Full Circle

THE INDEPENDENT MAGAZINE FOR THE UBUNTU LINUX COMMUNITY

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KRITA

TWEAKING OLD PHOTOS WITHOUT GIMP

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THE INDEPENDENT MAGAZINE FOR THE UBUNTU LINUX COMMUNITY

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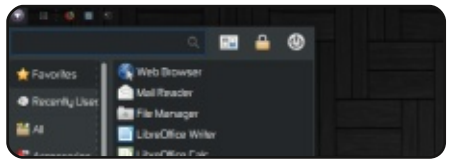
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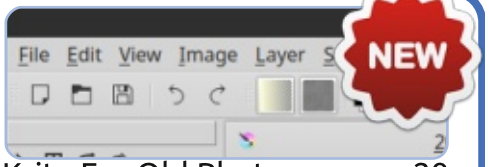
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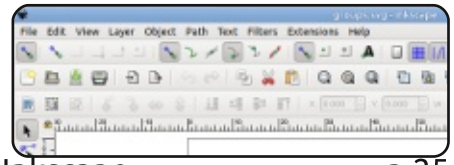
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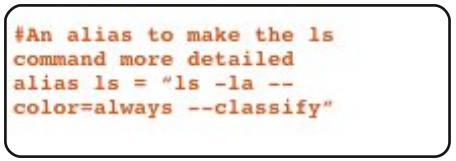
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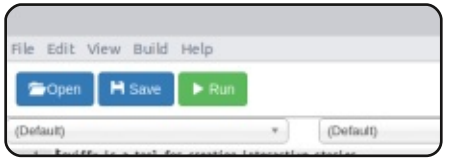
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EDITORIAL

Welcome to another issue of Full Circle!

We have the usual suspects this month; Python, Darktable, Inkscape, and Automation, but we have a newcomer in editing old photos with Krita. Yes, it's not GIMP, but Krita. This one will definitely be interesting as my first choice for any sort of editing is GIMP. I think of Krita is being more of an art thing, but I'm about to be proved wrong.

We continue with another distro review. This month we have Xubuntu (19.10) under the spotlight. For our second review we have a look at Olive. A video editing tool. I hadn't heard of it until I received the article. I don't think it'll beat Kdenlive (which I currently use) but it's always good to have an up and coming alternative that may well overthrow my current tool of choice.

If you're a fan of reading the news each month then now is your time to make your voice heard. Arnfried is leaving us, but the news is being taken over by, you guessed it, Erik. I'm currently considering removing the news section from the magazine and only using the news snippets for the FCM site and for the Weekly News podcast. So, if you want to keep reading the news in FCM you need to let me know. I don't mind putting in the work if it's being read, but is it? Talk to me people.

All the best, and keep in touch!
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Canonical accelerates Gnome Shell

According to a post in the Ubuntu forum, Canonical developers have noticed that the Gnome shell in Ubuntu 19.04, which is based on Gnome 3.32, was noticeably slower than other desktop environments. The reason was initially assumed to be the use of JavaScript, but it turned out that JavaScript was only about ten percent of the code in the combination of Gnome-Shell with the window manager mother and was not responsible for the observed slowness. The next guess was that the software was overburdening the CPU or graphics card. But measurements showed that this was not the case. What emerged instead was that the processors were forced to idle too long.

The optimization of the Gnome shell should concentrate on modern and fast hardware for Ubuntu 20.04. Remaining problems that affect older and slower computers should be addressed and solved in Ubuntu 20.10.

Source: https://www.pro-linux.de/news/1/27546/canonical-beschleunigt-gnome-shell.html

Automated testing comes to the Linux kernel: KernelCI

At the recent Linux Kernel Plumbers get-together in Lisbon, Portugal, one of the hottest topics was how to bring better and automated testing to the Linux kernel. There, the top Linux developers united their efforts behind one testing framework: KernelCI. So, while there will still be many Linux testing suites, no longer will they stand alone without any real coordination between them. KernelCI's goal going forward will be not just to test a wider variety of devices but to unify all upstream Linux kernel testing efforts. Together, this will provide a single place to store, view, compare and track testing results. KernelCI will improve Linux Long Term Support (LTS) kernel testing and validation; consolidate existing testing initiatives; improve Linux's overall security; and increase the pool of tested hardware. This, in turn, will improve the quality, stability. and long-term maintenance of the Linux kernel.

Source: https://www.zdnet.com/article/automated-testing-comes-to-the-linux-kernel-kernelci/

Fedora 31 Officially Released with GNOME 3.34 & Linux 5.3, Drops 32-Bit Support

Fedora 31 has been in development during the past six months, and after a one-week delay, it's finally here packed with some of the latest and greatest Open Source software and GNU/Linux technologies, including the GNOME 3.34 desktop environment, Linux 5.3 kernel, Glibc 2.30, Python 3, and Node.js 12. Fedora 31 brings numerous other improvements for fans of the open-source operating system, including variable Google Noto fonts, Qt Wayland and Firefox Wayland by default in GNOME, zstd compression for RPMs for faster updates, automatic R runtime dependencies, minimal GDB in buildroot, and custom crypto policies.

On top of that, Fedora 31 also disables root password login in SSH, improves Fedora Toolbox containerized workflow, enables net.ipv4.ping_group_range parameter in the Linux kernel to let users create ICMP Echo sockets without using setuid binaries, and improves support for Rockchip SoC devices like Rock960, RockPro64, and Rock64.

Source: https://news.softpedia.com/news/fedora-31-officially-released-with-gnome-3-34-linux-5-3-drops-32-bit-support-528031.shtml

Machine Learning alone will not find any bugs

The Microsoft employed developer Sasha Levin maintains together with Greg Kroah-Hartman the so-called stable branches of the Linux kernel. Among other things, Levin uses a machine learning approach to find the necessary patches for improvement. As the developer reported in his presentation at this year's Open Source Summit Europe in Lyon, he had been repeatedly asked, because of his work, whether it could have found bugs before they are even incorporated into the kernel. The answer is, according to Levin, anything but simple, as he presents in a detailed analysis.

Because, as many developers know, detecting bad code is not a manageable task. Although there are already a variety of tools for finding errors, such as static code analysis. But from the point of view of Levin, the biggest source of error in the development of the Linux kernel is its development process itself. The developer tries to underpin this with his own analyzes.

Source: https://www.golem.de/news/linux-kernel-machine-learning-allein-findet-keine-bugs-1910-144689.html

Running on Intel? If you want security, disable hyper-threading, says Linux kernel maintainer

Linux kernel dev Greg Kroah-Hartman reckons Intel Simultaneous Multithreading (SMT) - also known as hyper-threading - should be disabled for security due to MDS (Microarchitectural Data Sampling) bugs. Kroah-Hartman, who was speaking at the Open Source summit in Lyons, has opened up on the subject before. "I gave a talk last year about Spectre and how Linux reacted to it," he told The Reg. "And then this year it's about things found since the last talk. It's more and more of the same types of problems. "These problems are going to be with us for a long time; they're not going away." There is another issue, though. "People didn't realise how we do security updates, the whole CVE mess, and the best practices we need to have. Linux isn't less secure or more secure than anything else. The problem is: these are bugs in the chips. We fix them in time, we just have to make sure that everybody updates."

Source: https://www.theregister.co.uk/2019/10/29/intel_disable_hyper_threading_linux_kernel_maintainer/

Ubuntu Touch Installer Now Supports OnePlus 3 and Sony Xperia X Ubuntu Phones

As many of you may already be aware, the UBports project continues to develop Canonical's deprecated Ubuntu Touch mobile operating system for Ubuntu Phones, which gets regular OTA (Over-the-Air) updates that bring new features and improvements, and there's also an official Ubuntu Touch installer. The Ubuntu Touch installer now supports all the officially supported Ubuntu Phone devices, including the BQ Aquaris E4.5, BQ Aquaris E5 HD, BQ Aquaris M10 HD, BQ Aquaris M10 FHD, Fairphone 2, Meizu MX4, Meizu PRO 5, Nexus 4, Nexus 5, Nexus 7 2013 LTE, Nexus 7 2013 Wi-Fi, OnePlus One, OnePlus 3/3T, and Sony Xperia X.

Source: https://news.softpedia.com/news/ubuntu-touch-installer-now-supports-oneplus-3-and-sony-xperia-x-ubuntu-phones-528097.shtml

SparkyLinux's November ISO Brings Latest Debian GNU/Linux 11 "Bullseye" Updates

The SparkyLinux 2019 "Po Tolo" operating system series is a rolling release version of SparkyLinux, based on the Debian Testing software repositories, where the upcoming Debian GNU/Linux 11 "Bullseye" operating system is currently being developed. SparkyLinux 2019.11 is now the most up-to-date snapshot, adding all the latest software updates and security patches from the Debian GNU/Linux 11

"Bullseye" repositories as of November 2nd, 2019. Additionally, it upgrades the Linux kernel to version 5.2.17 and the Calamares installer to version 3.2.16. With this release, the SparkyLinux developers have also added the Debian Sid (unstable) software repositories, which aren't active, but can be enabled by those who know what they're doing. Also, the SparkyLinux unstable repositories now contain the latest Linux 5.3.8 and Linux 5.4 RC5 kernels.

Source: https://news.softpedia.com/news/sparkylinux-s-november-iso-brings-latest-debian-gnu-linux-11-bullseye-updates-528100.shtml

This Ubuntu Bug Reveals Your Media Files To Others Without Warning

If you have recently updated Ubuntu, chances are a new bug might be sharing your media files with users on the same network. Reportedly, the problem is the part of Ubuntu's easy media sharing feature in the latest version of Ubuntu 19.10. However, users running Ubuntu 19.10 in a non-GNOME Shell/Ubuntu session report that the media sharing feature autostarts at login, without warning users that it is being run in the background. This enables other users on the same local area network to access media files and folders without the owner knowing. Some Ubuntu users claim the culprit is an upstream configuration that asks systemd to toggle media sharing. While there is no permanent fix for the bug, however, developers are working towards it and a fix would roll out in no time.

Source: https://fossbytes.com/ubuntu-bug-media-files-no-warning/

Canonical Pledges to Fully Support Ubuntu Linux on All Raspberry Pi Boards

When they released the Ubuntu 19.10 (Eoan Ermine) operating system series last month, Canonical said that Raspberry Pi's Foundation's latest Raspberry Pi 4 boards will be officially supported. However, Ubuntu 19.10 ships with a Linux kernel bug that blocks the use of USB ports out of the box in the official arm64 image on the Raspberry Pi 4 SBC with 4GB RAM. Canonical is currently working hard to test kernel patches for this bug, which should soon be released for everyone. Meanwhile, Canonical pledges to offer full, out-of-the-box official support for its Ubuntu Linux operating system on all Raspberry Pi single-board computers, including the original Raspberry Pi board, as well as all Raspberry Pi 2, Raspberry Pi 3, and Raspberry Pi 4 models. Both Ubuntu Server and Ubuntu Core will be officially supported on the Raspberry Pi boards.

Source: https://news.softpedia.com/news/canonical-promises-full-official-ubuntu-support-for-all-raspberry-pi-boards-528101.shtml

Singa becomes top-level project of the Apache Software Foundation

After more than three and a half years in the Apache incubator, Singa fulfills all the conditions of an Apache project, as the Apache Software Foundation announces. Apache Singa is a distributed, scalable machine learning library. Singa was developed by the National University of Singapore in 2014 and handed over to the Apache Software Foundation (ASF) in March 2015. Three years ago, the first version of Singa, version 0.1.0 was released. Further releases followed up to version 2.0.0 half a year ago. The first release as an official Apache project is still pending.

Singa uses a variety of well-known distributed training strategies, including synchronous and asynchronous training. According to the project, Singa's users include, among others, Carnegie Technologies, CBRE, Citigroup, the National University of Singapore, NetEase, Noblis, Shentilium Technologies YZBigData and various clinics.

Source: https://www.pro-linux.de/news/1/27564/singa-wird-toplevel-projekt-der-apache-software-foundation.html

Canonical's Kernel Livepatch Ubuntu Advantage Client Is Out for Ubuntu 14.04 ESM

Canonical's Ubuntu Advantage client is a command-line client pre-installed on all Ubuntu Linux releases that works via single-token access to allow users to access Canonical's Ubuntu Advantage for Infrastructure services, such as Extended Security Maintenance (ESM) and Kernel Livepatch, which include patches for high and critical security vulnerabilities. The new updated Ubuntu Advantage is currently available only for Ubuntu 14.04 ESM users, who can use it by simply running the "ua" command (without quotes) in the Terminal app to quickly get started with key security and compliance services, as well as all related tools. Canonical's Ubuntu Advantage services are available for free for up to three machines.

Source: https://news.softpedia.com/news/canonical-s-kernel-livepatch-ubuntu-advantage-client-is-out-for-ubuntu-14-04-lts-528118.shtml

Libarchive vulnerability can lead to code execution on Linux, FreeBSD, NetBSD

A compression library included by default in Debian, Ubuntu, Gentoo, Arch Linux, FreeBSD, and NetBSD distros, contains a vulnerability that can allow hackers to execute code on user machines. The macOS and Windows operating systems, where this library is also included and used as a default decompression utility, are not affected. The vulnerability impacts Libarchive, a library for reading and creating compressed files. It is a powerful all-in-one toolkit for working with archive files that also bundles other Linux/BSD utilities like tar, cpio, and cat, making it ideal for a wide variety of operations, and the reason it's so widely adopted across operating systems. The bug, tracked under the CVE-2019-18408 identifier, allows an attacker to execute code on a user's system via a malformed archive file. Exploitation scenarios include users who receive malicious files from attackers or local apps .

Source: https://www.zdnet.com/article/libarchive-vulnerability-can-lead-to-code-execution-on-linux-freebsd-netbsd/

PinePhone Linux smartphone pre-orders start next week

Linux users keeping tabs on the smartphone market may have long been wishing for an honest to goodness non-Android Linux phone. That almost came to be with Ubuntu Touch but Canonical sadly saw no profit to be made there. That mission has then been left to smaller companies that prize principles over profits, manufacturing and selling computing devices that value security and privacy more than anything else. One of those is PINE64 whose PinePhone is just a month away from becoming reality. Pre-orders for the PinePhone Brave Heart Edition will start on November 15 at 8:00 AM GMT, around 3 AM ET. The phones are expected to start shipping in December through January 2020, that is if no delays happen.

Source: https://www.slashgear.com/pinephone-linux-smartphone-pre-orders-start-next-week-06598834/

Blackhat makers expect more hardware attacks in 2020

The Blackhat Conference Review Board reviews a mass of potential Talks. Attacks on IoT hardware seem to be emerging as a trend for 2020. For some time, security researchers have been claiming that the growth of the IoT sector is likely to be a lot of work for them. Indicators include security holes in sloppily programmed router and camera hardware. In the Linux area, security expert Matthew Garrett regularly interfaces with IoT devices in his blog to test their security. These include intelligent light bulbs, routers but also the scooters from Lime and Bird.

Source: https://www.linux-magazin.de/news/blackhat-macher-erwarten-2020-mehr-hardware-angriffe/

Microsoft Confirms Linux Will Get Microsoft Defender ATP Antivirus In 2020

Microsoft is working to bring its popular Microsoft Defender ATP antivirus to the Linux operating system. At its Ignite Conference, the Windows-maker company will give a live demo on how Linux security specialists can use the company's homemade antivirus for protection against potential threats. Now, it makes sense why in March this year, Microsoft announced the change in the brand name of the antivirus. Previously known as Windows Defender, Microsoft renamed it to Microsoft Defender. The company also offered the software for enterprise Mac computers for protection against malware via the Microsoft Defender console. Speaking to ZDNet, Microsoft M365 Security's corporate vice president said that Microsoft Defender ATP for Linux will be available for the general public in 2020. In addition to Defender ATP, Microsoft will also bring Application Guard — a security feature to open a webpage in an isolated virtual machine to Office 365 documents.

Source: https://fossbytes.com/linux-to-get-microsoft-defender-atp-antivirus-2020/

Ubuntu 20.04 LTS and Debian GNU/Linux 11 "Bullseye" Progress on Python 2 Removal

The removal of an older Python implementation from an entire operating system system and its software repositories is a major deal for any OS vendor, as it raises many severe issues due to the fact that numerous packages have not been ported to a newer branch. In this case we're talking about the removal of Python 2 and its replacements with Python 3. For Debian and Ubuntu, whose communities work closely together since the latter is based on the former, the transition from Python 2 to Python 3 started a few years ago, but now it's time for their next major release to ship without any Python 2 packages, though this appears to be a major deal even for some of the biggest GNU/Linux distributions in the world. The Ubuntu and Debian developers have recently published more information for package maintainers to provide them with guidance in an attempt to accelerate the removal of Python 2 from the upcoming Ubuntu 20.04 LTS (Focal Fossa) and Debian GNU/Linux 11 "Bullseye" releases.

Source: https://news.softpedia.com/news/ubuntu-20-04-lts-and-debian-gnu-linux-11-bullseye-progress-on-python-2-removal-528138.shtml

Ubuntu 18.04.4 LTS (Bionic Beaver) Slated for Release on February 6th, 2020

As all Ubuntu LTS series, the Bionic Beaver will receive up to five point releases that bring a new installation medium with up-to-date components to make the deployment of the operating system less painful. The latest point release in the series being Ubuntu 18.04.3 LTS, released on August 8th, 2019.

Besides updated core components and applications, as well as various improvements, the Ubuntu 18.04.3 LTS point release also brought upgraded kernel and graphics stacks from Ubuntu 19.04 (Disco Dingo), such as Linux kernel 5.0 and Mesa 19.0, to the Ubuntu 18.04 LTS series. New point release for Ubuntu LTS version are released every six months, so the next one, Ubuntu 18.04.4 LTS has been slated for February 6th, 2020. Most probably, it will ship with updated kernel and graphics stacks based on those from the latest Ubuntu release, namely Ubuntu 19.10 (Eoan Ermine). Canonical also published the release date of the last point release in the Bionic Beaver series, Ubuntu 18.04.5 LTS, which should hit the streets on August 6th, 2020.

Source: https://news.softpedia.com/news/ubuntu-18-04-4-lts-bionic-beaver-slated-for-release-on-february-6th-2020-528140.shtml

Filesharing software Pydio Cells 2.0 released

With the release of Pydio Cells 2.0 the server according to the developers was further improved and extended with new features. For example, Pydio Cells 2.0 introduces a new annotation mechanism that extends online editing to images and videos. According to the manufacturer, the new functionality should be an alternative to proprietary solutions, without the risk that images and videos are tracked by search engines, for example. The migration tool already introduced in earlier versions of Pydio Cells, which allows for the transfer of data from Pydio to Pydio Cells, has also been expanded and the desktop sync client, which was missing from previous Pydio 8 users, has been completely rewritten for Windows, Mac and Linux released. In addition, the documentation has been revised and the server also released for Microsoft Windows.

