



# Full Circle

THE INDEPENDENT MAGAZINE FOR THE UBUNTU LINUX COMMUNITY

ISSUE #179 - March 2022



Photo: Sarah Ross (Flickr.com)



## HIBERNATING YOUR CAT LAPTOP

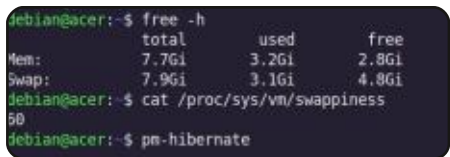
# HowTo



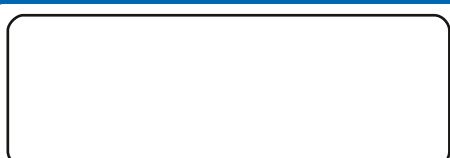
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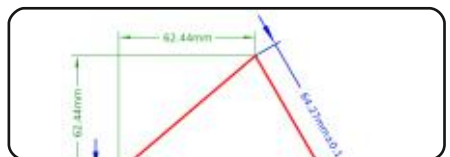
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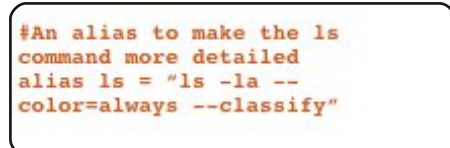
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# Graphics



# Full Circle

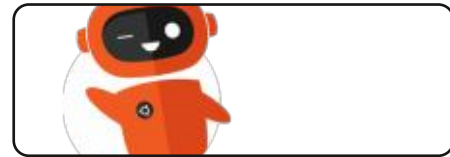
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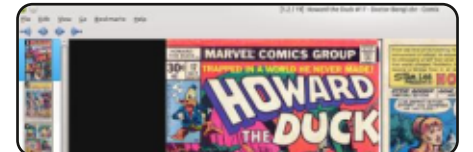
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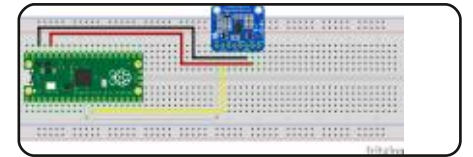
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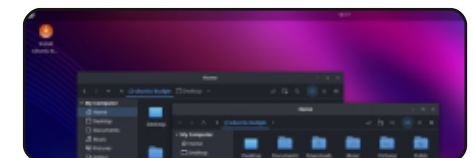
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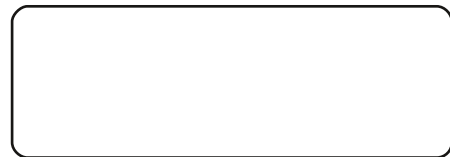
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## WELCOME TO THE LATEST ISSUE OF FULL CIRCLE

As ever, we have Python, Inkscape, Micro and Blender articles. No history of the GUI this month, but hopefully it'll be back next month. We do have an article about hibernating though. No, not you. It's about making your laptop hibernate. Although, I do fancy a command that would put me into hibernation every now and then.

Soon brings the release of the 22.04 \*buntu's. Adam is already limbering up to begin reviewing them. Not only that, but he's got some other surprise reviews to bring you. Oh the mystery and intrigue!

I want to thank those who continue to send in the odd article for publication. I absolutely appreciate it. You really are helping keep FCM alive. But I still want more. So, let's keep it going. It can be ANYTHING as long as it has something to do with Linux; hardware/software reviews, a how-to on something, even your story of how you found Ubuntu/Linux (of any flavor). Send whatever to: [ronnie@fullcirclemagazine.org](mailto:ronnie@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, stay safe!**

*Ronnie*

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## GNUNET P2P PLATFORM RELEASE 0.16.0:

26.02.2022

The release of the GNUnet 0.16 framework, designed for building secure decentralized P2P networks, has been introduced. Networks created using GNUnet do not have a single point of failure and are able to guarantee the inviolability of users' private information, including eliminating possible abuse by intelligence agencies and administrators who have access to network nodes.

GNUnet supports the creation of P2P networks over TCP, UDP, HTTP/HTTPS, Bluetooth and WLAN, and can work in F2F (Friend-to-friend) mode. NAT traversal is supported, including using UPnP and ICMP. A distributed hash table (DHT) can be used to address data placement. Tools are provided for deploying mesh networks. To selectively grant and revoke access rights, the reclaimID decentralized identity attribute exchange service

uses GNS (GNU Name System) and attribute-based encryption (Attribute-Based Encryption).

The system features low resource consumption and uses a multi-process architecture to provide isolation between components. Flexible tools are provided for logging and collecting statistics. To develop end applications, GNUnet provides an API for the C language and bindings for other programming languages. To simplify development, they propose using event loops and processes instead of threads. It includes a test library for automatically deploying experimental networks covering tens of thousands of peers.

<https://www.gnunet.org/en/news/2022-02-0.16.0.html>

## RELEASE OF SQLITE 3.38 AND SQLITE-UTILS 3.24:

27.02.2022

SQLite 3.38, a lightweight DBMS designed as a plug-in library, has been published. The SQLite code is distributed in the public domain, i.e. can be used without restrictions and free of charge for any purpose. Financial support for SQLite developers is provided by a specially created consortium, which includes companies such as Adobe, Oracle, Mozilla, Bentley and Bloomberg.

<http://sqlite.org/>

## RELEASE OF MPLAYER 1.5 MEDIA PLAYER:

28.02.2022

Three years after the last release, the MPlayer 1.5 multimedia player is out. It provides compatibility with the latest version of the FFmpeg 5.0 multimedia package. The project code is distributed under the GPLv2+ license. Changes in the new version come down to integrating the improvements added over the past three years to FFmpeg (the

codebase is in sync with the FFmpeg master branch). A copy of the new FFmpeg is included in the base distribution of MPlayer, eliminating the need to install dependencies when building.

<http://mplayerhq.hu/design7/news.html>

## COREBOOT 4.16 RELEASED:

28.02.2022

CoreBoot 4.16 project has been published, a free alternative to proprietary firmware and BIOS. The project code is distributed under the GPLv2 license. 170 developers took part in the creation of the new version, who prepared 1770 changes.

<https://blogs.coreboot.org/blog/2022/02/26/announcing-coreboot-4-16/>

## CANONICAL AND VODAFONE DEVELOP CLOUD SMARTPHONE TECHNOLOGY USING ANBOX CLOUD: 28.02.2022

Canonical has unveiled a project to create a cloud-based smartphone, developed jointly with the mobile operator Vodafone. The project is based on the use of the Anbox Cloud cloud service, which allows you to run applications and play games created for the Android platform without being tied to a specific system. Applications run in isolated containers on external servers using the open Anbox environment. The result of the execution is streamed to the client's system. Events from input devices, as well as information from the camera, GPS, and various sensors are transmitted to the server with minimal delays.

In this case, a cloud smartphone does not mean a specific device, but any user devices on which you can recreate a mobile environment at any time. Because the Android platform runs on an external server that also does all the computing,

the user's device needs only basic support for video decoding.

For example, smart TVs, computers, wearable devices and portable equipment that can play videos, but whose performance and resources are not enough to perform a full-fledged Android environment, can be turned into a cloud smartphone. The first working prototype of the developed concept is planned to be demonstrated at the MWC 2022 exhibition, which will be held from February 28 to March 3 in Barcelona.

It is noted that with the help of the proposed technology, enterprises will be able to reduce their costs of corporate mobile applications by reducing the cost of maintaining infrastructure and increasing flexibility through the organization of launching applications as needed (on-demand), as well as increasing privacy due to the fact that data after working with corporate programs does not remain on the employee's device. Telecom operators can create virtualized services based on the platform for customers of their 4G, LTE and 5G networks. The project can also be

used to create game services that make available games that have high demands on the graphics subsystem and memory.

<https://ubuntu.com/blog/vodafone-cloud-smartphone-based-on-anbox-cloud>

## ALMALINUX DISTRIBUTION OPTION AVAILABLE FOR POWERPC ARCHITECTURE: 28.02.2022

The AlmaLinux 8.5 distribution, previously released for x86\_64 and ARM/AArch64 systems, supports the PowerPC (ppc64l) architecture. Three versions of iso images are available for download: bootable (770 MB), minimal (1.8 GB) and full (9 GB).

The distribution is fully binary compatible with Red Hat Enterprise Linux 8.5 and can be used as a transparent replacement for CentOS 8. The changes come down to rebranding, removing RHEL-specific packages such as `redhat-*`, `insights-client` and `subscription-manager-migration*`, creating a repository "devel" with additional packages and build dependencies.

AlmaLinux distribution was founded by CloudLinux in response to the premature phasing out of support for CentOS 8 by Red Hat (it was decided to stop releasing updates for CentOS 8 at the end of 2021, and not in 2029, as users expected). The project is overseen by a separate non-profit organization, the AlmaLinux OS Foundation, which was created to develop in a neutral, community-driven environment using a governance model similar to the Fedora Project. The distribution kit is free for all categories of users. All developments of AlmaLinux are published under free licenses.

In addition to AlmaLinux, VzLinux (prepared by Virtuozzo), Rocky Linux (developed by the community under the guidance of the founder of CentOS with the support of a specially created company Ctrl IQ), Oracle Linux and SUSE Liberty Linux are also positioned as alternatives to the classic CentOS 8. In addition, Red Hat has made RHEL available free of charge to open source organizations and individual developer environments with up to 16 virtual or physical systems.

<https://repo.almalinux.org/>

[almalinux/8.5/isos/ppc64le/](https://almalinux/8.5/isos/ppc64le/)

## ARMBIAN RELEASE 22.02:

01.03.2022

Armbian 22.02 was released, providing a compact system environment for various ARM-based single board computers, including various models of Raspberry Pi, Odroid, Orange Pi, Banana Pi, Helios64, pine64, Nanopi and Cubieboard based on Allwinner, Amlogic, Actionsemi processors, Freescale / NXP, Marvell Armada, Rockchip and Samsung Exynos.

The Debian and Ubuntu package bases are used to form the builds, but the environment is completely rebuilt using its own build system with the inclusion of optimizations to reduce the size, increase performance and apply additional protection mechanisms. For

example, the /var/log partition is mounted using zram and stored in RAM in compressed form, flushed to the drive once a day or at shutdown. The /tmp partition is mounted using tmpfs. The project supports more than 30 Linux kernel builds for various ARM and ARM64 platforms.

<https://www.armbian.com/newsflash/armbian-22-02-pig-release-announcement/>

## RELEASE OF HYPERBOLA 0.4:

03/01/2022

Two and a half years since the last release, the Hyperbola GNU/Linux-libre 0.4 project has been released, which is included in the Free Software Foundation's list of completely free distributions.

Hyperbola is based on stabilized slices of the Arch Linux package base, with some patches ported from Debian to improve stability and security. Hyperbola builds are generated for the i686 and x86\_64 architectures (1.1 GB).

The project is developed in accordance with the principle of KISS (Keep It Simple Stupid) and is aimed at providing users with a simple, lightweight, stable and secure environment. Unlike the Arch Linux rolling update model, Hyperbola uses a classic release model with a long update release cycle for already released versions. Sysvinit is used as an initialization system with porting of some of the Devuan and Parabola projects parts (Hyperbola developers are opponents of systemd).

The distribution includes only

free applications and comes with a Linux-Libre kernel stripped of non-free binary firmware elements. The project repository contains 5257 packages. To block the installation of non-free packages, blacklisting and blocking at dependency conflict level is used. Installing packages from the AUR is not supported.

The release of Hyperbola 0.4 is positioned as a transition on the path to the previously announced migration to OpenBSD technologies. In the future, the focus will be on the HyperbolaBSD project, which provides for the creation of a distribution supplied under a copyleft license, but based on an alternative kernel and system environment forked from OpenBSD. Under the GPLv3 and LGPLv3 licenses, the HyperbolaBSD project will develop its own components aimed at replacing non-free or GPL-incompatible parts of the system.

<https://www.hyperbola.info/>



# DistroWatch.com

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## LINUX FROM SCRATCH 11.1 AND BEYOND LINUX FROM SCRATCH 11.1 PUBLISHED:

02.03.2022

New editions of the Linux From Scratch 11.1 (LFS) and Beyond Linux From Scratch 11.1 (BLFS) manuals, as well as the LFS and BLFS editions with the systemd system manager, have been introduced. Linux From Scratch provides instructions for building a basic Linux system from scratch using only the source code for the required software. Beyond Linux From Scratch supplements the LFS instructions with information on building and configuring about 1000 software packages, covering applications ranging from databases and server systems to graphical shells and media players.

Linux From Scratch 11.1 switched to glibc 2.35, Linux kernel 5.16.9, binutils 2.38, Automake 1.16.5, Bash 5.1.16, Coreutils 9.0, Openssl 3.0.1, Python 3.10.2, SysVinit 3.01, Systemd 250, Util-Linux 2.37.4. Errors in boot scripts have been fixed, editorial work has been done in explanatory materials throughout the book.

About 800 programs have been updated in Beyond Linux From Scratch 11.1, including GNOME 41, KDE Plasma 5.24, KDE Gears 21.12, LibreOffice 7.3, Fmpeg 4.4.1, GIMP 2.10.30, Inkscape 1.1.2, Thunderbird 91.6.1, Firefox 91.6.0, SeaMonkey 2.53.10, IceWM 2.9.5, Mesa 21.3.6, GTK 4.6.1, MariaDB 10.6.7, PostgreSQL 14.2, Postfix 3.7.0, BIND 9.18 etc.

<https://www.linuxfromscratch.org/lfs/view/11.1/>

<https://www.linuxfromscratch.org/blfs/view/11.1>

## SEAMONKEY 2.53.11 SUITE RELEASED:

03/02/2022

The SeaMonkey 2.53.11 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 scheduler 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).

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

## FIRST BETA RELEASE OF ARTI, A RUST

### IMPLEMENTATION OF TOR:

03/02/2022

The developers of the Tor anonymous network have released the first beta release (0.1.0) of the Arti project, a Tor client written in Rust. The project has the status of experimental development, lags behind the functionality of the main Tor client in C language and is not yet ready to fully replace it. A 1.0 release is planned for September with API, CLI and settings stabilization, which will be suitable for initial use by regular users. In the more distant future, when the Rust code reaches a level capable of completely replacing the C version, the developers intend to make Arti the

main implementation of Tor and stop maintaining the C implementation.

The reasons for rewriting Tor in Rust are the desire to achieve a higher level of code security through the use of a memory-safe language. According to the Tor developers, at least half of all vulnerabilities tracked by the project will be eliminated in the Rust implementation if the code does not use "unsafe" blocks. Rust will also allow you to achieve faster development speed than using C, due to the expressiveness of the language and strong guarantees that allow you not to waste time on double checks and writing unnecessary code.

Of the changes in release 0.1.0, there is a basic stabilization of high-level APIs and bringing the library to readiness for experimental integration with other projects. Of the changes, the addition of an API for creating TorClient instances is mentioned, including the ability to build and initialize (bootstrap) in the background on first use. Also, a new high-level API for error handling has been added.

Prior to the publication of



release 1.0.0, the developers intend to provide Arti with full support for working as a Tor client providing access to the Internet (implementation of support for onion services has been postponed for the future). Including it is planned to achieve parity with the main implementation in the C language in areas such as network performance, CPU load and reliability, as well as to ensure support for all security-related features.

[https://blog.torproject.org/arti\\_010\\_released/](https://blog.torproject.org/arti_010_released/)

## RELEASE OF LAKKA 3.7:

The release of Lakka 3.7 has been published, which allows you to turn computers, set-top boxes or single-board computers into a full-fledged game console for running retro games. The project is a modification of the LibreELEC distribution, originally designed to create home theaters. Lakka builds are generated for i386, x86\_64 (Intel, NVIDIA or AMD GPUs), Raspberry Pi 1-4, Orange Pi, Cubieboard, Cubieboard2, Cubietruck, Banana Pi,

Hummingboard, Cubox-i, Odroid C1/C1+/XU3/XU4 and etc. To install, just write the distribution to an SD card or USB drive, connect a gamepad and boot the system.

Lakka is based on the RetroArch game console emulator, which emulates a wide range of devices and supports advanced features such as multiplayer games, state saving, image quality enhancement of older games with shaders, game rewind, hot plugging of gamepads, and video streaming. Emulated consoles include: Atari 2600/7800/Jaguar/Lynx, Game Boy, Mega Drive, NES, Nintendo 64/DS, PCEngine, PSP, Sega 32X/CD, SuperNES, etc. Gamepads from existing game consoles are supported, including Playstation 3, Dualshock 3, 8bitdo, Nintendo Switch, Xbox 1 and Xbox360.

<https://www.lakka.tv/articles/2022/03/01/lakka-3.7/>

## ORACLE UNVEILS SOLARIS 11.4 CBE, FREE USE EDITION:

04.03.2022

Oracle has unveiled Solaris 11.4 CBE (Common Build Environment), a new free variant of the Solaris 11.4 operating system aimed at open source and personal use by developers. Unlike the previously offered major builds of Solaris 11.4, the license allows free use for testing, development and use in personal projects, the new edition is distinguished by the use of a continuous model for publishing new versions and is close to the Solaris 11.4 SRU (Support Repository Update) edition.

The use of CBE will make it easier for those who wish to use Solaris, to use, free of charge to get up-to-date software and updates. In fact, CBE builds can be considered beta builds and are similar to Solaris 11.4 SRU pre-test builds, including newer software versions and cumulative bug fixes available at the time of the release (the CBE build does not include all the fixes offered in a similar SRU build release, because it is being built earlier, but unreleased fixes are cumulative and offered in the next release).

To use CBE, they suggest to install a regular build of Oracle Solaris 11.4.0, connect the

[pkg.oracle.com/solaris/release](https://pkg.oracle.com/solaris/release) repository to IPS and update it to the CBE version by running the "pkg update" command. Separate iso images are not yet available, but they are promised to be published on the main Solaris download page. Like SRU releases, new CBE builds are expected to be published monthly. The Solaris public components code is available in a GitHub repository, and individual packages can be downloaded from [pkg.oracle.com](https://pkg.oracle.com).

<https://blogs.oracle.com/solaris/post/announcing-the-first-oracle-solaris-114-cbe>

## FIRST RELEASE OF SDL12-COMPAT, THE SDL 1.2 COMPATIBILITY LAYER RUNNING THROUGH SDL 2:

04.03.2022

The first release of the sdl12-compat compatibility layer has been published, providing an API compatible with SDL 1.2 binary and source but running on top of SDL 2. The project can act as a complete replacement for SDL 1.2 and is suitable for running legacy



programs written for SDL 1.2 using modern features of the current SDL 2 branch. Including, sdl12-compat allows you to run applications with a non-native screen resolution without changing the actual screen resolution in the system and using OpenGL for rendering.

