



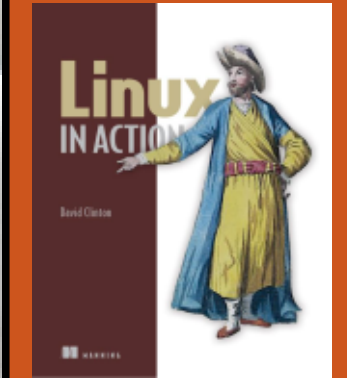
# Full Circle

THE INDEPENDENT MAGAZINE FOR THE UBUNTU LINUX COMMUNITY

ISSUE #137 - September 2018



BOOK REVIEW



INTEL® © '86 E5200  
PENTIUM® DUAL-CORE  
SLAY7 COSTA RICA  
2.50GHZ/2M/800/86  
3833A595 ©

## REVAMPING AN OLD PC A CHANGE IS AS GOOD AS A REST

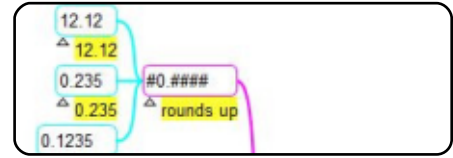
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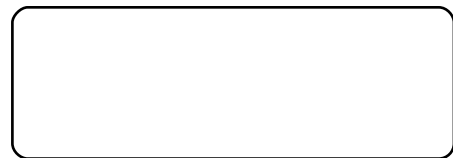
## HowTo



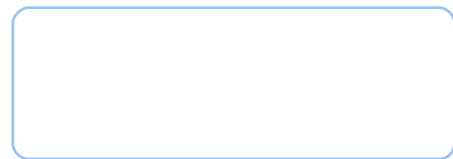
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## Graphics

