



# Full Circle

THE INDEPENDENT MAGAZINE FOR THE UBUNTU LINUX COMMUNITY

ISSUE #154 - February 2020



Photo: jason saul  
(Flickr.com)



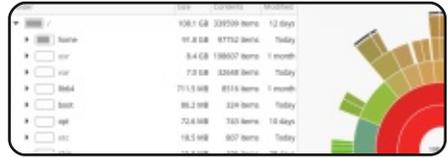
## CHECKING DISK USAGE WHAT'S USING ALL YOUR DISK SPACE?

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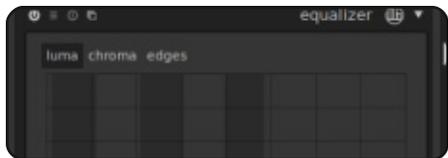
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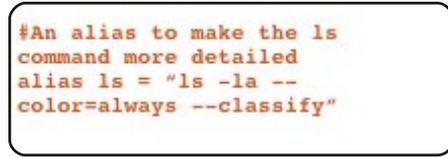
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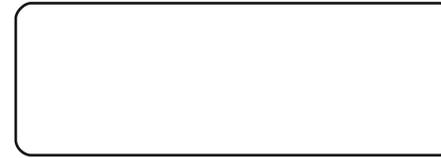


# Full Circle

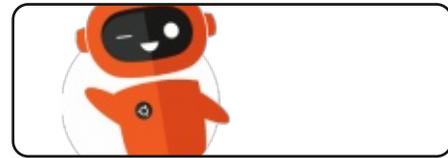
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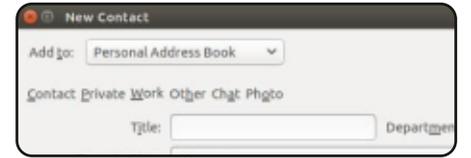
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## WELCOME TO THE LATEST ISSUE OF FULL CIRCLE

We have with the usual suspects of Python, Darktable, Inkscape, and Krita. And if you're finding disk space a bit tight then you might want to have a look at the piece about checking your disk usage.

While we're certainly ploughing through 2020 (almost March already!) we have a look at Lubuntu 19.10. It might be *sooooo* last year, but definitely still work checking out.

Erik is bringing the Linux Certification series to a close. Not through lack of content, but just through lack of external communication. In short: he has no idea if anyone is reading it. He's not had an email about it since it started. **This is becoming quite a problem.** If you, the readers, don't tell us what you like/dislike then we've no idea what you're reading or skipping, loving or hating. That kind of thing. So, if you enjoy something in the magazine. **Let us know!** Otherwise, we've no idea whether we're going in the right direction or not.

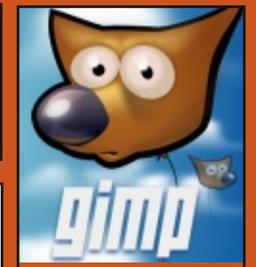
**All the best, and (please!) let us know what you like/dislike.**

*Ronnie*

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## MORE INTEL VULNERABILITIES:

L1DES (CacheOut) and VRS

01/28/2020

Intel revealed two new vulnerabilities in the Intel CPU caused by data leakage from the L1D cache ( CVE-2020-0549 , L1DES - L1D Eviction Sampling) and vector registers ( CVE-2020-0548 , VRS - Vector Register Sampling). Vulnerabilities belong to the class of MDS (Microarchitectural Data Sampling) and are based on the application of methods of analysis through third-party channels to data in microarchitectural structures. AMD, ARM and other processors are not subject to the vulnerabilities.

Intel promises to release a firmware update to block the vulnerabilities in the near future. Intel also notes that the use of the L1TF (L1 Terminal Fault) protection methods proposed in 2018 can block the exploitation of the

L1DES vulnerability from virtual environments. Intel Core processors, starting from the sixth generation (Sky, Kaby, Coffee, Whiskey, Amber Lake, etc.), as well as some Intel Xeon and Xeon Scalable models are subject to attack .

<https://blogs.intel.com/technology/2020/01/ipas-intel-sa-00329/>

## MPV 0.32 VIDEO PLAYER RELEASED:

01/28/2020

An MPV 0.32 open video player was released, which is a fork of the code base of the MPlayer2 project. MPV focuses on developing new features and ensuring continuous backporting of innovations from the MPlayer repositories without worrying about maintaining compatibility with MPlayer. MPV code is distributed under the LGPLv2.1 + license, some parts remain under GPLv2, but the process of

switching to LGPL is almost complete and you can use the --enable-lgpl option to disable the remaining GPL code.

<https://github.com/mpv-player/mpv/releases/tag/v0.32.0>

## TRAFFICTOLL 1.0.0 UTILITY TO LIMIT APPLICATION TRAFFIC:

01/28/2020

NetLimiter-like bandwidth limiting and QoS for Linux has arrived. It is positioned as a Linux alternative to the proprietary program NetLimiter for Windows. The program simplifies the installation of bandwidth limits in the context of individual local applications, as well as already running processes. For example, you can cut the bandwidth for a file upload program and increase it for video chat. Settings are defined in a simple text configuration file. Incoming and outgoing traffic are limited using the IFB module

(Intermediate Functional Block), which replaced the iptables IMQ module. The code is written in Python and distributed under the GPLv3 license.

<https://github.com/cryzed/TrafficToll>

## THUNDERBIRD DEVELOPMENT TRANSFERRED TO MZLA TECHNOLOGIES CORPORATION:

01/28/2020

Thunderbird email client developers have announced the transfer of project development to a separate company, MZLA Technologies Corporation, which is a subsidiary of the Mozilla Foundation. Until now, Thunderbird was sponsored by the Mozilla Foundation, which oversaw financial and legal issues, but the infrastructure and development of Thunderbird were separated from Mozilla. This will

help keep the development and incoming donations separate.

It is noted that the increased volume of donations from Thunderbird users in recent years now allows the project to successfully develop independently. Moving to a separate company will increase the flexibility of processes, for example, it will provide an opportunity to independently hire personnel, act more quickly and implement ideas that would not be possible as part of the Mozilla Foundation. There was mention of the formation of Thunderbird-related products and services, as well as revenue generation through partnerships. Structural changes will not affect the work processes, mission, composition of the development team, release schedule and the open nature of the project.

<https://blog.thunderbird.net/2020/01/thunderbirds-new-home/>

## GOOGLE HAS PUBLISHED A BROWSER-BASED APPLICATION FOR INSTALLING ANDROID FIRMWARE:

01/28/2020

Google introduced the new Android Flash Tool service (flash.android.com), which allows you to use a browser to install firmware on Android smartphones connected to your computer. Packages are based off fresh slices of the AOSP (Android Open Source Project) master branch, which has been tested in a continuous integration system. This may be of interest to developers who want to test the latest changes in the Android code or test the operation of their applications.

The Android Flash Tool requires a browser that supports the WebUSB API, like, Chrome 79.

<https://android-developers.googleblog.com/2020/01/flashing-android-open-source-project-builds.html>

## VULNERABILITY IN OPENSMTDP:

01/29/2020

The OpenSMTPD mail server developed by the OpenBSD project, has identified a critical vulnerability (CVE-2020-7247) that allows remote execution of shell commands on a server with root user rights. The vulnerability was identified during a re-audit conducted by Qualys Security. The issue is fixed in the latest release of OpenSMTPD 6.6.2. It is recommended that all users urgently install the update (for OpenBSD, the patch can be installed via syspatch).

Two attack vectors were described. The first vector works in the default OpenSMTPD configuration (accepting requests only from localhost) and allows you to exploit it locally when the attacker can access the loopback interface on the host. The second one is materialized when OpenSMTPD was configured to accept external network requests (mail server that accepts third-party mail). The researchers have a

prototype exploit that successfully works with both the OpenSMTPD version of OpenBSD 6.6 and the portable version for other operating systems (conducted in Debian Testing).

<https://www.openwall.com/lists/oss-security/2020/01/28/3>

## GOOGLE PAID \$ 6.5 MILLION IN VULNERABILITY REWARDS IN 2019:

01/29/2020

Google has summed up the rewards program for identifying vulnerabilities in its products, Android applications and various open source software. The total amount of remuneration paid in 2019 amounted to \$ 6.5 million. Of this amount, \$ 2.1 million was paid for vulnerabilities in Google services, \$ 1.9 million in Android, \$ 1 million in Chrome and \$ 800 thousand in Google Play applications (the remaining funds were donated). For comparison, in 2018, \$ 3.4 million was paid in total, and in 2015 - \$ 2 million. Over the last 9 years, the total

amount was about 21 million dollars.

<https://security.googleblog.com/2020/01/vulnerability-reward-program-2019-year.html>

## OFFICE SUITE RELEASE LIBREOFFICE 6.4:

01/29/2020

The Document Foundation have released LibreOffice 6.4. Ready-made installation packages are available for various Linux, Windows, and MacOS distributions, as well as an edition for deploying an online version in Docker. In this release, 75% of the changes were made by employees of project-controlling companies such as Collabora, Red Hat and CIB, while 25% of the changes were added by independent developers.

Please note that support for Java 6 & 7 have been discontinued.

<https://blog.documentfoundation.org/blog/2020/01/29/libreoffice-6-4/>

## LINUX 5.6 KERNEL CODE ACCEPTED WITH WIREGUARD VPN SUPPORT AND MPTCP EXTENSION (MULTIPATH TCP):

01/29/2020

Linus Torvalds accepted, patches and implementation of the VPN interface from the WireGuard project and initial support for the MPTCP extension (MultiPath TCP) into the 5.6 kernel. Previously, the cryptographic primitives necessary for WireGuard to work were transferred from the Zinc library to the standard Crypto API. More info is available in the net-next branch.

MPTCP is an extension of the TCP protocol, that allows you to organize the operation of a TCP connection, with packet delivery simultaneously on several routes, through different network interfaces, that are tied to different IP addresses. Whew! For network applications, such an aggregated connection looks like a normal TCP connection, all the flow separation logic is performed

by MPTCP. Multipath TCP can be used both to expand throughput and to increase reliability. For example, MPTCP can be used to organize data transfer on a smartphone using both WiFi and 3G links at the same time, or to reduce costs by connecting a server using several cheap links instead of one expensive one.

<https://git.kernel.org/pub/scm/linux/kernel/git/torvalds/linux.git/commit/?id=bd2463ac7d7ec51d432f23bf0e893fb371a908cd>

## BAREFLANK 2.0 HYPERVISOR RELEASE:

01/30/2020

Bareflank 2.0 hypervisor, provides tools for the rapid development of specialized hypervisors. Bareflank is written in C++, supports C++ STL. The modular architecture of Bareflank will allow you to easily expand the available capabilities of the hypervisor and create your own versions of hypervisors, both working on top of hardware (like Xen), and running in your existing

software environment (like VirtualBox). It is also possible to run the host operating system in a separate virtual machine. The project code is distributed under the LGPL 2.1 license.

Bareflank supports Linux, Windows, and UEFI on Intel 64-bit CPUs. Intel VT-x technology is used for hardware sharing of virtual machine resources. In the future, support for macOS and BSD systems is planned, as well as ARM64 and AMD platforms. The project develops its own driver for loading VMM (Virtual Machine Manager), an ELF loader for loading VMM modules, a bfm application for managing a hypervisor from user space. They provide tools for writing extensions using C++ 11/14 specifications, an unwind library for unwinding the exception stack, and its own runtime library to support the use of constructors / destructors and registering exception handlers.

<https://github.com/Bareflank/hypervisor/releases/tag/v2.0>

## GOOGLE RELEASED OPENS OPEN STACK FOR CREATING CRYPTOGRAPHIC TOKENS:

01/30/2020

Google just released the OpenSK platform, which allows you to create firmware for cryptographic tokens that fully comply with the FIDO U2F and FIDO2 standards. Tokens prepared using OpenSK can be used as authenticators for primary and two-factor authentication, as well as to confirm the physical presence of a user. The project is written in Rust and distributed under the Apache 2.0 license.

OpenSK makes it possible to create your own token for two-factor authentication on sites, which, unlike ready-made solutions issued by manufacturers, (such as Yubico, Feitian, Thetis and Kensington) is built on fully open-source firmware available for expansion and audit. OpenSK is positioned as a research platform, that token manufacturers and enthusiasts can use to develop new features and provide tokens for everyone. Initially, OpenSK code was developed as an

application for TockOS and tested on Nordic nRF52840-DK and Nordic nRF52840-dongle boards.

In addition to the software, the project provides mock-ups for printing a USB stick case based on the popular Nordic nRF52840 chip on a 3D printer. Nordic nRF52840 is the first reference platform for OpenSK. OpenSK provides support for the ARM CryptoCell crypto accelerator and all types of transport provided by the chip, including USB, NFC and Bluetooth Low Energy. In addition to using the crypto accelerator, OpenSK also has separate implementations of the ECDSA, ECC secp256r1, HMAC-SHA256, and AES256 algorithms written in Rust.

<https://security.googleblog.com/2020/01/say-hello-to-opensk-fully-open-source.html>

## OPNSENSE 20.1 FIREWALL DISTRIBUTION AVAILABLE:

01/31/2020

OPNsense 20.1, was released to create a fully open distribution kit, that rivals the

functionality of commercial solutions for deploying firewalls and network gateways. Unlike pfSense, the project is not controlled by one company. It is developed with the direct participation of the community and has a completely transparent development process. It also provides the ability to use any part of it, in third-party products, including commercial ones. The source code for the distribution components, as well as the tools used to build it, are distributed under the BSD license.

The distribution is based on the HardenedBSD 11 code. Among the OPNsense features, highlights include: open assembly toolkit, the ability to install in the form of packages on top of regular FreeBSD, load balancing tools, a web interface for organizing users to connect to the network (Captive portal), mechanisms for monitoring connection states (stateful firewall based on pf), setting bandwidth limits, filtering traffic, creating VPNs based on IPsec, OpenVPN and PPTP, integration with LDAP and RADIUS, supporting DDNS (Dynamic DNS), a system of visual reports and graphs.

In addition, the distribution kit provides means for creating fault-tolerant configurations based on the CARP protocol and allowing you to launch a spare node in addition to the main firewall, which will be automatically synchronized at the configuration level and will act as failover. It has a modern, simple interface for configuring the firewall, built using the Bootstrap web-framework.

<https://forum.opnsense.org/index.php?topic=15664.0>

## FREE SOFTWARE FOUNDATION CERTIFIED LIBIQUITY WI-FRI WiFi ADAPTER:

01/31/2020

The Free Software Foundation has announced the Libiquity Wi-Fri ND2H wireless card certification, under the "Respect Your Freedom" program. This confirms the device's compliance with the requirements of ensuring privacy and freedom of its users. This gave them the right to use a

special logo, in product-related materials, emphasizing user freedoms. The card has a PCI Express Half-Mini form factor (Type H1), built on the Atheros AR9382 chipset. It is compatible with 802.11a / b / g / n standards and supports 2.4GHz and 5GHz frequencies. Libiquity Wi-Fri can be used in completely free (Libre) distributions, as it does not require the installation of proprietary firmware and proprietary drivers.

<https://www.fsf.org/news/libiquity-wi-fri-nd2h-wi-fi-card-now-fsf-certified-to-respect-your-freedom>

## SUDO ROOT VULNERABILITY AFFECTING LINUX MINT AND ELEMENTARY OS:

01/31/2020

The sudo utility has a vulnerability, ( CVE-2019-18634 ) which allows users to escalate privileges to root. The problem has been apparent since the release of sudo 1.7.1, but only when using the "pwfeedback" option. This is disabled by default but activated on some distributions such as Linux Mint

and Elementary OS.(in the / etc / sudoers file) The issue is fixed in the sudo 1.8.31 release, published a few hours ago, but has not made it into the distributions yet.

The "pwfeedback" option displays a "\*" character after each keypress when entering the password.

The vulnerability can be exploited by any user, regardless of their rights to use sudo and the presence of user-specific settings in sudoers. To prevent this, make sure that the / pwfeedback setting is not in / etc / sudoers and, if necessary, disable it ("Defaults! Pwfeedback"). You can run the following code to check:

```
$ perl -e 'print (("A" x 100. "\ x {00}") x 50)' | sudo -S id
```

Password: Segmentation fault

<https://www.openwall.com/lists/oss-security/2020/01/30/6>

## GODOT 3.2 GAME ENGINE RELEASED:

01/31/2020

After 10 months of development, the release of the free Godot 3.2 game engine, has been published. The code for the game engine, game development environment, and related development tools (physical engine, sound server, 2D / 3D rendering backends, etc.) are distributed under the MIT license.

The source code for the engine was opened in 2014 by OKAM Studio, after ten years of development. The engine supports all popular stationary and mobile platforms (Linux, Windows, macOS, Wii, Nintendo 3DS, PlayStation 3, PS Vita, Android, iOS, BBX), as well as game development for the Web. Ready-to-run binary builds are available for Linux, Windows, and macOS.

In a separate branch, a new rendering back-end, based on the Vulkan graphical API is being developed. It will be offered in the 4.0 release of Godot, instead of the current rendering back-ends.

<https://godotengine.org/article/he-re-comes-godot-3-2>

## OPENWRT UPDATE 07.19.1 - WITH FIX FOR PACKAGE SPOOFING VULNERABILITY:

02/01/2020

Corrective releases of the OpenWrt distribution dated 06/18/07 and 07/19/1 were published. The dangerous vulnerability (CVE-2020-7982) in the opkg package manager was fixed, which allows for a MITM attack. Due to an error in the checksum verification code, an attacker can create conditions under which the SHA-256 checksums present in the digitally-signed packet index will be ignored. This makes it possible to bypass the integrity checking mechanisms of downloaded ipk resources.

The vulnerability has been around since February 2017. Since the opkg package manager in OpenWrt starts with root privileges, in the case of a MITM attack, the attacker has the

opportunity to quietly make changes to the ipk package loaded from the repository.

<https://lists.infradead.org/pipermail/openwrt-devel/2020-January/021544.html>

## CERN SWITCHED FROM FACEBOOK WORKPLACE TO OPEN PLATFORMS MATTERMOST AND DISCOURSE:

02/01/2020

The European Nuclear Research Center (CERN) has announced it's cessation of the use of the Facebook Workplace platform for internal communication between

employees. From now on, instead of this platform, CERN will use open Mattermost packages for quick messaging and chatting and Discourse for long discussions and exchange of information, for future reference. Instead of an email notification mechanism, they are planning solutions based on PUSH notifications and newsletters.

CERN has been using the Facebook Workplace since 2016, but in 2019 Facebook announced a change in tariff policy. New tariffs begin to operate in October 2020 and involve payment from 4 to 8 dollars per user, per month. Free access is still provided, but it is significantly limited by the number of groups, participants, and functionality.

Mattermost is positioned as an open alternative to the Slack communication system and allows you to receive and send messages, files and images, track the history of conversations and receive notifications on your smartphone or PC.

The Discourse platform provides a system of linear discussions to replace mailing lists, web forums and chats. It supports the separation of topics based on tags, updating the list of messages in topics in real time and the ability to subscribe to sections of interest and send responses by email. The code is licensed under GPLv2.

<https://home.cern/news/news/communicating/cern-ends-trial-facebook-workplace>

## FULL CIRCLE WEEKLY NEWS



Join our new host Leo Chavez as he presents you with a short podcast (<10min) with just the news. No chit-chat. No time wasting. Just the latest FOSS/Linux/ Ubuntu news.

**RSS:**

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



# DistroWatch.com

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

## LIGHTTPD 1.4.55 RELEASED:

02/01/2020

Lighttpd 1.4.55, a lightweight http server has been released. The new version made 53 changes, all related bugfixes. The fixes include resolving build problems on Solaris, marking many functions with the "pure" attribute, and fixing problems in mod\_webdav when uploading files larger than 128 MB.

<http://blog.lighttpd.net/articles/2020/01/31/lighttpd-1.4.55-released/>

## GNU BINUTILS 2.34 RELEASE:

02/01/2020

Version 2.34 of the GNU Binutils project sources have been released and are now available for download. This release contains numerous bug fixes, and the following new features:

\* The disassembler (objdump --

disassemble) now has an option to generate ascii art that shows the arcs between that start and end points of control flow instructions.

\* The binutils tools now have support for debuginfod. Debuginfod is a HTTP service for distributing ELF/DWARF debugging information as well as source code. The tools can now connect to debuginfod servers in order to download debug information about the files that they are processing.

\* The assembler and linker now support the generation of ELF formatfiles for the Z80 architecture. (Zilog Z180 and Zilog eZ80 processors are supported in ADL and Z80 modes)

<https://www.mail-archive.com/info-gnu@gnu.org/msg02693.html>

## YAXIM 0.9.9 XMPP CLIENT RELEASE:

02/01/2020

A new version of the XMPP client for Android has been released - yaxim 0.9.9 "FOSDEM 2020 edition". It has many changes and new features, such as viewing services, support for Matrix, reliable messaging with MAM and push. New features have brought yaxim in line with the mobile requirements of XMPP Compliance Suite 2020. The project code is distributed under the GPLv3 license.

While initially introduced as an April Fools' Day joke, Matrix support (using the Bifröst bridge is now actually integrated into yaxim, using the official bridge on matrix.org, which has also been made ready for FOSDEM 2020.

Under the Hood Changes:

The internal chat message database has been optimized, by adding database indexes for all frequent operations, making yaxim much faster at loading chat windows, with long histories.

Furthermore, yaxim was upgraded from the ancient Smack 3 to the Smack 4.3.x XMPP library.

