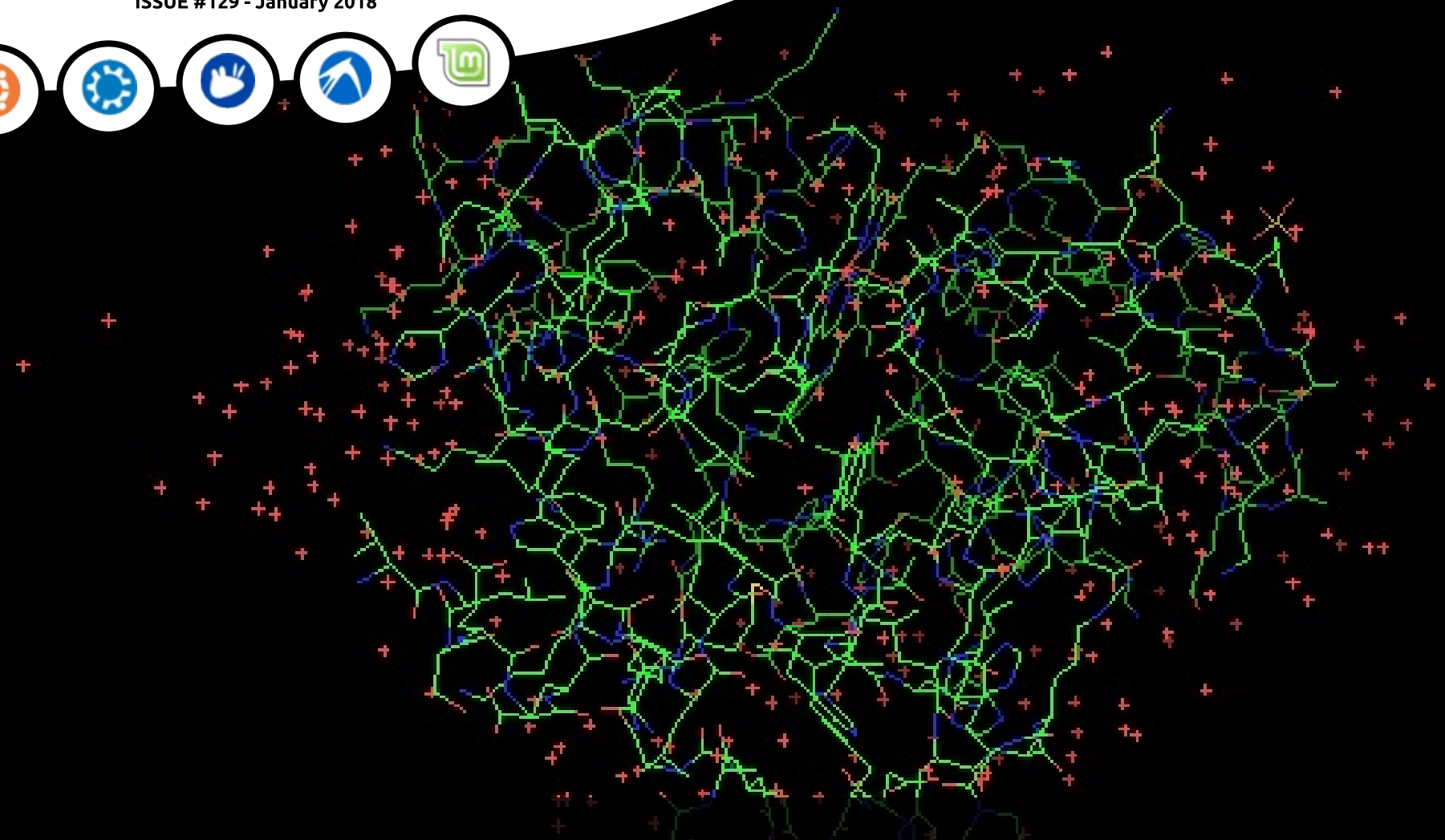
Full Circle

THE INDEPENDENT MAGAZINE FOR THE UBUNTU LINUX COMMUNITY

ISSUE #129 - January 2018



PYMOL

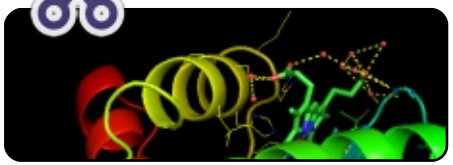
A BRIEF LOOK AT MOLECULES

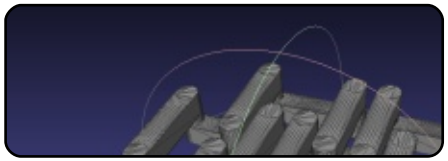
Full Circle Magazine is neither affiliated with, nor endorsed by, Canonical Ltd.

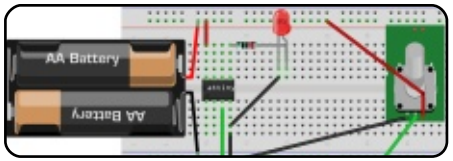
Full Circle

THE INDEPENDENT MAGAZINE FOR THE UBUNTU LINUX COMMUNITY

HowTo

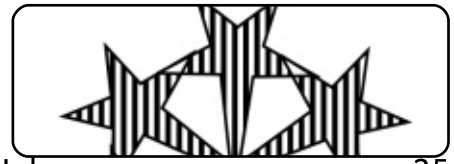

PyMOL p.15


Intro To FreeCAD p.18

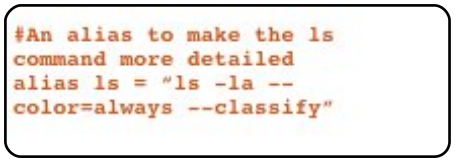


Great Cow Basic p.22

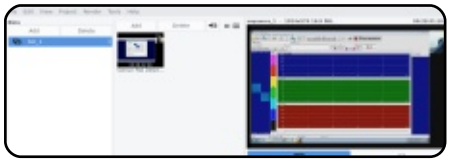
p.XX


Inkscape p.25

Graphics



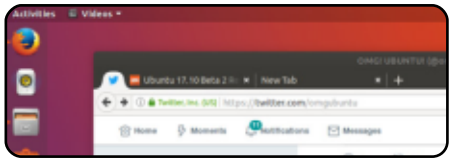
Command & Conquer p.13

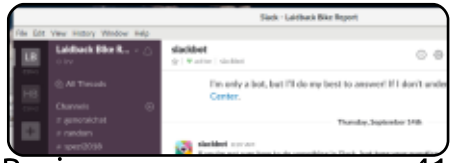

Researching With Linux p.29

Everyday Ubuntu p.31

Linux Labs p.33

My Story p.38


My Opinion p.37


Review p.41

Letters p.43

KODI Room p.XX

Q&A p.44

Ubuntu Games p.XX

My Desktop p.XX

SOME RIGHTS RESERVED

The articles contained in this magazine are released under the Creative Commons Attribution-Share Alike 3.0 Unported license. This means you can adapt, copy, distribute and transmit the articles but only under the following conditions: you must attribute the work to the original author in some way (at least a name, email or URL) and to this magazine by name ('Full Circle Magazine') and the URL www.fullcirclemagazine.org (but not attribute the article(s) in any way that suggests that they endorse you or your use of the work). If you alter, transform, or build upon this work, you must distribute the resulting work under the same, similar or a compatible license.

Full Circle magazine is entirely independent of Canonical, the sponsor of the Ubuntu projects, and the views and opinions in the magazine should in no way be assumed to have Canonical endorsement.

EDITORIAL

Welcome to the latest issue of Full Circle.

This month we have the usual suspects: FreeCAD, Great Cow Basic, and Inkscape. But, unfortunately, this month is the end of the FreeCAD series. Don't worry I have a replacement lined up to start next month, and I'm sure you'll love it. Speaking of new things, we have a new column starting this month. Please join me in welcoming Richard aboard FCM with his Everyday Ubuntu column. He'll be discussing everyday things to do in Ubuntu.

Shock horror! We have an article (this month) that's not about Ubuntu! It's Charles writing about Manjaro XFCE on a Lenovo Thinkcenter M57. Yes, we do like articles about other distros. It's just that we don't receive many. If any!

If you've been following the Full Circle Weekly News then you'll know that it's been less than weekly. My fault. But out of bad comes good. We have two new hosts who have taken over the Weekly News: Wayne and Joe. They've already released two episodes, so head over to the main site and have a listen. They're doing a great job.

The opposite of a good job, is me. I accidentally deleted the mailing list. There are times I just shouldn't be let near technology. In my defense, I thought the interface was letting me select a single page of (junk Yahoo) names, when in fact it was selecting every page. And I clicked delete. So, if you think you're missing a notice from the mailing list: please sign up again. I'm really sorry about that. Don't worry if you don't receive a reply, I manually add everyone who signs up to the list. The opt-in feature seems a bit broken. Which isn't my fault this time!
Honest!

All the best, and keep in touch!
Ronnie
ronnie@fullcirclemagazine.org

This magazine was created using :

Find Full Circle on:

goo.gl/FRTMl
facebook.com/fullcirclemagazine
twitter.com/#!/fullcirclemag
http://issuu.com/fullcirclemagazine
http://www.magzter.com/publishers/Full-Circle

Weekly News:

http://fullcirclemagazine.org/feed/podcast
http://www.stitcher.com/s?fid=85347&refid=stpr
http://tunein.com/radio/Full-Circle-Weekly-News-p855064/

Telegram for Android now supports multiple accounts

Telegram has been busy parrying government attempts to collect user data over the past year, but it hasn't forgotten its users. It's ushering in 2018 with a handful of offerings you'll likely find helpful if it's your chat app of choice, starting with the ability to support multiple accounts on Android. The latest version of Telegram for the platform supports up to three accounts with different phone numbers. You can quickly switch between them on the side menu, but you'll get notifications for all of them regardless of which one's active.

While the iOS app remains a step behind its Android sibling and still can't support multiple accounts, the company has something for Apple users, as well. Telegram is finally giving you a way to change what your app looks like under the new Appearance setting. The iOS version now has several themes to choose from, including two dark "night time" themes and a "day" theme with colors you can tweak. That's not quite as useful as having support for more than one account, but fingers crossed that themes' arrival on iOS means Android's other features will soon follow.

Unlike the other two in Telegram's update list, both mobile platforms share version 4.7's last new feature: quick replies. You can simply swipe left on a friend's text bubble to write a reply specifically for that part of the conversation, so you can type up multiple responses without confusing yourself and your friend.

Source: https://www.engadget.com/2017/12/31/telegram-multiple-account-android/

Manjaro Linux 17.1.0 Released With Latest Packages

Following the September release of Manjaro Linux 17.0.3, the developers of this Arch Linux-based distro have shipped Manjaro Linux 17.1.0. Released on December 31st, 2017, it marks the last Manjaro offering of 2017. In other words, you can kickstart 2018 with this freshly baked desktop-oriented operating system.

"This marks the last update of Manjaro in 2017. We wish you all the best for next year. Have fun and celebrate with family and friends," the announcement reads.

As per Manjaro Project Lead, Philip Müller, this is their second try with Xorg-Server v1.19.6. The respective packages of Firefox, Wine, and Gimp have been updated. Apart from the update of Manjaro Mesa-Stack, the dri/drm handling has also been changed.

On the kernel front, Linux 4.9 and Linux 4.14 have been updated to their latest point release.

Following the footsteps of Arch Linux, Manjaro dropped the 32-bit support in September 2017. Later, Arch Linux 32 came into the picture as a community project, which was soon followed by Manjaro32. It goes without saying that Manjaro32 uses Arch Linux 32 as upstream.

Source: https://fossbytes.com/manjaro-linux-17-1-0-released-features-download/

'Kernel memory leaking' Intel processor design flaw forces Linux, Windows redesign

A fundamental design flaw in Intel's processor chips has forced a significant redesign of the Linux and Windows kernels to defang the chip-level security bug.

Programmers are scrambling to overhaul the open-source Linux kernel's virtual memory system. Meanwhile, Microsoft is expected

to publicly introduce the necessary changes to its Windows operating system in an upcoming Patch Tuesday: these changes were seeded to beta testers running fast-ring Windows Insider builds in November and December.

Crucially, these updates to both Linux and Windows will incur a performance hit on Intel products. The effects are still being benchmarked, however we're looking at a ballpark figure of five to 30 per cent slow down, depending on the task and the processor model. More recent Intel chips have features – such as PCID – to reduce the performance hit. Your mileage may vary.

Similar operating systems, such as Apple's 64-bit macOS, will also need to be updated – the flaw is in the Intel x86-64 hardware, and it appears a microcode update can't address it. It has to be fixed in software at the OS level, or go buy a new processor without the design blunder.

Source:
https://www.theregister.co.uk/2018/01/02/intel_cpu_design_flaw/

Black Lab Software Releases Freespire 3.0 & Linspire 7.0 Linux Operating Systems

After giving users free copies of Linspire 7.0 for Christmas, Black Lab Software's CEO Roberto J. Dohnert is now also releasing the freely distributed Freespire 3.0 operating system, a slimmed down version of the commercial Linspire 7.0, which can now be purchased from the developer's website.

Those of you who managed to grab a free copy of Linspire 7.0 during Christmas already know that the distro is based on Ubuntu 16.04 LTS (Xenial Xerus) and runs the Linux 4.10.0-42 kernel. The distro also comes with popular apps like Google Chrome, Mozilla Thunderbird, LibreOffice, VLC Media Player, Rhythmbox, and Wine.

On top of that, Linspire 7.0 also comes with Oracle's powerful VirtualBox virtualization software, IceSSB for installing other popular web browsers, Microsoft .NET Core support, ClamAV virus scanner, BleachBit system cleaner, an Intrusion Detection System (IDS), and support for the Btrfs, XFS, JFS, and ZFS filesystem.

On the other hand, Freespire contains a smaller collection of apps, including Mozilla's latest Firefox Quantum web browser, the lightweight Geary email client, AbiWord word processor, Gnumeric spreadsheet editor, Pinta image drawing and editing program, Parole Media Player, IceSSB, and Font Manager.

Source:
http://news.softpedia.com/news/black-lab-software-releases-freespire-3-0-linspire-7-0-linux-operating-systems-519189.shtml

Linux Kernels 4.14.11, 4.9.74, 4.4.109, 3.16.52, and 3.2.97 Patch Meltdown Flaw

Linux kernel maintainers Greg Kroah-Hartman and Ben Hutchings have released new versions of the Linux 4.14, 4.9, 4.4, 3.16, 3.18, and 3.12 LTS (Long Term Support) kernel series that apparently patch one of the two critical security flaws affecting most modern processors.

The Linux 4.14.11, 4.9.74, 4.4.109, 3.16.52, 3.18.91, and 3.2.97 kernels are now available to download from the kernel.org website, and users are urged to update their GNU/Linux distributions to these new versions if they run any of those kernel series immediately. Why update? Because they apparently patch a critical vulnerability called Meltdown.

As reported earlier, Meltdown and Spectre are two exploits that affect nearly all devices powered by modern processors (CPUs) released in the past 25 years. Yes, that means almost all mobile phones and personal computers. Meltdown can be exploited by an unprivileged attacker to maliciously obtain sensitive information stored in kernel memory.

While Meltdown is a serious vulnerability which can expose your secret data, including passwords and encryption keys, Spectre is even worse, and it's not easy to fix. Security researchers say it will haunt us for quite some

time. Spectre is known to exploit the speculative execution technique used by modern CPUs to optimize performance.

Until the Spectre bug is patched too, it is strongly recommended that you at least update your GNU/Linux distributions to any of the newly released Linux kernel versions. So search the software repositories of your favorite distro for the new kernel update and install it as soon as possible. Don't wait until it's too late, do it now!

Source: http://news.softpedia.com/news/linux-kernels-4-14-11-4-9-74-4-4-109-3-16-52-and-3-2-97-patch-meltdown-flaw-519215.shtml

eelo is a Google-free alternative for people focused on privacy

In a world where privacy seems to be at a premium, it's no surprise that companies like Silent Circle and BlackBerry have attempted to harness that market of people who place significant weight on privacy. Attempts to do so have been met with disappointment, though Gaël Duval still wants to capitalize on that target niche with his eelo mobile operating system.

A prominent member of the open source and Linux communities, Duval seems tired of having his privacy be at the mercy of companies like Apple and Google.

As a result, he teamed up with two other developers to create eelo, an Android-based operating system that places an emphasis on privacy.

Duval says he looked at alternatives, such as Firefox OS, but insinuated they failed at being simple and intuitive enough for folks to use. He also said the idea is not to create a Linux-based smartphone operating system, since doing so requires a great deal of effort that, as companies like Canonical eventually learned, failed miserably.

Instead, eelo was born from the existing LineageOS, itself an Android-based open-source operating system that rose from the ashes of CyanogenMod. However, Duval said this was not good enough for his needs, since aesthetics were lacking and the number of included "micro-details" would be "showstoppers for regular users."

The question, then, is whether Duval will succeed with eelo. Unlike other attempts, which paired privacy-focused operating systems with dedicated hardware, Duval wants eelo to be a "non-profit project, a project 'in the public interest.'" That doesn't mean eelo will be free for everyone — Duval envisions preloaded versions of eelo on smartphones and premium services for enterprise — but that profit will not be a primary objective.

Source: https://www.androidauthority.com/eelo-android-privacy-google-827275/

Canonical Plans to Release Ubuntu 17.10 Respin ISOs for All Flavors

The announcement comes minutes after Canonical announced the end of life of its Ubuntu 17.04 "Zesty Zapus" operating system on January 13, 2018, saying that it's beneficial to have Ubuntu 17.10 images available in the face of the impending EOL for Ubuntu 17.04, as users will need to upgrade their installations.

Last month, several users reported broken BIOSes due to a bug in the Ubuntu 17.10 installation images. Laptops from Lenovo, Acer, and Toshiba were affected by the issue, which locked users out of their BIOS settings. The bug could make a user's system unbootable even if the image was booted in live mode.

Canonical immediately took action and disabled downloads for the Ubuntu 17.10 Desktop images from the ubuntu.com website. Meanwhile, to fix the issue, they had to update the kernel packages in Ubuntu 17.10 to disable the intel-spi driver at boot time, and they've been working on rebuilding the ISOs since.

Early next week, around the

date of January 11, Canonical will release the new ISO images for Ubuntu 17.10 and all official flavors, including Kubuntu, Xubuntu, Lubuntu, Ubuntu MATE, Ubuntu Kylin, Ubuntu Studio, and Ubuntu Budgie, and they're announcing today a call for testing to make sure the respin images work correctly.

While the company announced earlier this week that it is working on patches to mitigate recently disclosed Meltdown and Spectre security vulnerabilities on the Ubuntu 17.10, Ubuntu 16.04 LTS, Ubuntu 14.04 LTS, and Ubuntu 12.04 ESM releases, the Ubuntu 17.10 respins won't include these patches.

Source: http://news.softpedia.com/news/canonical-plans-to-release-ubuntu-17-10-respins-for-all-flavors-early-next-week-519258.shtml

PyCryptoMiner Attacks Linux Machines And Turns Them Into Monero-mining Bots

A new botnet is in the town and it uses Python as a scripting language to carry out its operation and mine Monero digital coins. As found out by the researchers at F5 Labs, this botnet has been operating under the radar in recent times.

Due to its association with Python programming language and crypto-mining, the researchers have aptly named it PyCryptoMiner. The botnet leverages Pastebin.com to receive new command and control server assignments in case the original server stops responding.