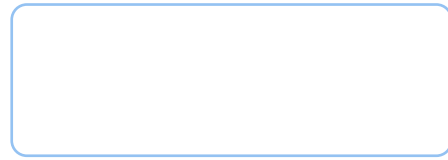


# Full Circle

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```
#An alias to make the ls
command more detailed
alias ls = "ls -la --
color=always --classify"
```

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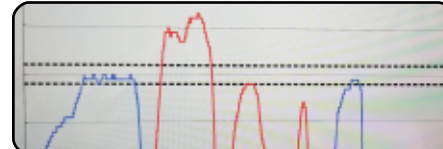
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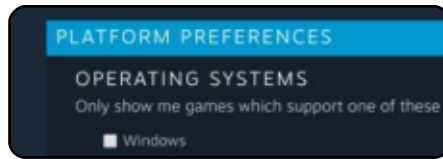
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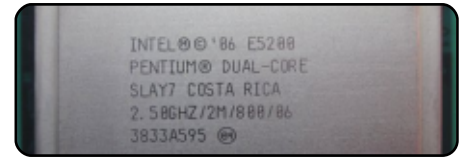
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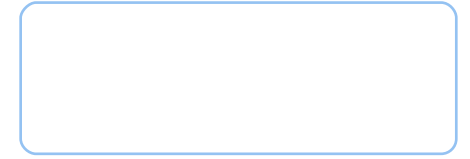
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## WELCOME TO THE LATEST ISSUE OF FULL CIRCLE.

I think we're back to a full house this month. We have Python, Freeplane, Inkscape, and while there's no Great Cow Basic for you this month, we do have an interesting piece from Erik about DNSCrypt. Interesting reading if you value your privacy.

Speaking of Erik (one of the Official FCM Telegram group moderators), he's starting a Linux themed comic/cartoon this month called **The Daily Waddle**. I hope you enjoy it. There's only room for one this month, but I'm hoping to include several in each issue.

We have two reviews this month. One is a review of the book '**Linux In Action**' and the other is my review of the **XP-Pen Deco 2** graphics tablet. I'll be honest, I hadn't heard of the company until I bought the tablet on Amazon, but they're a good company who are definitely up for supporting Linux and getting their tablet fully working in Linux.

I do apologise for still not having the survey results ready for you, but I've been a bit busy with work and whatnot. I hope to have them compiled for you soon.

Anyway, I won't keep you any longer. Enjoy the issue!

**All the best, and keep in touch!**

Ronnie

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## FULL CIRCLE 2018 SURVEY

It's that time of the year again where we ask what you think of FCM, Ubuntu, and Linux.

Some questions are a requirement, some you can skip over if not applicable.

Your answers will help shape Full Circle, so please use your constructive criticism. If you don't tell us what you think, or what we're doing wrong, then we won't know.

**Survey URL:**  
<http://bit.ly/fcm2018>

## DELL PRECISION 5530 MOBILE WORKSTATION NOW AVAILABLE WITH UBUNTU

Some of the Dell Precision mobile workstations launched earlier this year are now available with a choice of Windows or Ubuntu Linux. Dell has announced that the Precision 5530 mobile workstation is the latest of its mobile workstation-class computers to be available as a Linux-powered Developer Edition computer. It's currently on sale for \$1185 and up.

The starting price gets you a 3.9 pound notebook with a 15.6 inch display, an Intel Core i3-8300H quad-core processor, 8GB of RAM, a 500GB hard drive, a 56 Whr battery, and a 1080p display.

But the notebook can be configured with up to an Intel Core i9-8950HK hexa-core processor, up to NVIDIA Quadro P2000 graphics, up to 32GB of RAM, up to a 4K touchscreen display, up to a 97 Wh battery, and up to two hard drives or SSDs.

One nice touch is that unlike some computers aimed at developers, you do save about \$100 by choosing Ubuntu instead of Windows as your operating system on the Precision 5530.

That said, the Precision 5530 is basically the business/enterprise version of the consumer-oriented Dell XPS 15 which has a significantly lower starting price of \$1000 but it lacks some of the configuration options available for the Precision models.

The laptop measures 14.1" x 9.3" x 0.7" and features HDMI 2.0, USB 3.1Gen 1, Thunderbolt 3, headset, and SD card ports.

The Dell Precision 5530 Developer Edition joins the Precision 3530, 7530, and 7730 in Dell's current lineup of mobile workstations with optional support for Ubuntu Linux.

Dell ships the computers with Ubuntu 16.04 LTS, but you should be able to upgrade to Ubuntu 18.04

LTS if you want the latest features. Both versions of the operating system are officially supported by Dell and Canonical.

Source:

<https://liliputing.com/2018/09/dell-precision-5530-mobile-workstation-now-available-with-ubuntu.html>

## LIBRELEC 9.0 ALPHA LINUX DISTRO GETS KODI 18 'LEIA' BETA 1 UPDATE

Let's be honest -- in a world with easy legal streaming thanks to inexpensive services like Netflix and Hulu, Kodi media center is probably used mostly by pirates. It is not likely the average consumer is storing video and music files locally to play on their TV -- it simply isn't worth the hassle these days. With that said, not all Kodi users are thieves -- I am sure some are legally buying media for playback on the media software... maybe...

Regardless of why you use Kodi



(I'm not judging), the best way to experience it is through a Linux distribution that focuses on it. LibreELEC, for instance, is a lightweight distro that exists only to run the Kodi media center. It is quite popular with Raspberry Pi owners, but it runs on other hardware too, including x86\_64 and WeTek boxes. Kodi 18 "Leia" recently achieved Beta 1 status, and as a result, LibreELEC 9.0 Alpha has been updated with it. In other words, the most bleeding edge LibreELEC now runs the most bleeding edge Kodi.

The team says, "Alpha releases are important to the team because we cannot test every scenario and sometimes sidestep issues without realising. The project needs a body of regular testers to go find the problems we miss. Testing will be particularly important for LibreELEC 9.0 as Kodi v18 includes substantial internal changes to VideoPlayer and introduces new retro-gaming capabilities."

Source:

<https://betanews.com/2018/09/02/libreelec-alpha-linux-kodi-leia-beta/>

## LINUX CREATOR ON INTEL CPU BUGS: "IT'S UNFAIR. WE HAVE TO FIX SOMEONE ELSE'S PROBLEMS"

Almost all modern CPUs use Speculative Execution as a means to improve performance and efficiency. Your computer's processor performs tons of calculations in advance and chooses the correct one according to a program's flow. It makes sense as an idle CPU is undoubtedly a wasted resource.

When it comes to Linux creator Linus Torvalds, he likes the way speculative execution improves performance. What irritates him is the fact that not all incorrect calculations are completely discarded — this is what turned out to be the root cause of bugs like Spectre and Meltdown.

Linus expressed these views during The Linux Foundation's Open Source Summit in Vancouver. The fact that the developers of operating systems and kernel developers had to manage the fixes is something that irks him a lot.

Interestingly, these bugs resulted in a new kind of collaboration between Linux and Windows developers. "We now have this wonderful back channel. We're talking to each other and we're fixing bugs for each other," Kroah-Hartman added.

Overall, Torvalds accepts that things have changed a bit and Intel has gotten much better. When the latest Foreshadow bug was spotted, Intel notified the Linux kernel devs on time.

Source:

<https://fossbytes.com/linus-torvalds-on-intel-cpu-bug-unfair/>

## ZEROPHONE IS "COMING SOON": A RASPBERRY PI-BASED, LINUX-POWERED PHONE FOR JUST \$50

With data security and privacy becoming an alarming issue while dealing with the data-hungry companies, ZeroPhone seems like a sigh of relief.

ZeroPhone is a Raspberry Pi-based, open-source, Linux-

powered handset that has been launched as a project on Crowd Supply. The device promises no carrier locks, no pre-loaded apps and good riddance from harvesting of data without users' knowledge.

The phone will be based on Raspberry Pi Zero, the ESP8266 Wi-Fi module, and an Arduino microcontroller. What makes ZeroPhone stand apart from the other conventionally available smartphones is the presence of a mini-HDMI port and a full-size USB 2.0 port. Apart from these, the phone would also feature Wi-Fi connectivity option and a 3.5mm headphone jack.

The technically astute crowd will be able to use the phone to its maximum potential. Technically proficient users can attach additional components such as IR receivers, Pi's 5 and eight-megapixel camera on the phone's electronic board. The phone will also allow users to SSH into the device for remote access that would enable them to run different Linux-based software on the phone.

Additionally, users can also attach a keyboard and mouse with

the USB 2.0 port. However, Pi Zero's single-core processor isn't meant for heavy graphics usage.

The ZeroPhone project has been labeled as "coming soon" and is expected to cost around \$50.

Source:

<https://fossbytes.com/zerophone-raspberry-pi-open-source-linux-crowdsupply/>

## NETBSD 7.2 BRANCH UPDATE RELEASE BRINGS USB 3.0 AND RASPBERRY PI 3 SUPPORT

The NetBSD Project has released NetBSD 7.2, which is the second feature update of the NetBSD 7 release branch. This release brings a subset of fixes that were deemed important to security or stability reasons, and several new features and overall enhancements.

NetBSD is a free and highly portable Unix-like operating system, and is entirely Open Source. It is available for many

platforms such as 64-bit x86 servers, to various embedded ARM and MIPS based devices (SoCs).

The NetBSD-7 branch had its first major release (NetBSD 7.0) in September 2015, so this update to NetBSD 7.2 is an overall maintenance release for the 7 branch – however, new users should most likely use the latest release NetBSD 8.0.

The complete source and binaries for NetBSD 7.2 are available on a ton of different websites, and a list of those sites which provide FTP, AnonCVS, SUP, and various other servicing methods can be found on [NetBSD.org/mirrors/](http://NetBSD.org/mirrors/) – if you want to install NetBSD via ISO or USB disk image, you should download NetBSD via torrent application, you can find the NetBSD image torrents in the image section of NetBSD's website.

Source:

<https://appuals.com/netbsd-7-2-branch-update-release-brings-usb-3-0-and-raspberry-pi-3-support/>

## UBUNTU 18.10 COSMIC CUTTLEFISH WON'T SHIP WITH ANDROID INTEGRATION

Earlier this year in May, we reported regarding Canonical's interest in shipping Ubuntu 18.10 Cosmic Cuttlefish with inbuilt Android integration. In the latest development, as it turns out, it's not going to happen.

As per a report by OMGUbuntu, the Ubuntu developers aren't satisfied with the current state of GSconnect GNOME Shell extension. For those who don't know, the developers were planning to bring an out-of-the-box Android integration with the help of this extension only.

With this extension, just like KDE Connect, the users can get Android notifications on their Ubuntu desktop, browse files, share data, get device information, and do more.

But don't get disheartened. Soon, GSconnect extension will be available to install from Ubuntu Software. The developer of the

extension is also working on a new version, written from the scratch.

Once the new version is ready, we can expect it to again grab eyeballs of Ubuntu desktop team for the later Ubuntu 19.04 release.

Ubuntu 18.10 Cosmic Cuttlefish is expected to arrive towards the end of the October month. We'll keep you posted with all the latest updates as they become available.

Source:

<https://fossbytes.com/ubuntu-18-10-cosmic-cuttlefish-no-android-integration/>

## LIBREM 5 LINUX SMARTPHONE'S RELEASE DATE PUSHED BACK TO APRIL 2019

In the open source hallways, Purism's Librem 5 Linux smartphone has created a lot of buzz over the course of past one year. To keep the open source enthusiasts informed about the ongoing progress, the development team keeps posting

regular updates on its blog.

In a recent development, the team has confirmed that Librem 5 isn't going to be released in January 2019, which was the original release date.

The reason behind his three-month delay is a silicon bug on the smartphone's SoC that has been causing an extreme amount of battery drain. The drain is so severe that a fully charged Librem 5 is draining entirely in an hour.

To fix the issue, the team is working with NXP, the maker of the i.MX8 SoC being used by Purism.

The post also mentions a couple of challenges they've faced during the process of making a non-Android smartphone. A significant challenge in the process is that most SoC vendors provide the modem and other components integrated with the SoC; the firmware and software to run these communication components are also mostly proprietary. So finding an open source alternative is a significant hurdle.

Source:

<https://fossbytes.com/librem-5-linux-smartphones-release-pushed-april-2019/>

## LINUX KERNEL 4.20 TO DROP NSA-DEVELOPED SPECK ALGORITHM

Linux kernel is one of the most common kernels found underlying operating systems. Its latest released version is 4.18.5 and its most recent preview is of the 4.19-rc2 version. With those two versions shining under the spotlight, news has emerged that in the kernel's version 4.20, the developers are going to remove the Speck security algorithm designed by NSA which was employed in the kernel previously. This comes after news of the International Organization for Standardization rejecting the algorithm at a meeting

The reason Speck is considered to be an untrustworthy security algorithm is because it failed to answer particular design and procedure related questions before the ISO. In addition to this, the NSA has a long-standing

history of developing controllable or penetrable algorithms for security that NSA can exploit or use in its own interest to receive information at the back end. Speck is expected to be removed from the Linux kernel v4.20. It is expected to remain in previous versions including v4.17, v4.18, and v4.19.

Google has long worked with XChaCha algorithm, using it as the default encryption on its lower-end devices. Google also used ChaCha for its chrome browser in the case of the local device not supporting AES crypto accelerators. This security algorithm is considered to be quicker, more secure, and far better reputed than Speck. This makes one wonder why Google didn't employ the XChaCha algorithms in all of its products to begin with. Google is now expected to use and adapt the XChaCha algorithm into its own development called HPolyC.

Source:

<https://appuals.com/linux-kernel-4-20-to-drop-nsa-developed-speck-algorithm/>

## TAILS ANONYMOUS OS GETS ITS BIGGEST UPDATE YET WITH VERA-CRYPT INTEGRATION, MORE

In development for the past couple of months, the Tails 3.9 release has hit the streets this week with some long-anticipated features, including VeraCrypt/TrueCrypt integration, which lets users unlock VeraCrypt or TrueCrypt encrypted disk drives directly from the GNOME desktop environment.

VeraCrypt integration landed with the recently released GNOME 3.30 desktop environment and was implemented in both the Nautilus (Files) and Disks utilities, and will be available outside of Tails 3.9 in the upcoming Debian GNU/Linux 10 "Buster" and Ubuntu 18.10 (Cosmic Cuttlefish) operating systems.

Unlock VeraCrypt encrypted volumes in Tails 3.9 is easy as accessing the new Unlock VeraCrypt Volumes dialog from Applications > System Tools. The features appear to support encrypted drives that have been

encrypted with either TrueCrypt or VeraCrypt open-source disk encryption utilities.

Another exciting feature of the Tails 3.9 release is the ability for the Linux-based operating system to automatically install software updates when starting up the PC. Users will be able to choose to install future updates of an app, and manage automatically updated apps from Applications > System Tools > Additional Software.

Source:

<https://news.softpedia.com/news/tails-anonymous-os-gets-its-biggest-update-yet-with-veracrypt-integration-more-522543.shtml>

## NEW AI CAPABILITY HELPS EMPOWER DEVSECOPS TEAMS

Security teams are constantly caught between the need to keep pace with security testing and the ability to allow developer teams to operate in a rapid DevOps environment.

To address this, application

security provider WhiteHat Security is adding artificial intelligence to its dynamic application security testing solution WhiteHat Sentinel Dynamic.

Drawing on a data lake of 95 million identified vulnerabilities Sentinel Dynamic will deliver more accurate results faster. This will help developers to create secure web applications at the fast pace demanded by modern business.

Using AI software will decrease threat vector identification times and improve the efficiency of false positive identification. Consequently enterprises can increase the speed at which developers are made aware of potential application security vulnerabilities and deliver real-time security risk assessments.

You can find out more about WhiteHat Sentinel Dynamic on the company's website.

Source:

<https://betanews.com/2018/09/06/ai-devsecops-teams/>

## TOR PROJECT LAUNCHES OFFICIAL MOBILE BROWSER FOR ANDROID

Tor Project, the group behind the anonymous Tor browser, has released an alpha version of its own anonymous browser for Android.

Following this release, Orfox, the longstanding Tor Project-approved browsing app for Android, said it will be sunset by 2019. To run both apps, users will need to also download the Tor Project proxy app, Orbot.

Tor Project's anonymous browser uses a system of decentralized relays that bounce a user's data to anonymize internet activity. This makes it almost impossible for ads, location trackers and even government surveillance to follow your tracks across the web. While Tor is often associated with illegal drug or weapons sales on the dark web, the browser is also a haven for political dissidents, journalists and just browsers who prefer to maintain their anonymity.

This release comes several days after Tor Project rolled out Tor

Browser 8.0, based on Firefox's 2017 Quantum browser structure. The major updates include a new user landing and on-boarding page, increased language support and improved bridging methods to enable users to access the browser in countries where Tor is banned — like Turkey.

While the service is regarded as the current gold standard of anonymous browsing, there are still vulnerabilities. Federal investigators can gain access and identify users through security flaws in the browser itself. It remains to be seen how secure Firefox Quantum will be for Tor 8.0, but users would be wise to follow Tor's guidelines on further protecting their anonymity, just in case.

Source:

<https://techcrunch.com/2018/09/07/tor-project-launches-official-mobile-browser-for-android/?guccounter=1>



## NITRUX 1.0.15 BRINGS KERNEL 4.18.5 AND PLASMA 5.13.4 FOR MOST SECURE AND INTEGRATED PERFORMANCE YET

Nitrox 1.0.15 has just hit the shelves following a release statement last week. Nitrox is an Ubuntu-based desktop Linux distribution operating system. Its most prominent feature is its Nomad desktop which integrates the K Desktop Environment (KDE)'s plasma desktop with enhanced and specialized graphics and display design.

When this distribution was initially released, it came with several design and security flaws that pushed it down from its potential. Since then, its developers have worked hard to rewire the distribution to resolve the bugs, vulnerabilities, and inconveniences that come out of its fundamental design. With the release of the Nitrox version 1.0.15, the developers boast a far more stable and secure operating system for users.

The official release statement

for the product reads: "We are pleased to announce the launch of Nitrox 1.0.15. This new version brings together the latest software updates, bug fixes, performance improvements and ready-to-use hardware support. Nitrox 1.0.15 presents an updated hardware stack, among other things."

The new version includes the Linux kernel version 4.18.5. It also throws in a far improved graphics stack for enhanced graphics hardware and client synchronization performance. The best news is that these enhancements aren't too limited in terms of the device you can use. The latest Nitrox release adds support for the newer computers in the market as well as newer hardware that can be used with the computer.

Source: <https://appuals.com/nitrox-1-0-15-brings-kernel-4-18-5-and-plasma-5-13-4-for-most-secure-and-integrated-performance-yet/>

## DUST OFF THAT OLD PENTIUM, LINUX FANS: IT'S ELIVE

What were you doing in 2010? The Space Shuttles were still flying, Toy Story 3 ruled the cinemas, and Apple released its very first iPad. Oh, and Linux distro Elive locked down its last stable build. Until now.

Designed to run on minimal hardware, Elive is very much a passion project of its leader, Samuel F Baggen. Based on Debian, the first version took a bow in 2005. The second stable version made an appearance in 2010 and it has been a long eight years for the third stable version to become available.

Elive has an impressively low bar to entry, with hardware requirements for the distribution coming in at 256 MB RAM and a 500 MHz CPU, meaning that some very elderly silicon is theoretically going to be able to enjoy the highly polished Enlightenment desktop.

"Theoretically" because after The Register took Elive 3.0.0 out for a spin on a relatively low-

powered laptop, we'd frankly balk at running it on anything much slower than a 533MHz Core 2 with at least 512 MB RAM. However, the Enlightenment UI is undeniably an attractive desktop, particularly if a macOS-alike dock is your thing, and runs at an impressive lick even on hardware that lacks graphics acceleration.

At its core, Elive is based on the Debian 8 distribution (aka Jessie), using the 3.16 kernel and version 0.17.6 of the Enlightenment X11 Window Manager. It comes replete with a full set of applications, including the ubiquitous LibreOffice and Gimp, along with a variety of productivity and entertainment tools, some of which are Elive's own.

Source: [https://www.theregister.co.uk/2018/09/11/elive\\_v3/](https://www.theregister.co.uk/2018/09/11/elive_v3/)

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**Survey URL:**  
<http://bit.ly/fcm2018>

## GNU NANO 3.0 CLAIMS TO READ FILES 70% BETTER WITH IMPROVED ASCII TEXT HANDLING

The Linux landscape is undergoing changes and developments constantly. Fresh distro releases, updates, kernels and apps keep appearing continuously. This week also Linux released several updates including a significant new version of the open source text editor known as Nano 3.0, code named as "Water Flowing Underground". GNU Nano is one of the most famous and efficient text editors that are terminal based. It is extremely convenient for beginners who need to deal with command line editing. Experience Nano users are able to gain even more advantages from it. The latest version GNU Nano 3.0 comes with various major improvements. According to GNU Nano news, the new version of GNU Nano 3.0 has a better file reading speed than before and gives 70% better reading speed. Not only this, the text editor also has a better ASCII text handling speed which is almost double than before.

This new update from Linux is expected to be available soon to all the major distros of Linux.

Source:

<https://appuals.com/gnu-nano-3-0-claims-to-read-files-70-better-with-improved-ascii-text-handling/>

## CANONICAL OUTS NEW LINUX KERNEL LIVE PATCH FOR UBUNTU 18.04 LTS AND 16.04 LTS

Coming hot on the heels of the latest Linux kernel security update released by Canonical on Tuesday, the new Linux kernel live patch security update fixes a total of five security vulnerabilities, which are documented as CVE-2018-11506, CVE-2018-11412, CVE-2018-13406, CVE-2018-13405, and CVE-2018-12233.

These include a stack-based buffer overflow (CVE-2018-11506) discovered by Piotr Gabriel Kosinski and Daniel Shapira in Linux kernel's CDROM driver implementation, which could allow a local attacker to either execute arbitrary code or

cause crash the system via a denial of service.

Discovered by Jann Horn, the kernel live patch also addresses a security vulnerability (CVE-2018-11412) in Linux kernel's EXT4 file system implementation, which could allow an attacker to execute arbitrary code or crash the system via a denial of service by creating and mounting a malicious EXT4 image.

Also fixed are an integer overflow (CVE-2018-13406) discovered by Silvio Cesare in Linux kernel's generic VESA frame buffer driver, as well as a buffer overflow (CVE-2018-12233) discovered by Shankara Pailoor in the JFS file system implementation, both allowing local attackers to either crash the system or execute arbitrary code.

The last security vulnerability (CVE-2018-13405) fixed in this latest Ubuntu Linux kernel live patch may allow a local attacker to gain elevated privileges due to Linux kernel's failure to handle setgid file creation when the operation is performed by a non-member of the group.

Source:

<https://news.softpedia.com/news/canonical-outs-new-linux-kernel-live-patch-for-ubuntu-18-04-lts-and-16-04-lts-522643.shtml>

## WINDOWS AND LINUX KODI USERS INFECTED WITH CRYPTOMINING MALWARE

Users of Kodi, a popular media player and platform designed for TVs and online streaming, have been the targets of a malware campaign, ZDNet has learned from cyber-security firm ESET.

According to a report that will be published later today and shared with ZDNet in advance, the company's malware analysts have uncovered that at least three popular repositories of Kodi add-ons have been infected and helped spread a malware strain that secretly mined cryptocurrency on users' computers.