<https://github.com/libSDL-org/sdl12-compat/releases>

## CHROME OS 99 RELEASED:

03/05/2022

Chrome OS 99 is available, based on the Linux kernel, the upstart system manager, the ebuild / portage build toolkit, open components and the Chrome 99 web browser. The user environment of Chrome OS is limited to a web browser, and instead of standard programs, web applications are involved, however, Chrome OS includes a full multi-window interface, desktop and taskbar. The Chrome OS 99 build is available for most current Chromebook models. The source is distributed under the Apache 2.0 free license. In addition, testing of Chrome OS Flex continues, editions of Chrome OS for use on regular

computers. Enthusiasts also made unofficial builds for regular computers with x86, x86\_64 and ARM processors.

<https://chromereleases.googleblog.com/2022/03/stable-channel-update-for-chrome-os.html>

## BUDGIE 10.6 DESKTOP:

07.03.2022

Budgie 10.6 desktop is out, which was the first release since the decision to develop the project independently of the Solus distribution. The project is now curated by the independent organization Buddies Of Budgie. Budgie 10.6 continues to be based on GNOME technologies and its own implementation of the GNOME Shell, but the Budgie 11 branch is scheduled to migrate to the Enlightenment Foundation Library (EFL) set of libraries developed by the Enlightenment project. The project code is distributed under the GPLv2 license. You can use distributions like Ubuntu Budgie, Solus, GeckoLinux and EndeavourOS to get familiar with Budgie.

Budgie uses the Budgie Window Manager (BWM) to manage windows, which is an extension of the core Mutter plugin. Budgie is based on a panel that is similar to the classic desktop panels. All panel elements are applets, which allows you to flexibly customize the composition, change the layout and replace the implementations of the main panel elements to your liking. Available applets include the classic application menu, task switcher, open windows list area, virtual desktop view, power management indicator, volume control applet, system status indicator, and clock.

<https://github.com/solus-project/budgie-desktop>

## FIRST RELEASE OF LWQT, A WAYLAND-BASED VARIANT OF THE LXQT WRAPPER:

07.03.2022

Introducing the first release of LWQt, a variant of the LXQt 1.0 custom shell, converted to use the Wayland protocol instead of X11. Like LXQt, the LWQt project is presented as a lightweight,

modular, and fast user environment that adheres to the methods of classic desktop organization. The project code is written in C++ using the Qt framework and distributed under the LGPL 2.1 license.

[https://www.reddit.com/r/linux/comments/t8askl/lwqt\\_10013\\_released/](https://www.reddit.com/r/linux/comments/t8askl/lwqt_10013_released/)

## FEDORA LINUX 37 INTENDS TO STOP BUILDING OPTIONAL PACKAGES FOR THE I686

### ARCHITECTURE:

03/08/2022

Planned for implementation in Fedora Linux 37, is a mandate recommending that maintainers stop compiling packages for the i686 architecture if the need for such packages is questionable or would result in a noticeable waste of time or resources. The recommendation does not apply to packages used as dependencies in other packages or used in the "multilib" context to make 32-bit programs run in 64-bit environments.

The change has not yet been

reviewed by the FESCo (Fedora Engineering Steering Committee), which is responsible for the technical part of the development of the Fedora distribution. Recall that the formation of the main repositories and kernel packages for the i686 architecture in Fedora was discontinued back in 2019, leaving only multilib repositories for x86\_64 environments, which are actively used in Wine and Steam to run 32-bit builds of Windows games.

<https://lists.fedoraproject.org/archives/list/devel@lists.fedoraproject.org/thread/FPWU6UGCYO5YHLLWCFKWWYYGJZYKUR2A/>

## XINE 1.2.12 RELEASED:

10.03.2022

The release of xine-lib 1.2.12, a multi-platform library for playing video and audio files, as well as a set of related plugins, is out. The library can be used in a number of video players, including xine-ui, gxine and kaffeine.

Xine supports multi-threaded

operation, supports a large number of popular and little-known formats and codecs, and can process both local content and multimedia streams transmitted over the network. The modular architecture makes it easy to add functionality through plugins. There are 5 main classes of plugins: input plugins for receiving data (FS, DVD, CD, HTTP, etc.), output plugins (XVideo, OpenGL, SDL, Framebuffer, ASCII, OSS, ALSA, etc.), plugins for unpacking media containers (demuxers), plug-ins for decoding video and audio data, plug-ins for applying effects (echo cancellation, equalizer, etc.).

<https://sourceforge.net/projects/xine/files/xine-lib/1.2.12/README.txt/view>

## LIBREELEC 10.0.2

### RELEASED:

10.03.2022

LibreELEC 10.0.2 project, a fork of the OpenELEC home theater distribution, has been released. The user interface is based on the Kodi media center. Images have been prepared for download to work from a USB drive or SD card

(32- and 64-bit x86, Raspberry Pi 4, various devices based on Rockchip and Amlogic chips).

With LibreELEC, you can turn any computer into a media center that is as easy to use as a DVD player or set-top box. The main principle of the distribution is "everything just works", to get a completely ready-to-use environment, you just need to download LibreELEC from a flash drive. The user does not need to take care of keeping the system up to date - the distribution kit uses a system for automatically downloading and installing updates, activated when connected to the internet. It is possible to expand the functionality of the distribution through a system of add-ons that are installed from a separate repository maintained by the project developers.

The distribution does not use the package base of other distributions and is based on its own code. In addition to the regular features of Kodi, the distribution provides a number of additional features aimed at making your work as easy as possible. For example, a special configuration add-on is being developed that allows you to configure network

connection settings, manage LCD screen settings, and enable or disable automatic installation of updates. It also provides features such as the use of a remote control (it is possible to control both via infrared and via Bluetooth), file sharing (built-in Samba server), built-in Transmission BitTorrent client, automatic search and connection of local and external drives.

<https://libreelec.tv/2022/03/09/libreelec-matrix-10-0-2/>

## ZORIN OS 16.1 RELEASED:

11.03.2022

Zorin OS 16.1 is out, based on the Ubuntu 20.04. The target audience of the distribution is novice users who are accustomed to working in Windows. To control the appearance, the distribution offers a special configurator that allows you to give the desktop a look characteristic of various versions of Windows and macOS, and a selection of programs is included that are close to the programs that Windows users are used to. The Zorin Connect app (powered by KDE Connect) is

included for desktop integration with a smartphone. In addition to the Ubuntu repositories, support for installing software from the Flathub and Snap Store is enabled by default. Boot iso image size is 2.8 GB (four builds are available - regular based on GNOME, "Lite" with Xfce, and their educational variants).

The new version has updated versions of packages and user applications, including the release of LibreOffice 7.3. The transition to the Linux 5.13 kernel has been made with support for new hardware. Updated graphics stack (Mesa 21.2.6) and drivers for Intel, AMD and NVIDIA chips. Added support for 12 generation Intel Core processors, Sony PlayStation 5 DualSense game controller and Apple Magic Mouse 2. Improved support for wireless devices and printers.

<https://blog.zorin.com/2022/03/10/zorin-os-16-1-released-support-for-ukraine/>

## ELEMENTARY OS PROJECT

### DRAMA:

12.03.2022

The further fate of the elementary OS distribution is in question due to the conflict between the founders of the project, who cannot divide the company that oversees the development and accumulates the incoming funds.

The company was co-created by two founders, Cassidy Blaede and Daniela Foré, formerly Daniel Foré, who worked full-time on the project, receiving funds from donations to upload builds and provide technical support. Due to the decline in financial performance against the backdrop of the coronavirus pandemic, cash receipts decreased and the company was forced to cut employee salaries by 5%. In February, it was planned to hold a meeting to further cut the budget. First, they proposed to cut the salaries of the owners.

Before the meeting, Cassidy Blade announced that he had accepted a job offer from another company. At the same time, he wished to keep his shares, remain

among the owners of the company and continue to participate in decision-making. Daniela Fore did not agree with this position, since, in her opinion, those who directly develop it should manage the project. The co-owners discussed the possibility of dividing the company's assets, so that the company would remain entirely in the hands of Daniela, and Cassidy would receive half of the funds remaining in the account (26 thousand dollars) for his share.

After starting to prepare documents for processing a deal to transfer a stake in the company, Daniela received a letter from a lawyer representing Cassidy, who proposed new conditions - a transfer of \$30,000 now, \$70,000 over 10 years and ownership of 5% of the shares. After pointing out that the agreements were completely different at the beginning, the lawyer explained that these were preliminary discussions and Cassidy did not give final consent to those conditions. The increase in the amount was explained by the desire to receive compensation in the event of a sale of the company in the future.

Daniela refused to accept the

new conditions and considered the actions taken as a betrayal by Cassidy. Daniela considers the initial agreements fair and is ready to take 26 thousand herself and leave, but she does not intend to take on obligations that may subsequently lead her into debt. Cassidy replied that he did not agree with the first terms, so he brought in a lawyer. Daniela pointed out that if it is not possible to agree on the transfer of management of the company to her hands, she is ready to leave the project and join another community. The fate of the project is now in question, since the situation cannot be resolved for about a month, and the money remaining in the company is spent, mainly on salary payments, and, probably, soon the co-owners will have nothing to share.

<https://lunduke.substack.com/p/elementary-os-is-imploding>



## RELEASE OF BLENDER 3.1:

12.03.2022

The Blender Foundation has published a release of the free 3D modeling package Blender 3.1, suitable for a variety of tasks related to 3D modeling, 3D graphics, game development, simulation, rendering, compositing, motion tracking, sculpting, animation creation and video editing. The code is distributed under the GPL license. Ready builds are generated for Linux, Windows and macOS.

<https://www.youtube.com/watch?v=BCi0QRM1ADY>

## TUF 1.0 IS AVAILABLE, A FRAMEWORK FOR SECURE DELIVERY OF UPDATES:

14.03.2022

The TUF 1.0 (The Update Framework) framework is out, providing a means to securely check for and download updates. The main goal of the project is to protect the client from typical attacks on repositories and infrastructure, including

counteracting the promotion of bogus updates by attackers created after gaining access to keys to generate digital signatures or compromise the repository. The project is developed under the auspices of the Linux Foundation and is used to improve the security of update delivery in projects such as Docker, Fuchsia, Automotive Grade Linux, Bottlerocket and PyPI (inclusion of verification of downloads and metadata in PyPI is expected soon). The TUF reference implementation code is written in Python and distributed under the Apache 2.0 license.

The project develops a series of libraries, file formats and utilities that can be easily integrated into existing application update systems, providing protection in case of compromise of keys on the side of software developers. To use TUF, it is enough to add the necessary metadata to the repository, and integrate the procedures provided in TUF for loading and verifying files into the client code.

The TUF framework takes on the task of checking for an update, downloading the update, and verifying its integrity. The update

installation system does not directly intersect with additional metadata, the verification and loading of which is handled by TUF. For integration with applications and update installation systems, a low-level API for accessing metadata and the implementation of a high-level client API `ngclient`, ready for integration with applications, are offered.

<https://github.com/theupdateframework/python-tuf/blob/v1.0.0/docs/1.0.0-ANNOUNCEMENT.md>

## FIRST RELEASE OF OFFPUNK CONSOLE BROWSER:

14.03.2022

The first stable release of the Offpunk console browser is available for download. In addition to opening Web pages, it works using the Gemini, Gopher and Spartan protocols, as well as reading news feeds in RSS and Atom formats. The program is written in Python and distributed under the BSD license.

A key feature of Offpunk is the focus on viewing content offline.

The browser allows you to subscribe to pages or mark them for later viewing, after which the page data is automatically cached and updated if necessary. Thus, with the help of Offpunk, you can maintain copies of sites and pages that are always available for local viewing and are kept up to date by performing periodic data synchronization. Synchronization options are configured by the user, for example, some content can be synchronized once a day, and some once a month.

Management is carried out through a system of commands and keyboard shortcuts. There is a flexible system for maintaining multi-level bookmarks, subscriptions and archived content. For different MIME types, you can connect your own handlers. Parsing and displaying HTML pages is done using the BeautifulSoup4 and Readability libraries. Images can be converted to ASCII graphics using the `chafa` library.

<https://tildegit.org/ploum/AV-98-offline>

## DEBIAN 12 PACKAGE BASE FREEZE DATE DETERMINED: 15.03.2022

The Debian developers have published a plan to freeze the package base of the Debian 12 "Bookworm" release. Debian 12 is expected to be released in mid-2023.

On January 12, 2023, the first stage of freezing the package database will begin, where the execution of "transitions" (updating packages that require adjustment of dependencies for other packages, which leads to the temporary removal of packages from Testing) will be stopped, as well as updating the build-essential packages will be stopped.

On February 12, 2023, a soft freeze of the package base will take place, during which the acceptance of new source packages will be stopped and the possibility of re-enabling previously deleted packages will be closed.

On March 12, 2023, a hard freeze will be applied before the release, during which the process of transferring key packages and

packages without autopkgtests from unstable to testing will be completely stopped and the stage of intensive testing and fixing problems blocking the release will begin. The hard freeze stage is introduced for the first time and is considered as a necessary intermediate step before a full freeze, covering all packages. The time of complete freezing has not yet been precisely determined.

<https://lists.debian.org/debian-devel-announce/2022/03/msg00006.html>

## RED HAT TRIED TO TAKE AWAY THE WEMAKEFEDORA.ORG DOMAIN UNDER THE GUISE OF TRADEMARK INFRINGEMENT: 15.03.2022

Red Hat is suing Daniel Pocock for infringing the Fedora trademark on the WeMakeFedora.org domain name, which was critical of Fedora and Red Hat contributors. Representatives of Red Hat demanded that the rights to the domain be transferred to the

company, as it violates the registered trademark, but the court sided with the defendant and ruled that the current owner retained the rights to the domain.

The court held that, according to the information published on the WeMakeFedora.org website, the author's activity falls within the category of fair use of the trademark, since the name Fedora is used by the defendant to identify the subject matter of the site that publishes criticism of Red Hat. The site itself is non-commercial and its author is not trying to pass it off as the result of Red Hat activities or mislead users.

Daniel Pocock was previously a Fedora and Debian maintainer and maintainer of a number of packages, but as a result of the conflict he got into a confrontation with the community, began to troll some participants and publish criticism, mainly against the imposition of a code of conduct, interference with the community and promotion of various initiatives conducted by activists of the movement for social justice.

For example, Daniel tried to draw attention to the activities of

Molly de Blanc, who, in his opinion, under the guise of promoting a code of conduct, was engaged in harassment of those who disagreed with her point of view and tried to manipulate the behavior of community members (Molly is the author of an open letter against Stallman). For his caustic remarks, Daniel Pocock was banned from discussion platforms or excluded from the number of participants in projects such as Debian, Fedora, FSF Europe, Alpine Linux and FOSDEM, but continued to attack on his sites. Red Hat attempted to take over one of his sites under the guise of trademark infringement, but the court sided with Daniel.

<https://www.adrforum.com/DomainDecisions/1980642.htm>

## DEBIAN MAINTAINER LEAVES DEBIAN, MORE DRAMA: 16.03.2022

The team responsible for managing accounts in the Debian project has slashed Norbert Preining's status for inappropriate behavior on the debian-private closed mailing list (details of the conflict are yet to be disclosed). In

response, Norbert made the decision to retire from Debian development and move into the Arch Linux community. Norbert has been involved in Debian development since 2005 and has maintained about 150 packages, mostly related to KDE and LaTeX.

Apparently, the reason for the curtailment of rights was a conflict with Martina Ferrari, who maintains 37 packages, including the net-tools package and components of the Prometheus monitoring system. The manner of communication of Norbert, who did not restrain himself in expressions, was perceived by Martina as sexism and a violation of the code of conduct in the community. Perhaps the decision was also influenced by past disagreements with Lars Wirzenius, one of the first maintainers of Debian GNU/Linux, related to Norbert's disagreement with the policy of imposing political correctness and criticism of Sarah Sharp's actions.

Norbert believes that the atmosphere in the project has become toxic, and the actions taken against him have become a reaction to expressing his opinion and calling things by their proper

names, not following the general line of political correctness. Norbert also drew attention to double standards in the community - on the one hand, he is accused of bullying other project participants, and on the other hand, they unleash persecution against him, taking advantage of a privileged position in the management teams and not observing the community's own standards.

<https://www.preining.info/>

### RESULTS OF THE LEGAL PROCEEDINGS RELATED TO THE NEO4J PROJECT AND THE AGPL LICENSE:

17.03.2022

The U.S. Court of Appeals upheld an earlier district court decision in the Neo4j Inc. intellectual property infringement case against PureThink. The suit concerns infringement of the Neo4j trademark and the use of false statements in advertising when distributing a fork of the Neo4j DBMS.

Initially, the Neo4j DBMS was

developed as an open source project, supplied under the AGPLv3 license. Over time, the product was divided into a free Community edition and a commercial version of Neo4 EE, which continued to be supplied under the AGPL license. A few releases ago, Neo4j Inc changed the terms of delivery and made changes to the text of the AGPL for the Neo4 EE product, establishing additional " Commons Clause " conditions that restrict use in cloud services. The addition of the "Commons Clause" moved the product into the category of proprietary software.

The text of the AGPLv3 license contains a clause that prohibits imposing additional restrictions that infringe on the rights provided by the license, and if additional restrictions are added to the license text, it allows using the software under the original license, removing the added restrictions. PureThink took advantage of this feature and, based on the Neo4 EE product code, translated to a modified AGPL license, began the development of a fork of ONgDB (Open Native Graph Database), supplied under a pure AGPLv3 license and positioned as a free and completely open version of Neo4 EE.

The court sided with the developers of Neo4j and found PureThink's actions unacceptable, and the statements about the completely open nature of their product are false

<https://storage.courtlistener.com/recap/gov.uscourts.cand.335295/gov.uscourts.cand.335295.140.0.pdf>

### RELEASE OF PALE MOON BROWSER 30.0:

18.03.2022

Pale Moon 30.0, forked from the Firefox codebase to provide higher performance, preserve the classic interface, minimize memory consumption and provide additional customization options, is out. 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=27956&p=224775>

## VULNERABILITY IN OPENSSL AND LIBRESSL:

16.03.2022

**B**ugfix releases of the OpenSSL 3.0.2 and 1.1.1n cryptographic library are available. The update fixes a vulnerability (CVE-2022-0778) that can be used to make a denial of service (endless looping handler). To exploit the vulnerability, you need a specially designed certificate. The problem manifests itself in both server and client applications that can handle user-supplied certificates.