This technique is pretty unique as most of the malware have no way to switch to another C&C server. Also, file hosting services like Pastebin.com can't be easily blacklisted or taken down, which allows the PyCryptoMiner attacker to easily update the server as per convenience.

The botnet targets Linux systems with exposed SSH ports. If it's successful in guessing the password, it uses its Python script to talk to C&C server and install Monero miner on the machine. In the recent years, with the rise of IoT, this trend of targetting Linux machines has become popular.

As PyCryptoMiner attack uses a scripting language-based malware instead of a binary, its operations are more covert. The bot also performs a check to see if the target machine was already infected by the malware.

The operator behind the botnet has been found to be associated with 36,000 domains and 235 email addresses; many of them are related to online scams and adult services.

As per the findings, two pool addresses used by the botnets were paid about 64 and 94 Monero, which is about $60,000. The overall impact and profit made by the botnet creator remain unknown.

Source: https://fossbytes.com/pycryptominer-linux-machines-turns-monero-mining-bots/

No Internet? No Problem — "ARON" Is A Futuristic And Free Wi-Fi Alternative That Uses IR

SureFire is an American company that is known to produce illumination products and other daily use devices. At CES 2018, the company unveiled ARON, its new communications system that works without internet.

ARON stands for "augmented reality optical narrowcasting." SureFire says that the technology is based on Alexander Graham Bell's invention Photophone. ARON is a type of wireless data transfer system that makes use of infrared light and optical beacons. It has a range of up to 400 meters during the day and 1,200 meters in the night.

The product's web page states that ARON establishes the range, data-rate, and miniaturization like never before. It also offers unprecedented power, freedom, and flexibility. It also allows users to access an AR view of the surroundings and fetch information from it.

With the help of ARON, one can transmit any type of digital

information. It can be easily installed in a phone or vehicle, and data transfer can be done without any cost. With the help of local beacons, IR light could turn out to be an alternative to radio frequency and make communication easier in high-traffic places.

Apart from being free, this technology could turn out to be useful in the areas with limited internet connectivity. It can also be used to establish a communication channel in times of natural disaster that can wipe out the existing communication networks.

Source: https://fossbytes.com/aron-free-wi-fi-alternative-surefire/

The Linux vs Meltdown and Spectre battle continues

The Linux developers has made a lot of progress in dealing with the Meltdown and Spectre. That's good, but there's a lot of work left to be done.

Linux developers are not happy about either problem. They were not kept in the loop, and they had to rush patches out to mitigate the security holes. As Greg Kroah-Hartman, maintainer of the Linux stable branch wrote, this is "a textbook example of how not to interact with the Linux kernel community properly. The people and companies involved know what happened, and I'm sure it will all come out eventually, but right now we need to focus on fixing the issues involved, and not pointing blame, no matter how much we want to."

So, where are we with fixing the problems? Work is continuing, but the latest update of the stable Linux kernel, 4.14.2, has the current patches. Some people may experience boot problems with this release, but 4.14.13 will be out in a few days.

Patches have also been added to the 4.4 and 4.9 stable kernel trees. But, as Kroah-Hartman added, "This backport is very different from the mainline version that is in 4.14 and 4.15, there are different bugs happening." Still, he said, "Those are the minority at the moment, and should not stop you from upgrading."

If you're running Linux distribution with an older Linux kernel, stop. No patches for you!

Source: http://www.zdnet.com/article/the-linux-vs-meltdown-and-spectre-battle-continues/

Tails 3.4 Anonymous Live System Released with Meltdown and Spectre Patches

Tails is a Debian-based live Linux system designed with a single purpose in mind, to hide all your online activity from the prying eyes of the government. For that, it relies on the latest TOR and Tor Browser technologies by allowing users to connect to the Tor anonymous network.

The Tails 3.4 release is here a week earlier than expected due to the recently disclosed Meltdown and Spectre security vulnerabilities that affect billions of devices. It's powered by the latest Linux 4.14.12 kernel, which includes patches for Meltdown attacks, and partially mitigates the Spectre issue.

Among some of the enhancements implemented in Tails 3.4, we can mention that the operating system no longer deletes downloaded Debian packages after they're installed to sustain the persistence feature of APT Packages, and a fix for a slow boot issue.

Additionally, it addresses an issue that prevented certain Debian packages to install properly with the Additional software feature, and updates the uBlock Origin ad-blocker extension to make its settings dashboard work again and restore its icon in Tor Browser.

Source: http://news.softpedia.com/news/tails-3-4-anonymous-live-system-released-with-meltdown-and-spectre-patches-519302.shtml

Linux vs Meltdown: Ubuntu gets second update after first one fails to boot

Canonical managed to get its fix for the Meltdown CPU bug out on Tuesday as scheduled, but was forced to issue a new release after discovering some 16.04 LTS Xenial users couldn't boot their machines once the update was installed.

Several users reported the same problem after installing Ubuntu 16.04 LTS with the kernel image 4.4.0-108, with some reverting to the previous working kernel to resolve the issue.

On Wednesday, Canonical posted a new security notice confirming the problem, as well as a second update with a new Linux kernel image, 4.4.0-109.

Several users on Ubuntu forums have since confirmed that the update with the 4.4.0-109 Linux kernel image resolves the freezing issue.

"I can confirm that the new 4.4.0-109 kernel is working fine, so if anyone is still trying to get their machine running straight from boot-up, simply do your normal update to get the new version, then purge 4.4.0-108, as it seems to be useless for many users, perhaps just Intel CPUs," wrote one user.

Canonical developers plan to address the two other related CPU vulnerabilities known as Spectre in a future update, Canonical's Dustin Kirkland, VP of Ubuntu product development, said last week.

The Meltdown and Spectre attacks primarily impact CPUs from Intel and to a lesser extent those from AMD and Arm. However, IBM this week also began releasing firmware patches for its Power CPUs and will follow up next month with operating system patches.

Source: http://www.zdnet.com/article/linux-vs-meltdown-ubuntu-gets-second-update-after-first-one-fails-to-boot/

City Of Barcelona Chooses Linux And Free Software After Ditching Microsoft

According to a report from Spanish newspaper El País , the City of Barcelona is moving away from the proprietary software products from Microsoft. This move is important in the wake of Munich's recent decision to again adopt Microsoft's products.

As per the report, Barcelona city plans to replace all user applications on its computers with open source alternatives. After finding a proper replacement for all proprietary software, the final step would be to go ahead with replacing the operating system with Linux.

To achieve this goal, the City's administration has begun the process of commissioning IT projects and hiring developers on software programs. As per the plan, in 2018 about 70 percent of the City's software budget will be spent on developing open source software. It's being expected that the transition will be completed before Spring 2019.

One of the important projects will aim to create an online platform to allow small businesses to take part in public tenders.

According to Francesca Bria, the City Council's Commissioner of Technology and Digital Innovation, the taxpayer's money should be invested in the open source code that could be reused by the public as well.

To start with the same, Exchange Server and Outlook will be replaced by Open-Xchange; Internet Explorer and Microsoft Office will be kicked out in favor of Mozilla Firefox and LibreOffice.

At a later stage, it's expected that Ubuntu will end up being the preferred choice of Linux distribution. As a part of a pilot, the City is already running 1,000 Ubuntu-powered machines.

Source: https://fossbytes.com/city-barcelona-linux-open-source/

Ubuntu Core: A secure open source OS for IoT

Canonical's Ubuntu Core, a tiny, transactional version of the Ubuntu Linux OS for IoT devices, runs highly secure Linux application packages, known as "snaps," that can be upgraded remotely.

Using the same kernel, libraries and system software as classic Ubuntu, customers can develop snaps on their Ubuntu PCs just like any other application. IoT is where the difference lies.

"Because IoT devices tend to be smaller in terms of CPU and memory than a server or a desktop, we've done what we call a 'minimal distribution' of Ubuntu targeted for IoT," said Mike Bell, executive vice president of devices and IoT at London-based Canonical Ltd. "The great thing is that I can use the same technology on the desktop and in the cloud as I can on an IoT device."

But rather than just cutting down the OS for IoT, Canonical took a step back to figure out the core challenges of IoT and determine how those differed from the cloud.

One manufacturer that has already embraced the Ubuntu Core IoT OS is Dell Technologies; the Dell Edge Gateway 3000 launched in February with Ubuntu Core.

Source: http://internetofthingsagenda.techtarget.com/feature/Ubuntu-Core-A-secure-open-source-OS-for-IoT

Linux and Windows Servers Targeted with RubyMiner Malware

Security researchers have spotted a new strain of malware being deployed online. Named RubyMiner, this malware is a cryptocurrency miner spotted going after outdated web servers.

According to research published by Check Point and Certego, and information received by Bleeping Computer from Ixia, attacks started on January 9-10, last week.

Ixia security researcher Stefan Tanase told Bleeping Computer that the RubyMiner group uses a web server fingerprinting tool named p0f to scan and identify Linux and Windows servers running outdated software.

Once they identify unpatched servers, attackers deploy well-known exploits to gain a foothold on vulnerable servers and infect them with RubyMiner.

That malware campaign also utilized the same Ruby on Rails exploit deployed in the RubyMiner attacks, suggesting the same group that was behind those attacks is most likely now trying to spread RubyMiner.

Overall, there's been a rise in attempts to spread cryptocurrency mining malware in recent months, especially malware that mines for Monero.

Source: https://www.bleepingcomputer.com/news/security/linux-and-windows-servers-targeted-with-rubyminer-malware/

BitTorrent flaw could let hackers take control of Windows, Linux PCs

Google's Project Zero has uncovered a "critical flaw" in the Transmission BitTorrent app that could give cybercrooks complete control of users' computers.

According to Project Zero, the client is vulnerable to a DNS re-binding attack that effectively tricks the PC into accepting requests via port 9091 from malicious websites that it would (and should) ordinarily ignore.

The flaw could enable attackers to execute all kinds of attacks, including remote code execution, and works in both Chrome and Firefox on Windows and Linux PCs. Other browsers will almost certainly be vulnerable too.

Publicising details of the attack appears to have done the trick of forcing the developers to rush out a patch, but this has not been applied in all the software that uses the Transmission protocol, Ormandy warned.

Transmission is one of a number of BitTorrent peer-to-peer file sharing clients.

Rather than a centralised hub-and-spoke system for distributing files and data, shared files are decentralised, but publicised via the software that utilises the protocol. If anyone in the network wants a file, it is downloaded in 'pieces' from the source or sources.

Source: https://www.theinquirer.net/inquirer/news/3024494/bittorrent-flaw-lets-hackers-take-control-of-windows-linux-pcs

Google ditches Ubuntu for Debian for internal engineering environment

Google engineers have transitioned from Ubuntu to Debian for their internal machines.

The company, which has been using Goobuntu, a customised version of Ubuntu, for years, announced last year that it would be switching to gLinux, based on Debian Testing.

MuyLinux reports (Spanish) that The Debconf'17 held last August revealed plans for the move as well as a roadmap for the project and plans for a smooth transition.

That process has now begun, as the company moves from a "light-skinned" distro which it has no contribution to. Google used Ubuntu's Long Term Support (LTS) builds as a customer of the Ubuntu Advantage Program but was not active in the community.

In the case of Debian, it will send changes upstream as an active contributor, whilst running on the Test stream so it can take advantage of faster testing of new builds.

This might mean that there are more problems for users than the safe pair of hands of the commercial Ubuntu, but it also means that Google will have complete autonomy over how to fix them, and benefit the community at the same time.

For Canonical, it's a big loss. Though Ubuntu has a huge number of clients in servers, cloud, and remains the biggest distro for the limited PC market, the loss of a paying customer the size of Google won't go unnoticed.

Source: https://www.theinquirer.net/inquirer/news/3024623/google-ditches-ubuntu-for-debian-from-internal-engineering-environment

Wine 3.0 Released To Run Windows Apps On Linux Efficiently

Ust recently, we told you that the support for Linux distros in VirtualBox is about to get a lot better with the release of Linux kernel 4.16. But, what if you wish to run Windows apps on your host Linux system? For that, Wine has got your back.

The recent Wine 3.0 release is finally here after much wait and a year of development effort. The new package contains tons of small-big changes, 6,000 to be precise.

A major highlight of Wine 3.0 is a significant number of Direct3D 10 and 11 changes that have been incorporated in this release. These new features of Direct3D include Computer shaders, Stream output, Structured buffers, Format compatibility queries, Hull and domain shaders, Depth bias, etc.

Direct3D's multi-threaded command stream feature serializes Direct3D rendering commands into a single threat. This results in rendering correctness and performance improvement.

That's not all. The Direct3D graphics card database now recognizes more graphics cards. The support for OpenGL core contexts in Direct3D too has been improved.

For Android developers and users, there are some welcome changes as well. Wine can now be built as an APK and one can use it as a proper Android app. Full graphics and audio drivers are also implemented.

Source: https://fossbytes.com/wine-3-0-released-features-download/

Speech Recognition For Linux Gets A Little Closer

It has become commonplace to yell out commands to a little box and have it answer you. However, voice input for the desktop has never really gone mainstream. This is particularly slow for Linux users whose options are shockingly limited, although decent speech support is baked into recent versions of Windows and OS X Yosemite and beyond.

There are four well-known open speech recognition engines: CMU Sphinx, Julius, Kaldi, and the recent release of Mozilla's DeepSpeech (part of their Common Voice initiative). The trick for Linux users is successfully setting them up and using them in applications. [Michael Sheldon] aims to fix that — at least for DeepSpeech. He's created an IBus plugin that lets DeepSpeech work with nearly any X application. He's also provided PPAs that should make it easy to install for Ubuntu or related distributions.

IBus is one of those pieces of Linux that you don't think about very often. It abstracts input devices from programs, mainly to accommodate input methods that don't lend themselves to an alphanumeric keyboard. Usually this is Japanese, Chinese, Korean, and other non-Latin languages. However, there's no reason IBus can't handle voice, too.

Oddly enough, the most common way you will see Linux computers handle speech input is to bundle it up and send it to someone like Google for translation despite there being plenty of horsepower to handle things locally. If you aren't too picky about flexibility, even an Arduino can do it. With all the recent tools aimed at neural networks, the speech recognition algorithms aren't as big a problem as finding a sufficiently broad training database and then integrating the data with other applications. This IBus plugin takes care of that last problem.

Source: https://hackaday.com/2018/01/17/speech-recognition-for-linux-gets-a-little-closer/

SDR starter kit developed for Raspberry Pi, Grove and LimeSDR using Scratch

Lime Microsystems, in partnership with Seeed Studio has today announced a Starter Kit for its LimeSDR platform based on the Grove Platform and for use with the Raspberry Pi. The kit is priced at $249 (c. £180 / €200).

It includes a LimeSDR Mini with antennas optimised for 433/868/915 MHz unlicensed bands, plus a GrovePi+ and a array of Grove sensors and outputs, many of which are supported by a Scratch extension, and other programming environments. The kit provides everything you need to get started learning SDR basics and developing IoT applications and is targeted at educational use and for beginners.

By combining the hardware components with Lime's ScratchRadio software extension, users will be able to quickly and intuitively create simple and fun applications that integrate SDR capabilities and peripheral I/O.

Eric Pan, CEO of Seeed, said: *"We are excited to announce that we've partnered with Lime Microsystems to develop the Grove Starter Kit for LimeSDR Mini. It will provide a great platform for users to learn about SDR and help kick off IoT projects with the LimeSDR Mini. We cannot wait to see what what the community will do with this new kit!"*

Ebrahim Bushehri, CEO of Lime, commented: "*One of the key reasons we created the LimeSDR was to open access to this technology to as many people as possible. This kit plays a big part in enabling this." Adding: "Of course, the kit is not limited to Scratch and educational environments, so we'll also be putting together examples that demonstrate how the kit can be used to develop applications that integrate with existing off-the-shelf systems, such as wireless thermostats and remote controls.*"

Source: press release

Linux On A USB Drive

My laptop is actually a MacBook Pro that I use for my work as a web developer. That being said - I always do prefer to test and program things under Linux. Specifically, I run ArchLinux with i3 on my Intel NUC, which works fine until I'm away from my desk. I've always intended to buy an external SSD device to put GNU/Linux on – that I can boot from when on the go. The reason for this (instead of dual-booting directly on the internal SSD) is that space is at a premium, and if I make the device removable, I can take that environment with me to other devices (although, I may need to do some fixing/tweaking). I could naturally also create a persistent USB stick, but my preference would be to have an installed system. Having now done this, I wanted to share my experiences here, for anyone who may have a similar wish. These instructions should work for any other laptop too, though you may need to tweak the information a bit.

What do I need?

• An external USB drive. The best performance will come from a USB 3.0 SSD, but for my test run, I used an old USB 3.0 1TB disk drive.

• A USB stick (check what your distribution requires size-wise).

• Your Linux distribution (in my case, Manjaro Linux).

• Your laptop.

Step 1: Create bootable USB Drive

For this step, I used Etcher (etcher.io), and simply downloaded the ISO, and selected the correct USB drive.

Step 2: Booting to USB

On a MacBook, you need to reboot and hold down the options key. For Windows-based laptops, you should be able to hit a different key to open a list of bootable devices, or change the boot device in the BIOS or UEFI settings.

In my case, the USB drive appeared as "EFI Boot". You'll want to use an EFI entry for newer laptops.

Step 3: Insert target USB Drive

I only plugged my external USB drive in after booting to the USB, to avoid extra options to select from. After inserting it, I checked with sudo fdisk -l what the disk was called (in my case, /dev/sdd).

Step 3b: Test environment

If you're not sure about the distribution, or just want to make sure everything is working OK, feel free to take some time to test things at this point.

In my case, everything worked fine besides Wi-Fi. For the moment, that wasn't a huge hardship for me (as I had a working Thunderbolt-Ethernet adapter, and my laptop was less than a meter from my switch). Instead, I hoped that some updates might fix it once it was installed. It turns out the particular device in my MacBook requires the broadcom-wl drivers. After installing and updating the kernel, I was able to reboot to a working wireless connection.

Step 4: Begin the installation

Once you're ready, fire up the installer. Go through the typical questions until you reach the question of partitioning. I originally had hoped to pop Manjaro onto a 16GB USB thumbdrive I had, but it was unfortunately not recognized by the installer - which is why I ended up partitioning my external 1TB drive.

A few things to note here:

• Make absolutely certain you are choosing the correct drive - not the internal one.

• If you want to save your data, choose to either manually partition the drive, or to "install alongside". If you want to erase the entire drive (for example, if it's new), feel free to just "erase everything".

• If you want to be more complicated and use a separate /home partition, you'll need to configure most distributions manually. I wouldn't recommend this on an external drive, as it just adds extra complexity to the mounting and the partition table (especially if you're leaving an accessible partition for random data).

Step 5: Complete installation

Once the installation is complete, you just need to reboot and select the correct drive. In the case of a MacBook, you'll want to use the EFI Boot option that appears with a hard drive icon (not the yellow removable disk option). On a Windows device, just select the device by manufacturer name in the list.

Step 6: Updates & Fixes

Once your device has booted, you'll want to install any updates (assuming that didn't occur during installation), fix any issues you know of, and perhaps configure your preferred software.

If you have a high DPI display, you may also want to spend some time tweaking settings for text size and such.

Downsides

From what I can tell so far, the downside is speed (a mechanical USB 3.0 drive isn't as fast as an internal SSD). I would imagine you can improve the experience by using an external SSD, but haven't actually tested this myself.