Source: https://www.pro-linux.de/news/1/27577/filesharing-software-pydio-cells-20-freigegeben.html

Canonical Outs Major Linux Kernel Security Updates for All Supported Ubuntu OSes

Canonical was quick to respond to the latest security vulnerabilities affecting Intel CPU microarchitectures, so they now published Linux kernel updates to mitigate them. These are CVE-2019-11135, CVE-2018-12207, CVE-2019-0154, and CVE-2019-0155, which could allow local attackers to either expose sensitive information or possibly elevate privileges or cause a denial of service. On top of these security issues affecting Intel CPUs, the new Linux kernel security updates also address three vulnerabilities (CVE-2019-15791, CVE-2019-15792, and CVE-2019-15793) discovered by Google Project Zero's . Canonical released new Linux kernel versions for all supported Ubuntu Linux versions to address a regression introduced by the previous kernel versions, which broke KVM guests on systems where extended page tables (EPT) were disabled or not supported. Also they discovered that the fix for CVE-2019-0155 (i915 missing Blitter Command Streamer check) was incomplete on 64-bit Intel x86 systems.

Source: https://news.softpedia.com/news/canonical-outs-important-linux-kernel-updates-for-all-supported-ubuntu-releases-528153.shtml

This Linux-Based Smartphone Will Keep You Completely Anonymous

We are being constantly monitored through the devices and apps we use on a regular basis. One of the biggest ways of surveillance is our smartphone and the majority of users are divided between two — Android and iOS. But there is a new Linux-based smartphone dubbed Volla Phone on Kickstarter, that rethinks the entire approach to how we use our smartphones and all its features are based around protecting user anonymity. Volla Phone uses Nemo Mobile that is based on the Android Open Source Project (AOSP) that promised increased security and privacy features. Volla Phone also promises to support an alternative, free, and open-source operation system like Ubuntu Touch. The phone contains neither Google Apps nor Google Play Services. In case you need any Android app, you can install them via an anonymous App Store.

Source: https://fossbytes.com/linux-based-smartphone-volla-phone-protects-anonymity/

Sparky Linux releases Special Editions

About a week ago, Sparky 2019.11 Po Tolo released an updated edition of Debian Testing's rolling-release version of the distribution. Now the team announces three more images dedicated to games, multimedia and data recovery.

Common to all is the base with kernel 5.2.17, with more kernels to be found in the reusable unstable repository from Sparky. For Sparky 2019.11 this is 5.3.8 and 5.4-rc5, for the three variants 5.3.10 and 5.4-

rc7. The installer is based on the Calamares framework in version 3.2.16 and has KPMCore 4 as its foundation. As a desktop in the standard edition comes with Xfce 4.14; an image with LXQt is available as an alternative. In addition, the two images MinimumGUI and MinimalCLI are offered.

Source: https://www.pro-linux.de/news/1/27581/sparky-linux-ver%C3%B6ffentlicht-special-editions.html

Canonical Donates More Ubuntu Phones to UBports and You Can Get One Right Now

Once again, Canonical decided to donate even more Ubuntu Touch devices to UBports, but this time there's even better news for those interested in contributing to the development of Ubuntu Touch, the mobile OS created by Canonical for Ubuntu Phones, which is now entirely maintained by the UBports Foundation. This time, UBports decided to donate the Ubuntu Touch devices, which consists of two dozen BQ Aquaris E4 phones, two BQ Aquaris M10 tablets, one Meizu MX4 phone, and several others we can't identify, to any developer interested in joining the Ubuntu Phone movement and contribute to the development of Ubuntu Touch.

Source: https://news.softpedia.com/news/canonical-donates-more-ubuntu-phones-to-ubports-for-ubuntu-touch-development-528158.shtml

Chrome, Edge, Safari hacked at elite Chinese hacking contest

China's top hackers have gathered this weekend in the city of Chengdu to compete in the Tianfu Cup, the country's top hacking competition. Over the course of two days -- November 16 and 17 -- Chinese security researchers will test zero-days against some of the world's most popular applications. The goal is to exploit and take over an app using never-before-seen vulnerabilities. If attacks succeed, researchers earn points towards an overall classification, cash prizes, but also the reputation that comes with winning a reputable hacking competition. The Tianfu Cup's rules are identical to what we see at Pwn2Own, the world's largest hacking contest. The two events are more tied than most people know. Prior to 2018, Chinese security researchers dominated Pwn2Own, with different teams winning the competition years in a row. Now, all that talent is going against one another. In the spring of 2018, the Chinese government barred security researchers from participating in hacking contests organized abroad, such as Pwn2Own. The TianfuCup was set up a few months later, as a response to the ban, and as a way for local researchers to keep their skills sharp. The first edition was held in the fall of 2018 to great success, with researchers successfully hacking apps like Edge, Chrome, Safari, iOS, Xiaomi, Vivo, VirtualBox, and more.

Source: https://www.zdnet.com/article/chrome-edge-safari-hacked-at-elite-chinese-hacking-contest/

Debian GNU/Linux 10.2 "Buster" Live & Installable ISOs Now Available to Download

Debian GNU/Linux 10.2 "Buster" ISO images are now available to download (see download links below) for all supported architectures, including 32-bit (i386), 64-bit (amd64), ARM64 (AArch64), Armel, ARMhf, MIPS, MIPSel (MIPS Little Endian), MIPS64el (MIPS 64-bit Little Endian), PPC64el (PowerPC 64-bit Little Endian), and s390x (IBM System z). Live images are available as well with the KDE Plasma, GNOME, Xfce, LXDE, MATE, and Cinnamon desktop environments, but only for 32-bit (i386) and 64-bit (amd64) systems. As usual, a multi-arch image supporting both amd64 (64-bit) and i386 (32-bit) architectures is available as well, along with netboot images.

Source: https://news.softpedia.com/news/debian-gnu-linux-10-2-buster-live-installable-isos-now-available-to-download-528178.shtml

Red Hat Enterprise Linux and CentOS Now Patched Against Lat est Intel CPU Flaws

After responding to the latest security vulnerabilities affecting Intel CPU microarchitectures, Red Hat has released new Linux kernel security updates for Red Hat Enterprise Linux 6 and Red Hat Enterprise Linux 7 operating systems to address the well-known ZombieLoad v2 flaw and other issues. The CentOS community also ported the updates for their CentOS Linux 6 and CentOS Linux 7 systems. The security vulnerabilities patched in this new Linux kernel security update are Machine Check Error on Page Size Change (IFU) (CVE-2018-12207), TSX Transaction Asynchronous Abort (TAA) (CVE-2019-11135), Intel GPU Denial Of Service while accessing MMIO in lower power state (CVE-2019-0154), and Intel GPU blitter manipulation that allows for arbitrary kernel memory write (CVE-2019-0155).

Source:
https://news.softpedia.com/news/red-hat-enterprise-linux-and-centos-now-patched-against-latest-intel-cpu-flaws-528177.shtml

World's Top 500 Supercomputers Run On Linux

Top500 has released its 54th edition of the list comprising of the top 500 supercomputers in the world, and all the supercomputers in the list have one thing in common – Linux.

The average speed of the supercomputers featured in the list is now 1.65 exaflops, and the entry-level supercomputer now performs at 1.14 petaflops as compared to 1.02 petaflops when the list was released back in June 2019. Apart from the fact that all the 500 supercomputers appearing in this list run on Linux, the list also shows that China has emerged as a dominating country developing supercomputers. As many as 227 supercomputers out of 500 are China-developed. There are only 118 US-based supercomputers on the list. However, the supercomputers developed by the US are larger and faster. If we consider the average performance of the supercomputers in the list, the US stands at 37.8%, and China trails it with a 31.9% share.

Source:
https://fossbytes.com/worlds-top-500-supercomputers-run-on-linux/

Linux, Windows Users Targeted With New ACBackdoor Malware

Researchers have discovered a new multi-platform backdoor that infects Windows and Linux systems allowing the attackers to run malicious code and binaries on the compromised machines. The malware dubbed ACBackdoor is developed by a threat group with experience in developing malicious tools for the Linux platform based on the higher complexity of the Linux variant as Intezer security researcher Ignacio Sanmillan found. Both variants share the same command and control (C2) server but the infection vectors they use to infect their victims are different: the Windows version is being pushed through malvertising with the help of the Fallout Exploit Kit while the Linux payload is dropped via a yet unknown delivery system.

Source:
https://www.bleepingcomputer.com/news/security/linux-windows-users-targeted-with-new-acbackdoor-malware/

NextCry Ransomware Goes After Linux Servers

NextCry is a new ransomware that has started targeting Linux servers that operate decentralized file syncing and sharing services powered by the open source NextCloud software. The ransomware is currently not being detected by antivirus engines. BleepingComputer forum user xact64 reported that half of his files got encrypted by NextCry after the ransomware infected his NextCloud server. The file sharing software continued to update the files on his laptop with the encrypted version until he realized what was going on and stopped the server from sending the files to his laptop. After it executes on the NextCloud-enabled computer,

the malware reads NextCloud service's config.php in order to find the NextCloud file share and sync data directory. The ransomware first deletes any folders and files that might be used to restore infected files to their previous clean state and then begins to encrypt the victim's files.

Source:
https://www.tomshardware.com/news/nextcry-ransomware-nextcloud-linux-nginx-cybersecurity

Linux Servers Running Webmin App Targeted By DDoS Attacks

A new botnet named Roboto is targeting Linux servers running Webmin app, according to security researchers at 360 Netlab. Roboto is a peer-to-peer botnet that has been active since summer and is exploiting a vulnerability in the Webmin app. The app offers a web-based remote management system for Linux servers and is installed on as many as 215,000 servers. The vulnerability, identified as CVE-2019-15107, allows bad actors to compromise older Webmin servers by running malicious code and gaining root privileges. The vulnerability was identified and patched by the company behind Webmin. However, many users have not installed the latest version with the patch, and Roboto botnet is targeting such servers. According to security researchers, the Roboto botnet has DDoS attack capability in its code, and it is the main feature of the botnet. The bad actors behind the botnet aim to expand it by conducting DDoS attacks via vectors such as HTTP, ICMP, UDP, and TCP.

Source:
https://fossbytes.com/linux-servers-webmin-targeted-ddos-attacks/

IPFire Open-Source Linux Firewall Gets Improved and Faster QoS

IPFire 2.23 Core Update 138 is now available for download with improved Quality of Service (QoS), which allows the firewall to pass even more traffic on smaller systems, as well as reduce packet latency on faster machines, thus creating a faster and more responsive network. To take full advantage of the improved and faster QoS, the IPFire project recommends you reboot your systems after installing the new update. Under the hood, IPFire 2.23 Core Update 137 ships with a newer kernel, namely Linux 4.14.150, which is hardened, fully patched and optimized to deliver more throughput for IP connections, as well as to reduce latency to a minimum for your network to be fast and responsive as possible. This new kernel also fixes a nasty bug that caused the system to drop DNS packets if the Suricata IDS (Intrusion Detection System) was enabled.

Source:
https://news.softpedia.com/news/ipfire-open-source-linux-firewall-gets-improved-and-faster-qos-latest-updates-528202.shtml

System76 Will Build Its Own Linux Laptops From January 2020

Speaking to Forbes in an interview, System76's CEO Carl Richell says that the company wants to follow-up its popular Thelio desktop with in-house built Linux laptops. System76 offers an extensive line of laptops but the machines are designed by other manufacturers like Clevo and Sager. The company only offers its Pop!_OS in these laptops. Mr. Richell says he's confident that the experience his company has gained from designing custom-built Thelio desktop will be highly useful. According to Richell, System76's first priority is deciding the aesthetic aspect of its new Linux laptops. The next step would involve fixing the supply chain management and contacting various display and component makers. As per Mr. Richell, System76 will foray into the new market with laptops having Ultrabook's form factor similar to its current offerings Darter and Galago. Next, it would decide whether to go with high-end gaming and workstation notebooks with dedicated graphics. The entire procedure of designing and building Linux laptops from scratch is a time-taking process and we're expecting the company to start shipping before 2021.

Source:
https://fossbytes.com/system76-build-own-linux-laptops-january-2020/

Zorin OS 15 Lite Released as a Windows 7 Replacement, Based on Ubuntu 18.04 LTS

Based on Canonical's latest long-term supported Ubuntu 18.04 (Bionic Beaver) operating system series, Zorin OS 15 Lite is here packed with some of the most advanced and efficient software components and the latest Xfce 4.14 desktop environment, which provides a user-friendly experience and promises extend the lifespan of your PC for years to come. Highlights of the Zorin OS 15 Lite release include a refreshed and refined look and feel of the desktop with a new, minimal, simple, and more welcoming theme with beautiful animations, six color variants, and Light and Dark modes. The new desktop theme also adapts throughout the day by automatically switching between Light and Dark modes during sunrise and sunset. Zorin OS 15 Lite also comes with built-in Snap, Flatpak and Flathub support to make it easier to install your favorite apps, a new Notifications Indicator that features a "Do not disturb" options to silence notifications when you're busy, the Linux 5.0 kernel series, and numerous under-the-hood improvements and latest software and security updates from Ubuntu 18.04 LTS.

Source:
https://news.softpedia.com/news/zorin-os-15-lite-released-as-a-windows-7-replacement-based-on-ubuntu-18-04-lts-528245.shtml

To begin this month's article, I have an announcement to make. After 130 issues of FCM (my first article appeared in #21), I have finally reached the point in my life where I have trouble finding the time I need to dedicate to FCM on a regular basis. As such, my next article (December, issue 152) will be my last. I'd like to take this opportunity to thank the readers who reached out to me over the course of the last two articles with comments/responses. It's always nice to be in contact with a reader.

This month's article will be a little different, as I have a question to pose to the community, an addition to last month's article, and a small write-up of how I implemented translations into a small Gatsby site.

The question to any fellow programmers

I've decided to firm up my grasp of test-driven development so that I can more easily apply it to the projects I work on. The majority of my experience is with unit testing, and I know there is much, much more out there.

As such, I ask that any readers who can recommend a book, course, video series, or podcast about test-driven development (it can be general/language-agnostic, python-focused, and/or web focus (ie. jest/React)). If I get enough responses, I'll put together the list in next month's article so anyone who's interested can look it up for themselves. Anyone who has a recommendation can reach me at lswest34+fcm@gmail.com.

Rust

Tying this in with last month's article on Rust - I completely neglected to mention Redox. Redox OS is a very interesting open source project to build a unix-like kernel in Rust. It's not necessarily a fully-fledged replacement for Linux at the moment (and there's no guarantee it will succeed), but the concept is extremely interesting to me. It's also an ideal opportunity to see some real Rust code. Or if you ever wanted to witness an OS being built. The website is: https://www.redox-os.org/.

Translations in Gatsby

I won't go into code here, but I want to describe my methodology, in case anyone wants some guidelines.

Basic Setup

•All mdx files are in a folder /src/content/{english,german} and are configured as separate filesystem-loaders. The nodes then have the sourceInstanceName added to them, for filtering purposes.
• The basic approach was taken from here: https://github.com/gatsbyjs/gatsby/tree/master/examples/using-i18n

Non-standard setup

Besides the two items listed above, there were a few things I did that I didn't see listed anywhere:
• I didn't use an i18n translation system. 95% of the actual text on the site was coming from the mdx files and were, therefore, being translated automatically.
• For the other 5%, I went for a simple JSX if/else ({locale === "en" ? "English" : "Deutsch"}). If more text was baked into the design, I probably would have integrated something like react-i18next or react-intl everywhere (there is an example in the repo listed above, but, based on the code I had at the time, it seemed like more work to implement that).
• A few components didn't use graphql queries, so I simply passed the locale through, instead of setting up a context for it. If there had been more levels to the components, I could see myself using context for this.
• The menu, unfortunately, required me to load both translations (into aliased queries) so that I could generate the menu. If, at some point, Gatsby allows you to pass a variable into a StaticQuery, it might be possible

to do it differently. As it is, this isn't a huge issue. Just configure a reusable variable based on the current locale, and then map your way through it.

• gatsby-node.js - I followed the example in the above repo, and then added a few things on top. First of all, I filtered my content via the sourceInstanceName, instead of the locales (as I had originally done it that way when starting off). I also have the files named for the pages, instead of having a folder named X with an index.mdx file in it, as was the case in the repo. Instead, in onCreateNode, I check the last 3 characters of the file name (as German was .de.mdx, and the .mdx extension was cut off earlier) to see if they matched ".de". If it didn't, I knew it was my "standard" language (English). I also tweaked the system that created the slugs, as the paths weren't just the folder names. I also utilized a frontmatter field called "path", as I wanted to be able to define custom slugs.

• Switching between languages - I gave each .mdx file a "translation" field, that was simply the base slug name I'd used for the other language. Using this and a JS helper function, I could accurately generate a link to swap between, regardless of actual names. Sure, I'd have to adjust the field if a slug were to change, but this should be a very rare occurrence.

So, that's the basic gist of it. I split the language up by defining multiple filesystems, and adjusted the code from the repository I listed earlier (using-i18n) to suit the existing code I had, and to reduce the amount of coding required to get a working website. After all, you can always tweak and improve it later, right?

Speaking of tweaking and improving, here's a slightly off-topic tip. I've recently had to rework a React app that relied way too heavily on Redux. I realize that Redux is useful and was popular for a time. That being said, if you choose to use Redux, please use it only for global state. Realistically, you shouldn't need to ever rely on a state manager, as state is baked right into React. It's especially easy with hooks (useState and useContext)! However, if you want to use Redux, just make sure that it's actually global state in the sense that it's used in 90% of files. If not, it's most likely either local state, or something that should become a context somewhere along the DOM and passed in only to the children of the component. It will make a noticeable speed difference if your state changes trigger the minimum required re-renders.

I hope this article has been interesting to some. I'm looking forward to hearing from my readers in response to my question. If you're working on a Gatsby site with multiple languages - what was your approach? As always, all comments, questions, and suggestions can be sent to me at lswest34+fcm@gmail.com.

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.

Python In The REAL World Pt.99

Written by Greg Walters

Usually, I try to know what I'm going to write about a month or two before the actual article is due to the FCM Staff. However, this month I have to admit, my mind refused to settle and concentrate on picking a topic. It wasn't that I couldn't come up with anything at all. It was that there were so many topics to choose from and I had a difficult time coming up with the substance for any one of them. The deadline started approaching closer and closer and still I couldn't get my mind to settle on anything in particular. A good friend suggested an article on the Google blog API and how to integrate that into Python, and I did spend some time working on that, but the muse just wouldn't settle in and help me out. I quickly became frustrated with that, just like everything that I tried to bring to life.

