values the parameters have by default. Let's take a look at the UI and examine each of the parameters individually, as usual.

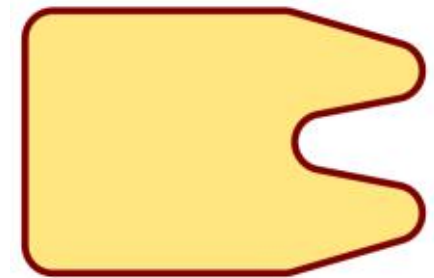


The Unit pop-up is pretty self-explanatory, though there is one omission that we'll come back to shortly. The Method pop-up allows you to explicitly determine whether fillets are rendered as arcs or Bézier curves, should you care about that distinction. Most people won't, and should probably just leave this as “Auto”.

It's the Radius field that is the first really important one. While this is set to zero you won't see any filleting or chamfering effect, so the first thing to do is to crank this up to a suitable value for the result you want. If you're using a mouse with a scroll-wheel (which I contend

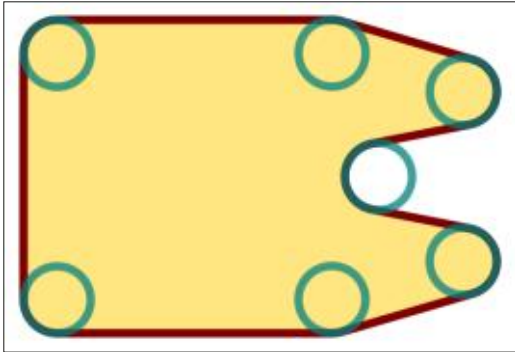
Inkscape - Part 121

is the best control device for serious Inkscape work), click in the field to focus it then roll the wheel to adjust the value in integer steps. By doing this you can watch the effect change the path on the canvas in real-time, making it easy to adjust the strength to the value that gives the right appearance. Here's our test shape with a radius of 15px.

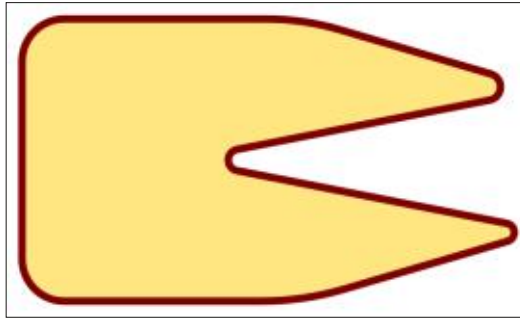


The filleting effect is obvious on the right-angled corners at the left, and completely rounds off the acute angles at the right. The obtuse angles at the top and bottom right, however, are barely rounded at all. This makes sense due to the radius being set to a specific value: as the two sides of the angle approach 180° so the tangent points get closer and closer, and the curving effect is less

pronounced. This can be seen more clearly by adding circles with a radius of 15px to each corner of our shape, to demonstrate how the fillet shapes are constructed.



If you want a smoother transition in your obtuse angles there are several solutions. The first is simply not to use a radius defined in explicit units at all, but make it vary based on the geometry of the path around each corner. This is what the “Radius in %” checkbox is for. Enable this and... nothing happens. A common problem with this and other LPEs is that some controls don’t immediately trigger an update on the canvas. In this case the easiest option is to nudge the Radius value up by one, then back down by one, using the plus and minus buttons at the end of the field. With that refresh forced, our shape now looks like this.



Clearly the obtuse angles are a lot smoother now, though the acute ones have become sharper, with a smaller radius. This raises the obvious question as to what “Radius in %” actually means. Percentage of what? It’s clearly not the same thing being used for all the corners, so it can’t be “percentage of bounding box width” or anything like that. Is it based on a percentage of the segment length? The angle at which the lines meet? The price of Bitcoin? Who knows!? I certainly don’t, and the tooltips aren’t giving any insight.

One thing I do know, however, is that the percentage option tends to be more resilient to design changes. Consider what happens when you scale your shape up or down: if you’ve set a specific radius in pixels or millimetres, the LPE will change the output path in order to maintain that defined size. In the

case of our example shape this causes the “prongs” to become longer or shorter. Conversely, when using the percentage option you’ll find that scaling the path results in no significant changes to its shape. For this reason alone, unless you have a specific requirement that demands a fixed value radius, I suggest enabling the “Radius in %” checkbox.

Remember that I said that there was an omission in the Units pop-up that I would come back to? It’s simply this: why isn’t there an entry for “%” in the pop-up, instead of also having this checkbox? With the UI as it stands, it would be very easy to misread the parameters as indicating a fixed radius rather than a percentage, by overlooking the checkbox. As often seems to be the case with Inkscape’s LPEs, some of the parameters and their positions do rather leave me scratching my head.

If you switch to the Node tool (F2) while your path is selected, you’ll see a pair of handles for each node. On my setup they are rendered as particularly small shapes, so you may want to increase the size of the handles throughout the whole Inkscape UI

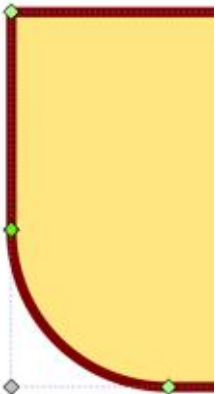
via Edit > Preferences > Interface. These specific handles are referred to as “knots” in the Corners LPE interface. They can be hidden by enabling the “Hide knots” checkbox, so if you don’t see them when switching to the Node tool, double-check to see if that box is enabled. These are also, presumably, the knots referred to in the label for the “Use knots distance instead [of] radius” checkbox – though I’m not certain because the behaviour of that control is less than obvious, and I’m not even convinced that it’s needed at all!

Checking that box (and nudging the Radius control up and down) modifies the shape once again. The positions of the knots move, and with it the curvature of the various fillets change. The thing is, you can actually drag the knots on the canvas in order to manually adjust the curvature for each fillet – and this works regardless of the state of the checkbox. I’m therefore at a loss as to what this checkbox is meant to achieve, so my advice is to simply leave it un-ticked, enable the “Radius in %” option, and manually adjust any fillets you need to.

It’s worth reiterating the fact

that you can change each pair of knots individually. This is the first LPE to support storing per-node data, allowing different parameters to apply to different nodes within the path. This allows you to not only set a different radius or knot position for each corner, but also to mix-and-match between fillets and chamfers, as we'll see later, all with just a single instance of the LPE. Compare this with the need for multiple LPEs each with its own blacklist or whitelist that we had to use to achieve something similar with the Measure Segments LPE, and I'm sure you'll agree that the new method is a lot more straightforward to use.

Now that you know how to set the fillet radius on a per-node basis, you should be able to reproduce a pair of corners like these.



The top corner has a radius of zero, whereas the bottom corner's radius is set to a much larger value simply by dragging one of the knots. It's important to note the distinction between a zero radius node and one with a radius greater than zero as we take a look at the next two checkboxes in this LPE.

- ☒ Apply changes if radius = 0
- ☒ Apply changes if radius > 0

Here we have another pair of controls that are, in my opinion, practically useless. When we first began to apply fillets to this shape we increased the radius value and all the corners responded. Suppose, however, you've manually reset some of them to a radius of zero, and don't want them to be affected by further changes. Unchecking the first box will mean that any changes you make in the LPE interface won't affect those zero radius corners. In other words, if you want to keep your square corners square while adjusting all the others then uncheck this box.

The problem is what happens if you do want to adjust the square corners as well. Obviously you need

to have this box checked, but that's not really enough. As soon as you nudge the radius parameter up, those corners cease to be zero radius corners, so that checkbox no longer applies. This is where the second checkbox comes in: with this checked your changes also affect non-zero corners. Unchecking this would mean that your changes only affect the zero radius corners, which is almost never what you want – especially if it's the radius parameter you're playing around with. My advice, therefore, is to always leave these two checkboxes ticked. If you want to protect your sharp corners from changes, there's a better way to achieve that which I'll describe shortly.

Personally I think these two parameters should be collapsed into a single checkbox labelled "Protect zero radius corners". When checked, the tight corners would be left unmolested by any changes to the parameters, but in its unchecked state your changes would affect all of the corners, as usual. In reality even this probably isn't required, given the next checkbox in this dialog.

What if you don't want to affect all of the corners, but perhaps the

ones you want left untouched already have a non-zero radius? We've seen that the radius can be adjusted on a per-corner basis using the knots on the canvas, but what about the other parameters? The checkbox labelled "Change only selected nodes" is the option for you. With this enabled any changes you make to the LPE's parameters will only be applied to corners that you've selected. This renders the previous checkboxes rather redundant. If you want to modify all the corners then just ensure that all of them are selected. Want to leave the zero radius ones untouched? Just make sure they're not selected (but the other corners are) when you make your modifications. Importantly, however, you can also choose any subset of corners to adjust at once, regardless of their current radius.

In the unlikely event that you're not familiar with selecting nodes in Inkscape, here's a quick recap. First, you need to be using the Node tool (F2). You can click on individual corner nodes to select them, or on a path segment to select the nodes at either end. You can also drag the mouse over multiple nodes to select them (a so-called "marquee" or "rubber band" selection).

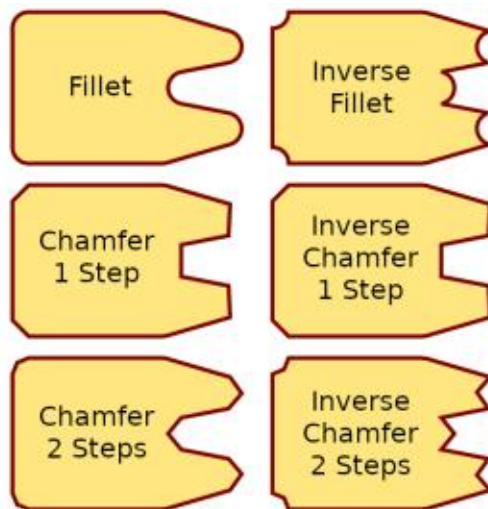
HOWTO - INKSCAPE

Holding the Shift key will let you add nodes to, or remove nodes from, an existing selection. Most usefully, Ctrl-A will select all the nodes in the path, providing a quick way to alter all the nodes at once. The Escape key will deselect them all, should you wish to start again with a fresh selection. If you have difficulty seeing the path nodes due to the placement of the LPE's knots, don't forget that you can check the "Hide knots" control while you make your selection. With those basics at your fingertips you'll soon find that it's quick and easy to select exactly which corners should be affected by your LPE changes at any time, without having to consider their existing radius or other attributes.

Now we know how to apply parameter changes to specific nodes, but so far all the examples we've looked at have been fillets. What about chamfers? It doesn't take a genius to figure out that's what the buttons at the bottom of the LPE parameters are for.



Depending on the state of the "Change only selected nodes" checkbox, clicking on one of these buttons will change either the selected nodes, or all nodes, to the appropriate type of join. For chamfers and inverse chamfers the "Chamfer steps" parameter also plays its part, dictating how many straight line segments should be used to make up the connecting shape. Note that when this is set to 1 there is no visual difference between a chamfer and inverse chamfer. Here's an example of how the different types of join are rendered with our test shape.



In conclusion, I think this is a very capable and useful LPE that is only let down a little by offering too many non-intuitive options in the UI which don't seem to really provide much benefit. My advice is to enable the "Radius in %" checkbox, both the "Apply changes..." checkboxes, and the "Change only selected nodes" checkbox. That will give you an LPE that behaves predictably when you resize your objects, and which allows you to trivially alter all of the nodes, or just a subset of them, depending on what you select on the canvas.



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

The daily waddle

WHY DO STORMTROOPERS
HAVE IPHONES?

BECAUSE THEY COULDN'T
FIND THE 'DROIDS THEY
WERE LOOKING FOR?