Other downsides can include battery life (as you're powering another device, and in my experience, GNU/Linux power-saving isn't always as good), and temperatures (Manjaro appears to not regulate the fans/CPU as much as MacOS did, so the laptop was running warmer than normal). These are both things that can be tweaked.

Lastly, I've had issues with standby under GN/Linux. I would recommend simply turning off the device.

Conclusion

The installation and booting was much easier than I had previously experienced (my last attempt at something like this failed completely due to the drive not appearing in the boot menu). And the ability to boot into GNU/Linux using a device I typically have with me anyways (external drive) is nice, especially when on a longer trip (with a C&C deadline looming!).

Lucas has learned all he knows from repeatedly breaking his system, then having no other option but to discover how to fix it. You can email Lucas at: lswest34@gmail.com.

Full Circle Weekly News

NEW

Full Circle Weekly News

Join our new hosts Wayne and Joe as they present 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

AUDIO MP3

Several pieces of specialised software exist to view and manipulate data. One such program is called PyMOL and is used by protein chemists and structural biologists around the world, to visualize the three-dimensional structures of the building blocks of life: proteins, RNA and DNA.

As the name indicates, PyMOL is a program written in python. Development was started in 2000 by Warren Lyford DeLano as an open source project. Compiled binaries were made available to paying customers who do not want the hassle of compiling the software themselves, obviously making it an advantage to use the software on GNU/Linux because a lot of nice people would compile PyMOL for the platform, so every day users can install it from the archives.

A special version "Incentive PyMOL" was also made available, containing special extra features that many users would not need, but would be a great addition to have for industrial partners and similar users.

Unfortunately, in late 2009, Warren DeLano passed away suddenly, and the future of the project was uncertain for a while, until Schrödinger Inc. took over the development and rights to PyMOL. Recently, a version 2.0 was released, with a compiled version of the open source code available for all major platforms. A license is still required to gain full access to all functions of the software.

For the current article, I will focus on a version that is a bit older, corresponding to what most GNU/Linux users will have in the archives of their favorite distribution.

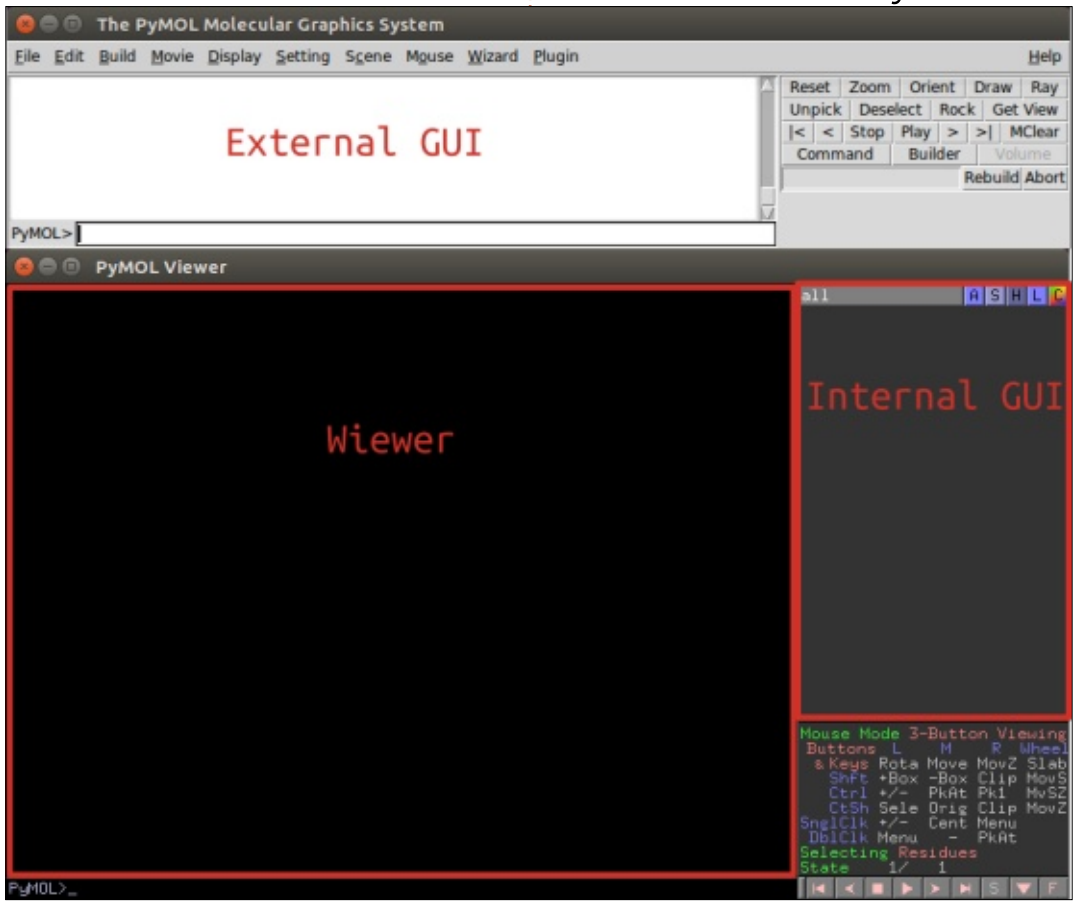
```
sudo apt install pymol
```

should get PyMOL installed for you, and the program can be started either from the program launcher you use, or by typing pymol in a terminal.

Start it up and see what happens!

The PyMOL graphical user interface

PyMOL has two windows when opened: A window with an external graphical user interface (GUI), and a window with a viewer and an internal graphical user interface (GUI). The external GUI can be used to edit settings, to issue commands for making movies, and so on. This is also where the plugin system can be used. PyMOL can be extended through plugins, and several researchers around the world have made their code available for use with PyMOL.

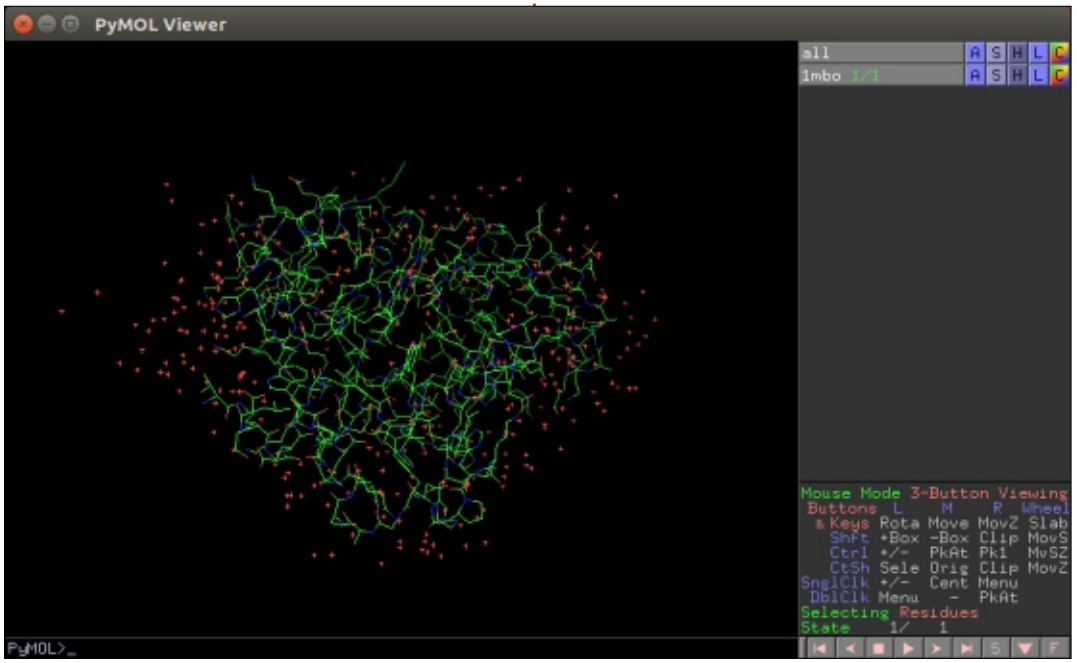


The internal GUI and viewer area are used to visualize the molecules of interest and to manipulate representation of the molecules loaded into the program. The bottom right corner includes a quick overview of the functions of the mouse, which can be changed by clicking inside the box. At the bottom of the viewer, written commands can be used, the function of which is equal to the functions available by using the mouse.

If a list of PyMOL commands is written in a text file (a PyMOL–script), this can also be loaded when starting the program, enabling easy sharing of graphical views of molecules.

Getting the coordinates

Historically, most molecular coordinates have been experimentally determined by the x-ray crystallography technique. The Protein Data Bank (PDB) was established in 1971 and currently contains more than 123,456 structures of proteins, RNA and DNA. Currently, NMR, and, more recently, cryo–EM, are also used as techniques to determine the three-dimensional coordinates of macromolecular structures.



Coordinates are deposited by researchers from all over the world, and made available for everybody to investigate and gain insight into the microscopic world of some of the smallest parts of our cells.

In PyMOL, a plugin is already installed that can be used to load molecular coordinates – if the PDB-id is known. For this article, I will use 1mbo, which is one of the first protein structures that were determined by x-ray crystallography, the protein myoglobin.

To download the coordinates and load it into PyMOL, I will use the command-line command fetch

```
fetch 1mbo
```

which should result in the picture shown left (or something similar)

Here, the coordinates are loaded in the viewer and the internal GUI shows the object 1mbo is loaded.

In the internal GUI, the object can be hidden by pressing the name, and there are five buttons to the right of the object name:

A - The action button, for different actions on the object
S - The show button, to show different representations
H - The hide button, to hide different representations
L - The label button, to show labels on individual coordinates
C - The color button, to color the coordinates

Now the structure is loaded into the viewer and we can make a representation of the protein.

Making a pretty picture

The structure of myoglobin we have loaded contains two interesting objects. A heme group, which is an organic compound that contains an iron-ion in the middle of the molecule, and an oxygen molecule, with the oxygen molecule being coordinated by the iron in the heme.

Several presets exist in the PyMOL interface, and we will use the mouse to choose the A button then preset, ligand site and finally cartoon.

This function can also be called

from the command line with:

```
preset.ligand_cartoon("1mbo")
```

To get a good orientation of the interesting feature of the molecule, we will use the commands to zoom into the heme in the structure:

```
zoom resn HEM
```

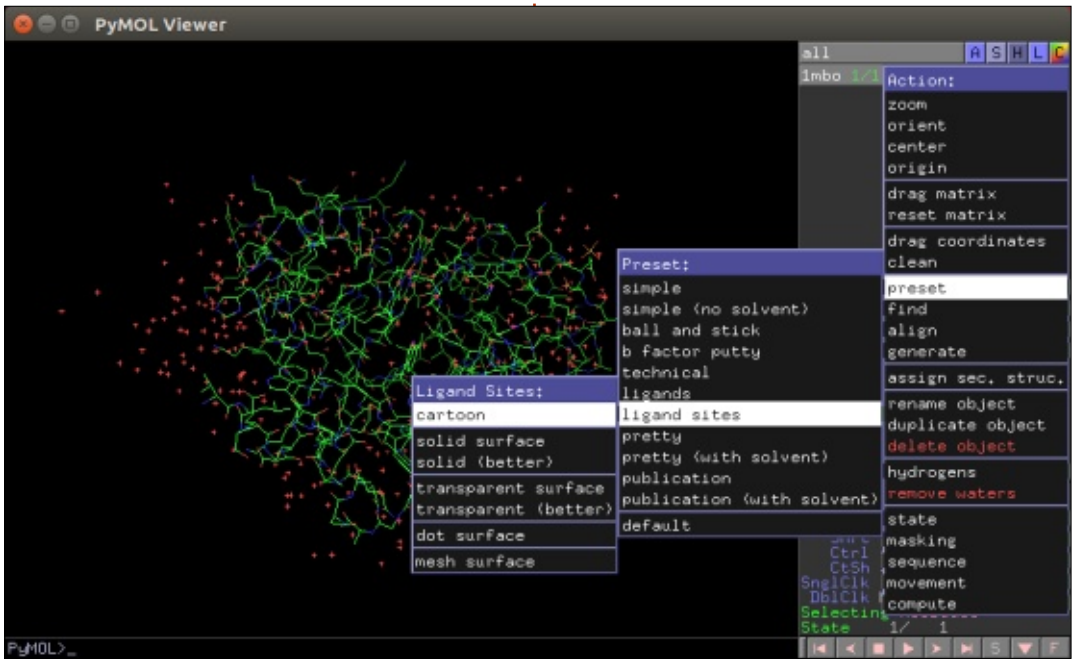
Now use the mouse to rotate the view to your liking. You will notice that the lower right box indicates how you can interact with the viewer, and that the L, M and R indicate the mouse buttons. Press the left mouse button and move the mouse to rotate the molecule. You can also hold down the right mouse button to zoom in or out, and the middle mouse button to move the view.

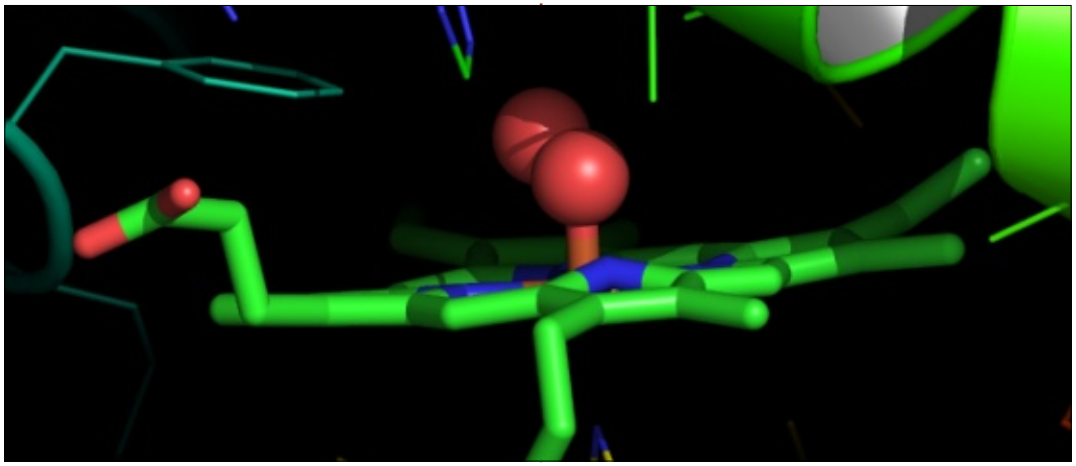
To get a more clear view, you can hide the waters by using the H button next the the 1mbo object and press waters, to hide the representation of the waters in the molecule. You might also have noticed the yellow striped dots. These are water bonding interactions called polar contacts, and can be turned off by de-selecting the new object 1mbo_pol_conts (click on the name of the object and it is hidden). And finally we can show the oxygen as a sphere representation, to more clearly visualize them. We will first set the size of the spheres to be slightly smaller than usual.

```
set sphere_scale, 0.5
show spheres, resn OXY
```

Once you have found a nice view, you can use the ray command in the top right of the external GUI and then go to File –> Save Image As –> PNG and voilá, you have a picture of a molecule of oxygen bound to myoglobin from the Physeter catodon also known as the sperm whale.

I hope you enjoyed this very small introduction to the molecular viewer PyMOL





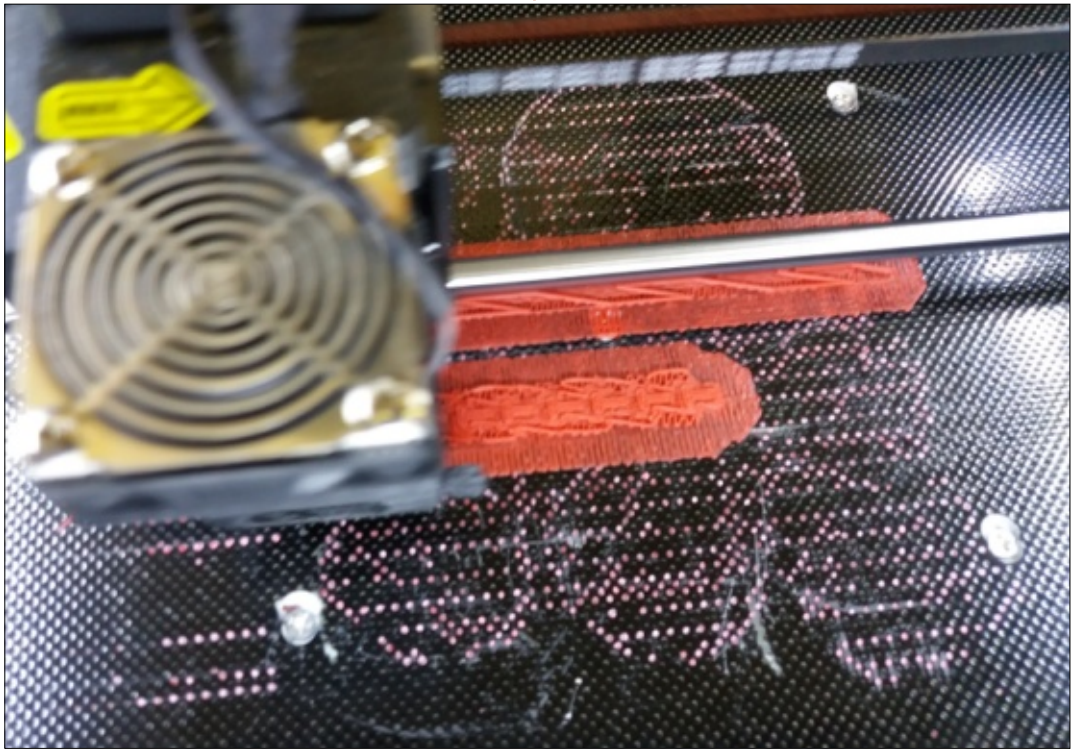
Intro To FreeCAD - Pt10

Written by Alan Ward

In this series, we will be examining the world of FreeCAD, an open-source CAD modeling application that is still in Beta, but has been gaining acceptance in recent years. Naturally, it is readily available in the Ubuntu repositories. In the ninth article on using FreeCAD, we used a 3D printer to create a physical representation of a construction. In this episode, we will explore some of the uses of copying objects to create a repetitive pattern such as chain-mail.

