



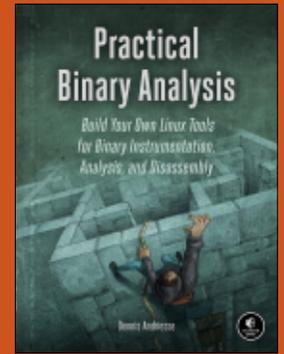
Full Circle

THE INDEPENDENT MAGAZINE FOR THE UBUNTU LINUX COMMUNITY

ISSUE #143 - March 2019



BOOK REVIEW



UNIX? LINUX? BSD?

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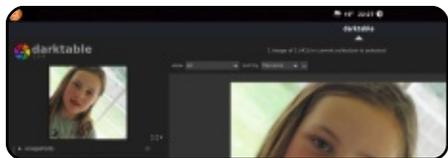
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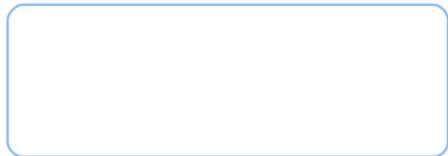
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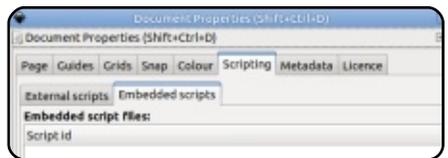
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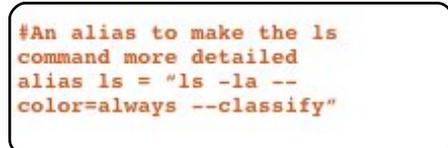


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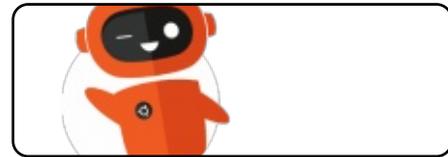


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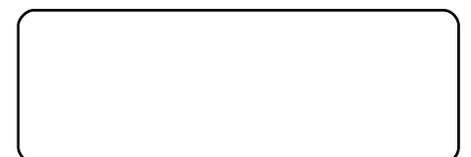
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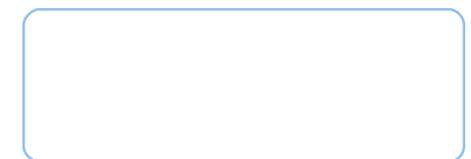
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WELCOME TO THE LATEST ISSUE OF FULL CIRCLE.

This month we have the usual Python, Freeplane, Inkscape and Darktable. I'm sure, at some point, you'll have heard the name 'BSD'. What is it? What does it mean? Is it Linux? Well, SJ begins a new chapter in Linux Loopback with part one of a series looking at BSD. I have to admit to being ignorant as to what BSD was and is.

We have another interview this month. This time with Simon Quigley from the Lubuntu project. Be sure to read to the end for details on how you can volunteer and help with Lubuntu.

Ubports Touch rumbles along with the release of OTA-8 this month. More tweaks to the new browser, and a host of bug fixes along the way.

Unfortunately, Joe and Wayne who are currently hosting the **Full Circle Weekly News** are moving on to pastures new. I wish them all the best of luck with whatever they do next. They've done a great job taking over the Weekly News since it's humble beginnings with just me. Of course, this means that the future of the Weekly News is in your hands. Would anyone out there like to take over? If not, I'm afraid it'll have to be put to bed as I don't have the time to return to hosting it. If you're interested, email me (Ronnie) at: ronnie@fullcirclemagazine.org.

All the best, and keep in touch!

Ronnie

ronnie@fullcirclemagazine.org



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B0R0NT0K RANSOMWARE WANTS \$75,000 RANSOM, INFECTS LINUX SERVERS

A new ransomware called B0r0nt0K is encrypting victim's web sites and demanding a 20 bitcoin, or approximately \$75,000, ransom. This ransomware is known to infect Linux servers, but may also be able to encrypt users running Windows.

In a BleepingComputer forum post, a user stated that a client's web site was encrypted with the new B0r0nt0K Ransomware. This encrypted web site was running on Ubuntu 16.04 and had all of its files encrypted, renamed, and had the .rontok extension appended to them.

As a sample of the ransomware has not been found, there is not much information other than what we have learned from the submitted files and by examining the payment site.

The file's name will also be

renamed by encrypting the filename, base64 encoding it, url encoding it, and finally appending the .rontok extension to the new file name. An example of a encrypted file's name is zmAawbbilFw69b7ag4G4bQ%3D%3D.rontok.

While the user was not able to provide a ransom note, he was able to provide the URL of the payment site located at <https://borontok.uk/>. When visiting this site, the user will be asked to submit their personal ID.

Once an ID is entered, the user will be presented with a payment page that includes a the bitcoin ransom amount, the bitcoin payment address, and the info@botontok.uk email that can be used to contact the developers. In this particular instance, the ransom demand was 20 bitcoins, which is currently equal to approximately \$75,000. The developers, though, appear to be willing to negotiate the price.

Source:

<https://www.bleepingcomputer.com/news/security/b0r0nt0k-ransomware-wants-75-000-ransom-infests-linux-servers/>

LINUS TORVALDS PULLS PIN, TOSSES IN GRENADE: X86 WON, FORGET ABOUT ARM IN SERVER CPUs, SAYS LINUX KERNEL SUPREMO

Linux kernel king Linus Torvalds this week dismissed cross-platform efforts to support his contention that Arm-compatible processors will never dominate the server market.

Responding to interest in Arm's announcement of its data center-oriented Neoverse N1 and E1 CPU cores on Wednesday, and a jibe about his affinity for native x86 development, Torvalds almost abandoned his commitment to civil discourse while doing his best to dampen enthusiasm for a world of heterogeneous hardware harmony.

For Torvalds, this supposedly unavoidable preference for hardware architecture homogeneity means technical types will gladly pay more for x86 cloud hosting, if only for the assurance that software tested in a local environment performs the same way in the data center.

During his time as Apple's CEO, Jobs took a similar stance toward native application development, going so far as to ban Adobe's Flash technology on devices running iOS in 2010. For Jobs, cross-platform code represented a competitive threat, bugs, and settling for lowest-common denominator apps.

For Torvalds, it may be that supporting Arm architecture complicates kernel development, demanding more work and creating more potential issues to resolve. But his argument is more about the bias encouraged by local developer hardware. Programmers ran Windows and Linux on their personal machines and those workloads shaped the server

market, he suggested: craft and test code locally, confidently deploy in servers. The scarcity of developers running Arm devices for their daily work helps ensure Arm architecture won't come to dominate the server market, the kernel chief seemed to say.

Source:

https://www.theregister.co.uk/2019/02/23/linus_torvalds_arm_x86_servers/

CANONICAL PREPS EMERGENCY POINT RELEASES FOR UBUNTU 16.04 LTS & UBUNTU 14.04 LTS

Canonical is preparing to release new, emergency point releases of its long-term supported Ubuntu 16.04 LTS (Xenial Xerus) and Ubuntu 14.04 LTS (Trusty Tahr) operating system series due to the recently discovered APT security vulnerability.

Following on the footsteps of the Debian Project, which released the Debian GNU/Linux 9.7 point

release for the stable Stretch series, which only contained a patched APT package manager, Canonical also wants to offer users a secure installation medium for deploying the Ubuntu 16.04 LTS and Ubuntu 14.04 LTS operating systems.

The Ubuntu 16.04.6 LTS (Xenial Xerus) and Ubuntu 14.04.6 LTS (Trusty Tahr) point releases are expected to be released sometime this week, and they will include a patched APT package manager preventing remote attackers from performing man-in-the-middle attacks by installing malicious packages that pose as valid ones, according to CVE-2019-3462.

Canonical said that they'd prepare these emergency point releases only for Ubuntu and that official flavors like Kubuntu, Xubuntu, or Lubuntu aren't required to participate. Release Candidate (RC) images of Ubuntu 16.04.6 LTS (Xenial Xerus) are already available for public testing, and Canonical urges the community to participate and report bugs or other issues on Launchpad.

Source:

full circle magazine #143  5

<https://news.softpedia.com/news/canonical-preps-emergency-point-releases-for-ubuntu-16-04-lts-ubuntu-14-04-lts-525081.shtml>

ONLYOFFICE ANNOUNCES BLOCKCHAIN-BASED END-TO-END DOCUMENT ENCRYPTION

ONLYOFFICE announced the availability of blockchain-based end-to-end document encryption for its free and open-source office suite to make sharing of documents more secure across all platforms.

Coming soon in the ONLYOFFICE Desktop Editors 5.2.4 release, the blockchain-powered end-to-end document encryption feature promises to let users protect their documents, including temporary files, with an AES-256 asymmetric block cipher that's being used even by the U.S. government.

Documents that can be encrypted with the new end-to-end encryption feature include LibreOffice's ODT (OpenDocument

Text Document), Microsoft Office's DOCX, XLSX, and PPTX, Oracle's ODS (OpenDocument Spreadsheet), as well as the ODX business process orchestration diagram file format used by Microsoft BizTalk Server.

Thanks to the Blockchain technology, which ensures strong and safe password storing and transferring, users will then be able to save encrypted documents securely on their personal computers or a cloud platform of their choice. Furthermore, users will also be able to securely share encrypted documents for real-time co-editing.

Source:

<https://news.softpedia.com/news/onlyoffice-announces-blockchain-based-end-to-end-document-encryption-525105.shtml>

KDE PLASMA 5.15.2 DESKTOP ENVIRONMENT RELEASED WITH 23 BUG FIXES, UPDATE NOW

The KDE Plasma 5.15.2 update is here just one week after the

KDE Plasma 5.15 desktop environment got its first point release to add yet another layer of bug fixes in an attempt to improve the overall stability and reliability of the popular graphical desktop used by numerous GNU/Linux distributions.

Highlights of the KDE Plasma 5.15.2 point release include support for displaying the version of the host GNU/Linux distribution on the About Distro page in Info Center, as well as support for displaying "variant" information and LOGO configuration from os-release in the About System page in Info Center.

The Kickoff applications menu also got a couple of fixes, the screen filtering for the Global Menu applet was improved as well, and the selection of multiple files should now work properly. Updated components include Plasma Workspace, Plasma Desktop, KWin, Plasma Discover, Plasma Add-ons, Info Center, KDE GTK Config, and xdg-desktop-portal-kde.