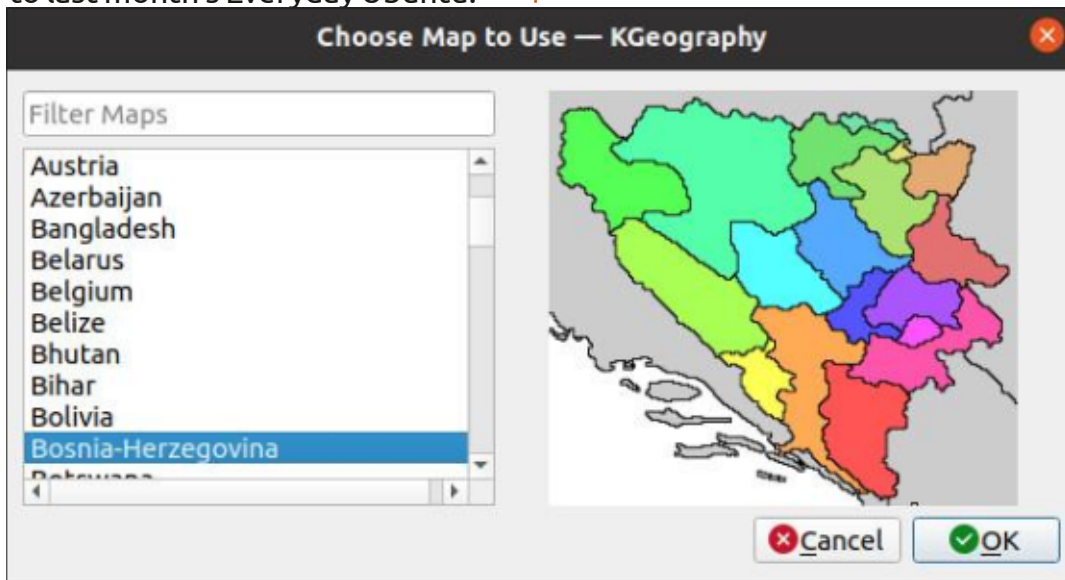
Even if we're running Ubuntu with Unity or GNOME, we can still install and run KDE based applications. From the Synaptics Package Manager store, we can install Kalzium, KGeography, KStars, KDE Marble, and KIG. Last month we looked at how to install the KDE-based science programs, and took a quick look at Kalzium, the app helping us to understand and explore the Periodic Table of the Elements. Then, we also briefly explored KDE Marble, the globe/map program. If you need help getting KGeography, KStars, or KIG on your system, please refer back to last month's Everyday Ubuntu.

This month, we're going to check out KGeography, KStars, and KIG.

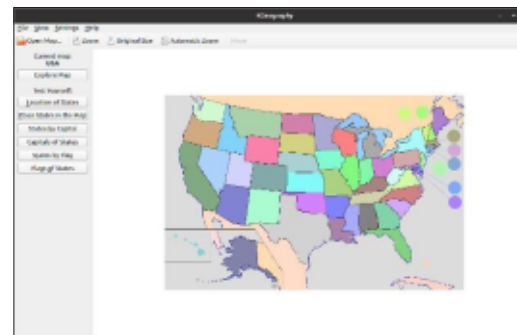
KGEOGRAPHY

Below is the main initial interface for KGeography.

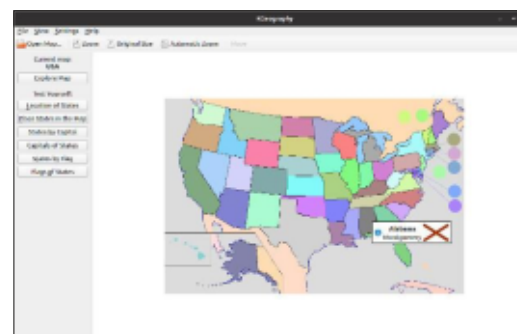
You can select a map for a country in the box on the left. Let's be non-cosmopolitan and pick USA, so I at least have a shot at knowing the states and capitals. Not much chance I'll know the cantons of Switzerland, although I actually do have a friend who lives there.



Here's the map of the USA:



Now, on this screen, you can click on a state to get more information on that state:



So, when you click, you get the state name and capital, the state flag, and a small letter i inside a blue dot. Clicking that i symbol will open your web browser to the Wikipedia page for that state. Pretty cool!

Finally, you can see on the left

hand side a number of options to test yourself. This brings up a dialog box allowing you to select how many questions you want, then you'll get a series of multiple-choice questions:



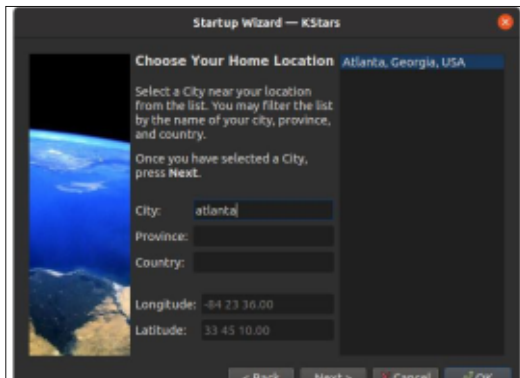
Spoiler alert: Montpelier.

KSTARS

KStars is the KDE astronomy package. Its initial startup wizard screen looks like this:



Press Next, and you can select your location. My location is about 50 miles from Atlanta GA, and about 100 miles from Birmingham AL. Selecting either one probably gives me a pretty decent representation of the night sky where I am, but Atlanta is obviously more accurate:



KStars then gives you an option to download additional data files to enhance your astronomical experience:



Once you've completed this, KStars will start the program proper and will by default give you a Tip of the Day. Once you close that, you'll get a representation of the night sky in your current location at your current time:



You can advance or retrace the time, Find specific objects, Zoom in or out, change geographic location, or stop the clock using the menus up top. Let's find one of the most easily recognizable 'objects' in the night sky, the constellation Orion. Click Find Object and simply type in Orion and hit OK:



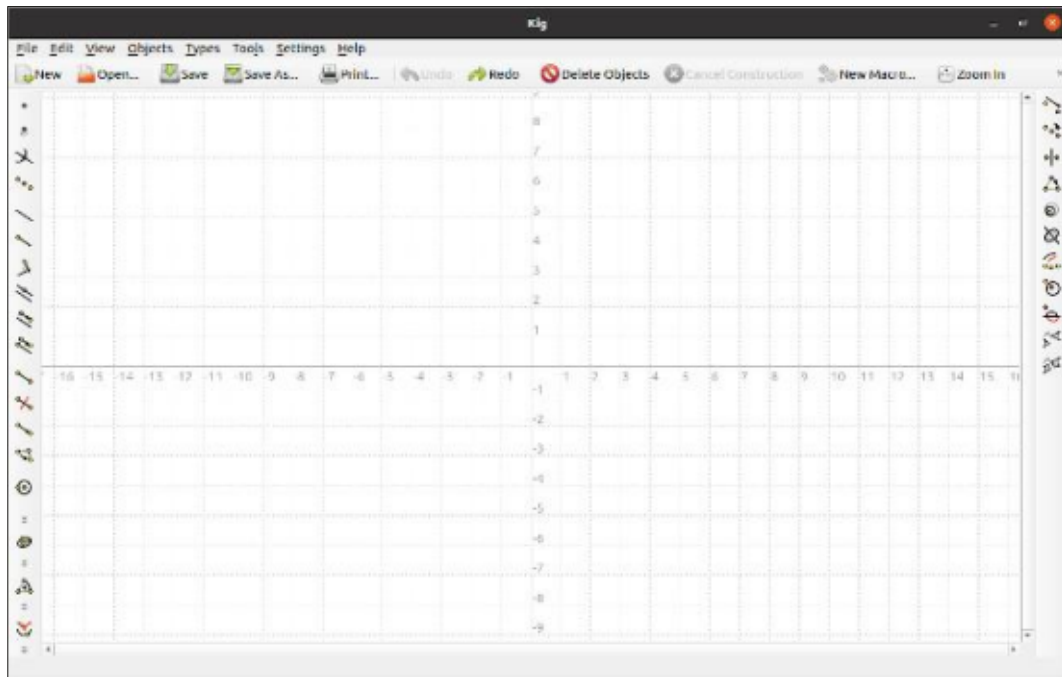
Zoom in until it's right in the middle, filling up your screen:



Just to the right of center, you can see Orion's easily recognizable "belt", with information on the stars and other celestial phenomena that make up the constellation. Very nifty.

KIG

KIG is a geometry/drawing program. Its tools actually remind me quite a bit of Micrografx Designer, a vector-based drawing program from the early Windows days. I worked for Micrografx for about 2 years, and photo-editing, flowcharting, presentations, and vector-based drawing were definitely computer activities I learned a LOT about during that 2



year span in the early 90's.

KIG's initial interface also has a Tip of the Day by default. Once you've dismissed the day's tip, you'll get the blank initial XY coordinate screen (shown above).

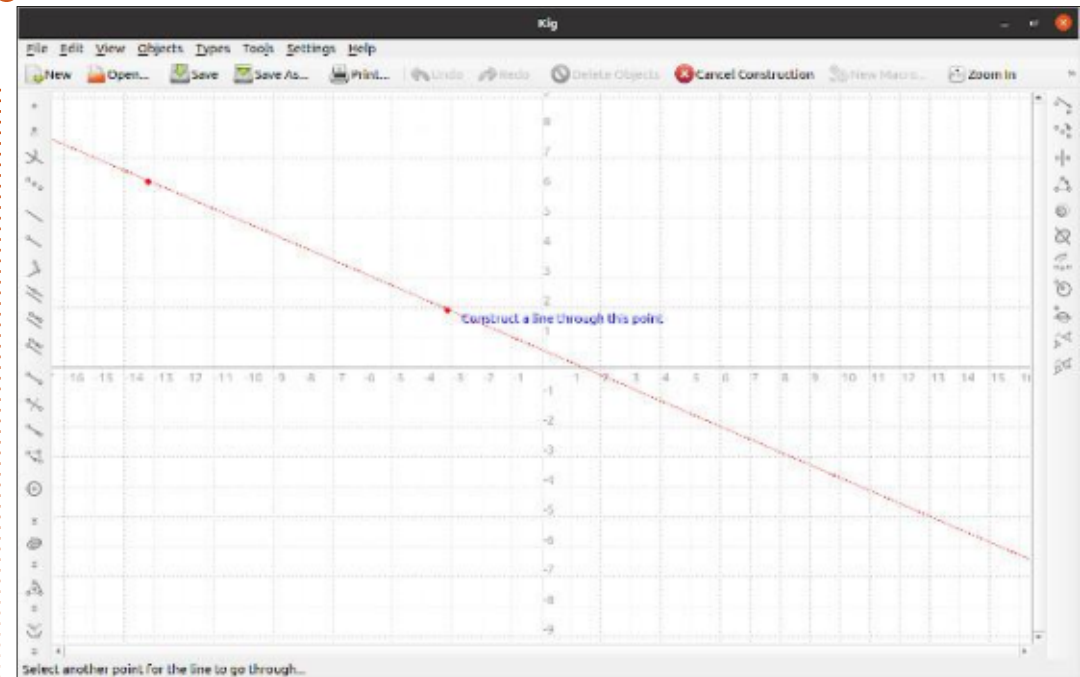
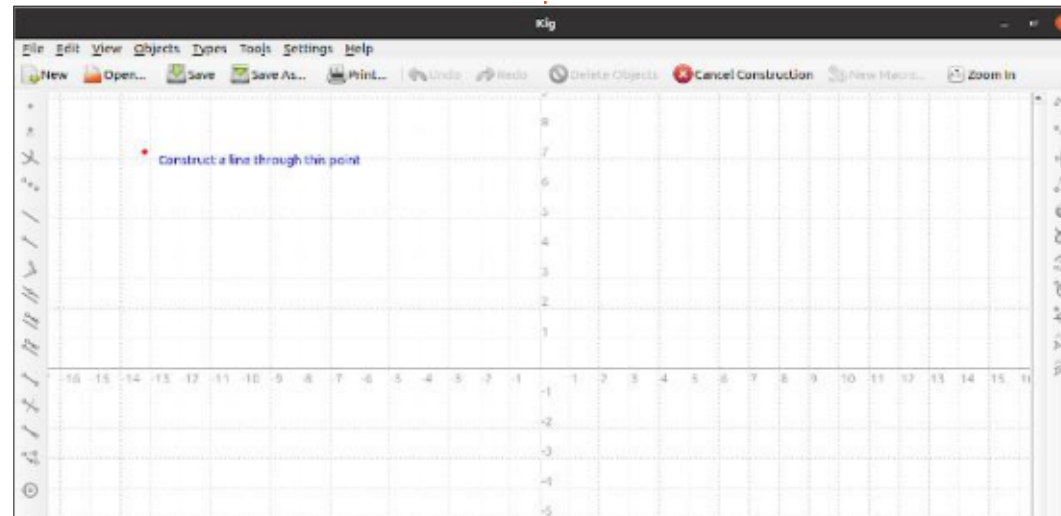
As you can see, there are a LOT of tools for drawing geometric figures. Let's try the fifth one in the left-hand column just to get an idea as to how the program works:



This is the tool for drawing a line using two points to define the slope and location. Click once to 'stamp down' the first point (shown

right).

Move the mouse to another point on the desired line, then click to define the line. KIG will draw the full line based on your input (shown



top right)

KIG saves in its own proprietary format.

Next month: Maybe time for another retro-gaming column? Be here and see.