My mind was spinning when I went to bed last night, and I ended up not really sleeping well. I woke up before my alarm went off and as hard as I tried, I couldn't get back to sleep. Even more frustrated, I started my day, made my coffee, checked my email, tuned into the network news on the television, and settled in for another day of potential disappointment because I still didn't have a viable topic for this month's article.

I went through all the mental list of all the things that needed to be added to my todo list for today. Many of them were normal mundane things like decide what I was going to make for dinner tonight, was I going to deal with trying to exercise today, and so on and so on. One of the things that needed to be added to my list was to work on testing the latest development release of Page. Some of you know that I help Don Rozenberg test out new versions of Page before he releases them into the "wild". I really enjoy doing the testing for him, since it's a challenge for me to try to figure out what happened when something goes wrong. Lately however, I seem to be forgetting a few items when I go back and test older functionality, just to make sure that nothing got broken in the updating process.

My mind started wandering away from the todo list, and on to trying to think of a way to keep from missing the steps for older functionality, making my efficiency better for myself, Don and the users of Page. My mind started to cloud with a misty fog, and I started to get that feeling of the beginnings of an idea started to coalesce in that great empty space I refer to as my brain. Something to automate the testing process of new Page candidates! YES! But wait. How in the world would I do that?

I quickly put down the coffee cup and grabbed my mouse. I called up a web search for a python library to automate mouse movements, clicks, double-clicks, and the like. I knew there had to be something that would be quick to learn and would be something that I could use as the basis for an article. Sure enough, I found it.

Amongst all the other links appeared a link to a chapter of a book by one of my all time favorite authors, Al Sweigart. I've reviewed a few of his books for Full Circle magazine. He's written some of the best books on Python, and has a few on the internet that you can read totally free on-line. One of them is a book called "Automate The Boring Stuff With Python". It's published by No Starch Press, and the link to the book is https://automatetheboringstuff.com/#toc. By the way, he has a new Second Edition of the book coming out just about any time. You REALLY should buy this book! Anyway, chapter 18 of the book is titled "Controlling the Keyboard and Mouse with GUI Automation" (https://automatetheboringstuff.com/chapter18/). It deals with exactly what I was looking for.

I'm going to, as I often do, distill the essence of Mr. Sweigart's chapter down and show you how to use the information that I gleaned from it. We'll be using a library called 'pyautogui'. While the name might seem a bit misleading

at first glance, if you read the chapter you'll see that it perfectly fits what it actually can do. Let's get started.

The first thing we need to do is to install it and some dependencies. I'm going to give you the instructions as they appear in the chapter, and only the instructions for Linux, so if you want to install the library on Windows or Mac, you can find them in the article. So, step 1 is that you'll need to use pip to install the python3-xlib library.

```
pip3 install python3-xlib
```

Next, you need to use apt-get to install some additional packages...

```
sudo apt-get install scrot
python3-tk python3-dev
```

Scrot is a program that pyautogui uses to take screenshots. You'll see this in action later on in this article.

Finally, you can install pyautogui using pip...

```
pip3 install pyautogui
```

Now, just for peace of mind that everything got installed correctly, fire up Python 3.x and in the interactive shell type...

```
import pyautogui
```

If everything went well, you should see the normal prompt

```
>>>
```

Let's do some fun things

Now that we have the pyautogui installed, let's (as we say in the U.S.) "kick the tires and see what this puppy can do" (I'm aware, this might not translate well to other languages, so forgive me). Obviously we will want to use the program to move the mouse pointer around and see what happens. First thing, however, we'll want to see what PyAutoGui says about the size of our screen. While we might know what the values are, let's make sure that what we know matches what the library thinks, and adjust our expectations accordingly.

In the Python shell, type

```
pyautogui.size()
```

You should see the response back and it should match your screen size. In my case it is...

```
Size(width=1920, height=1080)
```

Now we can get those values assigned to some variables...

```
swidth, sheight =
pyautogui.size()

print(f"Screen width:
{swidth} and height
{sheight}")
```

And python returns with…

```
Screen width: 1920 and height
1080
```

Before we go any further, one of the things that Mr. Sweigart mentions early in the article is that there is a way to cause the program to abort just in case something goes wrong. He says "PyAutoGUI also has a fail-safe feature. Moving the mouse cursor to the upper-left corner of the screen will cause PyAutoGUI to raise the pyautogui.FailSafeException exception." This is a very good thing to know. Not only does the exception get raised when the mouse cursor gets moved to the upper-left corner of the screen manually, the same thing happens in any corner, as well as when our program causes it to happen. So when we create our first demonstration, we need to take this into consideration. We'll start by using the 'moveTo()' method of the library. For this, we need to provide the x and y coordinates we wish the mouse cursor to move to as well as a duration. I'm going to assume that you already know that the upper-left corner of your screen would be 0,0 and the lower-right corner would be width, height, or in my case 1920, 1080. Mr. Sweigart suggests a duration of 0.25 seconds, but I want to see it happen a bit more slowly, so I will use a duration of 0.75 seconds.

```
pyautogui.moveTo(15, 15,
duration = 0.75)
```

If you are following along with me in your python shell, you will see your mouse pointer take off on its own and head directly to the upper-left corner, stopping just short of the actual limits.

Now, let's move the mouse pointer to each of the other screen corners and then to the center of the screen. Remember that the values I'm using are for my screen. You should modify them to fit

yours. Also remember to take a few pixels off of each corner destination to avoid hitting the failsafe.

```
>>> pyautogui.moveTo(1905, 15, duration = 0.75)

>>> pyautogui.moveTo(1905, 1075, duration=0.75)

>>> pyautogui.moveTo(15, 1075, duration=0.75)

>>> pyautogui.moveTo(swidth/2, sheight/2, duration=0.75)
```

Pretty neat stuff. Let's keep going and see what else we can do.

Beyond simple mouse movement

Now, let's do something a bit more fun. I have a folder on my Desktop called Cleanup. More times than I like to admit, I save things to my desktop as a memory tickler. The idea is to provide me a constant reminder while I work on something or deal with something. Eventually, I want to take it off the desktop and move it for later use. I often neglect to move it and in an effort to get things cleaner and more logical, I created the cleanup folder.

One of the wonderful things that PyAutoGUI does is allow you to send click and double-click (as well as other mouse events) to an x,y position on the screen. But how do you tell PyAutoGUI where a particular item is, if you don't know the x,y coordinates? One of the tools that comes with PyAutoGUI is the ability to provide it an image of something that should be on your screen and have it find the location.

I used Shutter, a screen capture program for Linux, to grab a section of my desktop and save it as a .png file. In this case, it was the icon of the cleanup folder...

Then I used the locateOnScreen method to return the x/y position on the screen of the folder icon.

```
bpos = pyautogui.locateOnScreen("/home/greg/Desktop/poc/autogui/cleanup_folder.png")
```

Notice that I need to give a fully qualified path to the file as well.

In about a second, I got a response. If the locateOnScreen method finds the target, then it returns the x, y, width and height on the screen. If not, it returns None...

```
print(bpos)

[83, 456, 69, 72]
```

So I know that the location of the folder icon begins at 83,456 and has a width of 69 and height of 72 pixels, which is also the size of the image I used.

Finally, I can tell PyAutoGUI to send a double click to a location within that bounding box.

```
pyautogui.doubleClick(105,480)
```

And the folder opened just like I had moved my mouse and double-clicked the icon by hand.

Next, I used Shutter again to grab a section of the folder window that would be fairly unique to it. I determined that I would need to use a portion of the title bar. I had to make sure that the folder window was not highlighted, since I couldn't be sure the folder would be highlighted when I asked PyAutoGUI to find it.

Next, I use locateOnScreen again with the new image.

```
>>> bpos = pyautogui.locateOnScreen("/home/greg/Desktop/poc/autogui/cusection.png")

>>> print(bpos)

Box(left=908, top=89, width=86, height=46)
```

Now that I know where the window title bar is, I wanted to try to move the window some by using the .drag method. Of course, I needed to move the mouse cursor down a small amount, since, as you can see in the above image, I captured a bit of the desktop background when I made the image capture.

```
>>> pyautogui.moveTo(908,100, duration=0.75); pyautogui.drag(50,0,0.75,button="left")

>>>
```

And sure enough, the window slowly moved to the right. To be sure of an easy, uninterrupted set of actions, I used a semicolon to separate the two statements while I was within the interactive shell. If (and when) I create this in an IDE, I would make sure that the two statements are on separate lines.

So, I was able to quickly learn

(and teach you) the basics of PyAutoGUI and begin to formulate the beginnings of my auto-testing program. I will be able to create a script, within a Python script, that will be able to create a blank Page GUI, resize and move the main form, add widgets, set attributes, and more.

This article was meant to whet your appetite to the possibilities that PyAutoGUI can provide you. There are MANY, MANY more things that can be done, far too many to even touch on here. You can find the full documentation for PyAutoGui at https://pyautogui.readthedocs.io/en/latest/index.html

Until next time, keep coding!

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

Automation Pt.3

Welcome back! In this issue, we continue our automation journey. This part will be a short one as I need to break it into two pieces. If you have just joined us, we are automating things in Ubuntu. Last time, I asked you to open your menu with the mouse and click on your terminal to launch that. Did you manage to do it? If not, have a look at what I did.

My screen is 1600x 900, and my menu button for my Whisker Menu is in the top left. Though 0,0 is the topmost left spot, this does not open my menu, so I move the mouse slightly to 5,5. My menu also has its panels swapped around, so moving my mouse diagonally changes the menu layout as my mouse would move over different sections, changing the other panel. To overcome this, I first move my mouse slightly – onto the menu, then across, then down, before clicking on the terminal. (OR one could use key presses, but I wanted you to see a problem and fix a problem on your own). There are many ways to skin a cat in Linux, so if you did it another way, congratulations.

I know some of you have already figured out that this tool can be used for clicking in farmville or whatever clicker is the rage these days. That is good; it means you are applying a solution to a problem. We will look at this kind of thing in a later issue; for now, I want to get beginners to Ubuntu, or those of you who have not even heard of 'xdotool', up to speed. Obviously, I cannot imagine or show you every use case, we have only twelve issues per year. My goal is to spark your imagination and let your creative side take the reigns.

Up to now we have been using mousepad as an example. What if you do not know the name of the window you want to work with? That is where another tool comes in handy – wmctrl. Your homework: please go to the man page and look at the very first example. That's what we will be doing to get the info on open windows. This will not only list windows, but panels and docks too, which is very handy. The number on the left is the window ID. This will be important later; for now, just know where to find it. Back to our journey. We have clicked the menu button, but we could also open it with a keyboard combination. (In my case, ctrl+esc on Xubuntu). We can even go directly to the terminal via the terminal shortcut ; whatever you set it to be in your system.

BUT WAIT, THERE'S MORE...

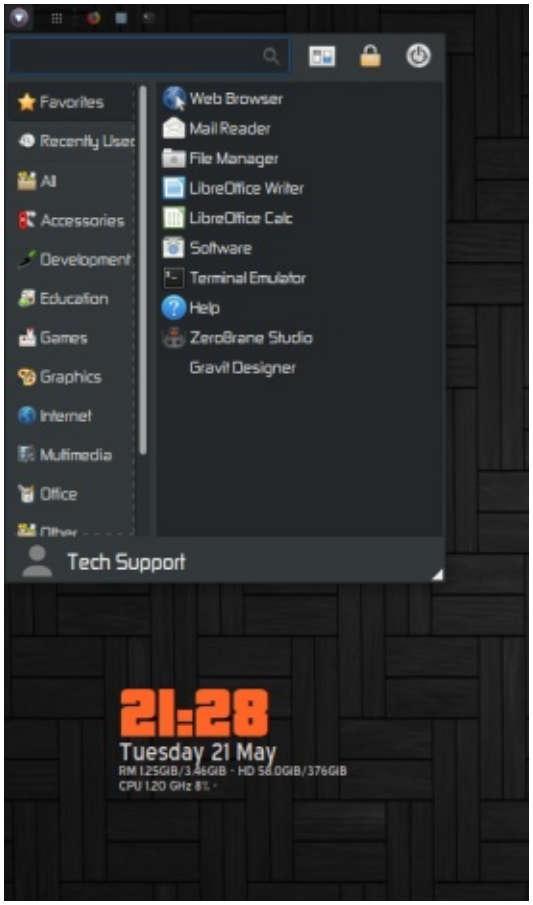
The 'xdotool' can be used to set up mouse gestures and hot corners on your XFCE system to behave like GNOME. Open a terminal and type:

```
xdotool behave_screen_edge bottom-right exec /usr/bin/xfdashboard&
```

Now move your mouse to that corner and see. This is one way to test your code before you make your script. Now we can replace all that typing in our learning example with even less code - with what we have learned now.

```
xdotool behave_screen_edge top-left exec xfce4-popup-whiskermenu&
```

Now , moving the mouse to the top left corner, brings up the whisker menu. We can even automate that by moving the mouse with the command-line to 0,0, (or the surrounds...).



The above examples are XFCE specific, but it will work on other DE's - where your command does not conflict with an existing hot corner. Feel free to replace 'xfdashboard' with an application of your choice, as it was only meant to be an example of what is possible. You can now put these hot corner commands into a shell script and add it to your start-up list.

The beauty of 'xdotool' is that it also works over SSH, so if you need to do something repetitive, or automate some task on a remote computer, this is possible. We will delve into this in a future issue. You can also move and resize windows with this versatile tool; very handy if you use a tiling window manager (hint-hint). We will look at how to do this in the next issue.

If you have any suggestions or queries, please let us know. You can also send us your clever scripts of tweaks with 'xdotool', and we will make you famous! (Not quite, but it will get your name in print).

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.

Darktable - Pt9

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

Today, on the 5th of November, a new release of Darktable is available. Boy, are there a lot of changes! I will have to inspect these before this month's Darktable article can go out. The change log is as long as my arm. There are new features for us to explore.

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

Instead of doing another tutorial, this month, I would like to talk about Darktable 3.0 that was released yesterday. You can find it here: https://github.com/darktable-org/darktable/releases/tag/release-3.0.0rc0

Under the "Big Ones", you will see that they mention themes. Before I say anything further, know that this is a release candidate. Things may change. The first thing that caught my eye was that the default font had changed. In my humble opinion, for the better. The grey-in-grey is closer related, giving you a bit less contrast between panels. This is the default, but you can change it; open up settings and select a different theme, if you like. Darktable's dark theme is great to work with at night; however, during the day, the dark grey can become a bit much, so hooray for the lighter themes. The next visual tweak is that it now looks great on my 4k screen. The release notes say it now works on 4k and 5k screens. I do not have a 5k screen, so I will have to take their word on it. Maybe one of our readers can test this and get back to us?

I am a little confused as to the timeline feature. According to the release notes, that is new. However, when I fire up my Solus laptop, which runs version 2.7 of Darktable, I also see the timeline feature. This is messing with my memory. I can tell you that I have never dragged inside the timeline , and now if I do, it brings up a whole range of pictures. The thumbnail zoom feature is the other one that is confusing, as it also is in my older version on my other laptop. It is there, but I can honestly say I have never used it. Maybe it is a good thing that I am working through the release notes. Darktable is honestly a powerful program, with many settings that I have not used before. I am sure there are some that you have not used before. I will be running this on other operating systems too, once the final version has been released, but for now it seems Gtk 3.22 is needed for all the bells and whistles.

Another visible feature that jumps out at you, is the search box - when you switch to the Darkroom mode, you can now type in the name of the module you are searching for. I can not tell you how handy that is!

You simply start typing and you don't even need to type out the whole module name. Speaking of modules, the new modules like retouch and filmic have gotten a visual overhaul. It seems a lot more friendly. We can dive right into these once the final has been released. How exciting! I really like that things that were stuck in tiny drop-down arrows, now are available on the panel and, to accommodate them all, we now have tabs. I am no UI designer, but this works for me. No more unfolding tiny triangles to get to

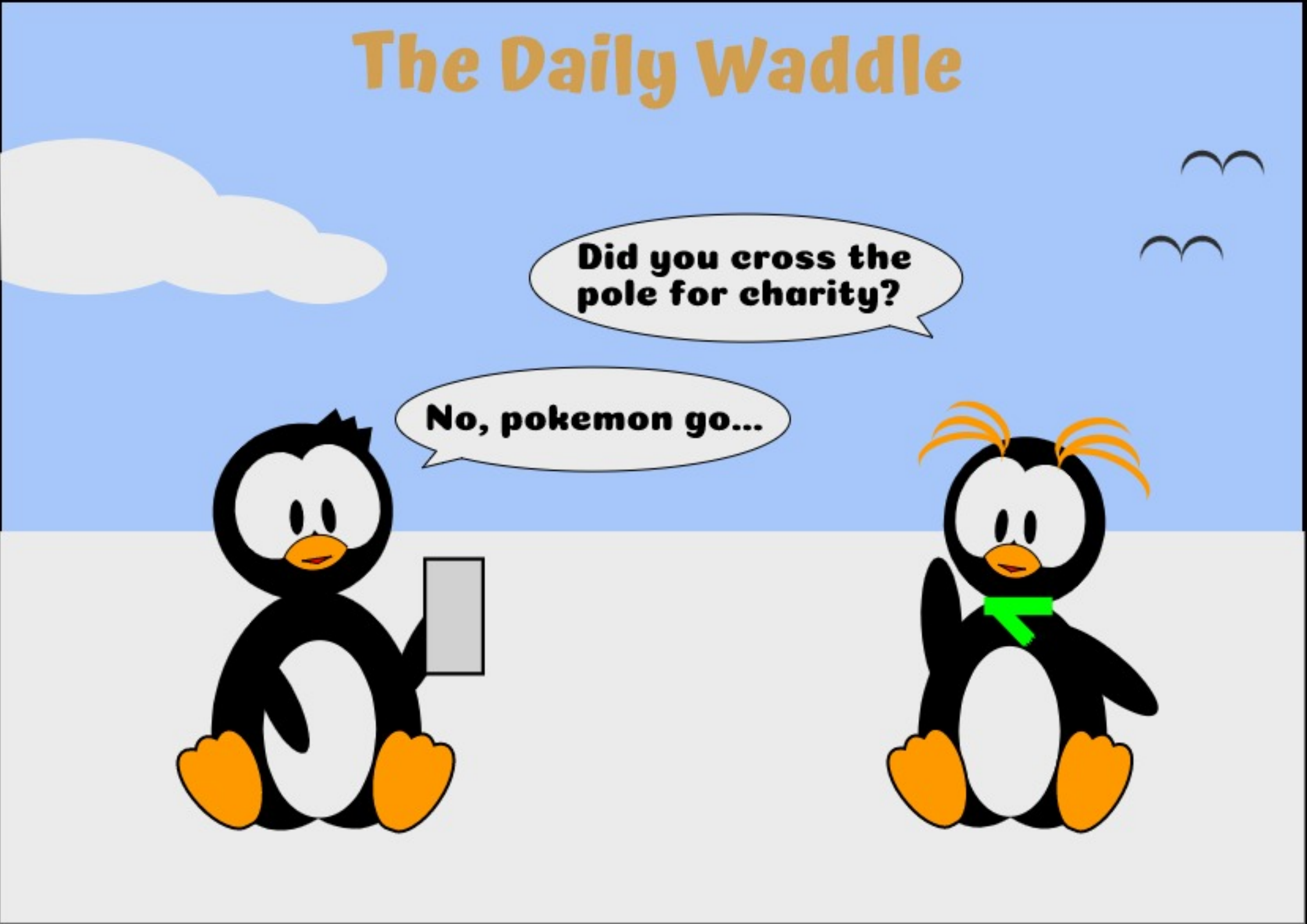
more settings. The layout of the buttons has also changed, instead of them all on the left-hand side, now only the on/off toggle is on the left. I am on the fence about that visual change, as it does nothing for me; it does not speed up my work flow or make it any easier. The sliders that go together, are grouped together, this I like a lot.