<https://yaxim.org/blog/2020/01/31/yaxim-0-dot-9-9-fosdem-edition/>

## THE DEHYDRATED PROJECT HAS CHANGED OWNERSHIP:

02/02/2020

Lucas Schauer, developer of a dehydrated bash script for automating the receipt of SSL certificates through the Let's Encrypt service, accepted the offer to sell the project and finance its further work. The new owner of the project was the Austrian company Apilayer GmbH. The project has been moved to a new address: [github.com/dehydrated-io/dehydrated](https://github.com/dehydrated-io/dehydrated). The license remains the same (MIT).

The completed transaction will help to guarantee the further development and support of the project - Lucas is a student and after completing his studies it is not clear whether he will have time for the project. Apilayer explains the purchase of dehydrated by its desire to contribute to supporting open projects and maintaining the positive reputation of its brand.

Lucas remains the maintainer and will retain control over the development. Lucas will now be able to devote more time to the development of dehydrated.

Dehydrated is one of the easiest ways of obtaining and updating certificates through Let's Encrypt.

<https://dehydrated.io/>

## OPENMANDRIVA LX 4.1 DISTRIBUTION RELEASE:

02/02/2020

The project is being developed by the community after Mandriva SA transferred the project management to the non-profit organization, the OpenMandriva Association.

We would tell you more, but the openmandriva site has been showing "under construction" for a while now, whilst trying to write this.

<https://www.openmandriva.org/en/news/article/and-openmandriva-did-better-omlx-4-1-final-release-is-out-now>

## OPENWALLPAPER PLASMA PLUGIN FOR KDE PLASMA:

02.02.2020

The main feature of the plug-in, is support for launching a QOpenGL renderer directly on the desktop, with the ability to interact with the mouse pointer. The wallpaper is distributed in packages, in which the wallpaper and the configuration file are located. It is recommended that you use the plug-in together with OpenWallpaper Manager - a utility designed to work with packages and the new plug-in. In the future, they plan to launch it on other Linux desktops, as well as in Windows.

<https://github.com/Samsuper12/OpenWallpaper-Plasma>

## WINE 5.1 AND WINE STAGING 5.1 RELEASE:

02/03/2020

This is an experimental release of the open implementation of Win32 API - Wine 5.1. Since the release of version 5.0, 32 error reports have been closed and 361 changes made. The Wine project switched to a new version numbering scheme: each stable release leads to an increase in the first digit in the version number (4.0.0, 5.0.0), and updates to stable releases are issued with a change in the third digit (5.0.1, 5.0.2, 5.0.3). The experimental versions are issued with a change in the second digit (5.1, 5.2, 5.3).

At the same time, the release of the Wine Staging 5.1 project is out. Compared to Wine, Wine Staging provides 860 additional patches. The new release synchronizes with the Wine 5.1 codebase.

<https://www.winehq.org/announce/5.1>

## UBUNTU LOCKDOWN PROTECTION - DISABLING METHODS FOR REMOTE BYPASS OF UEFI SECURE BOOT:

02/03/2020

Andrey Konovalov from Google published a method for remotely disabling lockdown protection without physical access to the machine. Currently tested on Ubuntu only, but he says it will work on others too. Linux kernel lockdown is a security feature that aims at restricting root's ability to modify the kernel at runtime.

Lockdown restricts root access to the kernel and blocks UEFI Secure Boot bypass paths. For example, in lockdown mode, access to /dev/mem, /dev/kmem, /dev/port, /proc/kcore, debugfs, debug mode kprobes, mmiotrace, tracefs, BPF, PCMCIA CIS (Card Information Structure) and some interfaces are limited. ACPI and MSR registers of the CPU, kexec\_file and kexec\_load calls are blocked. Sleep mode is prohibited, use of DMA for PCI devices is limited, import of ACPI code from

EFI variables are prohibited, changing input / output ports, including changing the interrupt number, are not allowed.

The Lockdown mechanism has recently been added to the core kernel of the Linux 5.4 kernel. However, in the kernels supplied with the distribution it is still implemented in the form of patches or supplemented with patches. One of the differences between add-ons provided in distributions and the built-in kernel implementation, is the ability to disable the provided lock when there is physical access to the system.

Ubuntu and Fedora use the Alt + SysRq + X key combination to disable Lockdown. Alt + SysRq + X combination can be used only with physical access to the device, and in case of remote hacking and gaining root access, the attacker will not be able to disable Lockdown and, for example, load a rootkit that is not digitally signed into the kernel.

<https://github.com/xairy/unlockdown>

## KDEVELOP 5.5 APPLICATION DEVELOPMENT ENVIRONMENT OUT:

02/03/2020

After six months of development, the KDevelop 5.5 integrated programming environment, which is used in the development process for KDE 5, was released. The project code is distributed under the GPL and uses the KDE Frameworks 5 and Qt 5 libraries. The new version lacks significant innovations - the main work was focused on improving stability, optimizing performance and simplifying the maintenance of the code base.

<https://www.kdevelop.org/news/kdevelop-550-released>

## TESTING LIGHTWORKS 2020.1 VIDEO EDITOR FOR LINUX:

02/03/2020

EditShare announced the start of beta testing for new branch

full circle magazine #154



of the proprietary video editor Lightworks 2020.1, for Linux. Lightworks is a professional tool and is actively used in the film industry, competing with products such as Apple FinalCut, Avid Media Composer and Pinnacle Studio. Editors using Lightworks have more than once won technical awards at the Academy Awards and Emmy's. Lightworks for Linux is available as a 64-bit build in RPM and DEB formats.

The free version of Lightworks is crippled, erm, limited to saving the results in Web formats (for example, MPEG4 / H.264) with a resolution of up to 720p and does not include advanced features, such as collaboration tools.

[https://www.lwks.com/index.php?option=com\\_kunena&func=view&catid=19&id=211925&Itemid=81#211925](https://www.lwks.com/index.php?option=com_kunena&func=view&catid=19&id=211925&Itemid=81#211925)

## RASPBERRY PI 4 GETS SUPPORT FOR OpenGL ES 3.1 AND IS CERTIFIED FOR THE NEW VULKAN DRIVER:

02/03/2020

The developers of the Raspberry Pi project, announced the start of work on a new free video driver for the VideoCore VI graphics accelerator used in Broadcom chips. The new driver is based on the Vulkan graphics API and is primarily aimed at Raspberry Pi 4 boards and future models. (The GPU VideoCore IV in the Raspberry Pi 3 is not enough for a full Vulkan implementation).

The development of the new driver, in collaboration with the Raspberry Pi Foundation, is led by Igalia. So far, only the initial driver prototype has been shown, suitable for performing simple demonstrations. The first beta release, which can be used to launch real applications, is planned for the second half of 2020.

<https://www.raspberrypi.org/blog/vulkan-raspberry-pi-first-triangle/>

## INLINEC - A NEW WAY TO USE C CODE IN PYTHON SCRIPTS:

02/03/2020

The inlinec project enables a new way to inline-integrate C code into Python scripts. C functions are defined directly in a single file with Python code, highlighted by the "@inlinec" decorator.

Python has a mechanism for creating custom codecs, which given an input token stream, produce an output token stream. Inlinec consumes the entire token stream, runs a fault-tolerant parser on it (parso), finds which function nodes are annotated with an @inlinec decorator, creates a ctypes wrapper for the content of the function, and replaces the function body with a call to the ctypes wrapper. The import for the wrapper is lifted to the top of the file. Once this transformation has been made, the source code is re-tokenized and the Python interpreter only sees the transformed source. In theory, this allows inline c functions to be called with a one-time compilation overhead and the same

performance characteristics as ctypes -- the underlying FFI library.

<https://github.com/georgek42/inlinenec>

## WINE ADAPTED TO WORK WITH WAYLAND:

02/04/2020

As part of the Wine-wayland project, a set of patches and a winewayland.drv driver was developed that allow Wine to be used in Wayland-based environments, without the use of XWayland and X11-related components. It is now possible to launch games and applications using the Vulkan graphics API and Direct3D 9, 10 and 11. Direct3D support is implemented using the DXVK layer, which translates calls to the Vulkan API. The kit also includes esync (Eventfd Synchronization) patches to increase the performance of multi-threaded games.

The work of the Wine edition for Wayland was tested in Arch Linux and Manjaro with a Weston

composite server and an AMDGPU driver with Vulkan API support. You can switch to full screen mode using the F11 hotkey. At the current stage of development, there is no support for OpenGL, game controllers, GDI applications, or native cursors. Launchers do not work.

<https://github.com/varmd/wine-wayland>

## SIEMENS RELEASE THE JAILHOUSE 0.12 HYPERVISOR:

02/04/2020

Siemens has released their free hypervisor Jailhouse 0.12. The hypervisor supports x86\_64 systems with VMX + EPT or SVM + NPT (AMD-V) extensions, as well as on ARMv7 and ARMv8 / ARM64 processors with virtualization extensions. A separate image generator for the Jailhouse hypervisor is being developed, which is based on Debian packages, for supported devices. The project code is distributed under the GPLv2 license.

Noteworthy: They just started to port Jailhouse to RISC-V, first against QEMU, then against an FPGA model that will be developed within the EU-funded SELENE project.

The hypervisor is implemented as a module for the Linux kernel and provides kernel-level virtualization. Guest components are already included in the main Linux kernel. To control isolation, hardware virtualization mechanisms, provided by modern CPUs are used. Distinctive features of Jailhouse are its lightweight implementation and orientation, towards binding virtual machines to a fixed CPU, RAM area and hardware devices. This approach allows for the operation of several independent virtual environments on one physical multiprocessor server, each of which is assigned to its own processor core.

<https://lkml.org/lkml/2020/2/4/403>

## UBUNTU 18.04.4 LTS RELEASE WITH UPDATED GRAPHICS STACK AND LINUX KERNEL

02/13/2020

An updated Ubuntu 18.04.4 LTS released, which includes changes related to improving hardware support, updating the Linux kernel and graphics stack, fixing errors in the installer and bootloader. The release also includes current updates for several hundred packages related to fixing vulnerabilities and problems that affect stability. Similar updates are presented at the same time: Kubuntu 18.04.4 LTS, Ubuntu Budgie 18.04.4 LTS, Ubuntu MATE 18.04.4 LTS, Lubuntu 18.04.4 LTS, Ubuntu Kylin 18.04.4 LTS and Xubuntu 18.04.4 LTS.

## GITHub STARTS TESTING THEIR COMMAND LINE INTERFACE

02/13/2020

GitHub introduced a beta version of a multi-platform CLI toolkit that allows you to manage your projects from the command line. The “gh” utility is proposed for work, with which you can start and view error messages (issue), create and parse pull requests, and review changes. Toolkit assemblies are available for Linux, macOS, and Windows. The code is open under the MIT license.

<https://github.blog/2020-02-12-supercharge-your-command-line-experience-github-cli-is-now-in-beta/>

## PEERTUBE 2.1 DECENTRALIZED VIDEO BROADCAST PLATFORM RELEASED

02/13/2020

PeerTube 2.1 is a decentralized platform for video hosting and video broadcasting. PeerTube offers a vendor-independent alternative to YouTube, Dailymotion, and Vimeo, using a P2P-based content distribution network and linking visitor browsers. Project developments are distributed under the AGPLv3 license.

PeerTube is based on the use of BitTorrent-Client WebTorrent, running in a browser, and uses WebRTC technology to establish a direct P2P-communication channel between the browser and the protocol ActivityPub. The web interface provided by the project is built using the Angular framework

<https://joinpeertube.org/news>

## NEW PROJECT TO REMOVE ARTIFACTS FROM JPEG'S

02/14/2020

GitHub has published Quant Smooth JPEG project, designed to remove compression artefacts from JPEG images. This is achieved by restoring the accuracy

of the coefficients of the discrete cosine transform. But only to the extent that the quantization table allows, this prevents the algorithm from filtering the image. The code is written in C with optimizations for SSE2, AVX2 and ARM Neon. A WebAssembly version is also available, which allows you to process images in a browser (but slower than the native version due to the lack of SIMD optimizations and multithreading).

According to the author, his algorithm works much faster than a similar jpeg2png project and produces clearer images. The author admits that jpeg2png may work better in difficult cases.

<https://github.com/ilyakurdyukov/jpeg-quantsmooth>

## MORE THAN 500 MALICIOUS ADD-ONS REMOVED FROM CHROME WEB STORE

02/14/2020

The results of blocking a series of malicious add-ons to the Chrome browser, with several million users (or victims), has been

summed up. At the first stage, independent researcher Jamila Kaya and the company Duo Security identified 71 malicious add-ons in the Chrome store. These additions totalled more than 1.7 million units. After informing Google of the problem, more than 430 such add-ons were found in the catalogue, the number of these installations were not reported.

The question remains, how were they not detected earlier?

<https://duo.com/labs/research/crxcavator-malvertising-2020>

## FIRST VOID LINUX-BASED TRIDENT OS

02/15/2020

The first stable builds of Trident 20.02 is available, which transitioned from FreeBSD and TrueOS to the Void Linux package base. In October 2019, the Trident project announced a migration to Linux siting things like hardware compatibility, support for modern communication standards and package availability.

The distro uses ZFS on the root partition with the ability to roll back the boot environment using ZFS snapshots. For each user, a separate ZFS dataset is created for the home directory. (you can manipulate snapshots of the home directory without obtaining root privileges) Data encryption in user directories is provided. It can work on systems with EFI and BIOS. Swap partition encryption is supported. Support is provided for packages compiled for both the glibc system library and musl.

<https://project-trident.org/post/void-20.02-available/>

## RELEASE OF BLENDER 2.82:

02/15/2020

Blender 2.82 3D modeling package is available , which includes more than a thousand fixes and improvements prepared three months after the release of Blender 2.81 .

In this release there is UDIM and USD support, MantaFlow fluids and smoke simulation, AI

denoising, GPencil improvements, and much more!

<https://www.blender.org/press/blender-2-82-released/>

## NETBSD 9.0 RELEASE:

02/15/2020

NetBSD 9.0 is available, which implements a batch of new features. NetBSD 9.0 is officially available in builds for 57 system architectures and 15 different CPU families.

Eight (8) primary supported ports are provided that make up the core of the NetBSD development strategy: amd64, i386, evbarm, evbmips, evbppc, hpcarm, sparc64 and xen. Forty-nine (49) ports associated with CPUs such as alpha, hppa, m68010, m68k, sh3, sparc and vax are assigned to the second category, i.e. are still supported, but have already lost relevance or do not have a sufficient number of developers interested in their development. One port (acorn26) is included in the third category, which contains inoperable ports

that claim to be removed if there are no enthusiasts interested in their development.

[http://blog.netbsd.org/tnf/entry/netbsd\\_9\\_0\\_available](http://blog.netbsd.org/tnf/entry/netbsd_9_0_available)

## GOOGLE INTRODUCED AUTOFLIP, A FRAMEWORK FOR SMART CROPPING VIDEO:

02.16.2020

Google introduced the open AutoFlip framework for framing video based on the displacement of key objects. AutoFlip uses machine learning methods to track objects in a frame. It is designed as an add-on to the MediaPipe framework that uses TensorFlow. The code is licensed under Apache 2.0.

On a widescreen video, the objects are not always in the center of the frame, so fixing cropping of the edges is not always enough. AutoFlip monitors the activity of people and objects in the frame, and dynamically shifts the cropping window for optimal coverage of key elements of the scene (for example, if there are

several people in the frame and one of them speaks or moves, then the focus of the cropping can be focused on that person).

<https://opensource.googleblog.com/2020/02/autoflip-open-source-framework-for.html>

## PROFANITY 0.8 CONSOLE XMPP CLIENT RELEASE:

02/22/2020

Eight years after the first commit and five months after version 0.7, the console-based XMPP client Profanity 0.8 was released. The profanity interface is built using the ncurses library and supports notifications using the libnotify library. The application can be built either with the libstrophe library that implements work with the XMPP protocol, or with its fork libmesode, which is supported by the developer. Client capabilities can be enhanced using Python plug-ins. The project code is written in C and distributed under the GPLv3 license.

<https://profanity-im.github.io/>

## RATING OF LIBRARIES REQUIRING SPECIAL SECURITY CHECKS:

02/22/2020

The Core Infrastructure Initiative formed by the Linux Foundation, in which leading corporations joined forces to provide support for open source projects in key areas of the computer industry, conducted a second study under the Census program, aimed at identifying open source projects that need priority audit security.

The second study focuses on the analysis of shared open source code, implicitly used in various corporate projects in the form of dependencies downloaded from external repositories. Vulnerabilities and compromise of developers of third-party components, ie, the supply chain, can nullify all efforts to improve the protection of the main product. As a result of the study, the 10 most frequently used packages in JavaScript and Java were identified, requiring special attention for the safety of said packages.

<https://www.coreinfrastructure.org/wp-content/uploads/sites/6/2020/02/census-ii-vulnerabilities-in-the-core.pdf>

## NEW VERSION OF MONITORIX MONITORING SYSTEM 3.12.0:

02/22/2020

Monitorix monitoring system 3.12.0, designed to visually monitor the operation of various services, for example, monitoring the temperature of the CPU, system load, network activity and responsiveness of network services, was announced. The system is accessed via the web-interface, data is presented in the form of graphs.

Though the system is written in Perl, RRDTool is used to generate graphs and store data. The code is distributed under the GPLv2 license. The program is quite compact and self-contained (there is a built-in http-server), which allows you to use it even on embedded systems. A wide range

of monitoring parameters is supported, from tracking the task scheduler, I/O, memory allocation and kernel parameters to the visualization of data on network interfaces and specific applications (mail servers, DBMS, Apache, nginx, MySQL).

<https://www.monitorix.org/news.html>

## LINUX SOUND SUBSCRIPTION RELEASE - ALSA 1.2.2:

02/22/2020

The sound subsystem ALSA 1.2.2 was released. The new version involves updating libraries, utilities, and plug-ins that work at the user level. Drivers develop in sync with the Linux kernel. Among the changes, in addition to numerous bugfixes in the drivers, there is support for the Linux 5.6 kernel. Which is an extension of the API for the topology (the method of loading handlers by drivers from user space) and integration of the fcplay utility, which uses the ALSA Compress-Offload API for recording and playing compressed content.

<https://mailman.alsa-project.org/pipermail/alsa-devel/2020-February/163509.html>

## SHOTCUT 20.02 VIDEO EDITOR RELEASE:

02/21/2020

The video editor Shotcut 20.02 has been released. It is developed by the author of the MLT project and uses this framework for organizing video editing. Support for video and audio formats is implemented through FFmpeg. You can use plugins with video and audio effects compatible with Frei0r and LADSPA. Among the features of Shotcut, one can note the possibility of multi-track editing with the composition of video from fragments (in various source formats!), without the need for their preliminary import or transcoding. There are built-in tools for creating screencasts, processing images from a web-camera and receiving streaming video. To build the interface, Qt5 is used. The code is written in C++ and distributed under the GPLv3

license.

<https://www.shotcut.org/blog/new-release-200217/>

## ABOUT 600 APPS VIOLATING AD SERVING POLICIES REMOVED FROM GOOGLE PLAY:

02/21/2020

Google announced the removal of about 600 applications from the Google Play catalogue have violated the rules for displaying ads. Problem programs are also blocked from accessing the Google AdMob and Google Ad Manager advertising services. The removal mainly affected programs that display ads unexpectedly for the user, in places that interfere with their work, and while the user is not working with the application.

<https://security.googleblog.com/2020/02/disruptive-ads-enforcement-and-our-new.html>

## PIPEWIRE 0.3 MULTIMEDIA SERVER AVAILABLE TO REPLACE PULSEAUDIO:

02/21/2020

A significant release of the PipeWire 0.3.0 project has been published, developing a new generation multimedia server, replacing PulseAudio. PipeWire extends PulseAudio with video streaming capabilities, the ability to process audio with minimal latency and a new security model for controlling access to the device and stream level. The project is supported by GNOME and is already actively used in Fedora Linux for recording screen content and screen sharing in Wayland-based environments. The project code is written in C and distributed under the LGPLv2.1 license.

<https://www.opennet.ru/opennews/art.shtml?num=52406>

## BIND 9.16.0 DNS SERVER EDITION:

02/20/2020

After 11 months of development, ISC introduced the first stable release of a significant new branch of the BIND 9.16 DNS server. Branch 9.16 will be supported for three years until the 2nd quarter of 2023 as part of an extended maintenance cycle. Updates for the previous LTS branch 9.11 will continue to be released until December 2021. Support for branch 9.14 will end in three months.

<https://www.isc.org/blogs/bind9.16.0-released/>

## THE FIRST PREVIEW RELEASE OF THE ANDROID 11 MOBILE PLATFORM:

02/20/2020

Google has introduced a test version of the open mobile platform Android 11. The release of Android 11 is expected in the

third quarter of 2020. To evaluate the new platform features, a preliminary testing program was proposed. The firmware updates are for the Pixel 2/2 XL, Pixel 3/3 XL, Pixel 3a / 3a XL, and Pixel 4/4 XL devices. Flashing is done manually, the ability to install Android 11 through the OTA-update system will appear in May.

<https://android-developers.googleblog.com/2020/02/Android-11-developer-preview.html>

## MESA 20.0.0 RELEASE WITH VULKAN 1.2 SUPPORT:

02.20.2020

The release of the free implementation of the OpenGL and Vulkan API - Mesa 20.0.0 was announced. The first release of the Mesa 20.0.0 branch has an experimental status - after the final stabilization of the code, a stable version 20.0.1 will be released. Mesa 20.0 provides full OpenGL 4.6 support for Intel GPUs (i965, iris drivers) and AMD (radeonsi), OpenGL 4.5 support for AMD (r600) and NVIDIA (nvc0)

GPUs, as well as Vulkan 1.2 support for Intel and AMD cards.