Researchers said that some of the add-ons found on these repositories would contain malicious code that triggered the download of a second Kodi add-on,

which, in turn, would contain code to fingerprint the user's OS and later install a cryptocurrency miner.

While Kodi can run on various platforms, ESET says that the operators of this illicit cryptocurrency mining operation only delivered a miner for Windows and Linux users.

Crooks mined for Monero, and according to some partial data obtained by ESET, the company believes they infected over 4,700 victims and generated over 62 Monero coins, worth today nearly \$7,000.

Most of the infected users were located in countries such as the US, the UK, Greece, Israel, and the Netherlands, countries where Kodi usage is also high.

ESET says there is no reliable way of knowing if a user of those three add-on repositories has been infected, other than installing an antivirus solution and scanning the machine where Kodi was installed. A clear hint that something is wrong is high CPU usage, a common indicator of cryptocurrency mining operations.

Source:

<https://www.zdnet.com/article/windows-and-linux-kodi-users-infected-with-cryptomining-malware/>

## KDE PLASMA 5.13 DESKTOP REACHES END OF LIFE, KDE PLASMA 5.14 ARRIVES OCTOBER 9

KDE Plasma 5.13.5 arrived a week ago, on September 4, 2018, as the last point release for the short-lived KDE Plasma 5.13 desktop environment series, which won't receive further updates or security fixes. It brought a total of 35 changes across various core components and apps.

"Plasma 5.13 was released in June with many feature refinements and new modules to complete the desktop experience. This release adds a month's worth of new translations and fixes from KDE's contributors. The bugfixes are typically small but important," reads the announcement.

Highlights of the KDE Plasma

5.13.5 point release include support for updating the wallpaper every single day in the Picture of the Day feature, the ability to prevent paste operations in the screen locker, as well as a bug fix for the QFileDialog component, which won't remember the last visited directory anymore. A full changelog is available here for more details.

All existing KDE Plasma 5.13 desktop environment users are urged to update their installations to the KDE Plasma 5.13.5 point release as soon as it arrives in the stable software repositories of their favorite GNU/Linux distributions if they want to enjoy the best KDE Plasma desktop experience on their personal computers.

Source:

<https://news.softpedia.com/news/kde-plasma-5-13-desktop-reaches-end-of-life-kde-plasma-5-14-arrives-october-9-522681.shtml>

## DOCKER FAVE ALPINE LINUX SUFFERS BUG MISCREANTS CAN EXPLOIT TO POISON CONTAINERS

An infosec bod has documented a remote-code execution flaw in Alpine Linux, a distro that pops up a lot in Docker containers.

Max Justicz, researcher and creator of crowd-sourced bug bounty system Bountygraph, said on Thursday that the vulnerability could be exploited by someone with man-in-the-middle (MITM) network access, or operating a malicious package mirror, to inject arbitrary code via apk, Alpine's default package manager.

Justicz said that the vulnerability is particularly dangerous because, first, Alpine is commonly used for Docker images thanks to its small footprint, and second, most of the packages apk handles are not served via secure TLS connections, making them more susceptible to tampering.

In the worst-case scenario, the attacker could intercept apk's

package requests during Docker image building, inject them with malicious code, and pass them along to the target machines that would unpack and run the code within their Docker container.

The vulnerability lies in the way apk unpacks archives and deals with suspicious code. Justicz found that if the malware could be hidden within the package's commit\_hooks directory, it would escape the cleanup and could then be executed as normal.

The result would be a way for an upstream miscreant or network eavesdropper to feed malware directly into the Docker container and have it run without user notification. At that point, the attacker would have their code running on the victim machine, potentially allowing for further attacks on the container or host system.

Source:

[https://www.theregister.co.uk/2018/09/15/alpine\\_linux\\_bug/](https://www.theregister.co.uk/2018/09/15/alpine_linux_bug/)

## LINUS TORVALDS IS TAKING A BREAK FROM LINUX, HERE'S WHY

The father of Linux, Linus Torvalds has apologized for his abrasive behavior and decided to take a break from the open-source project and seek "assistance on how to understand people's emotions and respond appropriately."

In an email, that announced the routine kernel update of Linux 4.19-rc4, Torvalds acknowledged his unprofessional behavior that included "flippant attacks in emails" to his fellow Linux developers.

He has been managing kernel releases for so many years, and the kernel chieftain is strict when it comes to quality and reliability of the submitted codes. But he is also infamous for revealing his feelings bluntly if the submitted patches are substandard in his view.

Be it dropping F-bombs on his fellow programmers, calling out on "sh\*t code" or addressing comments on the kernel's networking code as "just half-arsed

sh\*t-for-brains"; Linus Torvalds has done all.

Recently, he moved the Linux Kernel Maintainers' Summit from Canada to Scotland to suit his vacation plans — which backfired on him. He even thought of skipping the conference this year altogether which didn't go down well with some fellow developers, leading him to a moment of greater self-awareness.

Torvalds admitted that such behavior was "uncalled for. Especially at times when I made it personal ... I know now this was not OK and I am truly sorry." Torvalds promised that this break would be like the sabbatical he took years ago to create Git, only this time he would use it to do some self-reflection as well. Meanwhile, Greg Kroah-Hartman will take over the kernel maintainership for the rest of the Linux 4.19 cycle.

Source:

<https://fossbytes.com/linux-torvalds-taking-break-from-linux/>



## CANONICAL RELEASES UBUNTU 18.04.1 DESKTOP IMAGE OPTIMIZED FOR MICROSOFT HYPER-V

Based on the latest Ubuntu 18.04.1 LTS (Bionic Beaver) release, the new Ubuntu Desktop image is now available for installation from the Microsoft Hyper-V gallery on Windows 10 Pro computers. It comes with a pre-configured xRDP server for communication with Microsoft Remote Desktop Connection (RDP) protocol for allowing Windows 10 Pro users to experience the full Ubuntu Desktop running in Hyper-V as a virtual machine.

Thanks to the work done by Microsoft upstream to enhance the xRDP server, the bootable Hyper-V image of Ubuntu Desktop 18.04.1 LTS with Enhanced Session Mode support will bring dynamic desktop resizing, improved clipboard integration, better mouse experience to seamlessly move between the Windows 10 Pro host and the guest Ubuntu 18.04.1 LTS desktop, as well as easier sharing of folders between the two OSes for faster file

transfers.

Furthermore, these enhancements will allow Hyper-V users to use hv\_sock, a byte-stream-based communication mechanism that enables high bandwidth interconnection between the host and guest operating systems. Users who want to run Ubuntu 18.04.1 LTS (Bionic Beaver) on their Windows 10 Pro computers can install the Hyper-V image from the Microsoft Hyper-V Gallery. Follow the on-screen instructions to set up your Ubuntu Desktop on Hyper-V.

According to Canonical, which recently revealed the initial Ubuntu Desktop metrics gathered from users who install the latest Ubuntu 18.04 LTS (Bionic Beaver) operating system, Ubuntu Linux is used all over the world by a lot of people, and especially as a virtual machine. This is why they put a lot of work into optimizing the Ubuntu Desktop experience when running the OS a guest virtual machine on a Windows 10 Pro desktop host.

Source:

<https://news.softpedia.com/news/canonical-releases-ubuntu-18-04-1-desktop-image-optimized-for->

[microsoft-hyper-v-522743.shtml](https://microsoft-hyper-v-522743.shtml)

## LINUX ADOPTS A NEW CODE OF CONDUCT

Even though the fundamental nature of open source projects is being open and accessible to all, many contributors, in the past, have expressed their concerns over the unwelcoming nature of some communities. Linux, the most successful open source project, isn't untouched by the same.

The Linux Boss, Linus Torvalds, is himself known to get often involved in heated discussions and say things that he shouldn't. Just recently, he announced that he'd be taking a breaking from Linux and working to change his behavior. That's not all. To make Linux development a more welcoming community, a new "Code of Conduct" has been adopted.

This CoC has replaced an existing Code of Conflict, which, according to kernel developer Greg Kroah-Hartman, hasn't been successful in "achieving its implicit goal of fostering civility and the

spirit of "be excellent to each other."

The new code is based on the Contributor Covenant, which was created by open source advocated Coraline Ada Ehmke. The Contributor Covenant is already being used as the CoC in many open source project.

Source:

<https://fossbytes.com/linux-code-of-conduct/>

## UNIT 42 RESEARCHERS DISCOVER XBASH – MALWARE WHICH DESTROYS LINUX AND WINDOWS BASED DATABASES

A new malware known as 'Xbash' has been discovered by Unit 42 researchers, a blog post at Palo Alto Networks has reported. This malware is unique in its targeting power and affects Microsoft Windows and Linux servers simultaneously. Researchers at Unit 42 have tied this malware to Iron Group which is

a threat actor group previously known for ransomware attacks.

According to the blog post, Xbash has coinmining, self-propagating and ransomware capabilities. It also possesses some capabilities which are when implemented, can enable the malware to spread fairly rapidly within an organization's network, in similar ways like WannaCry or Petya/NotPetya.

Commenting on the characteristics of this new malware, Unit 42 researchers wrote, "Recently Unit 42 used Palo Alto Networks WildFire to identify a new malware family targeting Linux servers. After further investigation we realized it's a combination of botnet and ransomware that was developed by an active cybercrime group Iron (aka Rocke) this year. We have named this new malware "Xbash", based on the name of the malicious code's original main module."

Xbash mainly spreads by targeting any unpatched vulnerabilities and weak passwords. It is data-destructive, implying that it destroys Linux-

based databases as its ransomware capabilities. No functionalities are also present within Xbash that would restore the destroyed data after the ransom is paid off.

Contrary to previous famous Linux botnets like Gafgyt and Mirai, Xbash is a next-level Linux botnet which extends its target to public websites as it targets domains and IP addresses.

Source:  
<https://appuals.com/unit-42-researchers-discover-xbash-malware-which-destroys-linux-and-windows-based-databases/>

## CANONICAL REVEALS UBUNTU LINUX 14.04 LTS 'TRUSTY TAHR' EXTENDED SECURITY MAINTENANCE (ESM) PLANS

When it comes to upgrading an operating system, home users have plenty of flexibility. Whether running Windows, Mac, or a Linux-based OS, moving to the latest and greatest should be a fairly uneventful affair. For businesses, however, bleeding

edge is hardly ideal. After all, companies use their computers to make money -- there is no room for downtime due to upgrade issues. In other words, if it isn't broken, don't fix it. This is why many in the corporate world still run Windows 7.

Of course, staying on an older operating system can be problematic as well. As long as the OS is supported, you are golden. To run an operating system that no longer gets security updates is pure madness, though. Luckily, if you need to run an unsupported operating system, some maintainers, such as Canonical and Microsoft, will still support you -- if you pay up. For example, next year, Ubuntu 14.04 will reach end of life, so today, Canonical announces its Extended Security Maintenance (ESM) plans.

When will normal support stop for Ubuntu 14.04? April 30, 2019. In other words, if your company is still running Trusty Tahr, you have about half a year to come up with a plan. You can either upgrade to a supported Ubuntu version, such as 16.04, or you can give Canonical part of your budget for ESM updates.

Source:  
<https://betanews.com/2018/09/19/canonical-ubuntu-linux-trusty-tahr-esm/>

## BLACKARCH LINUX ETHICAL HACKING OS NOW HAS MORE THAN 2000 HACKING TOOLS

Used by thousands of hundreds of hackers and security researchers all over the world, BlackArch Linux is one of the most acclaimed Linux-based operating systems for hacking and other security-related tasks. It has its own software repositories that contain thousands of tools.

The OS is based on the famous Arch Linux operating system and follows a rolling release model, where users install once and receive updates forever, or at least until they do something that can't be repaired and need to reinstall.

Earlier this month, the team of developers behind BlackArch Linux took to Twitter to proudly announce that there are now over 2000 ethical hacking and

penetration testing tools in the main software repositories, a major milestone that was achieved due to more than 20 new tools being added recently.

A Linux distro with more than 2000 hacking and security-oriented tools sounds good for any security researcher and aspiring hacker out there, so if you want to install one of the best ethical hacking and penetration testing operating systems on your personal, don't hesitate to give BlackArch Linux a try right now.

Source:

<https://news.softpedia.com/news/blackarch-linux-ethical-hacking-os-now-has-more-than-2000-hacking-tools-522791.shtml>

## UBUNTU-BASED ELEMENTARY OS 5.0 'JUNO' BETA 2 LINUX DISTRO NOW AVAILABLE

Why don't more desktop computer users use Linux? Well, software compatibility aside, there is fear of change and the unknown. For a user to switch from

Windows, it must be a fairly simple affair. For years, just installing a Linux-based operating system was a daunting task. These days, it can be faster and easier than installing Windows 10 -- depending on distro, of course.

For beginners, once installed, their chosen Linux distro should be easy to use with an intuitive desktop environment. I'm a big fan of GNOME, but understandably, not all folks like it -- especially Linux novices. One particular Linux-based desktop operating system has been focusing on accessibility to all -- elementary OS. This distro is polished and aims to be easy to use for both experts and beginners alike. Today, version 5.0 of the OS -- called "Juno" -- reaches Beta 2. Impressively, there have been over 200 fixes implemented since Beta 1.

There are extensive improvements in Beta 2, seen in popular system apps like Files, Music, and Photos. The AppCenter now features more than 50 Juno-compatible apps. The settings app has improved display rotation functionality -- especially for multi-display systems.

Source:

<https://betanews.com/2018/09/21/ubuntu-based-elementary-juno-beta-2-linux/>

## LINUX DEVELOPERS THREATEN TO PULL "KILL SWITCH"

All is not well in the Linux community: Linus Torvalds's apology for "unprofessional behavior" and leave this week was accompanied by the adoption of a new Code of Conduct (CoC), which is being described by some as an insidious attempt by social justice warriors to wrestle power away from contributors they don't agree with. The CoC appears to shift Linux's long-standing culture based around meritocracy to a "safe space" that prioritizes inclusion rather than skill. Some developers believe this will destroy the foundations of Linux and are "threatening to withdraw the license to all of their code."

Activists from the feminist and LGBTQIA+ communities have been trying to force the Linux project to join the Contributor Covenant since at least 2015. The

Contributor Covenant is an agreement to implement a special Code of Conduct aimed at changing the predominantly white, straight, and male face of programming. CC's Code of Conduct is controversial particularly because it allows anyone to be banned from contributing code for any reason, usually with no mechanism for oversight or accountability.

Source:

[https://www.hardocp.com/news/2018/09/23/linux\\_developers\\_threaten\\_to\\_pull\\_kill\\_switch](https://www.hardocp.com/news/2018/09/23/linux_developers_threaten_to_pull_kill_switch)

## SOLUS 3.9999 ISO REFRESH RELEASED

While the release of Solus 4 isn't around the corner for some time, the developers of this neat-looking and fast Linux distro have gone ahead and pushed a Solus 3 ISO refresh. They've called it Solus 3.9999.

Since it's an ISO refresh, it goes without saying that Solus 3.9999 ships with all the recent updates and security fixes released in the recent past. This makes it great for

any new user who wishes to perform a fresh installation of Solus on a computer.

3.9999 also arrives with an updated set of application to ensure better performance, including Firefox 62, LibreOffice 6.1.0.3, Thunderbird 60, and Rhythmbox 3.4.2. Coming to media players, the MATE version comes with VLC 3.0.3, and GNOME edition has GNOME MPV 0.14.

The Adapta GTK Theme for apps and Papyrus Icon Theme for icons has also been updated.

Moving on to the kernel, Solus 3.9999 is powered by Linux kernel 4.18.5 that brings improved support for the existing Intel, Nvidia and AMD hardware; some newer releases like AMD Threadripper 2 are also now supported with the new kernel.

The GNOME and MATE versions come with their respective changes. For example, Removable Drive extension is now enabled by default in GNOME; it also comes with GNOME Photos out of the box.

Source:

<https://fossbytes.com/solus-3-9999-iso-refresh-released-download-features/>

## NEW FIREFOX BROWSER BUG CAUSES CRASHES ON WINDOWS, MAC AND LINUX

Only a week after disclosing a new web code exploit that can cause an iPhone to crash, security researcher Sabri Haddouche, has uncovered another browser bug that can force Firefox to crash on all three popular desktop operating systems – Mac, Linux and Windows – reports ZDNet.

According to ZDNet, the bug not only crashes the browser on a Windows machine, it also occasionally freezes the entire operating system, requiring users to perform a hard reboot. Mobile platforms seem safe from the exploit, however, and tests performed by ZDNet have confirmed that Firefox on Android and iOS are not affected.

In explaining how the exploit works, Haddouche told ZDNet that

“the script generates a file (a blob) that contains an extremely long filename and prompts the user to download it every one millisecond”.

“It, therefore, floods the IPC (Inter-Process Communication) channel between Firefox's child and main process, making the browser at the very least freeze,” he added.

Haddouche has notified Mozilla of the new exploit, which comes hot on the heels of the release of Firefox 62 – which itself contained 13 significant bug fixes. It's already been added to the internet company's bug tracking platform and Firefox users can find out more about the progress on a fix there.

Source:

<https://www.techradar.com/news/new-firefox-browser-bug-causes-crashes-on-windows-mac-and-linux>

## CONCERNS ABOUT THE BEHAVIORAL GUIDELINES OF LINUX KERNEL DEVELOPERS

The last week started with a bang as Linus Torvalds announced a four-week break from the kernel. Shortly before, Torvalds had added a new code of conduct document to the kernel. The document was written, as was its predecessor, by Greg Kroah-Hartman.

Both events are related because Torvalds is not one of those who remain friendly when molested by developers with bad code or bad behavior. Torvalds, as well as some other developers, often strikes a sharper tone, especially with repeated misdemeanors. However, this has always displeased part of the community, which includes renowned developers. They believe these failures are unprofessional, hurtful and ultimately harm to the community. All the more so if the affected developer actually acted with the best of intentions.

The rationale for the new Code of Conduct is that the original Code of Conflict missed its target. The new "Code of Conduct" should now apply to all kernel areas and make the kernel a friendlier



environment. The text is based on the template of [www.contributor-covenant.org](http://www.contributor-covenant.org). Immediately after the announcement of the change, numerous criticisms were expressed, but in many cases from outside the kernel. On the kernel mailing list itself, the discussion did not take up much room, but here the most relevant contributions should be found. The criticism is that the rules are very general and in some places unclearly formulated, and that immediately threatened with countermeasures such as exclusion, which leads to censorship or self-censorship. As in the previous text, the members of the technical advisory board of the Linux Foundation are provided as mediators, but the implementation of measures is in the hands of others. For example, the administrators of the mailing lists are already against spammers, but also, in very rare cases, against trolls.

Specifically, Edward Cree wrote that the Code of Conduct was unpleasant and a threat to him. He suffers from Asperger syndrome and therefore could hardly empathize with other people. Therefore, he must always be very

careful with what he writes. The "Code of Conduct" makes this much worse, as he now has to fear being excluded after an unintentional wrongdoing.

With a deeper analysis of the phenomenon, Eric Raymond intervened and established links to culture and ethics. His contribution should, according to his own statements, only provide arguments, but take no position. Significantly shortened his comment is that the transition from a barely regulated system to regulations as strong as the "Code of Conduct" by many developers would be perceived as a deterioration and thereby deter them from the collaboration. In his opinion, no project has improved after it has introduced a "Code of Conduct".

Source: <https://www.pro-linux.de/news/1/26336/bedenken-gegen-die-verhaltensrichtlinien-der-linux-kernel-entwickler.html>

## NEW SPARKYLINUX 5.5 "NIBIRU" ISOS RELEASED WITH LATEST DEBIAN BUSTER UPDATES

The new SparkyLinux 5.5 "Nibiru" Rolling images are now synced with the Debian Testing (soon to become Debian GNU/Linux 10 "Buster") software repositories as of September 17, 2018, which means that they are now shipping the Linux 4.18.6 kernel, the Calamares 3.2.1 installer, as well as the latest GCC 8 system compiler by default as GCC 7 has been completely removed.

The SparkyLinux 5.5 "Nibiru" respins also adds several new packages, including Seahorse, rxvt-unicode for Openbox users, as well as FeatherPad and qps (Qt process manager) for LXQt users, and removes many others, among which we can mention the XTerm terminal emulator from the Openbox edition, as well as Notepadqq, Leafpad, and LXTask from the LXQt edition.

Also removed, from all images, are the ImageMagick, Vim,

systemd-ui, libpam-gnome-keyring, and sparky-gexec packages. Furthermore, this release disables the Thunar daemon in the MinimalGUI (Openbox) edition due to issues with automatic mounting of new partitions created by the Calamares installer, which now removes the Cryptsetup packages if the system isn't encrypted.

Source:

<https://news.softpedia.com/news/new-sparkylinux-5-5-nibiru-isos-released-with-latest-debian-buster-updates-522817.shtml>

## MOZILLA UNLOCKS FIREFOX MONITOR

In June, Mozilla launched a test of the new security application Firefox Monitor. This is to inform users of Firefox, if their e-mail address was compromised during a digital break-in. For this purpose, Mozilla has launched a cooperation with Troy Hunt and his service Have I been Pwned (HIBP).

Now Mozilla has announced due to a good test and positive response in the Mozilla blog that the innovation for all Firefox users

will be unlocked. It aims to raise awareness of the threat posed by compromised e-mail addresses through a two-step process.

The first step checks whether an email address has already been compromised in the event of a break-in in the past. The query takes place on the Firefox Monitor website, which queries HIBP in the background. The service will find more widespread use of a Mozilla website than before.

Since it is impossible to keep track of the ever-increasing thefts of millions of records without regularly repeated searches, whether your own e-mail address was affected in one of these robberies, Mozilla offers in a second step, a notification function.

Here the user can register his e-mail addresses and will be informed in case of compromise. However, there are still problems, as one of us tested address was declared clean in the simple query, but minutes later after the registration by e-mail a warning came, the address has been compromised since February 2018.