They talk about undo and redo of tags and colours, etc. This is a feature I have honestly also not used, so I have no comment there, but we can definitely explore that when the final version is released. They also mention performance improvements. I cannot really say that I see it immediately, but I am going to load this on my dual-core machine to see what the fuss is about. We can surely discuss this in the final. Lut3d is a new module that we have not talked about, but soon will. The tutorial is taking shape in my head as I write this.

Visual changes are what brought me to Darktable version 3.0, but I suspect it will be changes under the hood that make my day. There are so many changes here, we will be having so much fun in the new year, I cannot wait!

If you cannot wait, you will have to build it, as this is only an RC and will not show up in the Ubuntu software centre. If there is anything you would like me to highlight first , or make a tutorial about first, drop us a line on misc@fullcirclemagazine.org

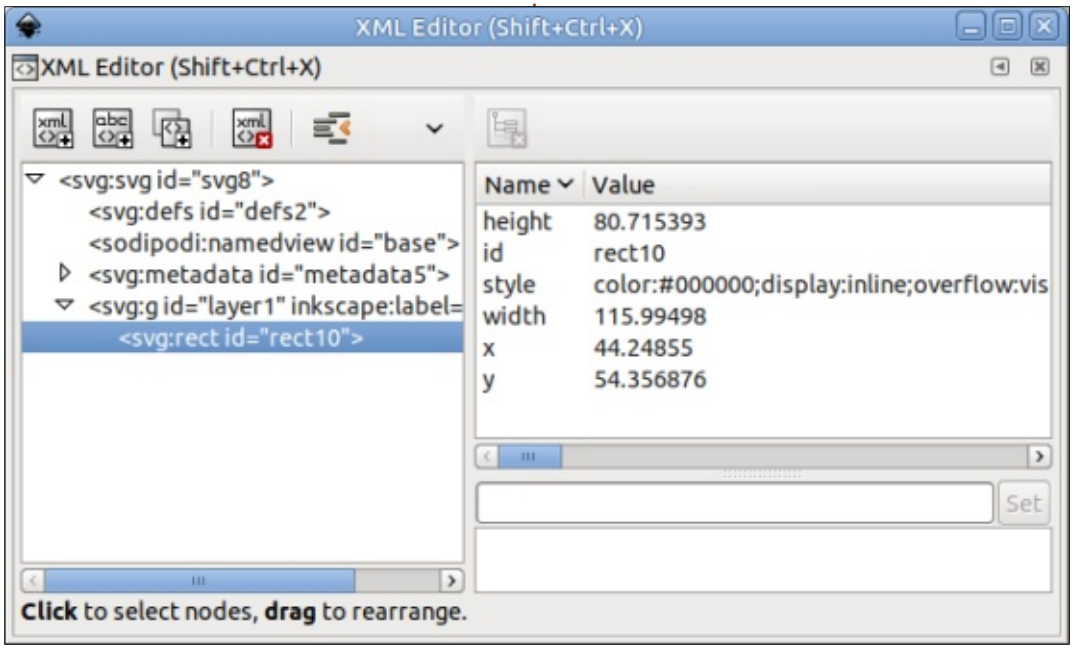
Erik has been in IT for 30+ years. He has seen technology come and go. From repairing washing machine sized hard drives with multimeters and oscilloscopes, laying cable, to scaling 3G towers, he's done it.


The Daily Waddle
Did you cross the pole for charity?
No, pokemon go...

Inkscape - Part 91

Over the past few months, we've looked at ways to manipulate SVG in a web browser, using JavaScript, culminating in some simple animation. The code we used last time let us move an object horizontally on screen by manipulating its "x" attribute. By extension, we could also do the same with the "y" attribute to move it vertically. This time we'll look at an alternative method of moving objects up, down, left and right, using an attribute that also opens up the ability to rotate or skew the element at the same time. The attribute in question is "transform", and it crops up all the time in Inkscape documents, so let's start by looking at how it's used there.

Open Inkscape, with a fresh, blank document. Draw a simple square or rectangle – it doesn't matter about the fill and stroke at this point, though it will be useful if you can actually see and interact with it. Now open the XML Editor dialog (Edit > XML Editor…).



By now, the right-hand side of this dialog should make some sense to you. You can see the usual collection of attributes that you would expect to find on a <rect>, together with their values – including the familiar "x" and "y" attributes.

Leaving the XML editor open, you should also open the Inkscape Preferences (Edit > Preferences…). Navigate to the Behaviour > Transforms screen, and ensure that the "Store transformation" option is set to "Optimised".

You should now have these two dialogs open, together with your main Inkscape window. Arrange things so that you can easily get to the main canvas whilst seeing what happens in the XML editor. Select the rectangle in your document, then use the cursor keys to move it around a little. Notice that your "x" and "y" attributes in the XML editor change as you do so.

Now return to the Inkscape Preferences dialog and switch the "Store transformation" option to "Preserved". Repeat the exercise of moving the rectangle around using the cursor keys, once again keeping an eye on the XML editor.

You should notice that, this time, the "x" and "y" attributes remain unchanged. Instead a new "transform" attribute is added, with a value that takes the form "translate(x,y)". If you move your rectangle only horizontally, your "translate" will have only a single parameter – if it's omitted entirely, the "y" parameter is considered to be zero.

That's all very interesting, but what have we actually achieved? One important point is that we've now switched from using absolute coordinates to relative ones. Instead of setting absolute coordinates ("x" and "y" attributes), we're combining an absolute starting point (the "x" and "y" attributes) together with a relative offset (the "x" and "y" parameters in the translate() function). Think back to our animation from last time: we had to keep track of the current "x"

value and add our offset to it each time. By manipulating a "transform" attribute instead, we just have to set the offset directly, simplifying our code. It no longer matters what the coordinates were previously, we need to set only the translate() to the right values for the amount of time that has elapsed in our animation. It also leaves the original coordinates untouched, so moving the object back to its starting position is easier. This also makes our code more reusable: we can apply the same animation to various objects, each with their own "x" and "y" attributes, and therefore all separately positioned, despite sharing the same relative movement.

Another key use for the transform attribute is in combination with groups. The SVG <g> element doesn't have its own "x" and "y" attributes, so moving a group of objects (as one) would require code to update the attributes of each and every element in the group on each step of the animation. By setting a transform attribute on the group, you can obtain the same effect with far less work.

So the transform attribute is a useful, if not essential, way of moving objects around in your drawing. But it offers more than that. Consider how you might incorporate rotation into your animation. If you're animating a path – and you're sufficiently mathematically astute – you could recalculate the coordinates of each node and handle in the path. But us mere mortals need an easier way to manage such tasks and the transform attribute offers that capability.

To see how it works, revert your rectangle back to a point where there's no transform attribute showing in the XML editor, and change the "Store transformation" setting back to "Optimised". With the selection tool active, click the rectangle a second time to switch to the rotate and skew handles. Use the corner arrows to rotate the rectangle and you should see a transform attribute appear, but this time with a value of "rotate(r)", where "r" is the amount of rotation in degrees. By holding the Ctrl key, you can make the value jump between the steps defined in Inkscape's preferences, or release the key for free rotation of your shape.

Notice that rotating the object not only adds a transform() with the rotation amount, but also changes the "x" and "y" values. Once again, set "Store transformation" to "Preserved". Now the transform() function has three parameters: the rotation angle and the x and y coordinates of the center of rotation.

There are four other functions that can be used in the transform attribute:

```
scale(x, y)
skewX(a)
skewY(a)
matrix(a, b, c, d, e, f)
```

I've called these out separately because of the way Inkscape treats them. The scale() function simply increases or decreases the size of the object, stretching it if the x and y values are not the same. As with translate() the y parameter is optional.

skewX() and skewY() transform your element in the same way as the skew handles in the Inkscape UI. They each take a value, in degrees, that specifies the angle of skew.

These three functions map fairly obviously to the select tool in Inkscape, which can be used to stretch, scale and skew an object. So you might expect to see these functions appear in the XML editor as you manipulate your object. Instead you'll get the matrix() function appearing.

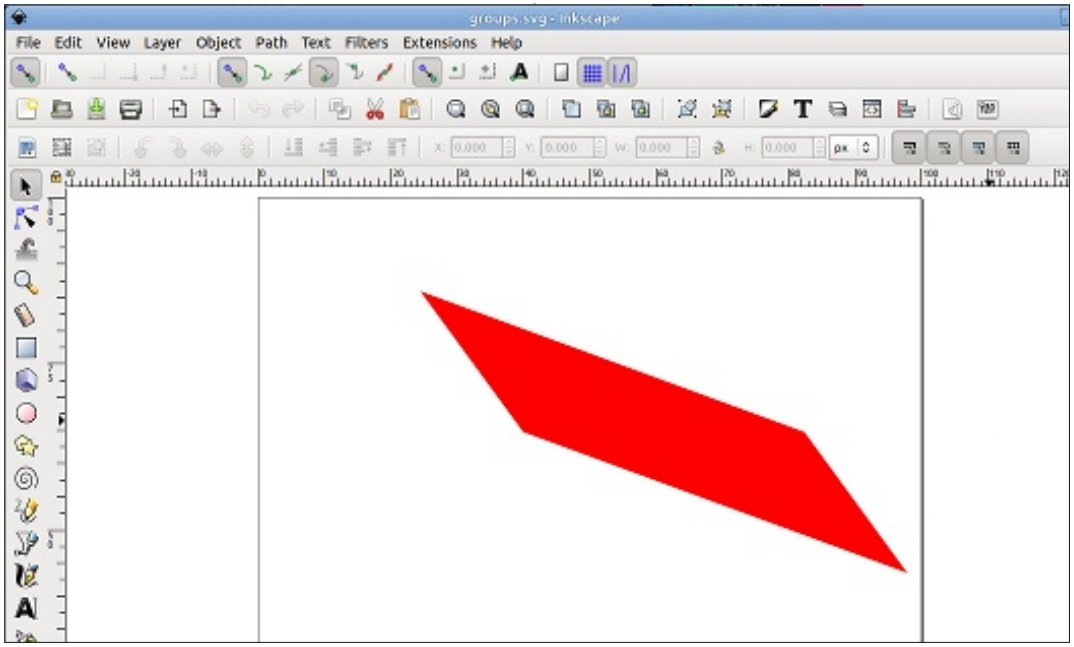
Without going into too much detail, the matrix() function lets you supply a series of six numbers that are used to fill the first two rows in a 3×3 matrix. This is used via standard mathematical matrix multiplication to map the original coordinates of the object to the transformed coordinates. In non-mathematical terms, a single matrix can not only produce the same output as all the other transformation functions, but can also produce output that is equivalent to any combination or mixture of them. Want to skew, rotate, scale and translate all at once? A matrix() transform will do the trick.

Working out the six numbers that need to be passed to the matrix() function is not for the faint-hearted. They don't correspond to simple values such as x, y and rotation. So although Inkscape likes to use the matrix()

function internally, it's probably not something you want to be manipulating in JavaScript. Fortunately there are a couple of ways to work with the individual functions, rather than being forced to combine everything into a single matrix().

The first is simply to wrap your objects in SVG groups (the <g> element), and apply a separate transformation to each one. Here's how an SVG file might look (top right) if we took this approach to both skew and rotate a square:

When loaded into Inkscape the result looks like this:



Opening the XML editor shows that the transform on the outer group remains intact – it's still a skewX() and doesn't get automatically converted to a matrix() when loading it into Inkscape. As soon as you make a change via the GUI, however, the transform's value will be replaced with a matrix(). If you just want to change the value in the existing function (eg. changing the angle of skew in this case), then you can make the modification in the XML editor. But remember that a <g> doesn't have its own x and y attributes, so even something as trivial as moving the object slightly will mean Inkscape converts the attribute to a matrix() that combines the skew with the translate.

```
<svg
  xmlns="http://www.w3.org/2000/svg"
  viewBox="0 0 100 100">

  <g transform="skewX(60)">
    <g transform="rotate(45)">
      <rect
        x="10" y="10"
        width="30" height="30"
        fill="red"
      />
    </g>
  </g>
</svg>
```

This is an important thing to be aware of. It's easy to set up a file for animation with some nicely hand-coded transform attributes, then absent-mindedly open it in Inkscape to make a minor change, only to find that your hand-coded values have all been replaced with matrix() functions instead.

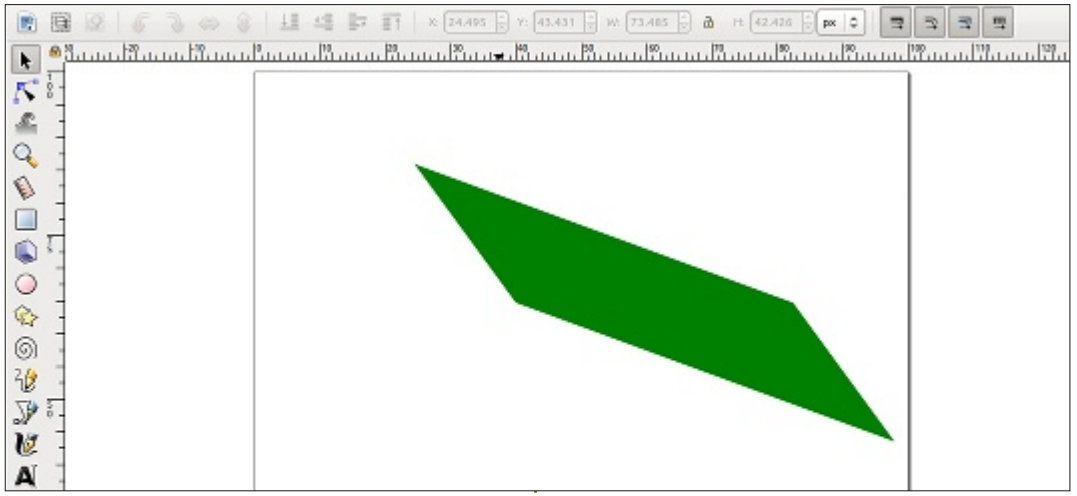
There is a second way to apply multiple transformations to an object: you just list them all in a single transform() element. Here's a version of the previous file, but this time there's no need for the <g> elements, since the transformation can be applied directly to the square (below).

```
<svg
  xmlns="http://www.w3.org/2000/svg"
  viewBox="0 0 100 100">


  <rect
    transform="
      skewX(60)
      rotate(45)
    "
    x="10" y="10"
    width="30" height="30"
    fill="green"
  />
</svg>
```

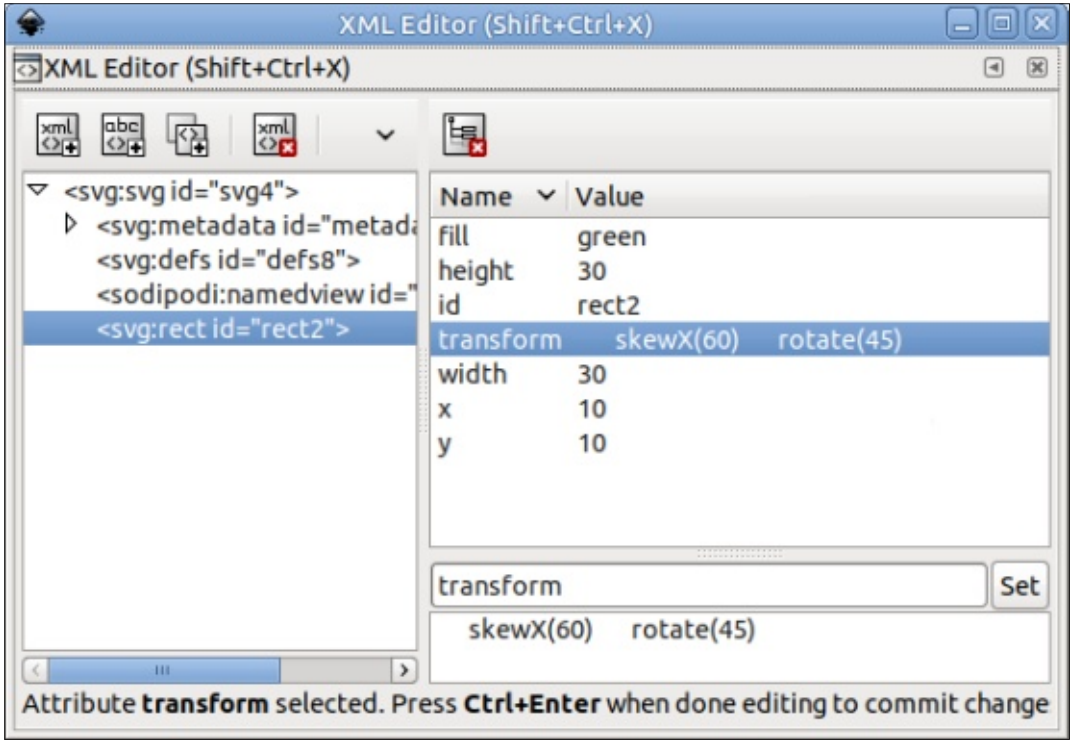
Note that the transform attribute is now a list of transformations to apply. The white-space isn't important: I've listed the functions one-per-line for clarity, but you could just put them onto a single line with a space character between them. When viewed in Inkscape, they appear in the XML editor on a single line, with every space and tab included between them, but none of the carriage returns:

Once again, there's no real surprise with the appearance of



the file when it's loaded into Inkscape (see above).