The next scheduled point release for the KDE Plasma 5.15 desktop environment is KDE

Plasma 5.15.3, due for release in two weeks from the moment of writing, on March 12th, 2019. After that, only two point releases remain, KDE Plasma 5.15.4 on April 2nd and KDE Plasma 5.15.5 on May 7th, which also marks the end of life of this series.

Source:

<https://news.softpedia.com/news/kde-plasma-5-12-2-desktop-environment-released-with-23-bug-fixes-update-now-525103.shtml>

LINUX IS WELL REPRESENTED AT GOOGLE SUMMER OF CODE 2019 WITH GNOME, FEDORA, AND DEBIAN AS MENTOR ORGANIZATIONS

Believe it or not, Google Summer of Code 2019 will be the 15 year anniversary of the open source student program. If you aren't familiar, this is a program where Google pairs university students with open source organizations to work together over the summer. Yes, I said working together -- the students don't just observe, they

get to actively participate in important open source projects! How cool is that?

Today, Google announces all the organizations that have been accepted as GSoC mentors, and the Linux community is very well represented. In fact, two of the most significant Linux distributions -- Fedora and Debian -- are both participating. In addition, one of the most important Linux desktop environments, GNOME, is taking part too. Even KDE and The Linux Foundation are in the mix! With all of that said, Google Summer of Code is not a Linux-only affair -- open source is the overall star of the show.

If you are a student that is excited about the possibility of contributing to some of the most significant open source projects on the planet, Google will begin accepting applications on March 25th, with the deadline being April 9. In other words, you have plenty of time.

Source:

<https://betanews.com/2019/02/26/linux-google-summer-code-2019/>

LINUX LITE 4.4 SLATED FOR RELEASE ON APRIL 1ST, BASED ON UBUNTU 18.04.2 LTS

Linux Lite project leader and founder Jerry Bezencon announced the availability of the first development version of the upcoming Linux Lite 4.4 operating system.

Based on the Ubuntu 18.04.2 LTS (Bionic Beaver) operating system, Linux Lite 4.4 will be released in a month from the moment of writing and promises to offer users an up-to-date live and installation media that also brings various minor changes to artwork with an updated Papyrus icon theme and to software selection with the addition of the Sound Juicer CD ripper app.

However, the biggest change of this new development cycle for Linux Lite is the move from Beta releases to RC (Release Candidate) releases to match the build quality of pre-release images much better. The RC build number will be displayed on the default wallpaper, login screen, and boot splash

screen, which will be removed in the final release.

Among other noteworthy changes included in the Linux Lite 4.4 release, we can mention that all references to the Google+ service were removed since it will be terminated on April 2nd, 2019, and the double volume level bug has been fixed. Under the hood, the Linux Lite 4.4 series will be powered by the Linux 4.15 kernel, which is also used by default in the Ubuntu 18.04.2 LTS operating system.

Source:

<https://news.softpedia.com/news/linux-lite-4-4-slated-for-release-on-april-1st-based-on-ubuntu-18-04-2-lts-525118.shtml>

CANONICAL IMPROVES SECURITY AND ROBUSTNESS OF UBUNTU KUBERNETES WITH CONTAINERD

Available for Linux and Windows operating systems, Containerd is the industry-standard container runtime capable of managing entire

container lifecycles, including container execution, low-level storage, image transfer, network attachments, as well as process supervision. Besides improving security, Containerd ensures reduced latency and robust performance for Canonical's Kubernetes offering.

Containerd is supported in the 1.14 releases of Charmed Kubernetes and Microk8s alongside the traditional Docker runtime, which Canonical vows to support in its Ubuntu Kubernetes offerings designed to support multi-cloud operations and compatibility with top cloud hosting providers like Amazon Elastic Container Service for Kubernetes (Amazon EKS), Google Kubernetes Engine, and Azure Kubernetes Service.

Customers should be aware that their clusters' default runtime won't be overwritten after an upgrade, which means that if you're currently using the Docker runtime you'll stay with it unless you decide to move to Containerd, which has a focus on simplicity, portability, and robustness. If you want to learn more about Containerd, we recommend

checking out its GitHub page for further reading or to download the source code.

Source:

<https://news.softpedia.com/news/canonical-improves-security-and-robustness-of-ubuntu-kubernetes-with-containerd-525140.shtml>

LINUX 5.0 "SHY CROCODILE" ARRIVES WITH GOOGLE'S ADIANTUM ENCRYPTION

Linus Torvalds just released version 5.0 of the Linux kernel, codenamed "Shy Crocodile". Linux 5.0 includes Google's new encryption tech as well as support for AMD FreeSync, Raspberry Pi touch screens, and more goodies.

Linux 5.0 arrived on March 3, 2019. As Linus explained back in January on the Linux Kernel Mailing List (LKML,) this isn't really a huge release.

OMG Ubuntu has a good summary of the most interesting ones:

Linux's file-system level encryption (fscrypt) now offers built-in support for Adiantum, Google's new speedy encryption technology for low-end phones and lightweight Internet of Things (IoT) devices. You can use this technology on your Linux desktop with file systems like EXT4 and F2FS (Flash-Friendly File System.)

For gamers, Linux 5.0 now has built-in support for AMD FreeSync, which provides adaptive refresh rates—in other words, it lets the computer control the display's refresh rate on the fly. This requires both AMD Radeon hardware and a display that supports FreeSync.

The Raspberry Pi Foundation offers an official 7-inch touchscreen monitor. This latest Linux kernel provides built-in support for this hardware, which will make things easier for Raspberry Pi enthusiasts.

Linux 5.0 also offers support for other new hardware devices, from NVIDIA Turing GPUs to the shortcut keys on Lenovo ThinkPad and Asus laptops.

Source:

<https://www.howtogeek.com/406737/linux-5.0-shy-crocodile-arrives-with-googles-adiantum-encryption/>

UBUNTU 14.04.6 LTS (TRUSTY TAHR) EMERGENCY POINT RELEASE ARRIVING MARCH 7TH

Following on last week's Ubuntu 16.04.6 LTS (Xenial Xerus) emergency point release to patch a critical security vulnerability affecting the APT package manager, which could allow attackers to execute code as root and possibly crash the system by installing malicious apps, Canonical is now working on Ubuntu 14.04.6 LTS.

The Ubuntu 14.04.6 LTS point release will be similar to the Ubuntu 16.04.6 LTS point release, but for those who want to deploy the Ubuntu 14.04 LTS (Trusty Tahr) operating system series on new computers without taking any security risks caused by the said APT vulnerability.

Canonical said that the Ubuntu

14.04.6 LTS emergency point release would be available to download later this week, currently slated for release on Thursday, March 7th, and they already have the first set of RC (Release Candidate) images in place for public testing to see if everything is working properly for everyone.

So if you want to help them test the Ubuntu 14.04.6 LTS Release Candidate images, feel free to download the ISOs from the official ISO Tracker page and report any issue you may encounter on Launchpad. The Ubuntu 14.04.6 LTS (Trusty Tahr) point release will only be released for Ubuntu Desktop, Ubuntu Server, and Ubuntu Kylin flavors for 32-bit and 64-bit architectures.

Source:

<https://news.softpedia.com/news/ubuntu-14-04-6-lts-trusty-tahr-emergency-point-release-arriving-march-7th-525182.shtml>

CANONICAL RELEASES NEW LINUX KERNEL SECURITY UPDATE FOR UBUNTU 18.04 LTS

The Linux kernel security update addresses three vulnerabilities, including a race condition (CVE-2019-6133) in Linux kernel's fork() system call, which could allow a local attacker to gain access to services where authorizations are cached, and a flaw (CVE-2018-18397) in the userfaultd implementation, which could allow a local attacker to modify files. Both issues were discovered by Jann Horn.

Furthermore, the kernel security patch addresses a vulnerability (CVE-2018-19854) in Linux kernel's crypto subsystem, which leads to leaked uninitialized memory to user space under certain situations. This would allow a local attacker to expose sensitive information (kernel memory). These security vulnerabilities affect Ubuntu 18.04 LTS and all of its official or unofficial derivatives.

Canonical urges all Ubuntu 18.04 LTS (Bionic Beaver) users, as well as users of the Ubuntu 16.04 LTS (Xenial Xerus) and Ubuntu 14.04 LTS (Trusty Tahr) operating systems who are using the Linux 4.15 kernel from Ubuntu 18.04 LTS, to update their installations as

soon as possible. The new kernel versions users have to update their machines to are linux-image 4.15.0-46.49 for Ubuntu 18.04 LTS systems, linux-image 4.15.0-46.49~16.04.1 for Ubuntu 16.04 LTS systems, and linux-image 4.15.0-1040.44~14.04.1 for Ubuntu 14.04 LTS systems on Azure.

Source:

<https://news.softpedia.com/news/canonical-releases-new-linux-kernel-security-update-for-ubuntu-18-04-lts-525195.shtml>

UBUNTU TOUCH OTA-8 RELEASED FOR UBUNTU PHONES WITH MULTIPLE IMPROVEMENTS

A stability and bugfix release, the Ubuntu Touch OTA-8 update is here to add several improvements to the Morph Browser, among which we can mention support for the experimental system-wide dark theme, support for favicons in favorites, and support for apps to inject custom JavaScript into embedded Morph.Web views.

Moreover, Morph Browser will now display a themed error page when the loading of pages fails, no longer fails to load the initial page of certain Web Apps, closes all tabs in a window before closing it to stop any media, supports custom user scripts for Web Apps, and correctly displays the keyboard for some screens.

Among other improvements that landed in Ubuntu Touch OTA-8, we can mention that the Android container pre-start script has been updated for halium-boot, the test functionality in the Ubuntu UI Toolkit was fixed, and unnecessary list item highlights were removed from Settings and "Add Recipient" in the Messaging app.

Ubuntu Touch OTA-8 enables support for ARM64 builds Ubuntu Touch OTA-8 also enables support for ARM64 (AArch64) builds, which would allow the developers to port Ubuntu Touch to more devices, improves USB tethering, and fixes various issues in the Address Book app, Contacts app, and Welcome Wizard.

Source:

<https://news.softpedia.com/news/ubuntu-touch-ota-8-released-for-ubuntu-phones-with-multiple-improvements-525198.shtml>

MARU OS 0.6 BRINGS UPDATED ANDROID/LINUX CONVERGENCE TO MORE PHONES

The dream of a smartphone also acting as your PC has mostly been hampered by the unavailability of the desktop software we've come to expect from our computers. There have been a couple of attempts to address this limitation, most of them revolving around Linux. Before Samsung came with its Samsung DeX, there was the open source Maru OS project and, after a long period of silence, it has returned to lay down the foundations for future expansion on more Android phones.