Also a repetition of the procedure brought the same result, whereby also astonished that the same E-Mail address could be registered twice. How two contradictory results are possible when using the same database remains unclear for the time being.

Edit: According to Mozilla this behavior is wanted. Sensitive Breaches are only visible to registered users.

Source: <https://www.pro-linux.de/news/1/26340/mozilla-schaltet-firefox-monitor-frei.html>

## 'MUTAGEN ASTRONOMY' LINUX KERNEL VULNERABILITY SIGHTED

**A** new Linux kernel vulnerability that can only be locally exploited is nonetheless proving a bit of a nuisance.

The CVE-2018-14634 vulnerability relates to a local privilege escalation bug in the Linux kernel, and creates a means to obtain root (administrator) privileges on a hacked system.

Security researchers at cloud security firm Qualys discovered the vulnerability, which stems from an integer overflow in the Linux kernel's `create_elf_tables()` function. It's not remotely exploitable, thanks heavens, but on a vulnerable 64-bit system, a "local attacker can exploit this vulnerability via a SUID-root binary and obtain full root privileges," Qualys warns.

Security researchers at Qualys explain: "Even though all Linux kernels are technically vulnerable, this issue is mitigated by a one-year-old patch that was backported to most long-term kernels and makes exploitation impossible."

"Red Hat Enterprise Linux and CentOS hadn't yet backported this patch leaving them both initially still vulnerable. Some versions of Debian 8 were also at risk at the time of the bug's discovery. These various shortcomings have since been addressed."

Job done, security researchers at Qualys took time out to come up with a name for the vulnerability, which they subsequently dubbed "Mutagen Astronomy" - an anagram of "Too Many

Arguments".

Source:  
[https://www.theregister.co.uk/2018/09/27/mutagen\\_astronomy\\_linux/](https://www.theregister.co.uk/2018/09/27/mutagen_astronomy_linux/)

## FULL CIRCLE 2018 SURVEY

**It's that time of the year again where we ask what you think of FCM, Ubuntu, and Linux.**

Some questions are a requirement, some you can skip over if not applicable.

Your answers will help shape Full Circle, so please use your constructive criticism. If you don't tell us what you think, or what we're doing wrong, then we won't know.

**Survey URL:**  
<http://bit.ly/fcm2018>



Last month, I expressed my desire to own a reduced ergodox keyboard. It literally just arrived (about 18 hours before writing this article). As such, I'll be covering my initial impressions of the keyboard, as well as some things I wish I had known when flashing the keyboard for the first time.

### Specifications

- The keyboard was ordered from FalbaTech in Poland, and features the following:
  - braided, coiled cables (TRRS and micro USB to USB type A)
  - Bamboo case with tilting legs
  - greetech MX brown switches
  - RGB underglow
  - 4 x 1u blue keycaps (in order to reach free shipping threshold)

I did not order keycaps with the keyboard itself, as I found a local supplier that offered keycaps more to my liking.

### WORKMANSHIP

The bamboo case is finished

nically, and all the parts appear to be well built and assembled. I ordered the keyboard pre-built because I preferred to use the time it would have taken to solder the keyboard myself for other tasks as this is a relatively busy time of the year. Thus, I have not yet investigated the internals of the device.

### SOFTWARE

The keyboard uses the QMK firmware, and, therefore, is programmable. Do note, however,

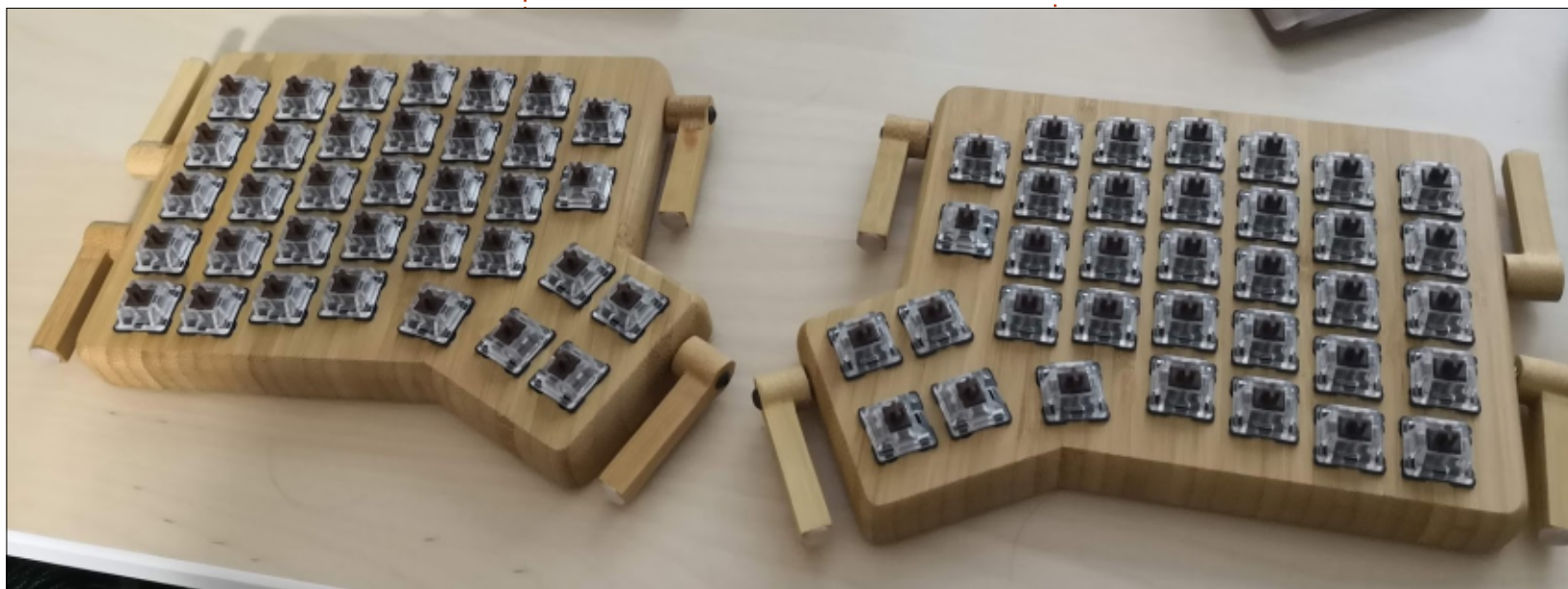
that the software layout you've selected under Linux will have an effect. In my case, the DE layout that was selected confused me, as what should have been square brackets were instead umlaute. At first, I assumed that the keyboard was using the DE variant of the qmk redox rev1 firmware. So I immediately reflashed the keyboard. Or, at least, I tried to.

### FLASHING FIRMWARE

My first issue was that the firmware would not compile. Turns

out the Arch package "avr-gcc" was version 8.2, which had a bug. Downgrading it to 8.1 fixed this problem, and the bug itself seems to be fixed now, so once the upstream changes are shipped, it should no longer be required. Ubuntu should be unaffected, as it is not a rolling release.

Once I was able to compile the firmware, I had some trouble figuring out how to set my keyboard to DFU mode. There should have been a key combination, but that did not appear to work. I also saw the





hardware reset buttons on the bottom of the device; however, they did not appear to do anything. After some research, it seemed to be the only option, so I tried again. Which worked. My best guess is that I held the button depressed too long (literally a momentary press is all that is needed). In any case, I had flashed new firmware to the keyboard. Success!

Turns out, I now had only one functioning half. Swapping the USB to the other half let it work fine (albeit with the wrong mapping), and the RGB underglow worked for both halves. As such, the cable should be working. I spent another few hours tweaking settings and reading articles, before I thought to change the firmware from I2C to SERIAL connections. After that, the keyboard was working again. Only... the keys were still “wrong”.

I wanted a base US layout, as I prefer the location of the keys for programming, but I still need access to umlaute and special characters for day-to-day life. I thought I could just mix layouts in the firmware to achieve this, until I realized that the DE\_AE key was the same as the US KC\_SCLN key in

the header file. Which means, either way, the key would be parsed as either a semi-colon or an ä by the software layout my computer was using. I then checked into assigning direct unicode keys to the layer for the umlaute I wanted, and debated about swapping around a normal DE layout (though I gave up on that idea when I realized it wouldn't impact shift/altgr combinations. I then stumbled upon the eurkeys layout (“eu” in Linux) which was almost exactly what I wanted. Setting my keyboard layout to that then gave me a US layout with all sorts of special characters.

Since then, I've done very little to my keymap, besides adding media keys to a layer. I will be writing a second article on the firmware at a later date, once I've done more.

## VERDICT

I like the keyboard a lot. The tactile keys are still my favourites, and the shape/layout is quite comfortable. It does take some getting used to (I used the keyboard minus a few keycaps to

write this article, and it took me only a little longer than usual). Once I get comfortable, and rewire my brain to use a few different fingers for keys (I want to use my left index for c, when I should be using my left middle finger), I should be up to speed in no time. Especially when my keycaps arrive and I can stop using an incomplete old set I had lying around.

Was it worth the price? Time will tell. My first reaction is that it seems to tick all the boxes I was hoping for. However, one of the main needs for me was the ability to spread out the halves in order to sit at a more comfortable angle at my desk. If you don't mind traditional keyboard shapes, then I would probably recommend a programmable 60% keyboard or similar, as they are cheaper and will work better with standard keycap sets (i.e. a Pok3r keyboard).

As always, I hope this article is interesting to at least a few readers. Are you a mechanical keyboard fan as well? Then share some stories with me at [lswest34+fcu@gmail.com](mailto:lswest34+fcu@gmail.com). Similarly, I can be reached with any ideas, comments or suggestions any readers may have at the above

email address.

## FURTHER READING

EurKEY layout: <https://eurkey.steffen.bruentjen.eu/layout.html>

Redox Keyboard: <https://github.com/mattdibi/redox-keyboard>

QMK Firmware: <https://qmk.fm/>



**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](mailto:lswest34@gmail.com).





As I sit here in the wee hours (3:30 am) of the morning, it is early September, 2018. We are right in the middle of hurricane season. I was about to say "in Texas", but it is just about anywhere in the northern hemisphere in the "tropical" regions within about 400 miles from a coastal area. We fall into the "Atlantic" area, so our hurricane season runs from June 1st to November 30th.

When I was young, we already had our preparations ready long before the end of May. This included getting batteries for the transistor radios, creating our hurricane box stocked with candles, canned food, duct tape, flashlights, bottled water, transistor radios, batteries, and more. Of course, when I was young, the rainbows were in black and white and we had to watch television by candlelight because there wasn't any electricity. (Please think about it for a minute...it WILL make sense.)

Why am I holding forth on

hurricanes and when I was young? I'm not really sure, but it seemed like a good idea at the time, and it might be a good way to segue into our discussion for this month.

I was taught a long time ago that "If you give a man a fish, he will be fed for a day. If, however, you teach a man to fish, he will be fed for the rest of his life". This is a maxim that I have tried to apply to my life as long as I can remember. I guess that I'm a frustrated teacher, trapped in the body of a stand-up comedian, trapped in the body of a mediocre musician, trapped in the body of a programmer. My love of teaching things to people is why I started this almost monthly journey.

I received an email from a beginner programmer who was reading a tutorial I had written for Don Rozenberg that has been included in the last few versions of Page. He was getting an error that he wasn't able to figure out, and asked Don for help. Since I had written the tutorial and the source code, Don passed it on to me.

His problem was that when he recreated one of the examples in the tutorial and ran it, he was getting a "NameError: name 'che39' is not defined" error. Being a beginner Python user, and at the same time, a new Page user, he didn't understand what the issue was. The Python error message didn't mean anything to him.

This is a typical issue for new users. Especially when trying to follow a tutorial that someone wrote.

The specific line in his code was:

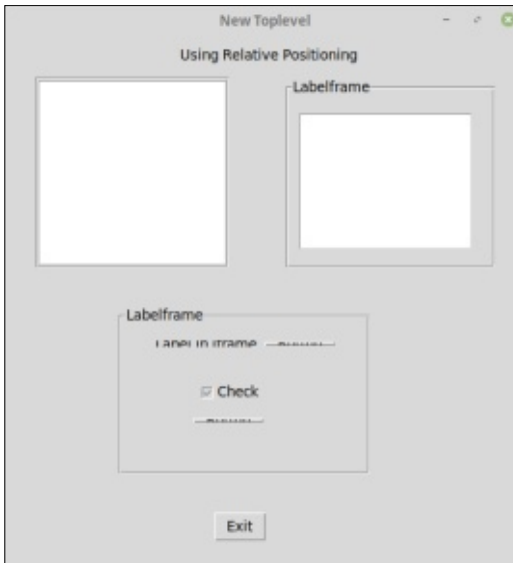
```
if che39.get() == "1":
```

I responded to him that the issue is due to his Python script using a variable name in a comparison operation that didn't exist, especially one that has a method attached. I suggested that he either had a typo in his code or missed a step in the design section of the tutorial. I gave him a few places to look for the problem. The first was to open the project in Page and check the specific

CheckBox widget attributes. In this case, there is an attribute for the variable that allows the user to check, using the .get() method, the checked status of the widget. This is where the 'che39' came from. Page provides a default variable for this. The tutorial said to make sure that this variable attribute be set to 'che39', since sometimes Page comes with a different one. When he recreated the project, he could have accidentally put in something different or missed that part all together. It happens to all of us from time to time.

As it turns out, this was where the error was, but he put the variable name in the wrong spot in the Attributes Editor. He put it under the text variable entry box, not the variable box. Again, a common mistake. I know I have done it more times that I want to admit.

Once the new user found the cause of this problem, he stumbled across another one. This time, it wasn't his fault. A few other Page users discovered this a number of

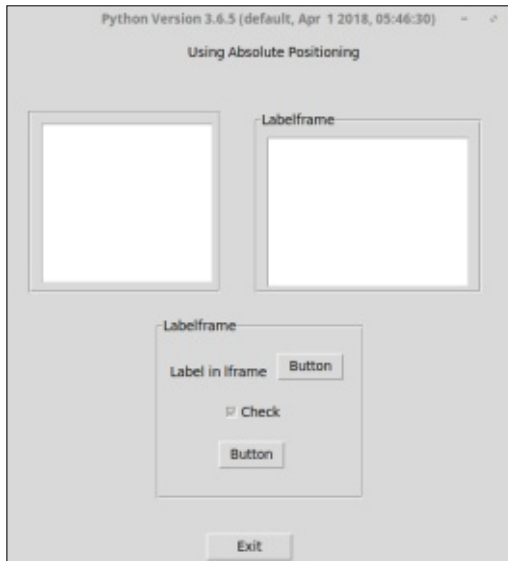


months ago, but I was never able to recreate it.

It seems that if you use are using Python 3.x and use a LabelFrame, SOMETIMES some of the widgets you put inside of it will end up looking compressed, somewhat like a squished car. Take a look at the sample I wrote to demonstrate this issue:

That really doesn't look like something you want to put out into the world as a GUI. It's not a fault of Page, and it's not the fault of the person who created the GUI. It works just fine under Python 2.x, which is why I couldn't reproduce the issue for the longest time.

I had seen an issue posted on the Page discussion page about this months ago, and suggested to the user that they try to use the absolute positioning mode when designing his GUI. It turns out that this actually does work. However, there are issues with this. In the absolute position mode, when you resize the GUI form in the run mode, none of the widgets will resize themselves. This is, again, not really something that you want your end users to experience. The image below, however shows that my suggestion, does work.



Don had been aware of it for a little while, but was unable to

explain what was happening. It turns out that it's an issue with the actual TCL/TK widget, not even the Python Tkinter library. He had tried many things, thinking that it was something he had done. I just received word last night that there is a little documented flag for the widget that seems to fix the issue, and is actually marked (in the TCL documentation) that the flag "is probably not very useful". Funny how an off-handed comment in documentation can make so much difference.

Anyway, Don and I are testing the fix now and we'll see what happens.

Well, the old medical issues have raised their ugly heads and my medication is starting to make me sleepy again. I hate to have to do it, but I'll close for this month. If everything works out like I am hoping, I'll have something fun for you next month.

Until then, have fun!



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





# HOW-TO

Written by Elmer Perry

# Freeplane - Pt8

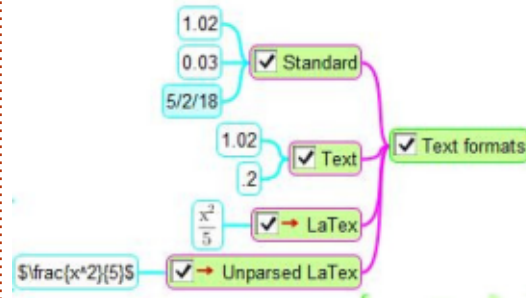
The node core is the focal point of a node. It's what you see at first glance. While colors, images, and icons do a good job of setting your mapping code, you may need more than plain text. You could need it formatted in a certain way. With the help of the Core Text section of the Tool Panel, we can format the core text. We can display the text as numbers, dates and times, or mathematical or chemical formulas. As a bonus, we can format nodes to create links between other nodes, files, and websites.

As a refresher, you find the Tool Panel on the right side of the main window. To open it, click View > Controls > Tool Panel. We will work with the drop-down box under the Core Text section.

## CORE TEXT FORMATS

The core text formats fall into three categories, text, numbers, and dates. By selecting the different formats, you can force the core text into a certain format.

## TEXT FORMATS



### Standard

Standard is the default format. If you enter a number or a date, it tries to format the text. For numbers, Standard defaults to the #0.#### format (explained below). If you enter a date, Standard will format it as M/d/yy (explained below).

### Text

If you don't want the autoformatting of standard, you can select Text. Text displays the characters as you type them without any formatting.

### LaTeX

LaTeX is a markup language used for typesetting technical

documents. LaTeX allows you to create and display mathematical and chemical formulas. While the topic of LaTeX is beyond the scope of this article, I will give you an example and some references.

After setting a node's format to LaTeX, you can use the LaTeX markup in the core text. If you enter  $\frac{x^2}{5}$ , you get the fraction shown in the image. When you start typing, a new window appears. This is the LaTeX editor. The checkbox 'Enter confirms' will cause the window to close when checked. If unchecked, you need to click OK to save your formula.

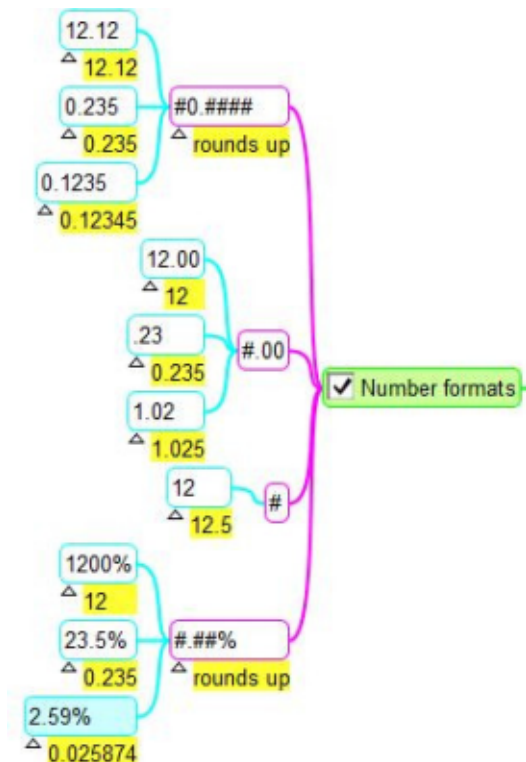
### Unparsed LaTeX

Freeplane uses JLaTeXMath to render the LaTeX markup. This module does not recognize all LaTeX markup. But, you may want to export an entire LaTeX document. The unparsed LaTeX format will mark the node as LaTeX, but will not attempt to render it. Once you export your map, Freeplane will pass the markup to the export engine to render. If the export engine can

render the LaTeX, it will.

For more details on using LaTeX in Freeplane: [http://freeplane.sourceforge.net/wiki/index.php/LaTeX\\_in\\_Freeplane](http://freeplane.sourceforge.net/wiki/index.php/LaTeX_in_Freeplane)

For a short beginner guide to LaTeX: <http://www.docs.is.ed.ac.uk/skills/documents/3722/3722-2014.pdf>



## NUMBER FORMATS

The number formats are patterns for creating numbers. The # symbol is a placeholder for a digit should one exist in that position. A 0 is a placeholder for a digit, and if no digit exists, a zero. In the sample image, the entered number is show in the core details.

### #0.####

This pattern will place a zero before the decimal point when no whole number exists. If the fifth digit after the decimal is 5 or greater, the fourth digit is rounded up.

### #.00

This pattern will always have two digits after the decimal point. If the number does not have the two digits after the decimal, it adds two zeros. The pattern truncates any numbers more than three digits past the decimal.

### #

This pattern is for whole numbers. Any decimal part of the number is truncated.

### #.##%

This pattern will convert the number to a percentage, multiplied by 100. If the third position past the decimal is greater than 5, it rounds up the number at the second position.

## DATE/TIME FORMATS

The date/time formats allow you to display the date and time in various formats. Of course, you can always enter the date and time as you want. But using the date/time formats creates consistency between all your dates in the map.

### M/d/yy

Also known as a short date, this format displays the month number,

day, and two digit year. It is the simplest of the date formats. 8/2/18

### MMM d, yyyy

This format shows the month abbreviation, the day, and a four digit year. Aug 2, 2018.

### M/d/yy HH:mm a

This format shows the short date and the time in 12-hour clock format. 8/2/18 1:59 PM.

### yyyy-MM-dd

This format shows the four digit year, two digit month, and two digit day. 2018-08-02.

### yyyy-MM-dd HH:mm

This format displays the date as above and the time in a 24-hour format. 2018-08-02 13:59.

### yyyy-MM-dd'T' HH:mmZ

This format shows the date and time as per the previous format, but with the time zone offset from GMT. 2018-08-02T13:59-0400. NOTE: The time zone offset for the U.S. Eastern Standard Time is GMT - 4 hours.

### HH:mm

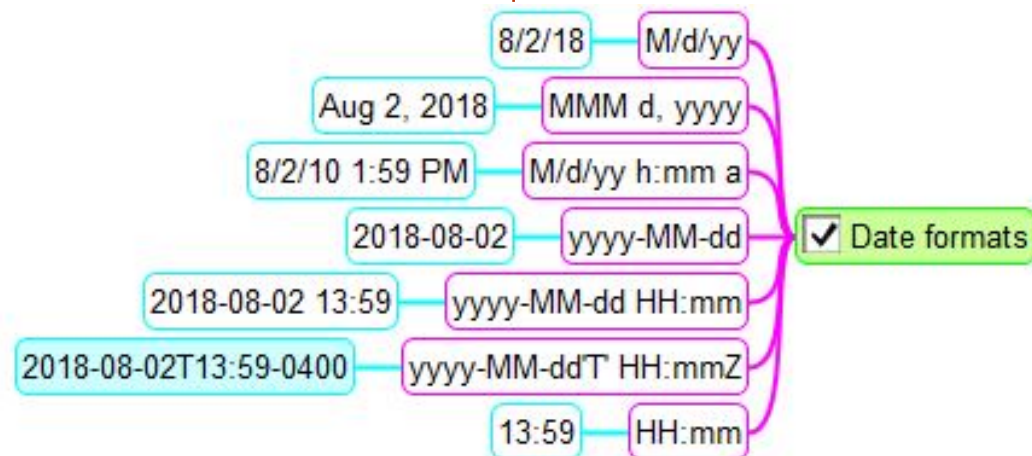
Shows the time in a 24-hour clock format. 13:59.

## HYPERLINKS IN FREEPLANE

Hyperlinks in Freeplane let you link nodes to other nodes, files, folders, web pages, and menu items. Hyperlinks are another way to show a relationship between two nodes. When doing research, links can help by linking to documents, project folders, or web pages. Links become digital references to more information.

### Link to Another Node

The first method is the anchor method. Right-click on the first node, then Link > Set link anchor.





Right-click the second node, then Link > Make link to anchor or Make link from anchor. To put the link on the anchor node, select Make link from anchor. Make link to anchor puts the link on the second node. This method works best for nodes that are far apart on a large map.

The second method is the local hyperlink method. Select the nodes you want to link. Right-click and select Link > Add local hyperlink. When you link two nodes this way, the link is from the first node selected to the second.

### External Links

The quickest way to add an external link is through the drag-and-drop method. When you drag and drop on a node, the link to the external object is added as a child of the node. You can drag and drop files, folders, and web URLs. The name of the file, folder, or URL becomes the nodes core text. You can change the core text without affecting the link.

When you want the link added to the selected node, use the menu method. Right-click the node, then Link > Add hyperlink (choose). An Open dialog pops up. Browse to the file or folder you

want to link. Select the file and click the Open button. You can use the shortcut keys CTRL + SHIFT + K. To add a URL to the selected node, right-click, then Link > Add or modify hyperlink (type). Paste the URL into the text box and click the OK button. You can use the shortcut CTRL + K, too.

### Email Links

To add an email link, right-click the node, then Link > Add or modify hyperlink (type). In the text box, type mailto: and the person's email address, as in mailto:person@domain.com. Click the OK button to save. An envelope icon is added to the node. Click on the icon to create a new email with the email address in the To: field.

### Link to Menu Item

Right-click the node, then Link > Add hyperlink to menu item. Select the menu item from the list and click OK. The icon for the menu item is added to the node. Clicking on the icon activates the menu item.

### Edit/Remove Hyperlinks

To edit or remove the hyperlink on a node, right-click then Link > Add or modify hyperlink (type). To

remove the link erase the text from the text box and click the OK button. If you need to change the link, change the text in the text box to make the link correct. Click the OK button to save.

## FINAL THOUGHT ON URLS

One last note on web links. You can enter the URL as the core text. Right-click the node, then Link > Convert link from within the text. This will use any URL in the text to create a link. If there are many URLs in the text, it will convert only the first one.

The core text formatting lets you control the way the text displays in a node. You can use text options including LaTeX for creating formulas. The number formats let you control how numbers display, including rounding numbers. You can format dates with the many date/time formats. Hyperlinks let you connect nodes, files, folders, menu items, and web pages.



**Elmer Perry** is a technical support rep for an international keyless access company. He enjoys writing, woodworking, and technology. He lives in Leicester, NC with his wife.



# HOW-TO

Written by ErikTheUnready

# DNStcrypt

Version: dnscrypt-proxy 1.9.5

Web: version 2.0.15 has been released, but Ubuntu 18.04 still uses 1.9.5

Chat: The official URL / Link is: #dnscrypt-proxy:matrix.org

I am a private person, I do not like my privacy invaded. This is one of the main reasons I use Linux.

Today I am going to show you how to set up DNStcrypt on Ubuntu 18.04. Take that, Mr ISP, and anyone else trying to map your internet usage!

Whether you like it or not, you are a commodity, you are being bought and sold all over the world.

Let's improve your security and privacy by following this guide.

DNStcrypt turns regular DNS traffic into encrypted DNS traffic that secures you from eavesdropping and man-in-the-middle attacks. Just like HTTPS now secures your internet traffic,

DNStcrypt secures your DNS traffic. (That said, it is not a complete solution.)

Let me tell you more about the protocol. Those of you who have no interest in this can skip to the next section. I promise to keep this section short. DNStcrypt is a protocol that authenticates communications between a DNS client and a DNS resolver.

The DNStcrypt protocol works on both TCP connections and UDP connections. The default HTTPS port is 443, and this is what DNStcrypt uses also. This will let it pass through most firewalls unhindered. For those of you interested, you can find a list of ports here:

<http://www.hostingreviewbox.com/rhel-tcp-and-udp-ports/>

Both the client and the resolver initially generate a temporary key pair for each supported encryption system. Each certificate includes a validity period, a serial number, a version that defines a key exchange mechanism, an

authenticated encryption algorithm and its parameters, as well as a short-term public key, known as the resolver public key.

So... From your computer or laptop (client), a DNStcrypt session begins with the client sending a non-authenticated DNS query to a DNStcrypt-enabled resolver, such as OpenDNS.

This DNS query encodes the certificate versions supported by the client, as well as a public identifier of the provider requested by the client.

The server (resolver) responds with a public set of signed certificates, that must be verified by the client using a provider public key.

Each certificate includes a "magic number" that the client must prefix all of its queries with, for the resolver to know what certificate was chosen by the client before it does anything.

The encryption algorithm,

resolver public key and client magic number from the chosen certificate are then used by the client to send encrypted queries. These queries include the client public key.

Using this client public key, and knowing which certificate was chosen by the client as well as the relevant secret key, the resolver verifies and decrypts the query, and encrypts the response the same way.

DNStcrypt is not to be confused with DoH, (not the arkanoid one) which is DNS over HTTPS. This is a project by the Mozilla foundation.

If you are not 100% sure of your command line fu, **please backup every file you edit, BEFORE EDITING!**

Open a terminal and type the following:

```
sudo apt-get install dnscrypt-proxy
```

Type in your password and let it



# HOWTO - DNSCrypt

finish.

Then:

```
sudo sed -i 's/fvz-  
anyone/cisco/g'  
/etc/dnscrypt-proxy/dnscrypt-  
proxy.conf
```

Explanation: sed is a stream editor, the s denotes substitution, the g means globally. The “-i” switch means in place. S, first we have the expression we want to substitute followed by what we want to replace it with, then immediately followed by the file path. The first line changes the default resolver from fvz-anyone to cisco. You do not have to choose Cisco, there are many resolvers, but I will use Cisco in the example. A list of resolvers can be found here:

<https://github.com/dyne/dnscrypt-proxy/blob/master/dnscrypt-resolvers.csv>

You can of course also do it manually:

```
sudo nano /etc/dnscrypt-  
proxy/dnscrypt-proxy.conf
```

Change the text 'ResolverName fvz-anyone' to 'ResolverName

cisco'

Do not change the local address. As with all edits in the /etc folder, make a backup of the file first!

Now that you understand the syntax of sed, let's continue:

```
sed -i  
's/127.0.2.1/127.0.0.1/g'  
/lib/systemd/system/dnscrypt-  
proxy.socket
```

Let us check to see if it is correct:

```
grep '127'  
/lib/systemd/system/dnscrypt-  
proxy.socket
```

You should see the following:

```
ListenStream=127.0.0.1:53  
ListenDatagram=127.0.0.1:53
```

In previous versions of Ubuntu, you simply had to point your DNS entry in network manager to 127.0.2.1. In 18.04, we need to change it to 127.0.0.1 (localhost), however bionic beaver is not happy with this.

Now, let's use systemd to stop and start the services, etc:

```
sudo systemctl daemon-reload
```

```
sudo systemctl stop dnscrypt-  
proxy.socket
```

```
sudo systemctl start  
dnscrypt-proxy
```

```
sudo systemctl disable  
systemd-resolved.service
```

```
sudo systemctl stop systemd-  
resolved.service
```

```
sudo systemctl disable  
systemd-resolved
```

```
sudo systemctl stop systemd-  
resolved
```

At this stage you may lose your internet connection.

If you desperately need a connection before we continue to the next part, simply type the following:

```
sudo nano /etc/resolv.conf
```

You will see Ubuntu has changed the nameserver to 127.0.0.53; don't worry, simply change it to 127.0.0.1 and save it. Should you still not have a connection, change it to 1.1.1.1, this should resolve your connection problem. Just remember that by changing it to 1.1.1.1, you are NOT using the

DNSCrypt proxy, rather Cloudflare directly.

This issue is speedily rectified by installing and configuring unbound. Unbound is a validating, recursive, and caching DNS resolver.

```
apt-get install unbound
```

Once it finishes, add “dns=unbound” in the [main] section in NetworkManager.conf

```
sudo nano  
/etc/NetworkManager/NetworkMa-  
nager.conf
```

Under the [main] section, there should already be:

```
plugins=ifupdown, keyfile
```

Just add dns=unbound below it.

Save and exit nano.

Now let us enable unbound, then reboot to finish:

```
sudo systemctl enable  
unbound-resolvconf
```

```
sudo systemctl enable unbound
```

Close your terminal and reboot,

# HOWTO - DNScrypt

making sure all your work is saved first.

After rebooting, let us test our handiwork.

Open a browser and go to:  
<https://welcome.opendns.com/>  
You should see a check mark.

Now open a terminal again and type:

```
nslookup -type=txt  
debug.opendns.com
```

The last indented line should tell you if dnscrypt is enabled.

Let's look locally:

```
sudo lsof -i -n | grep -i  
dnscrypt
```

TCP and UDP should both point to 127.0.0.1

Let's get a quick overview of unbound and a link to more information.

Unbound is an alternative to BIND – aiming to be faster and more secure. Unbound is open source.

Website:

<https://www.unbound.net/>

You can find out more here:

<https://jpmens.net/2010/10/29/alternative-dns-servers-the-book-as-pdf/>

The book is available free of charge.



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





# HOW-TO

Written by Mark Crutch

## Inkscape - Part 77

Last time, we looked at how to animate an SVG element using SMIL rather than CSS animations. We'll continue with this topic for one more article, but my warnings from last time need to be repeated: although SMIL is (currently) more capable and flexible than the CSS option, Microsoft have chosen not to implement it in any of their browsers, leading to a slow but inexorable demise in support across all the browser vendors. For the time being, it still works in most browsers but, unfortunately, this is not a technology to bet on in the long term.

I much prefer SMIL to CSS animations. I find the code easier to understand, and the fact that the animation data tend to live inside the elements they're animating avoids any confusion as to which rules apply to which objects as your document becomes more complex.

With a complex document it becomes ever more likely that your animations won't all have to run at

the same time, but instead might run sequentially – or a mixture of both. Consider trying to animate something as sophisticated as a cartoon: being able to finely adjust the timing of each character's movements is essential. CSS animations offer little to help you in this case, other than the brute-force option of adding a delay to your animations with this the sort of approach (shown right).

Here we're changing the fill color of a pair of rectangles (with IDs of "rect1" and "rect2"). The first changes from red to blue over 3 seconds. After a 3 second delay, the second rectangle changes from red to white over a 5 second period. Due to that 3 second delay, the animations occur sequentially.

Now what happens if you want to change the length of the first animation? You must also keep the delay for the second animation synchronised to the same value, otherwise it will either overlap the first, or occur some time after the first has finished. CSS does now support variables, so you can set

```
#rect1 {
  fill: #f00;
  animation-name: myAnimation;
  animation-duration: 3s;
}

#rect2 {
  fill: #f00;
  animation-name: myDelayedAnimation;
  animation-duration: 5s;
  animation-delay: 3s;
}

@keyframes myAnimation {
  0% { fill: #f00; }
  100% { fill: #00f; }
}

@keyframes myDelayedAnimation {
  0% { fill: #f00; }
  100% { fill: #fff; }
}

:root {
  --anim1_length: 3s;
}

#rect1 {
  fill: #f00;
  animation-name: myAnimation;
  animation-duration: var(--anim1_length);
}

#rect2 {
  fill: #f00;
  animation-name: myDelayedAnimation;
  animation-duration: 5s;
  animation-delay: var(--anim1_length);
}
...
```

the animation length once and reuse it as necessary, but the syntax is ugly and unwieldy (previous page, bottom right).

Now imagine what your CSS would look like when you want to chain five animations, or ten – or a hundred! How much better it would be if you could just tell the second animation that it should start when the first one finishes. With SMIL, that’s exactly what you can do. The SMIL animation elements have an optional “begin” attribute which allows various ways of defining when the animation should start. At its simplest, you can just enter a delay, giving the same effect as the CSS animation above (shown top right).

But you can also define the beginning of an animation to be triggered by the end of another by using the ID of the other animation, followed by “.end” (bottom right).

What happens if we want to change the length of the first animation now? No problem! Just modify the “dur” attribute and the second animation will still dutifully follow after the end of the first

one. As well as the “.end” syntax you can also use “.begin” to link animations together so that they always start at the same time. You can optionally add an offset, such as “anim1.begin+2s” to make the animation begin 2 seconds after “anim1” starts, or even “anim1.end-0.5s” if you want your animation to begin half a second before the end of “anim1”.

SMIL allows animations to be repeated by adding a “repeatCount” or “repeatDur” attribute. For example, repeatCount="5" would cause the animation to repeat five times, whilst repeatDur="01:00" would cause it to repeat for one minute. When a repeating animation is used as the trigger for a second animation, this also allows an additional syntactic form to be used: begin="anim1.repeat(2)" would cause the second animation to begin immediately after the second repeat of anim1 completes. Again, changes to the duration or start time of anim1 are automatically handled for you.

In theory, these values can also be used for the “end” attribute, rather than for “begin”. That should allow you to specify that a

```
<rect id="rect1" fill="#f00" ...>
  <animate attributeName="fill"
    from="#f00" to="#00f"
    dur="3s" fill="freeze"
    begin="0s" />
</rect>

<rect id="rect2" fill="#f00" ...>
  <animate attributeName="fill"
    from="#f00" to="#fff"
    dur="5s" fill="freeze"
    begin="3s" />
</rect>
```

```
<rect id="rect1" fill="#f00" ...>
  <animate id="anim1"
    attributeName="fill"
    from="#f00" to="#00f"
    dur="3s" fill="freeze"
    begin="0s" />
</rect>

<rect id="rect2" fill="#f00" ...>
  <animate attributeName="fill"
    from="#f00" to="#fff"
    dur="5s" fill="freeze"
    begin="anim1.end" />
</rect>
```

second animation should finish three seconds after the end of the first animation, with the browser calculating when the animation should start in order to produce that result. Similarly, you should be able to specify values for “begin” and “end” with no duration set. In practice browsers fail to honor anything but a simple time-based “end” value.

Speaking of features that don’t work in the browsers, the “begin” (and “end”) attributes can, theoretically, take several other forms. You should be able to use an ISO8601 format time or datetime value to trigger your animation at a particular absolute time, but I was unable to get that to work in a browser. Another option is an “accessKey” - i.e. a single key on the keyboard that,

## HOWTO - INKSCAPE

when pressed, would trigger the start of the animation. The presence of a demo for this on the Mozilla developer site suggests it used to work, but neither Firefox nor Chrome behaved as expected in my own tests.

There's one final option that does sort-of work, however: events. The following syntax, for example, will (in principle) trigger an animation when the rectangle is clicked on:

```
<rect id="rect1" fill="#f00"
...>
  <animate id="anim1"
    attributeName="fill"
    from="#f00" to="#00f"
    dur="3s" fill="freeze"
    begin="rect1.click" />
</rect>
```

There are various events available, covering not only clicks but also mouse movements, scrolling and even changes to the structure of the document. Although the example above uses the parent element to trigger the animation, in practice you could use the ID of another element in the image – allowing a click on one element (styled as a Start button, perhaps) to trigger an animation on another.

In practice this option does work, but only in situations when JavaScript would also be executed: when the SVG image is loaded directly, via an `<object>` tag, or is included inline with the HTML. It doesn't work when SVG is loaded via an `<img>` element, which is a real shame as it could theoretically offer a safe way to produce interactive animations without the security risk of allowing JavaScript code to run.

And that pretty much sums up the failed promise of SMIL. If fully implemented it would have allowed the creation of complex animations triggered by mouse events or keypresses, with each component synchronised to other parts, all with a fairly simple declarative syntax that makes it safe to use via an `<img>` tag. Imagine a complex interactive animation, of the sort that you might see in a museum, but with the ability to be shared on forums or social media as easily as any other image.

Before bidding farewell to SMIL entirely, I'm going to briefly discuss the last of the animation elements that are supported by SVG: `<animateMotion>`. This allows you

```
<path
  fill="#f00"
  stroke="#800"
  stroke-width="2"
  ...
>

<animate attributeName="fill"
  values="#f00; purple; #00f"
  keyTimes="0; 0.5; 1"
  dur="5s" fill="freeze" />

<animate attributeName="stroke"
  values="#f00; purple; #00f"
  keyTimes="0; 0.5; 1"
  dur="5s" fill="freeze" />

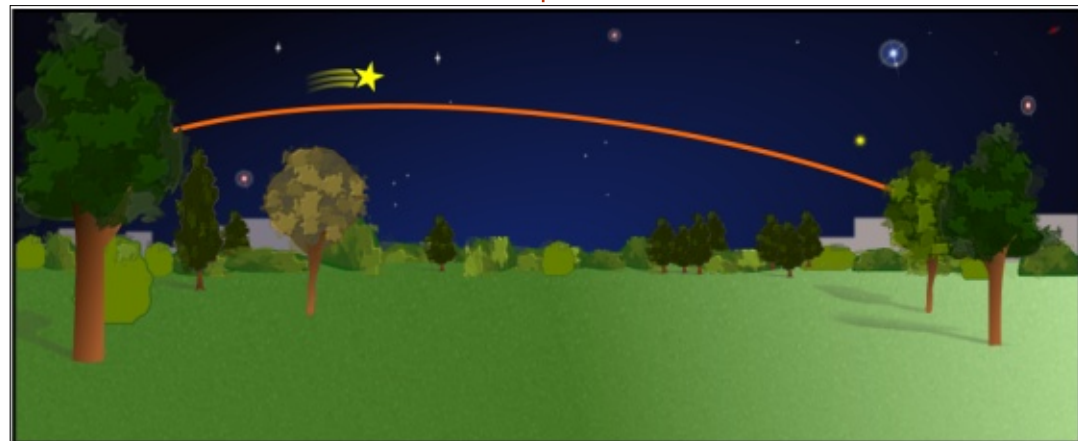
<animate attributeName="stroke-width"
  values="4; 8; 20"
  keyTimes="2; 3; 6"
  dur="5s" fill="freeze" />