Yet again, with this approach we face the same issue of Inkscape's desire to convert the value into a single matrix(). This time we do have x and y attributes (since we're working on the <rect> itself), so you might think that a "Store transformation" setting of "Optimised" might leave the transform untouched and just update the coordinates when you move the object around. Unfortunately, even in this case you'll find that a matrix() comes along and tramples over everything, in addition to the x and y attributes changing.



It's annoying that Inkscape doesn't offer a third option beyond "Optimised" and "Preserved". A "Verbose" option that stores transforms in a more human-friendly form. Instead of a composite matrix() function, you would get a list of separate functions in the attribute. Moving would add or update the translate(), rotating would add or update the rotate(), and so on. For anyone planning to manipulate their SVG file with code, the advantages of this approach would be huge.

As it stands, for most Inkscape users the internal details of how objects are moved, rotated, scaled and skewed is irrelevant. "Preserved" or "Optimised" has no bearing on how you work with elements in the GUI, or how the image is rendered in a web browser. If you do wish to alter the transform attribute using JavaScript, then there's a slight advantage to "Preserved" – but only if the x and y attributes are set correctly in the first

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

HOW-TO

Written by Alan Ward

Krita To Rework Old Photos Pt.1

In this day and age, photography is rife. We all carry around digital cameras integrated into our smartphones that vie with professional grade equipment from a couple of decades ago. Moreover, we can take just about as many shots, and in higher quality, as anybody (other than a professional or an advanced enthusiast) could have done until very recently. We are also rather well-equipped - from a software standpoint - to manage and modify our pictures, altering them for different purposes. However, this situation is not the result of an abrupt change in our photographic habits: I am sure many readers of these columns have a history of taking photos in earlier times, perhaps using rather less capable digital equipment, or even physical films developed using a chemical process. I know I still retain several boxes of such at home, hundreds of paper prints, as well as the cameras that I used to take them. Though they may seem quaint and perhaps better suited to a small museum than to a modern lifestyle, it is no less true that these pictures bring back memories of times gone by, of places and of people - some of whom are no longer in this world. In addition, I also conserve several photos made by other people, related to family circumstances, but at earlier dates. I have absolutely no doubt I am not the only one in this situation.

As may or may not seem logical, I would now like to retrieve some of these documents, and work on them to enhance their technical quality that, in cases, has been sadly let down by what was possible at the time. Some images are faded and yellow from the oxidation of their pigments. Others have creases and dots on them. The earliest are in black-and-white, which is fine from an artistic point of view, but to which I would like to add color to try and capture some essence of the original scenes.

This has been the main source of inspiration for this series, in which I will be going on my internal journey of learning to make something of the old photos in my possession, and others in the public domain due to their age. You, the reader, are welcome to tag along, and I hope to glean some small insight and perhaps an idea or two from time to time. No promises are made as to the quality of the content, or potential errors and omissions. I am a computer scientist, not a true artist or a professional of image restoration. So please take all this as a best effort, but with no firm guarantees - much as is the case of most open-source software. Naturally, being a Linux user, that is what I will be using: open-source applications, on top of an open-source operating system: Linux Mint 19.2 in my case, though there should be no real differences between anything described here and other comparable distributions in the Ubuntu family, or Debian.

A CHOICE OF PROGRAM

Modern distributions of GNU/Linux propose many programs to work on photographs and other forms of digital art. Some applications, such as Inkscape, are oriented towards creating vector graphics, not photos and raster images. Others, such as Darktable, are used to process raw images fresh from a digital camera, for management, and to quickly apply effects and enhancements to the complete image. And then, there are the many general-purpose applications with a wide range of effects and tools for editing complete images, but also drawing and modifying local details. Perhaps the best-known of these is the GNU Image Manipulation Program (GIMP), often installed within a distribution's default selection of software. A good stand-in for Adobe's commercial Photoshop, it can certainly be used for our purposes and to good effect.

However, for this series I have preferred to focus on a different program, Krita, that is perhaps slightly less well-known to the general community outside of people involved in visual art, being more focused towards artistic

drawing than GIMP. It came to my attention when researching software to use with the recent acquisition, a digital tablet, with which it integrates very nicely.

Krita is based on the Qt widget set, and thus often associated with the KDE Plasma desktop. But, as with most modern applications, it does integrate rather well with other desktop managers such as Gnome or Cinnamon, and, in fact, I tend to use it with a fairly standard Linux Mint. Other options include using Krita under Mac OS, or Windows. Further information may be found on the project's home page, at https://krita.org/en/. As usual with Ubuntu and its derivatives, installation is usually a matter of using terminal commands:

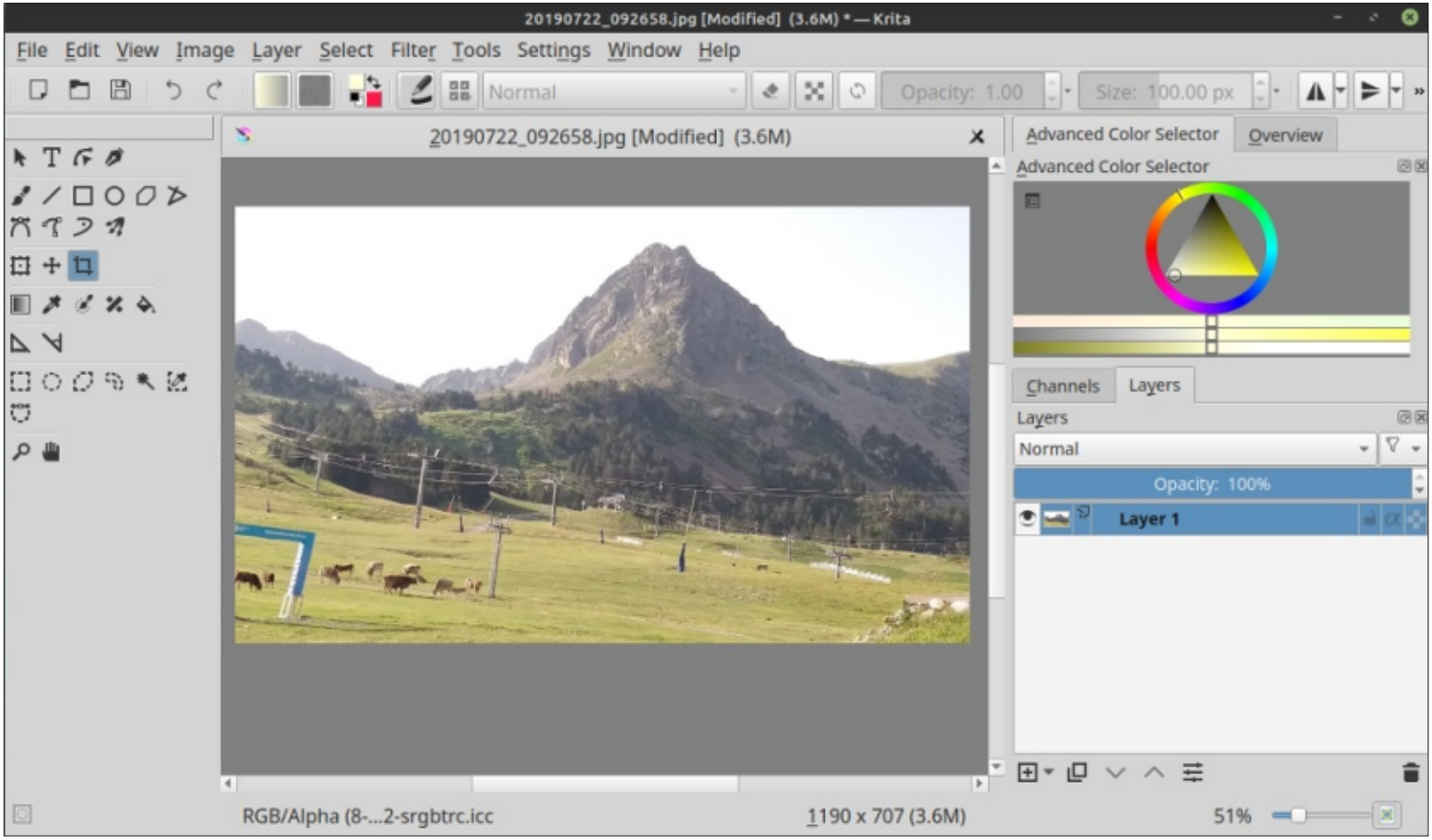
```
sudo apt update ; sudo apt install krita
```

Krita should also be easily available in graphical software managers, though I cannot say I have tried out that route.

Acquiring the images

Before working on any specific images, they must, at some point, be converted to a format compatible with computers. Pictures taken with digital cameras may be stored on hard drives, or even USB-connected pen-drives. These formats will usually give no problem, as long as some means of connection is available. The situation may become more complex with the CD-ROMs that many camera-film developers provided alongside paper copies in the final years of chemical film usage - since most modern computers lack an optical drive. An older laptop may be of use, though I would advise a liberal application of compressed air to clean some of the accumulated dust out before putting such bask in use reading CDs. An external CD reader connected to our main computer via USB may be a better alternative; these are not expensive and may be stored for other purposes.

Some time ago, flatbed scanners were a widely-used peripheral to convert physical documents to digital form. I still have one on a shelf somewhere, which I could plug in and use in conjunction with the Simple Scan software that comes with Ubuntu these days. However, I will not be



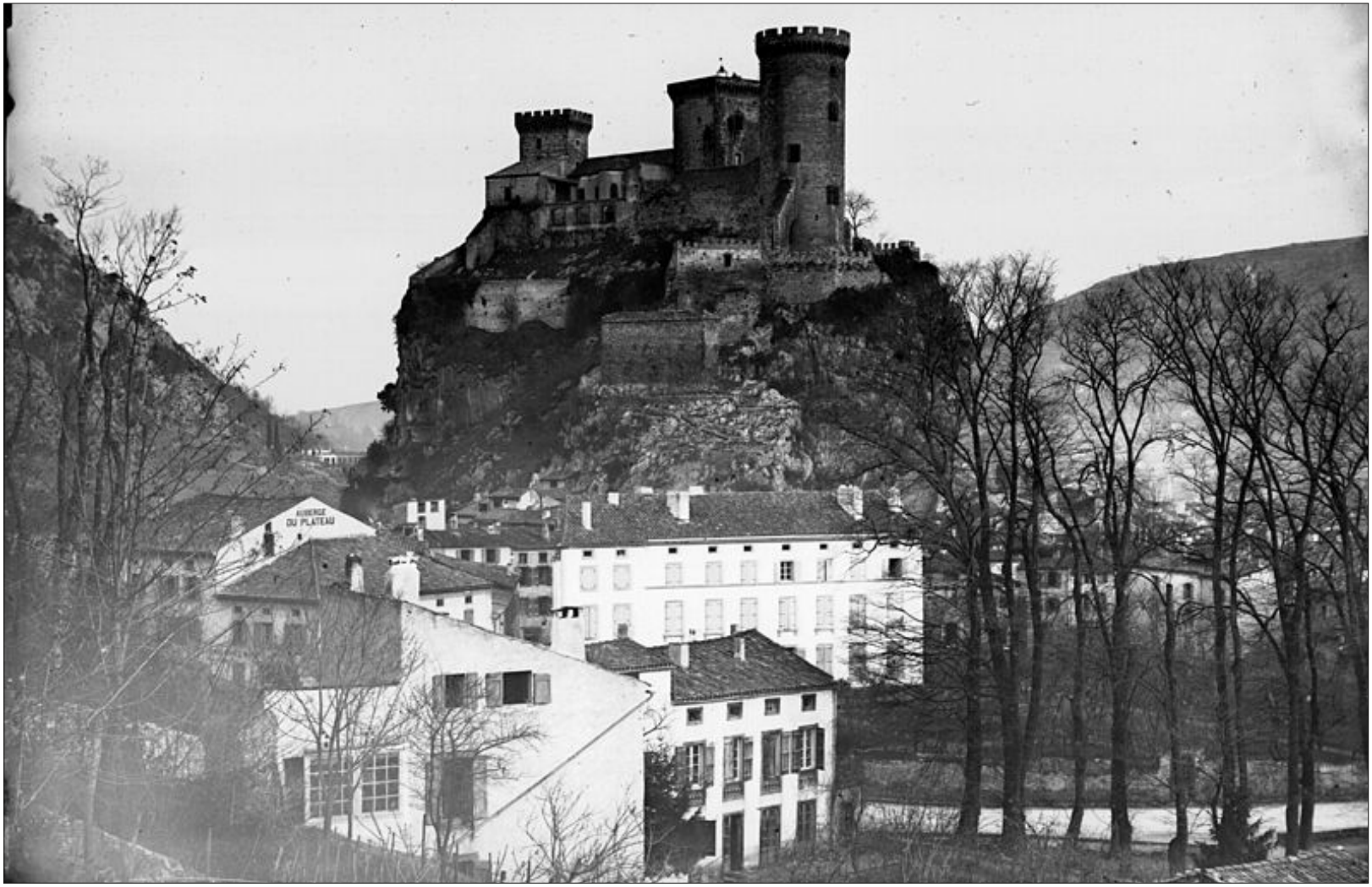
contents ^

using it to convert paper prints to digital form for the following reason. My desktop scanner, like most, has a resolution of 300 dpi (dots per inch). When applied to a standard paper print of about 4 by 6 inches, or 10 by 15 cm, this gives a digital file with resolution 1200 x 1800 pixels. But my cheap Samsung phone has a camera with a resolution that goes up to 4128 x 3096 pixels (13 Megapixels). So one can achieve both better resolution and an easier workflow to transfer the images to a computer by simply taping the prints to a vertical wall in a well-illuminated place, and taking a picture of them with the mobile phone's camera. This is the miracle of technology ever moving forward. Just make sure to take the photos from a point as squarely in front of the original as possible, and do not let shadows or the use of a flash mar the result.

Series outline

In the next part of this series, we will commence work on a simple landscape, a photo of the castle of Foix in southern France about the turn of the century. With the passage of time, this photo is now slated to fall within the public domain. It has already been digitized by the Rosalis project of the municipal public library of Toulouse, and may be downloaded from Wikicommons at address: https://commons.m.wikimedia.org/wiki/File:Ch%C3%A2teau_en_ruines_(8056081904).jpg .

Interested viewers may wish to download this image, explore its various technical difficulties as a restoration project, and perhaps play around a little before the next episode. Until then, take care!



Alan holds a PhD. He teaches comp sci and eng at Escola Andorrana de Batxillerat. He has given GNU/Linux courses at the Uni of Andorra and taught GNU/Linux systems admin at the OU of Catalunya.

THE DAILY WADDLE
by: ErikTheUnready
We pride ourselves that customer satisfaction is delivered assured!
Pretty much.
In other words, you are so far behind schedule, the customer is happy to get it delivered.
The Daily Waddle

LINUX LOOPBACK

Written by S. J. Webb

MAYBE NEXT MONTH

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

BACK NEXT MONTH

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

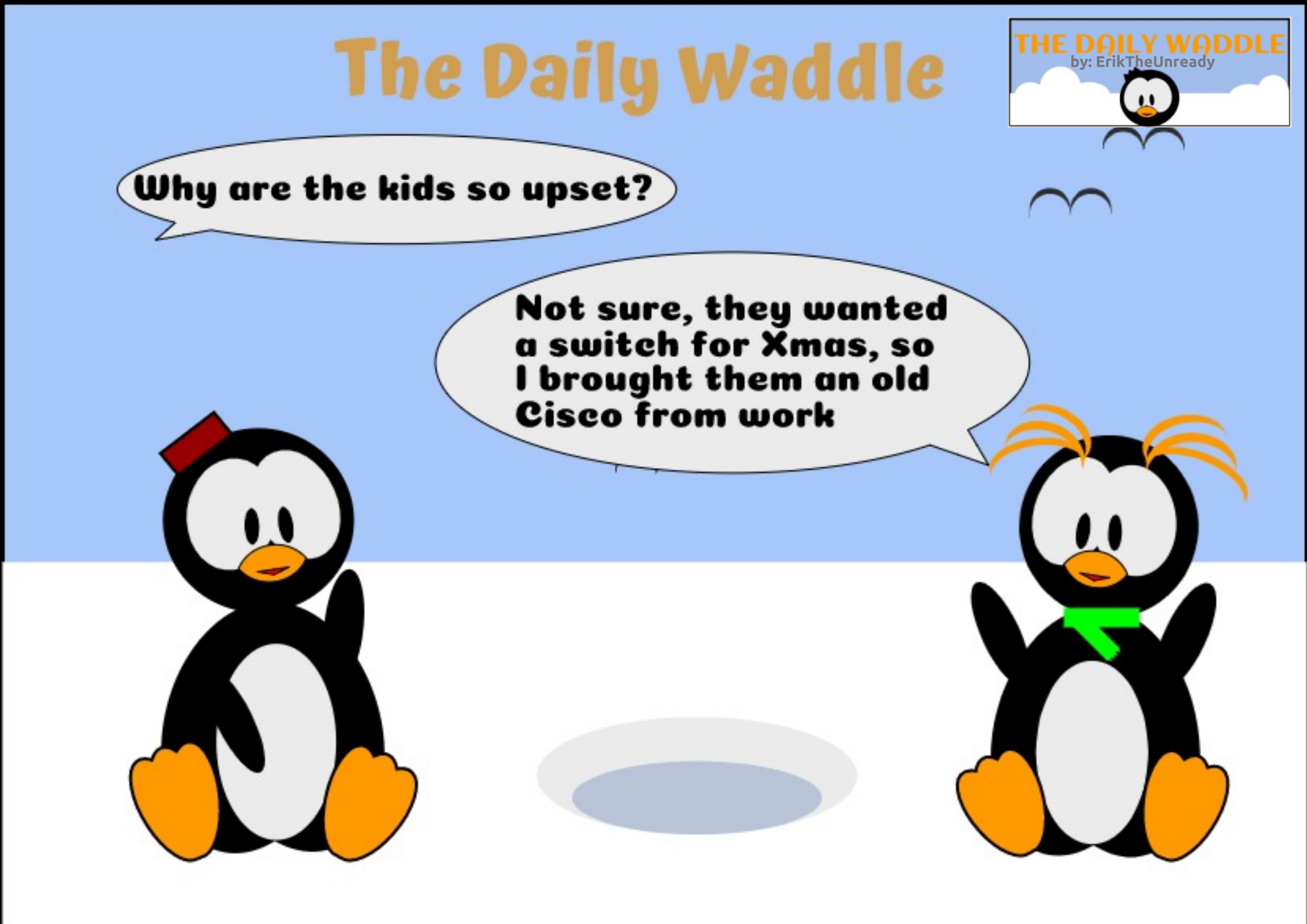
UBPORTS DEVICES

Written by UBports Team

COMING SOON

The Daily Waddle

THE DAILY WADDLE
by: ErikTheUnready



How I Got Started With Linux

At the beginning of 2010, I found myself quite broke and frustrated. As a result, I wondered if there was a free operating system that I could use instead of Windows. Anyways, I searched and searched while I was at the library, but to no avail. And then, one lovely day, I was at a Barnes and Noble bookstore and I saw a magazine for Linux. It caught my attention and I took it upstairs to read it. (I had heard of Linux years before, but unfortunately was told that it was for people who were computer experts, so I felt like I would be wasting my time trying to use it).