Samsung may have taken a page from Maru when it developed DeX. Unlike other Linux on Android implementations, Maru OS required users to connect an external display to the phone

before it would launch a Debian GNU/Linux environment. That, however, severely limited what devices were supported, practically only the Nexus 5 and the Nexus 7 (2013) tablet.

Maru version 0.6 "Okinawa" might as well be version 1.0 given how it radically changes the whole setup to be more future-proof. For one, Maru is now based on LineageOS rather than just AOSP, which opens the door to more devices as long as they are supported by the popular Android ROM.

Equally important is the fact that Maru now supports wireless desktop streaming via Chromecast and even Miracast as some users report. This means that the OS no longer requires an external HDMI connection which, again removes the hard limits of what devices Maru can run on.

Source:

<https://www.slashgear.com/maru-os-0-6-brings-updated-android-linux-convergence-to-more-phones-06568945/>

PUREOS: ONE LINUX FOR BOTH PCs AND SMARTPHONES

There are quite a few people out there who want the same Linux on both their smartphone and their PC. Perhaps the best known of them is Canonical's Mark Shuttleworth. He tried for years to ignite a market for Ubuntu Linux running on tablets, smartphones, and PCs. It didn't work. After years of effort, Canonical gave up on its one operating system for all platforms plans. Dreams don't die. Now, Purism, the open-source laptop and smartphone vendor, is bringing the idea back to life with future releases of its PureOS Linux distribution.

Purism started in 2015 as a free-software, crowd-sourced laptop manufacturer. Its hardware is designed to be as free as possible of any proprietary firmware or binary code, popularly known as blobs. PureOS, itself, is a Debian Linux-based operating system. On it, PureOS supports the GNOME and KDE Plasma Mobile interfaces.

Put it all together and Purism

has more control of the complete device stack from the chips on up to the interface than any of its competition except for Apple. But, even Apple, which has macOS for its computers and iOS for its tablets and iPhones, doesn't try to run one operating system on both hardware platforms.

Source:

<https://www.zdnet.com/article/pur-eos-one-linux-for-both-pcs-and-smartphones/>

EXTIX 19.3 LINUX DISTRO RELEASED WITH KERNEL 5.0, KODI 18.2, AND XFCE 4.13

ExTiX is a Ubuntu-based Linux distribution that has been slowly gaining popularity in recent years. The developer of this operating system has recently released the updated version, and it's packed with features.

The latest release is also being called ExTiX 19.3 Xfce4/Kodi Live DVD. It's based on the development branch of Ubuntu 19.04 Disco Dingo and features

Xfce 4.13 desktop environment for a lightweight desktop experience that's user-friendly as well. Xfce is one of my favorite desktops, which makes this release even more exciting for me.

Talking about the other features, it ships with the latest Linux kernel 5.0. While the numerical jump from 4.x to 5.x doesn't bring tons of new changes to the kernel, it surely ensures better hardware support and graphics performance.

Another highlight feature of ExTiX 19.3 Linux distro is the pre-installed Kodi 18.2 Leia. This gives you the flexibility of using your system like a regular Linux system running Xfce or simply fire up Kodi and use it as a full-fledged entertainment system. Some popular Kodi add-ons like Netflix, Nvidia proprietary Graphics driver 418.43, etc., have also been pre-loaded by the developer.

The ExTiX 19.3 ISOs are developed as ISO-hybrids, which means that one can easily copy them to a USB drive/DVD and even run the OS from that portable media. ExTiX needs at least 3GB RAM to run, and you can even

remove the USB disk and run it from RAM.

Source:

<https://fossbytes.com/extix-19-3-linux-released-features-download/>

UBUNTU 14.04.6 TRUSTY TAHR RELEASED WITH HIGH-IMPACT APT BUG FIX

On February 28th, Canonical released Ubuntu 16.04.6 as an unscheduled update to fix a major security flaw and ensured that integrity of all the new installations.

Following the same, the Ubuntu team has pushed another updated point release for the vintage Ubuntu 14.04 LTS Trusty Tahr. It's worth noting that unlike other point updates, this release for the Desktop and Server products doesn't add any new features.

The vulnerability (USN-3863-1) being mentioned here deals with APT (Advanced Package Tool) and lets hackers exploit the same to deploy man-in-the-middle attacks.

The updated Ubuntu 14.04.6

ISO also comes with fixes for some other high-impact security bugs. Apart from the main Ubuntu desktop release, Ubuntu Kylin 14.04.6 LTS has also been made available. It's worth noting that Ubuntu Kylin also comes with five years of maintenance updates.

In case you're using Ubuntu instances on the cloud, Canonical advises you to launch a new 14.04 instance with a new image to make sure that your deployment is secure.

Source:

<https://fossbytes.com/ubuntu-14-04-6-trusty-tahr-released-download/>

PARROT HOME: ENJOY THE PRIVACY EXTRAS

Parrot offers several options for running a Linux operating system that pays much closer attention to security matters.

If you already are handy with digital forensic tasks and want a state-of-the-art system to handle pentesting and privacy issues, check out the Parrot Security

release.

Parrot Security offers a complete all-in-one environment for pentesting, privacy, digital forensics, reverse-engineering and software development. It includes a full arsenal of security-oriented tools.

For typical Linux users who just want a leg up on privacy protections built into an all-purpose operating system, Parrot Home edition could well be your do-everything Linux OS. A special edition designed for daily use, it includes easy-to-use applications to chat privately, encrypt documents with the highest cryptographic standards, and surf the Internet in a completely anonymous and secure way.

Parrot Home meets the needs of regular users who want a fully functional lightweight desktop that is always updated. It has the look and feel of the regular Parrot environment, and it comes with all the basic programs for daily work.

For advanced users, the Parrot system also can be used as a starting point to build a very customized pentesting platform

with only the bare essentials. Or, you can use it to build your professional workstation by taking advantage of all the latest and most powerful technologies of Debian without the hassle.

Source:

<https://www.linuxinsider.com/story/Parrot-Home-Enjoy-the-Privacy-Extras-85886.html>

LINUX 5.1 MIGHT ADD SUPPORT FOR USING PERSISTANT MEMORY AS SYSTEM RAM

There are numerous differences when it comes to traditional RAM and flash storage. While both might be using solid state technologies, RAM is known to be much faster, costly, and speedy. With new solutions like Intel Optane DC Persistent Memory, things are going looking a bit different as it continues to bridge the gaps between non-volatile storage and RAM.

As the adoption of Optane memory is picking up the pace, it makes sense for Linux kernel to

introduce the support for using the persistent memory as a traditional RAM.

As per a Phoronix report, there are good chances that Linux 5.1 kernel might add this feature. You can go through this patch series to get a better idea of the pull request for Linux 5.1.

“Some users want to use persistent memory as additional volatile memory. They are willing to cope with potential performance differences, for example between DRAM and 3D Xpoint,” the request reads. However, there’s a roadblock that needs to be cleared before Linus Torvalds accepts the change and makes it a part of the kernel. He has asked for an official clarification from Intel regarding an issue and is waiting for the reply. “I’m not pulling this until I get official Intel clarification on the whole “pmem vs rep movs vs machine check” behavior,” he said.

Source:

<https://fosbytes.com/linux-5-1-kernel-persistent-memory-as-system-ram/>

CONTINUOUS DELIVERY FOUNDATION AIMS TO BOOST SUCCESS OF OPEN SOURCE PROJECTS

An industry group made up of 22 members is launching a Continuous Delivery Foundation (CDF) to develop, nurture and promote open source projects, best practices and industry specifications related to continuous delivery.

Founding members of the CDF include the Linux Foundation, Google, Microsoft, Netflix, Red Hat, CloudBees and the Jenkins Community

The CDF will house a variety of open source projects, initial ones including Jenkins, Jenkins X, Spinnaker and Tekton. Additional projects are expected to join, with the goal of bringing together a continuous delivery ecosystem to build specifications and projects around portability and interoperability.

The CDF will create a way for other commercial companies to invest in the growth and success of

open source projects like Jenkins, helping to extend the project and the ecosystem around it. It also will give top developers, end users and vendors the ability to advocate for open source CD solutions, share ideas and promote open standards in the DevOps space.

It will be staffed and operated by the Linux Foundation. Members are expected to include a cross-section of cloud infrastructure providers, DevOps vendors, enterprise software providers, system integrators and end users from many different industries.

Source:

<https://betanews.com/2019/03/12/continuous-delivery-foundation-open-source/>

KDE PLASMA 5.15.3 DESKTOP ENVIRONMENT RELEASED WITH FLATPAK IMPROVEMENTS

Coming two weeks after the KDE Plasma 5.15.2 point release, KDE Plasma 5.15.3 is here to address even more issues and other annoyances reported by

users of the latest KDE Plasma 5.15 desktop environment. It brings better Flatpak support in Plasma Discover, improved support for installing GTK themes locally, and improved restoring of desktop sessions.

Furthermore, the KDE Plasma 5.15.3 maintenance update makes the Ctrl+A shortcut work despite of active focus, adds support for visualizing active selection in search heading, improves the Task Manager by fixing various bugs, and fixes OSD animation stutter on Plasma Workspace. A total of 30 changes are included, so check out the full changelog for more details.

Two more such maintenance updates are scheduled for the KDE Plasma 5.15 desktop environment series. While the fourth one, KDE Plasma 5.15.4, is slated for release early next month on April 2nd, the fifth and last one, KDE Plasma 5.15.5, should hit the streets on May 7th, 2019, marking the end of life of the KDE Plasma 5.15 desktop environment series.

Until then, we recommend all users of the KDE Plasma 5.15 desktop environment to update their installations to today's KDE

Plasma 5.15.3 maintenance release as soon as possible.

Source:

<https://news.softpedia.com/news/kde-plasma-5-15-3-desktop-environment-released-with-flatpak-improvements-more-525273.shtml>

MOZILLA INTRODUCES PRIVATE ENCRYPTED FILE EXCHANGE WITH FIREFOX SEND

Firefox Send first appeared in 2017 as an experiment of the now discontinued Test Pilot series. Now Mozilla provides the private file-sharing service as a stand-alone web app for free use. Firefox Send offers a simple web interface, in which data can be pulled in or filed without registration. The upload limit per file share can be increased to 2.5 GB by registering with the service or logging in using an existing Firefox account. Probably still in the week Firefox Send is also available for Android as a beta version.