Richard 'Flash' Adams lives in rural north Alabama and has been a computer support technician, a business analyst, a software salesman, a sales analyst, a QC team lead, and is now disabled/retired. He enjoys reading, NFL football, computer and video games, cooking, and playing with Baby, his cockatiel. Feedback and suggestions are welcome at acer11kubuntu@gmail.com.



First, please allow me to apologize for not having a Micro This Micro That. I was having very bad issues with my vision and it was all I could do to get the “normal” Python article done. It’s not much better right now, especially when trying to wire up a circuit. However, we will press onward as best as we can.

Think back two months to part 13 (which was in FCM #179). We were using LSM 303 with the Raspberry Pi Pico to create a digital compass. The final product was obtaining a normalized integer value that gave us the number of degrees off of North. So if we were standing with the breadboard and sensor pointing to the East, we would get 90 as our heading.

This month, we will use a 24 pixel NeoPixel ring.

Since there are 360 degrees in our circle and we have 24 LEDs, that would mean that each of our LEDs would represent 15 degrees. So if LED[0] represents North, East would then be LED[6], South would

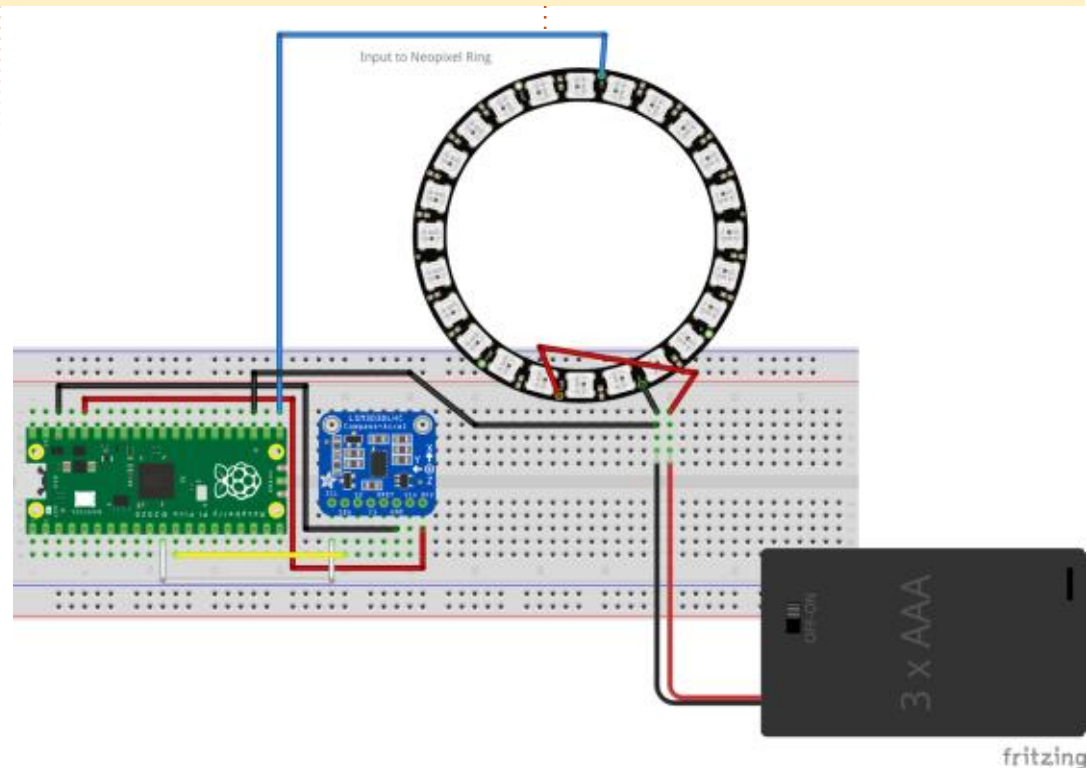
```
while True:
    # Get the heading from the sensor (0 to 359 degrees)
    # and if it is evenly divisible by 15 (remainder 0)
    If (heading modulo 15) == 0:
        # Convert the heading into a value from 0 to 23
        angl = int(heading / 15)
        # Use this value to decide which pixel to turn on
        pixels_set(angl, ColorToUse)
        # Actually turn on the pixel
        pixels_show()
        # Wait a few seconds and get another heading (if one available)
        Nap a bit
        # Rinse and repeat
```

be LED[12] and West would be LED[18].

The basic algorithm (in pseudo code) is something like shown above.

We’ll have to add the Neopixel ring to the breadboard. Remember, we will also have to have a 3 x AA rechargeable battery pack to power the Neopixel ring. Please notice that the image shows using a 3 AAA battery pack, but it is really a 3 AA battery pack.

Also notice that there is a ground connection between the Neopixel ring, the battery pack and the RPi Pico.



MICRO THIS MICRO THAT

This month, we will create a test program that will verify the logic that we will use to integrate the heading from the LSM303 to the NeoPixel ring.

Of course, we have to start with the imports. We will also create some variables that will be needed for the Neopixel ring.

```
import array, time
```

```
from machine import Pin
```

```
import rp2
```

```
# Configure the number of  
WS2812 LEDs, pins and  
brightness.
```

```
NUM_LEDS = 24
```

```
PIN_NUM = 16
```

```
brightness = 0.1
```

Now we need to create the driver. We will embed this (right) into our program.

Remember that we set which NeoPixel, and its color, using the `pixels_set()` function, but until the `pixels_show()` function is called, the Neopixel LED doesn't actually light.

Now we set a few constants that provide the RGB values for some

```
@rp2.asm_pio(sideset_init=rp2.PIO.OUT_LOW, out_shiftdir=rp2.PIO.SHIFT_LEFT, autopull=True,  
pull_thresh=24)  
def ws2812():  
    T1 = 2  
    T2 = 5  
    T3 = 3  
    wrap_target()  
    label("bitloop")  
    out(x, 1)                .side(0)    [T3 - 1]  
    jmp(not_x, "do_zero")    .side(1)    [T1 - 1]  
    jmp("bitloop")          .side(1)    [T2 - 1]  
    label("do_zero")  
    nop()                   .side(0)    [T2 - 1]  
    wrap()
```

```
# Create the StateMachine with the ws2812 program, outputting on Pin(16).  
sm = rp2.StateMachine(0, ws2812, freq=8_000_000, sideset_base=Pin(PIN_NUM))
```

```
# Start the StateMachine, it will wait for data on its FIFO.  
sm.active(1)
```

Now that that's out of the way, we can create a couple of support routines.

```
# Display a pattern on the LEDs via an array of LED RGB values.  
ar = array.array("I", [0 for _ in range(NUM_LEDS)])
```

```
def pixels_show():  
    dimmer_ar = array.array("I", [0 for _ in range(NUM_LEDS)])  
    for i,c in enumerate(ar):  
        r = int(((c >> 8) & 0xFF) * brightness)  
        g = int(((c >> 16) & 0xFF) * brightness)  
        b = int((c & 0xFF) * brightness)  
        dimmer_ar[i] = (g<<16) + (r<<8) + b  
    sm.put(dimmer_ar, 8)  
    time.sleep_ms(10)
```

```
def pixels_set(i, color):  
    ar[i] = (color[1]<<16) + (color[0]<<8) + color[2]
```

predefined colors.

```
BLACK = (0, 0, 0)  
RED = (255, 0, 0)  
YELLOW = (255, 150, 0)  
GREEN = (0, 255, 0)  
CYAN = (0, 255, 255)
```

```
BLUE = (0, 0, 255)  
PURPLE = (180, 0, 255)  
WHITE = (255, 255, 255)
```

Now (next page, top right) we

can create a few support functions that we will need to make our life easier.

We will use the Red color to

mark North (LED[0]) and Blue to mark East, South and West. When we get to it, the color that marks the heading will be in Green (shown bottom left).

The `turn_off_all()` function simply sets all the pixels on the ring to BLACK (or off).

We've put the markers (which should pretty much stay lit unless the heading is one of those directions) for North, South, East and West into a list so we can check to see if we are on a marker LED. North will set LED[0] to Red and the other three are set to Blue.

Now the real worker function is `set_heading()`. This function (shown middle right) embodies the logic from the pseudo code we created earlier.

Finally, we create the logic to control everything (shown bottom right). To simulate moving around in a circle, we use a for loop,

stepping from 0 to 361, and pass that value into our `set_heading()` function to light the correct LED. Then we reverse the for loop to simulate moving in an anti-clockwise circle.

Save this program as `CompassDisplay1.py`. When you run it, you should see the four marker LEDs then after a short delay, you should see the green LED marking our heading move around the ring then move back around to 0 (the red LED). It's somewhat kludgy, but it does the job.

You can find the program code on my repository at https://github.com/gregwa1953/FCM-181_MicroThisMicroThat.

Next time, we'll add in the code that supports the LSM303 to finalize our project.

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

```
def set_markers():
    for m in markers:
        if m == 0:
            pixels_set(0, RED)
        else:
            pixels_set(m, BLUE)
    pixels_show()
```

```
def turn_off_all():
    for cnt in range(NUM_LEDS):
        pixels_set(cnt, BLACK)
    pixels_show()
```

```
markers=[0, 6, 12, 18]
```

```
def set_heading(heading):
    global last_led, last_marker
    if heading >= 360:
        heading = 0
    if heading % 15 == 0:
        which = int(heading/15)
        if last_marker != which:
            set_markers()
        pixels_set(which, GREEN)
        pixels_set(last_led, BLACK)
        last_led=which
        if which in markers:
            last_marker = which
    pixels_show()
```

```
# The code to test everything...
turn_off_all()
set_markers()
time.sleep(1)
global last_led, last_marker
last_led=0
last_marker=0
for cnt in range(0, 361):
    set_heading(cnt)
time.sleep(1)
turn_off_all()
set_markers()
for cnt in range(361, 0, -1):
    set_heading(cnt)
print('Finished!')
time.sleep(2)
turn_off_all()
```




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UBPORTS DEVICES

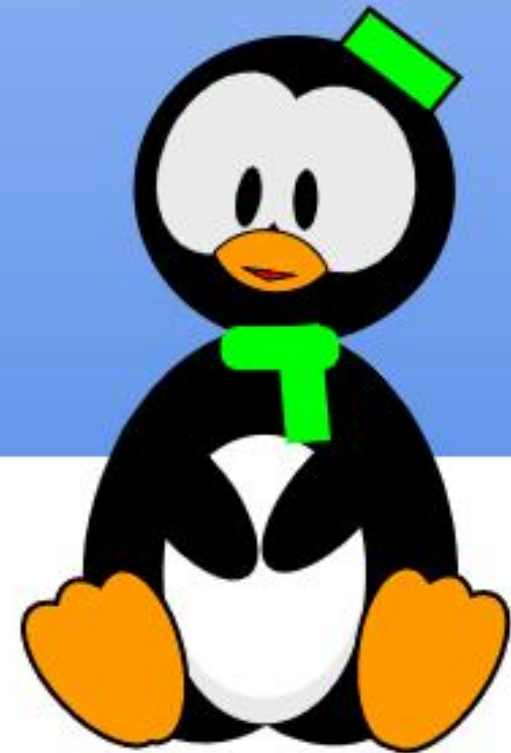
Written by UBports Team



The daily waddle

*ERASE WINDOZE AND
INSTALL LIBUNTU?
PRESS ANY KEY FOR YES*

IT'S ALL ABOUT CHOICE...





MY STORY

Written by Brian Bogdan

My Journey to Ubuntu 22.04

Let me start by saying that I am strictly a Long Term Support (LTS) person. I have been using Ubuntu since 10.04. Over the years I have dabbled into using interim releases, but, to tell you the truth, I don't have that much free time to be forever mucking about with my OS.

Enter Oracle VirtualBox. I love this application and cannot believe I waited so long to start using it. With VirtualBox, I am able to 'play' with new installations of Ubuntu (and other Desktop Environments), all the while leaving my daily driver alone. I am using Ubuntu 20.04 and do nothing to mess up that installation. I keep it up to date, and install some third party applications, but for the most part I leave it alone.