He was wrong, and I am so glad he was!

As a result, I was able to embark on what would be quite a fantastic voyage as you will see in the following paragraphs.

While reading the magazine, I became exposed to Ubuntu 9.10 which had the codename of Karmic Koala. It sounded so good, and it turns out that it was exactly what I was looking for. Excitedly, I took it home, and, much to my surprise, the instructions were easy to follow, and so, for the first time, I would run it along with Windows XP as a dual boot system. All I did was put the live CD in the drive and the instructions were step-by-step. In fact, let me tell you about the computer I was using at the time.

It was a Pentium 4 that had less than 1 GB RAM and had 2 hard drives installed, a 10 GB HDD and an 80 GB one. The one that I chose to install Ubuntu on was the 80 GB drive, unfortunately I would run into a major issue…I didn't have sound.

Why you may wonder? Well, since I didn't have the internet, I had only what was available to me from the CD itself, and it didn't include the codecs that I would need to play videos or listen to music. This was a real bummer as that's a lot of what I was doing on the computer in the first place. The insane part is that this was a problem that would last for months.

Good thing I kept Windows XP instead of jumping directly to Linux

Thankfully with the help of Google, I was able to go to the library and save the needed codecs to a USB drive, and then, when I installed them to my computer at home, I would have sound. It was at that moment that I would start to use Linux more than just one day a week.

Hooray for me, I had overcome my first problem and was ready to continue my journey with Linux.

Write For Full Circle Magazine

Guidelines

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

Rules

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

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

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

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

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

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

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

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

Translations

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

Reviews

Games/Applications

When reviewing games/applications please state clearly:

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

Hardware

When reviewing hardware please state clearly:

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

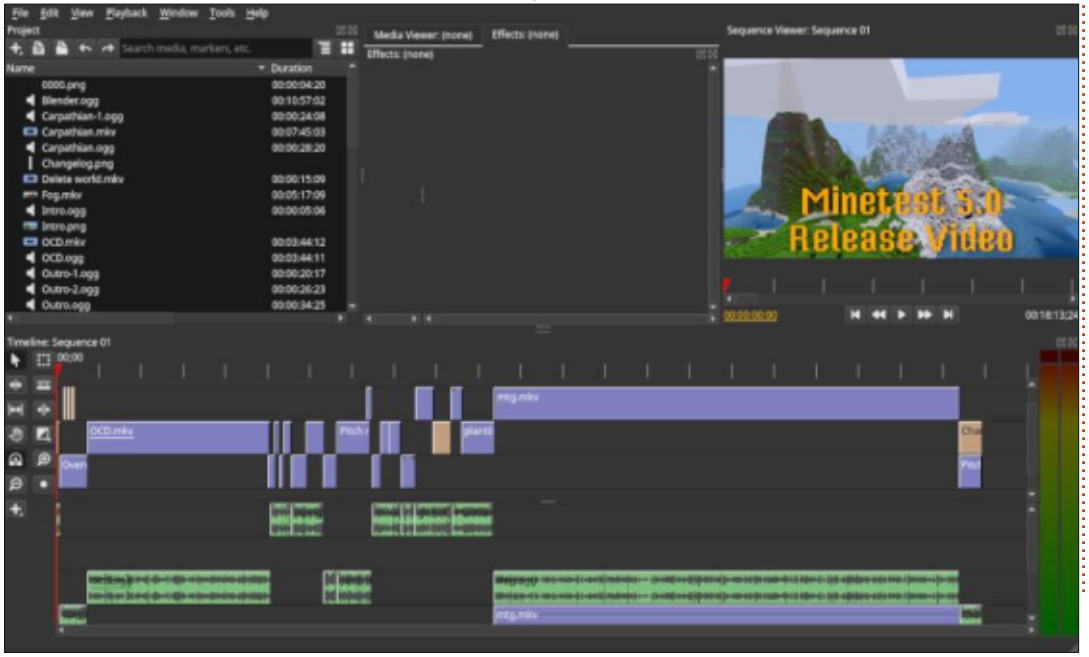
You don't need to be an expert to write an article - write about the games, applications and hardware that you use every day.

Olive Video Editor

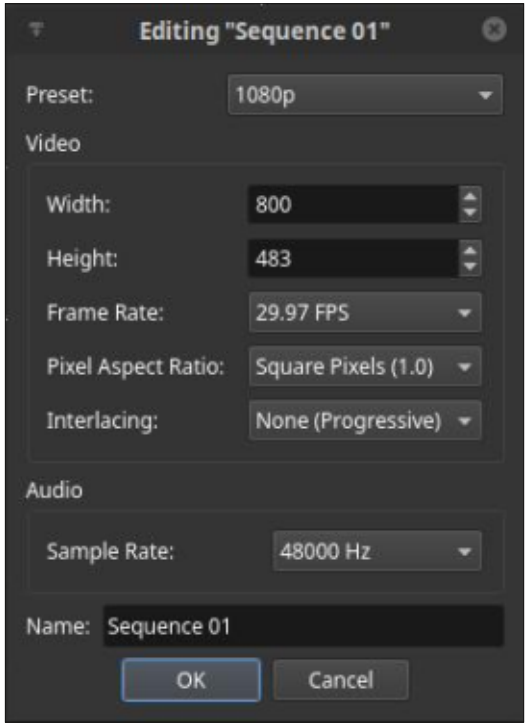
Olive is a non-linear video editor that aims to provide a fully-featured alternative to pro software. While currently in Alpha, I've been using it quite a bit and haven't experienced any crashes or issues. I use it mostly for editing screen-captures of gameplay(1440p) and editing home videos(1080p). Playback is smooth and the feature set contains everything I need, and more!

Features Overview

Olive boasts a lot of effects for video input: blurs, color effects, distortion, frei0r video effects, keying, and stylization. Audio inputs have fewer effects built in: noise, pan, tone, and volume. If you have any VST 2.x plugins, you can load and use them. I have no idea what those are, so I've not used that feature at all, and can't say anything about how well it works. The timeline dynamically creates layers as you add content, so if you want to stack a bunch of different clips on top of each other, you can.

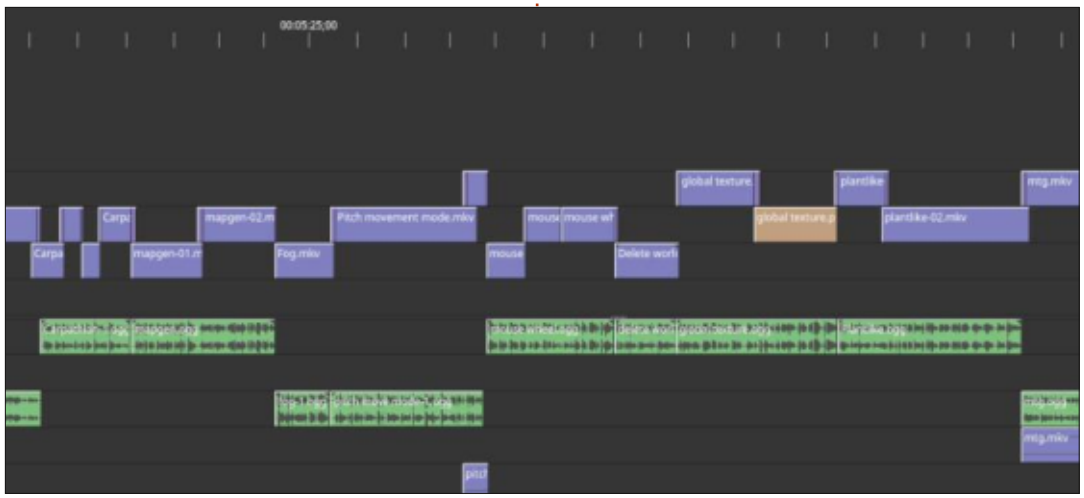


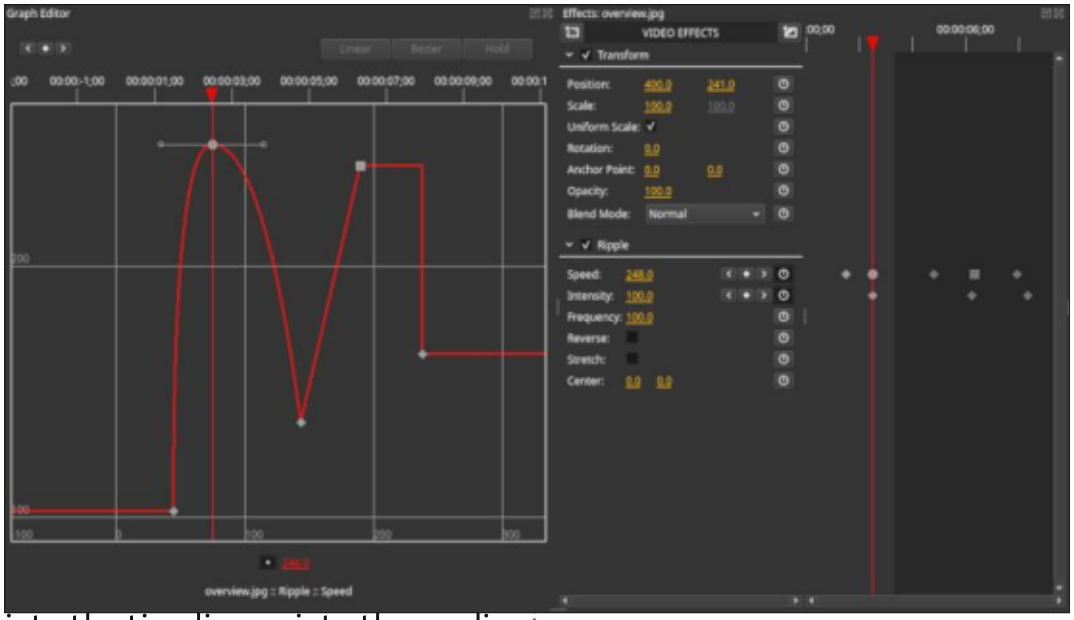
Editing Content



The first clip you add to the media pool will set the sequence resolution and frame rate, but this can be changed by right-clicking on the Sequence clip in the pool and select properties. You can change the video resolution and this will change the canvas size. Any media already in the sequence will retain its original resolution, so if you have clips with a smaller resolution, they will show with space around the borders. Any added media will act the same way. Of course you can scale the display size up if you want it to be full-screen.

Media can be dragged directly

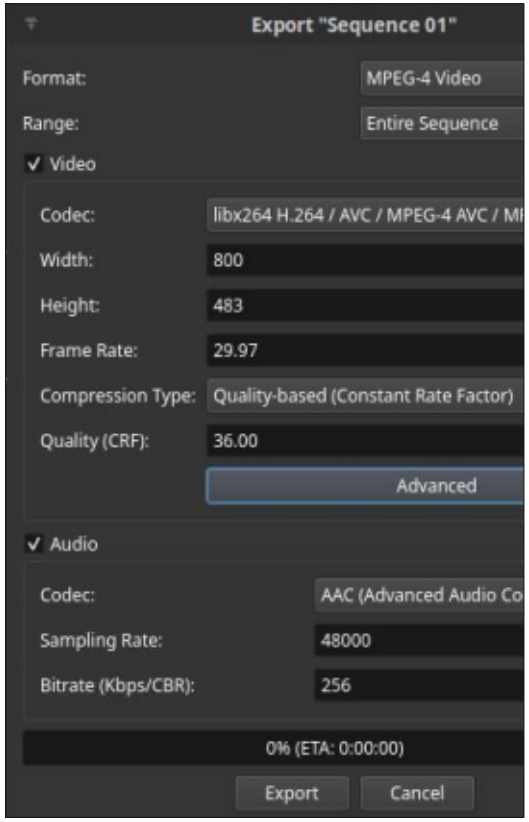




into the timeline or into the media pool. Right-clicking on the clip will yield different results depending on its location. Changing the properties of clips in the media bin will not affect instances of that media already in the sequence, in like fashion changing the properties of clips in the sequence will not affect other instances of the clip in the sequence.

Content can be grouped and then treated as a single object, though some effects can't be applied to media in groups.

The only included transition is a cross dissolve; if you want to do slides or wipes, that is possible by just animating the position and/or scale of the clip you want to transition to/from.



Olive includes a simple title editor, it lets you select color, font, font size, and a variety of effects. The only issue I found with it is that the text is bound to the canvas size, so scrolling credits are somewhat impossible to do. The workaround is to create an image with the credits and then animate its location, or do a series of titles and animate them all.

Animation

Any user configurable settings for the effects can be animated as well, so you can vary the intensity of the effect on a frame-by-frame level if you want. The keys themselves can be either linear, bezier, or hold – which lets you tweak your animation even more.

Output

When it comes to exporting your video, there is no shortage of output formats available to use. You can toggle the output of video and audio, and there are formats that support only one or the other. All the normal formats are supported, AVI, FLV, GIF, MP3, MPEG, OGG, MOV, WMV, and several other less common formats. You can set the resolution of the output and frame-rate in the export dialog. I've scaled down 1440p to 1080p and have seen no problems.

Links

Website: https://www.olivevideoeditor.org/

Code: https://github.com/olive-editor/olive

Xubuntu 19.10

Xubuntu 19.10 is the latest release for this Ubuntu derivative that features the Xfce desktop. Just out on 17 October, 2019, it is the 28th version of Xubuntu and the last "standard" release before the next long term support (LTS) release, due out on 23 April, 2020.

Like most flavors of Ubuntu, Xubuntu tends to use the three standard releases in between LTS releases as a testing ground for new software, with the aim of getting it as polished as possible for the LTS. In this case, that major change was the introduction of version 4.14 of the Xfce desktop, which has been under development for four and a half years. First appearing in this release, 4.14 uses the GTK3 widget toolkit. It provides a very similar user experience to previous versions of the desktop, with most of the key changes all behind-the-scenes and out of sight to the users.

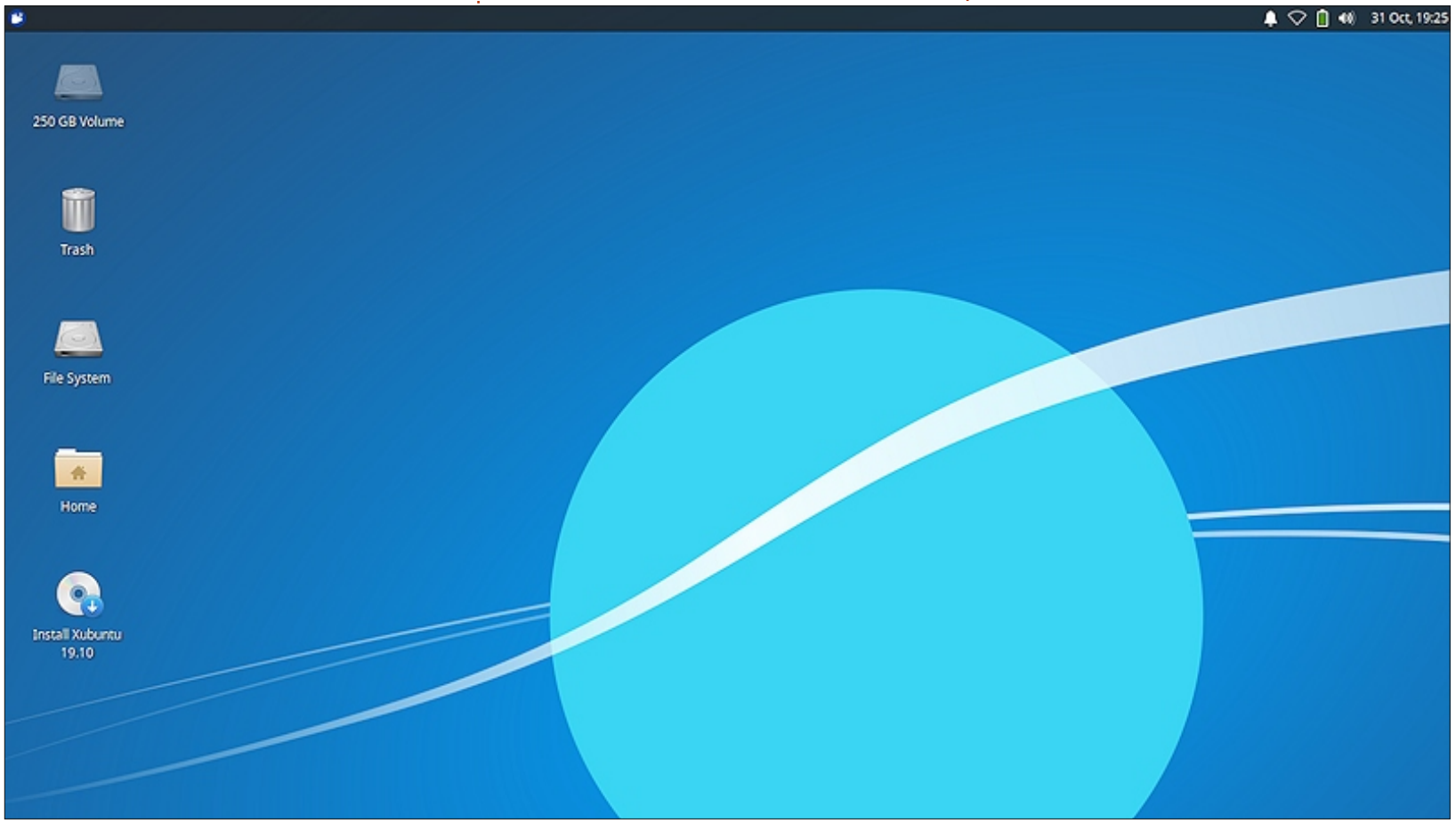
What's New

From a user point of view, there are only small differences between 19.10 and the previous release, 19.04.

In this release, Atril replaces Evince as the default PDF viewer, and Pidgin supplants XChat as the Internet Relay Chat (IRC) client.

The recently developed Xfce Screensaver (package name: xfce4-screensaver) replaces Light Locker as the screen saver/screen locker. This is a good move, as Light Locker has proved to be troublesome in recent releases. Lubuntu also moved away from it a year ago with Lubuntu 18.10.