## VIRTUALBOX 6.1.4 RELEASED:

02/20/2020

Oracle has released VirtualBox 6.1.4, which brings 17 bug fixes.

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

## VULNERABILITIES IN WORDPRESS PLUGINS WITH OVER A 1M INSTALLATIONS:

02/19/2020

Security researchers at Wordfence and WebARX have identified several dangerous vulnerabilities in five plugins for the WordPress web content management system, totaling more than a million installations.

<https://www.wordfence.com/blog/2020/02/improper-access-controls-in-gdpr-cookie-consent-plugin/>

## AN OPEN DISC DIAL MOBILE PHONE IS AVAILABLE:

02/19/2020

Justine Haupt has made an open cell phone equipped with a rotary dialer. Circuit board circuit packs for KiCad CAD, STL models for 3D printing of the case, specifications of the components used and firmware code are available for download, making it possible for any enthusiast to assemble the device independently.

<http://justine-haupt.com/rotarycellphone/>

## SOLARIS 11.4 SRU 18 UPDATE:

02/19/2020

The Solaris 11.4 SRU 18 (Support Repository Update) operating system update has been published, which offers a series of regular fixes and improvements for the Solaris 11.4 branch. To install the fixes proposed in the update,

just run the 'pkg update' command.

<https://blogs.oracle.com/solaris/announcing-oracle-solaris-114-sru18>

## MOZILLA WEBTHINGS GATEWAY 0.11 AVAILABLE, GATEWAY FOR SMART HOME AND IOT DEVICES:

02/18/2020

Mozilla announced a new release of WebThings Gateway 0.11, which, combined with the WebThings Framework libraries, forms the WebThings platform, to provide access to various categories of consumer devices and use the universal Web Things API to organize interaction with them. The project code is written in JavaScript using the Node.js server platform and is distributed under the MPL 2.0 license. Firmware with a gateway prepared for various models of Raspberry Pi. Packages are also available for OpenWrt, Fedora, Arch, Ubuntu, Raspbian and Debian, and on the basis of OpenWrt, a ready-made distribution with integrated Things

Gateway support is being developed that provides a unified interface for setting up a smart home and a wireless access point.

<https://hacks.mozilla.org/2020/02/webthings-gateway-goes-global/>

## LAUNCH OF I3WM 4.18 WINDOW MANAGER AND LAVALAUNCHER 1.6 PANEL:

02/18/2020

Michael Stapelberg, a former active Debian developer, who is currently developing the experimental distribution kit Distri, has released the mosaic (tile) window manager i3wm 4.18 . The i3wm project was created from scratch after a series of attempts to eliminate the flaws of the wmii window manager. I3wm is distinguished by well-read and documented code, uses xcb instead of Xlib, correctly supports multi-monitor configurations, uses tree-like data structures to position windows. It provides an IPC interface, supports UTF-8, and maintains minimal window design. The project code is distributed under the BSD license.

<https://i3wm.org/downloads/RELEASE-NOTES-4.18.txt>

## CONNMAN 1.38 NETWORK CONFIGURATOR RELEASED:

02/18/2020

After nearly a year of development, Intel introduced the release of the ConnMan 1.38 network manager. The package is characterized by low consumption of system resources and the availability of flexible tools for expanding functionality through plugins, which allows you to use ConnMan on embedded systems. Initially, the project was founded by Intel and Nokia during the development of the MeeGo platform. Later, the ConnMan-based network configuration system was used in Tizen. Also in some specialized distributions and projects, such as Yocto, Sailfish, Aldebaran Robotics and Nest, as well as in various consumer devices with Linux based firmware. The project code is distributed under the GPLv2 license.

<https://lists.01.org/hyperkitty/list/connman@lists.01.org/thread/EKD RUYMT7FZJ5KLFZXEZ5P73O656V UOA/>

## MX LINUX DISTRIBUTION RELEASE 19.1:

02/17/2020

MX Linux 19.1 midweight distribution , is a collaboration of the communities formed around the antiX and MEPIS projects. The release is based on the Debian with improvements from the antiX project and numerous proprietary applications that make it easy to configure and install software. By default, it comes with Xfce desktop.

<https://mxlinux.org/blog/mx-19-1-now-available/>

## DENO PROJECT DEVELOPS SECURE JAVASCRIPT PLATFORM LIKE NODE.JS:

02/17/2020

The Deno 0.33 project release is available, offering a platform similar to Node.js for separate execution of JavaScript and TypeScript applications, which can be used to run applications without being bound to a browser, for example, to create handlers running on a server. Deno uses the V8 JavaScript engine , which is also used in Node.js and browsers based on the Chromium project. The project code is distributed under the MIT license. The project developer is Ryan Dahl, the creator of JavaScript-platform Node.js.

<https://github.com/denoland/deno/releases>



# COMMAND & CONQUER Bulk Image Manip. With imgp

Written by Adam Hunt

Have you ever taken a large number of “portrait” orientation images, say of buildings, people or sailboats, and then once you downloaded them realized you would have to rotate all of them, perhaps hundreds of images? It can be done one-at-a-time with an image editor, like GIMP or mtPaint, or even in some image viewers, but it is a slow process. Some image viewers strip out Exif metadata, reduce the file resolution, or make other changes that may not be desired.

I recently had a large number of images to rotate 90 degrees and searched for a better way to do it. I found imgp (Image Processor), a Linux command line program that does the job quickly and efficiently.

Imgp was first written by SZ Lin at Debian and is now developed by Arun Prakash Jana and Ananya Jana of Rutgers University. It is free software, released under the GPL 3.0.

Imgp is a tiny program, written

in Python. The download is only 13.9 kb and it takes up just 41.0 kb when installed. There have been nine public releases of imgp, starting with version 1.0 on 16 August 2016. It is packaged for Arch, Debian, Fedora, OpenSUSE, Raspbian, Slackware, Ubuntu and Void Linux and is available for Macs, through “homebrew”.

Despite its small size, imgp has some serious capabilities. It can rotate images to a specified angle, resize images to a fixed size or percentage, and convert PNG files to JPG format. It can also work recursively, changing all image files in a directory, including all its sub-directories. It can also strip out Exif metadata if desired.

Many new Linux users are intimidated by command line programs, but this one is simple to use and the home website provides a complete guide, including easy examples.

In testing the program I found that because I usually take some photos in “portrait” mode, which I

want to rotate, and some in “landscape” mode, which I don’t want to rotate, the easiest way is to copy the images to be rotated into a new directory and then copy them back when done. Because I use a fixed named directory for that, called “rotate”, the command is always the same and can be just called up in the terminal with the “up arrow” key. This pretty much eliminates mistakes and also means you don’t have to memorize the command line syntax. I similarly use a directory named “shrink” for images to be reduced.

Here is an example of the command to rotate all the images in the directory named “rotate” to the left 90 degrees (which is right 270 degrees) (-o 270), recursively (-r) and overwrite (-w) the images with the newly rotated ones:

```
$ imgp -o 270 -r -w ~/rotate
```

This is an example of the command to resize all the images in the directory named “shrink” by 75% (-x 75), recursively (-r) and overwrite (-w) the images with the

newly rotated ones:

```
$ imgp -x 75 -r -w ~/shrink
```

Hit “return” and it is done in mere seconds.

In my testing the only disadvantage to imgp is that rotating images is “lossy”, meaning that the file sizes are reduced in the process. This loss can be reduced to a minimum by setting the image “quality” to 95% (-q 95).

Imgp is hard to improve upon. It works very well and saves a lot of time in rotating or resizing large numbers of images manually using an image editor. It can be installed from the Ubuntu repositories, where it is found under “imgp”.

Home page:

<https://github.com/jarun/imgp>



**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.





# HOW-TO

Written by Greg Walters

# Python In The REAL World Pt.102

As many of you who have been reading this column for a while might know, one of my hobbies is cooking. Since I'm the one in the family who cooks every night, I'd have to say that it's my favorite hobby.

My eighth article for Full Circle back in FCM#34 (February 2010) was about creating a very small and generic cookbook database. The fact that it is 10 years to the month since I first wrote about the database program hasn't escaped me.

Anyway, I've started re-writing the program, pretty much from scratch, and again using Page as the GUI designer. I wanted to give it a newer, sleeker look, with a nicer interface, and there have been many things that I've wanted to add for years, but just never got around to doing. Things like adding a way to have a picture of the finished product, a way to grab a recipe from one of the many recipe websites I search, and more.

While I'm still in the process of development and the UI is still somewhat in flux, I'm pretty proud

of the new look and feel. Here's a quick screenshot of the main form of the program.

As I said, one of the things that I was both excited and worried about was the webpage scraper. I've tried writing a generic scraper before with limited success, but never could wrap my head around it properly. Part of the problem was that other things with a higher priority level would come up just as I was starting to be comfortable with the process, and I would have to put the project on hold. By the time I got around to revisiting the project, I had to spend a good while trying to remember what I was doing and how I had done it. I ended up so frustrated I started searching the web for some tips and tricks that others posted that might give me a leg up on my learning process.

I stumbled upon a really nice project called "recipe-scrappers" that seemed to be created just for my issue. It was a free and open source library for Python that provides custom scrapers for many

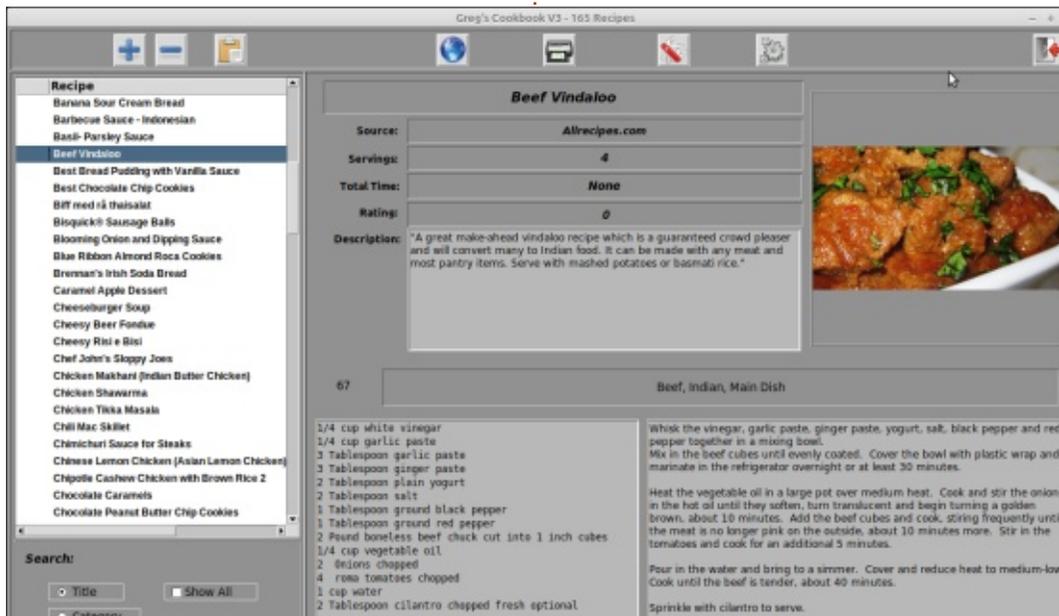
cooking recipe websites, one of which is Allrecipes.com, which I end up on at least twice a week when I'm looking for new ideas for dinner recipes. At the time, there were about 20 sites that they supported and it seemed that they were very active in adding more sites. As of this writing, there are 41 different sites that are supported.

Let's look at how to install the library and utilize it.

The repository is located at <https://github.com/hhursev/recipe-scrappers>. The main page provides a list of supported recipe sites as well as a short example of how to use the library. As always, you have to install the library before you can use it. You can use pip to do that...

```
$ pip install recipe-scrappers
```

You can also clone or download the repository and, once you have it on your machine, go to the main folder (recipe-scrappers) and use pip to install it directly from the source...



# HOWTO - PYTHON

```
$ pip install -e .
```

This is a good way to install it if you are interested in how the program works and if you want to write your own scrapers.

Now, open your favorite IDE or editor and create a new file. Let's call it "scrapertest.py".

Of course, the first thing we need to do is to import the library...

```
from recipe_scrapers import  
scrape_me
```

Next, you will need a recipe page that you want to scrape. You need to find one that is a single

recipe, not a category page. For this tutorial, we will use a page from Allrecipes.com that provides the recipe for Asian Orange Chicken

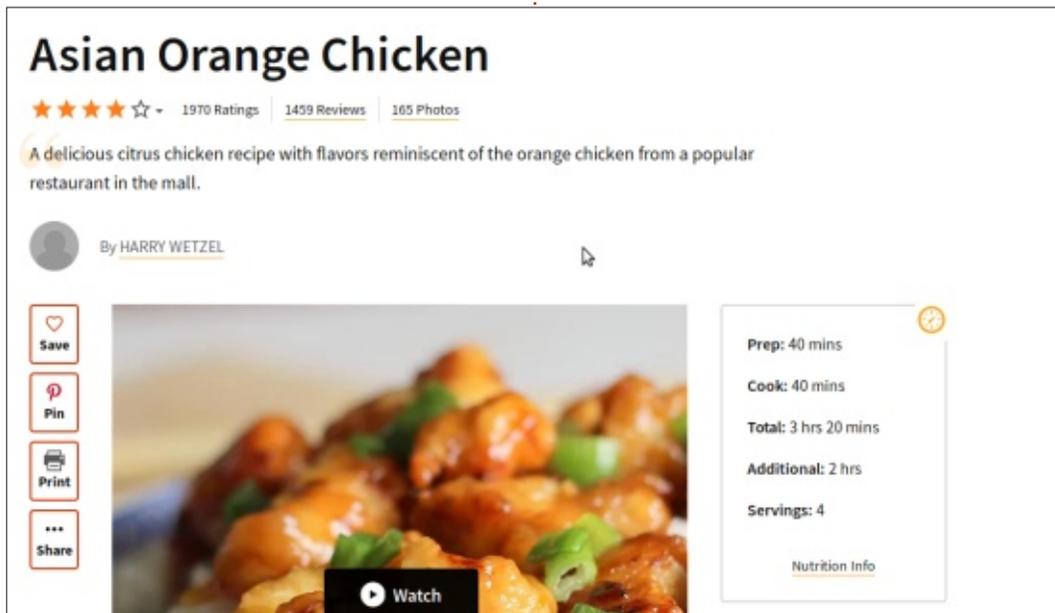
<https://www.allrecipes.com/recipe/61024/asian-orange-chicken/>.

Below left is a quick glance of what that page looks like.

The next thing that we should do is create a variable to hold the URL of the site page...

```
site =  
'https://www.allrecipes.com/r  
ecipe/61024/asian-orange-  
chicken/'
```

Now we create an instance of the scraper and provide it with the



```
title = scraper.title()  
total_time = scraper.total_time()  
yields = scraper.yields()  
ingredients = scraper.ingredients()  
instructions = scraper.instructions()  
image = scraper.image()
```

URL.

```
scraper = scrape_me(site)
```

Once we have that done, we can start grabbing some of the information that the scraper comes back with. Each bit of information is handled by a separate method.

Note: Some scrapers may provide more or less information depending on the site and if the author of the scraper included it.

From the above code, we will be able to get the recipe title, the total amount of time that the recipe will take to prepare, the number of servings it will make (yields), a list of the ingredients, the instructions, and a URL of the image, if one is available. In this

case, we have set the data for each into a variable. Now (bottom right), let's print the data in the terminal.

When we run the program, the output looks like that shown on the next page, top.

It's obvious that the ingredients come back as a Python list, so let's change the program a little bit to make the data a bit more readable. Comment out the line that prints the ingredients as a "glob" and replace it with...

```
# print(f'Ingredients:  
{ingredients}')  
  
print('Ingredients:\n')  
  
for ing in ingredients:  
    print(f'    {ing}')
```

```
print(f'Title: {title}')  
print(f'Total Time: {total_time}')  
print(f'Servings: {yields}')  
print(f'Ingredients: {ingredients}')  
print(f'Instructions: {instructions}')  
print(f'Image URL: {image}')
```

```
Title: Asian Orange Chicken
Total Time: 200
Servings: 4 serving(s)
Ingredients: ['1 ½ cups water', '2 tablespoons orange juice', '¼ cup lemon juice', '⅓ cup rice vinegar', '2 ½
tablespoons soy sauce', '1 tablespoon grated orange zest', '1 cup packed brown sugar', '½ teaspoon minced fresh ginger
root', '½ teaspoon minced garlic', '2 tablespoons chopped green onion', '¼ teaspoon red pepper flakes', '3 tablespoons
cornstarch', '2 tablespoons water', '2 boneless, skinless chicken breasts, cut into 1/2 inch pieces', '1 cup all-purpose
flour', '¼ teaspoon salt', '¼ teaspoon pepper', '3 tablespoons olive oil']
Instructions: Step 1 Pour 1 1/2 cups water, orange juice, lemon juice, rice vinegar, and soy sauce into a saucepan and
set over medium-high heat. Stir in the orange zest, brown sugar, ginger, garlic, chopped onion, and red pepper flakes.
Bring to a boil. Remove from heat, and cool 10 to 15 minutes. Advertisement
Step 2 Place the chicken pieces into a resealable plastic bag. When contents of saucepan have cooled, pour 1 cup of
sauce into bag. Reserve the remaining sauce. Seal the bag, and refrigerate at least 2 hours.
Step 3 In another resealable plastic bag, mix the flour, salt, and pepper. Add the marinated chicken pieces, seal the
bag, and shake to coat.
Step 4 Heat the olive oil in a large skillet over medium heat. Place chicken into the skillet, and brown on both sides.
Drain on a plate lined with paper towels, and cover with aluminum foil.
Step 5 Wipe out the skillet, and add the sauce. Bring to a boil over medium-high heat. Mix together the cornstarch and 2
tablespoons water; stir into the sauce. Reduce heat to medium low, add the chicken pieces, and simmer, about 5 minutes,
stirring occasionally.
Image URL: https://images.media-allrecipes.com/userphotos/3864686.jpg
```

With this small change, our output now looks like that shown far right.

Now, let's make the program a bit more usable by allowing the user to enter the URL at runtime, rather than hard coding it. Comment out the line that assigns the URL (site = "") and replace it with...

```
site = input('Please enter
the website URL to scrape
(blank line to quit) ->')
```

```
if site != '':
```

```
    # site =
```

```
'https://www.allrecipes.com/r
ecipe/61024/asian-orange-
chicken/'
```

```
    scraper = scrape_me(site)
```

Be sure to indent the rest of the code so that it all falls under the if statement.

For this run, we'll use a different known good recipe page, again from Allrecipes.

```
https://www.allrecipes.com/recipe/8849/baked-chicken-nuggets/ ...
```

Now when you run the program with the new URL, your output looks like this:

```
Title: Asian Orange Chicken
Total Time: 200
Servings: 4 serving(s)
Ingredients:
```

```
1 ½ cups water
2 tablespoons orange juice
¼ cup lemon juice
⅓ cup rice vinegar
2 ½ tablespoons soy sauce
1 tablespoon grated orange zest
1 cup packed brown sugar
½ teaspoon minced fresh ginger root
½ teaspoon minced garlic
2 tablespoons chopped green onion
¼ teaspoon red pepper flakes
3 tablespoons cornstarch
2 tablespoons water
2 boneless, skinless chicken breasts, cut into 1/2
inch pieces
1 cup all-purpose flour
¼ teaspoon salt
¼ teaspoon pepper
etc.....
```

```
Please enter the website URL to scrape (blank line to quit) ->https://www.allrecipes.com/recipe/8849/baked-chicken-nuggets/
Title: Baked Chicken Nuggets
Total Time: 40
Servings: 6 serving(s)
Ingredients:
  3 skinless, boneless chicken breasts
  1 cup Italian seasoned bread crumbs
  ½ cup grated Parmesan cheese
  1 teaspoon salt
  1 teaspoon dried thyme
  1 tablespoon dried basil
  ½ cup butter, melted

Instructions: Step 1 Preheat oven to 400 degrees F (200 degrees C). Advertisement
Step 2 Cut chicken breasts into 1 1/2-inch sized pieces. In a medium bowl, mix together the bread crumbs, cheese, salt, thyme and basil. Mix well. Put melted butter in a bowl or dish for dipping.
Step 3 Dip chicken pieces into the melted butter first, then coat with the breadcrumb mixture. Place the well-coated chicken pieces on a lightly greased cookie sheet in a single layer, and bake in the preheated oven for 20 minutes.
Image URL: https://images.media-allrecipes.com/userphotos/2152306.jpg
```

With a bit more cleanup of the output portion of the code, it will be pretty nice. However, what happens when you enter a website

that is not one of the sites that is supported by the library? Let's look by trying a site that I know is not supported (below)

<https://www.jennycancook.com/recipes/custard-filled-paczki/>

This error is easy to avoid. All of

the sites that are supported are stored in a dictionary named SCRAPERS. What we will want to do is grab the domain from the

```
Please enter the website URL to scrape (blank line to quit) ->https://www.jennycancook.com/recipes/custard-filled-paczki/
Traceback (most recent call last):
  File "/home/greg/.pyenv/versions/3.7.4/lib/python3.7/site-packages/recipe_scrapers/__init__.py", line 114, in scrape_me
    scraper = SCRAPERS[host_name]
KeyError: 'jennycancook.com'
```

During handling of the above exception, another exception occurred:

```
Traceback (most recent call last):
  File "scrapertest.py", line 13, in <module>
    scraper = scrape_me(site)
  File "/home/greg/.pyenv/versions/3.7.4/lib/python3.7/site-packages/recipe_scrapers/__init__.py", line 117, in scrape_me
    "Website ({}) is not supported".format(host_name))
recipe_scrapers.WebsiteNotImplementedError: Website (jennycancook.com) is not supported
```

# HOWTO - PYTHON

URL and see if it is in the SCRAPERS dictionary. We can do that by importing the urlparse library...

```
from urllib.parse import  
urlparse
```

Be sure to place this at the top of the file, just under the other import statement. The existing code will be shown here as 'not bold' and the new code as 'bold' (top right).