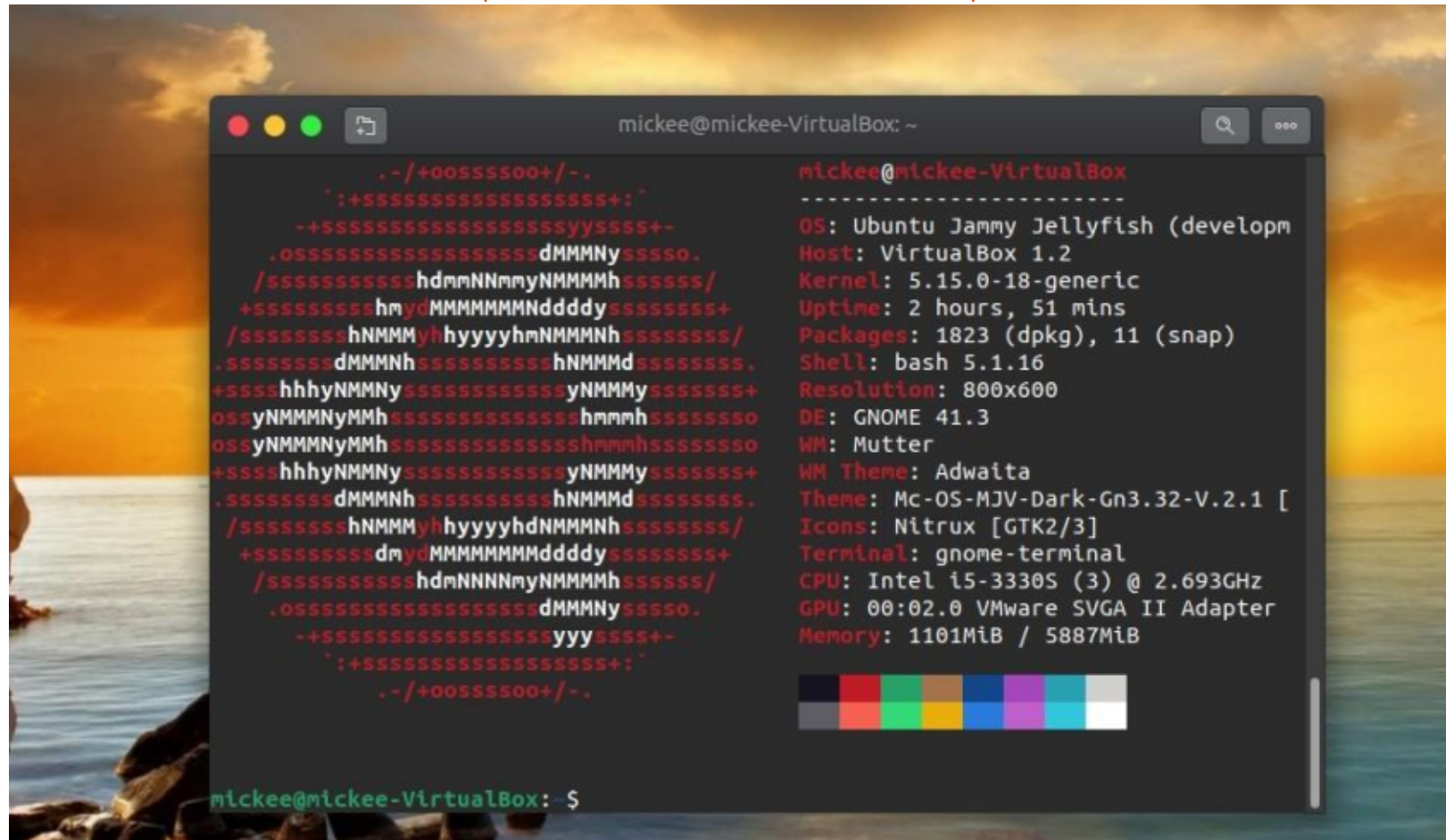
I recently downloaded a daily build of "Jammy Jellyfish" and installed this in a virtual machine. I run `sudo apt update/upgrade` at least once a day. Running an alpha version (maybe it's a beta?), is not for everyone, even if it's done from a virtual Machine (VM). I have found

that updates do sometimes break the install, and I have had to reinstall in the VM twice so far. This is why I would never use the daily build as my daily driver. Too much at stake.

But it's thrilling to me to have a glimpse into the future of Ubuntu

by having Jammy installed in the VM. In addition to filing bugs I find in Jammy, I also install my favourite apps and themes etc. After all, what I really am doing is seeing into the future, and whether or not all my favourite things about Ubuntu still work. There are still many months of development before Ubuntu

22.04 is released in April, so much fun to be had with new features and new applications on a regular basis. I am very pleased so far, and I thank the devs who work on Ubuntu to make it truly a World class Linux distribution.





HOW-TO

Written by Ronnie Tucker

Write For Full Circle Magazine

GUIDELINES

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

RULES

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

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

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

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

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

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

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

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

TRANSLATIONS

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

REVIEWS

GAMES/APPLICATIONS

When reviewing games/applications please state clearly:

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

HARDWARE

When reviewing hardware please state clearly:

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

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



REVIEW

Written by Adam Hunt

Ubuntu 22.04 LTS

Every two years in April comes a day that is a bit like Christmas for Ubuntu users. This is the day that the new long term support (LTS) version is released and, because most Ubuntu users stick to the LTS versions, this new version means lots of great new things arrive.

Ubuntu 22.04 LTS was released on 21 April, 2022 and, being an LTS version, is supported for five years until April 2027. This is the 36th Ubuntu release and the tenth with the Gnome 3 desktop.

The next LTS release will be out in another two years, in April 2024, and will be Ubuntu 24.04 LTS.

There is much in Ubuntu 22.04 LTS that will make Ubuntu fans happy and ought to keep them that way for the next few years, at least.

In general, the three “standard” releases in-between the LTS versions, are where most of the development and changes happen, and that means that LTS versions are often not much different from

the last standard release. This is generally true for Ubuntu 22.04 LTS, but it does bring one or two new surprises - and good ones too.

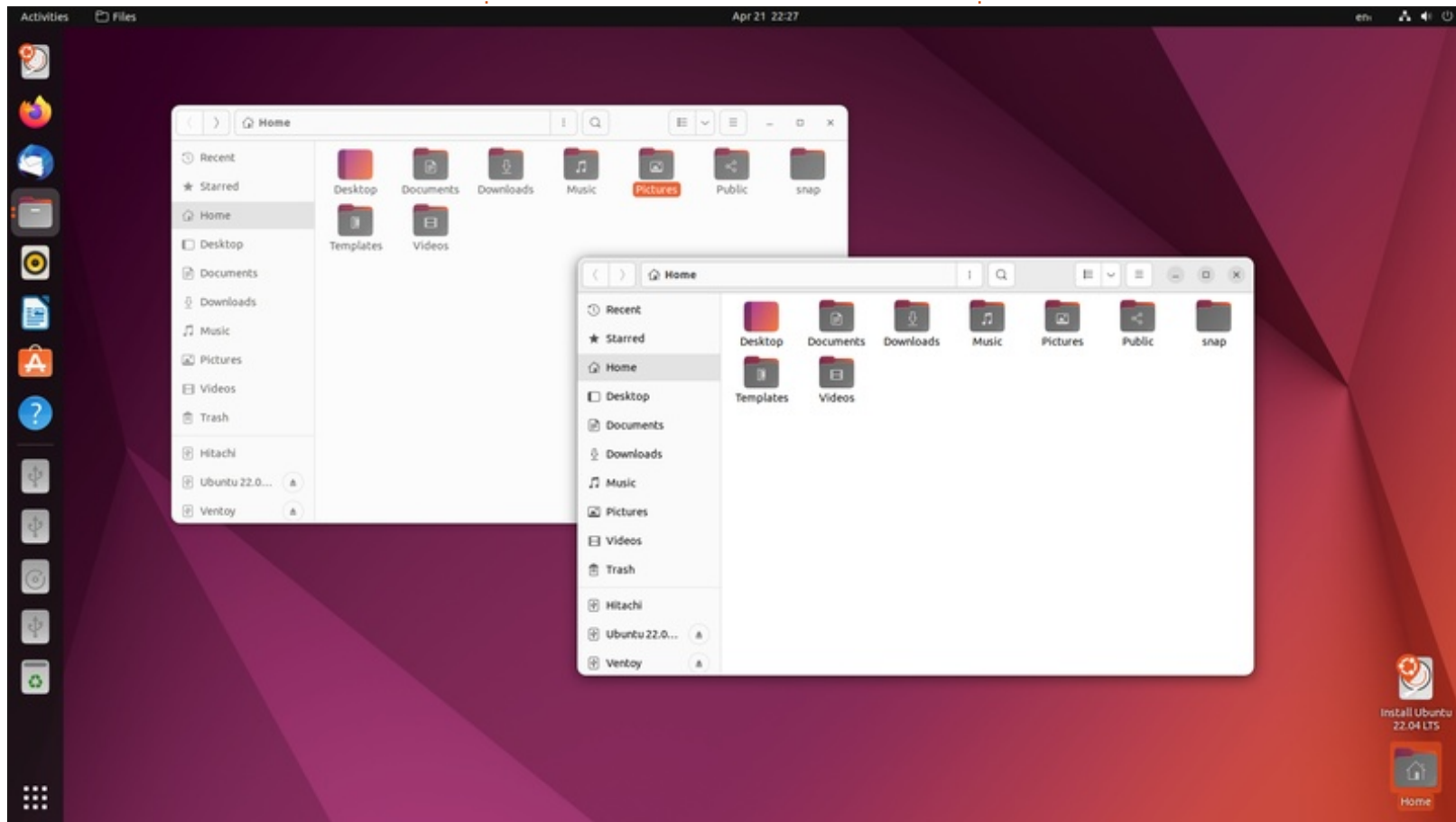
INSTALLATION

I downloaded the ISO file for Ubuntu 22.04 LTS from the official

website via bittorrent and carried out an SHA256 sum test on it from the command line to make sure I had a good download.

The first thing noted was that the download is half a gigabyte bigger than the last release, Ubuntu 21.10. Ubuntu 22.04 LTS

weighs in at 3.4 GB versus 2.9 GB for the previous release, which is 17% bigger. The release notes give no clue as to why this is, though. It also means that, when the ISO is unpacked, it probably won't fit on a 4 GB USB stick. It is probably just my nostalgic thinking but I can't help remembering that the



REVIEW

versions of Ubuntu from around 2007 actually fit on a 700 MB CD with room to spare.

For testing, I ran Ubuntu 22.04 LTS from a USB stick that was equipped with Ventoy 1.0.73. Ventoy makes booting to almost any Linux distribution really easy – just copy and paste the ISO file onto the Ventoy USB stick, and Ventoy makes it all work at boot up.

SYSTEM REQUIREMENTS

The system requirements for Ubuntu 22.04 LTS haven't changed since the last LTS release and are still:

- 2 GHz dual-core processor

- 4 GiB RAM
- 25 GB of hard-drive, USB stick, memory card or external drive space
- Screen capable of 1024x768 pixel screen resolution
- Either a CD/DVD drive or a USB port for the installation media
- Internet access useful but not essential

So basically any computer that once ran Windows 7 or later should be fine with Ubuntu 22.04 LTS.

New

As expected, this release brings

a new Linux kernel and that means more support for new hardware. If you install Ubuntu 22.04 LTS on newer hardware, it will use the 5.17 version of the kernel and, if you have hardware that doesn't support that, you will get the rolling 5.15 HWE version. That increases the number of computers that can use this release.