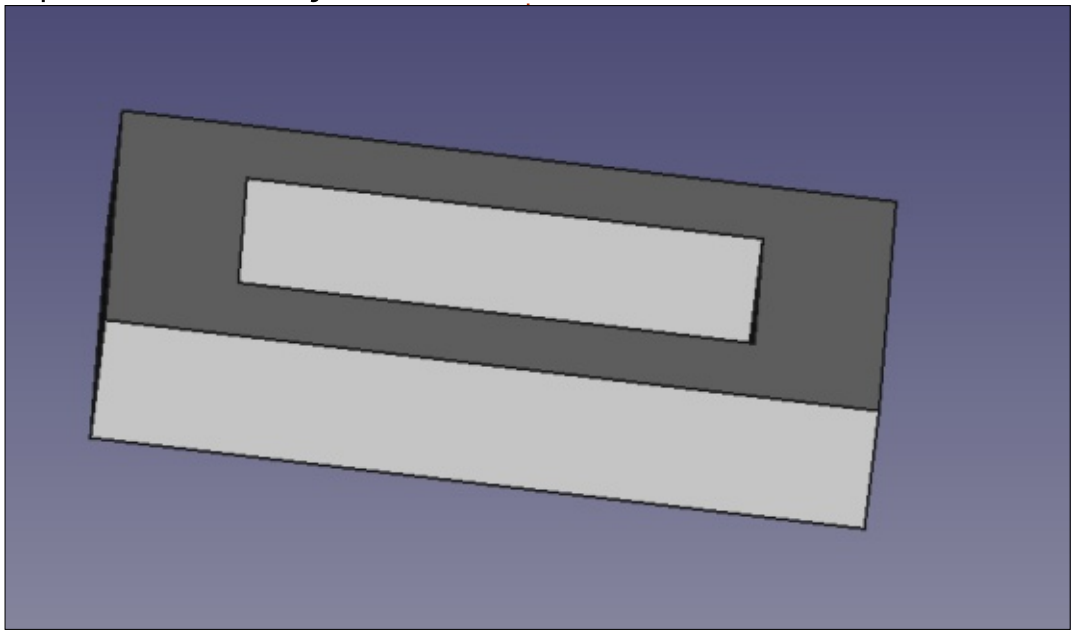
Printing interlocking pieces

Objects with repeated, but disjointed parts, such as chains or chain-mail, can be printed in 3D in much the same way as a regular, connected, part. The main difference is that the printer's driver software should be smart enough to add in some extra plastic between bits. This is usually done in much the same way printers begin printing by laying down one or several mats on the bed, so as to ensure the parts being printed stick well to its surface, and do not move around as successive layers of plastic are added. In the adjoined image of a printer, two separate lengths of chain are being printed. In each case, the printer began with the mats, approximately 6 mm (a quarter-inch) out from the object's outline. At this point, several layers of plastic have already been deposited, and the objects (chain links) are starting to appear. Excess plastic -among them, the diagonal traces and wavy bits- are also there, to ensure links stay upright and in a correct spatial relationship to each other.



Creating some chain

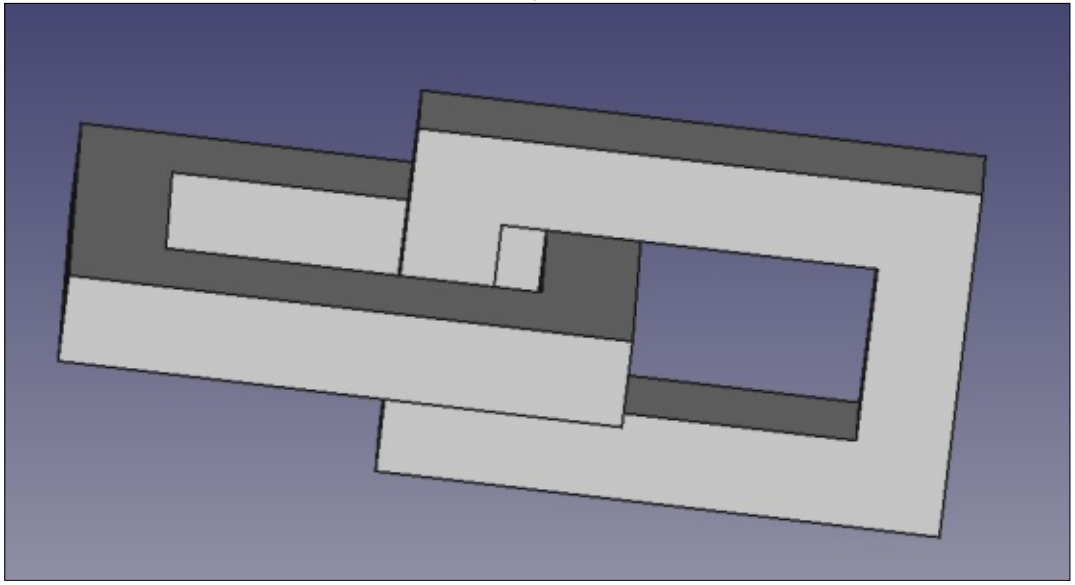
Back to FreeCAD, let us begin by creating a very simple length of chain. We will start by doing a rectangular flat link, with a rectangular hole cut into it using the "cut" operation (Boolean



volume subtraction).

This link shape can be worked upon, and made rather more aesthetic or more functional, as desired. It is worth spending some time at this stage -perhaps rather more than I have done- since what we are producing here is a basic motif that will be repeated many times to create the complete chain object.

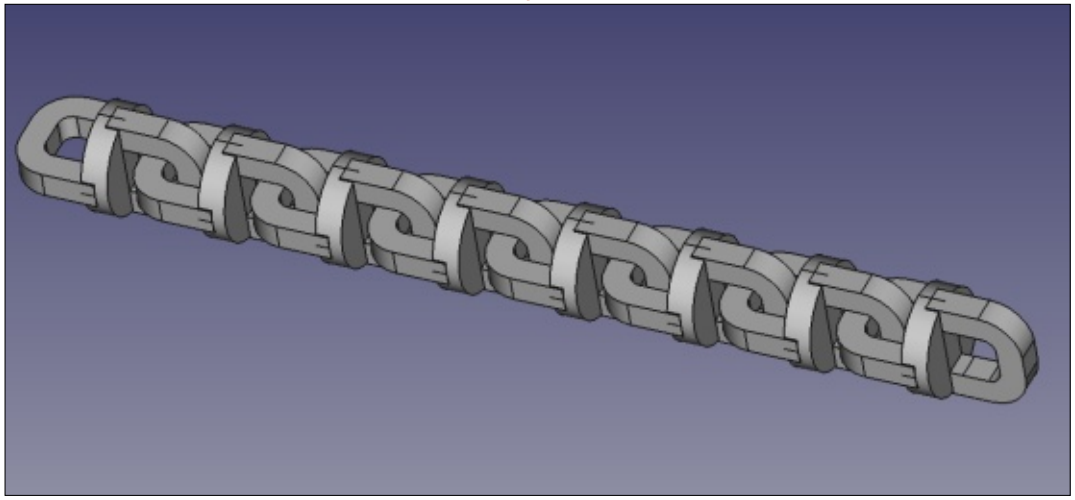
Now, let us copy and paste our finished link. The new copy will need to be displaced a sufficient distance (e.g. along the X axis), and rotated by 90 degrees about the axis of displacement. Precise measurements will depend on link dimensions, but, in general, I do tend to leave, at the least, 1 mm of empty space between links. We now have something similar to this:



Now, for the weird part. In order to print this in 3D, we will need to move it out to the printer as one single object. But we already have defined two separate volumes, with some free air between them. So, now, we simply need to combine the two objects with a Boolean Union operation. This is really strange for someone with a mathematical background, since we are defining in essence a single volume with two separate and disconnected parts to it. But it does work.

Once we have defined the couple of links as a single union object, we can now copy and paste that, obtaining two strings of two links. One of the strings needs to be displaced along the same axis into a suitable position, and then the two bits need to be fused to each other into a single Union object, as before. We can then continue in this fashion, multiplying the number of links by 2 in each operation: 1, 2, 4, 8, …

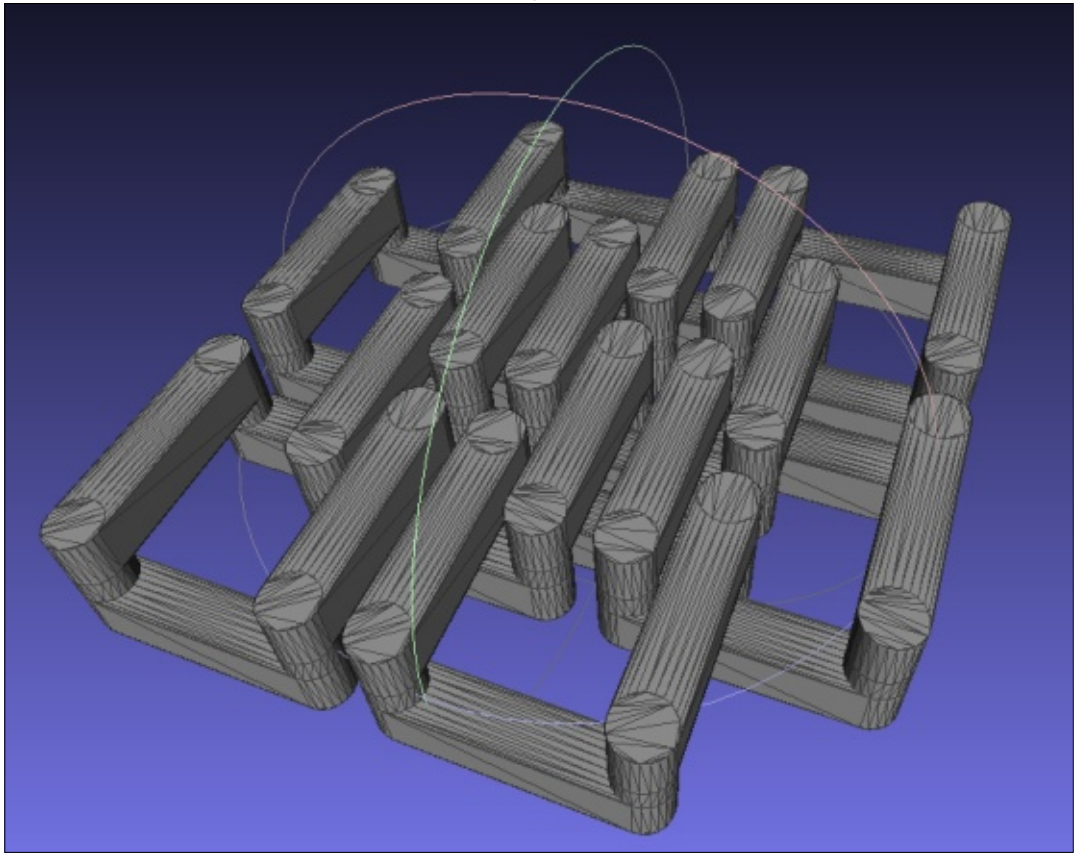
Once we have the workflow set out, we can experiment with more complex basic link forms. For instance, we could create a link with a flat eye and a vertical one. Thus, each successive copy can be displaced only along the axis, without any rotation. As before, the complete chain will need to end up as a single Union object, which can then be exported as an STL file and sent to the printer.



It may be prudent to point out that the excess plastic will need to be pared away from the final object. This will include the mats set out beneath the chain, but also all the various bits and pieces the printer will have added to support the links, and also between each pair of links. A very complex link geometry may hinder getting all these bits out from our assembly. Practical experience shows that an object such as the above chain can take as long to clean up as to do the actual printing – if not more. Thinking ahead, and adjusting link shapes to make the interstitial spaces more easy to access, can be of help.

Spreading out to chain-mail

Going from a linear piece of chain to flat chain-mail is not too complex. The main difficulty is that each link will need to be interlinked with many other links, typically four, so the central space will need to be created large enough to allow neighboring links to pass – while maintaining a separation of about 1 mm between any two links. As long as this is assured, links can take any form. One typical shape would be flat toroid rings ("donut-shaped"), set at different angles for each alternate row: a close-up of real mail can be seen at this link: https://en.wikipedia.org/wiki/Mail_(armour)#/media/File:European_riveted_mail_hauberk,_close_up_view.jpg. Other setups are also possible, for example curving each link into a saddle-shaped ring to aid fitment. Going even further in



this direction, rounded links can be transformed into a collection of simple volumes (cylinders and bars), such as in the adjoining STL file (captured in Meshlab).

Once a basic link motif is created, it can be copied and pasted and separate links displaced into position. Then, several links can be fused into a single Union object, such as the above 8-link assembly, which is then repeated to create a larger piece of mail. Motifs can be added along two axis, to create a flat piece of material, or along one single direction to create a chain-mail band.

Finally, chain-mail is not limited to square links or motifs in which links are connected to four other surrounding links. Three-sided symmetry can be used to create motifs in which triangular or hexagonal links are joined each to three other links. Links with a single ring can be alternated with links made of two parallel rings, joined by vertical parts that interlock with flat rings. This setup actually increases freedom of movement between links, producing a chain-mail fabric that folds and bends much better than a more traditional square motif.

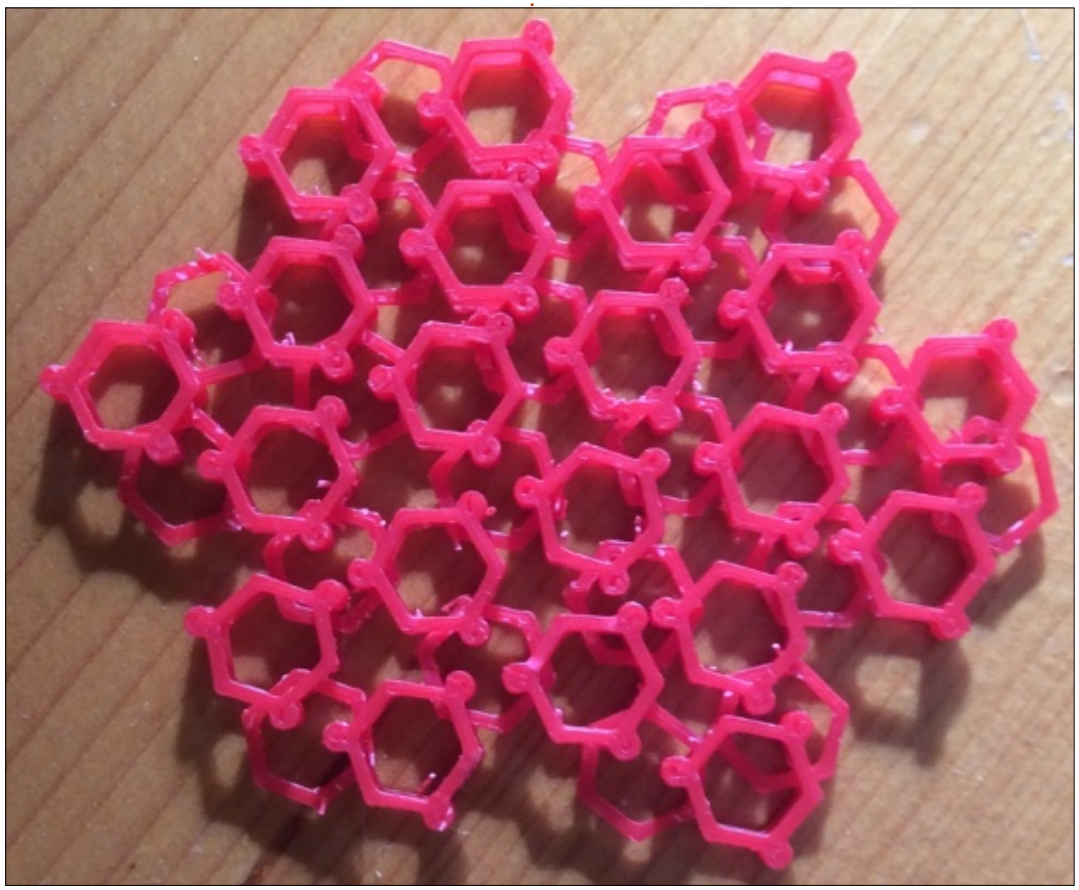
What next?

In this -final- article on using FreeCAD, we explored some of the uses of copying objects to create a repetitive pattern such as chain-mail. This could then be used as a basic material for different purposes, such as preparing costumes, historical recreations of armored clothing, or even rapid prototyping of jewelry.

Going through the various articles that have come out over the last months, it is clear that a 3D design program such as FreeCAD has many different applications, ranging from mechanical engineering (gears), to architecture (buildings) and arts and crafts (chain-mail). It is always nice to see such software available for the various Ubuntu variants, where casual users benefit from free access to these applications, while more advanced users can use widely tested applications on a very stable platform. This is not always possible with commercial offerings that are often available for a very limited number of operating systems.

After this review of some of the possibilities FreeCAD offers, this series of articles will go dormant for a time. Further along, it may be started up once more, if there is sufficient reader interest. Specific proposals would be very welcome.

Alan holds a PhD in Information and the Knowledge Society. He teaches computer science at Escola Andorrana de Batxillerat (high-school). He has previously given GNU/Linux courses at the University of Andorra and taught GNU/Linux systems administration at the Open University of Catalunya (UOC).



Program In Great Cow Basic - Pt.3

Written by Boris Breuer

Correction: In the previous article I compared the compiled file sizes, the given sizes are in Byte, not in KByte. My apologies for this inaccuracy.

In the last issue I introduced you to the software and hardware pulse width modulation (PWM) to dim a LED. And in the first examples we needed not much hardware than the microcontroller, a resistor and a LED. And, in these first few examples the only hardware/components we need are a microcontroller, a resistor and an LED.

This time I will show you how you can set the brightness of the LED or the speed of the PWM by controlling it with a potentiometer. For a good explanation of a potentiometer see: https://en.wikipedia.org/wiki/Potentiometer

In the previous example we learned that a microcontroller can understand if a switch (or any other device) is 'ON' (operating at between 3/5V) or 'OFF' (operating at 0V) because of its digital nature, but how will the microcontroller know that a voltage is somehow in between (e.g. at 2.3 Volts)? We can use the inbuilt analog to digital conversion of the attiny13a. Besides controlling the microcontroller within the source code, this will be the first time the microcontroller can be controlled from the outside world.

Analog to digital conversion

The attiny13a features a 10-bit successive approximation analog to digital conversion (ADC), which means, that the input voltage is repeatedly compared to a reference voltage until the input and the reference voltage are nearly equal. The attiny13a has 4 multiplexed ADC channel (PIN PB2-5), each one can be used independently to measure voltages. For the moment we leave out some special functions such as free running mode, start ADC on interrupt or trigger an interrupt after conversion. The datasheet of the attiny13a has detailed information about this topic, but Great Cow BASIC has got you covered, so that using the ADC can be done quite easily.

For the actual purpose I will use the single conversion mode of the ADC at the 8-bit resolution. This is precise enough, because the duty cycle of the PWM has the same resolution of 8-bit (values range from 0 - 255) so I do not need to map a higher to a lower resolution. Second I will use a medium frequency to measure the voltage; the higher the frequency the measurement takes place the more inaccurate the readings are. In 8-bit resolution every ADC value corresponds to a voltage level (ADC value = Volt255). If the microcontroller is powered at 5 V the measurement would read around 0.0196 mV per step. Powering it at 3 V the readings for each step would be around 0.0117 mV. See the table below for some arbitrary values.

ADC Value	Percentage	5 V	3 V
255	100	5.00 V	3.00 V
127	50	2.50 V	1.50 V
64	25	1.25 V	0.75 V

Controlling the LED

To control the LED with the potentiometer I will expand the software PWM code to read the analog value of the potentiometer and set the brightness accordingly.

This works of course with the hardware PWM variants of the previous article, I have not included the PWM variants out to streamline this article.

```
#CHIP tiny13a, 1.2
#OPTION EXPLICIT                    'provide that variables are dimensioned before use
#DEFINE PWM_Out1 PortB.1            'Great Cow BASIC Software PWM channel 1
#OPTION VOLATILE PortB.1            'avoid glitches on the LED
#DEFINE ADSpeed MediumSpeed         'Measure at medium speed, around 128 KHz

'Set initial PIN direction and state:
DIR PWM_Out1 OUT                    'set direction LED to output
DIR PortB.4 IN                      'set direction POTI to input
DIM POTI as Byte

'The main program:
DO
    POTI = READAD(ADC2)
    WAIT 1 MS
    PWMOUT 1, POTI, 100             'Software PWM channel 1 with ADC on PB4
    WAIT 200 MS                     'Wait some time
LOOP
```

Breadboard circuitry

I assume that you flashed the program to the microcontroller with your preferred programmer or an Arduino as ISP. To try out the program now place the attiny13a somewhere in the middle of a breadboard so that the upper and the lower side are placed above and under the middle line of the breadboard.