When the data is uploaded, the

user will be given a link where he can set how many downloads or how long the link expires and the data becomes unavailable. The range extends from one to 100 downloads. The availability of five minutes can be set over one hour, one day to one week. Optionally, the link can be protected with a password.

The recipient simply clicks on the link and can access the transferred data. He does not need to have Firefox or a Firefox account. Mozilla has developed the service following the same strict security principles that Firefox Sync follows, as the announcement states. Under the terms of the Firefox Cloud Services Terms, Mozilla has written a privacy statement for the new service, which also includes a link to the source code. According to the statement, Mozilla can not see the name or content of the encrypted file. Mozilla uses the Google Cloud Platform to store the transferred files.

Source: <https://www.pro-linux.de/news/1/26862/mozilla-stellt-mit-firefox-send-privaten-verschl%C3%BCsselten-dateitausch-vor.html>

GNOME 3.32 'TAIPEI' IS FINALLY HERE! THE BEST LINUX DESKTOP ENVIRONMENT GETS EVEN BETTER

Whether or not a desktop environment is "best" is subjective. In other words, not all people prefer the same DE. Some folks like GNOME, others are KDE Plasma fans, and some Linux users choose something else. With that said, GNOME is the best. It is not debatable -- please accept this fact. GNOME simply offers the most sensical user interface while also being beautiful. Look, when Canonical killed the much-maligned Unity, what DE was chosen as the new default DE for Ubuntu? Exactly -- GNOME. Hell, GNOME bests both macOS and Windows 10 too.

Today, the best gets even better as GNOME 3.32 "Taipei" is finally here! The DE finally gets one of the most desired features -- fractional scaling. While technically just experimental for now, it will allow users to better scale their

desktops when using a HiDPI monitor. Speaking of appearances, GNOME finally gets refreshed icons, and yes, that matters. They look amazing and modern. Also cool? The on-screen keyboard has an emoji picker! User images are now all circular too, lending to a more cohesive and consistent feel. The excellent GNOME Software is getting an update too, with more transparent details about app permissions.

Unfortunately, GNOME launching a new version is kind of like Google releasing a new version of Android -- cool, but you probably can't have it right now. Like smartphone users waiting for their cell carrier to bless their device with a new version, with GNOME, you pretty much have to wait for your distribution maintainer to add it. In other words, be patient, dear Linux users, you will get GNOME 3.32 "Taipei" soon enough -- just not today.

Source:
<https://betanews.com/2019/03/13/gnome-332-taipei-linux/>

CANONICAL RELEASES MINOR LINUX KERNEL SECURITY UPDATE FOR UBUNTU 14.04 LTS

A security issue affects the Linux 3.13 kernel of the Ubuntu 14.04 LTS (Trusty Tahr) operating system series and its derivatives, including Kubuntu, Xubuntu, Lubuntu, Ubuntu Kylin, Ubuntu Studio, Mythbuntu, and others, allowing attackers to run programs as an administrator.

The vulnerability is a race condition (CVE-2019-6133) discovered by Jann Horn of Google Project Zero in Linux kernel's fork() system call, which could allow a local attacker to gain access to services storing cache authorizations and run programs with administrative privileges.

To fix the security issue, Canonical recommends all Ubuntu 14.04 LTS (Trusty Tahr) users to update their installations as soon as possible to the new kernel versions available in the stable software repositories, following the instructions at <https://wiki.ubuntu.com/Security/>

Upgrades.

The new kernel versions users need to update to are linux-image 3.13.0-166.216 for 32-bit, 64-bit, and PowerPC 64-bit installations. A corresponding Linux Hardware Enablement (HWE) kernel update from Ubuntu 14.04 LTS is also available for Ubuntu 12.04 ESM users as linux-image 3.13.0-166.216~precise1.

Source:
<https://news.softpedia.com/news/canonical-releases-minor-linux-kernel-security-update-for-ubuntu-14-04-lts-525308.shtml>

INTEL COMET LAKE PROCESSORS TO FEATURE UP TO 10 CORES: LINUX SUPPORT LIST

With Intel set to release their next-gen Comet Lake processors, a leaked Linux support list has indicated that the forthcoming desktop processors might feature up to 10 cores.

Intel will still rely on the 14nm manufacturing process, and the

Comet Lake-S is speculated to be based on the Skylake micro-architecture. It will succeed the currently popular Intel Core i9-9900K processor which has 8 cores and 16 threads.

The leaked support list consists of processors from Comet Lake-S, Comet Lake-H, and Comet Lake-U lineups. Intel Comet Lake-S which is touted to feature 10 cores, is meant for desktop platforms. Two parts of these processors have been listed – a 10+2 and an 8+2 SKU.

The 10+2 configuration indicates that the chipset would feature 10 cores and GT2 graphics. In addition to an SKU with 10 cores, the list also shows processors with eight and six cores.

If Intel is planning to introduce 10 cores with higher frequencies (around 5GHz), as it does in its 8 core Coffee Lake Core i9-9900K, then the new processor could be extremely power hungry with soaring temperature figures. This could be due to the fact that despite 10 cores, the processor will still be based on the 14nm architecture.

Intel would need an efficient cooling system to contain the temperature and dissipate the heat produced from this extremely powerful processor. The upcoming Intel Comet Lake processor with 10 cores would cost somewhere around \$550.

Source:

<https://fossbytes.com/intel-comet-lake-processors-to-feature-up-to-10-cores-linux-support-list/>

SOLUS 4 "FORTITUDE" OFFICIALLY RELEASED, IT'S NOW AVAILABLE FOR DOWNLOAD

More than a year in the making, the Solus 4 release is finally here as an up-to-date live and installable medium that users can use to deploy the independently developed GNU/Linux distribution on their computer without having to download hundreds of updates from the software repositories.

Highlights of the Solus 4 release include the latest and greatest Budgie 10.5 desktop environment with refinements to the Software Center, Budgie Menu, and Calendar widget, a new Caffeine Mode

applet, a major upgrade to the IconTasklist applet, Raven notification center improvements, as well as improved notification management.

The Budgie 10.5 desktop environment also comes with completely rewritten and redesigned Sound widgets, a broader array of personalization options, a new Budgie Desktop Settings section for customizing Raven, along with new options for the Windows section and a much-improved GTK style.

The GNOME and MATE flavors now ship with the Plata (Noir) GTK theme by default, the Oblivion theme is now enabled by default for the Gedit text editor in the GNOME flavor, and the MATE flavor has been updated to the latest MATE 1.20 desktop environment release. On the other hand, the KDE Plasma edition is still experimental and ships with the KDE Plasma 5.15 desktop environment.

Under the hood, Solus 4 is powered by the Linux 4.20.16 kernel and Mesa 19.0 graphics stack, which provide out-of-the-box support for AMD Picasso and AMD



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Raven2 APUs, AMD Radeon Vega20 GPUs, as well as improved support for AMD Radeon Vega10 GPUs, and Intel Coffee Lake and Ice Lake CPUs.

Updated major components in Solus 4 include the FFMpeg 4.1.1 multimedia stack, Mozilla Firefox 65.0.1 web browser, Mozilla Thunderbird 60.5.2 email and news client, LibreOffice 6.2.1.2 office suite, VLC 3.0.6 media player, Rhythmbox 3.4.3 music player (GNOME edition only), and GNOME MPV 0.16 media player (MATE edition only).

Source:

<https://news.softpedia.com/news/solus-4-fortitude-officially-released-it-s-now-available-for-download-525323.shtml>

SUSE, THE FIRST ENTERPRISE LINUX COMPANY, IS AGAIN INDEPENDENT

SUSE was the world's first company to market Linux for the enterprise customers; it also

drives the development of the popular openSUSE Linux distribution.

Over the years, the company's ownership has changed quite a few times. Just yesterday, the company announced that once again it's an independent open source company.

It's worth noting that SUSE is currently involved in more than 100 open source projects and it serves thousands of companies around the world.

In an official blog post, SUSE proclaimed that it's now the "the largest independent open source company" as a result of the completion of SUSE's acquisition by growth investor EQT from Micro Focus for \$2.5 billion. This claim in the open source world is an important one given the fact that IBM bought Red Hat for \$34 billion.

Earlier, in 2004, SUSE was acquired by Novell. It was followed by Novell's acquisition by The Attachmate Group in 2011 and the merger of Micro Focus and The Attachmate Group in 2014.

Source:

<https://fossbytes.com/suse-open-source-linux-company-independent/>

CANONICAL RELEASES IMPORTANT LINUX KERNEL PATCH FOR UBUNTU 16.04 LTS, UPDATE NOW

The new Linux kernel security update is here to address five security issues discovered by various security researchers in the Linux 4.4 kernel used in the Ubuntu 16.04 LTS (Xenial Xerus) operating system series and official derivatives that aren't using the Linux 4.15 HWE (Hardware Enablement) kernel from Ubuntu 18.04 LTS (Bionic Beaver).

Canonical recommends all Ubuntu 16.04 LTS (Xenial Xerus) users to update their installations as soon as possible to the new Linux 4.4 kernel versions that are available in the stable repositories of the operating system. These are linux-image 4.4.0-143.169 for 32-bit and 64-bit systems, linux-image-raspi2 4.4.0-1104.112 for Raspberry Pi 2, linux-image-kvm 4.4.0-1041.47 for cloud

environments, linux-image-snapdragon 4.4.0-1108.113 for Snapdragon processors, and linux-image-aws 4.4.0-1077.87 for Amazon Web Services (AWS) systems.

Canonical also updated the Linux hardware enablement (HWE) kernel for Ubuntu 14.04.5 LTS (Trusty Tahr) users running the Linux 4.4 kernel from Ubuntu 16.04 LTS (Xenial Xerus). Therefore, these must update their systems to linux-image-generic 4.4.0-143.169~14.04.2 on 32-bit, 64-bit, and PowerPC 64-bit platforms, as well as to linux-image-aws 4.4.0-1039.42 on Amazon Web Services (AWS) systems. Please keep in mind to reboot your systems after installing the new kernel updates.

Source:

<https://news.softpedia.com/news/canonical-releases-important-linux-kernel-patch-for-ubuntu-16-04-lts-update-now-525339.shtml>

GOOGLE OPEN-SOURCES PROJECT FOR SANDBOXING C/C++ LIBRARIES ON LINUX

Google has open-sourced today a project for sandboxing C and C++ libraries running on Linux systems. The project's name is the Sandboxed API, a tool that Google has been using internally for its data centers for years.