Again, be sure to match the indentation level of the rest of the code. Finally, at the very end of the code, add the following two lines (below).

Now when you run the program, using the unsupported URL, you'll see the following...

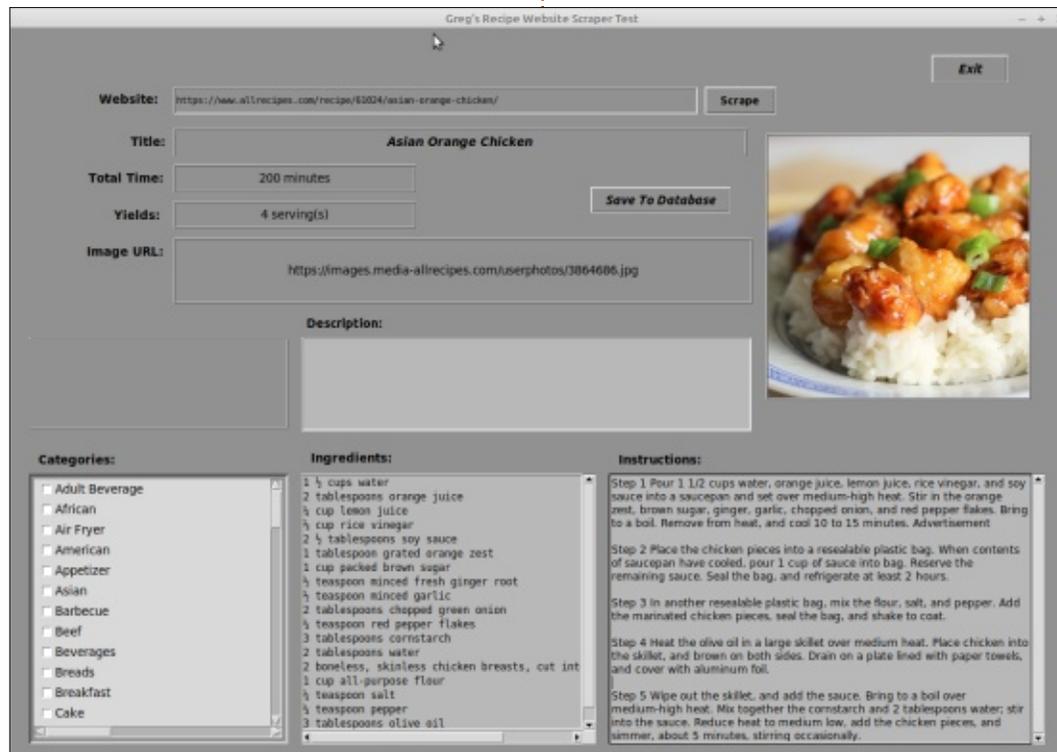
Please enter the website URL to scrape (blank line to quit)  
-><https://www.jennycancook.com/recipes/custard-filled-paczki/>

Sorry, that website is not currently supported.

```
else:  
    print('\nSorry, that website is not currently supported.')
```

```
site = input('Please enter the website URL to scrape (blank line to quit) ->')  
if site != '':  
    # Now check to see if the domain is in the SCRAPERS dictionary...  
    domain = urlparse(site).netloc  
    domain = domain.replace("www.", "")  
    if domain in SCRAPERS:  
        scraper = scrape_me(site)
```

That's it. This base code can be easily worked into a GUI form as well. Here's a shot of what my GUI scraper form looks like.



As I usually do, I've put the code up on Pastebin at <https://pastebin.com/t0t8a0fm>

Until next time,

Keep coding!



**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).



# HOW-TO

Written by Erik

# Check Disk Usage

I have received four questions in this month's Q&A and 2 last month regarding directory size and file size. I will also cover the "what is eating up all my space" etc. Rather than repeating myself over and over, I thought I would make a quick tutorial.

Ubuntu has a nice little program called disk usage analyser (below).

This lets you drill-down into

folders and see what is taking up so much space. However, there may come a time when you do not have the space to install anything more. There may even be a time where you have no internet access to install disk-usage-analyser. Fear not, you need the 'du' command.

You may not like the terminal and that is fine, but sometimes you need to use it. The nifty thing about what I am going to show you is that it is fast. So what does the

'manpage' say? Well it is about as clear as rice pudding: "DESCRIPTION: Summarize disk usage of the set of FILES, recursively for directories. Mandatory arguments to long options are mandatory for short options too."

The amount of options is not overwhelming, but it does not really help you out either. When I give someone a helping hand, I often get a "huh?", so I understand

why we get so many of these questions.

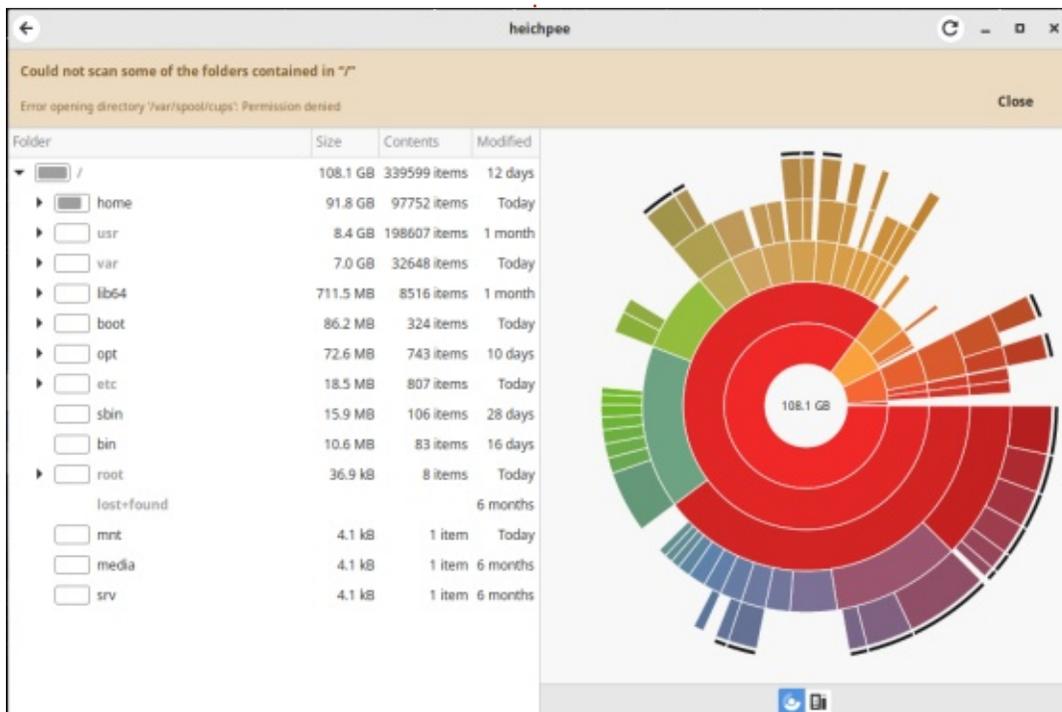
Let us start with the basics:

If you are in the folder you want to know about, type:

```
du -skh
```

or

```
du -smh
```



```
gewgaw@heichpee:~$ du -skh
200K ./WritersCafe-2.44/de_DE/writerscafe.bin
380K ./WritersCafe-2.44/de_DE/fiction.dat
8.0K ./WritersCafe-2.44/de_DE/logo.jpg
24K ./WritersCafe-2.44/de_DE/fiction_unregistered.htb
396K ./WritersCafe-2.44/de_DE/writerscafe.mo
4.2M ./WritersCafe-2.44/de_DE
4.0K ./WritersCafe-2.44/x-writerscafe2.desktop
4.0K ./WritersCafe-2.44/writerscafe_eeepc.xml
4.0K ./WritersCafe-2.44/writerscafe2.xml
4.0K ./WritersCafe-2.44/Dictionaries/README_en_GB.txt
4.0K ./WritersCafe-2.44/Dictionaries/README_en_US.txt
516K ./WritersCafe-2.44/Dictionaries/en_GB.dic
16K ./WritersCafe-2.44/Dictionaries/de_DE.aff
20K ./WritersCafe-2.44/Dictionaries/README_de_DE.txt
4.0K ./WritersCafe-2.44/Dictionaries/dictionaries.txt
680K ./WritersCafe-2.44/Dictionaries/en_US.dic
4.0K ./WritersCafe-2.44/Dictionaries/en_US.aff
28K ./WritersCafe-2.44/Dictionaries/en_GB.aff
1.1M ./WritersCafe-2.44/Dictionaries/de_DE.dic
```

# HOWTO - CHECK DISK USAGE

Let's dissect that. We (-s) summarize, (-k) kilobytes, (-m) megabytes, (-h) human readable

Sometimes, You want to see more than just what the current folder holds. Just remember – du can access only what your user can access, so you cannot see what is inside another user's folder if you do not have permissions.

Would you like to see each file in a folder? The you want: du-ah | less

If you want it summed up to a grand total, use the -c flag.

You may be looking for those huge files you put somewhere, then you use the -t flag. For example:

```
du -h -t 500M -a /
```

The last thing I want to draw your attention to is the -d flag. You may not want to traverse every subfolder, but just want to check a subfolder's subfolder. In that case: du -d1 or du -d2 -will do the job.

Your homework is to see if you can use the: --exclude flag.

So now you have everything you need to make yourself a nice alias. How about you pipe a "ls" command of a folder through the "du" command? See where this is going? <insert eyebrow wiggle here>.

Try to decipher the following command:

```
sudo ls -ld */ | sudo xargs  
-I {} du {} -sh && sudo du  
-sh
```

Better yet, try it in a terminal. If you are stuck, email us on

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

So: sudo ls -ld \*/ - Displays the top level folders (1 deep from the root) , we then use xargs to take that output and pipe it into sudo du -sh and the reason we use sudo is because we need permissions to size folders we do not have regular access to.

Now if you use sed and awk, you can sort that by size too, but I would like to point out that you can use ncd, which adds the ncurses version of a progress bar

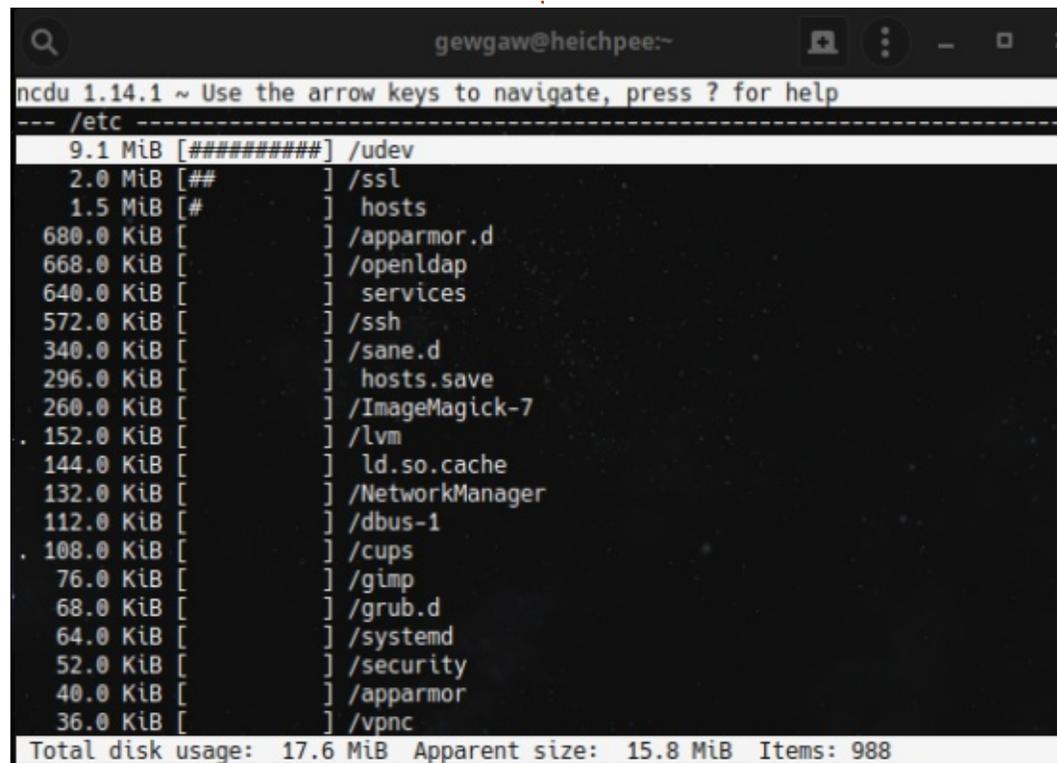
to make it stand out more. You can use ncd on any folder with:

```
ncdu /<foldername>
```

This is by far the easiest way to get folder sizes. Just be aware that this will not be available on legacy systems.

But think about aliasing a long du command for use in situations where you need to make space and want to find that pesky '.iso' file you copied into the opt folder by mistake.

Very handy reference:  
<https://www.rootusers.com/13-du-disk-usage-command-examples-in-linux/>



```
gewgaw@heichpee:~  
ncdu 1.14.1 ~ Use the arrow keys to navigate, press ? for help  
-- /etc  
9.1 MiB [#####] /udev  
2.0 MiB [##] /ssl  
1.5 MiB [#] hosts  
680.0 KiB [ ] /apparmor.d  
668.0 KiB [ ] /openldap  
640.0 KiB [ ] services  
572.0 KiB [ ] /ssh  
340.0 KiB [ ] /sane.d  
296.0 KiB [ ] hosts.save  
260.0 KiB [ ] /ImageMagick-7  
152.0 KiB [ ] /lvm  
144.0 KiB [ ] ld.so.cache  
132.0 KiB [ ] /NetworkManager  
112.0 KiB [ ] /dbus-1  
108.0 KiB [ ] /cups  
76.0 KiB [ ] /gimp  
68.0 KiB [ ] /grub.d  
64.0 KiB [ ] /systemd  
52.0 KiB [ ] /security  
40.0 KiB [ ] /apparmor  
36.0 KiB [ ] /vpnc  
Total disk usage: 17.6 MiB Apparent size: 15.8 MiB Items: 988
```



If you have been following our Darktable tutorials, you will know we are working with the latest version, not the version that is bundled in the Ubuntu Software centre.

**Disclaimer:** In no way am I an expert in photo manipulation, I just know a guy who had a dog that gave me some fleas. I thought I may help you scratch an itch also.

**W**hite balance, what is it? Well, it is the process of removing unrealistic color casts, so that objects which appear white in person are rendered white in your photo. Sounds simple, doesn't it? Whilst most of us play it by eye, there is a way to set your white balance without ogling the picture every five seconds. Truth!

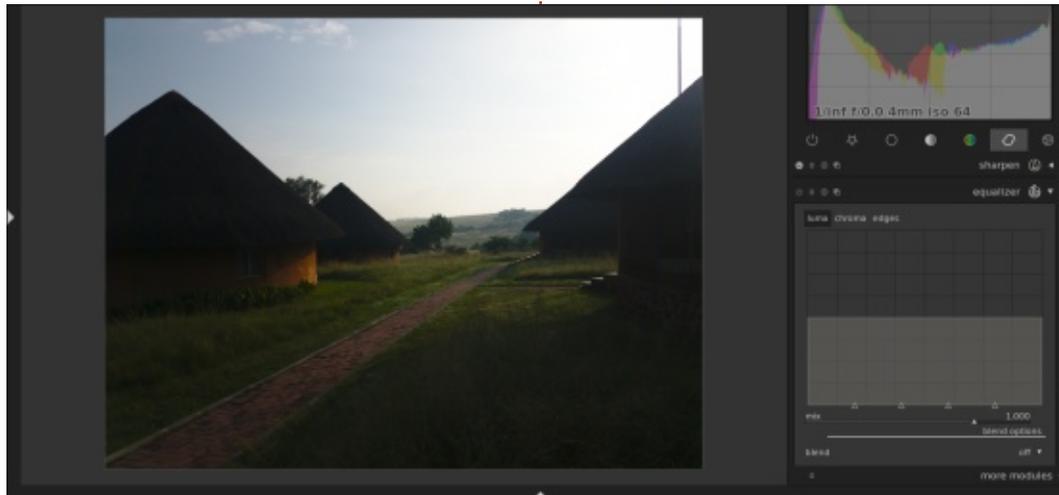
In this issue, I would like to take your hand and guide you to an often underutilized module in Darktable. That is the 'Equalizer' module. Let's dive right in, shall we? Open a RAW image and go to Darkroom. Any one will do.

As you can see (below), we have "luma", "chroma" and "edges". You can keep your mouse over each word for a nice description. The description for "edge" says: "only changes results for luma and chroma tabs". What this means is that 'edge' does not work on its own. It works only on edits from the previous tabs. In other words, it is dependent on changes in the previous two tabs. If you mouse-over any one of the three "empty" boxes, you will see white circles appear. These are your nodes. Some words will also appear in the four compass directions, these will change with each tab. In luma, they are, "coarse", "bold", "fine", and "dull". You may wonder what is

"coarse" in a photo. Well, those are large areas with little detail and more-or-less uniform color. If you look at our picture, the Rondavel roof's are a great example. The opposite of coarse is fine, obviously, but in our picture, it is the flowers, where there is a lot of color change, and dark parts and highlights. However, I want to stress that on the luma tab, color is not the target; that is what the chroma tab is for. When you mouse-over the words that line the block, you will notice that you cannot mouse-over the word "smooth". As soon as you do, it acts like those old windows 3.1 viruses and changes the word at the last second. Suddenly you have

"noisy". The word smooth now went and replaced "contrasty". How now brown cow? Don't panic, it is perfectly "normal". Think of noise as the basement level to smooth. Drag some nodes or click inside the square to make some changes. At any point you can undo any change with ctrl+z as usual. To simply reset the graph, double-click. If you went into the basement by mistake, just go there again and double-click your mouse there to reset those graphs. To get an idea of what is happening, make some 's-curves' in the positive and negative direction (Sine waves).

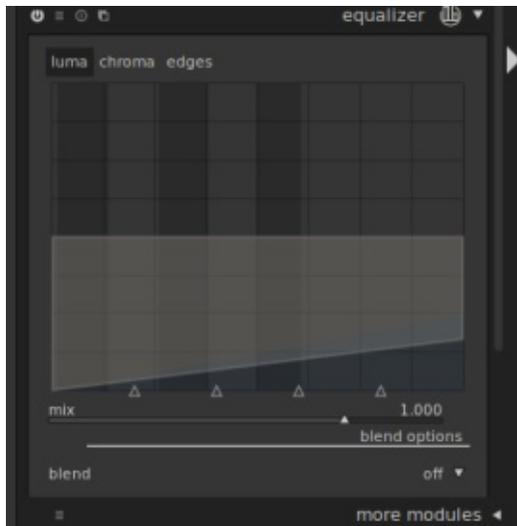
Reset the graph once you have an idea of how it works. Now I want you to raise each node, one-by-one, to the maximum of three, and have a Mexican wave run across the graph from left to right. At first, it will seem awful. Then get better, then sort of not really make big changes as the wave rolls out the right-hand side of the screen. Now lift node two (2) and node four (4) somewhat. Take a snapshot of your image, then reset it. Compare the two images. There



# HOWTO - DARKTABLE

are also shortcuts built into the module, so if you right-click, a drop-down menu will appear. Choose denoise. Suddenly that noise basement will get a linear value (it displays darker).

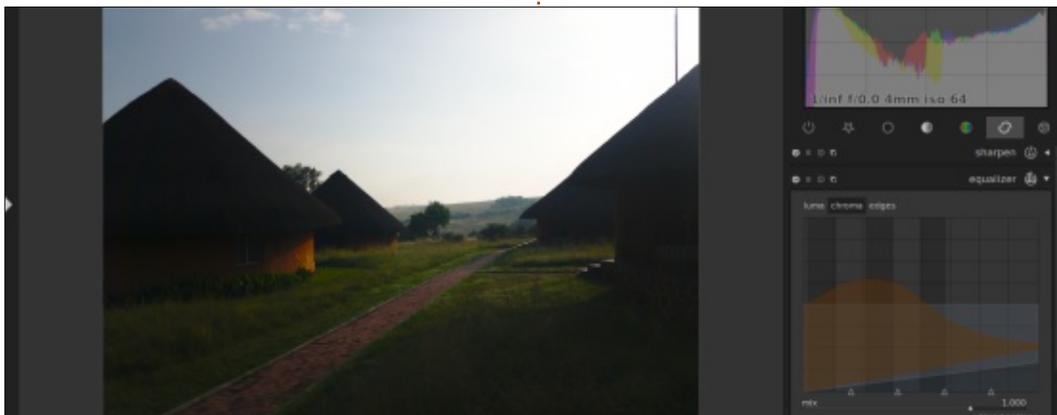
Zoom into your image at least 1:1 and now adjust that line accordingly. Now switch from luma to chroma. You should still be able to see the darker triangle at the



bottom. This works just like luma, but instead of light, obviously color. The same with the noise, it addresses color noise. Please feel free to play with this too, creating s-curves and Mexican waves across the graph. Don't do it only in the positive, but in the negative too, so you can see where it changes. The only teacher here is experience.