I prefer to have PIN 8 (VCC) on the upper left hand corner of the breadboard. The potentiometer should have three terminals, place the potentiometer: the terminals are in front of you and begin to connect from left to right: first terminal should go to ground, second to PIN 3 (PB4) of the microcontroller and third terminal should go to positive supply voltage (VCC). If the terminals are not properly connecting to the breadboard solder some wires to the terminals or stick a male / female jumper wire to them and connect the wires to the breadboard (if you have another form of potentiometer please refer to the appropriate datasheet). Then connect the anode (long lead) of the LED through a 220 Ohm resistor with PIN 6 (PB1) and the cathode (short lead) of the LED to Ground. After this connect the power supply and see how the brightness of the LED changes by turning the potentiometer left or right.

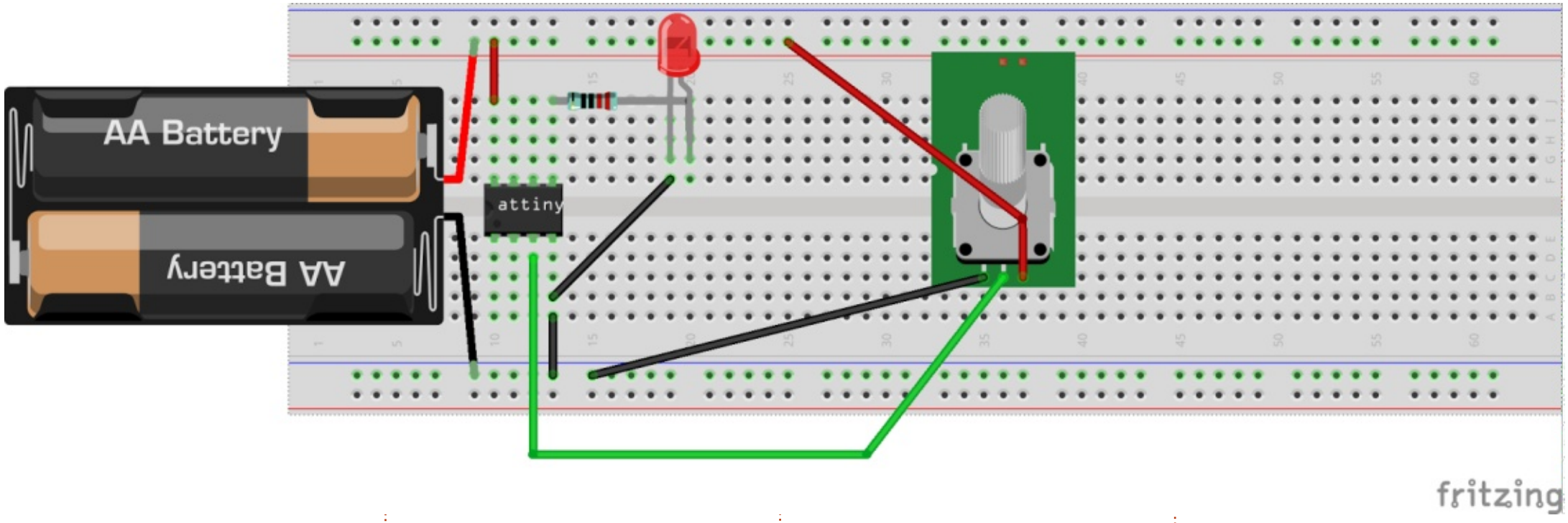
Conclusion

Reading analog values is a very useful function of the microcontroller and there are many possible uses for it. Besides reading a potentiometer you could e. g. measure the systems battery status and implement a draining protection for your systems battery. As an exercise you could expand the code to not only control the brightness of the LED but also the length of the pauses. In the next article we will experiment further with the analog digital conversion and see if we can print out the measured values to the serial console.

References

In depth explanation of the ADC
http://maxembedded.com/2011/06/the-adc-of-the-avr/

ADC code optimisation
http://gcbasic.sourceforge.net/help/_analog_digital_conversion_code_optimisation.html



Acknowledgement

I wish to thank Evan Venn (Anobium) from the Great Cow BASIC Team for his insights and valuable hints.

Also thanks to Bernd Dau for the hint with wrong file sizes.

Boris holds a bachelor degree in business administration, and works for an insurance company. While not working, he is a family person and enjoys playing with his kids or tinkering with his personal projects.

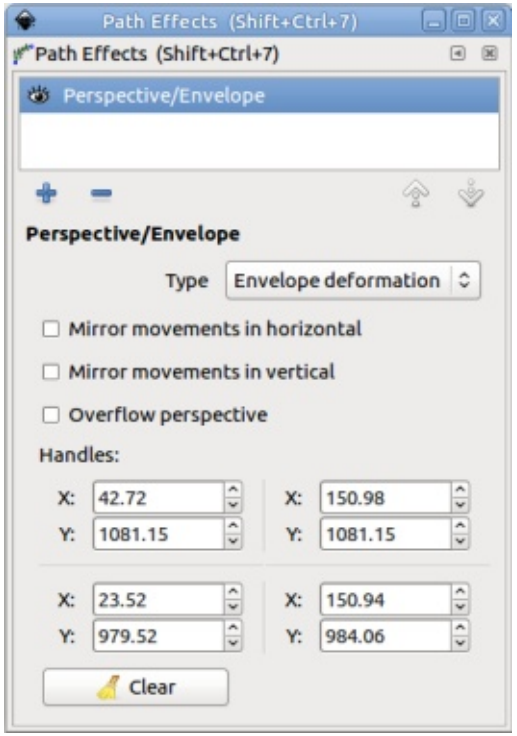
Inkscape - Part 69

This time, we're going to move on to the final batch of new LPEs in 0.92, starting with one that's both simple to use and potentially very useful: Perspective/Envelope.

One significant limitation of SVG, from an artistic point of view, is that it allows for only affine transformations. These are transformations that preserve straight and parallel lines, limiting Inkscape to rotation, scaling and skewing. Non-affine transformations allow the source image to be more radically changed, introducing curves or distortions that let parallel lines converge. They would be a great addition to SVG – especially to allow text to be distorted into logos whilst retaining accessibility – but unfortunately it seems to be an enhancement that's of little interest to the SVG Working Group.

The Perspective/Envelope LPE provides a couple of non-affine transformations, though there's still no accessibility gain to be had as text must be converted to paths first. In short, they allow you to distort a path (or group of paths) to follow the shape of a bounding quadrilateral. Changing the positions of the four corners of the bounding shape causes the path to be distorted accordingly.

The effect has a simple UI: the spinboxes at the bottom display the coordinates of the four handles and can largely be ignored as it's easier to just move the handles on the canvas using the Node tool (F2). The two "mirror" checkboxes are self-explanatory – though there's no point checking both at once as that will limit you to affine scaling that could be done with Inkscape's usual transformation tools. The Overflow Perspective checkbox allows the algorithm that calculates perspective transformations to go beyond its usual bounds, allowing for some outlandish distortions that probably have little use in the real world.

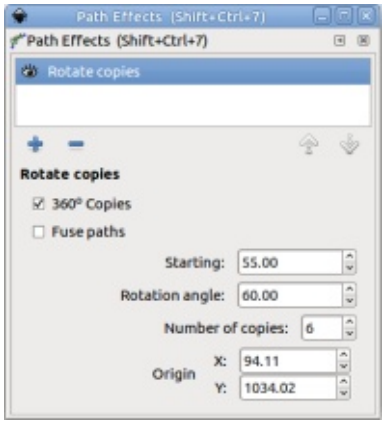


The "Type" popup lets you choose whether to use Envelope or Perspective deformation. You can freely switch between them to see which gives the best result for your particular image but, broadly speaking, Envelope is a simple distortion of your shape to fit the outline, whereas Perspective allows more complex distortions to provide a sense of depth. You can see the difference in this example – note the more constant thickness of the letters from left to right on the Envelope distortion (top) compared with the Perspective version.

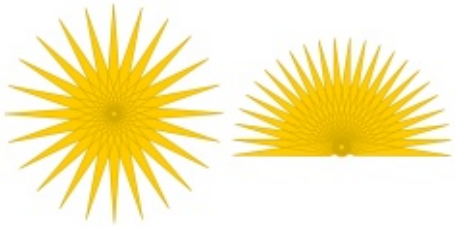
For even more wild distortions, the "Lattice Deformation 2" LPE lets you distort your path (or group of paths) by adjusting the position of 25 nodes in a 5×5 grid. The UI for this is self explanatory – but don't be tempted to expand the "Show Points" section unless you've got a very tall monitor! It presents a long list of fields

holding the coordinates for all 25 nodes and, unfortunately, the LPE dialog doesn't resize back down again when you close the list, leaving you wrestling with a dialog that's too big for many screens. Here's an example of the kind of transformation that is trivial to perform with this effect:

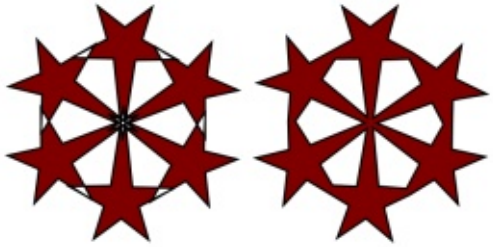
The next couple of effects allow you to create via an LPE the sort of symmetry tricks that would have previously required manually setting up some mirrored or rotated clones – as described way back in part 29 of this series. Starting with the Mirror Symmetry effect, once again we have a simple UI that can produce some rather complex results.



This effect simply creates multiple copies of the input path, rotated around a common center. The "Number of copies" field defines the number of copies that are created (the original is lost in the process), whilst the "Starting" and "Rotation angle" fields are used to define the angle at which the first copy is placed, and the angle between each copy, respectively. The rotation angle is ignored if the "360° Copies" box is checked – in which case the copies are spaced evenly over a whole circle. In this image, you can see two stylised sun images – the former has the box checked to create a whole sun, whilst the latter uses a smaller rotation angle and different starting angle to produce a sunrise or sunset shape.

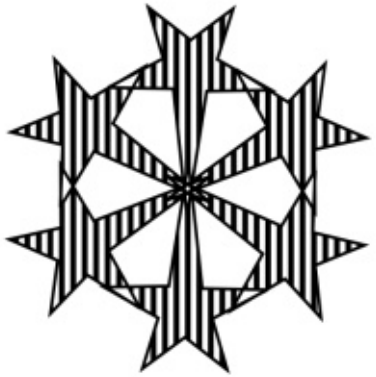


The rotational center for the effect can be manually set using the corresponding fields or, more practically, by dragging the handle that appears in Node editing mode. There is also a second handle for adjusting the starting angle – though oddly there's no third one for setting the rotation angle. The "Fuse paths" checkbox determines whether overlapping paths in the output are kept as separate sub-paths, or fused together into a composite shape. The difference can be seen in the following example, where the shapes in the left hand image are kept separate, whilst those on the right are fused:

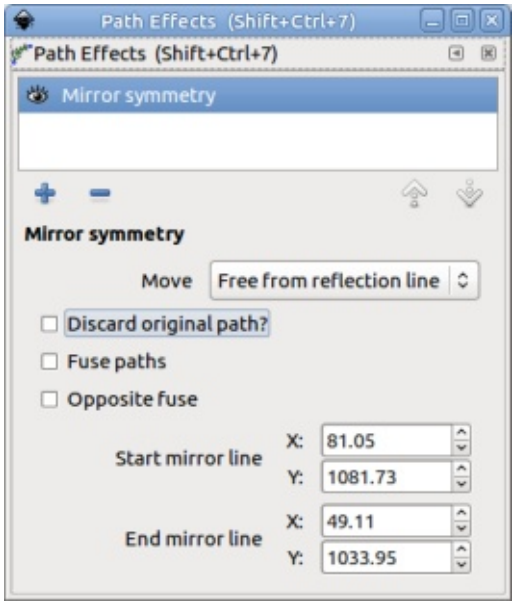


If you do fuse the shapes, don't be surprised to see the output somewhat truncated. Try moving the rotation start using the on-canvas handle to gradually expose more of your original shape. The mesmerising effect as you dynamically do this is similar to a kaleidoscope – indeed the original name for this effect was Kaleidoscope!

It's worth noting that, whether you fuse the shapes or not, the result of the LPE is (as always) a single path. The effect of this is clearer when a fill pattern is used on the original path – the entire output path takes on the fill pattern as one, it is not rotated with the individual shapes. If you want the fill to rotate with each copy you'll need to use real duplicates or clones rather than an LPE.



The second of the symmetry effects, Mirror Symmetry, does a similar trick to Rotate Copies, but using reflective symmetry rather than rotational. The UI also has a few similarities:



Whereas rotation takes place around a single point, reflection requires a line; the pop-up offers several different options, including reflection about the horizontal or vertical center line of the page, but by far the most useful option is (at least in my installation) labelled "Free from reflection line" - where I think "free from" is a typo for "free form". In this mode, a mirror line appears on the page which can be moved using on-canvas handles via the Node tool. The two end handles are used to scale and rotate the line, the center one to move it without changing its orientation. If you choose the "X from middle knot" option in the pop-u,p the line becomes vertical and can be dragged via the center handle to set its distance from the original path; there's also a corresponding "Y" option for a horizontal mirror line.

The "Discard original path?" option is pretty self-descriptive – it removes the original path leaving only the reflection. If the original and its reflection overlap, the "Fuse paths" checkbox behaves the same as the corresponding one in the Rotate Copies effect: by definition this implies that the original object straddles the mirror line; the "Opposite fuse" option lets you switch which side of the line is kept and which is discarded when the fuse takes place. There's no option to keep both sides, which seems like something of an oversight.

Although the Mirror Symmetry effect allows only a single mirror line to be used, you can, of course, add multiple copies of the LPE, each with different settings, in order to mirror an object in multiple directions – such as in both the X and Y directions to create four shapes from the original one.

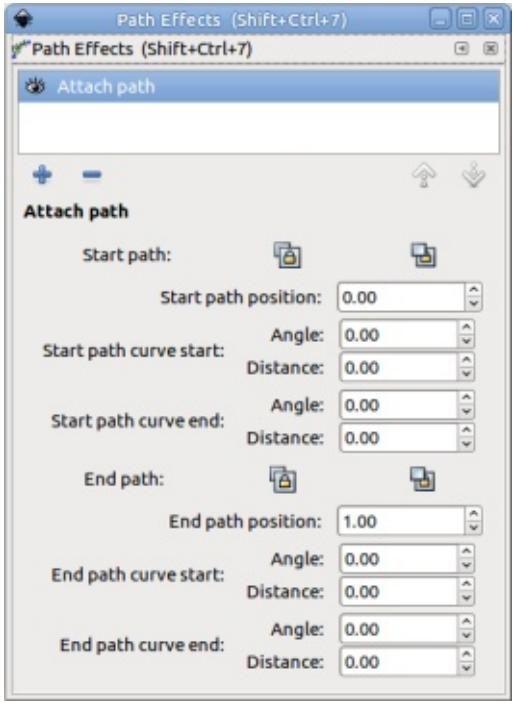
We're now down to the last three LPEs that have been introduced with 0.92, and, quite frankly, they don't warrant their own article, so I'll finish with a whistle-stop tour of "Bounding Box", "Ellipse by 5 Points" and "Attach Path".

What can I say about the Bounding Box LPE, other than "I couldn't get it to work"? It's supposed to let you add the effect to a sacrificial path, then link another path to it – at which point the sacrificial path is replaced by a rectangle that surrounds the linked path. That much seems to work – at least for simple examples – but the new rectangle is also meant to follow any transformations that you perform on the linked path, and in my testing this simply did not happen. The release notes suggest that this effect could be used to add a background color to a PNG export, but I think I'll stick to drawing a rectangle of my own and putting it at the bottom of the z-order.

The Ellipse By 5 Points effect has no UI whatsoever. All it does is replace your input path with an ellipse that passes through the first five points of your path. It has no effect if your path has less than five points – or they're arranged in a way that can't form an ellipse – and it simply ignores any beyond the first five. I'm sure it will be useful to someone, but if you just want an ellipse in your drawing and don't have a mathematical requirement for it to pass through five specific points, it's more efficient to simply draw one with the Ellipse tool and then size and rotate it as necessary.

The final LPE, Attach Path, lets you join one path to another by creating an additional line segment from the start of the path with the LPE to an arbitrary point on a linked path. You can also do the same from the end of the path, allowing a single path to potentially be attached to two others, should you wish. The position of the join on the linked path is set via the relevant position spinbox; a value of 0.00 will attach to the start of the linked path, whilst 1.00 will attach to the end of the first line segment, 2.00 to the

end of the second, and so on. You can use fractional values as well, so that 2.50 would connect your line to a point halfway along the third segment of the linked path. These positions can also be set via on-canvas handles with the Node tool active.



The new line segments can be curved at either end via on-canvas handles or the relevant Angle and Distance fields in the UI. To make the lines straight, set the distances to zero (it would be nice if a future release of Inkscape added shortcut buttons to do this for you).

This effect provides a workaround to another missing feature from SVG – the ability to have a path with a branch in it. By attaching paths together with this LPE, the connections will be maintained even if the original or linked paths are transformed or edited, making this a potentially useful effect for diagrams such as family trees.

Mark uses Inkscape to create three webcomics, 'The Greys', 'Monsters, Inked' and 'Elvie', which can all be found at http://www.peppertop.com/

Full Circle Weekly News

NEW

Join our new hosts Wayne and Joe as they present 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

AUDIO MP3

Flowblade Review

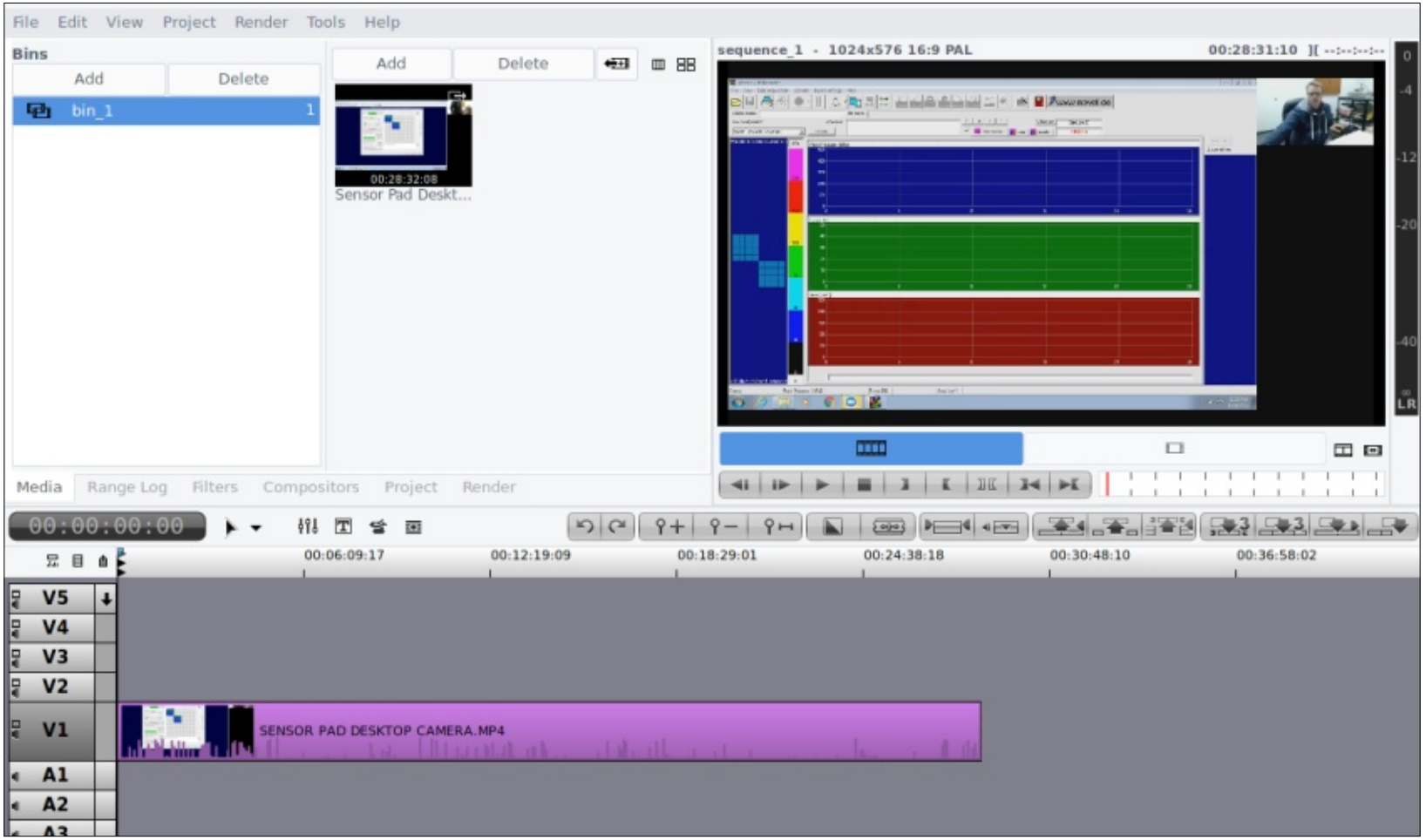
Video editors are a developing area for Linux. Over the course of the last two years, Kdenlive made tremendous gains in stability and viability. I like Openshot due to its cross OS-compatibility, but it is solid for only small segments of video. Kdenlive just recently offered a Windows Beta download. This month, I will do a quick review of Flowblade.