The problem is caused by a bug in the `BN_mod_sqrt()` function that causes a loop when calculating the

square root modulo other than a prime number. The function is used when parsing certificates with keys based on elliptic curves. Operation is reduced to substitution of incorrect parameters of the elliptic curve into the certificate. Since the problem occurs before the digital signature of the certificate is verified, an attack can be made by an unauthenticated user who is able to achieve transmission of a client or server certificate to applications using OpenSSL.

The vulnerability also affects the LibreSSL library developed by the OpenBSD project, a fix - proposed in the corrective releases of LibreSSL 3.3.6, 3.4.3 and 3.5.1. Additionally, an analysis of the conditions for exploiting the vulnerability has been published (an example of a malicious certificate that causes a freeze has not yet been posted publicly).

<https://www.openssl.org/news/openssl-3.0-notes.html>

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



Most of us don't think twice when typing at a terminal, it's just there. What is actually happening is that you are typing commands into a shell that is interpreting your commands. By default, Ubuntu ships with bash, but you can install another if you like. I will focus on bash. The reason: if you ever get to use servers or containers on the internet, chances are good that it is bash.

Back in the day, we did not have Whatscrap or Telegram so we would use Screen to chat with each other; the session stays open when you connect from somewhere else. This was great for remote support, as you could be at a distant site and chat with the programmer or database admin whilst fixing the issue. (A sort of poor man's direct chat). This is sometimes what you

see in movies, when there is typing on the terminal without interaction. Wake up Neo... Screen ships with Ubuntu, so I would like you to do a 'man screen' and go to the end of the man pages. <insert RickRoll here> Long, isn't it? Personally, I have not used it in years, as I used tmux, but that is not available everywhere. Thanks to one of my work colleagues, I was reminded of this multiplexer.

I like to think of Screen like you do a normal modern web browser, only with tabs you cannot see. You see, you can have multiple sessions in Screen.

You can move between these sessions (or tabs if you want to think of it that way: 'CTRL+a' and 'w' to see them from within a session) with keyboard shortcuts. You can even name sessions so that

managing them is easier. I say, whatever works for you. The reason I think of it this way, is that you can have multiple "tabs" open in a screen session (pressing 'CTRL+a' and 'c' to open one).

So why would you want to use something like Screen? Even in our 99.9% uptime world, the connection from one place to another is not. Running scripts on a remote host that take a lot of time to parse data, for instance, may not complete, and you will have to restart them. This is a pain in the butt. This is where Screen comes in, allowing you to instantly reconnect

to your session where the script may be running, even from a different PC!

Since the manpage is longer than the list of excuses politicians use, there is a quicker way to get help. Whilst you have an attached screen, press 'CTRL+a' and '?'. This will bring up what you need. Go ahead and try that now.

Caveat: Screen does not support all the "advanced" terminal bling that you may have become accustomed to, so fancy terminal prompts may disappear.

```
gewgaw@rooikopstiefkind: ~
There are screens on:
 214439.Alpine (05/02/2022 11:22:24) (Attached)
 214166.ubuntuuserver (05/02/2022 11:21:55) (Attached)
 211391.pts-2.rooikopstiefkind (05/02/2022 11:16:49) (Attached)
 211093.pts-0.rooikopstiefkind (05/02/2022 11:16:21) (Attached)
4 Sockets in /run/screen/S-gewgaw.
x ~ x
```

```
gewgaw@rooikopstiefkind: ~
Screen key bindings, page 1 of 3.
Command key: ^A Literal ^A: a

break      ^B b      license   ,         removebuf =
clear      C         lockscreen ^X x      reset     Z
colon      :         log       H         screen    ^C c
copy       ^[ [      login    L         select    '
detach     ^D d      meta     a         silence   _
digraph    ^V        monitor  M         split     S
displays   *         next     ^@ ^N sp n suspend   ^Z z
dumfterncap .        number   N         time      ^T t
fit        F         only     Q         title     A
flow       ^F f      other    ^A        vbell     ^G
focus     ^I        pow_break B         version   v

[Press Space for next page; Return to end.]
```



# COMMAND & CONQUER

The power of Screen lies in these shortcuts. If you have a few open, pressing 'CTRL+a' and 'a' is really quick (pressing 'a' twice whilst 'CTRL' is held down, will tab you to the next session or tab).

Let's assume you need to do something else quickly; while your scripts are running, you can detach from the session with 'CTRL+a' and 'd'. To reattach is as simple as typing 'screen -r' or 'screen -x' and you will be back where you left off.

Now for some practical learning; open a terminal emulator and fire up Screen. Open top or htop, now press 'CTRL+a' and 'c' to open another tab, and type 'ls -la / -R' so that it takes a while to complete. Type 'CTRL+a' and 'n' or 'p' to switch between the two. Open another,

now type 'CTRL+a' and 'w' to see the current tabs or sessions. Switch to one and type exit. Now type 'CTRL+a' and 'w' again. What do you see?

These are the very basic navigation commands of Screen. The reason I typed the commands as 'CTRL+a' and 'a', not CTRL+a+a is that I want you to get used to understanding that the first part is an activation, before the next key. It is to not lead you astray, rather to get muscle memory going. A lot of the time, you will find that holding down CTRL and pressing the next two keys is the same as not holding down CTRL with the last keypress, but I have noticed some differences here in bash and other shells and terminal emulators and operating

systems. Some commands are different, like the vertical split. Here you have to type 'CTRL+a' then release and press 'SHIFT+|' (pipe). Now to switch, we need to activate with 'CTRL+a' then press 'Tab'. The same goes for the horizontal split, 'CTRL+a' and 'SHIFT+s' – so learn when to remove your finger from the 'CTRL' key.

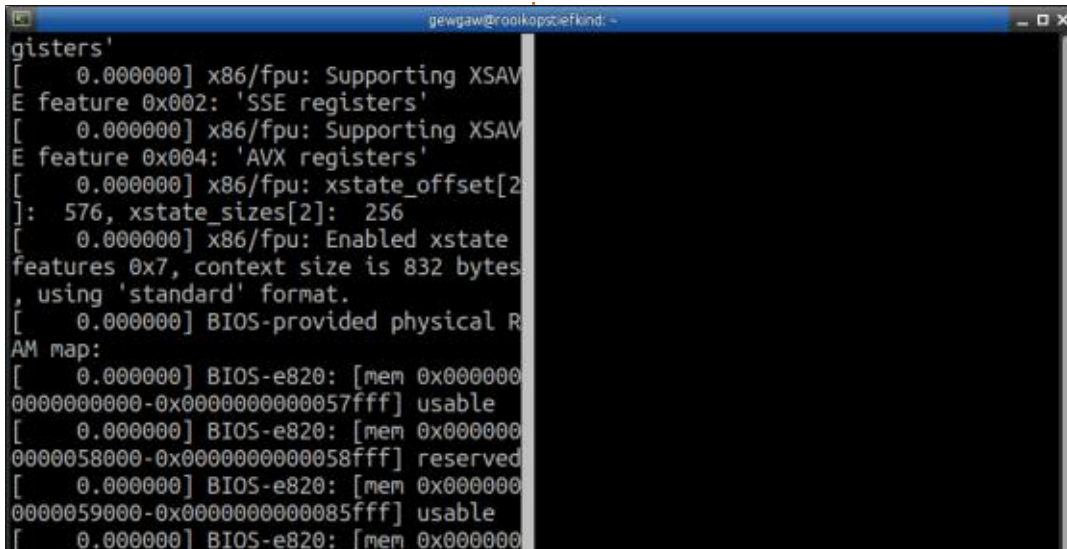
At any time, you can also have another session by typing Screen again, even if another terminal emulator is on your same machine, and if you go look at your list; they should be there. This comes in handy when you need to keep things apart, working with one group in one terminal and another group in a separate terminal. However, it does not stop you from connecting to the "other side" so-to-speak, so be aware.

I did tell you that you can name your Screen sessions; simply type: screen -S <name> and next time you do a Screen -ls command, you

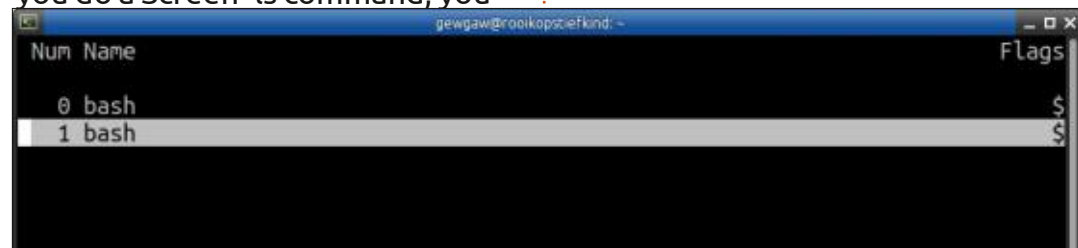
should see the name, instead of the number.

If you have opened more than 2 or three Screen sessions, you can also use CTRL+a and SHIFT+ (just one double-quote) to list them. If you do not get it right the first time, try again, I don't know why, but my students used to struggle with this one.


For those a little more advanced than absolute beginners, there are some customizations in ~/.screenrc, but that is beyond the scope of this article, just wanted to spark interest.



```
gisters'
[ 0.000000] x86/fpu: Supporting XSAV
E feature 0x002: 'SSE registers'
[ 0.000000] x86/fpu: Supporting XSAV
E feature 0x004: 'AVX registers'
[ 0.000000] x86/fpu: xstate_offset[2
]: 576, xstate_sizes[2]: 256
[ 0.000000] x86/fpu: Enabled xstate
features 0x7, context size is 832 bytes
, using 'standard' format.
[ 0.000000] BIOS-provided physical R
AM map:
[ 0.000000] BIOS-e820: [mem 0x000000
0000000000-0x0000000000057fff] usable
[ 0.000000] BIOS-e820: [mem 0x000000
0000058000-0x0000000000058fff] reserved
[ 0.000000] BIOS-e820: [mem 0x000000
0000059000-0x0000000000085fff] usable
[ 0.000000] BIOS-e820: [mem 0x000000
```



```
gewgaw@brooikopstieflind: ~
┌───┴───┐
Num Name                               Flags
├───┬───┤
0 bash                                  $
1 bash                                  $
```



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



# HOW-TO

Written by Greg Walters

# Python In The REAL World Pt.127

As most of you know, I work fairly closely with Don Rozenberg on his free GUI designer for Python programs called PAGE. Just the other day, I received the following message from SourceForge:

*"Congratulations! PAGE has just been recognized with the following awards by SourceForge:*

- Community Leader*
- Community Choice*
- Open Source Excellence*
- SourceForge Favorite*

*These honors are awarded only to select projects that have reached significant milestones in terms of downloads and user engagement from the SourceForge community.*

*This is a big achievement, as your project has qualified for these awards out of over 500,000 open source projects on SourceForge. SourceForge sees nearly 30 million users per month looking for, and developing, open source software. These award badges will now appear on your project page, and the award*

*assets can be found in your project admin section."*

To celebrate this accomplishment, I decided to share some of the tricks and tips I've learned about using Tkinter to make easy GUI front ends for Python programs using PAGE. The neat thing about these tips is that they don't require any special coding. It's all done by setting the appropriate attributes.

The first tip concerns enhancing the Tk Checkbutton. We all know what a "regular" checkbutton looks like.



While this is an easy widget to use to represent a many-of-many set of options, this is pretty much an old style visual widget. But what about this?



This is the image of a customized Checkbutton in the off state, and here is the same Checkbutton in the on state.



It's really easy to create a Checkbutton that looks and works like this using Tkinter and especially in PAGE. First, you need to have the two graphic images you want to use to represent the selected and unselected states. I went to my standard goto website for graphics, openclipart.org. I did a simple

search for "switch" and this was one of the options.



<https://openclipart.org/detail/203164/ui-toggle-button>

I chose the small .png version, downloaded it and then used Gimp to cut each one out and saved them as separate .png files. I copied them into an images folder inside my project.

Attribute	Value
command	on_chkbtnClick
image	{unselected image name}
Selected image	{selected image name}
variable	che49 (or whatever ID you wish to use.
indicator	No

Next, I simply placed a standard Tk Checkbutton on the Toplevel form, next to a few other Checkbuttons and I set the attributes using the PAGE Attribute Editor (see table, previous page, bottom right).

When the program is run, the Custom checkbutton will act as a toggle switch.

There is one other trick that can be used with the Checkbutton, and no images are needed. It turns the Checkbutton into a “sticky” button. When it is unselected, it looks very much like a standard button. When it is selected (clicked), the button stays depressed until it is clicked again. Here is the “unselected” state.



And this is the selected state.



You can pick to have a color in the unselected state or not. I chose to use coral for the

unselected and limegreen for the selected color. Just like the Checkbutton, you will need to set the indicator to No (see table below).

The next trick is to modify the standard Tk Radiobutton to provide a custom indicator dot. As with the Checkbutton trick, you will need two graphics. One for the indicator when it is not selected and one for when it is selected.

As I’ve stated many times in the past, I am not an artist in any way, shape or form. I threw together the following images to help show the process.



First the unselected image. It’s simply a circle.



And the selected image, which is the circle above with

Attribute	Value
Active bg (background)	coral
background	coral
command	on_chkbtnClick
indicator	No
select color	limegreen
variable	che50

Attribute	Value
command	on_rbbtnClick2
image	{unselected image name}
off relief	flat
relief	flat
select image	{selected image name}
value	3
variable	selectedButton2

a black dot in the middle.

Just like we did with the Checkbuttons, we set the attributes as follows (top right).

The only thing that is a downside for this trick is that (as you can see in the image below) the Radiobutton goes to a sunken relief. As far as I can tell, there’s nothing that we can do about that

(but you know I won’t give up trying).



So here is what the full demo project looks like (next page, top right).

As to the code, it’s really very simple.

```
def startup():
    _w1.Checkbutton1.invoke()
    _w1.Radiobutton1.invoke()
    _w1.Radiobutton3.invoke()
```



# HOWTO - PYTHON

The startup function calls the `.invoke` method of the first Checkbutton and the first and third Radiobuttons. The `invoke` method makes the program think that there was a mouse-click on the widget, that then calls the associated command callback function. I wanted to show the first widget of each group to be selected on start up.

```
def on_chkbtnClick(*args):  
    status_list = ['Off',  
                  'ON']  
  
    cb1 = _w1.che47.get()  
    cb2 = _w1.che48.get()  
    cb3 = _w1.che49.get()  
    cb4 = _w1.che50.get()  
  
    _w1.CheckDisplay.set(  
        f'{{status_list[cb1]}}  
- {{status_list[cb2]}} -  
{{status_list[cb3]}} -  
{{status_list[cb4]}}'  
    )
```

The callback for the Checkbuttons is really simple. The first thing that gets done is to create a very simple list with the text values 'Off' and 'On' which will be shown as part of a string that will be sent to the display label.

Next each of the variables for the Checkbuttons show 0 for unselected and 1 for selected. Those values work nicely as a "pointer" into the list for the display string. Finally we create the string and send it to the label to be displayed.

The next two callbacks are for when the Radiobutton groups are clicked. The first two (top two) Radiobuttons on the form are handled by the top function and the bottom two custom Radiobuttons are handled by the second function.

```
def on_rbbtnClick1(*args):  
    which1 =  
    _w1.selectedButton.get()  
  
    _w1.RadioDisplay.set(f'Normal  
RB {which1} Selected')  
  
def on_rbbtnClick2(*args):  
    which2 =  
    _w1.selectedButton2.get()  
  
    _w1.RadioDisplay.set(f'Special  
Rb {which2} Selected')
```

That's all I have time for this month. Remember these tips are for "standard" Tk widgets. Yes,



there are ttk widgets that can have styles and themes applied to them. The problem with styles and themes are:

- Styles and themes are poorly documented
- Styles and themes require special programming in Tcl/Tk
- Much of the documentation on styles and themes is incomplete
- AND (from what I've been told) many things are downright wrong!

The PAGE source (version 7.3) and the Python code are all available on my repository. You can find it at <https://github.com/gregwa1953/FCM-179>.

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



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



# HOW-TO

Written by Erik

# Blender Pt.4

Whilst preparing this tutorial series. Blender has gone to a new LTS version. I will be using Blender 2.93 LTS going forward. Our focus is still on newbies to Blender, and maybe those who want to expand their use of their Ubuntu system into new areas. Thank you to Javier Samudio (@JavierSam) for his help with this series.

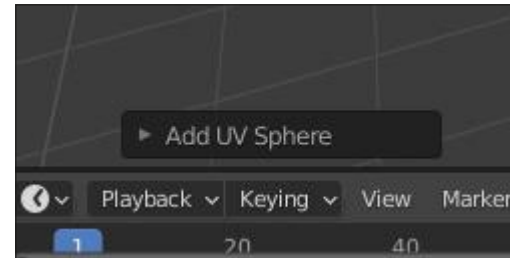
Since we are working in Ubuntu, our project will be a penguin. We will be making some common mistakes for you to make as well. Please follow along, just reading

and looking at the pretty pictures will not grant you a skill.

Fire up Blender and let's start! Select the general option and you should see the standard Blender window.

The standard view comes with a cube. We want a nice tubby penguin and we need spheres. Right-click on the cube and go down to delete and delete it. So now in the top-left, click "add" > mesh > circle. Erm... What went wrong? Since we are sculpting 3D objects, press ctrl+z to undo the circle and go back and

choose the "uv sphere". You have to pay attention to the language used. Back to our squishy penguin, at the moment it looks like a golf ball. How can we fix that? Bottom-left, we now have, what looks like a button, that says what we just did, add a uv sphere.