Notice that even if you make massive changes, the histogram changes only slightly. (We are tweaking only intensity).

Though you can go totally nuts, you will find that bell curves make the best bases to edit from. Although my photo has clipping, it is clipping in an area I was going to cut off anyway, so pay that no heed. My phone camera's sensor – is a lot smaller than that of my camera – so I need to take that into consideration. You may also have noticed, whilst dragging, that there is an odd shape that follows your mouse inside the graph block. This is the amount of detail that you change at a time. To change this, you simply select a node and scroll your mouse wheel forward or backwards. The circle will increase or decrease. This, in turn, adjusts that sort of diamond shape behind



your mouse cursor. Think of this as your z-axis edit. You can click your mouse pointer between nodes, and the cursor will create a high or a low without your nodes moving. They seem to be locked horizontally and move only in the vertical plane. However, if you look at the bottom of the box, you will notice four (4) triangles. They will allow you to move the nodes along the x-axis.

Now for edge, you need to zoom in to the maximum, then move to a spot where low detail and high detail meet, for instance a wall and flowers. Even if you drag the nodes to the top and the bottom, the changes are minuscule. Remember I told you that it acts on the previous changes you made in the other tabs. Think of it as very fine tuning. Most of the time I do not even

bother with this tab.

You also may have noticed a slider below the graph box. Mix will take your edit and amplify or condense your edit already made. You can turn on blend and change any one of those, but I recommend that you leave it off as this is what you are adjusting. Don't be afraid to try out the right-click menu short-cuts, as this can save you a lot of time. The denoise feature is also great for using at the end, after fiddling, as one can remove those pesky color noise one introduces with some coloring edits, without then fiddling with the denoise module again.

I hope this opens up some more editing avenues for you. Calm your spirit and edit some photos!

Questions? Comments? E-mail us on [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.

# The Daily Waddle

**Why is the CTRL key in the bottom row of the keyboard?**

**'Coz when you are in IT, nothing is ever under control...**





After the JavaScript detour of the past few months, it's time to head back into the realms of pure Inkscape. Before we dive headlong into the next topic, however, I'm going to spend this month and next tidying up a few loose ends and updating you on some recent Inkscape news items.

To begin with, let's finish up with a little more polish on the JavaScript-based transform animation we've been building up through the last few articles. If you followed along, you'll have ended up with four blocks of code that all look very similar, for each of skewX, skewY, scaleX and scaleY (top right).

All that changes between them are the variable names, and the only result we use from this code is the single value we create at the end. This block is an excellent candidate for splitting out into a single function that gets called for each of the four transform parameters. Reorganising code to make it simpler, clearer, or more efficient, is referred to as

```
const skewXDur = props.skewXDuration;
const skewXRange = props.skewXMax - props.skewXMin;
let skewXPosition = (runningTime % skewXDur) / skewXDur;
const skewXDirection = runningTime % (skewXDur * 2);
if (skewXDirection > skewXDur) {
  skewXPosition = 1 - skewXPosition;
}
const skewXAmount = (skewXRange * skewXPosition) + props.skewXMin;
```

"refactoring". To refactor this code, therefore, the first step is to copy it into a function of its own, and return the value we're interested in. We'll add the new function to the very end of the JS file (bottom right).

We're going to use this function to replace blocks of code that deal with multiple different properties, so it makes sense to also tidy up the variable names in the function to make them more generic. By passing in the relevant duration,

min, and max, from the properties – and also passing the current running time that was supplied to the parent animate() function – we can simplify it to this general

purpose function (below).

Now we can replace the original four blocks with something much simpler. Here's the line to use for

```
function getAnimAmount(dur, min, max, runningTime) {
  const range = max - min;
  let position = (runningTime % dur) / dur;
  const direction = runningTime % (dur * 2);
  if (direction > dur) {
    position = 1 - position;
  }
  const amount = (range * position) + min;

  return amount;
}
```

```
function getAnimAmount() {
  const skewXDur = props.skewXDuration;
  const skewXRange = props.skewXMax - props.skewXMin;
  let skewXPosition = (runningTime % skewXDur) / skewXDur;
  const skewXDirection = runningTime % (skewXDur * 2);
  if (skewXDirection > skewXDur) {
    skewXPosition = 1 - skewXPosition;
  }
  const skewXAmount = (skewXRange * skewXPosition) + props.skewXMin;

  return skewXAmount;
}
```

skewX – I’ll leave it to you to work out what to do with the others. Note that I’ve split this across multiple lines to squeeze it into a single column in this article, though in a real file I would probably put all of this in a single line of code:

```
const skewXAmount =
  getAnimAmount (
    props.skewXDuration,
    props.skewXMin,
    props.skewXMax,
    runningTime
  );
```

It almost goes without saying, but once you’ve replaced all four blocks of code you should save and reload your page. If everything was correct you should see no change in the animation.

You should, however, be able to see at a glance how much shorter and simpler this change makes the animate() function. It’s gone from being a mathematically heavy chunk of code to a much simpler series of lines that just set up some constants, applies them to the transform() attribute, then calls itself for the next iteration. If you dive further into coding you should always try to keep an eye out for repeated blocks of code

that can be refactored into a single function.

With that, I’m going to draw a line under this part of the series – at least metaphorically speaking, although you should now have enough understanding of SVG and JavaScript to be able to draw a literal line, if you wish.

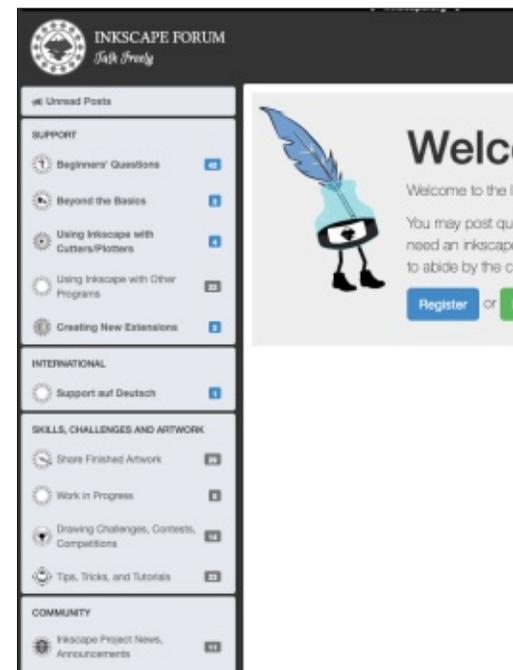
### FORUM NEWS

I’m sad to announce that the long-standing semi-official forum for Inkscape, “inkscapeforum.com”, is no longer around. It hasn’t been actively supported by its administrator for a number of years, but had still been the go-to place for the English-speaking Inkscape community. Despite the efforts of a number of users and developers – myself included – to transfer the forum into the stewardship of the Inkscape project, the admin did not provide either a backup of the database, nor enough access for us to obtain it ourselves. A couple of months ago the site simply disappeared, and has not returned.

Fortunately the lack of communication from the admin

acted as a warning, and an officially-official forum was already up and running when the old one vanished – thanks mostly to the sterling efforts of Martin ‘Doctormo’ Owens, a long-standing contributor to the Inkscape project. With its main ‘competitor’ having self-destructed, the official forum has grown in popularity, and should now be seen as the best place to go if you have an Inkscape question, or just want to show off your Inkscape-created images. The new forum is linked from the main Inkscape website, or you can access it directly at the following address:

<https://inkscape.org/forums/>



But what of the many years’ worth of hints, tips, tutorials, questions and answers that had accrued on the old forum? Thankfully it’s not all lost: the Inkscape website is hosting a read-only backup which mostly works, though some threads don’t seem to behave quite as they should. <https://alpha.inkscape.org/vectors/www.inkscapeforum.com/>

Alternatively the Wayback Machine at the Internet Archive site also has a snapshot of the old forum though, again, it’s not perfect. <https://web.archive.org/web/20190910200439/http://www.inkscapeforum.com/>

Hopefully between these two resources the bulk of the useful content from the site has been preserved.

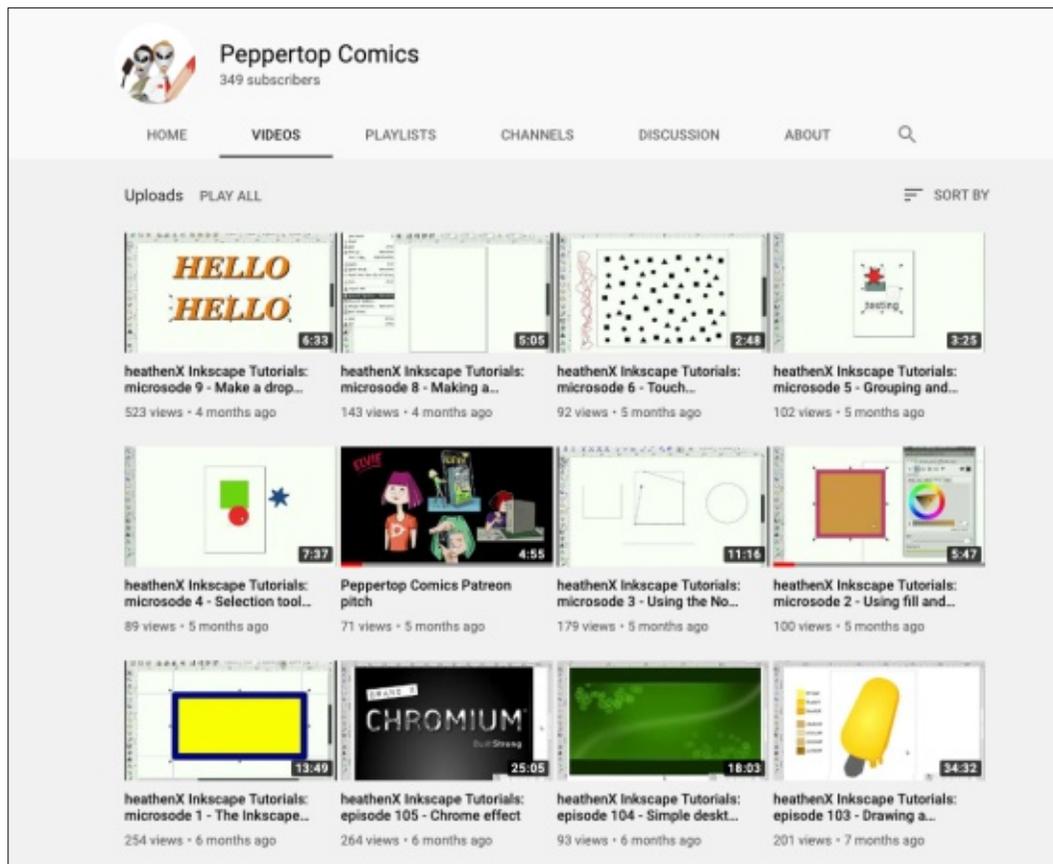
One very useful page from the old forum which hasn’t been completely captured is the index of my Full Circle Magazine articles. The last snapshot on the Wayback Machine dates to 2017 and, although the page on the Inkscape site is more up-to-date, I’ve nevertheless copied the content to

# HOWTO - INKSCAPE

my own site, where I can continue to update it as new articles are published. You can find it here: <http://www.peppertop.com/blog/?p=1563>

## VIDEO TUTORIALS

When I was first starting to learn how to use Inkscape, a valuable resource was a series of tutorial videos created by 'Heathenx' and Richard Querin. Unfortunately, their website has long-since disappeared, but I was able to get a current email address for Heathenx and contacted him about re-posting the videos online. I'm delighted to report that he was extremely helpful, and happy for them to be uploaded to Youtube. There are over a hundred videos in total, most of which are still relevant to the current Inkscape release. I uploaded them over a number of months, adding my own notes to clarify any tweaks or changes that are required for recent Inkscape versions. I urge you to take a look at them, as they provide a great example of the many and varied effects that can be produced with Inkscape if you have a little artistic flair.



<https://www.youtube.com/c/PeppertopComics>

## A SHAMELESS PLUG

While we're on the topic of Inkscape resources I've posted online, I'm going to take this opportunity for a spot of blatant self-promotion. Long-term readers of this column (or those who read the byline at the end of an article) will know that I create comics and

cartoon strips using Inkscape (with the help of a far more artistically talented friend). We've been working together in our spare time for over 25 years now, but it's the last decade that has been the most interesting as far as this column is concerned. During that time, we've used Inkscape in the creation of over 250 strips which can be freely viewed on our website. To help encourage new Inkscape users, we've made the vast majority of

our source files available for download as well, so you can see how we put things together or modify the cartoons to suit your own needs.

Given that you're reading a Linux magazine, I'd like to draw particular attention to our "Elvie" comic strip. This appeared in every edition of the much-missed Linux Voice magazine, and has continued every month in Linux Pro Magazine (just "Linux Magazine" outside North America). Thanks to the kind generosity of the editors and publishers, we've been able to release these strips under a very liberal license (Creative Commons BY-SA), and have a Git repository with our Inkscape and MyPaint source files. We've even gone so far as to use fonts that are under liberal licenses, so that every single part of these cartoons is as free as possible.

Aside from Elvie, our other cartoons have appeared in magazines and newspapers, and even in an exhibition at the National Media Museum in the UK. They can all be viewed and downloaded from our website:

<http://www.peppertop.com>

If you want to support us in the work we do to promote Inkscape – or if you want to help in our goal to raise enough funds to relicense some of our earlier cartoons as BY-SA – we also have the near-obligatory Patreon page: <https://www.patreon.com/peppertop>

## INKSCAPE v1.0 BETA

In classic 'saving the best for last' tradition, the final item in this hodgepodge of an article is the announcement of the long awaited release of Inkscape v1.0. Well,

nearly.

At the time of writing, the second beta of v1.0 has been released, and is available via the download link on the Inkscape website (<https://inkscape.org>). There's no definite date for the final release, and I don't know if there will be any other beta releases in the meantime, but what's there already feels pretty stable and polished. I encourage readers to give the beta a try, and report any issues they find to the Inkscape bugtracker. Note that the project is no longer using Launchpad to track issues, having

switched to GitLab some time ago. If you do want to file a bug report, or view those that have already been filed, there's a page on the Inkscape site that will redirect you to the correct location:

<https://inkscape.org/report>

## A FOND FAREWELL... UNTIL NEXT MONTH

I had originally intended for this to be my last Inkscape column, having covered just about every feature the program has to offer during the past 8 years. With the

imminent arrival of v1.0, however, I've decided to stick around to introduce the new features and important changes. Initially this coverage will necessarily be based on the beta versions, but it's unlikely that there will be significant UI changes before the full release so I'm sure anything I write will still be relevant in a few months' time.

Next month, I'll be detailing a couple of minor features in Inkscape that have managed to slip through the cracks in previous instalments, to fully 'clear the decks' before diving into the exciting new features of v1.0.



Mark uses Inkscape to create three webcomics, 'The Greys', 'Monsters, Inked' and 'Elvie', which can all be found at

<http://www.peppertop.com/>



# HOW-TO

Written by Alan Ward

## Krita To Rework Old Photos Pt.4

This series is aimed at learning to make something of the old photos in my possession, and others in the public domain due to their age. You, the reader, are welcome to tag along and, I hope, glean some small insight and perhaps an idea or two from time to time. No promises are made as to quality of the content, or potential errors and omissions. I am a computer scientist, not a true artist or a professional of image

restoration. So please take all this as a best effort, but with no firm guarantees — much as is the case of most open-source software.

This is the final part on our first simple landscape, a photo of the castle of Foix in southern France about the turn of the century. With the passage of time, this photo is now slated to fall within the public domain, has already been digitized by the Rosalis project of the

municipal public library of Toulouse, and may be downloaded from Wikicommons at address: [https://commons.m.wikimedia.org/wiki/File:Ch%C3%A2teau\\_en\\_ruines\\_\(8056081904\).jpg](https://commons.m.wikimedia.org/wiki/File:Ch%C3%A2teau_en_ruines_(8056081904).jpg).

In the previous episode, we used a color curve to make the contrast of the complete image slightly more balanced, and then added a transparent layer on top to put in some color and try to get

a better impression of the scene's original colors. The result is quite reminiscent of period hand-coloring of black-and-white photographs in the early 1900s, but still needs some tweaking.

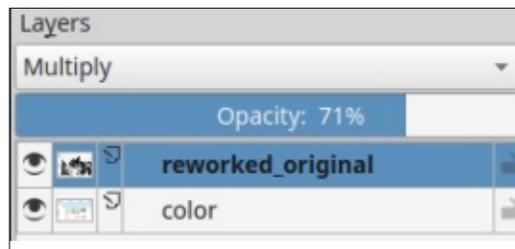
In the first place, parts of the image are still much too dark, such as the castle walls. They need to be lightened up a tad, to give the color a chance to show through. On the other hand, the clear parts



such as buildings' facades and their window shutters are slightly overexposed, and would not stand any further lightening. So, it was back to the color curves -- as discussed in the previous part of this series -- and lighten the lower (darker) end of the color curve, leaving the upper part as it was. An extra control point placed in the exact middle of the range helped achieve the desired result.

I then went back to my coloring technique. In the previous episode, I had simply placed a new layer to hold the colors on top of the original image. This is contrary to standard practice in the printing world, where darker inks are always applied on top of lighter, and black is naturally the last to go on. This sequence also makes

sense in our application, since it will mean that the black edges to fine details (such as window shutters) will stand out better over their infilling color. So, I removed the color layer, and created a new one beneath the original image. I also chose to combine the original layer using "Multiply" instead of "Normal", since the combination between layers works out better, and reduced the opacity of the original image to 71%. This gives a good balance between the colors in the lower layer, and the black details in the upper.



Now, it was "merely" a question of slowly working in the color in the lower layer. Several aspects came to light. In the first place, it is clear that, in real color photos, there tend to be very few large areas of uniform color. Even in this image, with its rather flat sky due to over-exposure in the original, we can give some life by putting in some slight gradient, especially in the parts that are at a distance.

As can also be seen from this detail, both the rock surfaces to the right and the terraced fields to the left are composed of various colors: dark green trees and shrubs clinging to the rocks, the rock surfaces themselves as a light, creamy, limestone, and other types

of vegetation such as grass or cereals in the fields. Careful use of the airbrush with a choice of several (2 to 4) colors for each type of terrain may be of help here.

Even wide expanses of mixed vegetation near the tops of low mountains in the background will need some grading. To the right side of the complete image, I used several shades of green in wade bands. Actually, these were laid down using a completely opaque crayon, and not the airbrush. To blend horizontal bands in together, I then used one of Krita's "wet knives" to move the color, to blend and mix as if it were wet oil paint.

In this same detail, we can note



## HOWTO - KRITA

that the presence of the trees in the foreground make coloring the mountainside rather more difficult. Instead of drying the background around the branches -- which would be quite impossible due to the sheer amount of wood in the foreground -- I painted the lot over in the colors of the mountainside grass. Then, a clearer shade of wood color was used, with a fine airbrush, to change the tone of the trees. Some bleeding has occurred in places, but the end result is rather life-like.

Our choice of colors for vegetation and natural formations is rather limited: grass will, in general, be green, tree limbs will have a wood color, and rocks will each have their own colors within a limited range of possibilities. Choosing colors for these parts of

the image is, thus, rather easy. If in doubt, using a modern photo taken of the same place may put us on the right track and, even, allow us to open both images in Krita and choose colors directly from the recent image and transfer them directly to work on the black and white photo we are coloring. However, things are more complicated when man-made objects may be more complex.

The roofs in this image are quite clearly ceramic tiles, which at that time must have been some shade of terracotta, from brick-red to pink or even yellow ocher. However, nobody alive could tell us which colors the shutters of the houses were. A certain variety of shutter paint colors is to be expected; however, assignation must to some extent be a



subjective choice. I simply did try to follow usual practice, and assign similar colors to each shutter of the same building, and different colors to neighboring houses. In the same way, the lettering of the hotel name on its gable in the background must have stood out from the background. But, was it red, green or blue? That could be anyone's guess.

This is the final image, as it stands (bottom right).

In comparison to the original shown in the first episode of this series, there are fewer defects and more details arise readily to the eye. In general, I am quite satisfied

with the work done.

In the next part of this series, we will change subjects. We'll work on an early 20th century image, a studio portrait. Paul Trappen, presented as the world's Strongest Man, was photographed and the resulting prints sold as a postcard. The result is now available on Wikimedia Commons at address [https://commons.wikimedia.org/wiki/File:Portrait\\_of\\_Paul\\_Trappen.jpg](https://commons.wikimedia.org/wiki/File:Portrait_of_Paul_Trappen.jpg). Interested readers may wish to download this photo, and give it a quick look to see how we can work on it to enhance the image itself, and add color. Until then, take care!



# The Daily Waddle

THE DAILY WADDLE

by: ErikTheUnready



**Programmers love to solve problems!**



**That's why, when there are no bugs in the code, they create some...**





# LINUX LOOPBACK

Written by S. J. Webb

BACK NEXT MONTH



**SJ Webb** is a researcher coordinator. When he is not working, he enjoys time with his wife and kids. He thanks Mike Ferarri for his mentorship.