The Sandboxed API is now available on GitHub, together with the documentation needed to help other programmers sandbox their C and C++ libraries and protect them from malicious user input and exploits.

For ZDNet users unfamiliar with the term, "sandboxing" refers to running an app or source code inside a "sandbox."

In software design, a "sandbox" is a security mechanism that works by separating a process inside a tightly controlled area of the

operating system that gives that process access to limited disk and memory resources.

The idea behind sandboxing and sandboxes is to prevent bugs and exploit code from spreading from one process to another, or the underlying operating system and the kernel.

The Sandboxed API is a library that helps coders automate the process of porting their existing C and C++ code to run on top of Sandbox2, which is Google's custom-made sandbox environment for Linux operating systems.

Sandbox2 has also been open-sourced and included with the main Sandboxed API GitHub repository.

Source:

<https://www.zdnet.com/article/google-open-sources-project-for-sandboxing-cc-libraries-on-linux/>

MATE 1.22 LINUX DESKTOP IS HERE WITH IMPROVEMENTS AND FIXES

The MATE project started as a fork of GNOME 2 long back in 2011 following the poor reception of GNOME 3. Since then, it has come a long way and the latest MATE 1.22 release continues to improve the different desktop components.

The biggest change in this release is Wayland-related work. The developers have reworked tons of code to make sure that things work with the Wayland

backend. Specifically, it involves a complete revamp of the display applet to control the monitor in a better way.

Work has also been done to port mate-menus library, python-ccaja plugin libraries, eye of MATE to Python 3. There are other changes in apps like Calculator, file manager, and Engrampa as well.

If you're currently running some other desktop environment on your distro and you wish to try out MATE 1.22, you can follow their detailed guide on their website. For instance, you can install MATE in the following manner on Ubuntu:

```
apt-get install mate-desktop-environment
```

Alternatively, if you're already running MATE on your distro, you can either use the update manager on your OS to check for updates or directly perform the update from the terminal.

Source:

<https://fossbytes.com/mate-1-22-linux-desktop-features-update/>



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TAILS 3.13 CLOSES LÜC! EN IN TOR BROWSER AND THUNDERBIRD

Tails stands for "The Amnesic Incognito Live System" and is used to anonymize the Tor network, through whose node computer the network traffic is routed. It is designed as a live system for use on USB sticks or DVDs and specializes in anonymity and privacy of its users. The basis is Debian Testing.

The new version of Tails is based on kernel 4.19.28 and comes with updated versions of some packages. These include Tor Browser 8.0.7, Tor 0.3.5.8 and Thunderbird 65.1.0. In addition, the Intel microcode has been updated to 3.20180807a.2, which offers better protection against further Specter variants as well as against Meltdown and Level 1 Terminal Fault (L1TF).

Tails 3.13 provides support for the Bopomofo input method for Chinese characters. The method supports Zhuyin, a non-Latin phonetic transcription for the Chinese language. The name

Bopomofo is composed of the first four characters of this notation. At the same time, support for the pinyin input method has also been improved.

An error that caused persistence mode configuration to be lost has been fixed. The configuration is now saved with every change. The Additional Software feature will be prevented from downloading any packages that are already in persistent mode storage. A regression introduced with Tails 3.9 prevented Tor Browser from version 8.x from using a localized version of Tor Launcher. The bug has now been fixed.

Tails 3.13 closes many security vulnerabilities in Kernel, Tor Browser, Thunderbird and OpenSSL, OpenSSH and OpenJPEG. Users should update Tails in a timely manner. Another security issue concerns the Bitcoin Wallet Electrum. An attacker's prepared Electrum servers were used for phishing attacks. The clients vulnerable to the attack were blocked for all server access, the new clients are not yet available in Debian. A decision on the future of Electrum in Tails is

still in the balance.

Source: <https://www.pro-linux.de/news/1/26885/tails-313-schlie%C3%9Ft-l%C3%BCc%E1%B8%B1en-in-tor-browser-und-thunderbird.html>

ZORIN OS 15 ENTERS BETA WITH FLATPAK SUPPORT, BASED ON UBUNTU 18.04.2 LTS

Based on the long-term supported Ubuntu 18.04 LTS (Bionic Beaver) operating system series, Zorin OS 15 promises a revamped user experience that has been modeled to suit everyone's needs, not only those who are migrating from a Microsoft Windows operating system, but also power users and advanced Linux users.

Zorin OS 15 comes a new Zorin Connect app that lets you connect and interact with your Android mobile devices to receive notifications on your computer, browse and share files, receive and replay to SMS messages, as well as to control media playback. The

Zorin Connect app is based on the open-source GSConnect and KDE Connect apps.

Zorin OS 15 features a highly customized GNOME 3.30 desktop environment with brand-new desktop themes in six color variants and Light and Dark modes, Night Light mode, a new adaptive desktop background option that changes throughout the day, and an all-new desktop interface tailored explicitly for touchscreens.

Under the hood, Zorin OS 15 is powered by the Linux 4.18 kernel from Ubuntu 18.04.2 LTS and comes with the LibreOffice 6.2 office suite, support for Flatpak apps and repositories, Mozilla Firefox as the default web browser, a new system font, new customization settings, experimental Wayland support, network captive portal detection, out-of-the-box Nvidia graphics support, and Thunderbolt 3 support.

Source: <https://news.softpedia.com/news/zorin-os-15-enters-beta-with-flatpak-support-based-on-ubuntu-18-04-2-lts-525373.shtml>

REDOX OS 0.5 APPEARED

For a year, there was no new version of Redox OS, which was first presented two years ago. The past year was used for intensive development. Thus, the previously used C-runtime library newlib was replaced by relibc, an implementation written in Rust. This made it possible to add many more packages to the system. Also in the packaging of this software a lot of work has been invested. The range of software added ranges from the vector graphics renderer Cairo to OpenGL programs and games to LLVM.

Further changes in Redox OS 0.5 concern the kernel. The calls select and poll were implemented correctly. Also new are Pthreads, some system-related system calls and memory mapping. Thanks to these changes, LLVM is better supported and thus the Rust compiler rustc and Mesa with llvmpipe are also running better.

Redox OS is under the free MIT license. Images of Redox OS 0.5 are available for free download. In addition to the variant for a

conventional BIOS are now also issues for Coreboot and UEFI ready. Again, this was a lot of work resulting in some Rust libraries for EFI development. The system on the images does not differ at first glance, especially from last year's version 0.3.5, since most of the changes were internal. Login screen, desktop and applications still look the same as before.

The kernel of Redox OS is written entirely in Rust, which is a unique selling point of Redox OS and clearly sets it apart from Linux. Nevertheless, Redox wants to be a Unix-compatible system, but one that learns from the experience of existing systems. So Redox OS has a microkernel whose design was heavily influenced by Minix. Memory corruption should be ruled out by using Rust instead of C, and faulty drivers can not crash the system as they run as application programs. Redox OS has its own graphical interface, called an orbital.

Source: <https://www.pro-linux.de/news/1/26901/redox-os-05-erschienen.html>

PUPPY LINUX 8.0 RELEASED

The Puppy Linux family was founded in 2003 by the Australian developer Barry Kauler and is now a joint project. Puppy himself follows a loose release cycle that brings a new image to the small lightweight distribution every few years. Puppy is only about 350 MB in size and loads completely into RAM. In addition to the Puppy publications, there are the so-called Puplets, which circulate in large numbers as a remaster from the community. In addition there are the Forks called Offshots like Fatdog64, DebianDog or Slacko Puppy.

Barry Kauler stepped out of active puppy development in 2014 and has since devoted himself to developing more experimental distributions such as Quirky or EasyOS. The Puppy community has released Puppy Linux 8.0, codenamed "BionicPup", after last year's Puppy Linux 7.5 XenialPup.

The new version is based, as the code name already suggests, on Ubuntu 18.04 LTS and was built with the in-house build system Woof-CE. Woof allows you to

compile your own pups from the binary packages of other distributions and currently supports Debian, Ubuntu and Slackware.

Puppy 8.0 comes with updated packages including Palemoon, Deadbeef, Gnumeric, Abiword, MPV, Samba, Geany and Simple Screen Recorder. Distribution-specific packages such as the QuickPet or Pburn package manager for recording CDs and DVDs have also been reworked. The in-house version of the file manager Rox Filer now masters Copy & Paste. As Compositor Compton was raised to the standard. Claw's mail received a tray icon. HomeBank was also included as well as the minimal chess engine Sunfish and Redshift GUI. Puppy Linux 8.0 "BionicPup" can be downloaded from the project website in 32 or 64 bit.

Source: <https://www.pro-linux.de/news/1/26905/puppy-linux-80-ver%C3%83%C2%B6ffentlicht.html>

20 YEARS APACHE SOFTWARE FOUNDATION

The Apache Software Foundation (ASF) was founded in 1999 and at that time had 21 members and the same web server as the only project. Today, the Foundation owns 730 individual members, 110 more than two years ago, and about 7,000 developers who contribute code ("committers"). The number of Apache projects has increased to 300. Another 52 are being prepared in the incubator to become official Apache projects. Common to all of them is the Apache License 2.0, a free license that permits any use of the software, even incorporation into proprietary software. Apache is funded by donations from some companies and, in return, offers companies and individual developers a neutral collaboration platform.

The 20-year anniversary was celebrated by the ASF with a whole series of blog posts, which are entitled "Success at Apache" and also "The Apache Way," Apache's chosen approach to open source, explain. The statutes of the

organization state that it develops "for the public good" software. The Apache Way consists of five basic principles: Everyone is allowed to participate and his influence is based exclusively and completely on what and how much he contributes. Only individuals can participate in the ASF, even if they are paid by organizations or companies, and all are equal. It is required that every project communication is public. Decisions are made amicably in the projects. If this is not possible, a majority vote must be found for a decision. The Apache projects largely manage themselves, but they must regularly report to the Apache Board. Each employee is responsible for adhering to the policies, security, and protection of the Apache brand and the Apache community.

The Apache projects together have a volume of over 200 million lines. The work in the code of the Apache projects is estimated to be worth at least \$ 20 billion. The Apache projects include the eponymous web server, which is the most widely used worldwide, cloud projects (CouchDB, CloudStack, Mesos), search and content management systems

(Derby, Jackrabbit, Lucene / Solr), DevOps, and code engines. Generation (Ant, Buildr, Maven), Server (Tomcat, Karaf, Traffic Server), Web-Frameworks (Flex, OFBiz, Struts), Internet of Things, Artificial Intelligence and Big Data (Kafka, Spark, Hadoop and others).