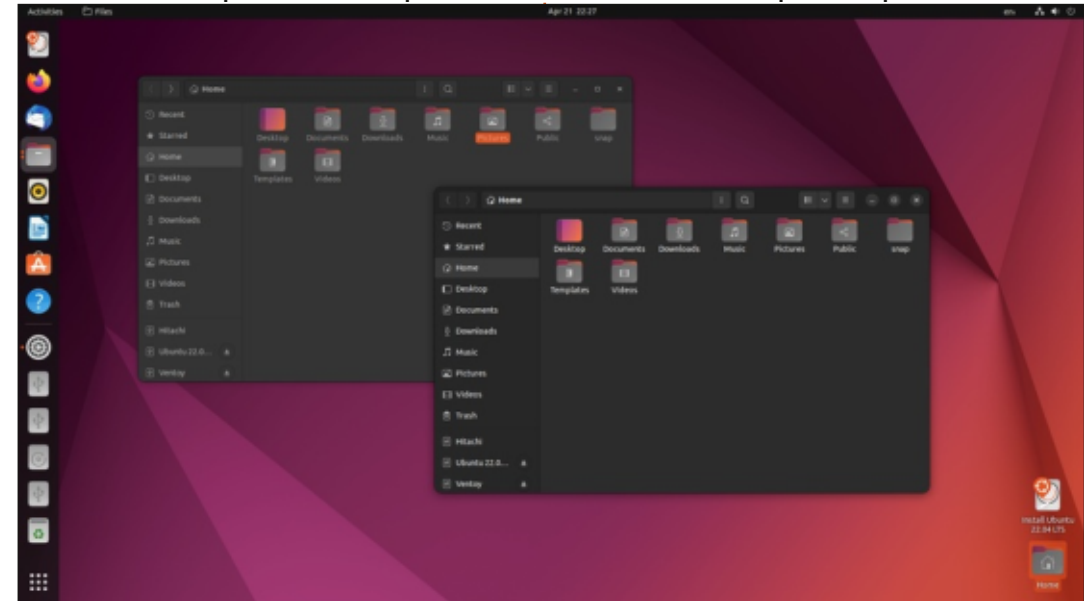
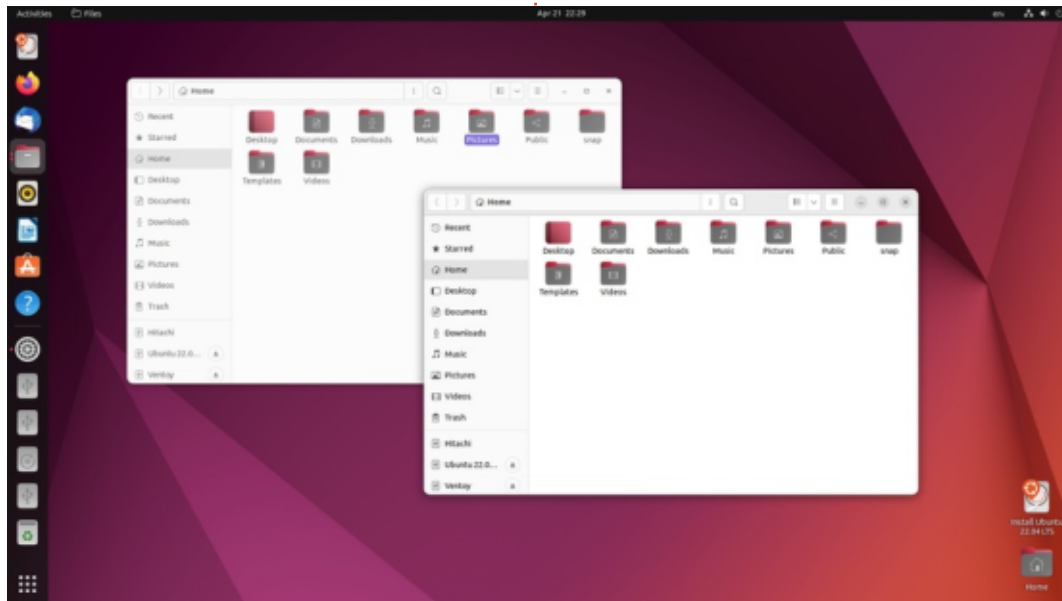
The default display server is now an implementation of Wayland, unless you have Nvidia graphics, in which case it will default to an X server instead. There are still ongoing attempts to get Wayland working right on Nvidia graphics cards, but it isn't there yet.

The development tools provided

have been upgraded too. GCC is now at version 11.2.0, binutils at 2.38, glibc 2.35, python version 3.10.4, Perl version 5.34.0, LLVM version 14, go lang version 1.18.x, ruby at 3.0, and rustc 1.58. In addition to OpenJDK 11, OpenJDK 18 is also now provided although it is not used for the package builds.

The initialization system for Ubuntu 22.04 LTS is systemd 249.11. Ubuntu moved to systemd with Ubuntu 15.04 Vivid Vervet in April 2015 and, despite initial concerns, it has been working well for the past 16 releases.

The desktop includes a mix of applications from Gnome 41 and 42. The developers explain that the



REVIEW

older Gnome 41 applications are there to provide “a more time-tested experience for the LTS desktop by mostly avoiding libadwaita”.

As always, the Ubuntu version of the Gnome desktop is modified with a dock added. By default, the dock is on the left side of the screen, but can be moved to the bottom or the right side, although not the top where it would conflict with the top panel. It can be reduced in width by making the icons smaller in the settings menu, can be set to auto-hide, but cannot be just selected off entirely, so the launcher does use screen space that the stock Gnome desktop does not.

Gnome has some performance enhancements as well that should make it faster.

The Ubuntu implementation of Gnome continues to include window “maximize” and “minimize” buttons, as well as “close”, whereas the stock Gnome desktop windows have only “close”.

SETTINGS

Because Ubuntu 22.04 LTS is code named “Jammy Jellyfish”, it comes with a default jellyfish-themed wallpaper. I will admit that the new artwork is actually quite well done and looks nice when you boot it up. This release provides 12 other wallpapers to choose from or you can use your own favorite wallpaper.

Ubuntu has never been known for offering a lot of user customization, but the last release, Ubuntu 21.10, actually cut the three choices of window color schemes from three down to two. At the time, this seemed like an odd move, especially because it was the default Yaru “standard” window theme that was dropped, leaving

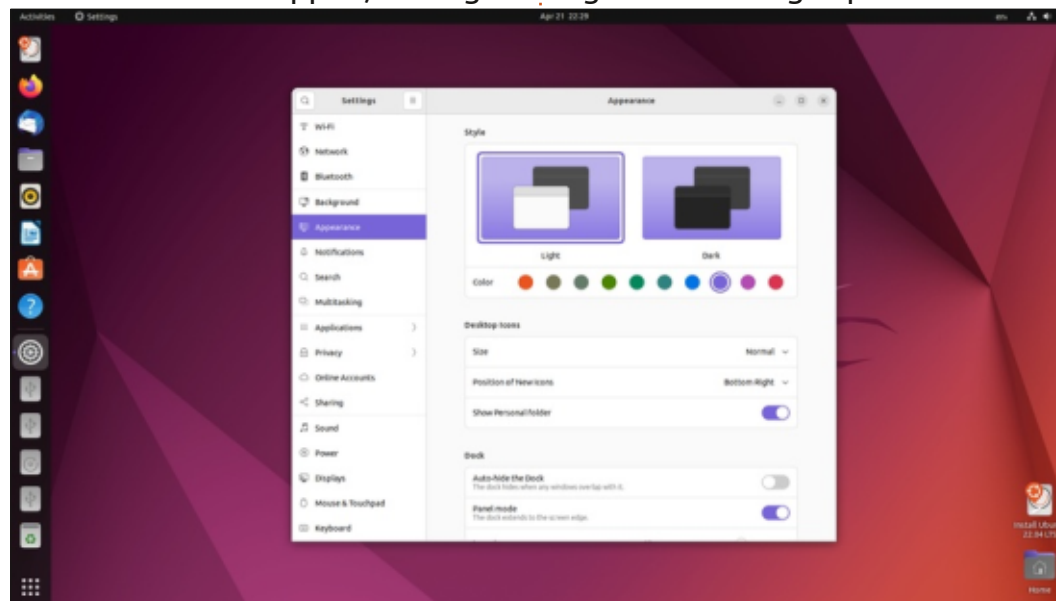
only Yaru light and dark. A feature just introduced in Ubuntu 22.04 LTS makes some sense of this move, however. This release has a new addition to the menus in Settings Appearance. Here, the user can choose the Yaru light or dark theme, and then has a choice of ten accent colors. These control the highlight and other secondary colors seen, and actually do alter the impact of the two Yaru themes, depending on the color chosen. I have to give credit to the Ubuntu developers for this new feature in Ubuntu 22.04 LTS as it is quite innovative and brings more user customization control. I think it will make at least some users feel more like it is “their” desktop and not just a generic-looking experience.

In Ubuntu 21.10, the trash icon was moved from its place on the desktop to the dock. Ubuntu 22.04 LTS introduces a small change to this situation in that if the user adds any icons to the desktop, by default they will be automatically placed in the bottom-right corner of the screen. This default condition can also be changed in the settings under Settings Appearance Desktop Icons –if you would rather have them in the traditional top-left, or any other corner.

APPLICATIONS

Some of the applications included with Ubuntu 22.04 LTS are:

- Archive Manager (File Roller) 3.42.0 archiver
- Cheese 41.1 webcam application
- CUPS 2.4.2 printing system
- Document Viewer (Evince) 42.1 PDF viewer
- Document Scanner (Simple Scan) 42.0 optical scanner
- Files (Nautilus) 42.0 file manager
- Firefox 99.0.1 web browser**
- Gnome Calendar 41.2 desktop calendar
- Gnome Disks 42.0 disk manager
- Gnome Terminal 3.44.0 terminal



emulator
Gparted 1.3.1 partition editor
Image Viewer (Eye of Gnome) 42.0
image viewer
LibreOffice 7.3.2 office suite
PulseAudio 15.99.1 audio controller
Remmina 1.4.25 remote desktop
client
Rhythmbox 3.4.4 music player*
Shotwell 0.30.14 photo manager
Startup Disk Creator 0.3.13 (usb-
creator-gtk) USB ISO writer
Text Editor (gedit) 41.0 text editor
Thunderbird 91.8.0 email client
Transmission 3.00 bit torrent
client*
Ubuntu Software (Gnome
Software) 41.5 package
management system
Videos (Totem) 42.0 movie player

* indicates same application version
as used in Ubuntu 21.10
** supplied as a snap package, so
the version on the release date
depends on the upstream package
manager

As can be seen, almost all the
applications provided are new
versions and most are from Gnome
41 and 42. The screenshot tool has
been replaced with a simple and
updated interface from Gnome 42.

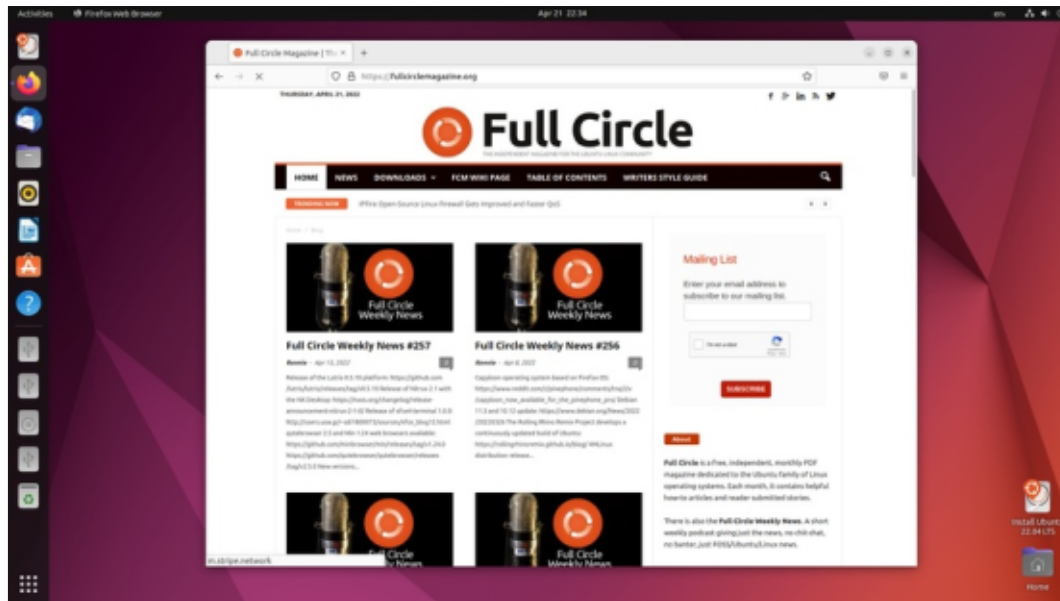
Ubuntu 21.10 introduced the
provision of the default Firefox web
browser as a snap package, in place
of the previous .deb package,
although the .deb remained
available in the 21.10 repositories.
As was warned, the Ubuntu 22.04

LTS repositories now contain only
the snap package. This was done at
the request of Firefox's developers
at Mozilla to simplify their support
for Linux, eliminating having to
manage multiple package formats
across the Linux universe. From
that perspective, the move to snaps
makes sense. Snaps contain all their
dependencies, so they can be big
files. For instance, the Firefox snap
is 163.2 MB.

All of this does mean that, if you
want to use Firefox, then you have
to live with the snap version, unless
you want to compile your own from
the Mozilla website-provided
tarball file or something equally
esoteric.

So how does the snap version of
Firefox work in Ubuntu 22.04 LTS?
Some of the past complaints about
snaps in general are that they are
slow to open and don't take up
system color themes, often looking
out of place on the desktop. In
testing the Firefox snap on Ubuntu
22.04 LTS, it opened in about three
seconds, which is not too bad. It
also adopts and matches both the
Yaru light and dark themes,
including the accent color selected.
I am sure that the Ubuntu
developers wanted to make this
first "mandatory" snap as
unimpeachable as possible, and it is
hard to find fault with it. It fits the
desktop and works right.