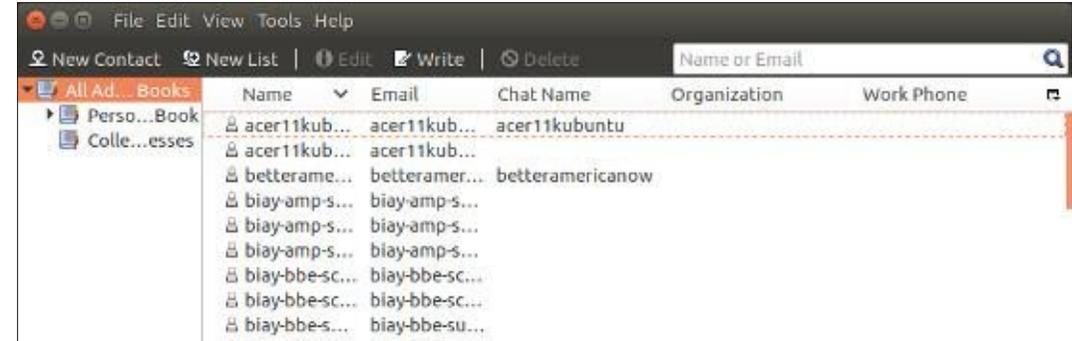


Last month, we got started with setting up email in Thunderbird to help us with Personal Information Management. This month, we'll look at basic contact management. This is all to service the common New Year's resolution to become more organized in the upcoming year.

## BASIC CONTACT MANAGEMENT: THUNDERBIRD ADDRESS BOOK

One of my personal ongoing regrets is my continued deficiencies in keeping up with various phone calls and other communications, particularly in regards to commitments made by others, and then not kept. Many times, I have called institutions that I have some kind of business relationship with, and referenced a prior conversation, only to be queried as to whom I had previously spoken with, and to have no recollection. You'd think I would learn....

There is no little irony in the



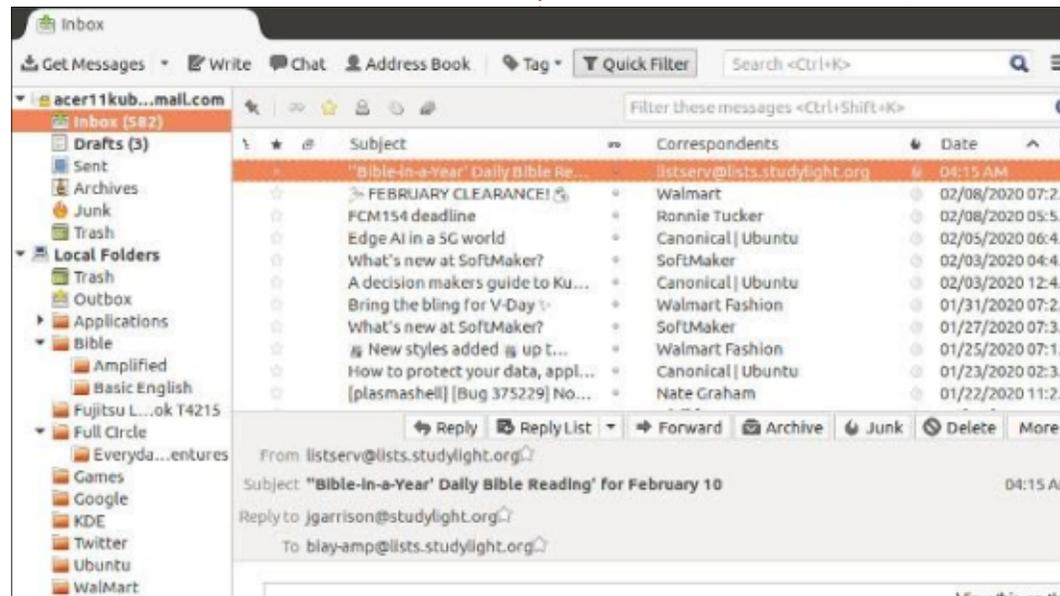
fact that I worked for years in call centers, and was a real stickler for documenting calls thoroughly and accurately. In my personal life, not so much – frequently to my dismay and/or detriment. Fortunately, my needs in this respect are fairly basic, and are well met by use of the Thunderbird integrated address book, as would probably be the case for many users.

configuration. You can get to it by opening Thunderbird and going to Address Book at the top of the main Thunderbird program window (left).

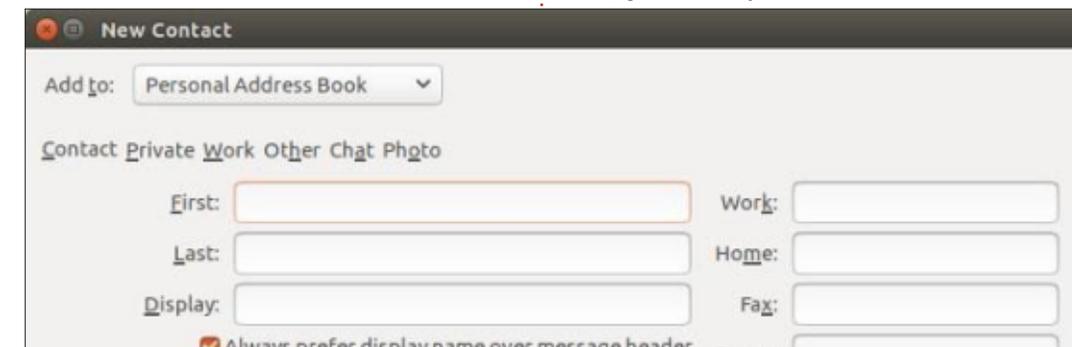
This will open the Address Book (shockingly enough). Shown above.

Click New Contact at the top of the Address Book.

Let's use the default Add to: as Personal Address Book. As you can see, you can put in a solid amount



The Thunderbird integrated address book requires no additional installation or



**New Contact**

Add to: Personal Address Book

Contact Private Work Other Chat Photo

Address:

City:

State/Province:  ZIP/Postal Code:

Country:

Web Page:

Birthday:  /   Year or  Age

of default information here that will suit the needs of most users pretty well. What is actually not obvious in the interface is that we are seeing the default information for the Contact page of data. It's not highlighted or anything in the list at the top, but that is what it is defaulting to. Click Private and

you'll see this page displayed:

The next page is for Work information (below).

We're going to skip Other for just a moment and look at the Chat data page:

**New Contact**

Add to: Personal Address Book

Contact Private Work Other Chat Photo

Title:  Department:

Organization:

Address:

City:

State/Province:  ZIP/Postal Code:

Country:

**New Contact**

Add to: Personal Address Book

Contact Private Work Other Chat Photo

Google Talk:

AIM (R):

Yahoo!:

Skype:

QQ:

MSN:

ICQ:

Jabber ID:

IRC Nick:

I would hate to have that many instant messaging accounts! Here's the page for the Photo information:

You can pick a photo from your local hard drive or from the Internet. And here's the page we're going to really use, Other:

**New Contact**

Add to: Personal Address Book

Contact Private Work Other Chat Photo

Custom 1:

Custom 2:

Custom 3:

Custom 4:

Notes:

**New Contact**

Add to: Personal Address Book

Contact Private Work Other Chat Photo

Pick one of the following:

Generic Photo

On this Computer

On the Web

Default

Browse

Update

You can obviously use Custom 1, 2, 3, and 4 as open fields for any criteria (I suggest using Custom 1 to differentiate between maybe Friends, Family, Business, etc. as a useful potential example), and Notes is a freeform field that I intend to use pretty extensively going forward.

As you can see, by the time you've used all these pages for a contact, you've got a pretty thorough set of information for that contact. For the purposes of personal call tracking, I propose to do what I used to do with my Outlook contacts, and that is to track calls to a certain contact using the Notes field on the Other page. This will not produce much of a useful searchable relational database, it's true, but it should be more than sufficient to track the repeated calls I have to make to my arch-nemesis, Humana health insurance (their sole reason for existence seems to be making my life as miserable as they can). They are actually the WORST company I deal with in terms of needing to record calls made to them and noting names of contacts, dates of requests, and that sort of thing (followed closely by my other

archenemy, eBay), and the Thunderbird Address Book Notes field on the Other page should still be quite sufficient for my purposes.

Here's an example of a Notes entry for Humana 'health' insurance. I intend to differentiate between Humana insurance, Humana pharmacy, and Humana Over The Counter (OTC), all of which have presented me with numerous problems and challenges. I'll use different Contact entries for each, since they all do have different phone numbers. Let's look at a few sample entries that I need to track for Humana OTC.

Every quarter, I have an allowance for OTC medical supplies from Humana's OTC department. On November 5, 2019, I called to order Vitamin D2 because my nephrologist wanted me to start taking it. On December 7, it occurred to me that it had still not arrived, so I called back. I was told that their records show I requested it, but no one there actually placed the order. I re-requested it. On January 7, I called again and was told that the order STILL wasn't placed on December 7. I requested

it again, with the specific proviso that it should be accounted for under Quarter 4 for 2019, when the request was originally placed, as I intended to use my 2020 Q1 allowance for something else, and it was obviously not my fault that it was not fulfilled in 2019 Q4 as it should have been. So, here is the Notes text to record those calls/requests, taken from the index cards where I had been manually writing down the information:

- 11/05/2019: Called and requested Vitamin D2, maximum OTC dosage, per recommendation of Humana pharmacist. Qty per bottle 100, \$9 per bottle. Ordered 3 bottles.
- 12/07: Follow-up call, representative confirmed that Vitamin D2 was requested on 11/05, was told that Vitamin D2 was not ordered. Re-requested order, asked for it to be expedited. Representative said there would be a \$12 charge to expedite, rejoined that it is not MY fault they did not place the order a month ago when requested. Rep agreed to expedite at no charge.
- 01/07/2020: Called and was told that order was still not placed. Requested re-order and expediting, and specified multiple times that charge should be on

2019 Q4. Had to specify at least six times on call that it should be Vitamin D2, NOT D3.

- 01/15: Received Vitamin D3, did not notice it was wrong until after taking several over the course of 4-5 days.
- 01//20: (Representative Mike) Called to re-order Vitamin D2 as a replacement for incorrect order fulfillment, was told that Humana OTC does not carry Vitamin D2 at all, in any dosage. Requested 2 pairs of compression stockings, to be charged to Q4 2019 OTC allowance, as Vitamin D3 was NOT requested and should not count against that quarter's allowance. Was told that a one-time per year exception was allowed and would be used to correct Humana's error (although, again, not my fault).

So, on the next page (top left), is the completed fields on the Other page.

All the information didn't fit in the displayable area in Notes, but notice the scroll bar to the right of the field – you can scroll to see the rest. Now, on the next page (top right) is the completed Work data page:

As you can see, we only needed

Name	Email	Chat Name	Organization	Work Phone
acer11kub...	acer11kub...			
Boris Breuer	breuer.bori...			
Charles Mc...	chaslinux...			
Elmer Perry	elmer.p@g...			
Full Circle ...				
Gord Camp...	torgord60...			
Gordon Ca...	gord.camp...			
Greg Walters	greg.greg...		Humana	855 211-8370
Lucas West...	Lucas.West...			
Mark Crutch	mark.crutc...			
Oscar Rivera	7bluehand...			
Ronnie Tuc...	ronnie@ful...			

the Organization and Department fields here. The Contact page stores the phone number, which is all we really need on that page.

And finally, once we hit OK, the contact will be saved to our Personal Address Book, where we can see it in its completed form:

To make changes or additions, you can highlight the card in the upper right pane and click Edit up at the top of the window, or just double-click in the top right pane (double-clicking is easier, but you can do it however you like).

Next month, we'll cover how to install Lightning to help manage your personal calendar in

Thunderbird., since we didn't quite get that far this month as previously promised.

Next month: Setting up Lightning to extend Thunderbird's PIM capabilities.



**Richard 'Flash' Adams** spent about 20 years in corporate IT. He lives in rural northwest Georgia, USA, with his adopted 'son', a cockatiel named Baby.



# UBPORTS DEVICES

Written by UBports Team

COMING SOON

# The Daily Waddle

THE DAILY WADDLE

by: ErikTheUnready



**My new cellphone  
is see-thru !**

**Like it wasn't  
hard enough  
finding it before?**





# MY STORY

Written by Brian Robert Bogdan

# My Experience with Ubuntu

I was always a die-hard Windows fan. It started with Windows 3.1 – I was amazed at what I could draw (cartoons) with MS Paint. My son was 3 years old when I introduced him to computers using a custom desktop program called Kid Desk. It was a way to introduce him to working with computers while keeping my install safe from him. Windows 3.1 used, I think, 3 diskettes, but even a video resolution change could destroy the installation. That would require me to install DOS first (6 floppies, I think).

I went into Windows 95 and remember it didn't come with a mail program. Most people were using a different version, that included Outlook Express, but I couldn't afford that. I tried to download it via 56K modem, which succeeded only in large charges for my phone bill – lived out of town, so the ISP was lon-distance. I remember the dawn of the world-wide-web. I went to a site (using Quarterdeck Mosaic as my browser), and literally screamed when I saw an image of the

Canadian Flag on my screen. It was the first image I had ever seen on the net!

I finally bought Windows 98 and was blown away by the OS. Cost was ~\$200. Compared to Windows 95, it was positively elegant. I kept Windows 98, skipped the SE

version. The next upgrade was to Windows ME. I paid around \$200 again. The icons were rendered better; I don't remember if there were any other differences, so there probably weren't. I waited in line for the next release, Windows XP. I had heard how much better this OS was over ME. I used XP

until Vista came out, and yes, I was Microsoft-blind and bought that for around \$250. It was horrible! All my old programs failed to run, and I was forced to buy another version of MS Office at around \$400. This was SERIOUS money. But I wasn't fazed, as soon as Windows 7 came out, I plunked



# MY STORY

down \$250 and installed it. Everything worked! I used Windows 7 until I decided that I'd spent enough cash on Microsoft products. I had heard about Linux before, but dismissed it, thinking I wasn't computer savvy enough to use it. A friend mentioned Ubuntu. He showed me his laptop and I was intrigued. He wasn't a computer geek, like me, and he was using this beautiful OS!

And it was **FREE!!**

I heard through the grapevine that Windows 8 was coming out. I was unsure whether I would get the upgrade. I stayed with Windows 7 on my main machine, and downloaded and ran Puppy Linux on my laptop. I was visiting my dad and he was having troubles with Windows 7 so he had upgraded to Windows 8. He was having significant issues with some of his old apps which failed to work. I managed to get all but one working after several long, frustrating hours. It was then I decided to never purchase another OS again. I made the jump to Ubuntu on my main machine with Karmic Koala as that was the only CD I had. I later upgraded (fresh install) of Lucid Lynx (2010), and

have never looked back since.

I am currently on release 18.04, Bionic Beaver. I look forward to many more years with Linux, specifically Ubuntu. I was disappointed with the discontinuation of support of 32-bit systems. But I bought a new 64-bit PC. My favourite part was blowing away the Windows 10 partition and loading with a brand new copy of Ubuntu! Long Live

Ubuntu!





# MY STORY

Written by Erik

So, recently we started supplying clients with Illumineye from VXL. Horrible stuff, but we won't go into it. The players needed "firmware", and I was surprised to find that it was a 2GB download. You had to use Unetbootin, and only Unetbootin, to write the "firmware" to a USB stick to flash the players. While installing it, I saw the familiar five orange / purple dots move across the screen. My eye caught a file named wubi.exe and I was sure what was being installed was Ubuntu, not "firmware". (Before you write me letters, to me, firmware is very low level software, something like a ROM BIOS). I later confirmed that it was indeed Ubuntu. I started wondering where else this is happening.

We went to visit a company who makes an IOT interface, which, they claim, abstracts the IOT devices and connects anything to anything. (Recently partnered with Dell to manufacture them). You know what it was running? Ubuntu. Even more recently, I went to drop

a tender document, and the system that keeps track of the tenders is an Ubuntu system. All my suppliers have moved their payment (Kiosk) computers to Ubuntu. Even the supplier I used to work for has let its Fedora payment computers transition to Ubuntu. What I am trying to illustrate is that - love Ubuntu, or hate Ubuntu - you will encounter it everywhere.

One of the luxury car manufacturing plants is implementing a location / positioning system, where they can track all the cars on the production line at all times. I went to the demonstration of the real-time positioning systems. Guess what? Both were Ubuntu systems, with their respective fancy software from different suppliers. Ubuntu may receive a lot of hate from a large part of the Linux community, but it will soon be the Red Hat of IOT devices. IOT is the largest growing market at the moment – with a projection of almost forty billion IOT devices connected to the internet by the end of 2020.

Moisture sensors on the farm.... You guessed it, Ubuntu. Those schools in California that saved so much money on their electric bills by controlling the air conditioning... Ubuntu again, linking them in real time. Ubuntu is becoming the de facto standard for embedded Linux, and that is a good thing.

Talking to one the owners of an IOT specialization company, I had the distinct impression that his developers preferred working on Ubuntu. It was quick and easy to set up their development environments, and they did not need to add Linux in virtual machines or WSL. To them (the company), their biggest draw is snaps. They publish their applications and it's fire-and-forget. They do not have to worry about your version of Ubuntu or your architecture. The snap store also allows you to hide your software from everyone who is not supposed to have it too. This is called a brand store. This is handy for IOT software suppliers, who would like you to sign an NDA

# Ubuntu in IOT

before getting access to their software. The other thing that came up was security. While Ubuntu is often cited as having more CVE's than other distro's - you will find it is because they are actively working on security issues.

Speaking to a representative of a cell phone company, I found out their "early warning" systems at the cellphone towers use Ubuntu too. The cellphone has sensors to detect low fuel. Generators and fuel play an important role in keeping the grid alive during power outages, as well as at remote locations. When the fuel reaches a low level, a signal is sent and a provider comes and fills the fuel. The system is automated so that it takes some of the load off the cellphone provider. The system runs on Ubuntu.

If you would like to get in on the ground floor, so to speak, you need to get yourself a copy of Ubuntu core now.





# 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

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

## REVIEWS

### GAMES/APPLICATIONS

When reviewing games/applications please state clearly:

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

### HARDWARE

When reviewing hardware please state clearly:

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

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





Lubuntu 19.10 is the third release of this distro with the new LXQt desktop replacing LXDE. It is the 20th release since Lubuntu first appeared in April 2010, as version 10.04.

Lubuntu 19.10 is a “standard” release, the last one en route to the first LXQt long term support release, Lubuntu 20.04 LTS, due out on 23 April, 2020.

The first Lubuntu release with LXQt was 18.10, in October 2018, coming just after the last LTS release, 18.04 LTS. Releasing the new desktop right after the last LTS one gave the developers three standard releases to perfect the LXQt desktop before the LTS release, which is a good development strategy.

The first LXQt release, 18.10 in October 2018, was a bit rough around the edges but the second one, 19.04, which I reviewed in Full Circle 146, was much improved. This third LXQt release, 19.10, is even better and bodes well for 20.04 LTS.

## INSTALLATION

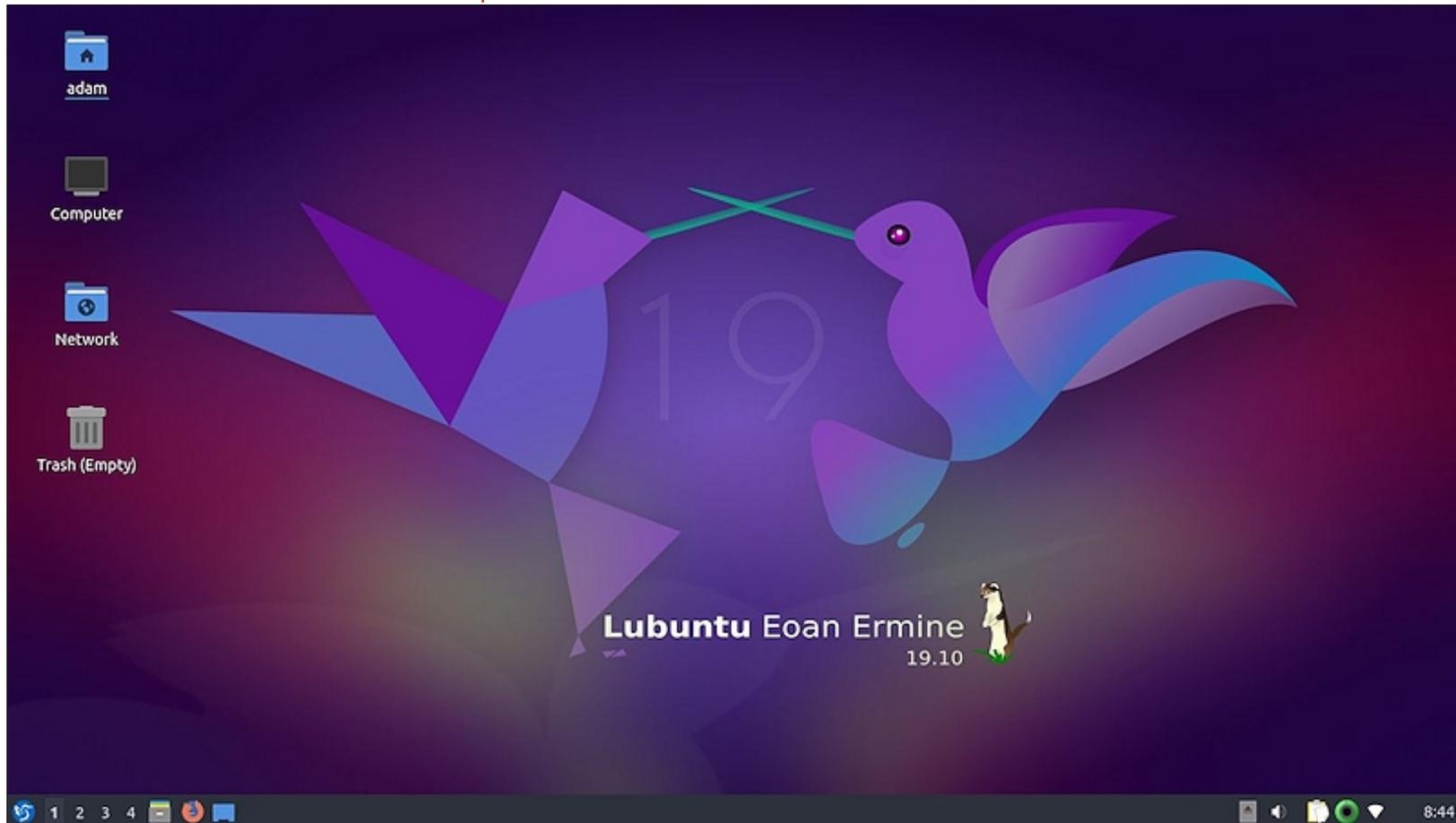
I had intended to just upgrade my 2011 vintage System76 Pagolin Performance laptop from 19.04 to 19.10, but both the Muon package manager and the command-line release upgrader,

```
sudo do-release-upgrade
```

were insisting no new release was available, even several days after it was out on 17 October, 2019. I must have had a setting wrong somewhere, but my Software Sources all looked correct. Nevertheless, I carried out

a fresh installation from a DVD instead. I actually prefer to do a fresh install, as it cleans out the old cruft and, since I have a complete checklist for new installations, I can configure a fresh installation very quickly.