I am currently in the process of documenting several job tasks. It is easier to record, than to write. The United States federal government requires on-site documentation. This is a common requirement when a study requires random inspections. Plus, this methodology allows for cross-training at some level. I am currently proctoring a class. Thus I will be documenting many of the labs via video. So time to delve deeper into Flowblade.

Flowblade is a fairly new video editor that is available for Ubuntu 16.04 and Fedora 26. It is a multi-track, non-linear editor that you can install via command-line or software center. It works in a similar fashion as Kdenlive or Openshot. You can import multiple video and audio files to create a video. I like to think of video creation as 3 simple steps: import, edit, and export.

I click on the program, wait for a few seconds, and the GUI populates. There are numerous tabs and various effects reviewing the program menus. I am unsure how it compares to Kdenlive or Openshot. However the layout is quite similar.

The bottom half of the screen holds the imported files timeline. The editing tools are embedded above the timeline. They are accessible by the mouse cursor. If

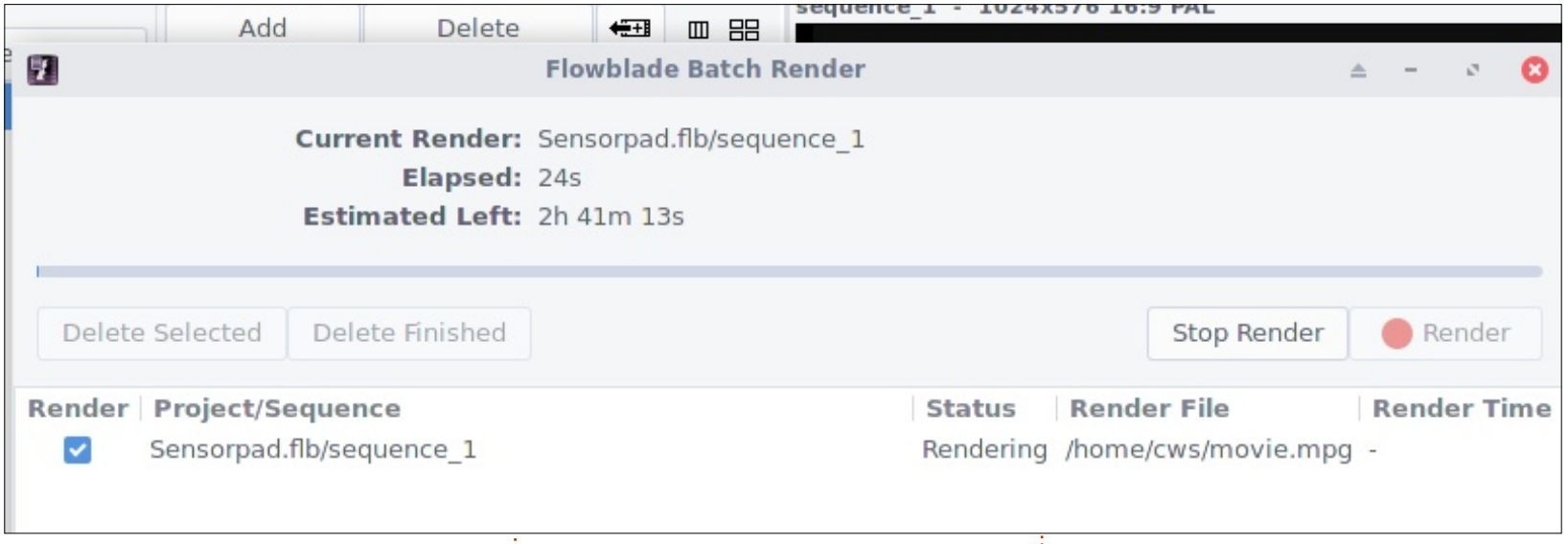


you hover above them, a simple description will populate.

The upper half is split in half. The left side is dedicated to file management, and the right side is the image viewer. Additionally, several of the menus' options are enabled at the top.

I imported a media file titled Sensor Pad Calibration. I utilized 2 separate cameras to document a sensor calibration. I used these cameras to record my desktop workflow and the non-desktop methods. I simply need to cut out the dead air from the desktop file and insert the non-desktop files. I would need to trim the files a bit, and then export it. The final editing process took me a couple of hours. Yet it documents the calibration process well enough. You can save your work as a .flb file. However, I am caught off-guard by the length of rendering it took to develop my final product. My final file was 60 minutes long, but it took 2 hours to finish rendering. Plus the file is saved under the home folder with a generic move.mpg name.

Overall, I am impressed with Flowblade. It is as stable as



Kdenlive, but offers some of the tools from Openshot. This project is well documented at https://jliljebl.github.io/flowblade/webhelp/help.html. I strongly suggest using this video editor. It beats our Openshot hands down. I am unsure if it beats our Kdenlive. I am a minimalist video editor, I am not any power user. My HP laptop is woefully under-powered for video editing, and Flowblade utilized the hardware well. I believe that Openshot works well with dedicated video editing machines.

Next month, I will review encryption, research volunteers, and office politics.

EVERYDAY UBUNTU

Written by Richard Adams

NEW

Everyday Adventures

My name is Richard, but you can call me Flash. It's an old high school nickname, replete with irony now, as I am a recent amputee and not quite as fleet of (one) foot as I once was. I have dabbled in *nix off and on for about twenty-five years now (counting a period of employment in a Unix house in 1992), but there have always previously been issues or shortcomings that kept me from really going to GNU/Linux full-time. I still use Windows quite often, Android and Chrome OS occasionally, and Mac OS pretty frequently (BURN the heretic, I hear the chant go up.) I did Windows support for quite a few years, so I know it well and do like it. That said, there are surely many good reasons to like GNU/Linux, and I do.

What I propose to cover in this series are my adventures and/or struggles with accomplishing everyday tasks in Ubuntu (or Kubuntu), typically in the KDE or Unity environments. I aim to help people discover how to solve problems, find work-arounds, and optimize their use of Linux as everyday users. I'm not aiming to become or create GNU/Linux gurus (although I'm surely not opposed), and I invite feedback on easier/better ways to do things. Any such submissions in response to articles or content will be considered the property of Full Circle Magazine for publication purposes, without remuneration, unless the writer/commenter specifies otherwise. That said, commentary and feedback are heartily encouraged and appreciated, at acer11kubuntu@gmail.com.

First, I'll describe my setups on my two main GNU/Linux machines, for context. One is an Acer Cloudbook, a thin, light machine with a modest 32 GB internal memory storage capacity, two GB functional RAM memory, a 128 GB microSD drive, and a 128 GB Ultrafit USB stick. This machine is pleasantly low-profile and light, was very inexpensive (just over $100 refurbished), and has sufficient space with the additional USB and microSD cards to actually be pretty useful. Battery life is all day, about 12-15 hours, The machine has Kubuntu 17.04 (Zesty Zapus) running, along with LibreOffice, Calligra Office, and a LOT of games I got from GOG.com, which I recommend highly. The speed for everyday tasks is quite adequate, and the keyboard and screen are fine for everyday work.

My other system, and the one I use most, is a Fujitsu Lifebook T4215 convertible, a form factor I really like. It converts from laptop to tablet by swiveling and folding down the screen, and is, of course, pen-enabled. It is a nice size with a good, typable keyboard, a clear and reasonably bright screen (although only 1024x768), a maxed out four GB RAM, a two TB upgraded hard drive, and a battery life of around two and a half hours, which I find acceptable for my usage patterns. It also has both LibreOffice and Calligra Office, but is still pending installation of a lot of my games, it is set up to dual-boot with Windows 10 (KILL the INFIDEL, I know.) The desktop is Unity, and Ubuntu is version 16.10 (YakketyYak).

I was pleasantly surprised that pen capability, and screen orientation switching from portrait to landscape or vice versa, actually worked 'out of the box' – a major plus. I needed to install only Tegaki to enable handwriting recognition. While this is an older, lower-powered machine, it runs Windows 10 just fine and Ubuntu like a champ. One of Linux's nicer advantages: it typically does run well on older hardware, just as claimed. This machine cost me about $70 on eBay, and I spent about $110 more on upgrades (including a replacement pen, as it had none initially). So, with an under $200 investment, I have a nicely functioning machine with pen capability, plenty of storage space, and good speed for everyday tasks. Dual-boot setup was simple and straightforward, and worked without a hitch. The only caveat to the installation process, really, is install Windows first, then Linux. The rest is a breeze.

Both machines are set up to print to an HP B210 Photosmart printer via CUPS, and both are set up to use portable external hard drives, add-on USB powered speakers, and to transfer data to and from an Android smartphone. I also have USB joysticks hooked up for game playing.

One thing that I really enjoy on these machines is retro gaming , and I have gotten a good many terrific games from GOG.com, as previously mentioned. For those who still appreciate golden oldies like "Grim Fandango", "Doom", "Baldur's Gate", and "Duke Nukem 3D", GOG.com is really a great resource. They focus mostly on Windows, with a fair number of Mac OS titles, but they also have a good selection of games that run on Linux.

Of course, a lot of older games can also be run effectively via DOSBox, which I found to be much easier to use than expected, and which I routinely use to run old favorites like Wing Commander I and II, System Shock, and Ultima Underworld. Expect a later column with a focus on retro gaming.

As an old (certified) hand on Microsoft Office, I am keenly interested in Office suites on GNU/Linux, so expect some material on LibreOffice and Calligra Office as time goes on. I also used to work for a graphics software company, the late, lamented Micrografx, so I'll be looking at Inkscape, the GIMP, and other graphics software.

Any suggestions or requests for topics to address in future installments are welcomed, again at acer11kubuntu@gmail.com.

Please understand, as I live in a rural area with low quality internet access (mostly via cell phone tethering), responses may not be as timely as we would all like, but there's little to be done about that for the time being. Input is still much appreciated.

Next month: Getting started with key software installations.

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.

Manjaro XFCE On A Lenovo M57

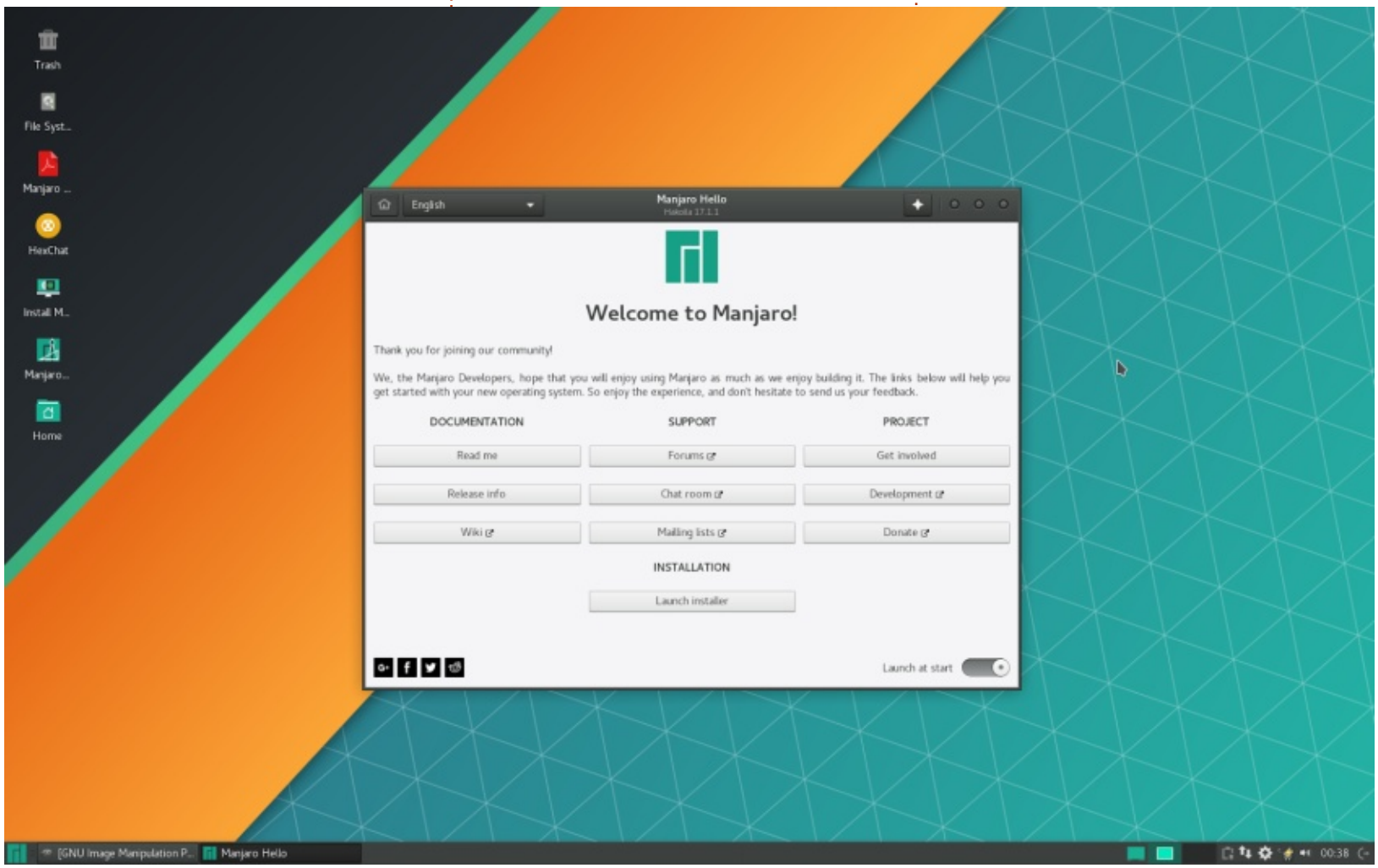
Written by Charles McColm

My first introduction to Linux was when one of my younger brothers showed me the selection of BBS and communications software in Slackware 96. Linux looked fascinating, but I confess to not being completely convinced it was as useful as he suggested. A few months later, I discovered FreeBSD. I really liked FreeBSD and ended up buying a copy of the FreeBSD handbook in addition to a Walnut Creek FreeBSD subscription. I ran FreeBSD for a number of years until, in a Stalman-esque fashion, I ran into an issue with a driver for an HP Deskjet 710 printer.

After a bit of reading, I discovered that Red Hat 7.1 supported the printer. At the time, Linux was a really hot commodity and boxed editions of Linux distributions could be found on the shelves of just about every major computer retailer. I picked up Red Hat 7.1 and have never really stopped using Linux since.

Over the years, I've tried many different Linux distributions on a lot of different hardware. One of the things I've learned is that some Linux distributions tend to work better on particular hardware than others. I've also learned that I love "distro-hopping" because I get to better see the breadth of software available. Although Full Circle Magazine is primarily an *buntu-based magazine, knowing what else is out there, and how it compares, can only be a good thing.

It's 2018, the Lenovo Thinkcentre M57 (MT-M: 6072-C1U) was first announced September 2007, making it over 10 years old. At the time this article is being written, Intel is on its 8th



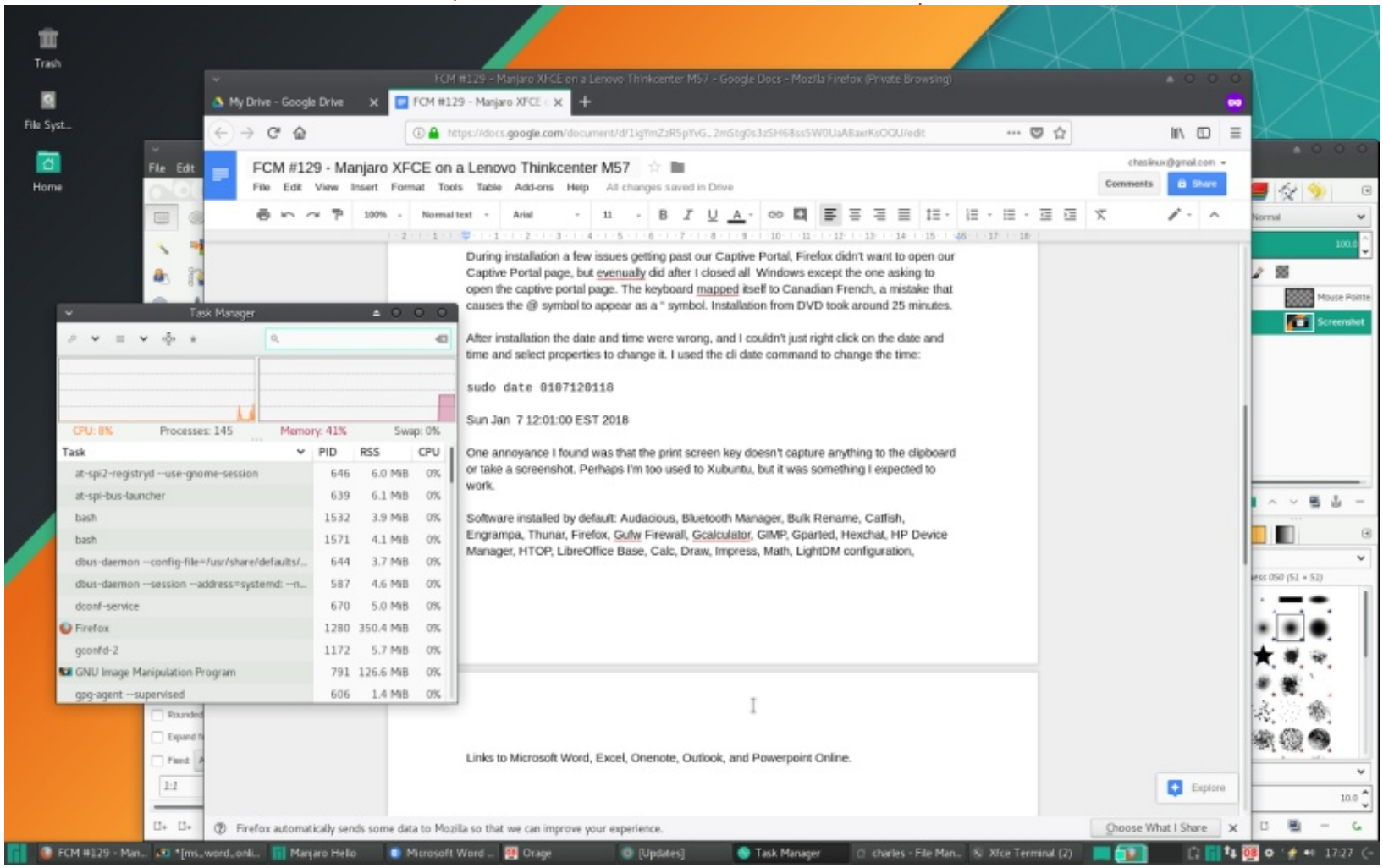
generation of Core i-Series processors. The Intel Core 2 Duo E4400 CPU in the M57 is vastly underpowered compared to an i3-8100 CPU. Core 2 Duos remain the most popular donation to our computer refurbishing project despite the fact that they're a lot less useful now that technologies like VR are becoming more mainstream.