It is worth noting that the



full circle magazine #181



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included Ubuntu Software store is just a snap store as it supplies only snap versions of applications. The Gnome desktop itself is also a snap, and 260.8 MB in size, which may partially explain the 500 MB larger download size for Ubuntu 22.04 LTS. The future is here now, it seems.

Ubuntu 22.04 LTS has LibreOffice 7.32 and this version is complete, missing only the database application LibreOffice Base. It is not often used but can easily be installed if needed.

As in recent Ubuntu releases, Ubuntu 22.04 LTS includes the Cheese webcam application but omits a CD/DVD writer, video

editor, and a general purpose image editor. The included Shotwell photo organizer can actually do some basic photo editing tasks including cropping, rotating, color adjustment, straightening, and enhancing, although it is not a true, general purpose image editor. There are many good choices in the repositories, though, including GIMP and mtPaint.

CONCLUSIONS

After 36 releases over 18 years, Ubuntu feels like a serious, carefully honed and highly polished desktop aimed at enterprise users, but suitable for home use as well.

Overall, the changes in this release cycle since the last LTS in 2020 have been small and incremental in nature and that is a good thing. Most Ubuntu users like how it looks and works and don't see a need for big changes.

Ubuntu 22.04 LTS is a good, solid release that will probably keep Ubuntu fans and the large number of enterprise and business users happy for the next few years, at least.

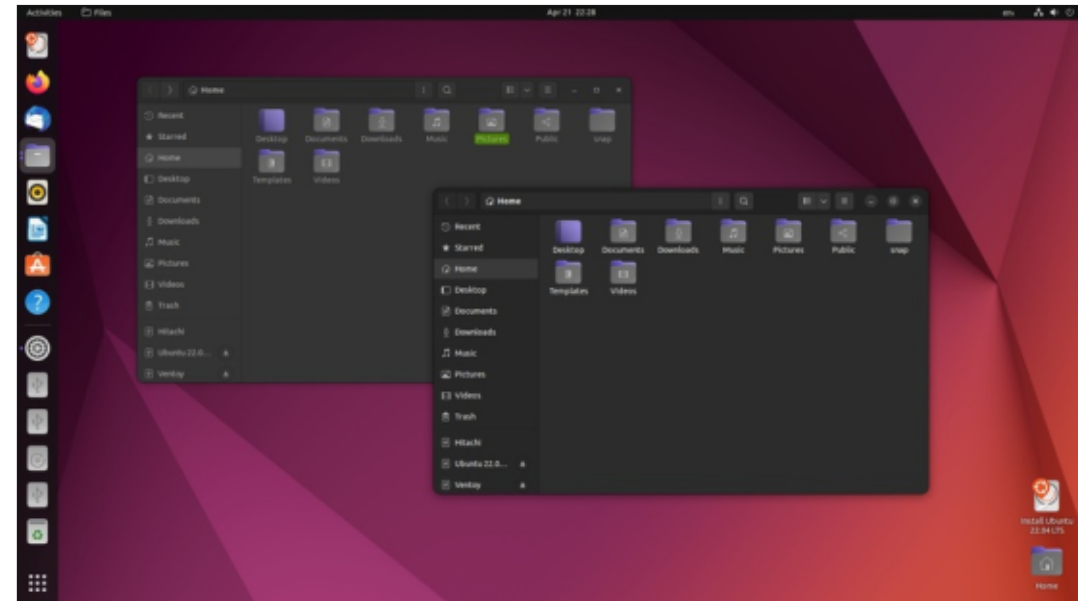
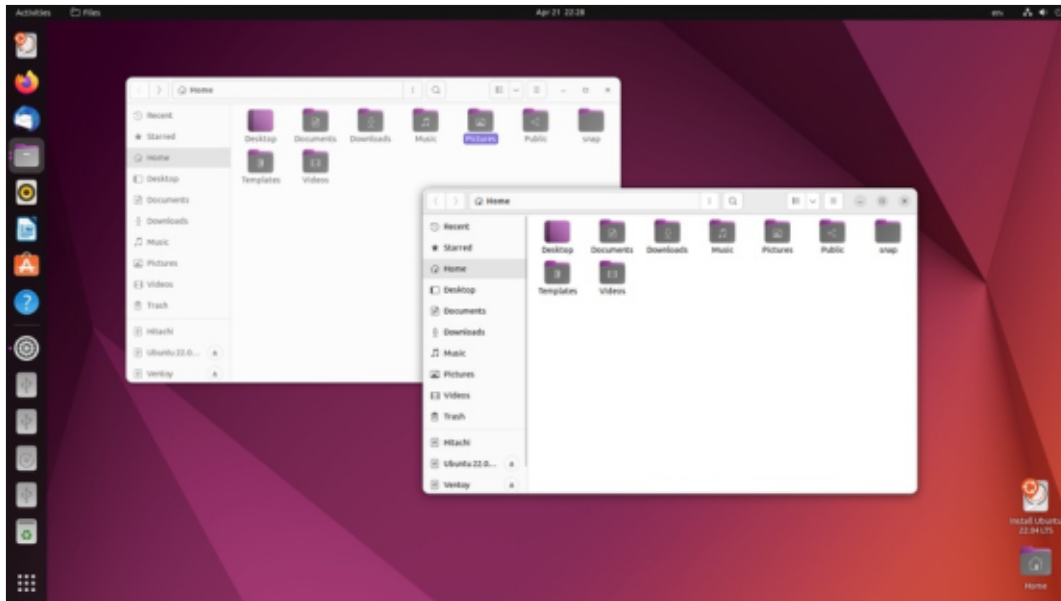
EXTERNAL LINKS

Official website:

<https://ubuntu.com/>



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





REVIEW

Written by Adam Hunt

Puppy Linux Slacko 7.0

I thought it was time to jump out of the Debian and Ubuntu world and have a look at a Linux distribution from a whole different world, Puppy Linux Slacko 7.0. While still a desktop distribution, Puppy is quite different in how it works and what it can be used for.

BACKGROUND

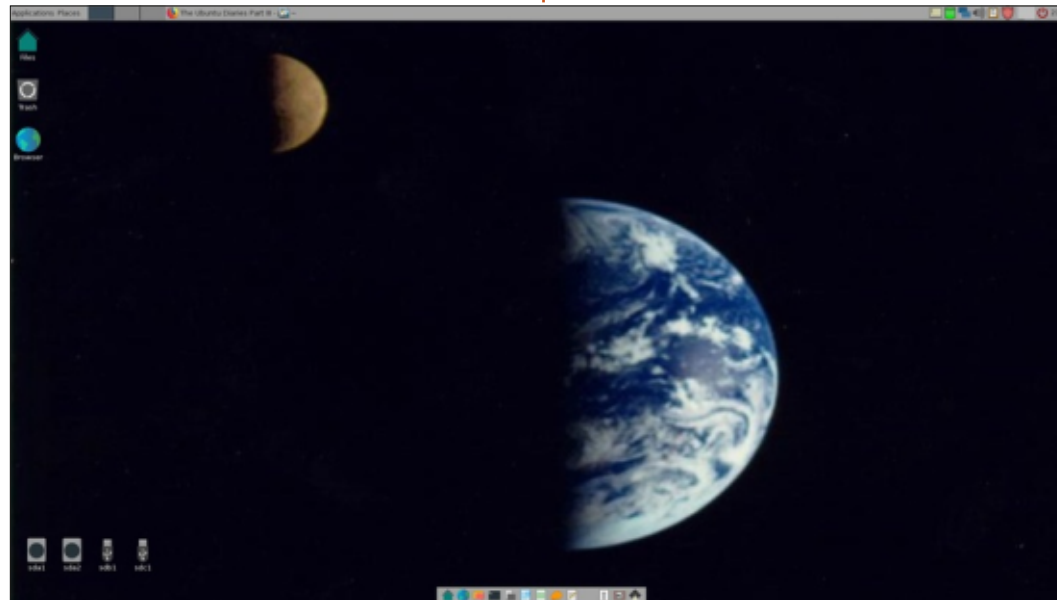
Unlike some Linux distributions that have corporate sponsorship, like Ubuntu and Red Hat, Puppy Linux is a “community based distribution”, meaning it is built by a wide group of people who do this as a hobby. It was started by American Barry Kauler, and had its first release in 2003. Kauler retired from the project in 2013, and since then it has been run by a diverse group of developers.

The project is all dog-themed and was named after a dog that Kauler once owned, named “Puppy”. The operating system even barks when you boot it up.

Unlike some community projects, such as Debian, where

each decision on how it looks, how it works, the software included, release schedule, and every other detail, is hammered out as a series of debates, votes and compromises, Puppy works very differently. Anyone can take the Puppy tools and put together a new branch or a release. In 2022, this means that there are three current releases, all offering a slightly different take and all put out by different teams or individuals. It is a bit anarchistic, but it means that no compromises are needed between developers.

Each release borrows



application binaries from other Linux distributions, which saves a lot of development time and duplication.

As of March 2022, the three current releases of Puppy available for download were:

- FossaPup64 9.5 (Puppy 9) 64-bit, which uses binaries from Ubuntu 20.04 LTS (Focal Fossa)
- BionicPup (Puppy 8) 32-bit & 64-bit, which uses binaries from Ubuntu 18.04 LTS (Bionic Beaver)
- Slacko 7.0 (Puppy 7) 32-bit & 64-bit, which uses binaries from Slackware 14.2

There is help available for users in the Puppy forums and a blog for release announcements. It is a friendly community, welcoming to new people, unlike some distribution communities.

Slacko 7.0 is the most recent of the three current releases, out on 4 January, 2021.

BOOTING IT UP

I downloaded the Slacko 7.0 ISO file from the Puppy repositories at <https://distro.ibiblio.org/puppylinux/> and completed a SHA256 check on it to make sure that the downloaded file was good.

The 64-bit download was 343 MB, while the 32-bit version was 323 MB. This is very small for a complete operating system!

I used UNetbootin to write it to a USB stick, as it conveniently leaves the stick in FAT32 format. UNetbootin specifically supports

Puppy.

While Puppy can be installed conventionally on a hard drive, it usually isn't done that way. Instead, it is normally run from external media, like a CD, DVD or USB drive. Being so small, it all loads into the computer's RAM and then the external media can be removed.

Running all in RAM means Puppy runs very fast, even on old hardware, and also that it can be used on a computer with a broken or even missing hard drive. Saving files onto external media again can be done as you go or at the end of a session. At shutdown, Puppy will also prompt for saving files, as well as settings, which will all load on a

fresh boot.

From the USB stick I did try to boot up Slacko 7.0 on my 2021 model System76 Galago Pro laptop and the boot loader wouldn't even recognize the stick for booting, although it booted fine on my nine year-old desktop computer. I suspect what I ran into was what the release announcement warned about: "some newer hardware may not work...."

USER CASE

People always ask about the user case for Puppy, in other words: what is it used for?

I have found that Puppy is useful in at least three roles, but there are probably several more that I haven't discovered yet.