My desktop PC was still running



Lubuntu 18.04 LTS and I decided to do a fresh installation of 19.10 on it too, as the instability of the PCManFM 1.2.5 file manager was making it annoying to use, with its frequent crashes.

Both of the two fresh installations went very quickly, using the new Calamares installer, with the laptop done in 11 minutes and the desktop completed in nine minutes, far faster than any previous Lubuntu installation. Configuring and getting everything set up was fast too, done in an hour and a half and 47 minutes respectively.

Boot times on the LXQt version of Lubuntu have proven slower than the old LXDE versions and 19.10's boot times are even slower than 19.04, clocking 1:44 on my laptop and 1:23 on my desktop. LXDE boot times were almost always under a minute. Hopefully this will be improved in the upcoming 20.04 LTS.

Idle RAM use after a reboot is slightly up too, over 19.04. My laptop is using 406 MB and the desktop is using 362 MB .

## CHANGES

There isn't a lot new in this release, at least that is visible to the user. It uses LXQt 0.14.1, based on Qt 5.12.4.

There is the striking new two-hummingbirds wallpaper, designed by Marcelo D. Moreira of Argentina and, in fact, the system file `/usr/share/lubuntu/wallpapers` has a nice selection of new wallpaper to choose from, from the artwork competition that the Lubuntu developers held for 19.10, plus some older wallpaper from recent releases.

Other changes and improvements include ScreenGrab which replaces the integrated screenshot tool built into the image viewer, LXImage-Qt.

FeatherPad now includes spellchecking, a very welcome addition to the very capable default Lubuntu text editor. Users will need to install Hunspell to get it working, though. Once installed, spellchecking can be called from

the "Edit" menu, or with the unorthodox F2 key (most Linux applications, like LibreOffice, gedit and jEdit, use F7 for spellchecking). FeatherPad does allow changing the shortcut keybindings, but doesn't allow changing F2 to F7 as it is used for "regular expressions". By default, spellchecking starts from the cursor position. It is worth noting that users can't just highlight text and spellcheck it.

The shortcut for the bulk file renamer in PCManFM-Qt now works. To use it, just highlight more than one file and hit Ctrl+F2 to rename multiple files at once.

The new version of LibreOffice included in 19.10 saves documents notably faster than previous versions. I found that LibreOffice does not include a dictionary for spellchecking and one had to be added as an extension from English Dictionaries to get it working.

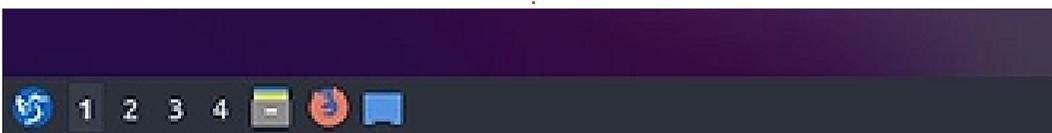
All applications now open faster than in 19.04, making it feel much more snappy, once the slow boot-

up is done.

## INCLUDED APPLICATIONS

Some of the applications included with Lubuntu 19.10 are:

- 2048-qt 0.1.6 simple lightweight game\*
- Ark 19.04.3 archive manager
- Bluedevil 5.16.5 bluetooth connector
- Discover Software Center 5.16.5 package management system
- FeatherPad 0.11.1 text editor
- Firefox 69.0.3 web browser
- K3b 19.04.3 CD/DVD burner
- Kcalc 19.04.3 calculator
- KDE partition manager 3.3.1-5 partition manager\*
- LibreOffice 6.3.2 office suite, Qt interface version
- LXImage-Qt 0.14.1 image viewer and screenshot tool\*
- Muon 5.8.0 package manager\*
- MPV 0.29.1 video player\*
- Noblenote 1.2.0 note taker\*
- PCManFM-Qt 0.14.1 file manager\*
- Qlipper 5.1.2 clipboard manager\*
- qPDFview 0.4.17 PDF viewer\*
- PulseAudio 13.0 audio controller
- Qtransmission 2.9.4-2 bittorrent client, Qt interface version\*
- Quassel 0.13.1 IRC client\*
- ScreenGrab 1.101
- Skanslite 2.1.0.1 scanning\*



## REVIEW

Startup Disk Creator 0.3.7 USB boot disk maker  
Trojitá 0.7 email client\*  
VLC 3.0.8 media player  
XScreenSaver 5.4.2 screensaver and screen locker\*

\* Indicates the same version as used in Ubuntu 19.04

As can be seen by the large number of asterisks, many application versions have not been changed this time around, which at least guarantees stability.

As in all the LXQt versions of Ubuntu, this one does not come with a webcam application, although Cheese or Gvvcview can be installed from the repositories, if needed. At least there is little worry about webcam hijacking – as there's no software installed to run a camera.

Oddly 19.10 comes with K3B, a CD/DVD burning application, which is a bit anachronistic in 2019, given that new laptops and even desktop computers haven't come with optical drives for quite a number of years.

## TESTING 19.10

Lubuntu in its LXQt versions is a breeze to customize and set up for use. Everything is in the menu under Preferences, with most key items under LXQt Settings. Like the last two releases, 19.10 comes with a default dark theme, Lubuntu Arc, but it is quick and easy to change it if it doesn't suit. Personally, I prefer lighter themes.

By default, the panel (task bar) is at the bottom of the screen, but it can be moved to any edge in the Configure Panel.

The screen-saver and locker is XscreenSaver, a very proven application that is still being actively developed. It works very well and is much more reliable than the previous buggy LightLocker. XscreenSaver even offers an assortment of actual screensavers from the 1990s that look oddly out-of-date on a modern desktop. It can also be set to a simple black screen instead, if the screensavers prove just too "groovy" for the 21st century. It works well as a screen locker, though.

In daily use, Lubuntu 19.10 has

proven almost completely trouble-free. The sole exception being the edge scrolling mode in the laptop touchpad set-up, which doesn't seem to work right, at least on my hardware. Two-finger scrolling mode works fine, though.

## CONCLUSIONS

Lubuntu 19.10 builds well upon the success of 19.04. The developers seem to be fixing things at a good clip and polishing it up for the next key release, the first LXQt LTS version, due out on 23 April, 2020.

The 19.10 release is bug-free enough to have been an LTS release itself and this bodes really well for the expected quality of the upcoming LTS.



**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.



# REVIEW

Written by Erik

# Jump File Manager

Website: <https://jumpfm.org/>

Price: Free!

From the Website: *"JumpFm is a minimalistic dual-panel file manager for Linux that lets you navigate your file system very efficiently. It is highly configurable and extendible and it comes with some built-in super-powers."*

First things, first, JumpFM and LastFM / LibreFM are not related. The second thing I need to point out is that JumpFM does not support a mouse. It is a dual-pane file manager that is a pseudo TUI, not a GUI, per-se.

What I mean by this is that JumpFM loads up like a GUI program, but behaves like a terminal program. It feels a lot like nnn when you use it. The annoying thing is that it takes a few seconds to start, even on a fast SSD. Everything else about the application is a breeze. The "jump" feature is activated by pressing the 'j-key'. This is where it gets interesting. Once you hit 'j' - it becomes like auto-complete

without the tab. Typing 'Do' will bring up Documents and Downloads for me to choose from, or I could type one more letter and then get the chance to start typing the first letter of the sub-folder of that directory. This makes navigating multiple folders and sub-folders a breeze! Because JumpFM is all about the keyboard, the CTRL and ALT keys, in combination with others, will help you do what you need to. We will get to the keyboard short-cuts later, but know it is intuitive and you should be able to figure out the basics yourself. (If not, look at

the keyboard.json file).

Programmers may love JumpFM, as GIT is incorporated right into the file manager. I tried to make a GIT account to test this feature, but it seems GIT does not allow accounts to be made from 'getnada.com' email addresses. I was not planning on giving any of my real email accounts out as I like NOT having spam. So I will trust them that it works as advertised. (For now).

What I did like about the settings, was that it is JSON files.

Easy to read and easy to set. You can find the settings in ~/.jumpfm/ - I would suggest that you start here, setting up the application as you like it.

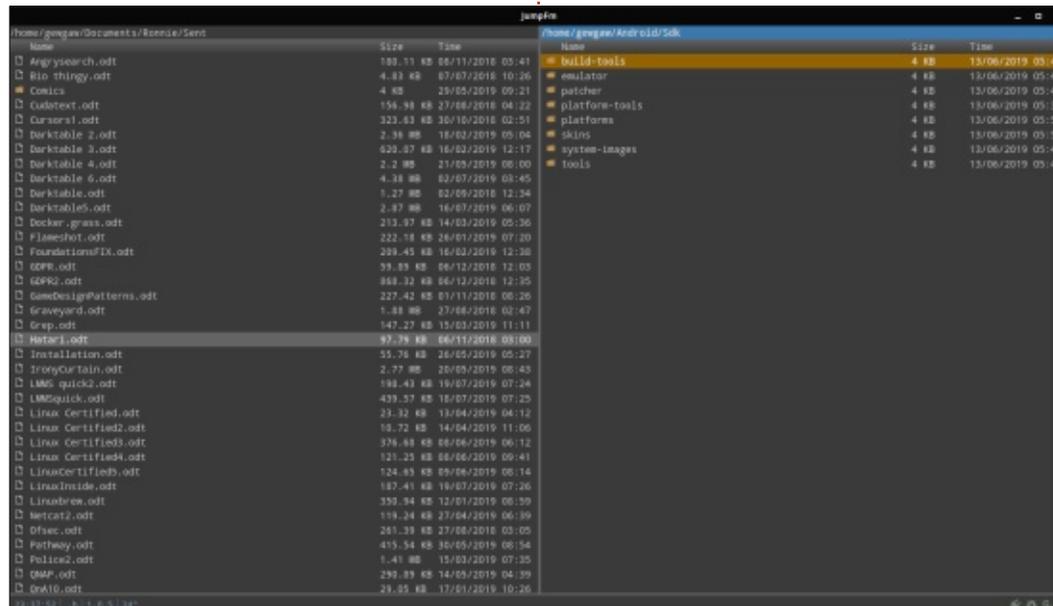
**The DELETE key deletes permanently and immediately, you have been warned.**

I am not going to talk about the plug-ins as this delicious morsel is for you to discover. Just know they are in ~/.jumpfm/plugins. You can find some built-in ones here: <https://github.com/JumpFm>

As promised, here are some of the default key bindings for you to test:

## NAVIGATING

- CTRL and A, C, V work as normal.
- CTRL + [ ] will move you to the start or end of the pane you are in.
- CTRL + HOME will take you to your home folder.
- CTRL + LEFT or RIGHT will open the highlighted folder in the opposite pane.



## REVIEW

TAB will move you over to the other pane.

This is not the same as S, that will actually swap the panes around.

ALT + LEFT or RIGHT will move you forward or backward in your history of moving between folders.

### FILE MANIPULATION:

Z to zip a file.

U to unzip a file.

F4 to open a file (usually in a text editor).

\*\*\* You will get an error if you try to open a FOLDER with F4, so pay attention.

ENTER opens a folder and adds it to the move history.

BACKSPACE will take you one folder up.

SHIFT +F4 to make an empty text file.

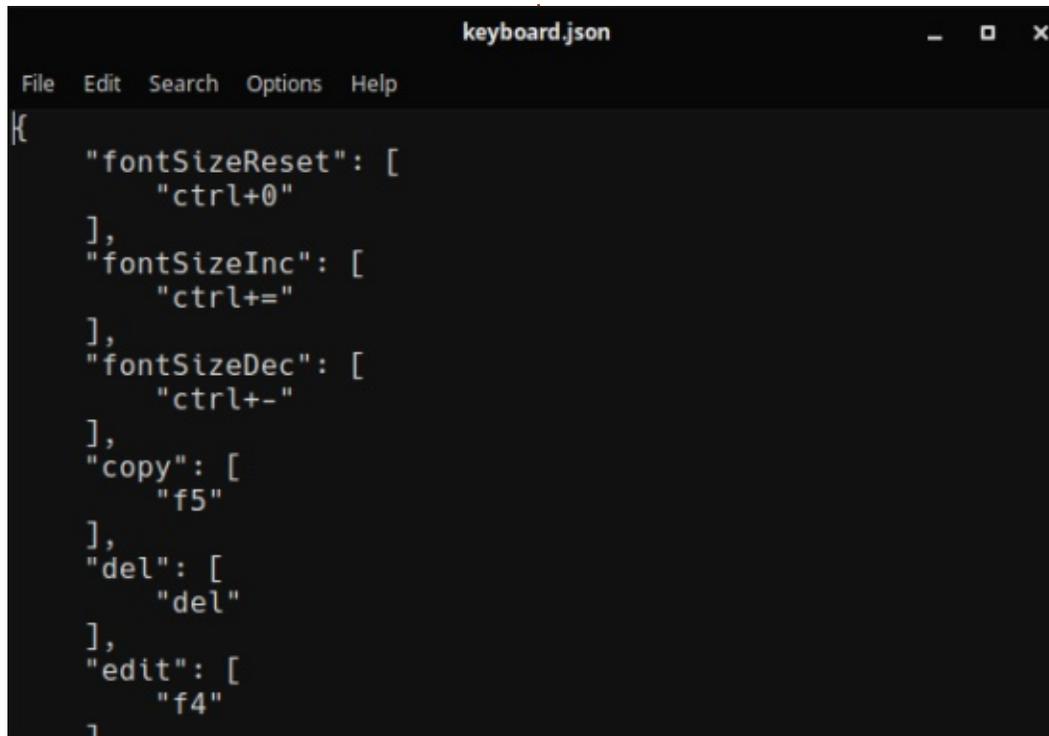
F7 to make a new folder.

H will display hidden files.

F5 is copy (like other dual-pane file managers).

F6 is move (like other dual-pane file managers).

Obviously, you can define your own too, but this should get you well on your way.



```
keyboard.json
File Edit Search Options Help
{
  "fontSizeReset": [
    "ctrl+0"
  ],
  "fontSizeInc": [
    "ctrl+="
  ],
  "fontSizeDec": [
    "ctrl+-"
  ],
  "copy": [
    "f5"
  ],
  "del": [
    "del"
  ],
  "edit": [
    "f4"
  ]
}
```



# 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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[ubuntuforums.org/forumdisplay.php?f=270](http://ubuntuforums.org/forumdisplay.php?f=270)

## MX LINUX

I am one of those people who, you think, "should have their head examined" for liking and using MX linux.

Here are just some of the reasons why I like and use MX linux:

- It still supports 32-bit computers.
- I have gotten it to save my desktop apps and setup in a bootable MX stick drive, which I can use and install on various computers.
- MX linux has two search apps. One searches for files and the other searches for apps. This is very unusual in linux OS's: usually you get one or the other, but not

both. If one wants to find, say the app to control the touchpad, click on the MX emblem and a search box appears at the bottom of the screen. Key in 'touchpad' and the apps that have anything to do with it are listed for one to click on and activate.

- Apps one likes to use, and often use, can be pinned to the panel (which I've moved to the top of the screen).
- MX linux just works. And it doesn't use systemd unless the user wants to activate it.
- Being based on Debian, I can install Pluma text editor, Kolourpaint (an excellent MS Paint replacement with A LOT more zoom levels!), gthumb, kpat, etc.

The only drawback I can see is that the installer doesn't really like to play with the other kids previously installed on the hard drive, so I usually just let it install as the only OS on a computer. Co-existing might go better if another favorite OS is installed after installing MX first.

And yes, I would prefer to have Mate as the DE rather than Xfce, but Xfce is ok.

I am fussy about liking an OS, and MX Linux is one of the two and a half linuxes I like. It is my main linux OS now, and I recommend it to my linux friends.

Ted H

## FULL CIRCLE NEEDS YOU!



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

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

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



# DistroWatch.com

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

## WELCOME ABOARD!

I am a new reader from Germany, and I wonder why I found your magazine now and not earlier.

I'm a Linux user from the late 90s 'til today. I will never forget my first CD-Edition of S.u.S.E Linux 5.2 from 1998. Internet access was expensive in those days and I could, in most cases, only use the content of the CD's. That was before the times of online-updates. The next update came with the next CD-Edition 2 years later.

Since 2005 or 2006, I used Ubuntu at home for daily purposes. As I am a proponent for free software (Free as in freedom), and Open Source software, I used many different Linux systems until now, all well known big distributions included.

My actual project finished a week ago. I tried to install Ubuntu 19.10 on a new Asus Laptop from the TUF Gaming Series. The problem was the Nvidia Geforce GTX 1060 graphics driver. By default, Ubuntu tries to load the

free Nouveau driver and it is not possible to boot into a graphical desktop with it. After crawling the web I found the solution. I edited the boot parameter. I added this line after the "quiet" parameter:

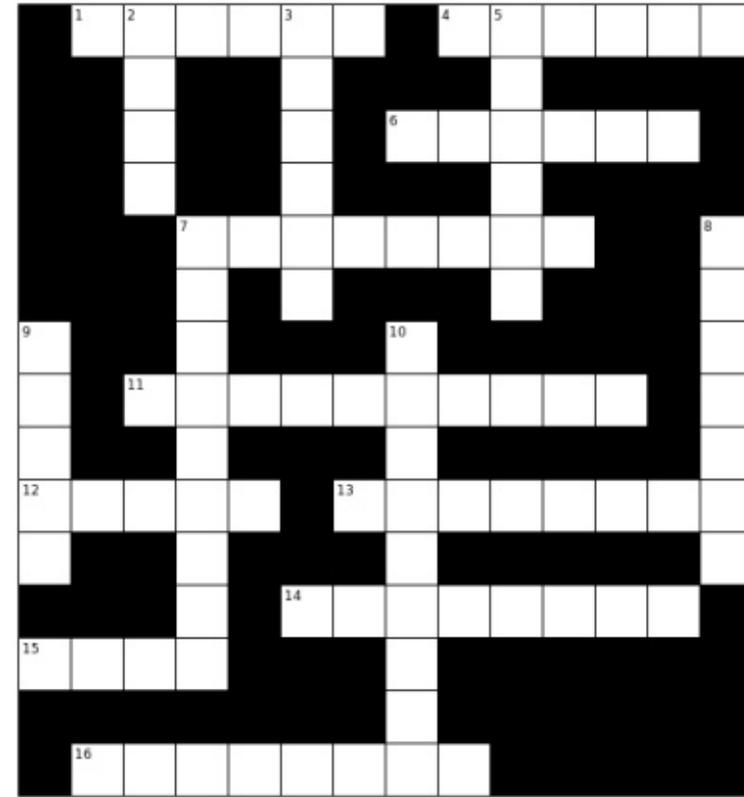
```
acpi_osi=Linux
nouveau.modeset=0
```

This was the only way to boot into the Ubuntu desktop. After installation, I installed the official Nvidia driver 435, which works really well.

Now, happy with my pretty fast Ubuntu, I searched for an online magazine about Ubuntu. As I'm also using Fedora for many years now, I regularly read the Fedora Magazine (<https://fedoramagazine.org/>). Duckduckgo told me that there was Full Circle Magazine with stuff around Ubuntu. Touchdown!

I read your issues for many hours and I am really impressed. You do very good work and I'm sad that you have problems with getting articles. I hope you go on with the magazine. You have, from now on, one more reader.

**Marco Menne**



- 1A. The lightweight Arch Linux based distro that runs upon any Linux distros without root access.
- 2D. Triquel based distro out of Iraq.
- 3D. A distro who's iso is under 65MB! Has no fixes for.
- 4A. Love it or hate it, you came here for it.
- 5D. A user-friendly version of Funtoo linux for new users.
- 6A. Used to be known as Galpon mini, for old computers.
- 7A. Pentest distro, but not white.
- 8D. Kim Jong Un would approve!
- 9D. They say, the goal this distro is to provide an alternative to Windows while following the Windows development?
- 10D. There is a tabletop game about Androids with the same name.
- 11A. A non-free open source server for small and medium enterprises.
- 12A. They have since dropped the final letter to the distro, based on BSD, network focussed. Since 2014.
- 13A. Dead distro, sounds like they should be very economical.
- 14A. PC/OpenSystems LLC had purchased this distro from Xandros.
- 15A. Forensics distro based on Ubuntu.
- 16A. This distro starts at 12MB.