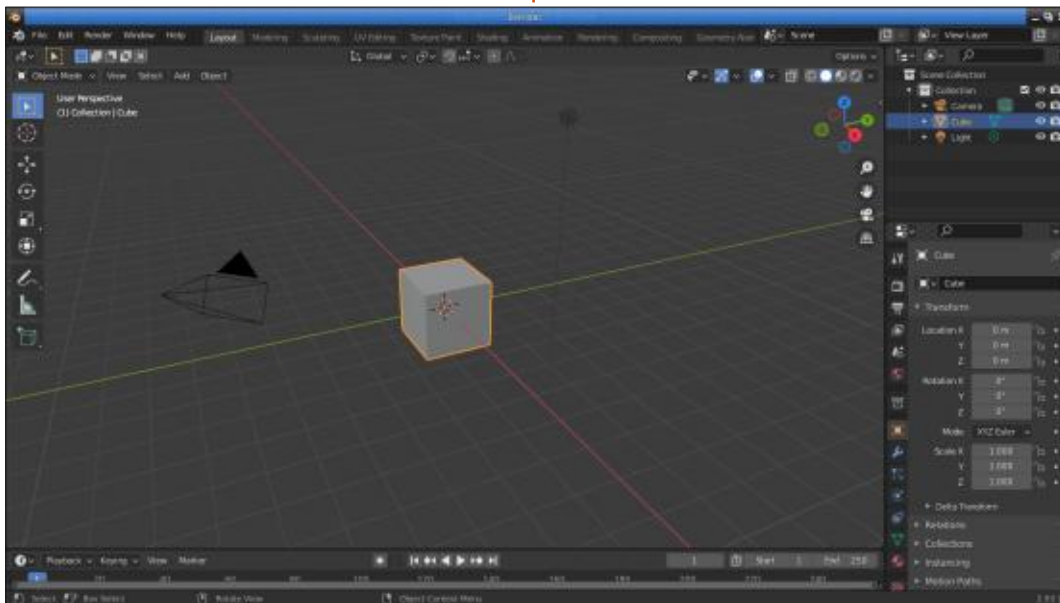
You will notice it has a triangle on the left, click that to expand the "button". We have segments, rings, and radius. Increase the segments to 128 and the rings to 64. (Just type the values in, it's easier). Click the triangle again, to minimize the pop-up and marvel at your smooth ball. Ooh, shiny. Now use your mouse wheel to zoom in on the sphere. Notice that it looks like a golf ball again when you get close enough. What the frikkin' frik? I won't go into details here as this is beginner friendly, just know that the more you plan to zoom in, the

more triangles / squares / polygons you need to smooth out the surface. For those of you who were paying attention to the dropdown object menu, you may have seen something that says, shade smooth. This is the option you pick when you need it to be buttery-smooth.

**Tip:** If you click shade smooth and nothing happens, click the object again, it means you have deselected the object.

If you are bad at drawing, like me, quickly watch this: <https://www.youtube.com/watch?v=MlQUA-i5tE>

Here is where things get interesting. If we look at Tux, the penguin, you will notice that he is vaguely pear shaped. We need to reshape our clay to be vaguely pear-shaped too. I will show you how to elongate the sphere. First, we need to find a point we would like to raise. Logic tells us we should raise it on the top, but we have no hands or handle. What we are going to do now is basically screw in a handle and "lift" the shape at the top, to



# HOWTO - BLENDER

create a pear shape. We first change our view, to clearly see the top, before we touch the sphere. Who remembers how to change the view? Bonus points if you remember the shortcut keys. (It is not using the little hand tool!). Yes, it is the z-axis or the numpad 7 or the blue dot in the view rotation circle. In the top-left, you should see "top orthographic". Now that the red and green axis lines make a cross on your screen, please zoom

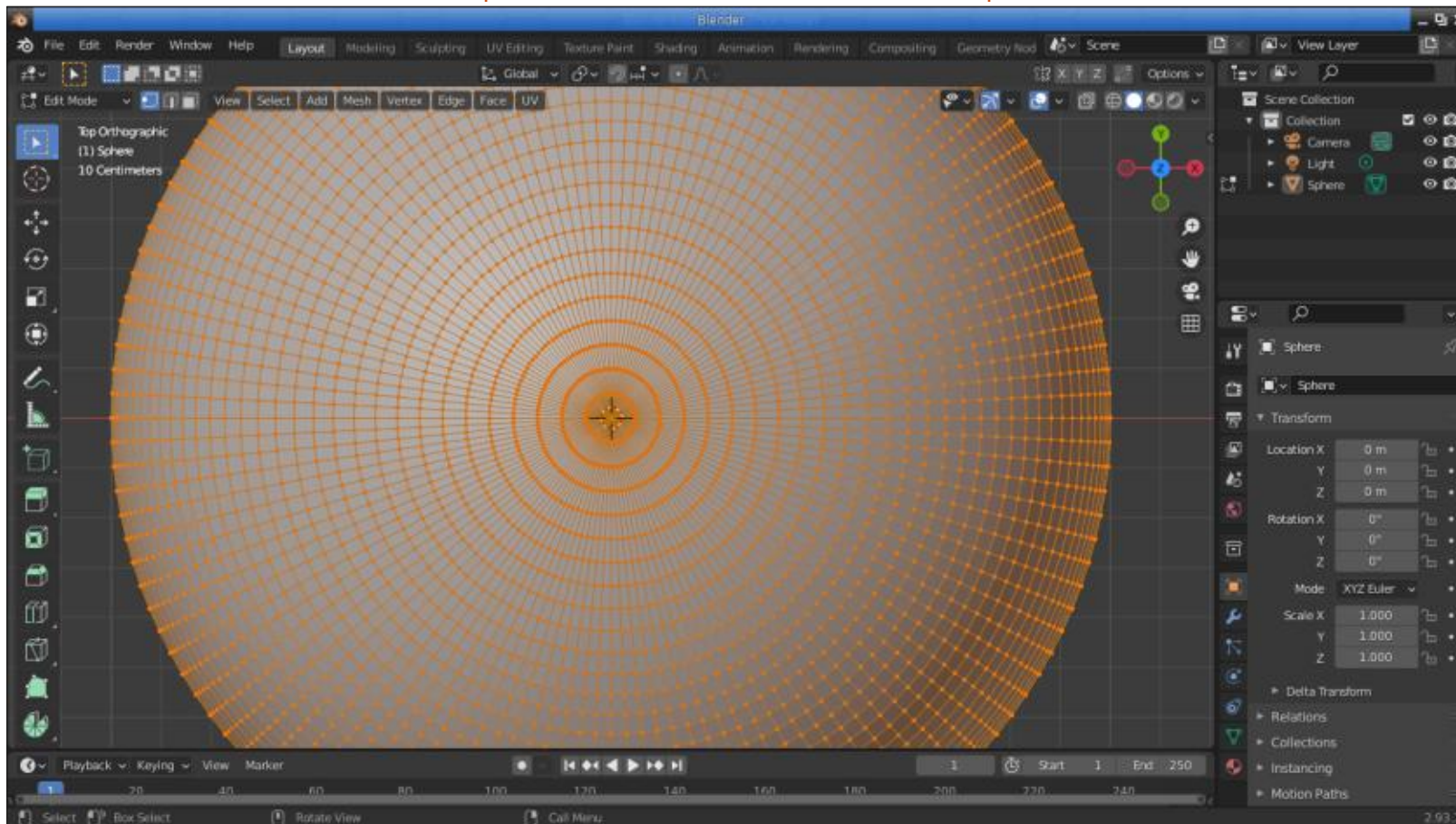
into your ball, towards the center. Can you see the concentric rings? How about we make them more pronounced so you can click on one of the circles? Just above "top orthographic" you should see object mode. Please use the dropdown to get to edit mode. (Tab-key if yours is default). The image should get some lines connected by dots. Mine is orange, but yours may differ. Now that you have the plans for the death star at

your fingertips, immediately notify the rebels!

Please click in the center on the little black cross with the red and white pattern in a circle and the orange lines should go black, indicating that you made a selection. Just make one click. (I only want to hear van(one) click! - the advert still makes me smile). The reason we make one click only, is when you have a point set and

you click again, you will see a line form between the two. This is not what we want, no matter how small the line is. Now we change our view back to front view (green) and zoom out (or use your numpad). Look at you, working like a pro!! Top center, you have some icons, the rightmost one looks like a pimple. Hovering your mouse over it should read: Proportional editing falloff. What a mouthful. I'll just call it the pimple from now on. To connect our move handle, which is the four arrows on the right side unity-type menu. To connect your move handle, the following needs to be in place. You need to have the center ring selected on your sphere, you need to change the pimple to connected (if you are in an older version of Blender select connected or click the dot next to the pimple if you are on 2.93), and you need to click the move button. If you have done this correctly, you should see the directional arrows appear. (Blue and red, as you are in the green mode and that arrow is pointing towards/away from you). If you don't see it, do it again.

Now you simply grab the blue arrow and move it upwards. You can zoom in and out with the mouse wheel, but not while you are





# HOWTO - BLENDER

dragging the blue arrow upwards, as that fills out the pimple you started dragging. Try that now, you can always press ctrl+z to undo. Now you know how to make a pear shape. You can drag the mouse left and right to get some interesting shapes. Just remember our end goal is to make a penguin. ;) But don't let me stop you from being arty-farty. I won't drag mine to keep it simple for everyone to follow along.

**Tip:** You can do this technique anywhere, practice by doing it at the bottom and rolling your mouse wheel whilst you do it. (You should see a white circle increase and decrease as you do it).

**Tip:** You don't have to use the pimple shape, try the drop down with different shapes and make this project your own!

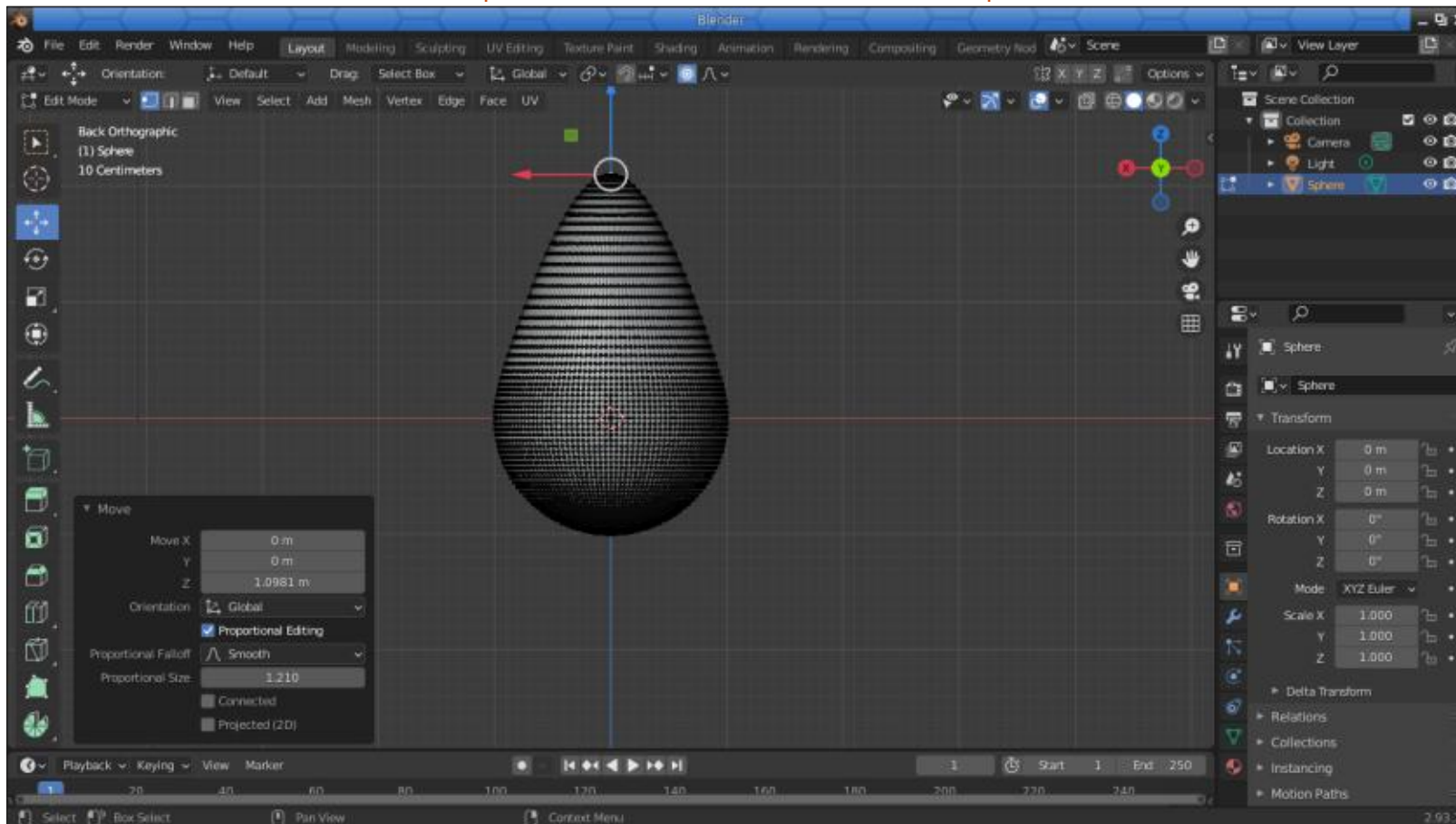
**Tip:** It will take you less than a minute to do this very soon, so why not experiment? You can always start over as you have the recipe now.

So pears, pine cones, eggs, etc, are now within your grasp. Feel the power! This may have taken you ten minutes to complete, but know that this should take less than a minute if you are salted. Next issue, we

start turning our pear into a penguin.

Did I make a mistake, did I say left instead of right? Let us know and help others:

[misc@fullcirclemagazine.org](mailto:misc@fullcirclemagazine.org)



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





# HOW-TO

Written by Enn Vinnal

You might have a lot of files open and not want to close these before you need to travel. For PDFs, a shutdown and restart would not be much of a problem if you were using qpdfview because that uses a tab for each document, and all tabs are reopened when the program restarts. However, LibreOffice doesn't employ tabs and so documents would have to be individually reopened using the Recent Documents menu. An alternative to a shutdown would be to just close the lid and have the machine go into a standby state. But this might not always be the

best option. A laptop still uses power while in that state and, when put inside a backpack or bag, may overheat. There have been recent warnings to users about this. Also leaving a laptop in standby would not be a good idea if your battery is low and likely to run out. So what might be a good alternative?

There is a nice little command line tool called pm-hibernate. Actually there are three of these: pm-suspend, pm-hibernate, and pm-hybrid. The first does a suspend for a quick restart and doesn't power down. The second, pm-hibernate,

saves the state of the machine and does power it down. Finally, you've probably guessed what pm-hybrid does, which is indeed to do everything needed to hibernate, but suspends instead of powering down. You can find out more about these by entering man pm-hibernate at the command-line (bottom left).

pm-hibernate works as advertised. It is invoked from the command-line (Figure 2), and takes about fifty seconds or so to save the state to swap, and power down. Make sure that you don't run out of swap though. Having said that, I'm a common garden variety Linux user and didn't do anything special to set swap. I run Debian 11 (upgraded from a Debian 10 install) on a seven or eight year old 11.6 inch Acer E11 laptop, with a 500 MB hard drive and with the RAM upgraded to 8 GB. Swap space was automatically

set by the Debian 10 install to 7.9 GB. With all sorts of documents and calculation engines open on my machine, there is still quite a comfortable free space margin (bottom right). Swappiness is 60 on a scale of 0 to 100, the default setting (bottom right).

So am I happy with this? Well you probably guessed I would be - my most important goal is to not lose track of the documents I have open and am reading when I shut down at night or travel. I could probably benefit from having a faster processor to speed up coming out of hibernation, but that's just one of the small wrinkles in my universe. pm-hibernate hasn't failed and hasn't crashed the laptop. It's just one of those nice little tools that fits the bill when you really need it.

```
File Edit View Search Terminal Help
PM-ACTION(8)          pm-utils User Manual          PM-ACTION(8)
NAME
    pm-action - Suspend or Hibernate your computer
SYNOPSIS
    pm-hibernate [--help]
    pm-suspend [--quirk-*] [--help]
    pm-suspend-hybrid [--quirk-*] [--help]
DESCRIPTION
    This manual page documents briefly the pm-action, pm-hibernate,
    pm-suspend and pm-suspend-hybrid commands. This manual page was
    originally written for the Debian(TM) distribution and has been adopted
    by the pm-utils project.
    These commands can be used to put the machine in a sleep state. The
```

```
debian@acer:~$ free -h
              total        used        free      shared  buff/cache   available
Mem:           7.7Gi        3.2Gi        2.8Gi        453Mi        1.7Gi        3.8Gi
Swap:          7.9Gi        3.1Gi        4.8Gi
debian@acer:~$ cat /proc/sys/vm/swappiness
60
debian@acer:~$ pm-hibernate
```



They did it again! Literally the day after the deadline for last month's article, the Inkscape developers released a new version. It's only a maintenance and bugfix release (version 1.1.2) with no new features, so I won't be covering it in any more detail, but if you've already upgraded to the 1.1 series, it's probably worth installing this latest version for improved stability. Alongside this release was an alpha version of Inkscape 1.2. If you have the time and inclination, I do recommend giving this release a try and reporting any issues you find, particularly in the new features. The more that users report problems with the alpha and beta releases, the more stable the final release is likely to be. Information about both these releases can be found on the official Inkscape news page: <https://inkscape.org/news/>