Source: <https://www.pro-linux.de/news/1/26912/20-jahre-apache-software-foundation.html>

TURN YOUR RASPBERRY PI ZERO INTO A PORTABLE LINUX PC WITH THIS \$10 PCB

When it comes to low-power single board computers, Raspberry Pi Zero is one of the cheapest minicomputers priced at \$5. For an additional \$5, you can get in-built Wi-Fi and Bluetooth by purchasing Raspberry Pi Zero W. However, to set it up and running, you need accessories like a display, a keyboard, and a mouse.

What about a standalone accessory that turns Raspberry Pi Zero W into a portable Linux PC? Here is the SnapOnAir Raspberry Pi

ZERO PCB available on Tindie that allows you to add a 2.8 Color ILI9341 TFT display and a TCA8418 I2C chip based keyboard.

You can also connect a buzzer, a mono-audio source or a digital microphone in the 3.5mm audio port provided. Also, the SnapOnAir Raspberry Pi ZERO PCB is compatible with nRF24 trx sub-boards.

A word of caution — there is a lot of DIY involved as it is but a standalone PCB and you need to attach additional accessories to make a functional handheld Linux PC. Nonetheless, the board looks exciting and is a must-buy for DIY enthusiasts.

You can read more about SnapOnAir Raspberry Pi ZERO PCB on its developer's official Github page. Also, there is a Facebook Group that you can join for interacting with other people who are interested in this \$10 Raspberry Pi Zero PCB.

Source: <https://fossbytes.com/turn-your-raspberry-pi-zero-into-a-portable-linux-pc-with-this-10-pcb/>

NEW ZORIN OS 15 BETA IS WORTH THE WAIT

The Zorin OS 15 series, released last week in beta, introduces many changes to its desktop interface and utilities. It keeps Zorin on track with its goal of maintaining a Linux OS for everyone, not just advanced Linux users.

Zorin OS 15 beta is the first major release since Zorin OS 12 in late 2016. This edition is well worth the wait. Major releases of Zorin OS come only once every two years. Minor updates are released every few months as needed.

Zorin OS 15 is based on Ubuntu 18.04.2 Long Term Support. However, much of Zorin OS' connection to Ubuntu stays under the hood. What you see on top is a solidly designed computing platform that lets you work without distractions or frustrations.

Zorin OS 15 beta has some of the latest technology that further highlights what this distro does best: It provides a Linux alternative

that lets Windows users enjoy all the features of Linux without complications. This latest release takes the distro's 10 years of development to the next level.

Developers have refined every element to offer a desktop experience that combines classic desktop technology with a user-friendly design. One of Zorin OS 15's most impressive accomplishments is cementing a tighter integration between Linux desktop and Android mobile devices.

The features that help accomplish this goal include syncing the phone's notifications with the computer, and the ability to browse photos on the computer from the phone. More than syncing content, new features bring the ability to reply to text messages and view conversations with contacts from the computer, as well as share files and Web links between devices, so that the phone serves as a remote control for the computer.

The Zorin OS comes in three options, but only one of them is cost-free. Zorin OS Core is a fully functional free edition that is more

than capable of handling typical personal computing needs. The Core edition is a comfortable choice for small business and home users.

The Ultimate and the Business editions target business users with more advanced feature sets included. They each provide levels of user options that extend beyond the core feature set.

Source:

<https://www.linuxinsider.com/story/New-Zorin-OS-15-Beta-Is-Worth-the-Wait-85924.html>



```
#!/bin/bash
```

```
pandoc --metadata pagetitle="${1/.md//}" -f markdown -t html5 "$1" --pdf-engine wkhtmltopdf --css ~/pandocPDF/tufte.css -o "${1/.md/.pdf}";
```

ADDITION TO LAST MONTH

After last month's article came out, I got an email from Ian, who suggested his preferred tool for Markdown to HTML conversion, Remarkable (see the Further Reading section for a link). So, for any readers who are looking for something more like that, you now have a starting place!

Additionally, I created/updated my bash script for pandoc (md2pdf), which looks like that shown above.

If you want to use this script yourself, make sure the path to the tufte.css file is correct for your system (see last month's article for more details). The script itself is executed like this:

```
md2pdf Notes-To-Convert.md
```

The script automatically creates

the PDF filename using the original markdown filename, and adds a title to the PDF to avoid the warning/error appearing. You could also easily expand this script to work for any number of arguments by looping over "\$@" and placing the command within the for loop for each item. I typically won't need this, or, if I do, I'll likely want to create a single PDF, which would require a different pandoc command anyways, which is why I left the script a little more basic (and easier to understand).

And now back to your regularly scheduled programming...

This month, one of the items on my to-do list was to organize my SGF (go game records) files into a format where I can, at a glance, see whether I won or lost, and when I played it. Originally, I had hoped that each file would have

the date stored in the SGF information, but it turns out every server has one (or two) variations on data stored in the files. Some had dates, some had copyright information over multiple lines, some had all the metadata on one line, others spread over multiple lines. As such, I decided to make a python script to print out human readable information, without relying on any SGF plugins (as I don't want the actual moves, just the metadata).

Do note, I am condensing the entire process for the sake of this article. My goal is to instill the TDD mindset on my readers, while offering some examples. The full code will be linked at the end of the article, for anyone who wants to pick it apart.

FIRST STEP

The first step was to decide

which format to start with - I settled on the Fox Go Server format, as the information was on one line, and should therefore be the least amount of processing to get the information into Python.

SECOND STEP

Once I had decided what to tackle first, I then set up my folder structure like this:

```
sgf.py
__init__.py
_tests.py
main.py
```

The main.py file I originally added after finishing the SGF class and the tests, but it won't hurt anything to have the file ready from the beginning. Also, __init__.py is empty, but seems to be required for relative imports to work.

THIRD STEP - TESTS

Now for the first file - tests. Following the practices of TDD (and Adam Wathan's method), I



started with my tests instead of any actual code.

The starting `_tests.py` file looked like this:

```
import unittest

from sgf import SGF

class SGFItemTests(unittest.TestCase):
    sgfPath = "./fgs-
test.sgf"
    def
test_load_singleLine_sgf(self
):
    testItem =
SGF(self.sgfPath)

self.assertEqual(testItem.get
Title(), "2019-03-03 - Black
(16 kyu) VS White (16 kyu) -
B+20.50")

if __name__ == '__main__':
    unittest.main()
```

I left it at that, knowing the test would fail. I was also getting warnings and errors from Visual Studio Code about the class not existing before running anything. As such, I skipped running the test and instead worked using the warnings from Code. If, however, this is your first TDD project, I recommend getting in the habit of running the tests at every stage

and dealing with the errors as they appear.

FOURTH STEP - ACTUAL DEVELOPMENT

```
sgf.py
import re #this is required
for the regex code in the
future

class SGF:
    def __init__(self, path):
        self.title =
"created"
```

All I did here was make sure I could import the python file and that it had a constructor. I then began running the tests, and fixing each error as it occurred. First it required me to create a `getTitle()` function, then I expanded the constructor to loop through the file path and pass each line through to a `createTitle` function that checked for the existence of specific data (such as `PB[]`, `PW[]`, `date[]`, `WR[]`, `BR[]`, and `RE[]`). Those fields are player (black), player (white), the date, the players' ranks, and the result.

Admittedly, I stretched those steps out slowly - first I tried to grab the player names and had my test written for that, and so on,

evolving both the class and my tests. For the sake of this article, I'm condensing some steps.

The regex I used was as follows:

```
name =
re.search('PW\[ (.+?) \]',
string)

if name:
    white['name'] =
name.group(1)
```

The important part of this code are the normal brackets `()`, which creates a group of all the characters between the square brackets (which are the values I'm after). The `name.group(1)` line simply loads the saved group into a string.

I changed the value I was looking for, but the basic framework remained the same. As you can see, I started saving dictionaries for the various values to make the code more readable. Essentially the entire class became a series of functions to strip out corresponding information (player information, results, date), and the information was then fed back into a class-wide dictionary called `"info"`. The `getTitle` function eventually became a function that simply reads the information out

of info, and parses it into a nice string. I also expanded my tests to check various sub items (instead of just the title) by creating a function called `getPlayers`, and then checking the various fields.

FIFTH STEP - NEXT TEST

The entire above step was dedicated to having my test `"test_load_singleLine_sgf"` pass successfully. The reason I did it this way was as a proof of concept, and to refine the various functions for parsing the data. This means that all I had left to do was upgrade my file parsing function to not fail when all the metadata isn't on one line. It doesn't matter if there are extra items, as the regex will pick out only what I'm looking for. I then created a new test called `"test_load_multiLine_sgf"`, and let it load a game from OGS, which was split up over multiple lines.

The first goal was to again load the player data properly (both black and white), which required me to devise a check for whether or not the metadata was over multiple lines. I opened up an online regex tester, put in some test data, and experimented a bit

until I found a regex that seemed to work.

The entire checkMultiline function ended up looking like this:

```
def checkMultiline(self, string):
    multiline =
re.search('[a-zA-Z]+\[.+\?\]\n', string)
    if multiline:
        return True
    else:
        return False
```

What the regex does is to search for any characters (upper or lowercase) that precede a square bracket, some characters, a closing square bracket, and a newline. I wasn't too worried about only matching exactly the metadata lines, as I never read the entire file (I break out of the loop once I find all the information I need), and the secondary regex will not be affected. The check is used in my readSGF function, and every line that matches the multiline check is then strung together into a single string (without newlines), which is passed through to the various functions.

This worked fine for OGS (except reviews) files, and then I tested it on Pandanet (IGS) files,

where it promptly broke. The reason it broke was simple - Pandanet added a Copyright value into the metadata, and spread it over 4 or 5 lines (depending on where the SGF was created). I put Pandanet in a separate test, and focused only on that test. Running a single test in Python is as simple as:

```
python _test.py
SGFItemTests.test_load_pandanet_sgf.
```

I quickly concluded that using regex for this particular case was going to be tricky, as the number of lines wasn't always uniform. Instead, I decided to adapt my readSGF function to simply not process the following lines when it discovers the Copyright value.

I do this by initializing a tempCount at 0, and setting it to a value of 6 when I can find "CoPyright[\n" in the string. I also added an 'if' to see if tempCount is greater than 0, and when it is, the counter is reduced by one and the loop follows the "continue" directive (where it jumps to the next item in the loop). This effectively skips the plain english lines of text, removing the

problems. I also noticed that some SGF files had a CP[] copyright line (such as the OGS review files), which was shorter than CoPyright. As such, I simply initialized tempCount at 5, instead of 6, which worked fine. The only reason I could do this was that the copyright notices always appeared before the game information, which means I didn't need to take that into consideration.