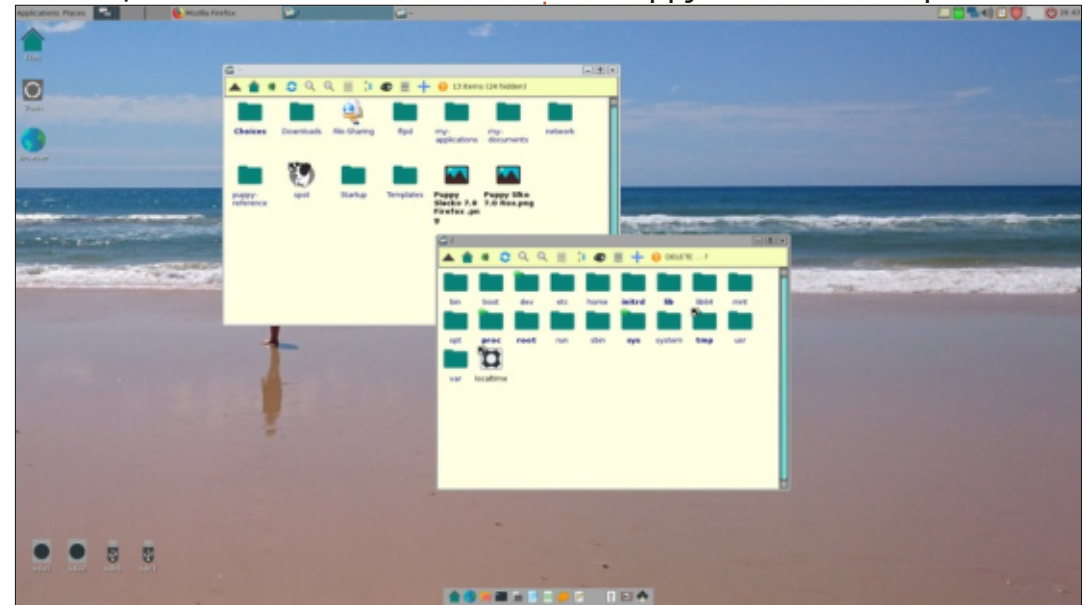
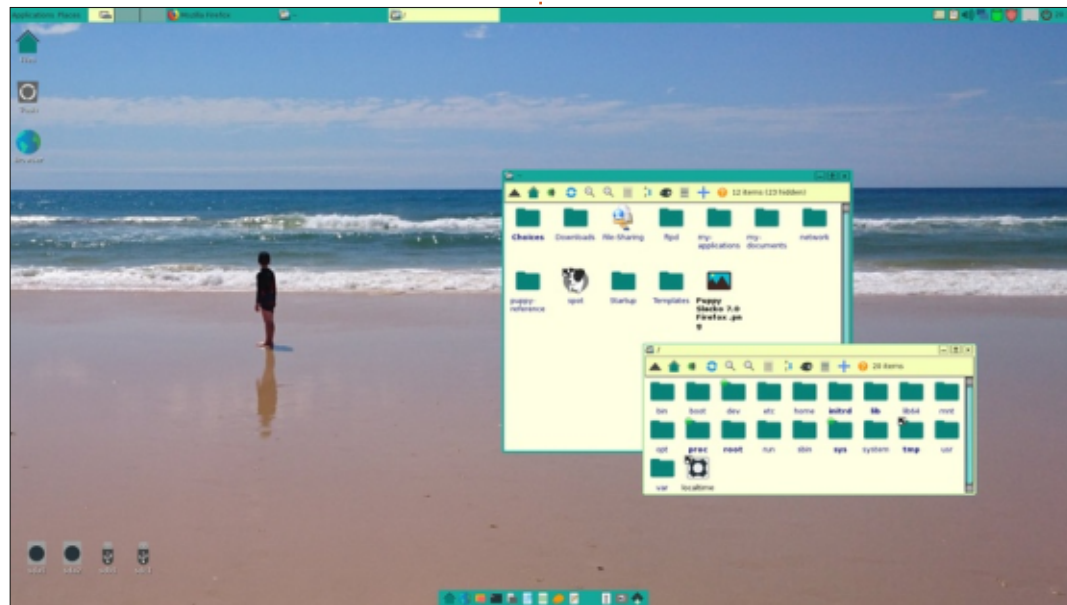
First, it is a totally viable, lightweight operating system that can be run on older computer hardware, even 32-bit. Despite the tiny download size, it comes complete with a suite of applications, and is ready to go to work from boot-up, right "out of the box", although, if needed, additional applications can be added from the repositories. That said, I am not sure anyone with a modern computer will choose Puppy over a more polished and full-featured distribution, like Ubuntu, but for limited hardware it

is hard to beat.

Second, it is great as a user-friendly, data-rescue disk. It can be booted up from a CD/DVD or USB stick, and used to save files off a broken, unbootable, operating system. It quickly identifies any drives installed right on the Puppy desktop and then you can just click though, find your files and save them to a USB stick.

The third role I have used Puppy for is testing hardware. It is quick to boot up from external media, and can be used to check that a computer's hardware is working correctly or not.

Puppy is also well-adapted for



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off-line use or use with dial-up connections, which are also supported. Updates are generally not a worry within Puppy releases as you don't get any, just whole, new releases. This Puppy version does offer a list of some individual packages that can be updated one at a time, if desired, using the Puppy Package Manager.

SYSTEM REQUIREMENTS

The listed minimum hardware for running Slacko 7.0 is:

- Recommended for 32-bit: 1 GHz processor (P4 or later model AMD K7), 512 MB of RAM, and either bootable CD access, USB boot, or network boot access. A hard drive is not required.
- Recommended for 64-bit: 1.6 GHz processor (IA64 or amd64), 1 GB RAM, and either bootable CD access, USB boot, MMC/SD card boot, or network boot access. A hard drive is not required.

Slacko does not support old P2, P3 or AMD K6 processors.

APPLICATIONS

Some of the included applications with Slacko 7.0 are:

AbiWord 3.0.1 word processor
Evince (Gnome Document Viewer) 3.18.2 PDF viewer
Geany 1.35 text editor
Firefox 68.12.Oesr Extended Support Release browser
Firewall set-up 0.8
gFTP 2.0.19 FTP client
Gnome MPlayer 1.0.9 media player
Gnumeric 1.12.28 spreadsheet
Gparted 0.26.1 partition editor
Gpicview image viewer
HexChat 2.10.2 IRC client
HomeBank 4.6.3 Accounting software
Inkscape Lite 0.36 vector graphics editor
Leafpad 0.8.18.1 text editor
LXTerminal 0.3.2
mtPaint 3.50 graphics editor
Osmo 0.2.10 personal organizer and

calendar
PBurn 4.3.19 CD/DVD/BlueRay burner
Puppy Package Manager 2.5 package management system
ROX-Filer file manager
Sylpheed 3.5.1 email client
Take A Shot 1.15 screenshot tool
Transmission 2.60 bittorrent client
XSane 0.999 scanning
XArchive Manager 0.2.8

That is a pretty impressive list for a 343 MB download, but it also includes three games, ALSA sound, and CUPS printing. While Firefox is the default browser, there is a quick installation available for Brave, Vivaldi, Opera, and Chromium, if desired.

The lightweight AbiWord word processor and Gnumeric spreadsheet may not be everyone's first choice, so LibreOffice is also available for installation.

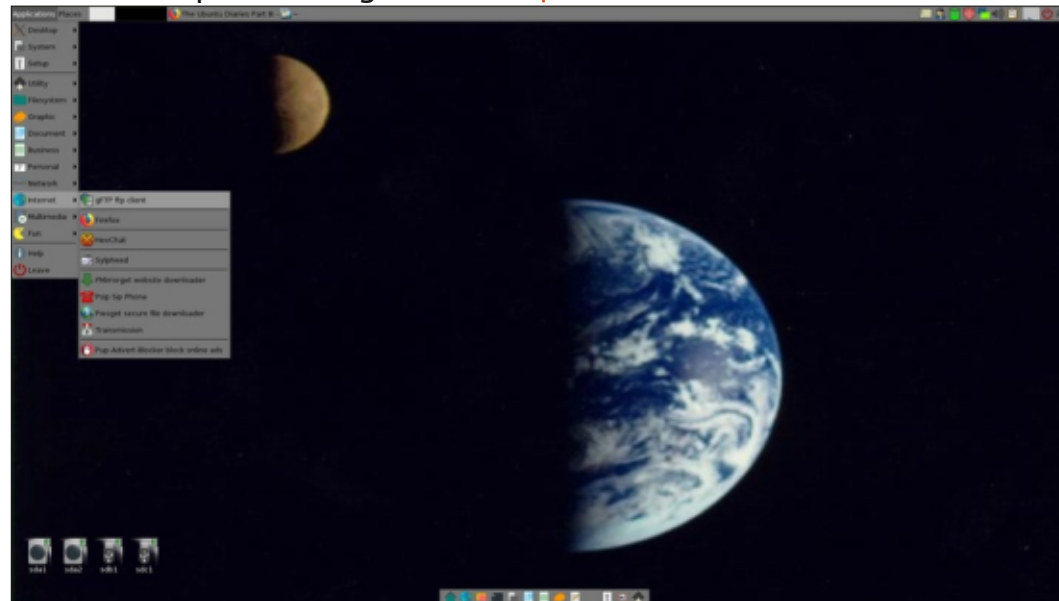
The ROX file browser is small, very fast, and light, but has its own quirks, like single-click file opening. To highlight a file you need to Ctrl-click it. Once you get used to it, it isn't bad, though.

While not as extensive as the Ubuntu repositories, the Puppy list of available .pet applications is fairly complete and has a lot of the most popular applications ready for installation.

USING SLACKO 7.0

Once booted up, Slacko 7.0 presents a very conventional-looking desktop with menus and a Mac-style launcher. People always ask, "which desktop environment does it use?" In fact, Puppy has its own desktop, and you will find components from KDE, Gnome and LXDE here, among others. It always visually reminds me of Windows 98 – simple and functional.

Older Slacko versions used a



REVIEW

single menu system launched from a Puppy icon in the bottom-left, but this version has moved the menus and the panel to the top. It has two menus at the top-left marked “Applications” and “Places”, reminiscent of the Gnome 2 desktop used in Ubuntu up until Ubuntu 10.10 (Maverick Meerkat).

Because it is all running in RAM, everything in Puppy is fast. The menus are fairly cluttered, but a look through them shows that, for such a small download, it comes with a lot of default software.

Slacko has lots of user settings, choices and color schemes, so you can make it look and work however you like. The default theme is a bit garish but it is easy to tone down from the menus. The settings are a bit scattered about, but, with some perseverance, can be found.

Compared to Bionic Puppy, which is slicker and more professional looking, Slacko does look like an operating system built in someone’s basement, but it works well and has enough customization available to smooth out the visual impression a bit.

There is no doubt that Puppy is a

quirky distribution compared to more conventional ones. For instance, the default user is “root”, although there is the option of creating a distinct user account under it, if needed. This is less of an issue than most Linux users might think, as each reboot replaces the whole operating system with a fresh copy and that gives fairly good protection against malware.

CONCLUSIONS

Slacko 7.0 is a good, solid release with no really bad points. It comes with an amazingly complete default assortment of applications, considering how small the whole operating system download is.

For use in hardware testing or for a rescue system, Puppy is hard to beat. It is also useful for breathing life into older hardware or a computer with no hard drive, rendering it useful for daily work.

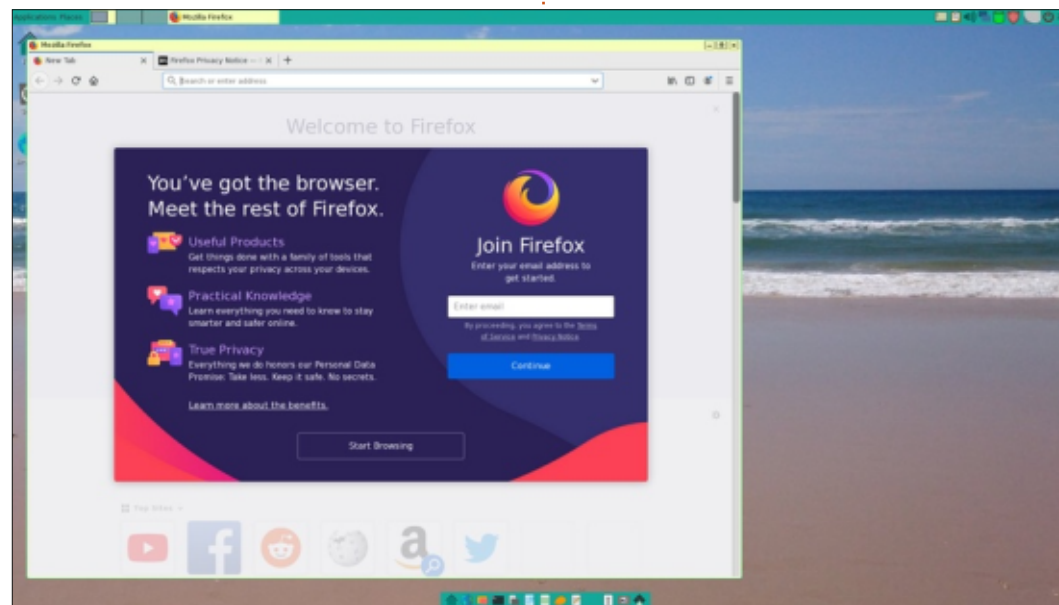
EXTERNAL LINKS:

Official website:

<https://puppylinux.com/>

Documentation:

<http://wikka.puppylinux.com/HomePage>



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



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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.