</path>
```

to animate the position of an element along a path, either defined within the element itself or by reference to another path in

the file. Consider this delightful evening scene (below).

Note the orange path across



## HOWTO - INKSCAPE

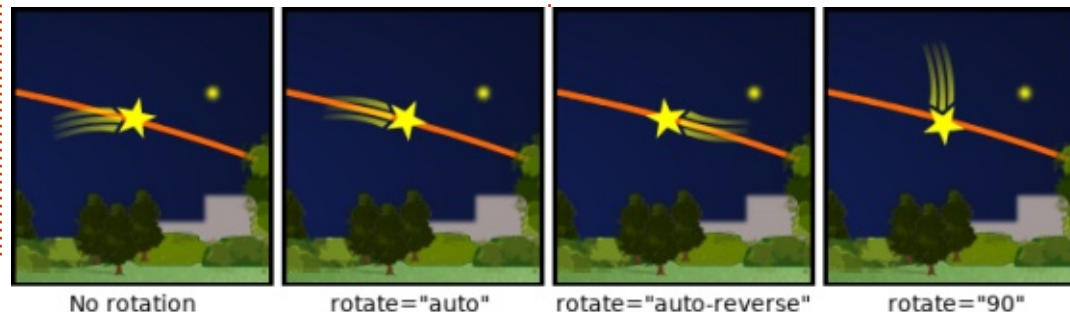
the night sky, which I've given an ID of "animPath". The yellow shooting star is made up of a group of objects, drawn so that the center of the star is at the top left of the document area (0,0 in SVG coordinates) – though I've moved it into the middle of the scene for this screenshot so that you can see it. By adding an `<animateMotion>` section inside the group, the shooting star will follow the orange path across the night sky (top right).

The `<animateMotion>` element gets the usual animation attributes of "dur" and "fill" (and could have had "begin" and "end" if required), but has two attributes that are specific to this type of animation. The first is a "d" attribute which can contain path data of the same form that you would find in a `<path>` element. If present, this is used as the path along which the parent element will be animated.

An alternative to directly including the path data in the `<animateMotion>` is to reference a separate path that is present elsewhere in the document. This is the approach I've taken here, by including an `<mpath>` ("motion path") child element that refers to

the ID of our animation path via the "href" attribute. Although modern browsers understand "href" as a native attribute in SVG, using the "xlink" namespace provides better compatibility with older software, so that's what I've done here. The big advantage of using a linked path like this is that the path is an element that can be modified in Inkscape, whereas an embedded "d" attribute isn't.

The second attribute that is specific to `<animateMotion>` is "rotate", which is an SVG addition which is not present in the base SMIL specification. This can take a number, in which case the object is rotated by that number of degrees, although a fixed rotation is probably better achieved using a "transform" attribute. More usefully, this attribute can take a value of "auto", in which case the rotation of the element follows the shape of the path (there's also an "auto-reverse" option which



```
<path id="animPath"
  d="..."
  style="..." />

<g id="shooting_star">
  <path id="star" ... />
  <path id="tail1" ... />
  <path id="tail2" ... />
  <path id="tail3" ... />

  <animateMotion
    dur="5s"
    fill="freeze"
    rotate="auto">
    <mpath xlink:href="#animPath" />
  </animateMotion>
</g>>
```

does the same, but rotates the animated element through 180° first). Here's the effect of each option as the star descends on its path; notice particularly how rotate="auto" has turned it to suit the descending curve of the line.

You may be wondering about that orange path. The final step in designing an animation like this is typically to hide the animation path somehow. I usually move the

path down in the z-stack behind everything else, or change its stroke color or opacity to make it transparent. Even when it's transparent you can still get to it using Inkscape's View! Display Mode! Outline option, if you do need to make some later changes. Although this simple example uses just a single curved path segment, the animation path can be as complex as you like with loops, twists, curves and sharp corners, so being able to tweak it graphically in Inkscape can be invaluable.

One final thing to note is that although my test animation ran smoothly in both Chrome and Firefox when the SVG file was loaded directly, referencing it via



## HOWTO - INKSCAPE

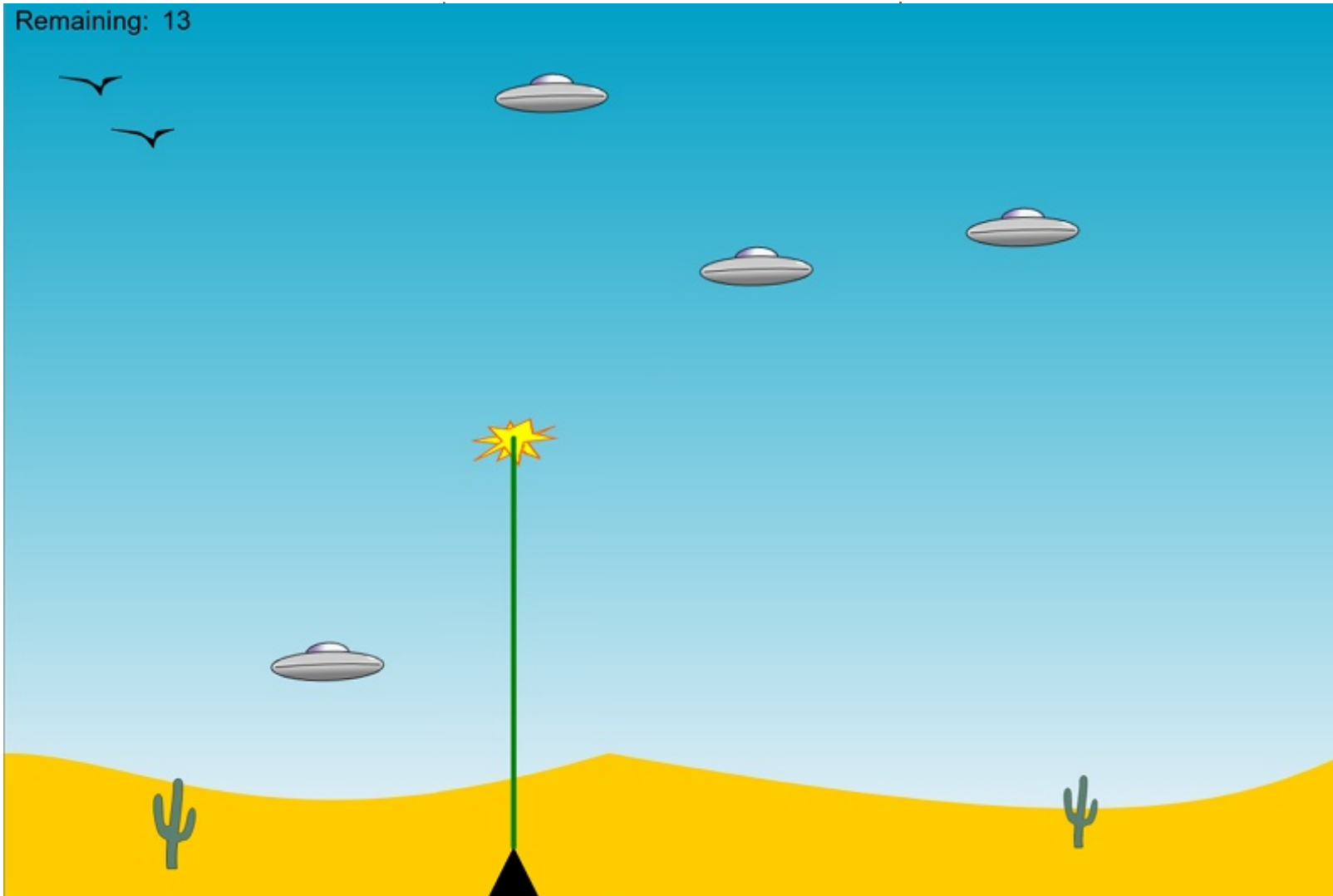
an `<img>` tag in a web page resulted in a choppy animation in Firefox.

I'll leave you with a little SMIL anecdote: back in 2011 I made use of SMIL for an Easter egg in one of my webcomics, to animate a UFO flying over the scene. The

animation path itself is seemingly jerky and erratic, but digging into the file in Inkscape reveals that the path actually encodes a URL. Visiting that address shows a small demo of what SMIL can do: by using some JavaScript to dynamically add and modify SVG and SMIL elements, I wrote a

simple Space Invaders style game that runs in the browser. JavaScript handles the game logic, with SMIL responsible for ensuring that the flying saucers move smoothly around the sky. For the time being, at least, it runs in all the major browsers, except Microsoft's...

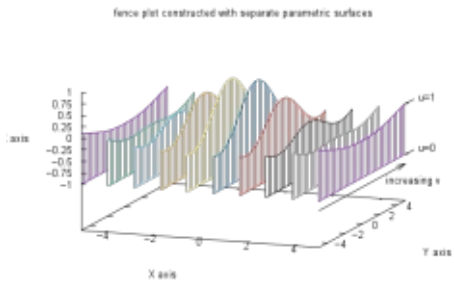
These couple of articles have just provided a brief introduction to SMIL. With browser support waning, it's unlikely to ever fulfill its early promise of allowing interactive animations in a way that can be safely used online anywhere a simple image is allowed. As is too often the case, it appears that corporate politics has killed a promising technology.



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



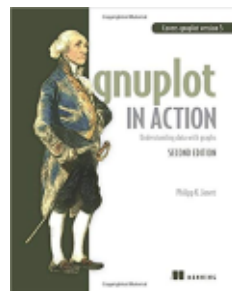
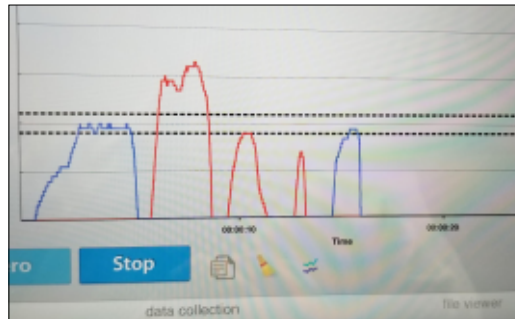
I apologize for not writing last month. I was buried in several workshops during August that required my attention. The workshops ended last week in August. During these workshops, I attempted to use Gnuplot to develop simple pressure graph waveforms. I could not effectively use these graphs in my presentations.



I wanted to use a fence plot layout to demonstrate the varied pressures generated by osteopaths when doing hard tissue examinations; this is a simple task using an R file.

I read Chapters 2-15 of 'Gnuplot in Action' by Philipp K. Janert. Each chapter was well written and focused; however the book,

overall, lacked in true teaching principles for cohesive learning. For example, Chapter 2 was aimed at developing simple graphs, it gave the commands on developing a sin graph or a simple x/y plot. Yet the Chapter did not give enough details on hand collating the raw data into the correct format. If the data is incorrectly collated, then improper data plots are generated. The following chapters then assume you generated a graph, and how you can change axis names, multidata colours, etc.



Overall I could not recommend the book for a new user. This is not an instructional teaching book. It

# CentOS

is more of a power user manual for previous Gnuplot users. The author is a data scientist, and I wonder if he wrote for this audience accidentally and not for a new user. I am positive that "online forum mentoring" could be a key factor in becoming a power user of Gnuplot.

So I used R files to generate the graphs for my presentations.

I changed my distro from Fedora MATE on my work computer. A Fedora update caused a kamikaze moment on one of my R programs. I was able to revert to an older Fedora kernel, and run the program, but I decided I need greater stability. Do I revert back to Ubuntu, or another Fedora remix? I decided to stay within the realm of RPM and chose CentOS.

CentOS is known for its stability

and long-term support for 10 years. It has a great online presence as a server-based OS. Many people state that CentOS is not a desktop distro, yet I am running Chromium, LibreOffice, R, Handbrake, VLC, and Kdenlive.

Next month, I will do a quick documentation on how I set up CentOS for my daily desktop use.



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





One thing people have criticized about Linux for years is the lack of games. The truth is, there are ways to play hundreds, even thousands, of games, if your expectations are reasonable. No, you often can't play the latest and greatest rendition of "Halo" or "Call of Duty" or "Madden NFL Twenty-Whatever", but there were literally thousands of PC games available in the DOS days, and the ones that were fun back then? – they're still fun now. The graphics may be dated, but many still have great gameplay and terrific stories, and are well worth your time. To run these older games, you will need to download and install DOSBox.

The easiest way to install DOSBox is via the command line. At a terminal screen, type in:

```
sudo apt-get install dosbox
```

type in your password when prompted, then let the install complete. You can also get DOSBox via Synaptic Package Manager, or by using the Ubuntu

Software Center, as explained in more detail in Everyday Ubuntu column #2 (FCM#130). DOSBox looks pretty intimidating to the eyes of a GUI user these days, but it's actually pretty simple to use. That said, the configuration and options available can get quite deep. However, for most DOS games and programs, only a small handful of commands and options are really essential.

We'll start out our DOSBox experiment with one of the great games from the end of the 'DOS Era', one that offers an insane amount of gameplay, a truly gigantic gameworld, and graphics that WERE cutting edge at their time. It's (drum roll) ... DAGGERFALL!

Daggerfall came out in 1995, right about the same time that Windows 95 started taking over the MS-DOS/PC world. It could be run in Windows 95, although it was often problematic to do so, and the game itself was originally bug-ridden and crash-prone. As time went on, and updates were made,

the game became much more stable. It came in a genuinely eye-catching hologrammed box (I still have a couple of the original boxes somewhere), and promised hours of open-ended gameplay. It also had a central storyline, which the player was perfectly free to ignore, if so desired. Daggerfall does have some mature material in it, so it's not 'kid-friendly', although it does have a kid-friendly mode. A great thing about Daggerfall, particularly for our current purpose, is that publisher Bethesda Softworks has made it FREE to download and play. Not a demo or shareware version, the whole game, posted on Bethesda's webpage.

To start our adventure of installing and running Daggerfall on Linux, first go to Bethesda's Daggerfall download page, at <https://elderscrolls.bethesda.net/en/daggerfall>. Click the button that says 'Download the full game', and save it to a location on your local drive. Your browser will probably default to saving it in the Downloads folder under your Home directory, which should be

fine. The file is a Zip archive (DFINSTALL.ZIP), which is an archive file format natively supported by Linux. Once the download is complete, use your File Manager to go to its location and double-click it. That should normally open the Archive Manager. You'll see DFCD and DAGGER folders inside the Zip. You can extract to wherever you decide to save it either by clicking the Extract button at the top, or (my preferred method) drag and drop the two folders to an open folder in File Manager. You can ignore the PDF file for now, it's for installation instructions that won't apply to us.

For convenience, we're going to extract these 2 folders to a folder under our Home directory. Create a folder in Home called DOSGames. Remember for future reference, these folder names are case-sensitive in Linux. Extract or drag-and-drop the two folders. Now we're ready to get into DOSBox and to actually set up and play the game.



Launch DOSBox from the Dash. You'll be greeted with a Z: prompt. Unlike real DOS machines where the operating system almost always resided on the C: drive, DOSBox keeps it out of your way on the Z: drive. It's also worth knowing that DOSBox does not run MS-DOS or PC-DOS by default, but the freeware alternative FREEDOS. Also, note the line at the beginning showing your emulated sound card configuration. It will normally default to SET=BLASTER A220 I7 D1 H5 T6. We'll get into what this all means a little later.

We're first going to 'mount' our C: drive to allow us to run Daggerfall as though it were installed to a C: drive. Mounting is a process, familiar to old Linux hands, that used to be a lot more hands-on in older versions of Linux, but is now almost always handled in an automatic fashion. DOSBox, however, requires us to learn or resuscitate an old Linux command-line skill.

Mounting a media drive makes it available to use under your Operating System. In the case of DOSBox, remember you are actually running a FREEDOS virtual machine in a window on your

system. Let's get started by typing in

```
mount c ~/DOSGames -freesize 1024
```

This tells FREEDOS to make a C: drive from the folder DOSGames, under the Home directory (that's

what the ~ stands for, note that as it's a handy shortcut for other Linux commands). Freesize is setting the amount of free memory emulated.

You'll need to install the game first before you can play it. Within

DOSBox, type in

```
cd DFCD
```

and hit Enter. Now type in

```
install
```

and hit Enter. The game's





installation routine will start – go through the installation process until it completes. The game will want to know your sound card configuration. Remember the SET BLASTER line when DOSBox launched? The parameters represent your sound card settings in your DOSBox session. In the DOS days, we had to configure games to coincide with hardware/firmware settings for our sound cards. Most computers of the time did not have sound support beyond a basic PC speaker built in, and the standard for sound was set by Creative Labs with their original SoundBlaster add-in hardware card. Setting the SoundBlaster parameters was part of configuring DOS to support the card, usually done via a line in the file AUTOEXEC.BAT that was executed when a DOS machine was booted. Sound cards had an address (A220), and interrupt vector or IRQ (I7), a DMA channel (D1), and in some cases a high DMA channel (H5). T6 refers to the Type of card, here it is a 16-bit SoundBlaster.

In the case of Daggerfall, the game can't run without the CD inserted in the CD-ROM drive, but we don't have a physical Daggerfall

CD, now do we? No problem, we just have to mount the DFCD folder as the D: drive. Type in:

```
mount d ~/DOSGames/DFCD -t
cdrom -ioctl -label
Daggerfall
```

This tells FREEDOS to make the DFCD folder into a D: drive, and to label it as 'Daggerfall'. Without the Daggerfall label, the game program won't find the emulated CD-ROM properly. A lot of games, fortunately, won't require this (or even mounting a virtual CD-ROM at all, for that matter). Also, note the 'Daggerfall' label IS case-sensitive.

Now that the D drive is mounted up and the game has been installed, you can change to the game directory in DOSBox. It should default to installing under the folder dagger. Move to that folder:

```
cd dagger
```

and hit Enter. Now type in:

```
fall.exe z.cfg
```

and hit Enter. The game should now begin, and you are ready to set up a new character and to explore Daggerfall!

If you're installing to a laptop, like I did, it's worth noting that you will probably need an external mouse, as it's almost impossible to control the game on a touchpad. If you get killed by a giant rat right off the bat because you tried to play on the touchpad, don't say I didn't warn you!

Other old DOS games that I own and have running under DOSBox include Wing Commander I and II, Ultima Underworld, System Shock, Eye of the Beholder, Ravenloft: Strahd's Possession, Aces of the Pacific, Aces over Europe, Epic Pinball, Superhero League of Hoboken, TIE Fighter Spellcasting 101, SU-25 Stormovik, Secret Weapons of the Luftwaffe, VGA Tetris, Subwar 2050, Blake Stone: Aliens of Gold, Wolfenstein 3D, Duke Nukem 3D, NASCAR Racing, Biomenace, Jill of the Jungle, Commander Keen, Xargon, Raptor: Call of the Shadows, and X-Wing Fighter.

That's a pretty good variety of great games, and still a short list in comparison to all the games that were created to run under DOS. Most can be run without having to mount a CD drive, so they're

simpler to set up than Daggerfall was. Just mount your DOS games directory to C:, change to the desired directory with the DOS cd command, then run the game.

Next month: Part 2 of Retro Gaming!

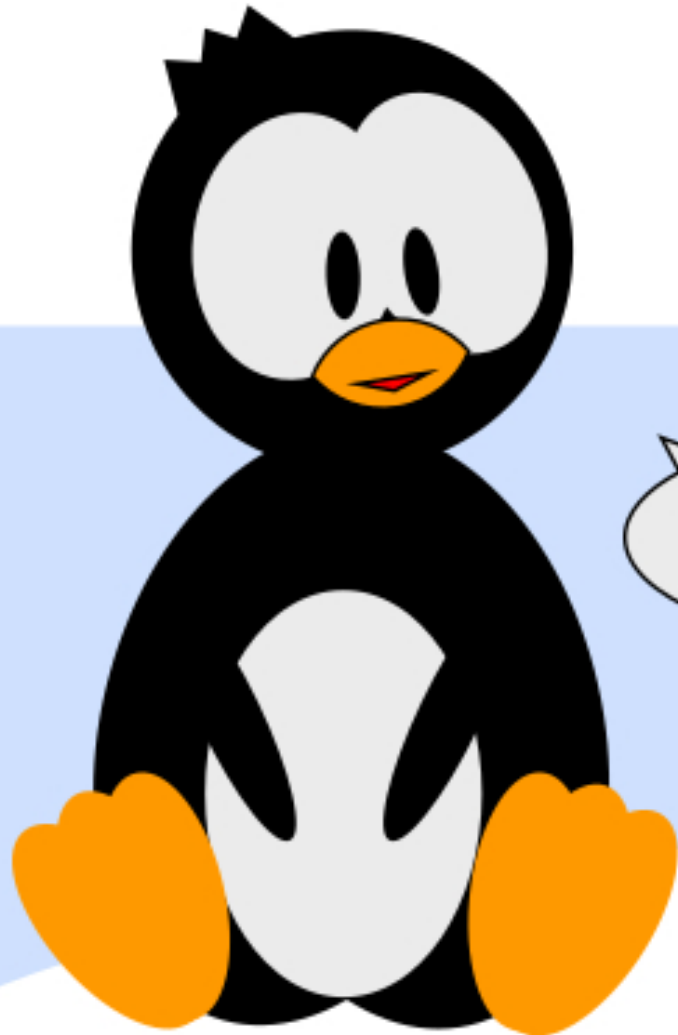


**Richard 'Flash' Adams** spent about 20 years in corporate IT. He lives in rural northwest Georgia, USA, with his adopted 'son', a cockatiel named Baby.



**Booleans are either true or false...**

**True?**





# MY STORY

Written by Jimmy

Until recently, I had a basic Pentium PC (E5200 cpu, 2GB RAM, Windows 7) for daily use (downloading, browsing, email, etc). About a year ago, this PC started to show signs of failure (swollen capacitors on motherboard, hard drive errors, freezing, and failed usb ports), so I saved up for a replacement. A few months ago, I purchased an Intel NUC 6CAYH (Celeron J3455). It is a basic unit with no RAM, storage or operating system, so I also purchased 4GB RAM and a 500GB hard drive.

I decided to ditch Windows 7 (which I previously used) for a Linux-based operating system. My distro of choice was KDE Neon OS, mostly because of KDE Connect. I tried a few different KDE-based distros, but they all had too much bloatware, KDE Neon OS was just Ubuntu LTS + KDE, VLC and Firefox, not much else. I could choose my favourite apps.

The first hurdle was installation. With the default UEFI BIOS, Neon OS would fail to install GRUB and

crash if internet access was disabled. If internet access was enabled, it would install, then fail to boot! With Legacy Boot enabled, Neon OS installed and booted just fine.



With my previous setup, I used Thunderbird for emails, Firefox for browsing, and uTorrent for downloading. Now I tried the default KDE applications; Kmail

and Ktorrent, with little success. Kmail refused to send emails, even with the same settings as Thunderbird, so I installed Thunderbird and solved my email problems. Ktorrent downloads were quite slow, so I installed uTorrent and got back full download speeds. Firefox would use single cpu cores at 100% until I changed it's multithreading setting. Since v57, this seems to be the default setting.

The device did switch off a few times for no apparent reason, but I discovered that my UPS battery had failed, and the numerous power dips we experience was the cause. With a new UPS in place, no more random switching off.

As I no longer need to install/update anti-virus software and endless device drivers, RAM usage is somewhat lower and the system performs well. Change feels good...



# HOW-TO

Written by Ronnie Tucker

# Write For Full Circle Magazine

## GUIDELINES

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

## RULES

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

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

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

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

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

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

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

When you are ready to submit your article please email it to: [articles@fullcirclemagazine.org](mailto:articles@fullcirclemagazine.org)

## TRANSLATIONS

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

## REVIEWS

### GAMES/APPLICATIONS

When reviewing games/applications please state clearly:

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

### HARDWARE

When reviewing hardware please state clearly:

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

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







# REVIEW

Written by Ronnie Tucker

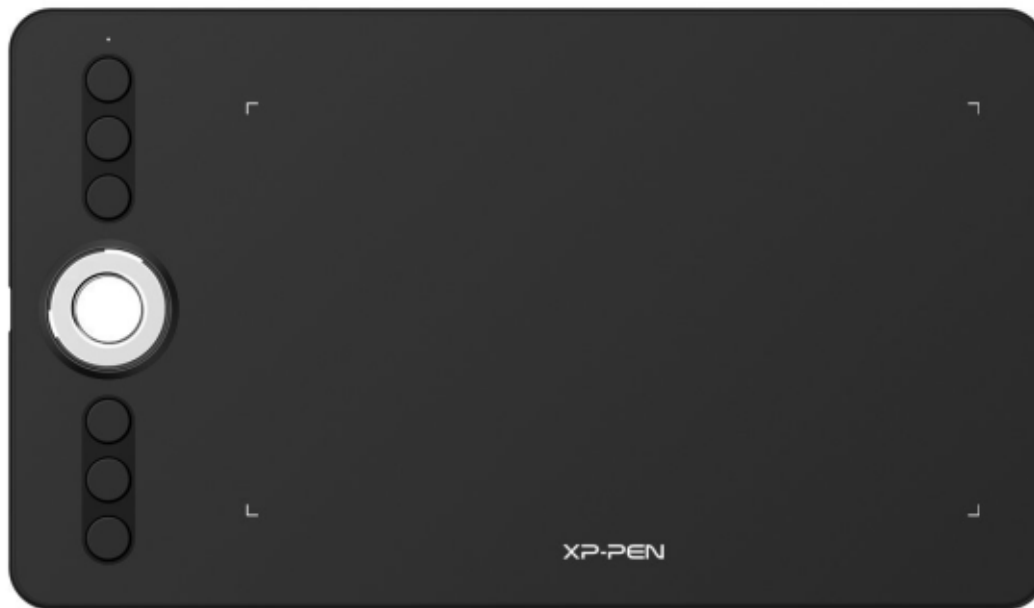
# XP-Pen Deco 02 Graphics Tablet

Getting graphics tablets to even be detected is sometimes a problem with Linux. So it's nice to see not only a tablet that's detected out of the box, but one from a company that's developing a Linux driver.

## CONTENTS

The box is very nicely presented. The lime-green inner sleeve is visible through small notches cut in the outer sleeve. Inside the inner sleeve is the tablet itself, USB cable, a hard tube, a rubber stopper, a free drawing glove, and the usual licenses and such like.

The tablet itself is 14" x 8.5" x 0.5", and the drawing area is 10" x 5.5". The drawing area being 'widescreen' is perfect for most modern desktop resolutions (even multi-monitor like I use). Having a square drawing area (like I have with my Wacom Bamboo Touch) on a tablet with a widescreen monitor can cause problems with ratios. and the feeling that the pointer is



moving too fast, or sliding. Middle left on the tablet is a silver 'wheel'. This can be used with your finger and rotates smoothly. The provided lime-green stopper can be inserted into the hole of the dial to give you a more precise dial. Above and below the wheel are three buttons.

Inside the mysterious metal tube is the pen. You unscrew one end to retrieve the pen, and this

cap can be used as a pen holder. The other end of the tube is unscrewed to reveal eight spare nibs. Spare nibs are always a good thing with a graphics tablet. The tube is an excellent pen protector.

The pen is hexagonal and shaped to look like a pencil. This is one feature that I love about the pen. As in most cases, the pen includes a single button. One end of the pen has the drawing nib, the other end has the eraser.

## INSTALLATION

Connecting the tablet is as simple as plugging one end of the USB cable into the tablet, and the other end into a free USB port.

Whether your distro will detect the tablet automatically is a bit hit-and-miss, but don't despair. Running:

```
lsusb
```

may show the tablet in a list of USB connected devices. For me, it

```
ronnie@ronnie-desktop:~$ xinput list
Virtual core pointer          id=2
↳ Virtual core XTEST pointer  id=4
↳ MOSART Semi. 2.4G Wireless Mouse  id=8
↳ Logitech USB Optical Mouse  id=14
↳ XP-PEN DECO 02              id=10
↳ XP-PEN DECO 02 Pen (0)     id=15
```

just shows the ID number (28bd:0803). Fear not! Running:

```
xinput list
```

did it for me, and I can see it listed (previous page, bottom right).

Remember those ID numbers (10 and 15 in my case) as you may need them if you want to run an `xinput` command to tweak the tablet or pen.

If, for whatever reason, you don't see your tablet connected with `lsusb` or `xinput`, it may mean you need to install some drivers. There's a Deco 01 driver in the current (as I write this review) DIGImend pack. You can grab this from:  
<https://github.com/DIGImend/digimend-kernel-drivers/releases/tag/v8>

DIGImend is a set of drivers for a vast range of tablets. It doesn't include the Deco 02, but it does include the Deco 01 which I believe is enough to get the Deco 02 running on some distros.

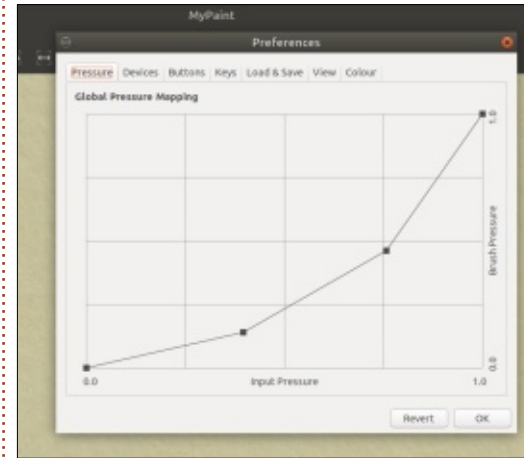
Simply download the .deb file and double-click on it to install. You may need to reboot your system to have the drivers take effect.

## THE GOOD, THE BAD, AND THE UGLY

So, what works in Linux? Well, the main things work: the tablet pressure sensitivity, and the pen nib.

What doesn't: the wheel, the buttons, and the eraser.

Pressure sensitivity is usually adjusted in the software you're using. So if it's GIMP, or (in my case) MyPaint, you'll find the pressure settings in there. Tweak them to get to a comfortable level for you.



The DIGImend site has some excellent pages showing how to edit and enable pressure sensitivity in the most popular pieces of software:  
<https://digimend.github.io/support>

## IN THE WORKS

I've submitted the tablet data to the DIGImend team in the hope that they can get the Deco 02 fully working with their drivers. I've also been in contact with XP-PEN who currently have a beta driver on

their site. It works only with Qt5.10 though. Ubuntu currently comes with Qt5.9 and won't run the beta drivers. XP-PEN have told me that they're still beavering away on the driver and want it to fully work in Linux.

## CONCLUSION

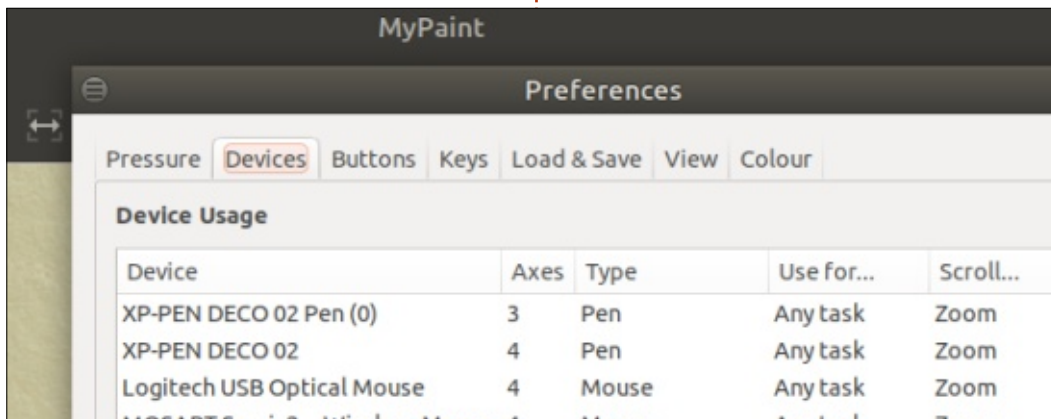
Even with the buttons and wheel not working, I give this tablet four out of five. The makers are supporting Linux and, to be honest, I never use shortcut buttons on a tablet. I always use keyboard shortcuts with my non-drawing hand.

Once I tweak those pressure sensitivity settings, I can see this tablet nudging out my trusty old Wacom Bamboo...

Digimend drivers:  
<https://github.com/DIGImend/digimend-kernel-drivers/releases/tag/v8>



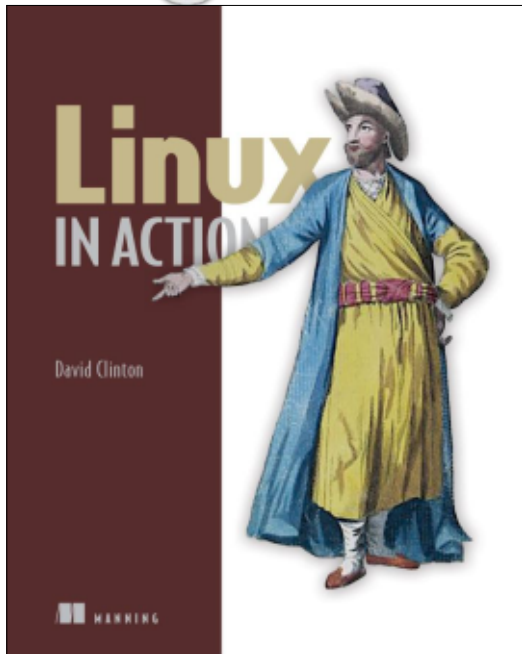
**Ronnie** is the founder, and editor, of Full Circle. His other interest is art, and his work can be seen at:  
[ronnietucker.co.uk](http://ronnietucker.co.uk)





# BOOK REVIEW

Written by ErikTheUnready



Review: Linux in Action  
by: David Clinton  
ISBN 9781617294938  
384 pages of goodness.

I just love books that do practical things. Learning about Linux while doing practical things is even better. I can say I am not disappointed. Usually the "real world" projects presented in this type of book have no real world applications at all (unless you live under a stone and think that

writing a tip calculator is real world). I started reading, thinking I would bump up against hello worlds and tip calculators, but no such luck. This book is solidly written with the modern Linux user in mind. Did I mention that the book is full of illustrations?

Chapter one starts off with a "Welcome to Linux", but instead of boring Unix history, you are presented with practical topics like 'sudo' and 'keyboard tricks'. So far so good. Chapter two steps you right off the edge and into virtualisation. Starting with VirtualBox and moving to Linux containers. The text is easy to follow and well presented.

I truly cannot say there was anything that did not interest me. The third chapter about remote connections, starts off with the importance of encryption. How cool is that? From here, the author just ramps it up and moves towards web servers, administration, etc.

I have never read anything by this author and had a quick look on

Youtube. You can too: <https://www.youtube.com/watch?v=gTRuShmM9Ak>. I cannot vouch for anything about the author, but his work speaks for itself.

The bottom line is, if you are a Linux enthusiast who wishes to know more, this book is for you. There is something for everyone in this book. When they said practical, they meant it. When they said 'real world', they meant it. Chapter six is dedicated to building a system recovery device. Chapter eight is dedicated to setting up your own Owncloud server. When the author teaches you something, like setting up a Mediawiki server, he covers everything from the LAMP stack to the choice of database to things like PHP. You just keep learning along the way whilst having fun doing something real. The 'something real' is actually twelve somethings. Go ahead, roll up your sleeves and get into the guts of your system.

My advice is get it now. The price is about \$30 for the electronic versions, pbook, ebook,

livebook and PDF. (There is also a promo code in the Youtube link).

Four stars (only because I wanted more!).



Get a preview here: <https://manning-content.s3.amazonaws.com/download/8/1e75d6a-ae75-408c-adb9-a82ae4c452b0/Chapter2SAMPLEAUG06.pdf>





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## FULL CIRCLE 2018 SURVEY

It's that time of the year again where we ask what you think of FCM, Ubuntu, and Linux.

Some questions are a requirement, some you can skip over if not applicable.

Your answers will help shape Full Circle, so please use your constructive criticism. If you don't tell us what you think, or what we're doing wrong, then we won't know.

Survey URL:  
<http://bit.ly/fcm2018>

## FULL CIRCLE NEEDS You!



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

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

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





# Q&A

Compiled by EriktheUnready

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

Welcome back to another edition of our questions and answers section. Please do try not to be too vague when asking a question. We endeavour to help, but we cannot read minds.

They are out there: Not too long ago, we had a customer fly off the handle and he demanded free internet glue or a new windows package. He was quite irate and not open to discussion. Not knowing what this "internet glue" was, I stopped by the customer's home - on my way home. Somehow, his taskbar got unpinned and was now at the top of his screen. I "glued" his taskbar back in place at the bottom and went home.

Q: Ok, here is my problem: my server is crashing (100% CPU usage), and whenever it does, I use htop to find the culprit. So one thing I noticed is whenever my CPU spikes in the 'Tasks' row, the second column (which is for 'thr') goes to the maximum. So I want to know what does this 'thr' mean?

Tasks : 91 , 107 thr, 94 kthr, : 6 running

A: Linux loves to shorten things; "thr" is short for threads. "kthr" is short for kernel threads.

Q: Hello, I upgraded my Ubuntu 16.04 server to the 18.04. now my websites are broken. Please help me.

A: Hi, Tenmil; this is much too broad with too many variables and no data. I would suggest by starting to uninstall and reinstall whatever the websites depend on, be it Ruby, PHP, or whatever. If you should change versions, be sure that your code is still compatible. Use a systematic approach, don't go updating willy-nilly, look at things like Apache logs before making rash decisions.

Q: I have Wordpress on Ubuntu 16.04. Why is my Wordpress site so slow? What can I do? Is

Wordpress bad?

A: No, Wordpress is not bad, it has helped hundreds of people to create websites, and created incomes for many people making plugins and themes. Speed in Wordpress is influenced by images, videos, and badly written code. Are your images and videos optimised for web pages? Have you double-checked your Java code? Is caching enabled? Did you follow the KISS principle? If you answered yes to all the above, it may be hardware that needs upgrading.

Q: My DNS is pointing to a new custom Nameserver. Cleared the cache and everything. I can access the server via IP, but not domain. I get the error "cannot establish secure connection" and the DNS starts with 'https://'. I don't have a ssl certificate installed.

A: I would advise you to have a look at this website <https://certbot.eff.org/docs/install.html#running-with-docker> or here, if it is not in Docker: <https://certbot.eff.org/lets-encrypt/ubuntu-xenial-nginx.html>. It is all free of charge.

Q: I created a non-root user to give to someone for uploading pictures to the web server, but I can only sftp into my server with the root user. I use a key for logging in with the root, but I have a password set up for the non-root user. When I try that user it just says "access denied"

A: Enable password auth in sshd config.

Q: I installed VNC on my raspberry pi (raspbian), and the VNC chrome extension in chromium. When I try to connect, I get GLX and GL errors, and inputs and lots of numbers that don't mean anything to me. How to make it work?



**A** : You don't need to install VNC in Raspbian, simply enable it. You can also download the client from [realvnc.com](http://realvnc.com), and try that instead of chrome. Chrome extensions may interfere with the Plugin. Make sure Raspbian has VNC enabled (you should see the icon in the taskbar).

**Q** : After a power failure during update, my system appears to be behaving badly. I've discovered so far that network and logind at least are failing. Apache and MySQL seem fine, just problems with access because networking is down. I have tried rebooting – to no avail. Same problems. I tried starting the network, and it has hung there for many minutes.

**A** : Do an apt-get clean and force a disk check at boot.