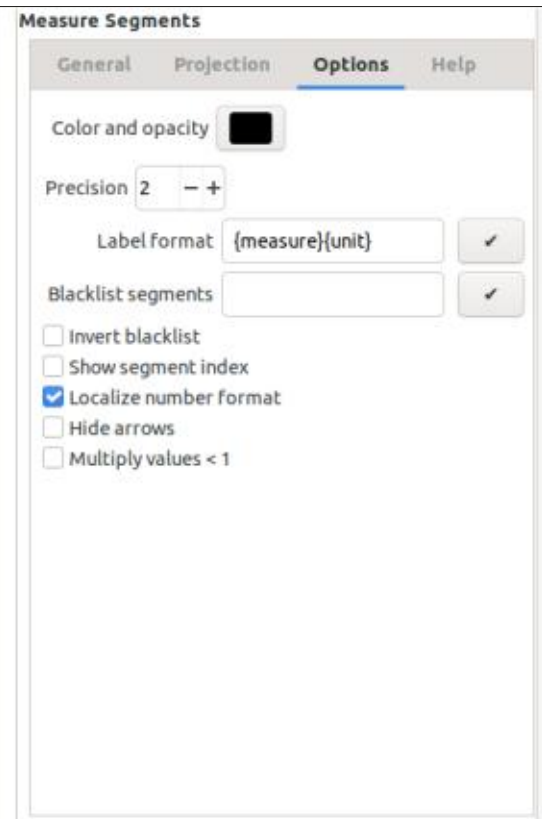
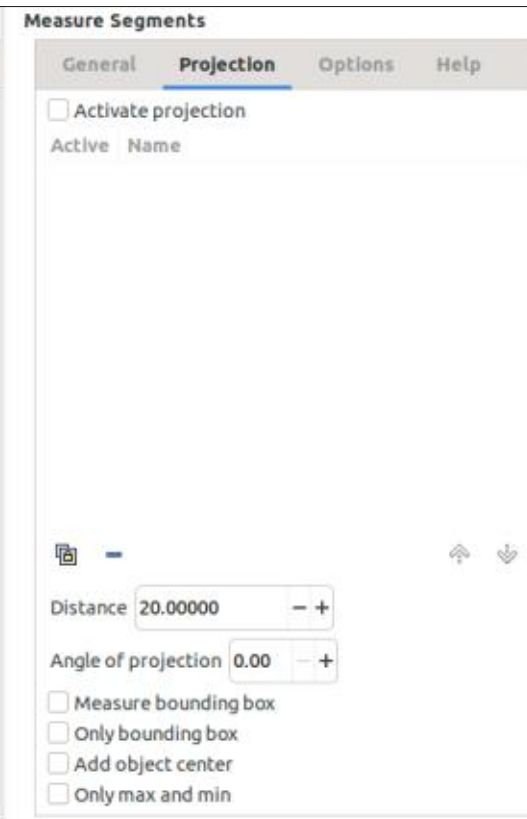
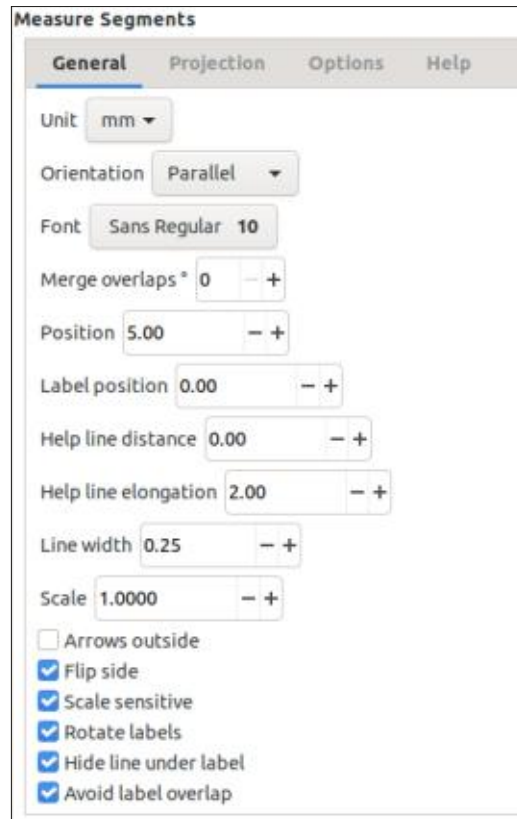
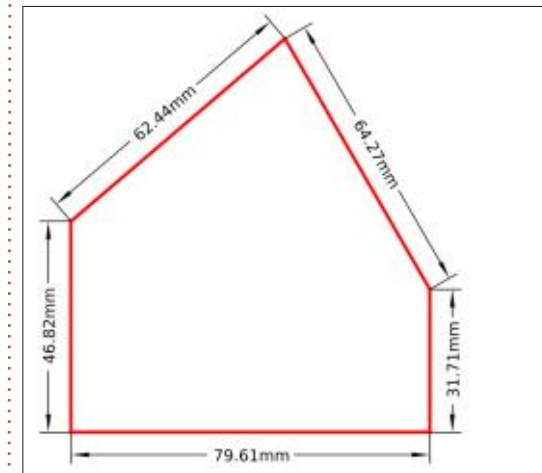
This month, I'll be looking at just one Live Path Effect (LPE) that was added in version 1.0: Measure Segments. This LPE operates so differently to most that I won't have enough space to cover

everything in one article. This time, I'll look at the practical functionality of the effect, and next month, I'll dig into some of the more technical details of how it works.

## MEASURE SEGMENTS

At first glance, the Measure Segments LPE seems fairly

straightforward – albeit with a lot of parameters to consider. It measures the straight line distance between the nodes of your path, and annotates your image with those dimensions. This is definitely a case where a picture is worth a thousand words: in this image my original path is the red line, and the rest of the content has been generated by the LPE.



The most interesting thing about this image is that I was able to color my original path in red without the need to use the Clone Original LPE, or any equivalent technique or workaround. The styling of the original path is distinct from the styling of the dimensions. Long-term readers of this column will know that this flies in the face of everything we know about LPEs. Historically, the output from an LPE has been a single path – albeit often a very complex one – meaning that all the different parts of an effect would have to adopt the same styling. Clearly there’s something very different going on in this case, but I’ll get back to that next month.

For now, let’s just take the effect at face value, and have a look at some of the parameters we can tweak in order to adjust its output. For this LPE, there are so many that they have been split across three tabs – plus a fourth “Help” tab that doesn’t really provide any more information than can be gleaned from the tooltips.

Starting with the General tab, the Unit pop-up is pretty self-explanatory. It’s restricted to the units that Inkscape uses

throughout the software, so if you’re trying to create a scale drawing in miles or microns you might think you’re out of luck. In practice the format of the numeric labels is defined over on the Options tab, so you can get around this limitation by replacing the “{unit}” placeholder with a fixed string of your own. For example you could set the Label Format field to “{measure} miles” or “{measure} μm” to mark the dimensions in units that Inkscape doesn’t support.

Back on the General tab, there is another field that should go hand-in-hand with the Unit pop-up, but which has been counter-intuitively put towards the bottom of the dialog: the Scale field. This acts as a multiplier for all the numeric values, so if your original drawing is half-size, you should set this to 2; conversely if your drawing is double-size, set it to 0.5, and so on. You can even enter a negative value here, though I’m not sure why you would want to.

Most of the remaining fields on this tab simply adjust the specific appearance of the dimension lines and labels. You can use the Font pop-up to change the font and size; the Position field to adjust how far

away the dimension line is from the path being measured; the Flip Side checkbox to select which side of the path the dimension is drawn; the Label Position field to change the position of the numeric value relative to the dimension line, allowing it to sit on top of or below the line (in which case you might also want to uncheck the “Hide line under label” option). To be honest, the best approach is just to play around with these fields in order to see what they do – using the tooltips if you need a hint – but in my experience the default values tend to give pretty good results.

The one widget that I don’t understand is the Merge Overlaps field. No matter how I draw my paths, whether with long or short segments, or with tight or wide angles, I can’t get this field to have an effect. If anyone can provide some insight into what this field does, please let me know.

I’m going to skip the Projection tab for now, and go straight to Options. This is a mish-mash of fields, some of which would seem to relate closely to those in the General tab, but which have been hidden away here instead. The Color and Opacity picker, for

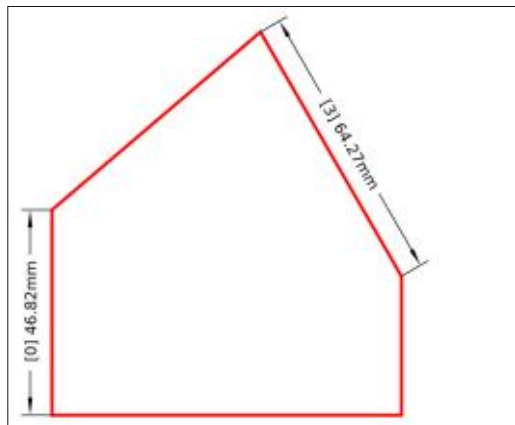
example, seems to me to be a sensible companion to the font picker. This widget sets a single color that is used not only for the dimension lines, but also the leader lines (“Help lines” as they are named in this extension), and the dimension text.

In the same vein, the Precision and Label Format fields surely deserve to live alongside the Unit and Scale widgets. Note that the Precision field just sets the number of decimal places in the text labels. There’s no way to use significant figures rather than decimal places, and there’s no facility for engineering or scientific notation.

Similarly misplaced is the “Multiply values < 1” checkbox, which is used to better display very small values by multiplying them by 100 and omitting the auto-inserted units from the text (but it won’t omit the units if you’ve used a fixed string in the Label Format field, as I described earlier). This should arguably also live with the Scale and Units fields. The Hide Arrows checkbox is just as deserving of a place on the General tab as most of the checkboxes at the bottom of that pane.

None of this arbitrary placement of widgets is a deal-breaker, but it's useful to be aware that the Options tab provides these features. Perhaps a later release will tidy up this effect's UI, and better group the controls into more logical sections.

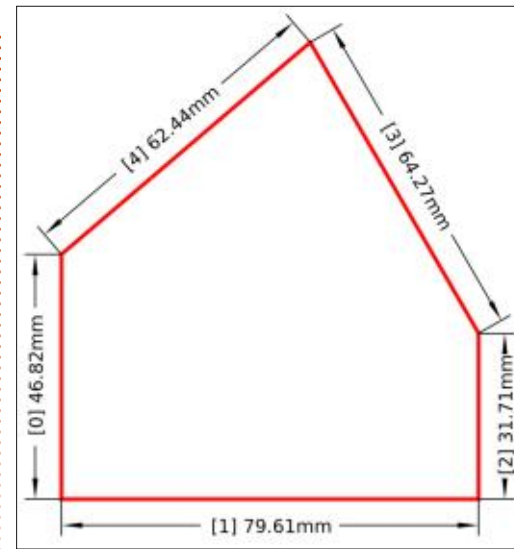
Also on the Options tab are what I consider to be the "sneaky" controls: three fields that radically increase the capabilities of this effect, albeit at the expense of a little extra effort on the part of the user. The most important of these is the Blacklist Segments field, which takes a comma-separated list of numbers, and uses those values to suppress the output of the LPE for specific path segments. Here's how the earlier image looks when the string "1,2,4" is entered into this field and the tick button is clicked.



You can see that there are no longer any dimension lines rendered for three of the path segments. The three segments are not, however, the first, second and fourth ones in this path. Rather they are the second, third and fourth: the values start at zero for the first path segment in a classic example of a programmer exposing the internal indexes that the software uses, rather than adjusting them to be more user-friendly to the layman.

As you might imagine, working out which segment index you need to use to target a specific part of the path can quickly get tricky with complex shapes, but this LPE does offer a feature to help. Enabling the "Show segment index" checkbox will prefix each dimension with the segment's index, in square brackets. Be aware that it unfortunately doesn't show the index for any segments that are already listed in the Blacklist field, so you may want to enable this option first, while that list is still empty. With no blacklisted segments, and this checkbox enabled, you can see that indexes 1, 2 and 4 do indeed correspond to the omitted dimensions on the

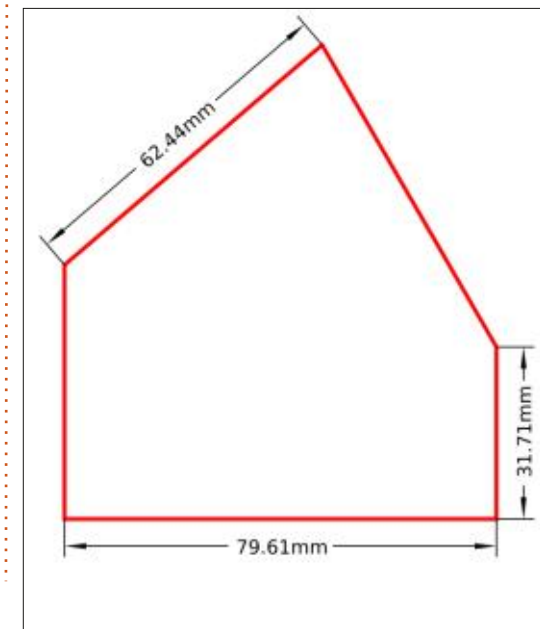
previous image.



One thing to be very conscious of is that the segment indexes are based on the direction in which the path is drawn. If you use the Path > Reverse menu entry, you'll find that the indexes run in the opposite direction, probably requiring you to adjust the blacklist. Similarly, if you add or remove any nodes then the indexes of some of the segments will also change.

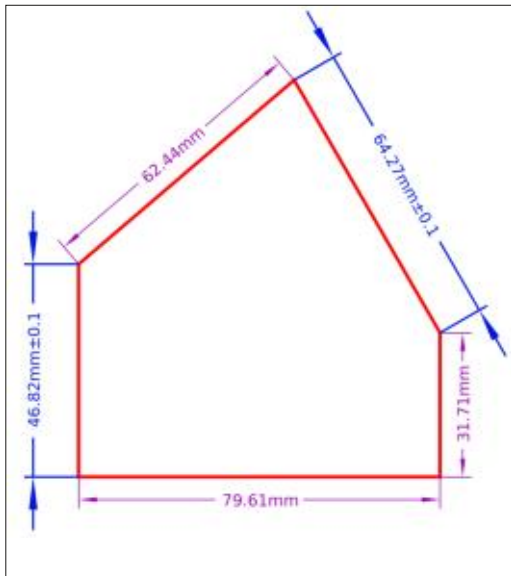
Due to the political sensitivity around certain terms used in computing, there's a good possibility that the "Blacklist segments" field might be renamed in future. Often "blocklist" is used instead, but I think in this case

calling it "Skip segments" or something similar would give a better idea of its functionality. I'm mentioning this because of the last of the sneaky controls: Invert Blacklist. Checking this turns the blacklist into a whitelist – or, more descriptively, turns the "skip segments" list into a "draw these segments" list. This may save you having to enter a long list of segment indexes when you only want the LPE to render a small number of segments from a complex path. With this applied, you can see that my list of "1,2,4" actually results in only those segments being drawn, rather than those segments being omitted.





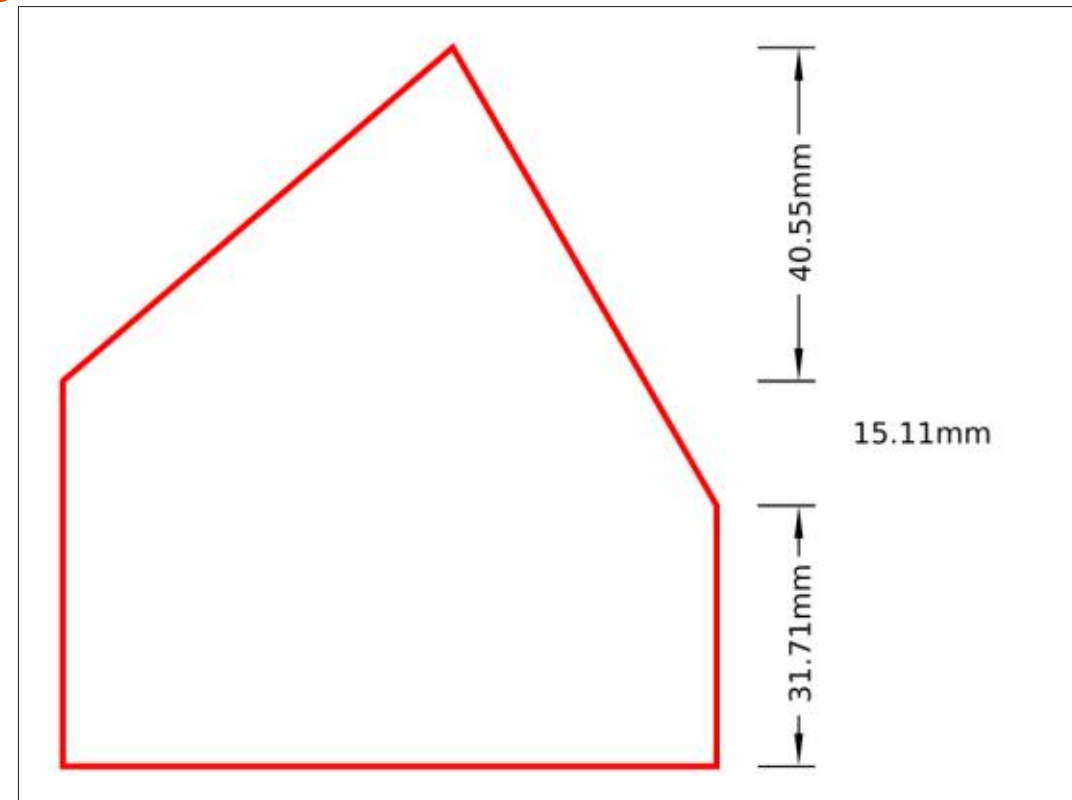
So why do I consider these three fields (Blacklist segments, Invert blacklist, Show segment index) to be “sneaky”? It’s because they allow you to apply this same LPE to a path multiple times, each using different parameters, using the blacklist fields to ensure that each copy of the effect targets a different subset of the path segments. Perhaps you need to color-code different measurements, alter the label format for one segment, or simply move the position of some dimensions so that they don’t clash with other parts of the image. Using these fields will let you achieve all that and more.



Here, for example, I’ve used two copies of the LPE. The first colors three of the dimensions in purple. The second uses the same blacklist, but with the Invert box checked, in order to target the remaining dimensions. These are then drawn in blue, with a thicker line width, arrows on the outside of the extension lines, and a tolerance value added by manually altering the Label Format field.

Now let’s return to the Projection tab that we skipped earlier. I’ll admit that this one has me a little stumped. When the “Activate projection” checkbox at the top is enabled, every node in your path is projected in an invisible straight line along the specified “Angle of projection”, with the final dimension lines showing the distances between those projected lines. As you can see from this screenshot, however, the default behaviour may not be terribly useful, depending on the shape you’re trying to measure, and the angle of projection you use.

There is a section in this tab to which you can add other objects, by copying them to the clipboard and using the Link to Item button, as happens in other LPEs. According to



the tooltip, the nodes of those objects should then be projected onto your path in order to produce datum points for additional measurements. In practice, I haven’t been able to get this feature to work at all, regardless of what I tried. If anyone has some insight into how to use this facility, please do get in touch.

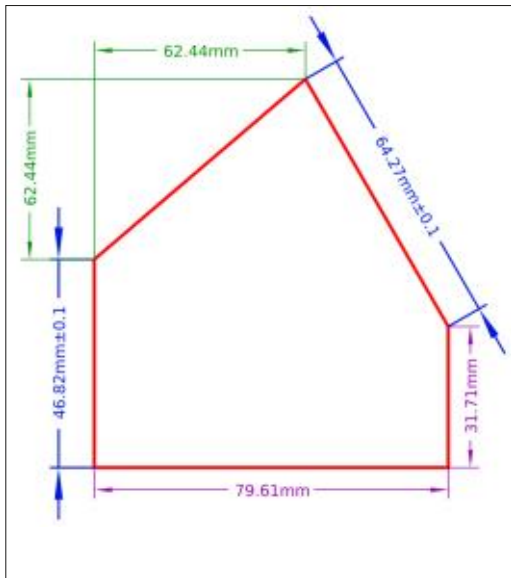
The Blacklist Segments field can be used with projection mode, but the numbers in there are no longer the indexes of the path segments. Instead this allows you to turn off

individual projected measurements. Once again the “Show segment index” checkbox can be used to identify the correct numbers to use. Also once again, this allows you to combine multiple copies of this LPE, with different projection angles, or mixing both projected and non-projected dimensions to produce the result that best suits your needs.