At our refurbishing project, we've standardized on Xubuntu, specifically Xubuntu 16.04 LTS. Every year or two we check out other distributions to see if there's something that makes them a better fit with our project. Manjaro's rolling release status is attractive because software tends to be more cutting-edge – without sacrificing stability. Having used FreeBSD for years, I liked the idea of ports/source, but I recognize that not everyone wants to compile software all the time.

I burned a Manjaro 17.1 XFCE ISO image to a DVD using K3B. Initially I tried to write Manjaro to a USB key using MultiWriter, a tool for deploying Linux distributions to USB key, but Manjaro hung on the GRUB screen. Rather than retrying with another tool, I just burned Manjaro at the slowest DVD burn speed (10x on my burner) for optimal compatibility.

If you've installed Ubuntu before, the Manjaro installation doesn't feel a whole lot different, but I had an issue (perhaps because I selected Canadian English) with keyboard mapping; our keyboard ended up mapped as Canadian French. This proved to be slightly problematic when we needed to type the @ symbol and got the " symbol. Like most distributions, the Manjaro XFCE distribution has keyboard selection software. I changed the keyboard to English US and it solved the keyboard character issues.

Another issue I ran into was Firefox didn't want to get past our "captive portal." At our project, we use a captive portal to block machines on our subnet from accessing the Internet without signing in to a web page first - the idea is to prevent malware from getting out to the Internet. Quite a few repairs brought in to our



project are Windows systems that have been infected with some kind of malicious software. The captive portal allows us to connect to some of our local read-only shares to fix things before the systems are cleared to access the Internet. To get Manjaro to show the captive portal page, we had to close a tab that normally opens to the page and click a button to open a new tab showing the captive portal page.

Installation from DVD took around 25 minutes. Considering the age of the computer, and the fact that we were installing from DVD media, it seemed like a pretty short time. Manjaro installed with the latest packages, everything was completely up to date.

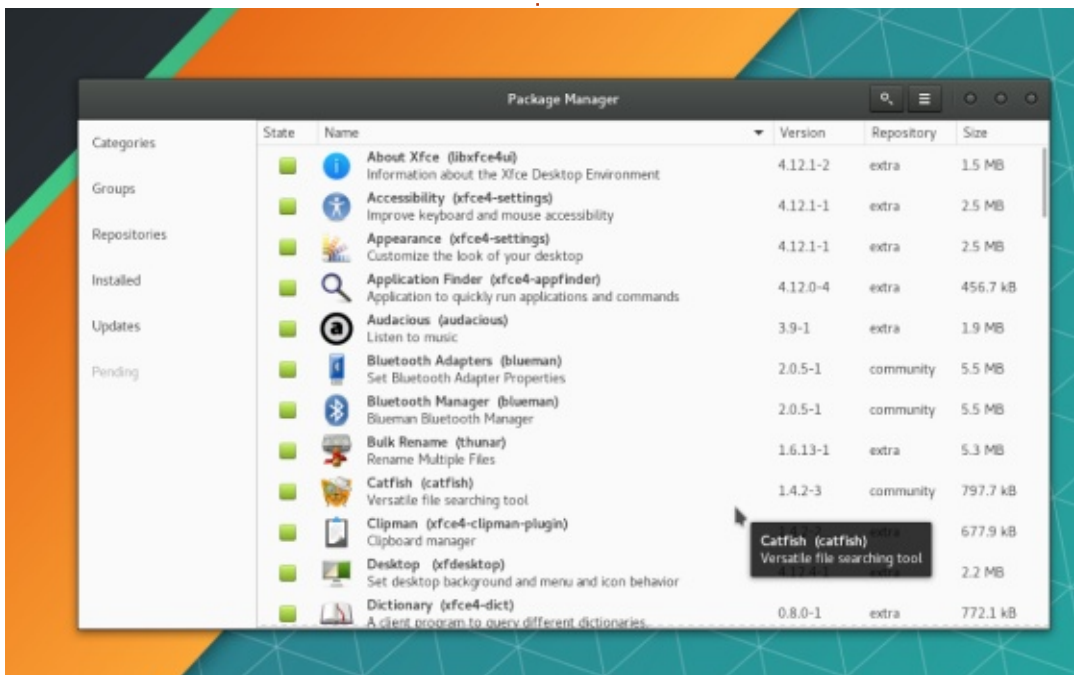
After installation, the date and time were wrong, and I couldn't just right-click on the date and time and select properties to change it. I used the cli date command to change the time:

```
sudo date 0107120118
```

```
Sun Jan 7 12:01:00 EST 2018
```

The date still seemed to display incorrectly as 17:01 in the XFCE taskbar. I discovered that the problem was the XFCE version in Manjaro only seems to display the time to UTC. Another thing I found annoying is that Manjaro XFCE doesn't have a screen capture tool mapped to the Print Screen key; even MS Windows at least puts the screen into a buffer. Manjaro does install xfce4-screenshooter, it's just not mapped to the Print Screen key. Perhaps I'm too used to Xubuntu, but it was something I expected to work. Like the version of XFCE on Ubuntu, there's a configuration tool on the whisker menu that can be used to configure most options. Mapping the xfce4-screenshooter tool to the Print Screen key was a matter of clicking: Whisker menu > All Settings > Keyboard > Application Shortcuts > Add

Xubuntu tends to lean on the "lesser is better" side when it comes to applications that get installed with the default Xubuntu installation. Manjaro installs more software "out-of-the-box." Software I found in the menu included: Audacious (music playback), Bluetooth Manager, Bulk Rename, Catfish (text search), Engrampa (file archiving), Thunar (file management), Firefox, Gufw Firewall, Gcalculator, GIMP, Gparted, Hexchat, HP Device Manager (for configuring HP printers), HTOP, LibreOffice Base, Calc, Draw, Impress, Math, LightDM configuration, mail reader (Thunderbird), CUPS web interfaces for print management, Manjaro Hello (for accessing documentation), Manjaro notifier settings, Manjaro settings manager, Manjaro user guide, menu editor, mousepad, notes, orage calendar, panel, pidgin, power settings, network settings, pulseaudio volume adjuster, qpdfview, qt v42l tester, a screenshot tool (xfce4-screenshooter), preferred applications, sensor view (CPU set as default), Steam, Task Manager, Thunderbird, Viewnoir, VLC, XFBurn and Window Manager tweaks.



Links to Microsoft Word, Excel, Onenote, Outlook, and Powerpoint Online were also in the XFCE

menu. I found it pretty bizarre to see anything Microsoft in a Linux distribution. The links take you to a Microsoft Live login page. If you use the Microsoft Office suite this might be a nice touch.

Manjaro XFCE was pretty stable on 4GB of RAM. Youtube video playback was surprisingly good in windowed mode, but full-screen was choppy - a better video card (than the default onboard) might fix this. Our Thinkcenter M57 was connected to a Samsung 22" LCD display running at 1680x1050. There was no extra video card other than the integrated graphics card on the M57's motherboard.

I couldn't find a simple device driver installer like Ubuntu has. I tried typing "device" into the whisker menu, but no luck. I eventually found the additional drivers program in the All Settings menu.

Whisker menu > All Settings > Manjaro Settings Manager > Hardware Configuration

It's a small thing, but I've gotten used to finding items by searching the whisker menu. Searching for a term like "drivers" should intuitively bring up the area of the settings menu to check for proprietary/additional drivers. That said, it only ½ works on stock Ubuntu 17.10 which brings up the Software & Updates program but doesn't switch to the Additional Drivers tab.

One of the best parts of any Debian-based distribution is the apt package management system. Manjaro's pacman compares favourably with a lot of shorter commands. Pacman tends to use switches rather than words for arguments. While less memorable, once you know the switches, it's a lot simpler/quicker. A good source of Pacman tips is the Manjaro wiki: https://wiki.manjaro.org/index.php?title=Pacman_Tips

One aspect of pacman I really liked was that I was able to run a pacman update while browsing the graphical "Pamac" software installer. I tried to simultaneously install software with Pamac and it sensibly provided a message at the bottom indicating that it was waiting for another program (the cli pacman) to finish installing software.

Pamac's looks simple, but I'm not sure some of the design decisions are completely intuitive for someone looking at it for the first time. When loaded, Pamac displays software currently installed, it's not until you click on the Categories tab that you see other software. And there's no obvious way to install software until you've marked a program for actual installation - then a bar appears at the bottom where you can "Apply" the software checked for installation. Once you know this is how Pamac works, it's easy, but I wouldn't say it's intuitive for someone learning how to install software for the first time.

Manjaro 17.1 isn't noticeably faster than Xubuntu, and for me it lacks some of the polish of Xubuntu, but it does include a more end-user friendly set of software out-of-box, and has a more up-to-date and better selection of software overall. There are lots of positives about Manjaro: it performs well, pacman is awesome, the selection of software is great, software out-of-the-box is very end-user friendly, and it works well on 11 year-old hardware. But some things like the date and keyboard issue make it a bit annoying. Would I recommend it as a first introduction to Linux -- perhaps, certainly power users will appreciate all it has to offer, but some of the small issues might make me think twice about installing it as a first Linux distribution for someone new to Linux.

Charles is the author of Instant XBMC, and the project manager of a not-for-profit computer reuse project. When not building PCs, removing malware, and encouraging people to use GNU/Linux, Charles works on reinventing his blog at http://www.charlesmccolm.com/.

MY OPINION

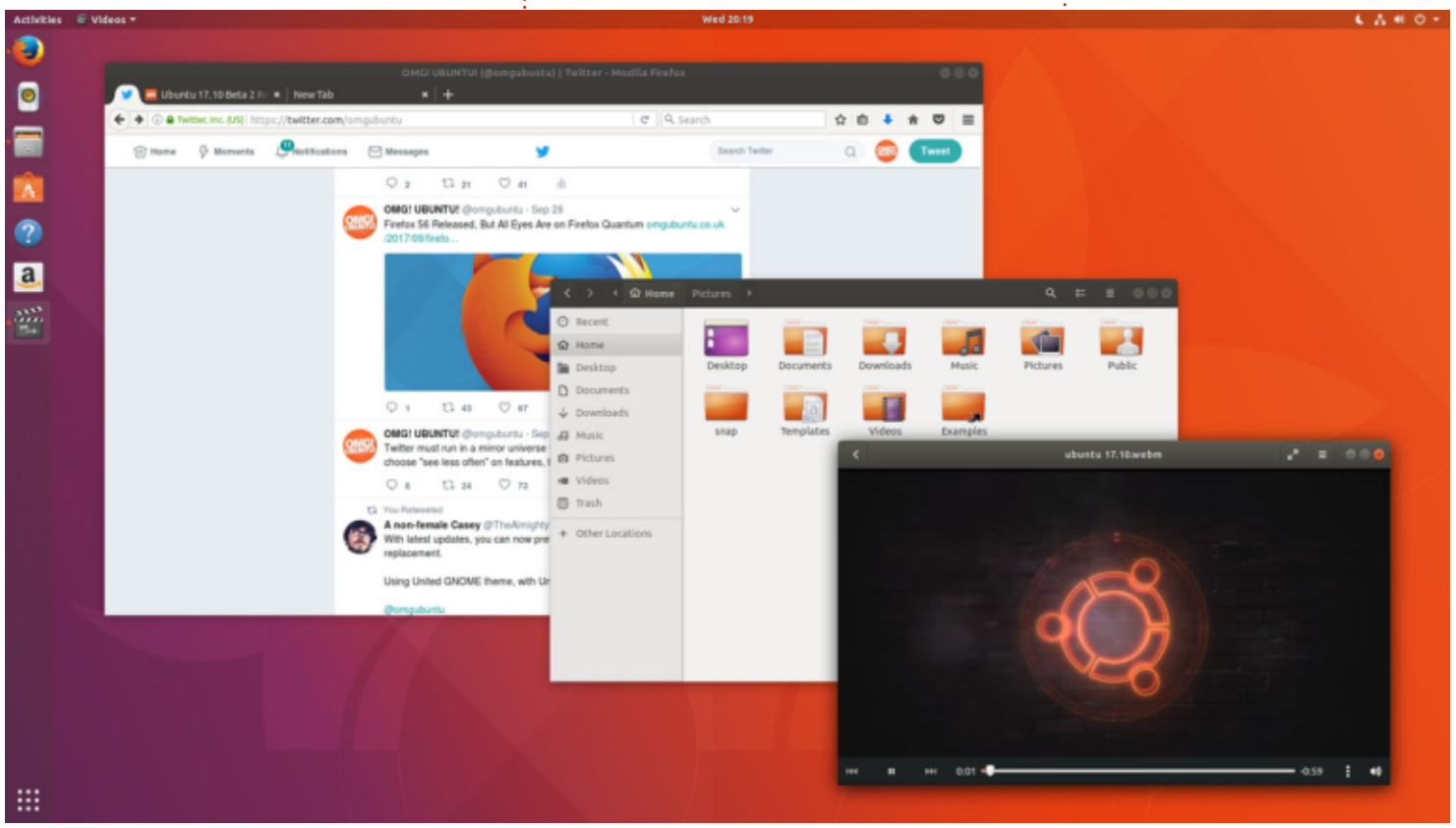
Written by Derek Wallace

People will say that GNU/Linux can't do everything Windows can do; then, instead of listing those things (IE graphics manipulations, playing games, etc), they will list Skyrim, and Photoshop. That is what **PROGRAMS** you can run in Windows – not what you can **DO** on Windows that you can't DO on Linux. You can play games on Windows; you can play games on Linux. You can do graphics manipulation on Windows; you can do graphics manipulation on Linux. You can play music on Windows; you can play music on Linux.

Saying Windows can do things that GNU/Linux can't, and then quoting specific apps, is a poor argument. Every platform or OS has OS-specific programs, programs available for only that OS. I can't run some of the Star Wars apps (available on my wife's iPad) on my Android tablet because they are not available for Android. So I guess, using that logic, I could say "iOS can do things that Windows can't. Windows can't play Star Wars.....(fill in the blank) for IOS".

When I had an iBook running OS X, it had different, OS X only, APPS, that did the same things as Windows only APPS. Some better, some worse. But they did the same thing. Don't say GNU/Linux can't run Photoshop; say GNU/Linux can't do Graphics manipulation. That's a true argument. But GNU/Linux CAN do graphics manipulation, etc, etc. Just not the same apps – which is true with every platform/OS.

You can either choose an Operating System for the quality of the Operating System, or you can choose it for what programs are available, or you can try to find a balance between the two. For me, GNU/Linux, and specifically Ubuntu, gives me the best performance of any Operating System, and it's stable and secure. I chose it for its quality, not for what programs were available. Yet there are an incredible set of programs available. It's just that some programs are not the same ones available in Windows.



Linux - Still Number 3 (Maybe 4)

Written by Mac Duffield

I have been using computers since the early 1960's, and, in about 1985, became a full time IT support person and business software developer. Microsoft was establishing a major presence in the small business computer market. While Apple was successful in desktop publishing and graphics work, Microsoft was, for practical purposes, the "only game in town" for smaller business software. So all my work was centred around that platform.

By the early 2000's, I wanted to cut back on my work; I was getting tired of playing the Microsoft game. Many things about MS Windows were annoying me, and it was time to consider other operating systems for my own use. I had worked with Apple in a newspaper setting, and had a good deal of respect for it, but it felt too restrictive as well as being expensive.

GNU/Linux appealed to me. Nobody I knew was using it but I bought some textbooks and installed it on one of my computers. In 2006, Ubuntu was beginning to show signs that it might someday become a contender for Apple and Microsoft Windows. I installed Ubuntu and forced myself to use it for as much as I could, while still maintaining MS applications for important and time critical work.

There were some challenges:

• The drafting software I used was available only for MS (and is still is not available for GNU/Linux).

• The photo editing software that I depended upon was not available for GNU/Linux.

• The GNU/Linux substitute for MS Office lacked polish, and, though it could (sort of) permit one to collaborate in a business setting with people who used MS Word, there were problems.

• There was no GNU/Linux replacement for the Accounting software that my wife used. She was not about to make large changes in her routine to learn a new system, and I was not going to re-write the software I had developed for MS Windows because I was going into retirement and those days were behind me.

Fortunately there was a choice of virtualization software that allowed us to continue to use the MS software that we depended upon, and we installed GNU/Linux on our two main desktops as well as on the test computer I used for client work. We forced ourselves to use GNU/Linux substitutes for the MS apps that were not intensively used. Internet Browsers, file managers, email clients, text editors, calendars, and other applications similar to what what we had been using and that were less critical, became our learning tools while we fully converted to GNU/Linux.

The more I worked with GNU/Linux, the better I liked it, and even my wife, who really does not enjoy using computers, began to see the benefits of Open Source. As years passed, GNU/Linux apps, from our point of view, improved, and some of them were outstanding; as good as or better than the products of Apple and Microsoft. We found that we could adopt GNU/Linux applications to replace the MS apps being used on VirtualBox.

Today, every computer we use has GNU/Linux installed and though I have played with perhaps a dozen distros, everything we use is based upon Ubuntu with a KDE desktop. There are still virtual machines installed on two desktop machines, and my test system, but neither of us has used a virtual MS application for about four years now, with the exception of needing to update Garmin GPS units. We have replaced everything else that does not support GNU/Linux, and the Garmin devices too will soon will be replaced by GNU/Linux devices.

Some friends to whom I mentioned GNU/Linux have asked me to install GNU/Linux on their hardware, and most of the installations have been a success. However, three went back to their

previous operating systems:

One was suffering increasing dementia and the challenge of learning became too great.

The second lives in a rural area with no high-speed Internet, and had to rely on a telephone modem for Internet communication for support. In addition, all the neighbours had the MS system so there was a problem providing immediate support.

The third really did not have any interest in learning about GNU/Linux. He just thought he would try it. His wife uses MS Windows in her work, and she is his immediate go-to for support so he returned to a MS operating system.