The ZFS file system and logical volume manager is available on root in this release, but the developers warn that it is experimental and not to be relied upon yet, going so far as to include a bold text warning in the release notes to that effect.



Applications

Some of the applications included with Xubuntu 19.10 are:

Atril 1.22.2 PDF viewer
CUPS 2.2.12 printing system
Catfish 1.4.10 desktop search
Firefox 69.0.3 web browser
GIMP 2.10.8 graphics editor*
Gnome Software 3.30.6 package management system*
Gparted 0.32.0 partition editor*
LibreOffice 6.3.2 office suite
Mousepad 0.4.2 text editor
Parole 1.0.4 media player
Pidgin 2.13.0 IRC client
PulseAudio 13.0 audio controller
Ristretto 0.10.0 image viewer
Simple Scan 3.34.1 scanning (re-badged as "Document Scanner")
Software Updater 19.04.8 (update-manager) software update manager
Startup Disk Creator 0.3.7 (usb-creator) USB ISO writer*
Thunar 1.8.9 file manager
Thunderbird 68.1.2 email client
Transmission 2.94-2 bittorrent client*
Wget 1.20.3 command line webpage downloader
Xfburn 0.5.5 CD/DVD burner*
Xfce4 Panel 4.14.1 desktop panel
Xfce4 Power Manager 1.6.5 system power manager

* indicates same application version as used in Xubuntu 19.04.

As in recent releases, Xubuntu 19.10 does not include a webcam application, although Guvcview and Cheese can be easily installed from the repositories.

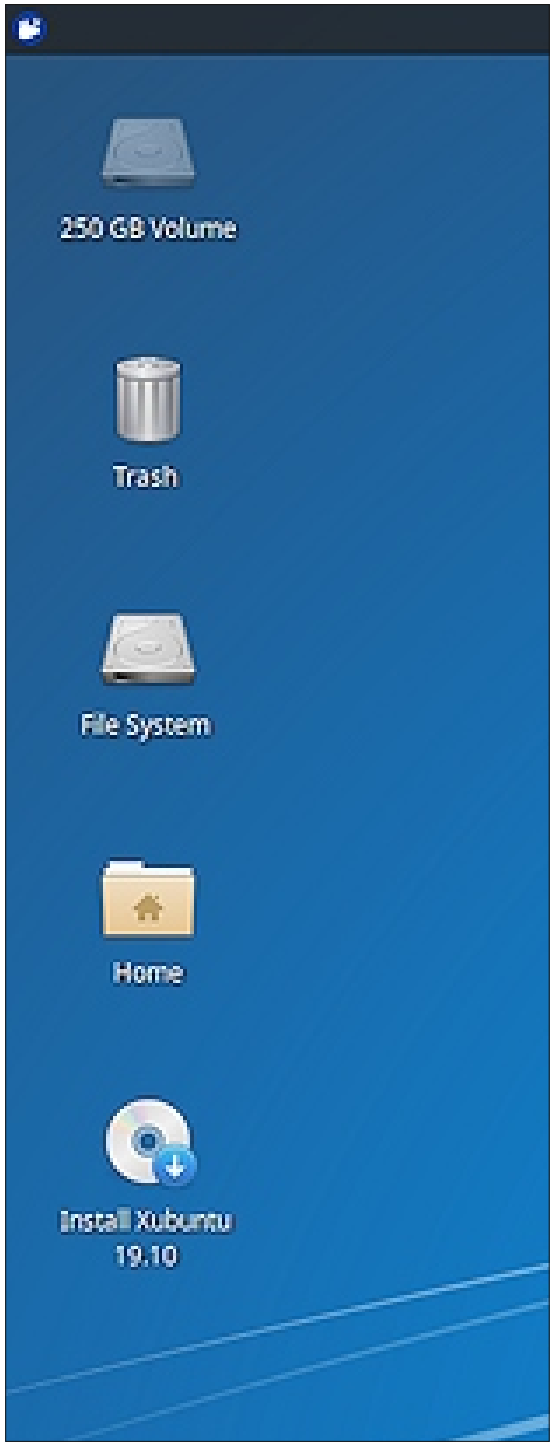
Like all Xubuntu releases since 14.04 LTS, 19.10 uses the excellent Whisker menu. Whisker launches all applications, starting with a "favorites" list, but offers quick access to all other applications via sub-menus. It also controls log-outs, reboots and shutdowns, as well as screen locking. Unique among Linux menus, it can be easily customized and even quickly resized by dragging. It is launched by clicking the Xfce "mouse" logo on the panel. The only function it doesn't offer is "minimize all windows", but with 19.10 and Xfce 4.14, there is now a keyboard shortcut for that: "Super+D" (Super is the "Windows" key on most keyboards). "Super+L" also locks the screen.

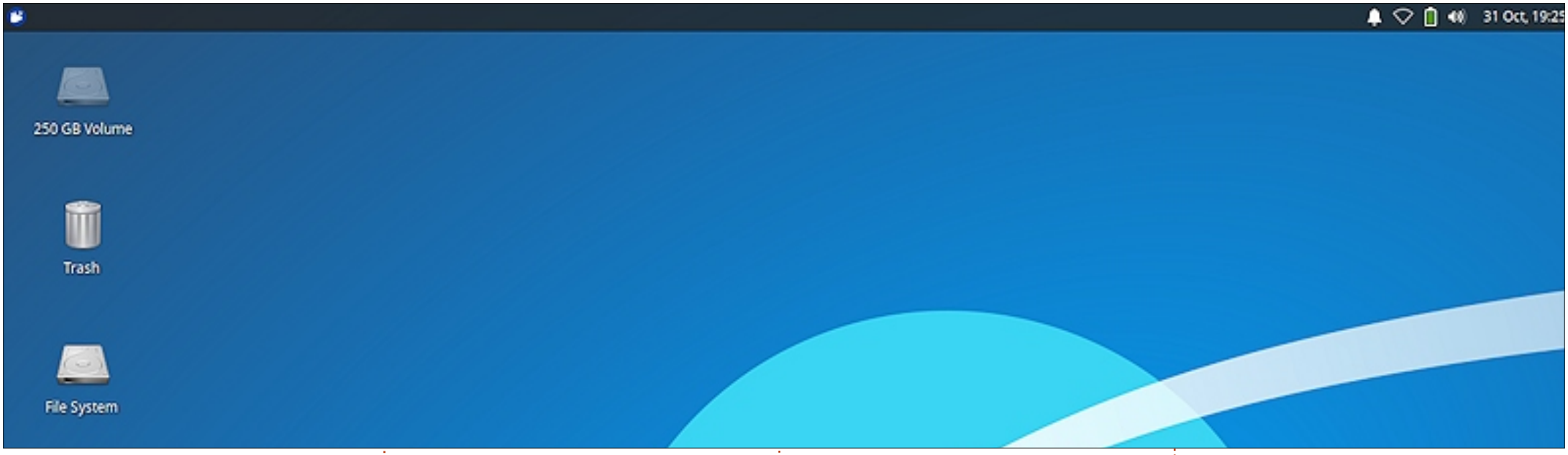
The Xfce panel (task bar) is by default found at the top of the screen, but can quickly be unlocked and moved to the bottom or either screen side. When used vertically, it can be set to display its icons vertically-oriented too.

Since Xubuntu 19.04, LibreOffice is now supplied almost complete, missing only LibreOffice Base, the database application. Most people don't work with databases, so will not need it, but it can easily be installed from the repositories.

The Thunar file manager is the heart of Xfce and is integrated with the Ristretto image viewer, as both share the same properties dialogue boxes, allowing image Exif metadata to be viewed in either application. Thunar also includes a bulk file renamer, accessed by highlighting two or more files and then hitting F2.

The default text editor continues to be Mousepad which has a wide variety of choices for syntax highlighting, making coding or writing web pages much easier. As in past versions, all it lacks is spell-checking to be fully functional.





Color Schemes and Settings

This Xubuntu release has default wallpaper that is very similar to the last three. It is rather dull and uninspired compared to the Xubuntu wallpaper from the 14.04 to 15.10 period, but it is easy to replace. Xubuntu 19.10 comes with 17 alternates, some of which are quite good, plus, of course, you can always substitute your own.

The default window scheme continues to be Greybird, which is not my favorite as the active and inactive windows all look too much alike. The good news is that there are five other included window schemes to choose from. The bad news is that, as in the last release, none of them are much better in providing decent active/inactive window differentiation.

As with Lubuntu 19.10, on Xubuntu 19.10, I had issues with my old 2011 model System76 laptop touchpad not working right, dancing the cursor all over the place. The solution on Lubuntu was to select “two-finger scrolling” in place of edge scrolling. With Xubuntu it worked best to turn off touchpad scrolling altogether and dial down the sensitivity; then it worked fine. This may be an issue with my old hardware and the current drivers, so other users may not see this issue.

Conclusions

With 28 releases, Xubuntu is a very mature operating system. It provides users with a solid, stable, elegant desktop experience that is quick to learn and very easy to use. Mostly it lacks unnecessary flash and bling, and instead stays out of the way and lets users get work done and very efficiently, too.

Xubuntu 19.10 is a release that brings small, incremental changes, with updates and polish that all bode very well for a good, solid spring 2020 LTS release.

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

BACK NEXT MONTH

LETTERS

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

Ubuntu On A Phone

In the Q&A column of September 2019 (FCM#150), a reader asked how he could put Ubuntu on his phone. Erik replied with the suggestion of an app called Drivedroid, available on the Google Play Store. It, however, requires rooting your phone.

In a tutorial published in January 2019 (FCM#141), I explained how, through trial and error, I succeeded in putting Ubuntu with XFCE4 on my Honor 5C, which is now over 4 years old. It can go no higher than Android 7 and has a total of 2GB of RAM, with an average of between 600 and 900 MB available at any one time. Today, as we all know, Linux needs at least 1GB to perform well.

The apps I used were UserLAnd and bVNC. It was NOT necessary to root my phone. The people, especially Corbin, on UserLAnd at Github were most helpful, so here is the address again : https://github.com/CypherpunkArmory/UserLAnd/issues/ Emails may be sent to support@userland.tech

On Huawei or Honor phones, with at least Android 9, their team has had no reports of any problems at all. Today, the distributions available are Alpine, Arch, Debian, Kali and Ubuntu. Plus various desktops and software.

Might I suggest that before your readers go through the hassle of rooting (that will destroy the guarantee of their phone), they try UserLAnd and bVNC?

When my faithful Honor 5C finally gives out, and I get a new phone, one of the first things I will do is to put UserLAnd and bVNC (perhaps with LXDE rather than XFCE4) on it. And, of course, I'll report back to the FCM.

With very best wishes,

AuntieE (of the French Translation Team)

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

Join us on:

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

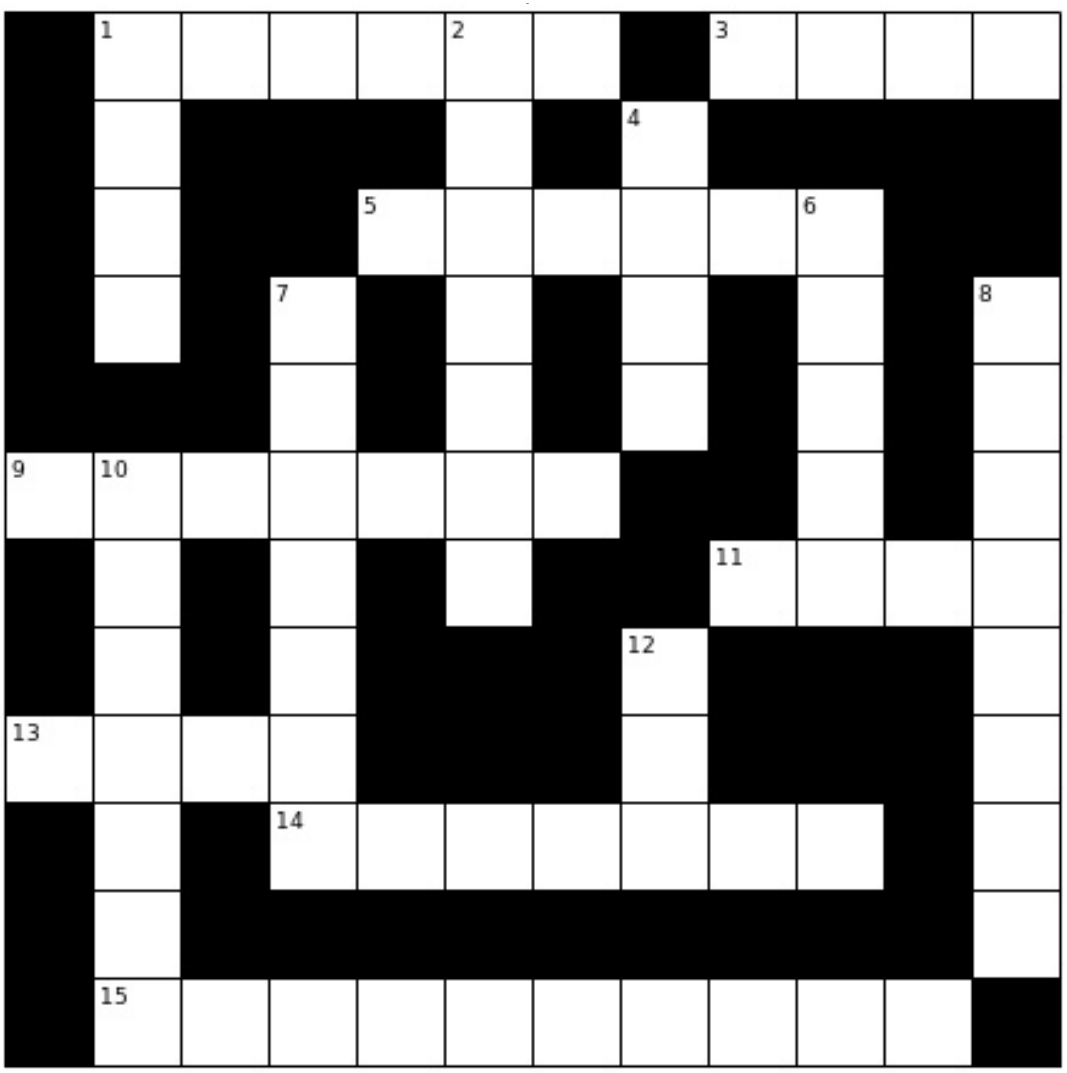
Full Circle Needs You!

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

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

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

CROSSWORD - DISTROSHUFFLE 7



ACROSS

1A: Stuff this systemd stuff.
3A: Based on Ubuntu, the Logo is a feather.
5A: It's not a big no.
9A: It uses bananapkg.
11A: Independent distro inspired by Arch.
13A: The distro and package manager have the same name.
14A: A dedicated marine OS, supposedly 'unbrickable'.
15A: UK firewall without a desktop.

DOWN

1D: Another Forensic distro from Italy.
2D: Here ctrl+alt+backspace takes you to the terminal.
4D: The codenames are all Women's names.
6D: Based on OpenSUSE, you can only get a BETA.
7D: Bringing the joy of Android gaming to PC...
8D: Latest version, 8.0 is named "Flidas".
10D: Very Indonesian, codenamed Lare.
12D: The repository for this distro is called Sisyphus.

Compiled by Erik

Answers are elsewhere this issue.

Q&A

Compiled by EriktheUnready

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

Welcome back to another edition of Questions and Answers! In this section, we will endeavour to answer your Ubuntu questions. Be sure to add details of the version of your operating system and your hardware. I will try to remove any personally identifiable strings from questions, but it is best not to include things like serial numbers, UUID's or IP addresses. If your question does not appear immediately, it is just because there is such a lot, and I do them 'first-come-first-served'.

One of my clients, back in the day, had two 64k ISDN lines for internet connectivity. Because of the bandwidth constraints and the high cost of ISDN, they were very frugal with the "internet" and related services such as e-mail. Only certain people had e-mail and internet access. It was with great interest that, one day, I went out on a call to a woman I know was not given internet access, but complained that it stopped working. This was a lady who typed with one finger, had to be constantly reminded how the printer worked, and other technical stuff. Logging in and starting her word processor was the height of her technical knowledge. I did not say anything over the phone, just that I would come have a look. When I got there, she assured me that I need not bother as it came right. I then asked her how she gets internet, as she was not on my list of people who had access. She proceeded to show me how she set up Microsoft fax in Windows NT and tweaking here and there and then typing the address she wanted to go to, in the Windows Explorer address bar, it would somehow bypass their sophisticated setup and she would be on the internet. Never, under any circumstances, underestimate users. No matter how technically challenged they are, they are always able to break your systems.

When a user tells you one thing, think of all the dumb things they actually could have done and you will get to the bottom of the problem quickly enough!

Q: I am looking at the man page for tail, but it says nothing about secure browsing. How do I make secure browsing with it?

A: 'Tails' is a distribution that allows safe browsing, 'tail' is the command to see the "tail-end" (last few lines) of a text file.

Q: Guys, I have a terabyte of music. Which music manager would you recommend that I use for this on Ubuntu? I am moving it off my old Mac with iTunes.

A: You will need one with a SQL backend to manage that huge library speedily. I cannot tell you which one you should use, but find a few you like and see which of them work best for you. Suggestions are Rythmbox, Clementine, Lollipop, Sayonara, etc.

Q: I live in rural India. My internet is bad. What is a good way to download distributions without them getting corrupt? Thank you kindly.

A: Corrupt files I cannot guarantee, but we can try to get them down in the best possible state with Uget. Try:

```
sudo apt install uget
```

then paste the URL in there.

Q: I have bad eyes with thick glasses. Sometimes my old laptop won't shut down, then I have to press the power button to force it to. When it then restarts, I get the default wallpaper on my login screen. How can I prevent this from happening as the bright light hurts my sensitive eyes.

A: Okay, what you do is... find the name of the default wallpaper then name another dark one the same and copy it over the default one. You may need to start nautilus as root to do it in the GUI. This is the only way you can avoid that specific issue.

Q: I am using Xubuntu 18.04 and I am having issues with Ristretto image viewer. Some things just will not display, etc, etc. I have abandoned standard Ubuntu as if feels slow and bloated, but sometimes XFCE apps feel alien to me. What can I do?

A: You do not have to stick with Ristretto, uninstall it and try Viewnoir or Nomacs as your default image viewer. You are spoiled for choice when it comes to image viewers on Linux.

Q: I don't know if the problem is with Ubuntu or Windows 10. I connect to my Windows 10 file shares via SMB. To cut a long story short, it worked once, then would not thereafter. I am pulling my hair out in frustration. Please, please help.

A: Would you even doubt for a moment if I told you it was Windows 10? You need to go to where you uninstall programs, then go to uninstall features and remove the 'remove SMB v.1.0' tick in the checkbox. Restart and you should be peachy.