While the Projection tab might initially look useful, in cases where you only want to project dimensions along the horizontal or

## HOWTO - INKSCAPE

vertical directions you may well find that the Orientation pop-up on the General tab lets you achieve a better result – though you’re likely to need to use multiple instances of the LPE, each targeting specific segments, in order to get things exactly as you want them. Here’s another copy of our dimensioned path, this time using the Orientation pop-up to produce the green dimensions at the top left. In this case I had to add two more instances of the LPE, one for each orientation, with both targeting the same single segment.



This really is a very powerful LPE, with a lot of flexibility built into it. It’s a shame that there’s not also a corresponding LPE for

measuring angles, but perhaps that will come in future. Although this may give the impression of adding more CAD features into Inkscape, I see it more as a means of annotating simple sketches, rather than producing production ready designs. I’ve always maintained that Inkscape is a primarily artistic program, and if you want real CAD capabilities then you’re better off learning to use FreeCAD or some other dedicated application.

In this article, we’ve seen what this LPE is capable of – including different fonts and multiple colours that aren’t the same as the source path. The way it achieves this is radically different to the way most LPEs work, and I’ll be looking at the details of that – together with the problems it brings – next time.



**Mark** uses Inkscape to create comics for the web ([www.peppertop.com/](http://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



*I COULD HAVE SWORN  
IT WAS IN THE NOSE . .*

*COVID TESTING  
IN THE REAR*





One of my admittedly stranger personal quirks is that I did NOT grow up reading comics, for the most part. I did have the occasional comic book as a child, but they were few and far between. As a grown-up man (at least superficially), I have a HUGE collection of comics, in both hard copy format and in scanned format. In fact, my core collection – in both hard copy and digital format, numbers somewhere in the vicinity of ten thousand comics.

The first comic book I had access to buy on a regular, monthly basis, with the money I got from mowing the lawn of my grandfather's cantankerous next-door neighbor, was Tomb of Dracula. Having gotten swept up in the latest wave of Monster Mania that regularly sweeps through popular culture, I was able to keep up with the adventures of Quincy Harker (born at the end of Stoker's original novel), Rachel van Helsing (granddaughter of the venerable Abraham van Helsing), and the other vampire hunters who served as Dracula's antagonists and foils.

The stories were written by Marv Wolfman (no, I'm not remotely kidding – I always assumed it was some facetious pen name, but that's the writer's honest-to-gosh real name), and drawn by the inimitable Gene Colan, in collaboration with the equally brilliant ink artist Tom Palmer.

These inexpensive masterpieces really caught my attention. Gene and Tom's art was lush and incredibly detailed. Gene was undoubtedly a phenomenal pencil artist, and Tom drew over Gene's pencils with India ink and the application of Zip-a-Tone (the tiny closely placed dots or parallel lines sometimes used for shading in comics) with unparalleled flair and skill.

As is so often the case, my parents threw my comics away during my early teen years, and I didn't think much about comics again until I met my close friend, Raymond. Raymond had a HUGE collection of comics, and he generously sold me his copies of the original Tomb of Dracula issues

that I had sadly lost. One thing led to another and here I am, 42 years later, with a genuinely unwieldy and unmanageably large collection of four color adventures.

### DIGITAL DOMINATION

This situation is a genuine problem for me. I haven't bought any new comics in about a decade or so, but I do still like to go back and re-read some of my favorites. Jim Starlin's Warlock series, for example, was very innovative and creative when it first saw the light of newsstands in 1972. Side note, most readers are undoubtedly familiar with at least one of Starlin's signature creations: Thanos. Yes, the antagonist for the last two Avengers movies was created by Jim Starlin in the early 1970's, and was the main antagonist in the feature Warlock, first in Strange Tales, and then in his own eponymous series.

But who in their right mind would want to go through a bunch of comics long boxes to find the particular comic they wanted to

read at any point in time? Not me, I can tell you. It's far too big of a lift at this point. The obvious solution is to manage a digital backup collection.

### SCANNING

Fortunately, back in the day, I started scanning my collection before it started becoming so unmanageable, so I was able to reread them conveniently. Even better, I eventually got pen-based Windows XP/Tablet PC Edition laptops that allow me to read them in portrait format, as originally printed, at something very close to the original size. On my Windows machines, I did this using CDisplay, Comical, or the Ice Cream eBook Reader. Fortunately, Linux has a couple of equally viable options.

The application I use for this on Linux is Comix. It can be installed easily from the command-line interface, using the command:

```
sudo apt-get install comix
```

from a terminal.



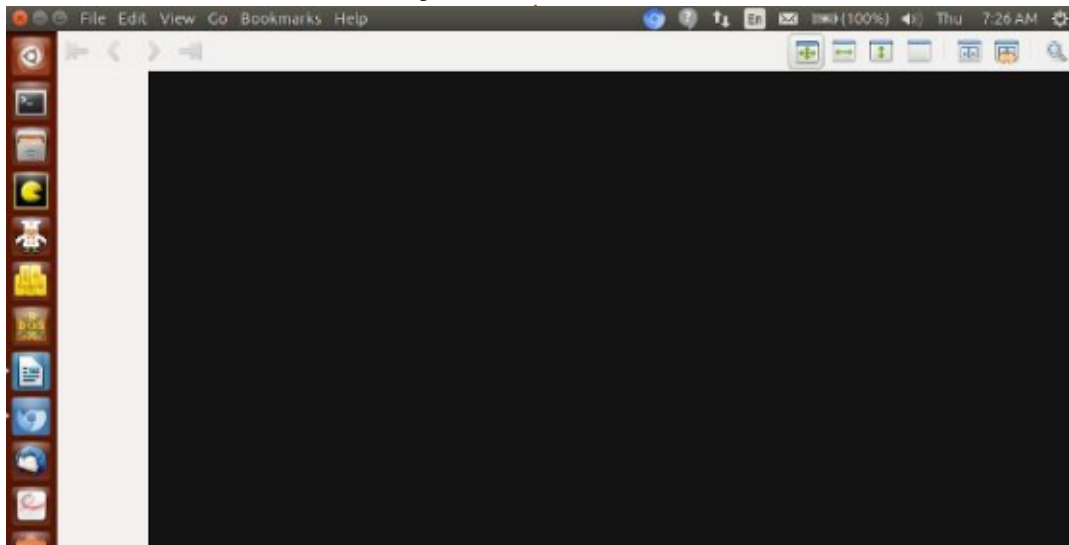
# EVERYDAY UBUNTU

Remember from earlier columns, SUDO (or Super User DO) gives you temporary administrative access to install software. APT-GET is the command-line software install/update/uninstall manager for Ubuntu, and COMIX, of course, is the application we're installing.

## COMIX

Once Comix installation has completed, we can launch it by clicking the Dash (top left icon on your control strip that runs along the left side of the screen), and type in 'COM'. This should be sufficient to show the icon for Comix. Click to launch it:

The interface is admittedly kind



of spare, but this is an application that pretty much only has one specialized use. Click the File menu up top and go to Open, then navigate to where one of your comic book files (either a CBR or CBZ format file) is stored.

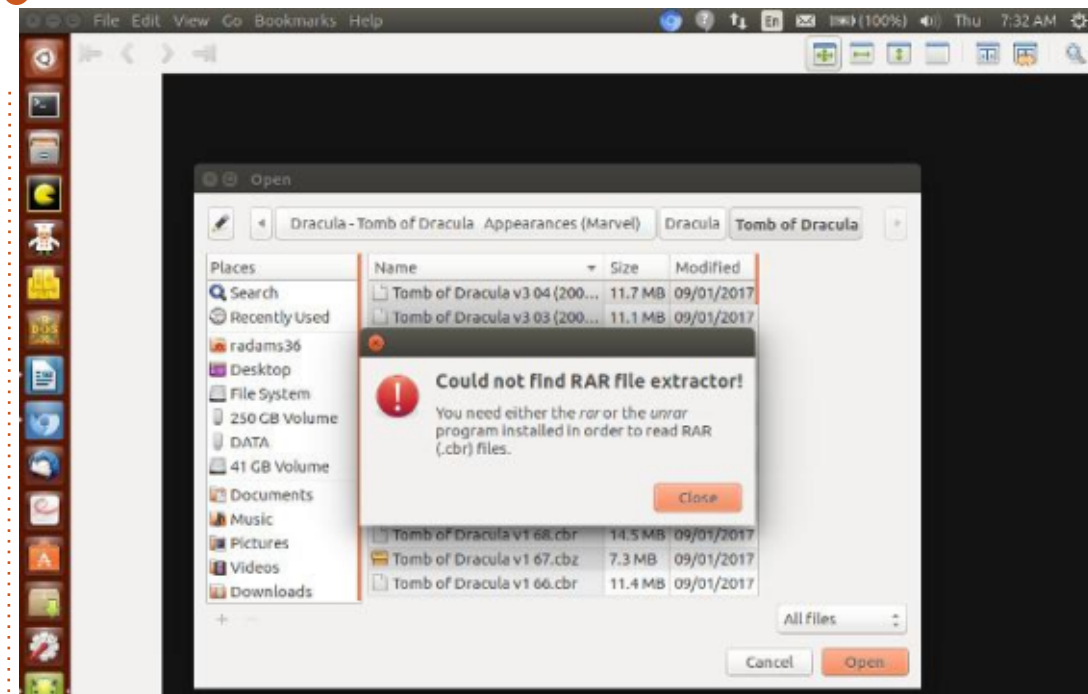
## Ouch!

Whoa, that didn't work! Before even clicking on a CBR, Comix generated this error:

Well, looks like it's back to the terminal and another apt-get command. Let's try this:

```
sudo apt-get install rar
```

and see what happens. Linux goes out to the internet and does a



# EVERYDAY UBUNTU

small download, followed by an installation. So, now, let's try again:

NOW, we're talking! This cover is NOT by Gene and Tom, although it is a good cover. It's penciled by Gil Kane, and looks to me like it's inked by John Romita, who was best known as the long-time artist on Spider-Man, after Spidey's co-creator Steve Ditko departed from Marvel Comics.

## NAVIGATING IN COMIX

In the top left corner of the Comix window, we have First Page,

Previous Page, Next Page, and Last Page navigation buttons. To the right, we have buttons to fit to page, fit horizontally, fit vertically, manual zoom (toggle between full size and fit modes), double-page spread, and 'manga mode', which reverses the page order. There's also the intriguing Magnifying Glass, which produces a square that can magnify whatever part of the art you pass it over, so you can see more detail.

On the left side, there are thumbnails for each page. Let's look at one of my all-time favorite



comic book panels by finding it in the thumbnails (close to the last page), then clicking it:

As much of a simple application as it is, Comix is a real blessing in allowing me to read my comics collection in a convenient fashion.



Wow! I still have to say, that is just a masterful use of shadow and light to produce an incredibly memorable image!

And, just to show Gene's versatility, here's the cover and splash page from the hilarious and incisive satire comic 'Howard the Duck', as we saw last month:

Obviously, it's much easier to pull out one 2 TB external drive with several thousand comics and open the one you want, than to dig through a bunch of physical boxes.



**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](mailto:acer11kubuntu@gmail.com).





This month, we will look at interfacing the LSM303DLHC Triple Axis Accelerometer and Magnetometer (Compass) breakout board to the Raspberry Pi Pico Microcontroller. There are many websites that talk about interfacing the board with an Arduino and a few that discuss how to interface it with the PyBoard, but very few discuss how to deal with the ESP32, ESP8622 or the Raspberry Pi Pico using Micropython.

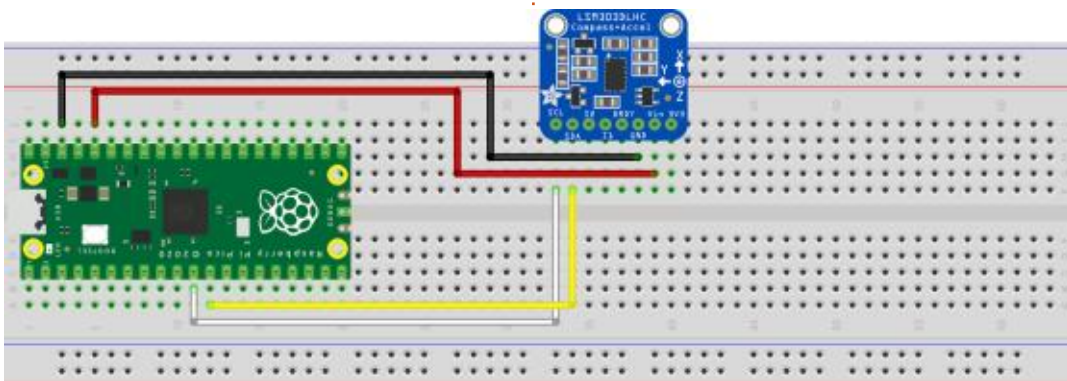
I found three different driver libraries that were supposed to be for Micropython and supposedly supported the three Microcontrollers that we focus on. After testing the three drivers, only

one actually worked properly on any of the three boards and that one only worked on the RPi Pico.

First, let's talk about the wiring. Thankfully, this sensor breakout board supports I2C, so the hookup is pretty standard, as you can see from the breadboard drawing.

I used the standard I2C bus 0, which uses GPIO pin 8 for SDA and GPIO pin 9 for SCL.

Running the i2cscan program for the Pico, I verified that the addresses were 0x19 (for the accelerometer) and 0x1e (for the magnetometer), which matches the driver information.



fritzing

```
import time
from micropython import const
# from robotling_lib.misc.helpers import timed_function
```

Next, the RPi Pico Micropython port doesn't include a method called `deviceAddrList`, so we need to replace that. However, the `i2c.scan` function already returns a list, so we can simply replace the line.

```
# addrList = self._i2c.deviceAddrList
addrList = self._i2c.scan()
```

That driver library can be found at [https://gitlab.iue.fh-kiel.de/hassan.karo/robotling-m3-labor/-/blob/feature/config\\_2020/robotling\\_lib/driver/lsm303.py](https://gitlab.iue.fh-kiel.de/hassan.karo/robotling-m3-labor/-/blob/feature/config_2020/robotling_lib/driver/lsm303.py) but still requires a couple of changes to work correctly on the Pico. I will also provide the modified driver on my repository. You can find the address of the repository near the end of this article.

We can't move forward without the driver modifications, so let's look at the changes. I won't try to provide the full source code here. Copy the source file onto your Pico and use Thonny to modify it.

The first thing that needs to be changed is one line in the import

section (top right). I verified that nothing in the driver code calls the `timed_function` routine, so we can safely comment it out.

Now we need to create a new blank file for our test program. Since we are going to concentrate on the compass feature of the LSM303, the program is pretty simple.

The first thing, as you already know, is to set up the imports. We need to have access to the I2C functions. Since we are using the i2c bus 0, we don't have to import the Pin functions, but I'm going to pull it in as well. We also need to import the LSM303 class from the library we just fixed up, as well as `sleep` from `time`, and the `atan2` and

pi functions from the math library.

```
from machine import I2C, Pin
from lsm303a import LSM303
from time import sleep
from math import atan2, pi
```

Next, we need to define the i2c object, instantiate the LSM303 class to the compass object, and define a variable for the “forever” loop that we will use to continuously poll the magnetometer.

```
i2c=I2C(0)
compass = LSM303(i2c)
loop=True
```

In our driver library is the function that returns a tuple providing the x, y and z axis.

Here is what the function looks like (next page, top right).

Thankfully, we don’t have to type this into our code. Anyway, back to the code of our test program.

Now, we create our “forever”

```
while loop:
    x,y,z=compass.magnetometer
    print(x,y,z)
    heading=(atan2(y,x)*180)/pi
    if heading < 0:
        heading=360+heading
    print("Heading: %s" % heading)
    sleep(.500)
```

```
def magnetometer(self):
    """ The processed magnetometer sensor values.
        A 3-tuple of X, Y, Z axis values in microteslas that are signed
        floats.
    """
    mag_x, mag_y, mag_z = self.raw_magnetometer
    return (mag_x /self._lsm303mag_gauss_lsb_xy * _GAUSS_TO_MICROTESLA,
            mag_y /self._lsm303mag_gauss_lsb_xy * _GAUSS_TO_MICROTESLA,
            mag_z /self._lsm303mag_gauss_lsb_z * _GAUSS_TO_MICROTESLA)
```

loop (bottom left) that polls the compass object to get our heading in relation to magnetic north.

I’m going to borrow some of the text from the Adafruit website to explain what is going on in the code: *In the absence of any strong local magnetic fields, the sensor readings should reflect the magnetic field of the earth (between 20 and 60 micro-Teslas). When the sensor is held level, by calculating the angle of the magnetic field with respect to the X and Y axis, the device can be used as a compass. To convert the microTesla readings into a 0-360 degree compass heading, we can use the atan2() function to compute the angle of the vector defined by the Y and X axis readings. The result will be*

*in radians, so we multiply by 180 degrees and divide by Pi to convert that to degrees.*

After we have the value of where the sensor is pointing, the data coming back will be from -180 to +180. We need to normalize the value to be from 0 to 359. So we simply check to see if the value is less than 0 and if so we add 360 to the value and return that.

Now when we run our program, we’ll get a value that shows our heading. My board has a small indicator silk-screened on it that shows the x, y and z axis. When the x axis aligns to north, the device returns 0.

Save your file as lsm303aTest.py and run it. Move your breadboard around so that the x axis is pointing close to north and watch the values change and try to get the heading value to 0.

I’ve put the code for our project on my repository at <https://github.com/gregwa1953/FCM-179-MicroThisMicroThat>.

In a future article (hopefully next month), we’ll add a NeoPixel style RGB LED ring to our project to provide a visual indication that points to north – no matter what direction we are facing, emulating a real compass.

Until next time, as always; **stay**



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





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# UBPORTS DEVICES

Written by UBports Team



# THE DAILY WADDLE



*COVID-19 IS EDUCATIONAL,  
IT HAS TAUGHT ME HOW TO  
FART TO COVER A COUGH.*





In 1999, I was working as a technician, maintaining laboratory equipment. One day, a colleague, who had been working with me for a few months, knocked on my door and asked me if he could tell me something. I said that he could, and he then told me a story about free software that was available to all who wanted it. He told me that this software was known as Linux and he gave me details of what he had learned about the command-line.