# 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, UUID's or IP addresses. If your question does not appear immediately, it is just because there is such a lot, and I do them 'first-come-first-served'.

The raspberry pi burst onto the scene as an affordable single-board computer. Since one can install Linux on a dead badger, there were a lot of 'respins'. See: <http://strangehorizons.com/non-fiction/articles/installing-linux-on-a-dead-badger-users-notes/>. However, many have fallen by the wayside, that started out full of steam. Now I don't know if there was no interest, or the default Raspbian was good enough. I do know that some jumped the gun. For instance, Fedberry, an all-but-dead distribution for your Pi.

Ubuntu was not on that early bandwagon, choosing to hang back a bit. I recall Ubuntu Mate being toted for the job of "proper Linux desktop" for the Pi. Ubuntu then released "core" edition for home automation or single-board computers. However, Ubuntu core runs on x86 too, not just ARM. Great for unsupported chromebooks and allows you to install only what you want. Core edition is very bare though, for desktop users. Can it make your desktop or laptop super fast? Well yes. Can it make your SBC fast? Well, that depends on your SBC. There are lots of Raspberry Pi clones. Orange Pi, Banana Pi, Le Potato. The Ubuntu Core image clocks in at about 260MB. This is attractive for SBC's and may look attractive for you to put on a chromebook. So what is the catch, you may ask? Immutable snaps. (In their own store). It is a good thing for IOT, not so much for the average desktop user. So if you need to rescue that old Chromebook, and you are not afraid to put some effort in... (less than installing Arch or Gentoo).

Maybe look at Ubuntu Core.

**Q**: I installed wine and The free Wilcom Truesizer e3 and e4 on my computer Ubuntu 18.04. It worked 100%. Last week My computer HDD crashed and I did a new install. Everything running in wine works except Wilcom. Installing it I get " An error occurred while downloading the file [http://download.microsoft.com/download/d/d/9/dd9a82d0-52ef-40db-8dab795376989c03/vcredist\\_x89.exe](http://download.microsoft.com/download/d/d/9/dd9a82d0-52ef-40db-8dab795376989c03/vcredist_x89.exe). I get the following message at the site: 404 - File or directory not found. This is a Microsoft Visual C++ SP1 Redistributable Package. I tried downloading Microsoft Visual from other sites but it does not work.

I need this Truesizer so desperate because I don't use Windows at all.

**A**: Yes, you will get a 404, as there is a spelling mistake. it's 'x86' ... You can download and

install the offline c++ redistributables too. Look here: <https://www.itechtics.com/microsoft-visual-c-redistributable-versions-direct-download-links/>

**Q**: Hey guys, I am still using Ubuntu 16.04. How can I change my SSH key? I am very new to this.

**A**: Type the following:

```
ssh-keygen -p -f ~/.ssh/id_rsa - now follow the prompts.
```

**Q**: On Ubuntu 18.04, I use my 32 GB USB drive to transfer my files at uni. Sometimes it mounts, sometimes not. It has to be NTFS to work on the windows computers, when I look up properties on the drive it shows as filesystem type: fuse. I have reinstalled NTFS-3g, but the problem is still there. This is my output for lsblk <removed> It used to work fine before, but somehow, somewhere, something went screwy. Right-click doesn't let me

make a folder. The drive is not full.

**A**: I have too little info here, but you say it does not mount; then, you say it does not write. If it does not mount, you should be able to see why in dmesg. If it mounts read-only, it can be that the filesystem is dirty. Otherwise right-click once mounted and make a folder from the terminal, say, `mkdir tt` - now navigate to `tt` and copy your data. If it does, it may be permissions. Those three are the usual suspects if you can see, but not access an NTFS volume.

**Q**: I have installed Feren OS, based on Ubuntu. I installed steam from the software manager and it won't open now. It says: Does not look like a tar archive.

**A**: Actually Feren is based on Mint. Try this, [https://www.youtube.com/watch?v=KkeVq-B\\_ZDg](https://www.youtube.com/watch?v=KkeVq-B_ZDg) - but safest bet, I suggest installing it via snap?

**Q**: I'm trying to install `texstudio`. I get an error: "The following packages have unmet dependencies: `texstudio` : Depends: `libpoppler-qt5-1 (>=`

`0.34.0)` but it is not installable Recommends: `latex-beamer` but it is not installable E: Unable to correct problems, you have held broken packages." I am Using Ubuntu 18.04 on a Lenovo laptop.

**A**: I can only assume it is the version of `texstudio` you are installing, as I just tried to install 2.12.6 that is in the software centre and it installed fine on 3 computers. (Sometimes that broken packages can be a false positive). Have you tried installing your updates? If you also cannot update, you need to fix your broken packages first. Try:

```
sudo apt-get --fix-broken install
```

**Q**: Should I use Latex to write my book? I hear it is pronounced `laytech`. What is a good tutorial? I have been suggested `docbook` too, but I don't know these things. The TA at my college suggested it.

**A**: It never rains, but it pours. What is the sudden interest in LaTeX? Rather say `latex`. Because when I type `rtyhjn` and tell you it's pronounced `rayman`, we are all in

trouble. There are lots of markup and markdown editors, but depending on what you want for your book, you will have to make that decision. I can tell you that a word processor like `AbiWord` works wonders for me.

**Q**: I am really struggling to use VIM. The learning curve is too high for me. Why must I learn this? I want to get my Linux Academy engineer certification. What is the fastest way to get there?

**A**: Honestly I don't touch it with a ten-foot barge pole. Since the 90's, I have not once needed to use it and I am not going to start today. There is `nano` for light editing, and `Emacs` for everything else. I cannot see why you "have to" learn it. Linux is about choice and you need to make your own choice for an editor.

**Q**: How can I make apps with kivy in Ubuntu?

**A**: That would be a question for the Kivy forums.

**Q**: I have started learning python from Al Swiegart's book. I went to sleep last night and this morning I can't run `python hello.py`. Why? I have only run the updater from the software updater in between. I'm using Xubuntu 18.

**A**: To run a python script you need to be in the same folder as the script. Also be aware of using `python <scriptname>` and `python3 <scriptname>`. Otherwise, you have given me too little information to work on.

**Q**: What terminal should I get? I am using Ubuntu 19.10. I haven't decided on a DE yet. I am deciding between `zsh` and `fish` or `termux`. What is best for me?

**A**: I don't know you, so how can I tell you what is best for you? You know you, you tell me what is best for you. I use `bash` with `Sakura` and `Bayobu` in Ubuntu. `Bayouu` because it lets me continue where I left off. `Sakura`, as it allows me to have tabs. The way I use a terminal, almost any terminal will do. You need to figure out what you do most often and work around that.

**Q** : Why is VLC not running in the background on Ubuntu 18.04? I open a standard mate terminal and type, cvlc Chrome\Desert.mod & but it doesn't go to the background? It just stays in the foreground.

**A** : Press the Enter key. Your prompt should return and your music will play in the background.

**Q** : Good day. I am following <https://www.youtube.com/watch?v=1BCJH40wLT4> and I want to install ROS on Ubuntu 19.10. Where do I get started, all the tutorial is for 18.04. I am having an error on 19.10. "The following packages have unmet dependencies:  
python-rosdistro-modules : Depends: python-rospkg-modules but it is not going to be installed  
ros-melodic-catkin : Depends: google-mock but it is not going to be installed". Please help me.

**A** : From what I can tell, this is some robotics software, and you are better off following the instructions on the ROS website. (My last foray into that was KUKA

in Windows NT). The error message is telling you what is needed. See: <http://wiki.ros.org/catkin> - as the youtube stuff may be out-of-date. (Also 19.10 may not be supported?) Maybe one of our readers can help?

**Q** : How can I downgrade to a previous version of the Nvidia driver? The new one updated automatically, but now it doesn't work with my card. It just runs straight VGA drivers now. The Nvidia driver makes a big difference from the VGA driver and I want to get it back.

**A** : There is no roll-back as far as I know. You will have to remove the driver with the -purge option, and reinstall the version you want. As you did not give me your card, Nvidia version numbers or Ubuntu version, I cannot give you more detail.

**Q** : I have upgraded my Ubuntu to 19.10 but Terminator has stopped working. I really like terminator, so when I launch it, I keep getting Python errors. My Python is updated to the latest version, should I install another

version? <image>, <image>

**A** : Wow, those errors were unhelpful, but I found the culprit. It seems you installed Terminator via PPA. Purge the PPA and uninstall Terminator, then just install it from the official repo's.

**Q** : I am trying to install Ubuntu LTS on my old laptop. It's 32-bit and I can't boot from USB. It has Vista on it, but vista bluescreens on booting and reboots again. What can I do to save it? If I can't, it's going to Goodwill.

**A** : Just because it has 32-bit windows, does not make the laptop 32-bit. Unless it is a Pentium 3 or lower, it is probably 64-bit. Good news! Now for the bad news, if your USB does not boot, you will have to write your ISO to DVD and boot that way, assuming you have a DVD ROM. (Some older laptops have CD ROMs). For that you will need to go to the alternative downloads and get the Ubuntu net install. Don't despair, that laptop can still serve its purpose with Ubuntu.

**Q** : How can I fix pdf's opening fine in Adobe, but are scrambled in evince? Sometimes I even get an error: "To view the full contents of this document, you need a later version of the PDF viewer. You can upgrade to the latest version of Adobe Reader from [www.adobe.com/products/acrobat/readstep2.html](http://www.adobe.com/products/acrobat/readstep2.html)"

**A** : This is Adobe, trying to make their own rules. You can try using Mupdf, which is a lot more compatible, or you can use Adobe spyware itself. You can even try Foxit pdf reader, but it has become just as bloated as Adobe, lately.

**Q** : My old laptop has a Radeon card and I still use Ubuntu 14.04. After updating, I now get a black screen when logging in. This definitely seems to be related to drivers. I thought Radeon cards were supported natively? What are the magic commands to fix this please?

**A** : Firstly, it seems to be a bug: <https://bugs.launchpad.net/ubuntu/+source/gdm/+bug/1385606>. Secondly, you may just get

## Q&A

around it by replacing GDM with LightDM. Can you not back up your data and move to a later version of Ubuntu?

**Q**: Can I still get Unity back on new Ubuntu or is it gone for good?

**A**: Unity is alive and kicking. Distro's like Poseidon still use it. I will link you in:  
<https://www.maketecheasier.com/install-unity-desktop-ubuntu/>

**Q**: Is there an equivalent to Razio - <https://sourceforge.net/projects/li-ve-raizo/> - for Ubuntu? I prefer having Ubuntu to Debian, but I am learning networking and need this.

**A**: I am not sure what you are asking; if you are asking if GNS3 etcetera, are available for Ubuntu. Yes. If you are asking about a pre-rolled Ubuntu with GNS and Cisco tools installed, not that I know of, at the time of writing.

**Q**: Guys I want to start learning programming.; any idea/advice where to start?

**A**: Get a book. May I suggest "head first programming". Follow CS50 on YouTube. Start WITH Scratch, not FROM scratch, with "scratux".

**Q**: Ubuntu alternative downloads has a torrent. Isn't that illegal? Is the webpage hacked? Where do I report it? Thanks for the info.

**A**: Despite what the media would have you believe, torrents are not bad. They are a way to get consistent download speeds and completeness. Sure torrents get used to do illegal things, but water drowns people and you don't see that being banned? This is the same principle.

**Q**: I have Ubuntu 18.04 that came with LibreOffice. I have a document that requires the recipient to sign at the bottom. Every time I print this document, it prints the blank page at the bottom. I can't seem to get rid of

that page and I am getting tired of putting the wasted page back in the printer.

**A**: Stupid question, have you pressed & held in the 'delete' key, not 'backspace' on the previous page? I can also point you here, in case it is a formatting symbol.  
<https://ask.libreoffice.org/en/question/223736/how-to-cancel-a-page/>



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**SINCE THERE HAS BEEN NO FEEDBACK OR INTEREST IN THIS SERIES, I HAVE DECIDED TO RETIRE IT.**

This will be our last look into the certification prerequisites. Last time, we looked at tips for compiling a kernel. This time around it is kernel run-time management and troubleshooting. The base Linux kernel sometimes needs a little help, that is where loadable kernel modules come in. (LKM). Just like the name suggests, these modules are loaded into the kernel as necessary. So they do not take up any memory when the kernel starts, they get loaded into memory only when called or needed. This may sound silly, but if the system does not have a parallel port, why load the parport module into memory?

So, when last have you looked in the `/lib/modules/` directory? That is where your kernel modules are stored. They are based on the kernel version, so quickly check it

with `uname`. Are you still fresh on the switches for `uname`? Which switch would you use other than `-a`? Yep, `-r`. OK great, you have been paying attention. Well that is the directory you need to navigate to and enter its sub-directory named `kernel` (if you are on a Red Hat based distribution). If at any time you feel lost, refer to the previous article on kernel compilation, as you should know this by now.

Now some people will say kernel objects. The extension is `.ko` after all. Just be aware of this, but do not get hung up on terminology. If you need to add a pre-compiled kernel object, you need to be aware of the dependencies. That is number 1. Your system also needs to know these things. Our lives are, however, simplified by a nifty tool named `depmod` (module dependencies). Now, if you look at the man page for `depmod`, under description, you will see: "These dependencies can get quite complex." You can run `depmod` from your home directory, you do not need to be in the modules

directory. Again be aware of the differences between Debian-based systems path and Red Hat-based systems path. If you run `depmod` on its own, you get no output. If you would like some, use the `-v` switch. Quickly do a `cat` on the `modules.dep` file.

You should see a whole bunch of `.ko`-files. This is all the detected modules on the system. You may need to scroll back a bit to see some kernel modules with a colon after them and more kernel modules after that. Like Windows services that depend on another service, this is how you find out which kernel module depends on which other kernel module. Anything BEFORE the colon depends on the listed modules AFTER the colon (very easy once you know it). Just like Windows services, multiple modules may depend on one module and vice-versa. You can do this on a modern release of Ubuntu, you do not need to be in your CentOS 5 VM. However, in your Ubuntu workstation, you will not find the "map" files mentioned. You will

only find them in your CentOS 5 VM. Each "map" file (eg. `modules.serio.map`) will map out the addresses to certain interfaces. Go ahead and `cat module.serio.map`, and peruse the output. So when you plug in a device, the kernel then can determine which device driver to load. You can think of these as lookup tables. That should demystify why the Red Hat systems have map files in the kernel folder. When you actually write kernel modules, you will have to include a header `linux/module.h` and `linux/kernel.h`, as well as macros, for things like licensing. All these are taken into account when you try to add a module.

So how do we add or remove modules then? Why would we even want to remove any loadable kernel modules? Well, for one, it frees up memory. IOT is the current buzzword and usually IOT devices are spec'ed very low. But before we start removing modules, how about we look at them first? To list the currently installed modules, we remember back to

LPIC level one and use the `lsmod` command. When you run the `lsmod` command, translate “used by” to “dependent on”, in your mind. That way you will know if a module can be removed safely or other modules or processes depend on it. It is a good idea to always check with `lsmod`, BEFORE using `rmmod`.

This is especially true when using the `-f` switch, not that I ever advise you to use the `-f` switch. Now, if you have read the chapter in the book, you will know we have `lsmod`, `rmmod` and `insmod`. (yes, I know, but we are getting to it). Think of `insmod` as the dumb one. When you use `insmod`, you need the full path of where the particular module is. So we also need to know about `modprobe` and `modinfo`. Instead of telling you to peruse the manpages on this, I am going to suggest that you try `bropages` or `cheat` or even `TL;DR`. The `modinfo` command will list what you need to know about that particular module.

For example type: `modinfo psmouse`

The “filename” lists the full path for your pleasure. That

license macro I mentioned earlier should be next, telling you what you can do with said module. This is very handy when you work with say, a libre-only distribution. Notice “depends”, as this is the module it would depend on, so you may need to install a module before this one, if it was not installed. So if you wanted to add the `psmouse` module, you would need to copy the “filename” path from `modinfo` (the `.ko`-file).

Know that `modinfo` and `modprobe` work the same way. That’s why I say you should think of `modprobe` as the smart one. Put a blonde wig on `insmod`, if you cannot remember which is which. A fun command is to type: `modprobe sams_brain` (If Sam was the slow kid in class) and you should get back: “module `sams_brain` not found.” Go ahead and add and remove the dummy file, so you can get used to the way of doing things. Add the dummy file with `insmod` as well as `modprobe`, then remove it with `rmmod` and with `modprobe`. (You need to know both ways for the LPIC-201 exam).

One thing I skipped was the “parm” that you see in `modinfo`. This is actually parameters that you

can specify when loading a module. Now one of the tricks, if you roll your own kernel, is to tweak some of these values, like `resolution: 800`, for instance. Which you can use to match the dpi of your mouse. However, this is not a constant value, as after the next boot, the parameters are gone. You need to make these constant / permanent in another way. Sometimes you need to blacklist a module, like Nvidia, for instance. You will find those configuration files in `/etc/modprobe.d/`. If you look here, inside your Ubuntu desktop PC, you should see quite a few blacklist files. Feel free to “cat” out these files. Know that blacklist files take precedence.

There is obviously a lot more here, but unless there is interest, next month we will start something new.

If you would like to jump ahead, or test your skills at an LPI exam, do a test paper here:

<https://www.itexams.com/exam/117-201> (These were once valid LPI questions and will ease you into the format.)

- The new exam number is 201-400, and 117-201 was the old one.
- The site does require signing up, but sign up with temporary email – not your real email.
- DO NOT learn these questions parrot fashion, as they are probably not real exam questions.

Let us know how you did – good or bad, it does not matter. ‘Good’ means you are ready to write and confident in your skills. ‘Bad’ means you will be learning new stuff!! Yay! There is no downside here. If you do not know why an answer is the way it is, contact us.

As always, comments or corrections to: [misc@fullcirclemagazine.org](mailto:misc@fullcirclemagazine.org)



Website:

<https://www.construct.net/en/forum/construct-2/works-in-progress/feedback-24/catmaze-fairy-metroidvania-123187>

Price: \$9.99 on Steam

Blurb: *"Catmaze is a fairy metroidvania inspired by Slavic myths. Age-old tales will come to life in the unforgettable adventure of Alesta, a sorceress whose courage guides her through mysterious paths and dark forests in search of the lost road to Nav, the world of the dead."*

## STORY

Your mom has the black lung, antibiotic-resistant TB, or she just smokes wacky weed when you are not looking. Be that as it may, you opt to not get medicine and instead go on a mission to lure a Domovoi to your house, with grass. As with many platformers, the story is sparse, but I suspect it will pan out as you go along. There is a bit of an intro sequence where your mom moves into an

abandoned house with a baby, but waits 3 years to bring her household goods in. Moving right along...

## GAMEPLAY

You have the standard arrow-key movement, with jump at the spacebar and the a-key will unleash your one-eyed-monster... a bat named Lad. There is a lot of movement on the screen, so it never feels static. Trees randomly bounce, like the characters,

butterflies flit, etc. The background parallax scrolling is nice and sometimes leaves fall from the sky. Randomly you will spot cats on the screen, but when you move, they run away. I am not sure if this is the Domovoi we are hunting as Domovoi can manifest as cats. Turns out you can teach an old dog, erm, bat, new tricks, and you can skill up your 'familiar' to make different attacks. Everything feels familiar because of the very standard gameplay, and you should soon be on your way. There

are still flaws in the game: I saved and when I went right, I saw the dialogue indicator. Activating it, it waffled about putting down a mushroom that I wasn't carrying. Levels reload, so if you kill the monster, and exit the screen, and then go back, the monster is alive and kicking. You collect 'familiar' as you go on, each with its own quirks. Don't let them run off, as you will lose them if you do.

## GRAPHICS AND SOUND

This is another game that was made for 640 x 480 displays, even though nobody uses them any more. Backgrounds and tilesets are of a high standard. The characters, however, are not. Single-color clothing, and no shading, etc. I suspect there was someone who did the graphics, who then left the project and someone else less skilled filled in. On one side, you have pixel perfect tiles that would have been proud to be on your Amiga, and the other you have bad anime-ripoff characters and enemies. Every so often, the pixel trees may be replaced with lovely



# UBUNTU GAMES - CATMAZE

painted versions.

As for the music, you can expect soothing tunes. It does repeat a bit, and is similar throughout. Luckily there are different tunes for different areas, so it does not feel repetitive. Also with the SFX, there seems to be a bit of a mix-and-match. When mushrooms spit their tobacco wads at you, it sounds more like wet farts. Mostly the SFX is on point though.

## CONCLUSION

I really wanted to try this game as it promised Slavic myths. Initially

the author promised Slovak myths, and though these overlap, I am on the fence. Especially when they cannot decide on a spelling and you will see Domovoi and Domovoy used interchangeably. Having read up on many Slavic myths as a kid, I expected something completely different. This feels like a studio Ghibli retelling, and some of the graphics are sooo studio Ghibli. See cat statues. Anyway, the game seems to be a standard platformer, with story elements, and feels huge. It really is a maze.

Is it worth the asking price? Sure, it is entertaining and not overly difficult.



**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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