I realize that this last section can be confusing to read. However, this is pretty much the final file, so viewing the links below should help clarify things. There were a few steps afterwards (such as when a file had no date), but they were simple enough to catch and solve when listening to the tests and batch running the file.

CONCLUSION

Anyone who follows the link to the Gist will notice a few things. Firstly, I sanitized the test files to remove any identifiable information. Especially since readers won't have my test files and will therefore need to adjust the tests, I felt it helpful to label the information more generically.

Secondly, there's a bash file included. The reason for this is simple - I didn't want to install the python script into a folder in my \$PATH, as it would include other files as well and break the tests. Instead, I wrote the bash script in my \$PATH, which appends the full path to the files, and then runs the Python script within its actual folder with absolute paths. You'll need to adjust the path to main.py for your own system.

I hope this look into my TDD process might help inspire some readers to give it a shot, just as I have been inspired by others. Also, if there are any fellow Go players out there - perhaps you'll find this tool useful for organizing your own SGF files. If you have any questions, suggestions, or comments, they can be directed to me at lswest34+fc@gmail.com.

HOMEWORK (OPTIONAL)

My own goal for this script it to expand it over time. My first revision would be to add a stats calculation system, which will give me the overall stats across all the servers I play on (perhaps even details on wins against

stronger/weaker opponents). If any reader is so inclined, feel free to take this suggestion and use it as practice yourself!

FURTHER READING

<http://remarkableapp.github.io/> - Remarkable App's website

<https://gist.github.com/lswest/1e7fe8751e0d77f880db7d0a266e652f> - A Gist containing all my code for this article.



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.



A GUI FOR PANDAS

We will continue with our learning series on Pandas. So far, most all of our work has been done on the command-line. Now, we will create a GUI application using Page, Tkinter and a third party widget called pandastable.

Pandastable was created by Dr. Damien Farrell, and is based on an older project of his called tkintertable. It is a wonderful widget for dealing with the things we have learned about Pandas in a GUI format. You can get the entire source code for pandastable at <https://github.com/dmnfarrell/pandastable>. Dr. Farrell asks that the following citation be included, so here it is...

Farrell, D 2016 DataExplore: An Application for General Data Analysis in Research and Education. Journal of Open Research Software, 4: e9, DOI: <http://dx.doi.org/10.5334/jors.94>

Now, let's get started. In order

to use the pandastable widget, we need to install the library. This can be done using pip at the terminal level. Since we will be using Python3 for this project, we'll use pip3. If you are using Python2.x, use "pip". The command is...

```
pip3 install pandastable
```

(If, when you try to run the below program, you get an error message saying something about "from pandas.tools import plotting - ImportError: No module named tools", this is likely due to the version of pandas that you have installed being version 0.19 or lower. Try updating your pandas library (pip3 install --upgrade pandas)).

I will be using the latest version of Page (4.21) that was released on March 1, 2019 and can be downloaded from <https://sourceforge.net/projects/page/>.

Now that we have pandastable and Page, we can go ahead and start designing the form. Start

Page and move the new Topmost form to somewhere near the center of the screen. You can size it to any dimensions you wish, but I used 1004 for the width and 785 for the height for this demo. Set the title to "Pandastable Demo" in the Attribute Editor.

We will add two frames, one "standard" Tk button and one Page custom widget. That's all we need.

The first frame will be called "frameToolbar" (widget alias), and should be placed at the very top of the form. I used X=2 and Y=2, a height of 40, and a width of 1000.

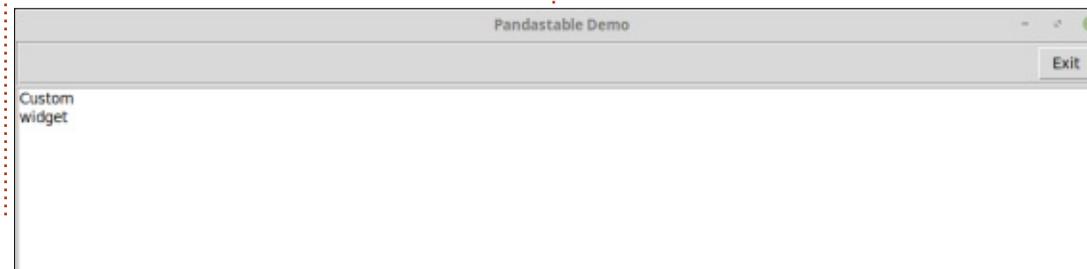
The second frame will be called "frameCustom", and will hold our custom widget (pandastable). I placed it a few pixels below the toolbar frame at X=2, Y=43, and set the width to 1000 and the

height to 735.

Next, place a standard Tk button within the toolbar frame. Set the Alias to "btnExit", the text to "Exit" and set the command attribute in the Attribute Editor to "on_btnExit". This will create a callback function for when the button is clicked.

Finally, scroll down to near the bottom of the Widget Toolbar and select "Custom". Then click within the frameCustom widget to place our custom widget placeholder. In the Widget Tree, right-click the entry that says "Custom: Custom1", select Widget from the popup menu and select "Fill Container". This expands the custom widget placeholder to fill the frame.

Here is what the GUI looks like on my system at this point...



That's it. Save the .tcl file (File | Save), and save it into a convenient folder calling the file "pandastabledemo". Then, select the "Gen_Python" menu item and generate the GUI file and the Support module (these will have the same base filename as our .tcl file, but will be named pandastabledemo.py and pandastabledemo_support.py).

You can now close Page and open the two Python files in your favorite IDE. You won't need to edit the GUI file (pandastabledemo.py). All our work will be done within the file pandastabledemo_support.py.

The first thing we need to do is import the pandastable widget...

```
from pandastable import Table
```

Notice that we are currently only importing the Table portion. That's ok, it's not limiting us. Next, let's finish the code for our callback function "on_btnExit()". We'll just add one line to the bottom of that code (don't forget to indent this line to match the rest of the function)...

```
destroy_window()
```

This will close our program correctly. Now scroll down to the bottom of the source file and find the line that says...

```
Custom = tk.Frame      # To be
updated by user with name of
custom widget.
```

I usually copy this line and comment out the original, then paste the line and change it to what I need. In this case, we will use...

```
Custom = Table
```

This creates a pointer to the pandastable import that we set a few lines ago. Now we'll edit the "init" function with our code. After the line "root = top", put in the following code.

```
csvfile = "BreadBasket.csv"
```

```
pt = Table(w.frameCustom,
showtoolbar=True,
showstatusbar=True)
```

```
# Show the table
pt.show()
```

```
# Import the CSV into the
widget
```

```
pt.importCSV(csvfile)
```

```
# update the widget
pt.update()
```

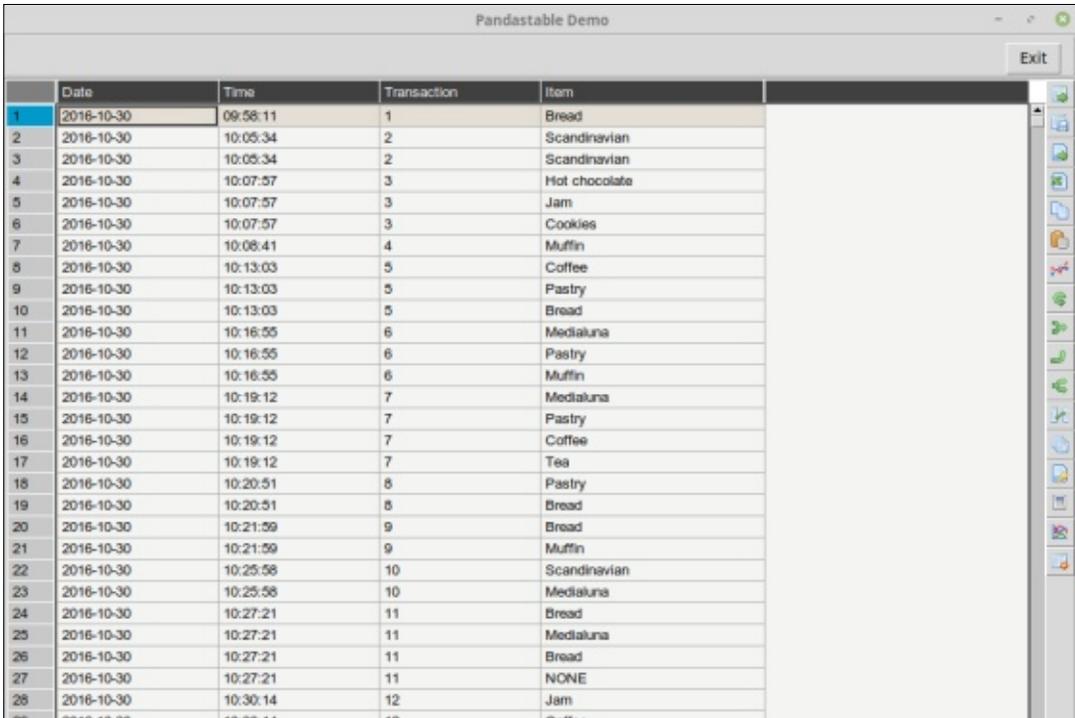
That's all the code changes we need to do. Save your file and we'll discuss what these lines do.

The first line, assigns the name of our CSV file to "BreadBasket.csv" (be sure you copy the csv file into your working directory, or provide a full path with it), which is the file we used earlier in this series. Next, we initialize the pandastable widget. We create an alias to it named "pt". Then we tell it what its parent is (w.frameCustom), and that we want to show both the toolbar and statusbar.

Next, we call the .show() method of the pandastable and import the csv file. Last but not least, we call the .update() function of the table widget.

That's all there is. Everything else is contained within pandastable itself. There are a total of 8 lines (not including comments) that we have added to the code that Page has given us.

Now run your program and you should see something like that shown below.