Time went by, and I wondered about this free software. I also wondered about how I could get it for myself. In those days, I was using Windows 95, running on an old Pentium that had been handed down to me by the IT people. It was much better than my old 486 that had been running Windows 3.1, but I was still looking for something that would not be so expensive. I was making use of some open source software, but, after hearing what my colleague had to say, I wanted something that would cost little-to-nothing. I had tried out "Star Office" at home and, when it

became "Open Office," I downloaded and installed it on my Windows 95 system.

One day, my colleague came to me with a CD in hand. He said that it was a copy of "Red Hat", and I could borrow it if I wanted to and he would lend me the book that came with it. I think it was an idiot's guide to Red Hat, or something in that vein.

I took the CD home to install Red Hat on my home computer. After putting the CD into the drive, I floundered around trying to find an install file. I did not realise that I had to boot the CD to get the installation going. Eventually, with the help of my youngest son, I got Red Hat installed alongside Windows XP. I tried some of the programs, but I didn't really know what I was doing. Eventually, I stopped using Red Hat and reluctantly went back to using Windows XP.

As time passed, my colleague taught me more about Linux and how to get it going. He told me

about "Debian," explaining that he preferred it to Red Hat, but was not able to get hold of a copy for himself. These were the days when our home internet was connected through telephone lines, and modems communicated at 56 kilobits/sec. None of us had cell phones then.

In the meantime, I was becoming more familiar with Linux through Googling my queries. Although it had taken some time, I learned that I could "Google the problem" as someone so aptly put it. I also found out that I was able to download Linux from a server provided by the IT people. There was someone who had an interest in Linux and had set up a server with different distributions of Linux available for download.

Remembering what my colleague had said, I downloaded Debian, made up a CD and installed it on my home computer alongside XP. Once again, I looked at the programs that were available and, once again, stopped using it because I was not sure of what I

was doing.

Then came 2004. I was working for a different company, I was still in touch with my colleague who was now part of the IT staff, and my youngest son was working for a company a few kilometres from where I was based. Mark Shuttleworth had released "Ubuntu" and I was able to get a copy of the CD which came to me by post. I should have said 'CDs'. There were two CDs, an "ubuntu live cd" and an "ubuntu install cd." I tried out the live CD on my computer at work and, apart from a small graphics problem, got a reasonable response from Ubuntu. What made me interested in Ubuntu was that it was based on Debian. I had been interested in Debian since that day my colleague had mentioned it to me.

At home, Ubuntu worked well and I was becoming hooked. Then something happened that was to change my outlook on the computing scene in general. At work, I was a Windows XP user with Vista starting to appear on some of



my colleagues' machines. At home, I was using a pirated version of XP. I was not happy with this setup and was considering changing over to Ubuntu only. Then, one morning, I booted XP and, without my permission, it started doing a disk check. This was on my precious, all-of-eight-gig, hard drive. I was furious and stopped the disk check. I found that many of my files had been turned into something quite unrecognisable by Windows, but Ubuntu could see what they were and I was able to recover the important files. At that point, without investigating any further, I decided Windows must go and Linux, in the form of Ubuntu, was here to stay.

I could say that that was where all my problems started. My familiarity with Windows had kept me using Windows-based software which was not available in Linux. I decided to stick it out. For a couple of years I did not make much progress with my home computer but I was learning more about Linux at work. I was allowed to have Windows and Ubuntu installed on my work machine, and my colleague helped me set up the email client. When I wanted to install software on my Ubuntu partition, my

youngest son set up my machine, from his office, to allow me to use "Synaptic." By that time, he was an Ubuntu user and was known at work as "Linux Boy."

Being allowed to use Ubuntu on my work machine made a huge difference to me learning Linux. I was able to spend time finding out about partitioning drives, installing software, and installing new versions of Ubuntu. I went through many of the versions from "Warty Warthog" to "Bionic Beaver." There were times when I was frustrated and despondent but, most times I learned much and thoroughly enjoyed the Ubuntu experience. I even managed to get three friends going with one or other versions of Linux to replace Windows on their home machines. I eventually retired from work with Bionic Beaver

installed on my home machine.

From time to time, in my working days, I would have a look over Debian. I was thinking of my colleague's words, and I really wanted to become a Debian user. About seven months ago, I took the plunge and installed Debian on my home machine.

Remembering my experiences with Ubuntu, I set up the software that I wanted to use. There are times when I run into the odd permissions problem, but, all in all, Debian does it for me. Of all the programs that I use, two were written to run under Windows. I now run them under "WINE." It has taken me just over two decades to reach the point where I can use Debian with confidence. Those years, apart from minor frustration, were marked with much learning. I also realise that there is still much more to

learn. Using Debian has opened a huge door for me despite the fact that I decided to permanently close Windows.





# MY OPINION

Written by Dale\_CDL

# The Origins Of The GUI - Pt.X

BACK NEXT MONTH



# 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](mailto:articles@fullcirclemagazine.org)

## TRANSLATIONS

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## 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.**



Ubuntu Budgie 21.10 was released on 14 October, 2021. This “standard” release is supported for nine months, until July 2022, and is the last of three standard releases that will lead to the next long term support (LTS) version. Ubuntu Budgie 22.04 LTS is due out on 21 April, 2022.

## BACKGROUND ON BUDGIE

Since this is my first look at an Ubuntu Budgie release, I thought it would be good to give some history about where it came from.

The Budgie desktop started as a new project for Evolve OS, a Linux-based distribution which had its first release on December 7, 2013. Evolve was renamed Solus in 2015 and continues as an independent Linux distribution today, with a choice of four desktop environments available, including Budgie.

Today, the Budgie desktop is available on a number of Linux distributions including Debian. Development is headed up by the

Solus development team, with developers from Arch Linux, Manjaro, openSUSE Tumbleweed, and Ubuntu Budgie all contributing.

The Budgie desktop is basically a new user interface using a menu and a dock, all on a stack of Gnome GTK-based applications. Solus describes it as a “feature-rich, luxurious desktop using the most modern technologies.”

## UBUNTU BUDGIE

Combining the Budgie desktop

with the Ubuntu backend was a project started by developer David Mohammed, who assembled a team to work on the project.

The first Ubuntu-based release was called Budgie-Remix 16.04 LTS and was made available in April, 2016. On 8 November, 2016, after just two releases, the project was accepted as an official Ubuntu flavor and renamed Ubuntu Budgie.

Ubuntu Budgie 21.10 is the 11th release, and the ninth since it became an official flavor of Ubuntu.

## BOOTING IT UP

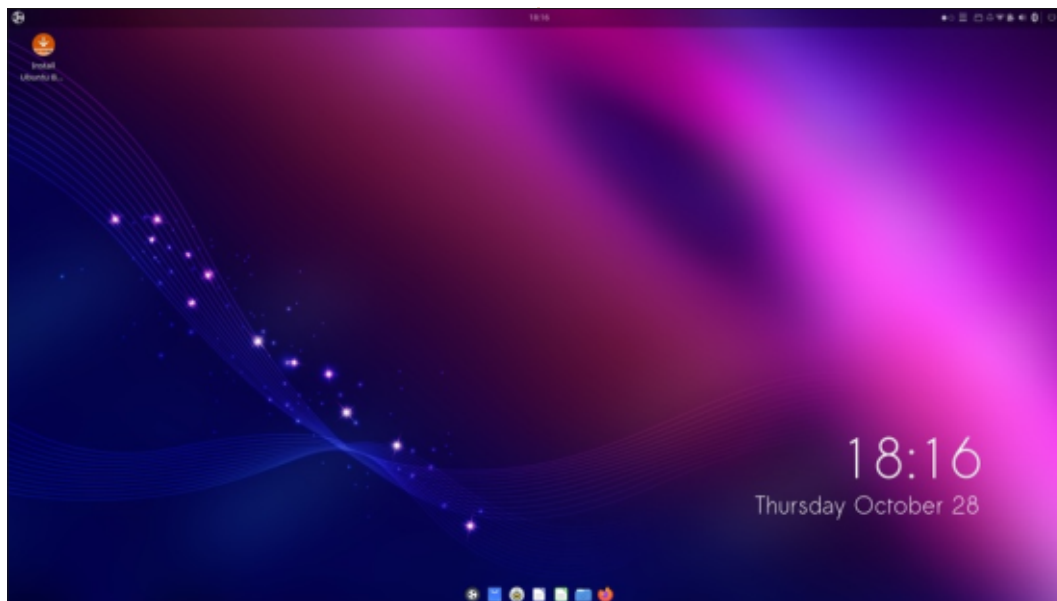
I downloaded the ISO file from the Ubuntu Budgie website via BitTorrent, and completed a SHA256 check on it to make sure that the downloaded file was good. I used UNetbootin to write it to a USB stick, as it conveniently leaves the stick in FAT32 format. For testing, I ran it from the USB stick.

## SYSTEM REQUIREMENTS

The minimum system requirements for Ubuntu Budgie 21.10 are:  
Pentium 1.6 GHz dual core processor  
2 GB RAM  
16 GB of hard-drive space

The recommended system requirements for Ubuntu Budgie 21.10 are:  
Pentium i3 processor  
4 GB RAM  
80 GB of hard-drive space

I tested it on new hardware with a quad-core 4.7 GHz processor and





# REVIEW

32 GB of RAM, so it ran very quickly and smoothly.

## NEW

Ubuntu Budgie 21.10 includes Budgie desktop 10.5.3, and this includes a large number of refinements and improvements over the previous release. This version even introduces an optional setup that mimics the Windows 11 desktop, to make transitioning to Budgie easier for Windows users.

This release includes support for Gnome 40 and improved Raspberry Pi 4 hardware. Like all the Ubuntu 21.10 flavors, it uses Linux kernel 5.13.

## FIREFOX AS A SNAP

One of the controversies in all the Ubuntu 21.10 family of releases has been Canonical's move to make the Firefox web browser a snap package. For now, the snap format for Firefox is available in addition to the traditional .deb package, but there is a plan to remove the .deb from the repositories for the next release, 22.04 LTS, across the board.

This move was actually requested by Mozilla, the organization that develops Firefox, to make their support for Linux simpler and less labor intensive. They will be able to move to

maintaining the snap alone, instead of multiple packages for different Linux distributions. Moving to a snap package will also make Canonical's job easier, plus users will get Firefox releases faster and with seamless updates as well.

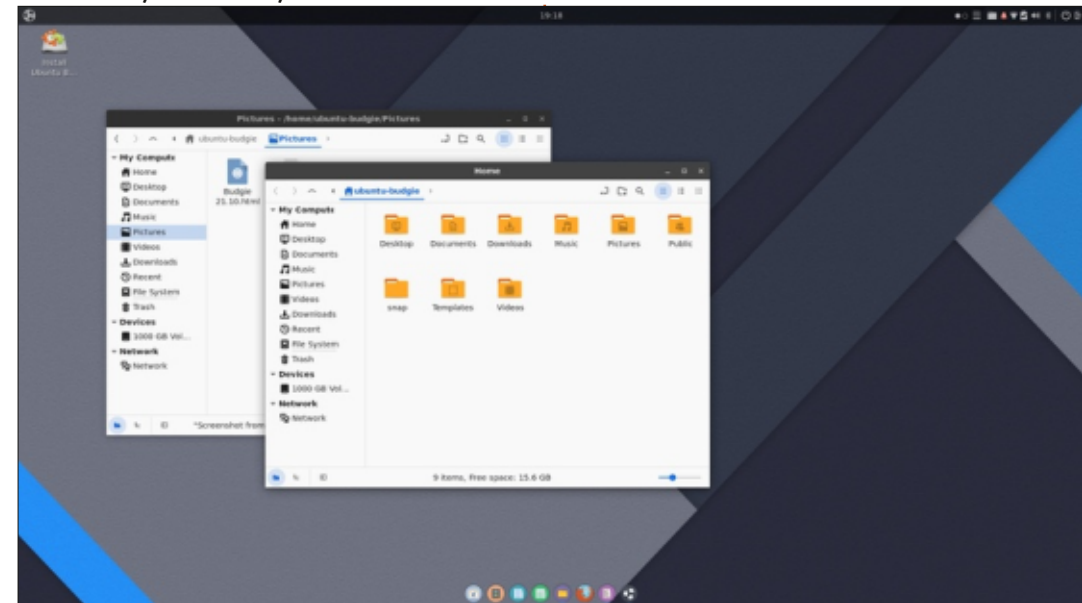
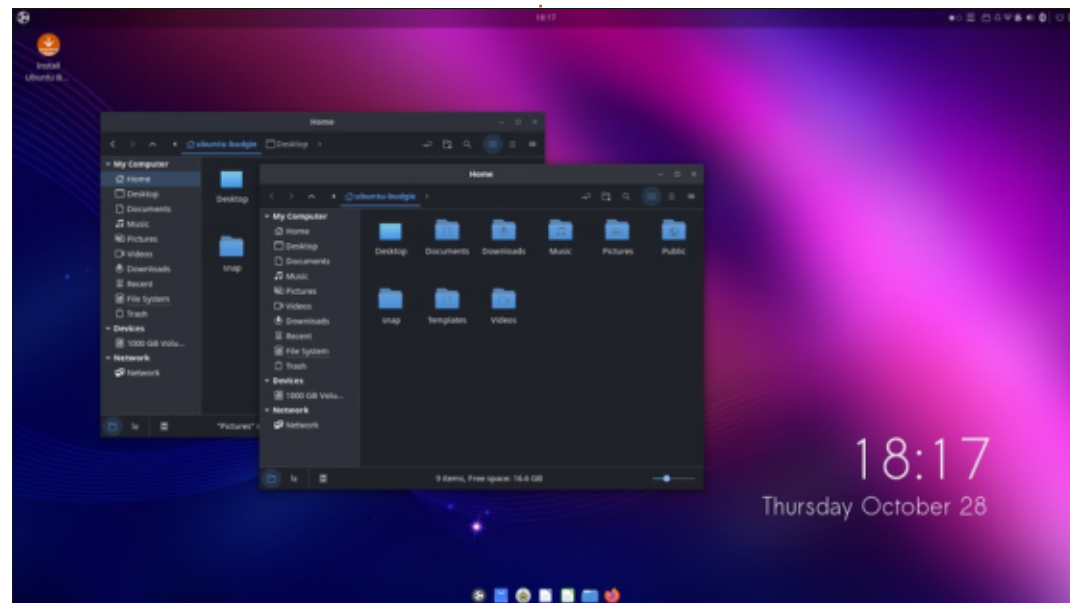
The downside of snaps is that, because they include all needed dependencies, the downloads are bigger, they can be slow to open and don't always get system-wide window themes right.

The different Ubuntu flavors are approaching the Firefox snap issue differently, with mainstream Ubuntu 21.10 incorporating it as default this time around, while Kubuntu, Lubuntu, and Xubuntu are

sticking with the .deb for 21.10.

Ubuntu Budgie 21.10 has also retained the .deb version, while adding in the release notes, "we do encourage all 21.10 users to start using the snap version now, and feedback your findings back to Canonical so that 22.04 will be as problem-free as possible." This seems like a sensible approach, given the short timeline involved.

It is probably worth noting that the snap and .deb versions of any application can coexist on any operating system, and even be both open and in use at the same time, making them easy to test and compare.



# REVIEW

David Mohammed notes that snaps work well with the standard Budgie Pocillo and QogirBudgie themes, as they are available as snaps too.

## SETTINGS

Ubuntu Budgie 21.10 does offer some reasonable user customization, but the settings are spread over a number of different places. Some, like wallpaper choices, are in the standard Ubuntu Settings menu, while others are in Budgie Desktop Settings or Budge Extras. Once you locate where the settings are hidden, it is not too hard to set up your desktop.

Ubuntu Budgie 21.10 includes a choice of six extra themes that can be installed separately from the default Pocillo theme. These are mostly contained in third-party PPAs, which is an unusual way of packaging themes. Each one comes with not only the window theme but its own wallpaper and icon set. Most of the themes are quite dark, as is the default theme. It is actually hard to get a light-themed desktop within the options given, something other reviewers have noted as well in the past.

There are also 36 desktop applets, small programs which add functionality similar to Kubuntu's "widgets". Choices include calendars, clocks and a clipboard

applet.

The default wallpaper for 21.10 gives the desktop a sort of "space" theme, and looks quite modern. There are 14 wallpaper choices provided, or you can use your own.

## APPLICATIONS

Ubuntu Budgie applications can be launched from the main menu or the dock. The menu is configurable to show large icons or a list. It can be easily opened via mouse or touchpad from the Budgie icon in the top-left corner. It can also be accessed by hitting the "super" key and then typing in the name of the application you want, keeping hands on the keyboard, which is efficient.

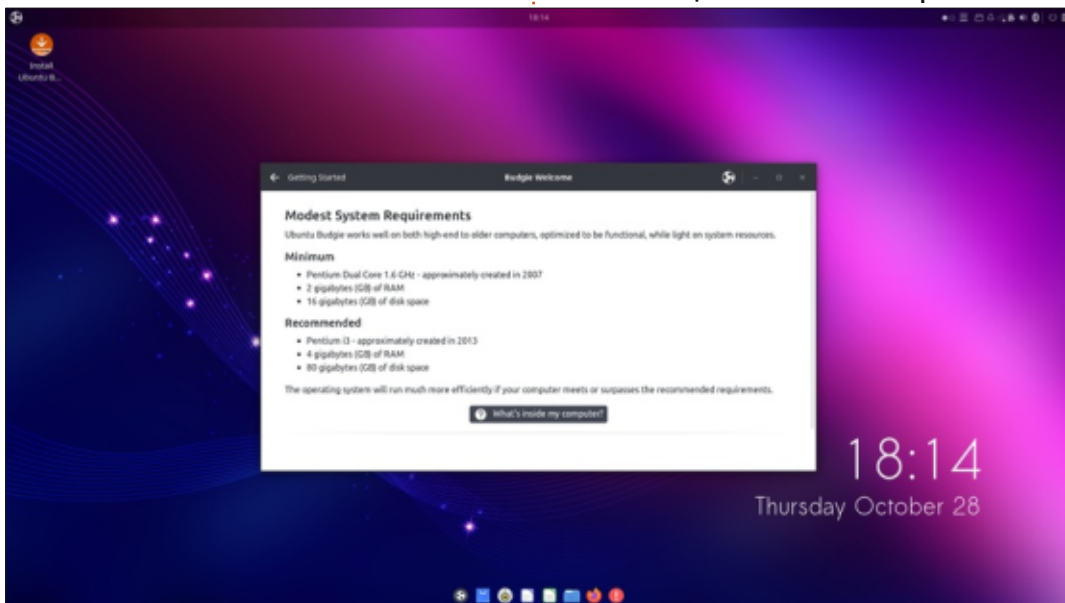
The dock is centered at the bottom of the screen and is small and quite unobtrusive. When applications are maximized, it auto-hides. The dock shows which applications are open via small dots, one for each instance in use, Mac-style.