```
cd /  
sudo touch /forcefsck
```

Then, reboot.

**Q** : How do I remove "Welcome to nginx!" from website homepage?

**A** : Another broad question, it usually means you made a configuration mistake along the line. I would suggest you look here: <https://vpsfix.com/community/server-administration/welcome-to-nginx-landing-page-issue/>

**Q** : How to connect MYSQL remotely?

**A** : By default, remote access to the MySQL database server is disabled for security reasons. That said, you can follow this tutorial: <https://www.cyberciti.biz/tips/how-do-i-enable-remote-access-to-mysql-database-server.html>

**Q** : When I use Filezilla to connect to my Ubuntu 16.04 server via SFTP, it works fine, but not with Forklift. Any ideas?

**A** : The last time I used Forklift was on OSX Leopard. You

need to change a few things via terminal on your Mac. Look at: <https://binarynights.com/manual#remote-connections>. You do not need to change any configuration on Ubuntu server.

**Q** : I got stuck during the update, now have Kernel Panic - Not syncing : VFS: unable to mount root fs on unknown-block (0,0).

**A** : You will have to boot into recovery mode and roll back to an earlier kernel. If you don't have one, you will have to reinstall the kernel.

**Q** : When I try to access my website: [www.xxxxxxxxxxxx.com](http://www.xxxxxxxxxxxx.com), I get an error: " the page you are trying to view cannot be shown because the authenticity of the received data could not be verified. Please contact the website owners to inform them of this problem". It has been working fine for a whole year, now it does not work?

**A** : Renew your domain.

**Q** : I set up a lab server with mail setup from [howtoforge.com](http://howtoforge.com). My mail ends up as SPAM in my Gmail account. What can I do?

**A** : Your mails are likely to go to spam when sending to Google or Outlook because your mail server does not have a good enough reputation according to Google/Microsoft. This takes time.

**Q** : What do I need to set up CS:GO server?

**A** : Since you did not give me anything to work with, I am going to point you here: [https://www.reddit.com/r/GlobalOffensive/comments/2zkq2q/server\\_requirements\\_to\\_host\\_a\\_csgo\\_server/](https://www.reddit.com/r/GlobalOffensive/comments/2zkq2q/server_requirements_to_host_a_csgo_server/)

**Q** : I don't have GPARTED installed but I NEED to change a new drive. How to accomplish?

**A** : Hi, I assume you are trying to format or change the partitions of a new drive. Just run the "disks" app in Ubuntu and you can change the partitions. On the command line, your options are: fdisk, cfdisk and parted. Always double-check that you have the correct drive selected!

**Q** : Netbeans wants Java Development Kit -jdk installed. What is the best tutorial for it?

**A** : Open a terminal and type:  
`sudo apt-get install openjdk-11-jdk`

There are many tutorials on Java jdk out there, but use the "safe" option from the repositories.

**Q** : There are so many tutorials on Ruby and Rails, what is the best way to install ruby and rails.

**A** : Though I followed an example that I had Googled, Ruby and Rails can simply be installed with apt.

```
apt install ruby
```

```
apt install rails
```

**Q** : Unity is freezing after the splash screen on Ubuntu 18.04.

**A** : This was all I could find:  
<https://forum.unity.com/threads/linux-build-crashes-on-ubuntu-18-04-if-return-is-pressed.543692/>

**Q** : I try to install the pylint for python 2.7 in ubuntu 18.04, but it errors badly.

**A** : The short answer is pylint is not for Python 2.7. The support for Python 2.7 will end soon, try to use Python 3.

**Q** : Did you receive my mail?

**A** : Yes, "Dave", "Joe", "Sindy", "Viktor" - but since it was all spam, we deleted them. Now please stop sending "did you get my mail" emails.



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



Steam has done it again. This time, however, it's no secret that Gabe Newell and the rest of the shot-callers at Valve (Steam's parent corporation) are true Linux geeks who in their right mind believe the fact that Linux gaming is not only a necessity but also a very real fat-cow, money-maker, avalanche of a monster waiting to be woken up. While it seemed that the dream of Valve bringing gaming to Linux via their Steam Machines & SteamOS were experiments soon to be long-forgotten, Gabe & company were carefully keeping under wraps their best idea yet; enter Steam Play. Valve came out with their announcement of Steam Play on August 21 2018, and such announcement was immediately followed (within a few days) by the official Beta release of Steam Play.

So, what is Steam Play? In a nutshell, Steam Play is basically some sort of in-house emulator that tricks the game and the host OS (in this case Linux) into believing that they are compatible with each other. The most exciting

part: with the introduction of Steam Play, Valve has in a way instantaneously made it so that, at least in theory, every Windows game is also playable on Linux. Some games should play really well, others not so well, while others may not play at all. Either way, we're starting to get a clearer picture of the ambitious plans in Valve's line-of-sight. It's beginning to look like a future in which most games are universally available to all operating systems is the direction in which Steam might be headed. It only makes sense from a financial point of view as it opens sales up for a broader audience. At the same time, this gives Valve a sort of insurance policy against Microsoft's increasingly intrusive tactics regarding gaming.

Steam Play is now giving us a true flood of games which is why I've decided to not focus on any single game this time around but rather talk about Steam Play itself. Ahead, we will look at three components of Steam Play. First is a very brief and easy-to-understand explanation of how

Steam Play works. Second is a quick way to play games using Steam Play. Last, but perhaps most important, is how to set up your system so that game developers/publishers are aware of the demand from Linux gamers. So, without further ado, let's get to it.

## WHAT IS STEAM PLAY?

According to Steam's Official Steam-Play Announcement, the main purpose of Steam Play "is to let Linux Steam users enjoy easy access to a larger back catalog", and, in addition, they believe that Steam Play "will allow future developers to easily leverage their work from other platforms to target Linux." So, there are two very important parts to this message. First, Steam Play is immediately making the Linux gaming library grow to what we would have thought might have been ludicrous levels even five years ago. Second, and most important, is the hope that developers/publishers will see the benefit of also targeting Linux and

will then do so. So, what has Valve done to make Windows games playable on Linux? The way they explain it, they've taken a very close look at WineHQ and have modified it into what they're calling Proton which is basically Wine but modified with a focus on gaming. Underneath it all, there's a strong drive towards using Vulkan which is a cross-platform 3D graphics and compute API, which is basically the same thing as OpenGL or Direct3D, etc. The idea here is that by using Vulkan, a developer is not only taking advantage of the benefits offered by Vulkan, but also making sure that such games are easily adapted to any of the mainstream operating systems (iOS, Android, Linux, MacOSX, Windows). For now, however, Steam Play will mostly be using Proton, the modified Wine-emulator.

## HOW TO USE STEAM PLAY

There are a few good How-To guides on installing/running games through Steam Play, so rather than go into detail here, I'll give you a





brief run-through and I'll point out some of the crucial steps that will make your life easier and your experience more pleasant. First thing's first, in order to take advantage of this new feature called Steam Play, you need to make sure that you opt in to the Steam Beta.

- The way to do this is by opening your Steam client, then, on the upper left, go to Steam>Settings which should open up a separate pop-up window. In this smaller pop-up window, ensure you're under the Account option on the left side. Then, just look for the option to opt into the Steam Beta and check the box. At this point, you'll have to re-start Steam in order for you to use the Steam Beta.

After you restart, you're able to play any game that has been officially approved by Valve as a Steam-Play ready game. However, this list is very small at this time (only around 25 titles as of mid-September 2018). So, in order to take full advantage of Steam Play and to try out ANY game (whether it works or not), you'll need to do the following:

- Once again, on the upper left of the Steam client, go to Steam>Settings, but this time, instead of going to Account, go to the section titled Steam Play. Ensure that the two boxes that say "Enable Steam Play for Supported Titles" AND "Enable Steam Play for All Titles" are both checked. Then, restart Steam one last time to make sure everything is working just right.

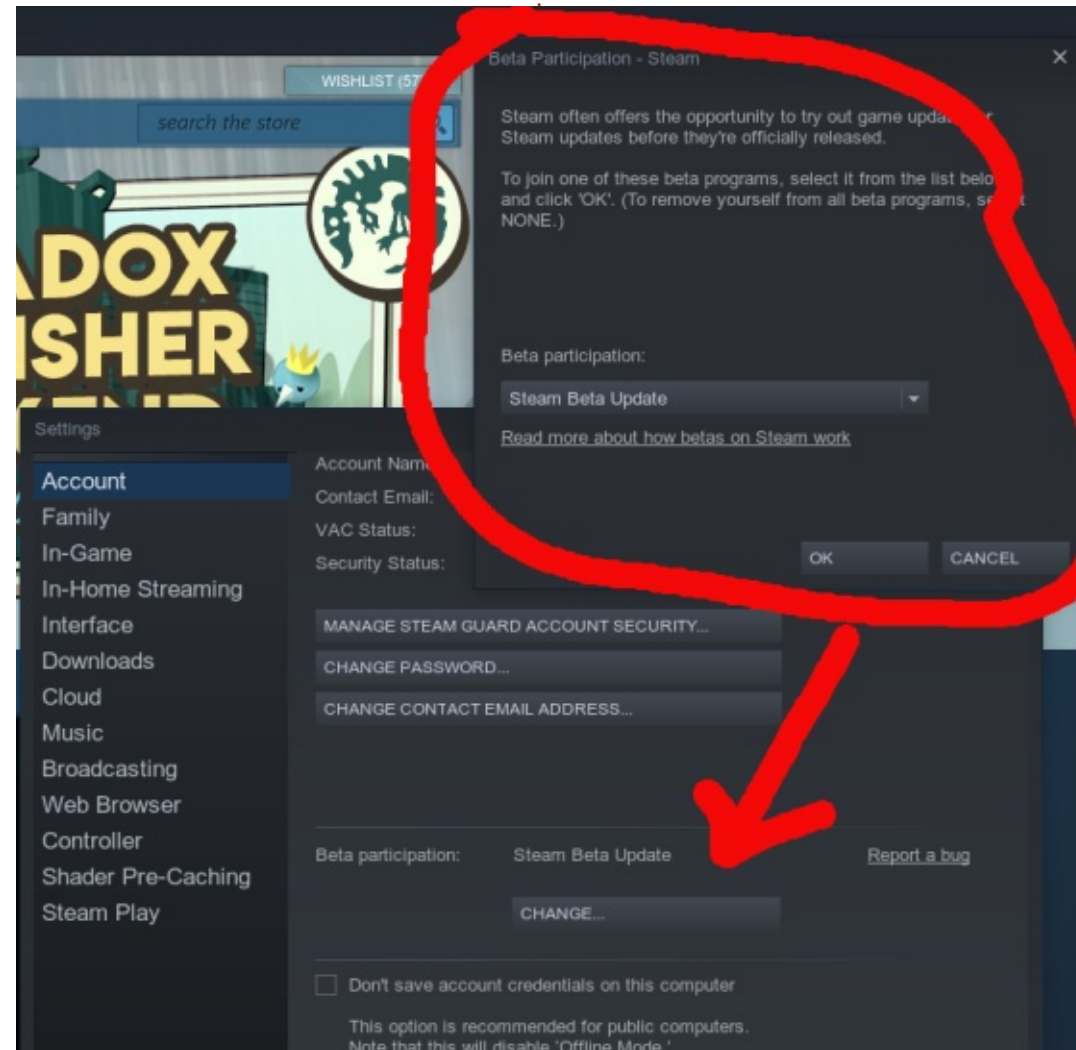
That's all you need. From this point on, just install any game you want and maybe it'll work, maybe not.  
<https://fosspost.org/tutorials/enable-steam-play-on-linux-to-run-windows-games>

So, now what? Are we left alone to figure out which titles are Linux compatible and which aren't? The answer here is not that simple. In its truest sense, the answer is YES, we are pretty much left alone to figure out which games work well under Linux and which don't. However, since we belong to the Linux community, there are lots of people/forums/groups already making this task much easier. The best place (for now) to go and find what other people are saying after

installing almost any game is a web page that evolved from a Google Docs Spreadsheet in which gamers can submit results from their gaming experience by game:  
<https://sPCR.netlify.com/>

Also, however, I'm recommending to keep an eye out

on any list you can find regarding games that support Vulkan. Unfortunately, Steam's designated page specifically for this purpose is completely blank, though it actually does exist. But, thankfully, there are other places that do list games with Vulkan support: List of games with Vulkan support



## LINUX WISHLIST

So, for the most important part of all. Let developers know how you feel. Once you've done everything I've explained above, and you've played all of the games you've always wanted to play – but would now like for your favorite game publisher to be made aware of the demand for games on linux, what do we do now?

Let's go back to our beloved Steam client, but this time let's go to the top right to find your username. Click on your username and then, on the dropdown menu, click on Preferences. Then scroll down to where it says Platform Preferences, and, under Operating Systems, make sure that only Linux is selected. This selection will do a few things. First, you'll be presented only with games that are authentically compatible for Linux. So, although it may seem counterintuitive, and seem it goes against everything we've done up until now, just wait and hear me out. All Windows games that you want to try are still only a search away, they just won't be featured in your Queue, but you will still be able to browse through these

games and install them on your system. The REAL reason we've selected only Linux games under our Preferences is so that, according to Valve, "if a user has only one platform filter selected in their Steam store preferences, adding a game to their wishlist will result in it being specially reported to the developer in a new platform-specific breakdown of the wishlist report."

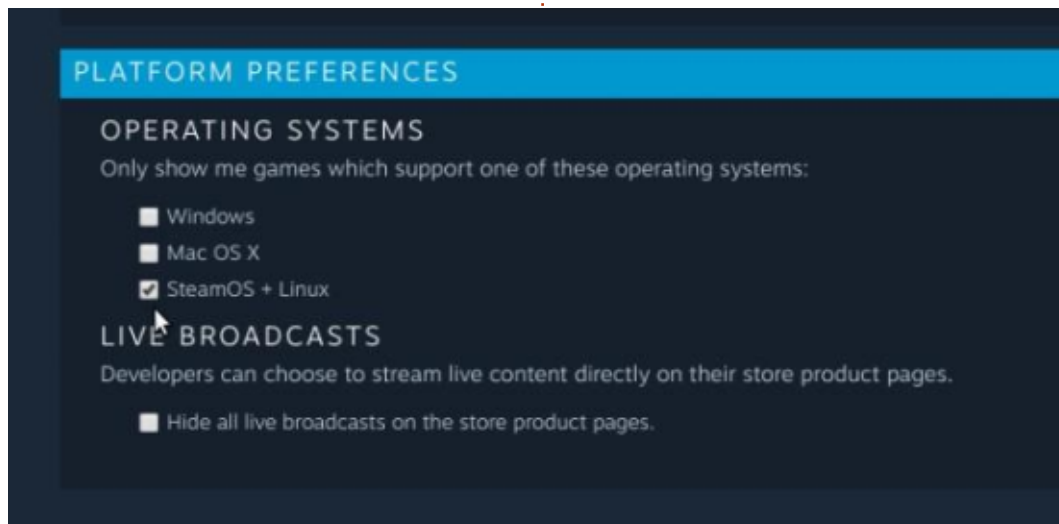
Hopefully, this also means that non-Linux games that people purchase are also reported to the developer so as to persuade them to look into using Vulkan for future titles.

The future never looked brighter for Linux gaming, but we

as consumers need to do our part: browse the Steam catalog, look through the Steam Play compatibility spreadsheets, read forums, and do your part by buying and playing some video-games!



**Oscar** graduated from CSUN, is a musician, game enthusiast and has been working with Bitcoin and other alt-coins. You can follow him at: <https://twitter.com/resonant7hand> or email him at: [7bluehand@gmail.com](mailto:7bluehand@gmail.com)



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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.**



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## FCM#138

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