Repairing IP CCTV cameras, I fell from a wonky ladder and almost lost my life. At the time I was using a kiddie plastic chair to rest the camera on, as the cable was not easily removed and so it did not end up hanging from the cable out of the roof or lying on the floor where it could be stepped on. Now I'll be up front, I do not do heights. Even after telling my bosses, I was still required to do so. Nature has a weird way of coping in 'I'll just flop over like a possum'. My brain does the 'oh hell no' -thing

and switches off. Now instead of doing the right thing, and compensating me etc., they launched an "investigation". According to the "investigation" I stood on the kiddie chair and fell off. This is unsafe work practice and I was the guilty party, end of story. The only problem with this: I weigh over 100kg being over 6ft, squatting 275lbs etc, you get the picture. The kiddie chair would not hold 50kg safely. (I'm being generous there.) The point of impact was a second level locker catch, about 1.6m from the floor. If I were to stand on the kiddie chair, my elbow would be level with the catch, meaning I could not fall onto it, only against it. The other problem was if I were to stand on the kiddie chair, I would not be able to reach the dome camera in the corner of the room, behind all the boxes, there is just no way, maybe at a stretch if it was directly above me and I hopped up and down. (There is nowhere to move the boxes to as the storeroom is too small, and filled with too many things.) I was told to accept it to keep my job. What could I do? This

is the same with proprietary operating systems, you need to shut up and take it. This is why you and I use Linux? The only problem is, manufacturers still use proprietary firmware and drivers. (Hello Debian firmware repo!) What is to be the answer to this closed source mess? The EU had announced that all phones should have USB-C connectors, not a mish-mash of proprietary ones. Is legislation the answer? Write to us and let us know your thoughts on this one:
misc@fullcirclemagazine.org

I have a page full of links I want to copy, but somehow all the forward slashes have been replaced. I tried "inspecting" the source to grab it there, but it is a hot mess. How do do that with Ubuntu? I would use total commander in Windows. Urls are here --> <https://www.cs.cmu.edu/~TextLearning/corpusbuilder/corpora/welsh/preliminary/cache/> and I am using Lubuntu 20.04 on my Dell laptop.

I am sure the Linux dual pane file managers like Double commander could, but why don't you copy them as text and use 'sed' (Stream EDitor) to replace all the carats? I bet it would be a lot faster. If I replace all my slashes with carats, does that make it Welsh?

Hi Guys, I have 2 PC's - Dell Optiplex 3020, from our office sale. I set one up with Windows 10 20h2 and one with Ubuntu 20.04. My Libre Office is 7.0.4.2 and both have standard USB Dell keyboards. My '.' - fullstop is a ',' comma on the numpad. Windows forum talk about region settings, and keyboard settings, but mine is pain US keyboard. Windows users talk about Polish keyboard layouts with dot and comma they can choose, not that it helps me. This tells me the problem is related to my computers or keyboards. What do you suggest?

There are "Language" settings in LibreOffice. Look under "settings" or "options". You want

Q&A

the “Decimal separator key”. Tick or untick the box that says “same as locale”.

Q : I recently got an old HP laptop from my Aunt. I have decided on Ubuntu as it is the prettiest. There is just one thing I can't wrap my head around. I can access my router at 192.168.0.1 when I have a cable plugged in, but I cannot access it with wifi. The local PC guy suggested that I update my drivers, but so far I have been unsuccessful in loading any drivers for my laptop. I have no other issues with the wifi other than it being a bit weak.

A : Let me address the last part first, on the older HP laptops, HP did the skimping thing and there is only one antenna attached to the WiFi card, if you REALLY want to you can attach another. As for the main issue, it is not Ubuntu's fault, there are usually security settings within the router, that you can set, that prevent someone on WiFi from accessing the software.

Q : It has been a while since I have used Linux and I keep coming back to Ubuntu. I now have the

jellyfish and I wanted to ssh into all my Raspberry PI's. I went looking for PAC manager to find it had sadly died. Before you say anything, I don't want to muck with w.i.n.e. Is there some way I can have this on Ubuntu? <https://www.royalapps.com/ts/mac/features> and also not proprietary if it can be helped.

A : I see your card and raise you this one: <https://www.asbrum.net/>

Q : How can I find out which executables need sudo and which ones don't and is it possible to group them?

A : I am not sure I understand your question, but it is not the executables themselves, rather the permissions you set. You* set a file to be executable or not as well as the owner and group the file is in. You can group any files you like and edit their permissions to make them require sudo or not, eg 777.

Q : I have a clean Ubuntu 20.04 install on my Lenovo laptop. I am unable to turn on the Bluetooth. It remains greyed out. I have tried everything I could find on the web, but it stays off.

A : There are a few possibilities; 1. It is turned off in the BIOS, 2. It is turned off with a hardware switch, 3. It was turned off in Windows before you installed Ubuntu. (yes, 3 is not a joke, I have seen it happen) 4. It is an unsupported chipset.

Q : I have a serial port card that we tested with and Ubuntu motherboard. I don't have UFW running or any firewall set up. I know it works, I just can't get it working in Ubuntu 20.04 on the PC. Here is the output and dmesg;
<image removed>
<image removed>
<image removed>

A : This reads funny, but I may have an idea what you mean. The short answer is that you are not using Ubuntu, you are using ubuntu flavoured WSL, which has windows drivers and shenanigans in between the OS and the card too, that need to be considered.

Q : Hi, is there some way one can restrict student to certain machines at certain times only? My reasoning for this is we have a very limited budget when it comes to our IT and the school is in a rural area, so parental support is not a thing. We have 12 machines that I want to schedule, so that everyone gets a fair turn at a machine. All the machines run the latest version of Emmabuntüs and are locked down via the BIOS to prevent the students from changing anything. The caveat is that the solution has to be free.

A : I have no experience in this field and though I have set up school labs before, the control software has always been proprietary. May I suggest Parental control software? Maybe this: <https://techviewleo.com/setup-ctparental-parental-control-software-on-ubuntu/> or this: <https://ubuntuhandbook.org/index.php/2021/11/time-limits-for-kids-ubuntu/>

Q : I try to use shared drive on Windows to copy files, no

domain only workgroup. I follow the tutorial, it says: I run the following command:
 root@minecraftsvr:/# sudo mount.cifs //192.168.1.101/minecraft /mnt/share user=vijay, -o version=1.0 then I only get error here CIFS: Unknown mount option "version=1.0" but I double checked - Windows server has SMB 1.0/CIFS for sure.

A : What happens when you leave off the version part?

Q : I have been hesitant to install a "certificate" to use our city's free wifi, what are the implications of this for me? Will it make a difference if I am using my Ubuntu partition of my Windows partition? My brother in law said I should not, but my wife is pressing me to do so ASAP. She has installed it on her tablet already without talking to me first. I have like only a basic idea of what it is, but I need to explain it to the wife, because she says we have nothing to hide.

A : It is a very in-depth topic, too much for a QnA. The operating system will not make a difference as you are compromising the basic chain of trust. I would not, it would

mean that you cannot do ANYTHING private on that computer on the internet again, EVER, like banking. I would explain to her, it's like giving the mailman, the postman, the creepy neighbour all keys to your house and they come in and sniff her underwear whenever they like. (you can go nuclear and say they will come watch her on the loo or something)

Q : I spent a lot of time gathering scripts over the last few years and finally set down to make one for my new Ubuntu 22.04 install. It turned out to be a disaster, as most of it failed, and with errors I have not come across before, using those scripts (singularly). I feel like a total newb, and maybe I am, but it just can't be this difficult? <removed> <removed> See? "Unit service\x0d.service could not be found." What worked as a one liner, won't work as a team. Why is it like this?

A : It all comes down to the editing: <https://serverfault.com/questions/1094756/run-commands-that-run-in-a-shell-as-a-script>

This is precisely why I like things like Cudatext and lite-XL that work

cross platform. Stay away from windows editors for things you will use on Linux, even WSL.

Q : I was trying out: https://linuxhint.com/install_configure_docker_ubuntu/ and I get the following errors; 'The following packages have unmet dependencies.

docker-desktop : PreDepends: init-system-helpers (>= 1.54~) but 1.51 is to be installed ' and 'E: Unable to correct problems, you have held broken packages.' Can this not go smoother? <https://snapcraft.io/docker> is available, but only for the home folder of the user.

A : Rather use:

```
sudo apt install docker.io
```

I got that advice the first time I installed docker and it simplified things hundred-fold.

Q : I have installed a fresh [22.04]. Only issue I have is that my shut down is actually a restart and I can't figure out a way to shut down my system. People have suggested I use the shutdown command from the command line, but it behaves the same way. Can you help?

A : Remove all external devices and if you have a CD/ DVD ROM, disconnect it. 9/10 it is a device causing it. (including keyboards and mice) Once it actually shuts down, it will do so from then onwards, regardless of the device. I don't know why. I just know it is. I know it becomes more difficult on things like laptops, but make sure SD cards, PCMCIA cards even batteries are removed and try again. Once it shuts down, keep adding the hardware until the culprit is found should the problem persist.



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



Website: <http://darksidedetective.com/>

Price: \$12.99 USD at time of writing

Blurb: *"Cursed enough that it's a nuisance. Cursed enough that somebody has to deal with it? That's where The Darkside Detective comes in. Whenever you hear a bump in the night, feel a tingle up your spine, or smell something fishy, Detective Francis McQueen isn't far behind. No, he doesn't smell of fish - it's a phrase, come on... Picking up after the events of The Darkside Detective, McQueen has to save his usually-present (in body, if not mind) sidekick Officer Dooley from the Darkside, so the two can get back to what they do best - investigating the city's many strange, often paranormal, always paradoxical goings-on. Join them in this frighteningly funny point-and-click adventure as they investigate six more standalone cases bringing them to a carnival, the local retirement home, an amateur wrestling circuit, and even as far away as Ireland, as they do what they can to keep the Darkside at bay."*

The Darkside Detective: A Fumble in the Dark is a sequel to the 2017 game Darkside Detective, a retro-styled (read ugly low-res pixelated) humorous game. The only thing that has changed, is that the puzzles have become a bit harder.

End of review. If it were that easy! However, for me, that was one of the things that made the first game better, the pace at which the game progressed, unlike other point-and-click games. The pace of the game fits better with the light-

hearted mood it tried to portray on a sometimes serious subject. This one is a more traditional "Monkey Island with all the puzzles" type game. Yep, it took me a while to finish it, unlike the first game that was done in five hours. There is more emphasis on the strangeness of the Irish, Castle Dooley included. Here, I thought it was the Scots who were strange.

Prepare to get stuck often. Though I love using my noggin and the odd obscure puzzle, you still want the game to be fun. The other plus is that the game has a lot of

story. I like games with story, but I can swear it has fewer cases than the first (I cannot remember). However, I would like to point out that you do not need to have played the previous game to enjoy this one, but you may miss some of the references during the game. I would also say that you don't have to sit down and consume it all in one go, you can do what I did and play 20 minutes a day, sometimes with days in-between. The game is about twice as long as the previous one and even longer if you don't cheat.

I recall paying monkey island 1 silent, reading all the dialogue, while my stiffy drive crunched away. When the second one came along, and was a talkie, my mind was blown. The Darkside Detective: A Fumble in the Dark, being a sequel, is still not a talkie. Though the writing is good, top-notch even (I can guarantee that you will be smiling at your monitor at some point in the game), it could have benefited from some cool voice acting.



My only criticism would be that it breaks the fourth wall a little too often. Yes, I know the game doesn't take itself too seriously, but some things get old quickly. You know, like kicking the wall in Full Throttle, to find the secret entrance...

Let me circle back to the retro-styled graphics. For me, it did not do it. You see, these types of graphics work well on a CRT monitor, not so much on LCD. To achieve the same feel, you need to at least double the graphics quality. By that I mean, if this is considered 8-bit it needs to be 16-bit, or if it is 16-bit it needs to be 32-bit, and so forth. It feels lacking, and sometimes lacklustre. Don't get me wrong, I love pixel art, but when I

see this, I understand why some people hate it. An example would be coming up to castle Dooley in a storm, it looks like something I did when I was 6... In M\$ paint... With bucket fill. The basic shape is there, but the colouring is monotone and though it is grey, it doesn't pretend to be stone or come alive. The couple of dark grey marks speaks of "couldn't be bothered" or maybe "damn deadline was yesterday".

The music is atmospheric and does give off a silly spooky vibe: <https://akuparagames.bandcamp.com/album/the-darkside-detective-a-fumble-in-the-dark-original-game-soundtrack> - please give it a listen

before you go buying the OST (hint – I wouldn't). It is the type that sets the mood without being in your face. It does not speak to me, and feels about as faceless as the characters. That is another thing, some characters HAVE faces, so I am not sure why the inconsistency. For one, just a simple nose would have broken the flat faces, or should I say non-faces? Things like goblins have eyes, but the main characters do not... The freakiest thing in the whole game is the faceless clowns. If you have a 'clown phobia' (coulrophobia for the non-plebs), I suggest giving this game a wide berth.

Honestly, I would not spend the \$25 USD (local worth of the game)

on it. I say wait for 70% discount or buy it in a bundle. The only way I would consider it would be with higher resolution graphics and voice acting.

Why would I choose this game over so many others on steam? The short answer is, I would not. If you enjoyed the first one, wait for the sale to purchase this one.



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.





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

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

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