Some of the applications included with Ubuntu Budgie 21.10 are:

- Archive Manager (File Roller) 3.40.0 archiver
- Catfish 4.16.2 file search
- Celluloid 0.20 movie player\*
- Cheese 3.38.0 webcam application\*
- CUPS 2.3.3 printing system\*
- Document Viewer (Evince) 40.4 PDF viewer
- Document Scanner (Simple Scan) 40.5 optical scanner
- Drawing 0.8.3 image editor
- Firefox 93.0 web browser
- Gnome Calendar 41.0 desktop calendar
- Gnome Disks 41.0 disk manager
- Gnome Software 40.4 package management system
- Gnome System Monitor system resource monitor
- Gparted 1.2.0 partition editor
- gThumb 3.11.2 image viewer\*
- LibreOffice 7.2.1 office suite
- Nemo 4.8.6 file manager
- PulseAudio 15.0 audio controller
- Rhythmbox 3.4.4 music player\*
- Text Editor (gedit) 40.1 text editor
- Thunderbird 91.1.2 email client
- Transmission 3.00 bittorrent client\*

\* indicates same application version as used in Ubuntu Budgie 21.04.

The application collection includes a mix of software mostly from Gnome. Notably not from Gnome is the Catfish file search



## REVIEW

which is from the Xfce desktop found on Xubuntu.

Ubuntu Budgie 21.10 uses the Nemo file manager instead of the standard Gnome file manager, Nautilus. Nemo is a better choice as it restores several needed features that Nautilus deleted a few years ago – including the "up one level" arrow button.

I am not entirely sure what the user case for including Catfish is, as Nemo has a builtin file search that works very well.

Ubuntu Budgie includes the Cheese webcam application but omits a default CD/DVD burning application.

Ubuntu Budgie 21.10 also includes LibreOffice 7.2.1, which is lacking only the LibreOffice Base database program.

PulseAudio 15 brings support for both Bluetooth LDAC and AptX codecs, and adds HFP Bluetooth profiles which provide improved audio quality, particularly for Bluetooth audio.

The default gedit 40.1 text editor has syntax highlighting, with a choice of seven different highlight color schemes, five of which are dark themes. As always, gedit includes spell-checking by default (at Shift+F7). It requires no setup, and is ready to use for

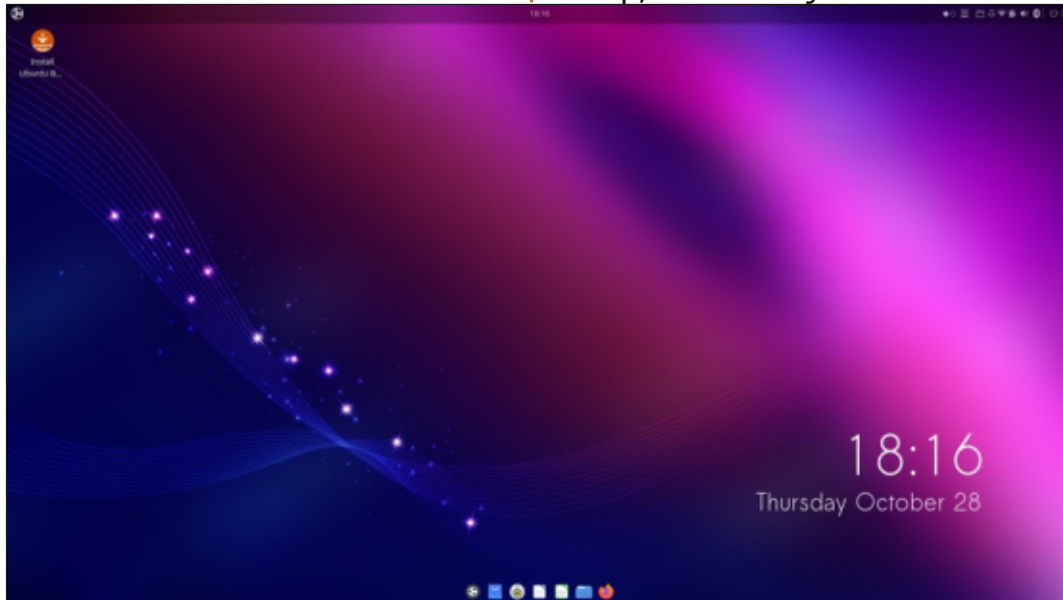
writing text documents, coding or creating web pages, right out-of-the-box.

## CONCLUSIONS

Ubuntu Budgie 21.10 is a solid release with no serious issues. It has some incremental changes over the 21.04 release, and points to a spring of 2022 LTS release that will probably be very similar to 21.10, with just the switch of Firefox from .deb to a snap package expected.

Budgie users and developers seem to have an affinity for dark themes as most of the available color schemes are quite dark. It is actually hard to set up a light desktop.

Because it is basically a Gnome distribution with a different interface, Ubuntu Budgie will appeal to Gnome fans, just as Ubuntu and Ubuntu Unity do. The interface has also been designed to appeal to both Windows and Mac users, and to create an easy transition for people using those operating systems.



**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.



# LETTERS

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

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

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

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





# Q&A

Compiled by EriktheUnready

If you have a Linux question, email it to: [questions@fullcirclemagazine.org](mailto: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.

One of my clients had their own internal IT department that handled the day-to-day stuff and dumped the stuff they did not want to deal with on us. Via some internal reshuffling, they went on their own and eventually got bought out by another company. I happened to be around during the acquisition meeting and show-and-tell. The new owners were explaining to the company bosses how much technical expertise they have to call on and how competent they were. All these technical "experts" were listed and

technology buzzwords were being fired off like machinegun rounds. I could see that everyone was impressed. The new 'old' IT guys were showing the 'new' bosses around the office. I joined the procession as our contract only ended in 3 years, so we would still be around. We went from office to office, to server rooms, to network cabinets, before finally stopping at the store room on the lower floor. The 'old' IT manager pointed to a cabinet and said: 'That one is for the Macs'. (IIRC, they were G4 laptops). Mr Slick (I cannot remember his name) who was so up-to-the-minute on every IT happening, knowing everything there is to know about IT, responded with "maximum what?" I had to turn around and walk into an open elevator, and laughed out loud once the doors had closed. They did not know there was anything besides Windows. I would have loved to take him into a proper server room with Linux servers.

**Q** : Michael Breed, [2022/01/03 08:04]

What the hell is this:  
[16655.870278] br-b6727aa2af8f:port 1(veth7cc8283) entered blocking state

**A** : By the looks of it, some kind of bridge, probably created by a virtual machine or container. Type; nmcli device (and press enter), to see a list of devices.

**Q** : Sidney Farmer, [2021/12/22 13:37]

So I ran an upgrade of my system, but if I do a `uname -a`, it doesn't show that it is upgraded. Why? How can I fix it?

**A** : First, "uname -a" is the currently running kernel – it could be that you did not reboot yet?

**Q** : Is there some way I can find out about systemd without sending me to forums. I hate having to sign up for s\*\*t using my email or phone. Even discord won't let me

ask questions without entering a phone verification.

**A** : I know the feeling, I have the same issue with Gmail. Check here: <https://www.freedesktop.org/software/systemd/man/index.html>

**Q** : I installed nodejs on my Ubuntu 16.04 laptop – to install an application. Previously, I have used only apt-get to install software, so this is all new to me. It is supposed to be easy yet I ran into: `wanted: {"node": ">= 12.0.0"}`. As far as I can tell, the app is on version 11. Is this an Ubuntu thing, or am I getting the wrong version of the app?

**A** : Neither, nodejs on Ubuntu 16.04 is probably like version 8. The program you are trying to install needs a later version of nodejs/npm itself. You can try and force an update of nodejs, or the program version, with: `npm install -g xxx`, but that is best asked at their forums.

**Q**: I have a 2GB Raspberry Pi, and I have heard that Ubuntu Mate runs best on it. I want to have it connected to my TV at the end of the day, and don't want a slow thing. I have tried the normal Ubuntu, but it was very sluggish. What do you suggest?

**A**: In my experience, the Raspberry pi OS works best; yes I know it is ugly, but you want speed, no?

**Q**: I want to upgrade my non-internet connected Ubuntu to 20.04. I have the image on CD. I know Ubuntu can upgrade from CD, but I do not know how. Can you give me a step-by-step please? All details here ---- <removed>

**A**: Though it is probably possible on some level, you cannot go from 14.04 to 20.04 via the upgrade path like that. For upgrading, you need to follow the path first - 18.04. That all said, it will be faster and less hassle to back up your home folder and install 20.04 fresh.

**Q**: I have been playing with different shells on my Ubuntu

machine, and noticed that node gives me a "no such file or directory" when I run it. It seems fine in bash, tho. How come?

**A**: Start with: which nodejs - and remember the output. Now link it with:

```
sudo ln -s /usr/bin/nodejs /usr/bin/node (YOUR path if different)
```

that should fix it.

**Q**: Is there a way I can get output back to my terminal once I press ctrl+l? I haven't touched anything since then.

**A**: Nope, you have to re-run the command again.

**Q**: My laptop has a 1366 screen, and while this is not a problem most times, it becomes a problem when browsing. There is just not enough screen. Is there something I can do, as I just don't have the money for a new laptop at the moment, we are talking 5000BRL that I don't have. The reason this is Ubuntu is because it is too old to run Windows already.

**A**: Not that Windoze would make a difference, the resolution is set by the screen itself. You can replace the laptop screen, it is possible, but a no-cost option would be a DE that has no panels to get that extra space, using F11 for full-screen mode, using "CTRL and -" to make the text smaller. Linux has many solutions.

**Q**: On MacOS, I can install unarj with homebrew, but I get \*blank when trying apt-cache search unarj in Ubuntu. This is kinda important as I need some files from my Mac.

**A**: You can just install arj on Ubuntu; that will let you extract files with your favourite compression application.

**Q**: Why can my Derrick user on my laptop not be the Derrick user on my Ubuntu server via ssh?

**A**: Have you tried ssh -A ? [https://docstore.mik.ua/oreilly/networking\\_2ndEd/ssh/ch02\\_08.htm](https://docstore.mik.ua/oreilly/networking_2ndEd/ssh/ch02_08.htm) or <https://www.simplified.guide/ssh/start>

**Q**: I have Xubuntu 20.04 installed on my HP PC. The software updater updates my stuff, but not everything; it seems to skip snaps and Flatpaks. How do I configure it to update those as well?

**A**: The short answer is, you don't. Software updater is made for .deb-files only. The consolidated packages and dependencies of Snaps and Flatpaks get updated automatically, and do not need an external manager like software updater as the dependencies are already contained inside the package.

**Q**: I have a dual-boot system with Windows and Ubuntu. I want to take the passwords saved in all my browsers on Windows and use them in Ubuntu. How do I do this?

**A**: That question is more loaded than you realise. You can't just access Windows from Ubuntu and drag them across. On the Windows side, use [https://www.nirsoft.net/utils/web\\_browser\\_password.html](https://www.nirsoft.net/utils/web_browser_password.html) to see all your browser passwords and take a picture with your phone, then, on the Ubuntu side, enter them all again.

**Q**: So I want to use Brave as my default, but somehow I can't seem to set it as the default for opening web pages. I have Kubuntu 20.04, and my laptop is a Lenovo. I am dumb with these things, can you help?

**A**: I did a quick trawl and it seems you need the version from the official website. See: <https://unix.stackexchange.com/questions/687275/cannot-set-brave-as-default-xdg-open-browser-in-kubuntu-20-04>

**Q**: Can my Kubuntu machine be hacked if it is not connected to the internet?

**A**: It is POSSIBLE, just not PROBABLE.

**Q**: I have installed Ubuntu on my PC, and, after installation, it just hangs at the login screen. Can you help me?

**A**: Nope, I am going to need more than that. Did you verify the ISO? Did you verify your installation media? Did you try connecting it to the internet during

installation and getting updates whilst installing?

**Q**: I am using Bluemail for my email and I have run into a problem. I read that I need to clear my cache, but I don't know how to do that.

**A**: You need to find out WHAT cache you are supposed to clear. Here is where the Bluemail cache is stored: /home/<YOUR username>/.config/BlueMail/Cache/ - you should be able to find it in your file browser if you have hidden files exposed.

**Q**: My laptop has 2 drives: one tiny SSD and one large SATA drive. I want to install a game on the SATA, but it does not show up in steam as an option. How can I link this in steam?

**A**: You need to ditch the Snap or Flatpak or Appimage you are using, and get the .deb version. Luckily, I saw this somewhere last week, or I would have had no idea. It has to do with permissions of containerized apps.

**Q**: How do I know which Ubuntu commands support which flags? I have noticed some work on a variety of commands, and some do not, like -v.

**A**: Nope, you are thinking about it the wrong way, though there are common flags like -v, each command has its own supported list of flags and options. You simply type "man" before the command, eg. man ls - and you will get sort of a manual for that command.

**Q**: So I have a script running via ssh that takes a loooooong time - actually, I don't think it ever finishes, just starts again - but I don't want it interrupted or stopped. I have been trying ssh options as well as ending the command with an ampersand.

**A**: An ampersand just moves it out of the foreground. Anyway, by the time this is published, you should have seen our article in command-and-conquer about terminal multiplexers.

**Q**: Where do I get Ubuntu Mate 20.04 32-bit to run on a raspberry pi 3 32-bit? Thanks.

**A**: A Raspberry pi 3 is Arm v8, thus 64-bit. Ubuntu 20.04 is 64-bit only. You should have no problems installing.

**Q**: How can I update my Dell BIOS - a bloody .exe file - via Ubuntu? I thought Dell supported Linux?

**A**: I have not done it outside Windows, I keep an old drive with Windows on to do it, but it seems there is a way: <https://dellwindowsreinstallationguide.com/linux-vendor-firmware-service-uefi-bios-update-ubuntu/> and here: <https://www.dell.com/support/kbdoc/en-za/000131486/update-the-dell-bios-in-a-linux-or-ubuntu-environment> or <https://www.dell.com/support/kbdoc/en-za/000122025/how-to-update-firmware-under-linux>



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





Website: <https://www.thetadivision.com/>

Price: 14.99 USD

Blurb: "VirtuaVerse is a challenging old school cyberpunk point & click adventure, set in a future not so far away, narrating tales of technomancers, AVR graffiti writers, hacker groups, tribes of cryptoshamans, digital archeology, epic cyberwars, and virtual reality debauchery."

As many of you may know, I often find games via their soundtracks, not looking for games, but finding them attached to some inspirational sounds. I stumbled across this soundtrack by clicking on a picture of an Amiga loading screen, see and listen here: <https://www.youtube.com/watch?v=wSqMC2f-7y8>

The composer has a YouTube page: <https://www.youtube.com/channel/UCEVndLRqBDNcZhBdWo5oepg> - that I am sure will not be to everyone's tastes, but it is a nice

(sometimes harsh) synthwave orchestral industrial rock and chiptune fusion? Who cares what genre it falls into, I like it.

Virtuaverse is another one of the games riding the current Cyberpunk wave. Pixel art cyberpunk, mind you. It is one of those titles that adhere more to the original genre, with constant rain, neon everywhere, and Japanese everything else. William Gibson would be proud. Virtuaverse brings this aesthetic or vision of William Gibson to life in a good

way.

You are in control of Nathan, a nerd who likes to tinker with things, and you realise has no morals. He wakes up to find his girlfriend gone and decides to go looking for her. (She is a little shady, giving the story a bit more depth). Nathan does not have eye implants to see the virtual reality everyone else sees, he sees the real world - but he has a VR headset (that he breaks in the opening scene), that allows him to do some fancy things. The game is old-skool point-and-click, and involves some moon puzzles and

red herrings. You have been warned, it won't be easy. There are also those tiny hidden items that you may miss, that will come back to bite you in the butt. So if you want to unravel this story, you will need patience... a lot of it too. No really, I rage quit more than once.

The nice part about the puzzles is that they start you off easy. Your first puzzle is to get a cab, but your girlfriend changed the code and the elevator in your apartment only takes you to the next floor. (What? No stairs?). and the puzzle resolves in two screens, unlike later in the game.

Though the music is top notch, there is no voice acting. I would have thought that a game like this would have some. It would definitely have taken it to the next level, but such is life, I suppose? If you are a voice actor, why not offer your services to the developer, then again, nobody reads these. I spent a lot of hours just going back to previous locations and clicking around in this game. You collect items and use those items to solve



puzzles, by using them straight up, or by combining them. That said, Nathan's pockets are bags of holding (a DnD reference if you are confused, look it up), as he carries everything including the kitchen sink! There are also the moon puzzle elements as I mentioned before, things that make zero sense to me on every level.

Graphics-wise the pixel art is well done, other than the main character, who is in a hooded cowl like my character in Loom all those years ago. I understand it is to create mystery, but when he gets out of bed that way, it sort of shatters the illusion. Interiors are well done too, and even moving objects like fire don't look bad at all. The dialogue in the game is decently written and you will enjoy

it. It just needs your full attention as there is no going back or re-reading what characters said, just to be sure you did not miss anything. The branching dialogue gives the NPC's a bit of depth, other than just giving you clues to solve your puzzles or to get you to the next area. Nathan is also an anti-hero, who will lie, cheat and steal to get his way, which further enhances the story.

It does flop once you find out about his girlfriend. It feels somehow forced. The puzzles are good overall, except for the few moon puzzles that ruined the game for me. If it weren't for the soundtrack, I would have deleted the game right at the first moon puzzle. I have heard people describing these as "you need to

think outside the box", which is a phrase I hate so much, as people using it have no clue as to what it means, and I am pretty confident I will stab the next one who lays it on me with a screwdriver. To be honest, this game is held aloft by the soundtrack.

Virtuaverse is an incredibly challenging adventure to be sure, and is aimed squarely at point-and-click fans and Cyberpunk fans. If you take into account that with pixel art, everything has to be drawn by hand, you get a new appreciation of the size of the game. Unfortunately, the story does take a dip, not that it was brilliant to start with. You will get a real sense of accomplishment from solving the puzzles though, so if

you are dopamine hunting, this one's for you.

For me, voice acting, and the removal of the moon puzzles for logical ones, would justify the \$15 price tag, but not like it is. If you can get it on sale and point-and-click is your bag, I say take it. Just get the soundtrack too!



**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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