Q: Weird one guys, I can set my microphone volume and I can see that it is working by the orange bar moving as I speak. BUT! When I record sound, and play it back, there is nothing in VLC at full volume. When I use Skype, I can hear the other person, but they can't hear me. I have asked around, but nobody can help me. I have Ubuntu 19.04 on my HP gen3 laptop.

A: I cannot help you either, but I can tell you what the problem is, as I have seen it before. It is a botched install, either the hard drive has a bad sector or your .iso image is flawed. Verify this with the SHA sum or 'check media' when installing. Backup, reinstall, recover and you should be golden.

Q: Good day sir. Instead of typing pwd in the terminal, I want to copy and paste it from the file manager. Like windows file manager does, but it seems Nautilus does not. It is little things like these that make it difficult for me to use Ubuntu. My workflow needs to actually... flow. Instead it makes me feel dumb. Can you point me in the right direction?

A: I can, he went that-a-way! ---> These are teething problems, you just need to get used to the nuances that Ubuntu has. You just use the same shortcut key combination you use to clear the terminal. Press "CTRL+L" and the path will magically appear! Abracadabra and a happy Ubuntu to you.

Q: How can I rename my downloaded files so that the ends come off? For Instance: Peter.Shilling.Major.Tom[mp3red.su].mp3 to just Peter Shilling - Major Tom.mp3. It is rather time consuming renaming all these files. Also it is quite boring.

A: There are two ways; use Gprename from the software centre or one of the java tools like filebot. That said, if it is just mp3 files, why not wash them through musicbrainz picard? (Also from the software centre).

Q: My old computer won't run windows 10. I tried loading it, but after leaving it on for 2 days, updates don't seem to install drivers, so my sound does not work and my VGA resolution is stuck on 1024 x 768 on my widescreen monitor. It used to work fine with XP and I never had the urge to update to 7 or 8. The reason I tried windows 10 was that all the new peripherals now say windows 10 on the box. I look after my stuff and the PC is still in good shape and dust free. I can't justify throwing it out. Can I run the latest Ubuntu on there?

A: If it ran Windows XP, chances are it will run Ubuntu 18.04. Since you did not give your specs, I will assume it was a decent PC that performed well on XP. I would not go for the "latest" version, as that is a testing version. Maybe also look at rather running Ubuntu MATE instead of the Gnome version. If you miss XP, then try MAKULU Linux.

Q: My Xubuntu 18 search, catfish, is rather slow, like windows search. How can I make it faster? I have heard about making a RAM drive and copying it into there. Will this work?

A: No. A RAM drive will only be fast with the contents of a RAM drive. Rather look at Fsearch.

Look here: https://github.com/cboxdoerfer/fsearch -There is also a PPA as mentioned. Or try locate in the terminal.

Q: I have Ubuntu 16.04, and I am having an Issue with configuring the latest version of Sublime text. I have signed up for a Udemy course and they use Sublime. I just don't get all the same settings. Can you help me please?

A: Unfortunately I cannot. This is something you need to take up with your instructor. That said, you usually do not need Sublime text. It is just nice to have. There are alternatives like Atom or Geany or brackets or Code::Blocks if you need an IDE. (Gedit will even work).

Q: I can't get display from my working Nvidia 210 graphics card on Ubuntu 19.10. It is a fresh install. This is my output. <image> and this <image> and this is my dmesg query <image>.

A: If you download a beta or testing version of software, you are a tester, and you report bugs. If you want a stable system, stick to LTS releases. This means that if you download 19.10 beta and have issues, you need to report them. We cannot help you with those as beta software is buggy and incomplete.

Q: Hey. After updating WPA supplicant and the Broadcom drivers, my wifi bars on Ubuntu have halved. How to fix?

A: That , my friend, is why we really do not want proprietary drivers on Linux. You cannot fix. The code is not free and open source to modify and repair. You can try taking it up with Broadcom or get an open source friendly network card.

Q: I have a kick-ass Soundblaster Audigy that is no longer supported in Windows. Will it work in Ubuntu?

A: Yes! (You may not get 100% functionality, as some of the applications are Windows only, but it will work).

Q: I use kxstudio for my home machine and I was wondering why I can't use alt mousewheel zoom like I can with Xubuntu? I can't seem to find a setting for it and I have even tried dconf. Someone suggested I use dpkg-reconfigure to set up my screen, but that also didn't work. It is a useful feature that I use all the time.

A: It has to do with the composter. If you change to another composter, you lose that functionality. I may be wrong here, but if you really need to change composters, look at Compiz as that also has a zoom function, or at least had, the last time I used it.

Q: I am starting to get bored with Ubuntu. Which distribution should I switch to next?

A: This depends on how much effort you want to put in. Switch to pure Debian and see how good you actually had it.

Q: I am moving to a new city which is 6 hrs from my home. How can I find the local Ubuntu and Linux user groups? Is there a website that they need to register on?

A: Your best bet is meetup.com, then maybe the paper for local LUG's. Interest groups do not need to register anywhere – just form up. You can even start your own and host it on a site like meetup.com.

Q: Hello Sir, I am trying to install 64-bit Ubuntu on Windows10 in Virtualbox. Only, Virtualbox only shows me 32-bit. I know it works as I have 64-bit server in hyper-v. I have all the right things on in my bios. What steps did I miss?

A: Microshaft made it so that if you use Hyper-V, you cannot use another product. Uninstall Hyper-V and VirtualBox will work again just fine.

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.

LINUX CERTIFIED

Written by EriktheUnready

Part 8

Before we start , here is a new link to test yourself: http://www.penguintutor.com/quiz/index.php

Where we are: https://www.lpi.org/our-certifications/exam-201-objectives (Topic 201: The kernel). In your LPIC study guide, mine is the second edition, this will be chapter 3 (pages 94 – 132). If you are using the free book above, it's chapter 1 (page 15-44).

Welcome back learners, and a nod to those "just interested".

This issue, our study material is short and sweet, yet I urge you to go hands on. (It is actually pages 15-18 in the free book, but I needed to break it up as next lesson is a bit longer).

Compiling a kernel is something that rarely gets done any more. Yet it is something you have to know. I got my toes wet the very first time on a Gateway Pentium2 with 256MB memory that needed Gentoo. The experience was such that I can tell you all the details almost 15 years later! Let us start with the older kernels 2.x & 3.x (you should know the numbering from LPIC-1). For the 2.x-branch, I would suggest CentOS 5 or 6, not 7. (Suse doesn't know where it wants to be with version numbering, so leave it for now). I suggest metal here, adding things, then plugging them in, is just better on metal. Make sure the machine we are going to play on has its BIOS updated beforehand. Lots of vendors supply BIOS updates in windows-only packages. Boo, hiss.

Back To The Future

Back to the kernel – and we do not need 1.21 gigawatts either! We need to know where and how. Where to find source code and documentation, and how to apply it. If you have ever installed synaptic package manager and just perused the available packages, you may have seen packages with "-devel" in the name. This usually indicates that you get the source code too. In the kernel, this is the case. Every distribution has its own nuances when it comes to compiling the kernel. You have to know the ".rpm-distros" way, and the ".deb-distros" way. The Arch documentation is actually also very good if you would like to play on your own.

On a ".rpm-based distro", you can run: yum install kernel-devel, which will pull the sources for you and dump it in: /usr/src/kernels/. Each version of the kernel source will have its own folder, named for the version. To see which is the current source, you can use: uname -a. As for the documentation, this depends on your version of the kernel. If you use the 2.6.x branch, it still needs to be installed separately: yum install kernel-doc. Unlike the source, there is more than one place to find it. There is the place defined by the standard, /usr/src/Linux/, but Suse, CentOS, Mageia, and Red Hat, each have their own hidey-hole. (Looking in /usr/share/doc/ should be your first destination). However, your targets for the exam are Red Hat and Debian and kernels 2.6 and 3.5.

Back to the 2.6 branch. If you find the documentation directory, you will notice that it is a whore's handbag, there is no consistency. In my humble opinion, this is the folder that needs Linus Torvald's angry rants most. For the exam, you need to be able to find it – looking on an old CentOS machine, it is in /usr/share/doc/kernel-doc-<version.number>/Documentation, and I urge you to go find it yourself.

Now on a 3.x kernel system (Ubuntu, my case), you can grab it all with one go: "apt-get source." The full command being: apt-get source linux-image -<version.number>. If you know a bit about bash scripting, you can substitute the <> part in angle brackets, with $(uname -r) if it is the current one you are looking for, but it will work with other versions too. Navigate to /usr/src/ and look for the linux-headers folder, and inside of that you should find the documentation folder. Now you may ask "what is

all this 'should' nonsense?" Well, you may find multiple folders here and you need to run uname -a again to find out which one you are using. NEVER assume it is the latest (biggest number) one.

Now you may have done things differently, I know I have, but for the exam, know the stock standard way.

This is basically all you need to know about the documentation. It is really not a lot, but go and do it, that way it will stick. Go grab the documentation for kernel 3.1, then go grab the documentation for kernel 3.3, see what happens in the folders when you do.

Next issue we will look at the kernel components and compression.

If you would like to jump ahead, or test your skills at an LPI exam, do a test paper here: https://www.itexams.com/exam/117-201 (These were once valid LPI questions and will ease you into the format):

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

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

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.

Crossword answers:

■	D	E	V	U	A	N	■	L	I	T	E
■	E	■	■	■	N	■	M	■	■	■	■
■	F	■	■	M	I	N	I	N	O	■	■
■	T	■	P	■	T	■	N	■	X	■	T
■	■	■	H	■	A	■	T	■	A	■	R
M	A	Z	O	N	O	S	■	■	N	■	I
■	S	■	E	■	S	■	■	K	A	O	S
■	R	■	N	■	■	■	A	■	■	■	Q
P	I	S	I	■	■	■	L	■	■	■	U
■	L	■	X	I	N	U	T	O	P	■	E
■	O	■	■	■	■	■	■	■	■	■	L
■	S	M	O	O	T	H	W	A	L	L	■

Website: http://textadventures.co.uk/squiffy
Documentation: http://docs.textadventures.co.uk/squiffy/
Version: 5.1.2

Did you ever read those "choose your own adventure" books when you were a kid? Do you still read those types of books, because it gives you a bit more freedom to interact with your fiction? Then today you are in luck. I want to introduce you to Squiffy. If you have no idea what we are talking about, please buckle up for a most pleasurable ride. (Those of you who just enjoy adventures also don't go away!).

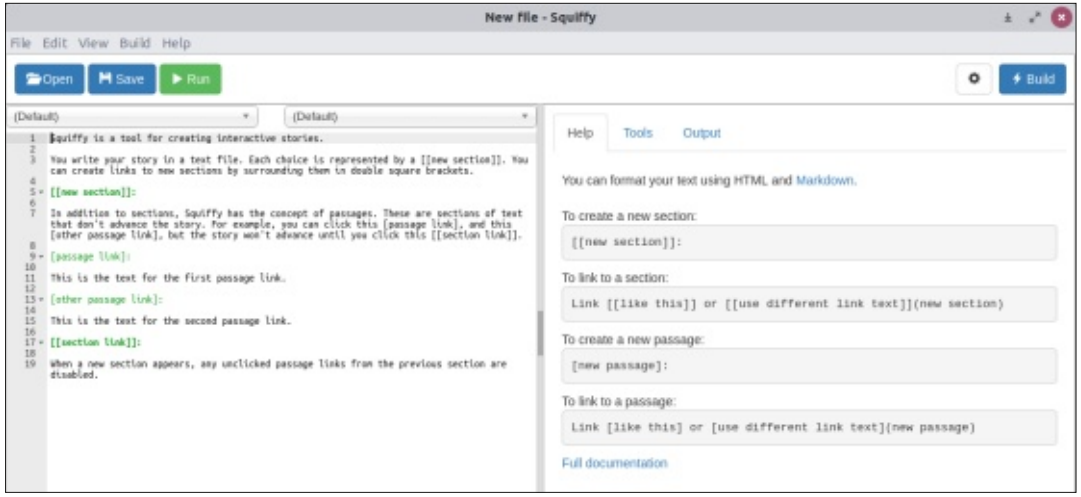
I will explain the basics of Squiffy, then make things more interesting. Squiffy has its own "programming language", squiffy script - when I say this, don't immediately switch off. There is but three things you need to remember, they are:

Cheat Sheet:

• Sections are in double square brackets with a colon [[ ]]:
• Paragraphs (passages) are in single square brackets with a colon [ ]:
• Links are in double square brackets or parentheses without a colon [[ ]] and/or ( )

The difference between two and three on our cheat sheet is that one takes away your other options if you choose it. You don't want someone to pick up a rope after they have 'died'!

Squiffy can be used on-line and off-line. The on-line version runs right in your browser, so you can start immediately. As you can see by our 'cheat sheet', the entry level to Squiffy is very low, so anyone can make a piece of interactive fiction or even a game. Yes, I said game, but unlike traditional text adventures, you do not need to type "north", "south" or "dig". You can provide these with squiffy script and they are presented as hyperlinks. This removes the guesswork and helps move your story or game along. Your interactive fiction can have multiple paths and thus multiple endings, or just one path, where all the incorrect decisions will kill you. (Could be fun!). You can make a 'capture the flag' game or whatever you like, the limits are your imagination!



You can download Squiffy for Linux, extract the archive and set execution permissions on the Squiffy binary. This will allow you to run Squiffy off-line. When you run it, you will see a similar interface to the browser. It seems to be an electron app, so it may not open immediately, the wait can be mitigated with the installation of readahead on an Ubuntu system.

The ribbon menu has the standard "file", "edit", "view" and "help", as well as a "build" drop-down. Yet the buttons are accessible from within the program also - "open", "save", "run", "settings" and "build". The editor is broken into two halves, with your "code" on the left and the "output" on the right, see initial image:

Compare this initial screen (left) to our cheat sheet.

Do you want to dive right in and play? Go ahead! Those of you who feel a little afraid, dive in with us! Yes, in Full Circle Magazine we do not just tell you about something and leave you hanging!:

• Click File -> New, and your left pane will turn blank.
• Enter the following: [[Start]]: {and press enter / return}

The text should turn green to show you that Squiffy understood your command. This is a section. You may think of it as a chapter in a book, only you can link to it from elsewhere. Okay, now type away at your first chapter. Can't think of anything? How about a de-make of your favourite game? Become your favourite character in your favourite book. Keep asking yourself - "and then what happened?" - every time you get stuck.

The first trick of writing interactive fiction is to make your reader part of the action, so the reader becomes the protagonist - works for games too.

The second trick is when your character / reader comes to an action - verb even, you can now split your story. Does she make a fire at night, or get eaten by a Grue? Does he go to Paris to meet his contact, or St Petersburg? I suggest keeping a piece of paper handy to draw your branches on, keeping it all straight in one's head can be difficult. Mind maps are good too!

The third trick is to write your text in something with a spell-checker. Squiffy does not have one of those, then copy / paste your text into Squiffy.

I will go first. Excuse the lame story, it is for illustration only. This is my 'code'. (the left side of Squiffy). Followed by my output. (right side of Squiffy)

As you can see, it is basically a WYSIWYG editor. Let us examine the branches.

Our first branch is:

```
[[Do you fly to Ankara?]](Ankara)
```

When we use double square brackets, without a colon at the end, it becomes an option. I say option as it provides options in your interactive fiction and passage does not really describe what it does.

The name in parenthesis must match your variable name in your next section. Yes, sections / choices are treated as variables, so watch the spelling of your section names.

If I left off the "(Ankara)" bit,

```
[[Start]]:

You receive an encrypted e-mail from your step brother. Why is it encrypted, you ask
yourself. you read the short message. <br>
'Meet me in Dubai, it's in connection with the other Culinan diamond make sure your
passport is up to date. Make sure you are not followed. There is Danger!'

You read the email a few times over. What is up with Alan, you wonder. what 'other
Culinan diamond?' You know Alan's dad used to collect diamonds, some he simply found when
walking on his farm. You wonder about the secrecy and the percieved danger.
This sounds like an adventure, and as you have lots of heaped up leave so you take it all
and tell your boss it's a family emergency and head for Dubai th e next day.
Alan meets you at the airport and and fills you in while looking over his shoulder all
the time. Alan wants to fly to Ankara the next day then Tbilisi the day after. He
explains he is on the trail of one of his father's diamonds that had gone missing. There
were death threats made to Alan when he started tracking the jewel. The death treat thing
seems a bit extreme to you, but Alan explains that is why he needed you, as the thieves
do not know you.

[[Do you fly to Ankara?]](Ankara)

[[Do you demand more information?]](Ineedmore)

[[Ankara]]:

[[Ineedmore]]:
```

Help Tools Output

You receive an encrypted e-mail from your step brother. Why is it encrypted, you ask yourself. you read the short message.
'Meet me in Dubai, it's in connection with the other Culinan diamond make sure your passport is up to date. Make sure you are not followed. There is Danger!'

You read the email a few times over. What is up with Alan, you wonder. what 'other Culinan diamond?' You know Alan's dad used to collect diamonds, some he simply found when walking on his farm. You wonder about the secrecy and the percieved danger. This sounds like an adventure, and as you have lots of heaped up leave so you take it all and tell your boss it's a family emergency and head for Dubai th e next day. Alan meets you at the airport and and fills you in while looking over his shoulder all the time. Alan wants to fly to Ankara the next day then Tbilisi the day after. He explains he is on the trail of one of his father's diamonds that had gone missing. There were death threats made to Alan when he started tracking the jewel. The death treat thing seems a bit extreme to you, but Alan explains that is why he needed you, as the thieves do not know you.

Do you fly to Ankara?

Do you demand more information?

my next linked section needs to have a name that matches my question, ie. [[Do you fly to Ankara?]]: - So, using the brackets is a nice way to keep variable names short. Look at the second branch to see what I mean. Now if I had chosen more info, I may still have the option to go to Ankara from there, even though the next piece of text may read "fly to your previously planned destination".

Okay, you may also have noticed that it is not 100% WYSIWYG. It did not put a new line where you entered an extra line on the left. That is because Squiffy supports basic HTML. If you need a line-break, simply add <br> after your line of text. Any word in a sentence that you enclose in double brackets will also be links. However, this is a bad idea. Using common words as links opens you up to repetition, as multiple links(references) to the same variable name - Squiffy will just choose the first option. A link [down] in section one and a link down in section three of your fiction will always point to the first one Squiffy can find.

That's it for now! Please create an interactive fiction and send it to us for some creative cred!

Quick dirty info on HTML: http://www.simplehtmlguide.com/cheatsheet.php

Next issue, we will make it even more interesting with more advanced features!

Should you have any questions, please find me (EriktheUnready) on the official FCM telegram group, or email questions@fullcirclemagazine.org

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

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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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