A fourth continues to use MS OS in his business, but GNU/ Linux at home. He did not want to have to re-train staff on GNU/Linux, although he said that his initial fear of a lengthy training process was unfounded, and he will change to GNU/Linux the next time a MS Windows upgrade is required.

There is great inertia in the software OS business and with good reason. Most people really don't give a damn about what operating system they use, as long as it is easy to use and forgiving. One can talk about all the benefits of GNU/Linux and the Open Source Software movement, but eyes glaze over quickly. It is only when a major problem with an operating system occurs that people are willing to consider something else.

I have found it takes quite a lot of hand-holding with the average computer user to encourage them to adopt GNU/Linux. Once they are comfortable with it, they would never go back, but I have spent untold hours teaching – not how to use the GNU/Linux OS, but teaching users GNU/Linux applications, more than anything else. That there are now many more cross-platform applications available has greatly reduced the challenge of changing Operating Systems.

If there is one thing that I can point to as being a hindrance to wider adoption of GNU/Linux, it lies in the expression that GNU/Linux devotees love to use. "GNU/Linux gives you freedom". There is, in some ways, too much freedom. There are too many distros – even in just the "mainstream" systems. There is a huge choice of applications and deciding which to use is daunting.

Most people do not like to make decisions if they have many choices. Where I have offered people choices, they almost always say "Just install what you are using." Of all the systems I have installed, only two are NOT using a KDE desktop. There are excellent desktop alternatives, with fewer customization options, that make configuration simpler. Even the more basic interfaces would serve most users well, but it is easier, and more comfortable, for them to just use what I use.

It will take time, but I still live in hope that, someday soon, GNU/Linux will reach the tipping point where it will become more talked about and will have a critical mass whereby there are enough users to support newcomers everywhere, and provide the hands-on support necessary to provide the comfort that most look for in a computer operating system.

Full Circle Weekly News

NEW

Join our new hosts Wayne and Joe as they present 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

AUDIO MP3

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://url.fullcirclemagazine.org/75d471

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

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

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

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

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

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

Translations

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

REVIEWS

Games/Applications

When reviewing games/applications please state clearly:

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

Hardware

When reviewing hardware please state clearly:

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

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

Online Apps And Services

In my last article 'Online Apps and Services' article, I covered Zoom Conferencing software for GNU/Linux. This one will be along the same lines, but we are going to look at Slack for GNU/Linux.

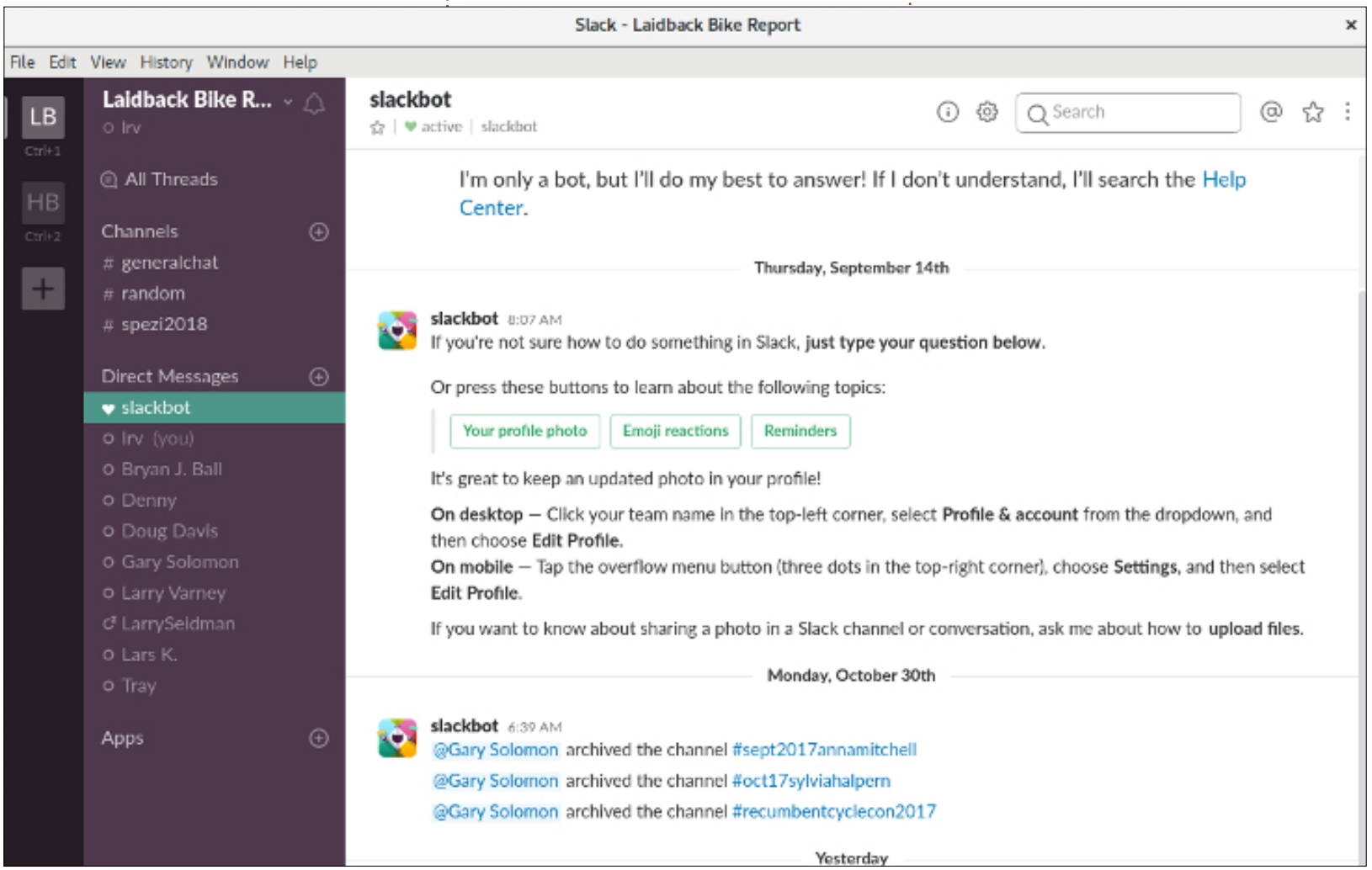
I was introduced to Slack about six months ago when I got involved with some guys who have a passion for riding laid back bikes and trikes. The group is called laidbackbikereport. I joined the team because we do a live broadcast on Youtube once a month, and we were looking for a way to keep each other informed on what was going on. Well, one of the guys came up with the idea of using Slack. We have been using it ever since, and we all like it.

Since then, I set up a second group for the church I attend. And again, it is a way for everyone in that group to keep up with what is going on. If you are like me, my emails have gotten out of hand, and I find I get a lot of one-line emails that should be text messages, but then again text messages can get out of hand as well. Slack was the answer to both of these problems.

Slack is a place for every conversation, and everything can be saved and organized.

https://slack.com is a link to find out all about Slack.

I find Slack's layout very easy to understand. Everything is done in channels. A channel is a place where a group of slack users can go to discuss a topic or project, and when it is completed, it gets archived. These archives can be searched if the subject comes up again. In fact, all of Slack's



conversations can be searched. Here's a screenshot of Slack to show you how channels are on the left of the screen, with a list of users below.

On the far left, you will see my two groups (LB, and HB). Next, to that, you will see the list of Channels, and below that is the list of users. To the right is where everything happens. This is the LB group; the HB group is completely separate.

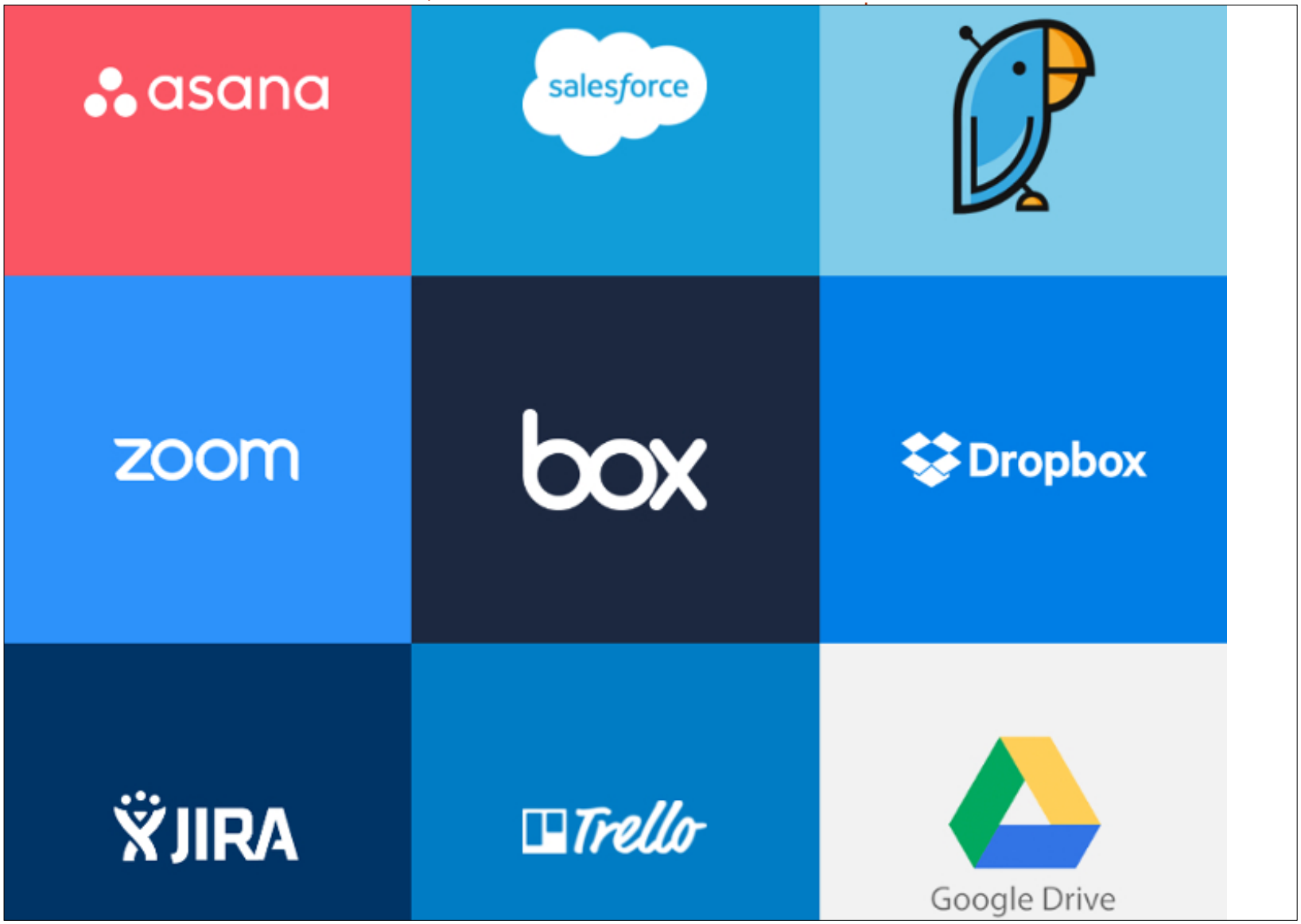
The user can join and unjoin a channel, and users can send messages to one another, and everything stays organized. Besides all this, you can use other online apps right in Slack. You can share documents, pictures, URL links, and much more. You can even have Zoom conferences right in Slack. I didn't cover this in my other article because this is not part of the free Zoom. You need to be using a paid version. Oh, I forgot to say, Slack comes with a free version as well.

The only thing I found that gave me a problem was trying to get everyone on board. Not so much in the bike group, but in the church group. All the ladies took to it, but the guys were slow. Is it just me who sees this, but I find the ladies seem to adapt to the Internet and tech stuff, and are much more comfortable than the men are at doing this.

Here is a shot of some of the apps that can be embedded in Slack:

Just like Zoom, Slack requires you to sign up to use the free version, but that's not so bad because it is a great product and I foresee myself using it for a long time. Again, if you are interested, here is the link to the download.

Linux Download Link: https://slack.com/downloads/linux.



LETTERS

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

Lenovo Update

If someone with a Lenovo laptop has this problem (see FCM#128 news), one possible, and very direct, fix would be to boot directly from an ISO image on the hard drive. All that is needed is a working GRUB.

https://www.howtogeek.com/196933/how-to-boot-linux-iso-images-directly-from-your-hard-drive/

Also, my own piece in FCM#121: "Install Ubuntu with no external media".

The tactic would be to boot from another version, e.g. Ubuntu 16.04 LTS or Linux mint, then install it over 17.10. You would just need to be careful to specify the "toram" parameter in the linux kernel stanza for GRUB.

Hope it can help someone out,

Alan Ward

Emmabuntus Update

Many thanks for your Emmabuntus DE review in FCM#128, and sorry that you had to face problems with the Wifi connection on your old computer.

As a matter of fact, another person reported a similar issue around the same time, with 3 different Wifi USB sticks, and we were able to fix the problem by using the workaround described here : https://askubuntu.com/questions/902992/ubuntu-gnome-17-04-wi-fi-not-working-mac-address-keeps-changing/905019#905019

We plan obviously to include this fix in the next release of Emmabuntus DE.

Thanks again for your support and our best wishes for this new year.

Yves for the Emmabuntus Collective

Full Circle Weekly News

Join our new hosts Wayne and Joe as they present 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

AUDIO MP3

Join us on:

- goo.gl/FRTMl
- facebook.com/fullcirclemagazine
- twitter.com/#!/fullcirclemag
- linkedin.com/company/full-circle-magazine
- ubuntuforums.org/forumdisplay.php?f=270

Full Circle Needs You!

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

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

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

Q&A

Compiled by Gord Campbell

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

Q I want user andy to own all files which end in "-img". What command should I use?

A (Thanks to ***steeldriver*** in the Ubuntu Forums) Use this command:

```
chown andy -- *-img
```

Q When I try to run VLC, nothing happens. If I start it from the command line, I see numerous errors, starting with:

```
VLC media player 2.2.5.1
Umbrella (revision
2.2.5.1~ppa)
[0000000001a648e8] core audio
output error: no suitable
audio output module
[0000000001a651e8] core
interface error: no suitable
interface module...
```

A (Thanks to ***mc4man*** in the Ubuntu Forums) You have mixed vlc packages from 2 ppa's. If you wish to get vlc from a ppa, then just use one. So start with:

```
sudo apt-get purge vlc-*
```

Now if you want the 2.2.8 version, then add back the york ppa to your sources, run

```
sudo apt-get update
sudo apt-get install vlc
```

If you want the 2.2.5 version from my ppa then, after the purge, just re-install vlc.

Q How can I play, or convert (to mp4, ogg, avi ...) .dav files? (dav are video files from a security camera).

A (Thanks to ***nerunja*** in the Ubuntu Forums) "Media Player" in Mint Linux 18.3 Slyvia is able to play the .dav files fine by default. The media player shortcut shows the command as "xplayer %U"

Q I used to be able to see all my mounted and unmounted internal drives in the left hand pane in Nautilus. Now, after installing 17.10, they do not appear. How can I get all internal drives back on the left hand pane in Nautilus, including the properties dialog?

A (Thanks again to ***mc4man*** in the Ubuntu Forums) You can't, this is the direction Nautilus devs have decided to go. If so inclined, you could use a different file manager, such as Nemo.

Q Can you daisy-chain monitors using Displayport?

A (Thanks to ***sawfish2*** in the Ubuntu Forums) Just wanted to share a small success, because I had trouble finding information on using daisy-chained displayport for dual monitors with Linux. Initially I had some trouble to get it working, but, after installing Ubuntu 17.10, and using the correct setting of the monitors (enable DP1.2 in the monitor connected to the motherboard and disabling DP1.2 in the other), it runs to my full satisfaction.

Tips and Techniques

Artful and Lenovo

By now, you have probably read about a problem with Ubuntu 17.10 and certain, mostly Lenovo, computers. As I write this, the problem seems to be solved, but it was real, and it was serious.

If you use the current release (as opposed to Long Term Support) of any of the Ubuntu family of distros, your chance of running into this kind of problem goes up dramatically. The LTS versions are tested much more before release, plus you are installing four times as many new releases.

One way to reduce the number of problems is to wait a couple of months before upgrading to the new release. I will upgrade to 17.10, but as of New Year's Day, I'm still running 17.04. I'm letting the early adopters do post-release testing.

Mind you, I don't always follow this advice. Almost a year ago, I had an empty partition on my spiffy new SSD, and a beta release of Xubuntu 17.04 was available, so I gave it a try. It worked so well that I never considered falling back to an older version. I just hope 17.10 provides a similar experience.

PATRONS

Monthly Patrons

2016:
Bill Berninghausen
Jack McMahon
Linda P
Remke Schuurmans
Norman Phillips
Tom Rausner
Charles Battersby
Tom Bell
Oscar Rivera
Alex Crabtree
Ray Spain
Richard Underwood
Charles Anderson
Ricardo Coalla
Chris Giltnane
William von Hagen
Mark Shuttleworth
Juan Ortiz
Joe Gulizia
Kevin Raulins
Doug Bruce
Pekka Niemi
Rob Fitzgerald
Brian M Murray
Roy Milner
Brian Bogdan
Scott Mack
Dennis Mack
John Helmers
JT
Elizabeth K. Joseph
Vincent Jobard
Chris Giltnane
Joao Cantinho Lopes
John Andrews

2017:
Matt Hopper
Jay Pee
Brian Kelly
J.J. van Kampen

2018:
John Helmers
Kevin O'Brien
Kevin Raulins

Single Donations

2017:
Linda Prinsen
Shashank Sharma
Glenn Heaton
Frank Dinger
Randy E. Brinson
Kevin Dwyer
Douglas Brown
Daniel Truchon
John Helmers
Ronald Eike
Dennis Shimer
Iain Mckeand
Jaideep Tibrewala
Kevin Dwyer

2018:
Yvo Geens
Graig Pearen
Carlo Puglisi
James A Carnrite
John Holman
P G Schmitt
Robert Cannon
Thomas A Lawell
Ronald Le Blanc
Luis Eduardo Herman

The current site was created thanks to **Lucas Westermann** (Mr. Command & Conquer) who took on the task of completely rebuilding the site, and scripts, from scratch, in his own time.

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

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

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

Donate with PayPal
https://paypal.me/ronnietucker

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

HOW TO CONTRIBUTE

FULL CIRCLE NEEDS YOU!

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

We are always looking for new articles to include in Full Circle. For help and advice please see the **Official Full Circle Style Guide**: http://url.fullcirclemagazine.org/75d471

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

FCM#130

Deadline:
Sunday 04th Feb. 2018.
Release:
Friday 23rd Feb. 2018.

Full Circle Team

Editor - Ronnie Tucker
ronnie@fullcirclemagazine.org

Webmaster - Lucas Westermann
admin@fullcirclemagazine.org

Editing & Proofreading
Mike Kennedy, Gord Campbell, Robert Orsino, Josh Hertel, Bert Jerred, Jim Dyer and Emily Gonyer

Our thanks go to Canonical, the many translation teams around the world and **Thorsten Wilms** for the FCM logo.

Getting Full Circle Magazine:

For the Full Circle Weekly News:

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

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

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

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

Issuu - You can read Full Circle online via Issuu: http://issuu.com/fullcirclemagazine. Please share and rate FCM as it helps to spread the word about FCM and Ubuntu.

Magzster - You can also read Full Circle online via Magzster: http://www.magzter.com/publishers/Full-Circle. Please share and rate FCM as it helps to spread the word about FCM and Ubuntu Linux.