The screenshot shows a window titled "Pandastable Demo" with an "Exit" button in the top right corner. The window contains a table with the following data:

	Date	Time	Transaction	Item
1	2016-10-30	09:58:11	1	Bread
2	2016-10-30	10:05:34	2	Scandinavian
3	2016-10-30	10:05:34	2	Scandinavian
4	2016-10-30	10:07:57	3	Hot chocolate
5	2016-10-30	10:07:57	3	Jam
6	2016-10-30	10:07:57	3	Cookies
7	2016-10-30	10:08:41	4	Muffin
8	2016-10-30	10:13:03	5	Coffee
9	2016-10-30	10:13:03	5	Pastry
10	2016-10-30	10:13:03	5	Bread
11	2016-10-30	10:16:55	6	Medialuna
12	2016-10-30	10:16:55	6	Pastry
13	2016-10-30	10:16:55	6	Muffin
14	2016-10-30	10:19:12	7	Medialuna
15	2016-10-30	10:19:12	7	Pastry
16	2016-10-30	10:19:12	7	Coffee
17	2016-10-30	10:19:12	7	Tea
18	2016-10-30	10:20:51	8	Pastry
19	2016-10-30	10:20:51	8	Bread
20	2016-10-30	10:21:59	9	Bread
21	2016-10-30	10:21:59	9	Muffin
22	2016-10-30	10:25:58	10	Scandinavian
23	2016-10-30	10:25:58	10	Medialuna
24	2016-10-30	10:27:21	11	Bread
25	2016-10-30	10:27:21	11	Medialuna
26	2016-10-30	10:27:21	11	Bread
27	2016-10-30	10:27:21	11	NONE
28	2016-10-30	10:30:14	12	Jam
29	2016-10-30	10:30:14	12	Coffee

Even on my old and slow machine, the form pops up almost immediately, and the table is already loaded, all 21,293 rows. Now, let's see a few of the things we can do.

You can resize the columns to suit your needs just like in any spreadsheet application. If you right-click within the table, you will get a context popup menu. Select "Table Info" and you will see something like what is shown in the image below.

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 21293 entries, 0 to 21292
Data columns (total 4 columns):
Date          21293 non-null object
Time          21293 non-null object
Transaction   21293 non-null int64
Item          21293 non-null object
dtypes: int64(1), object(3)
memory usage: 665.5+ KB
```

On the left side is the row headers. Right clicking on that will bring up a different context menu that allows you to sort by, reset, toggle and rename indexes as well as add, delete and duplicate rows and more.

If you right-click a column header, it brings up yet another context menu that allows you to

sort, set as index, delete columns, fill a column with data, add columns, and more.

The status bar along the bottom shows the number of rows and columns, allows you to zoom in and out, and expand or contract the columns.

The toolbar on the right gives the ability to plot, aggregate, pivot, merge tables, and much more. Pretty much everything you need to analyse your data.

I loaded another small csv file – to demonstrate the plot function. It's basically a list of the number of steps that a friend, who was recuperating from surgery, was able to do, by day. He had it as just a simple text file, but I converted it to a CSV just for this project. By selecting the Date and Steps columns, then clicking on the "plot" button on the toolbar, it will bring up the following window after a few seconds of thinking.

From here, I simply selected the bar graph from the plot type dropdown, and grouped by date. You can see the resulting image.

I can't tell Dr. Farrell how much I

appreciate his kind permission to use his widget to show how easy it is to create a very powerful program using Page and his pandastable widget. It was completely painless.

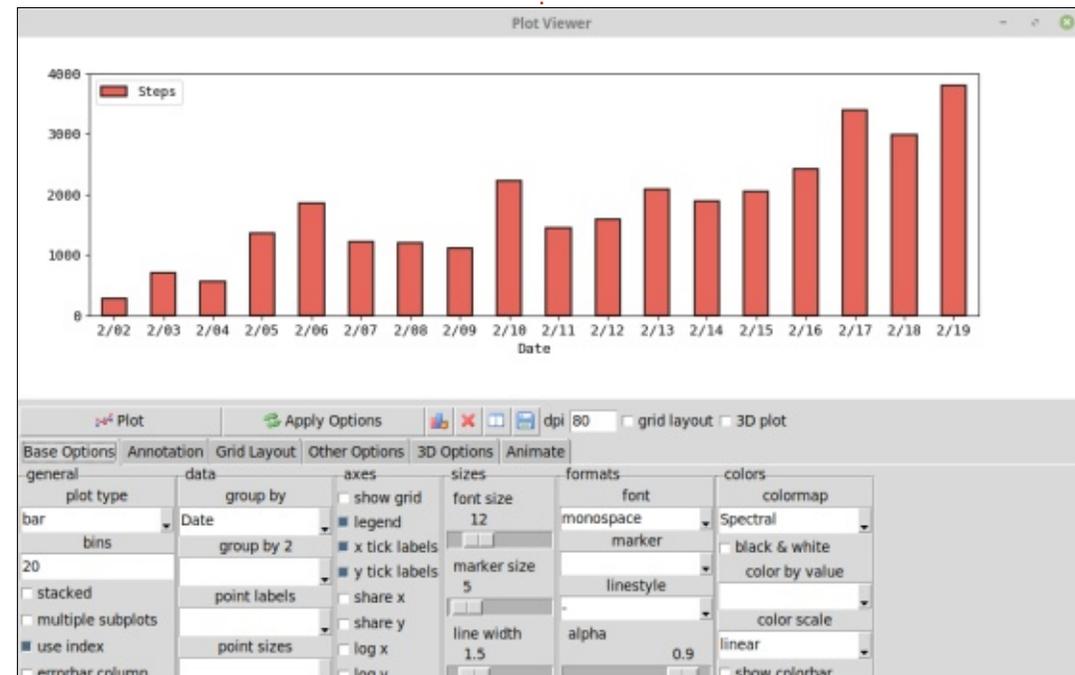
So, the purpose of this exercise is to show you that a couple of minutes in Page, 8 lines of code, and the pandastable widget, gives us pretty much everything that we need to be able to create a program that handles pandas data. As always, I have uploaded my code (the three Page files) to pastebin at

<https://pastebin.com/rEKWYBey>,
<https://pastebin.com/2KUPXN7s>,

<https://pastebin.com/prctf9bZ>.

Of course, there is one other option. You could simply follow the instructions on Dr. Farrell's page to install the Dataexplore app using snap, which is based on the pandastable widget (Dataexplore is MUCH more powerful than this simple demo, but what do you want for 8 lines of code?) and not have to do anything else. But what fun is that?

Until next time, have fun playing with your new app and learning more about Pandas.





Whenever possible in my tutorials, I give you the keyboard shortcuts for the commands. I do this because I'm lazy, and if a hotkey is available, I'm not going to follow the menus (frankly, it's a lot of typing too). You probably noticed most commands don't have a shortcut. My second choice is the right-click context menu. If there are no shortcut or context-menu options, you have to use the menus. Well, maybe not.

Freeplane lets you create shortcuts. Freeplane includes a special toolbar for managing the shortcuts assigned to the Function keys (F keys), and gives you a reference and buttons to click. The function keys sit across the top of your QWERTY keyboard, F1-F12. Hotkeys are key combinations, and they can include the F keys.

DEFAULT FUNCTION KEYS

The function keys let you activate a command quickly. By default, Freeplane assigns five of the twelve keys to frequently used



commands:

- F1 opens the Freeplane tutorial map. The map is read-only but contains a guide to most of the software's features. I have used it as a jump-off spot for many of my articles.
- F2 edits the node core inline. I use this key almost exclusively when creating a map. I like to keep my hands on the keyboard as much as possible without having to reach for the mouse. Reaching for the mouse could break my concentration just enough for me to forget what I was going to type. Yeah, I know, I'm old-school weird.
- F3 edits the node details inline. Again, my hands on the keyboard, broken concentration, old brain losing stuff faster than I can type it. Stop laughing. It's a severe problem.
- F5 runs a presentation. We haven't discussed presentations yet. I hope to write about this someday. I managed to get it on my to-do list before it floated off into the ether.

- F11 switches to full-screen mode. It's a way to avoid the distraction of the GUI. With all those buttons to push and menus to click and explore, one might forget what it was they wanted to type. F11 is especially great for brainstorming when you aren't worried about formatting but just getting ideas down.

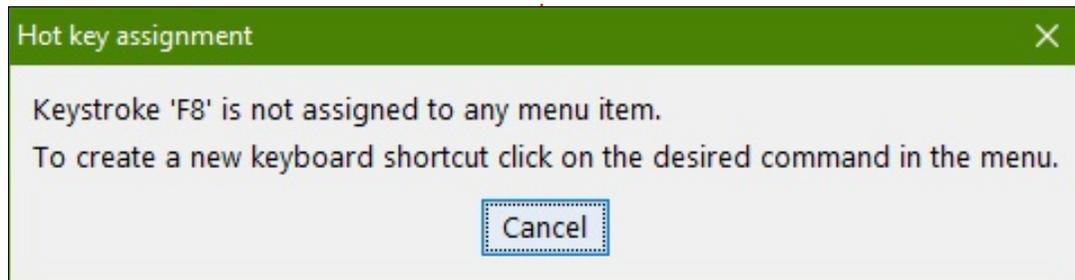
THE F-BAR

Freeplane has a special toolbar called the F-Bar. To open the F-Bar, follow the menus View > Controls > F-Bar. The taskbar shows you what commands are assigned to the function keys, F1-F12.

If you want to run the

command, you can press the associated function key, or you can click the button. You can press the SHIFT key to see the hotkeys set for the SHIFT + F? combination. The same is true for the ALT, CTRL, and other command key combinations. In each case, you can click on the button or press the key combination.

Freeplane labels unassigned buttons as <no action>. Clicking any of these <no action> buttons gives you with a window asking you to select the menu you want to assign to the shortcut. Click through the menus to the item you want to attach to the hotkey. The text from the menu item becomes the text for the F-key button.

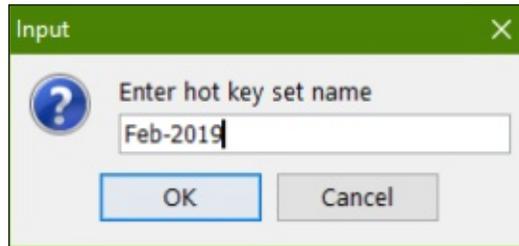


CREATE NEW HOTKEYS

You can create other hotkeys than those related to function keys. To assign a new combination, use the menus Tools > Assign hot key. You are prompted to select the menu for the hotkey, or you can click Cancel to stop the process. Once you choose the menu item, Freeplane prompts you to enter the key combination. Enter the keystroke using the keyboard and click OK. If the hotkey is assigned to another command, the program asks you to confirm replacement of the current assignment. Click Yes to change the shortcut, or click the No to leave the hotkey as previously assigned.

To remove a hotkey, select Tools > Assign hot key and use the Clear button to remove the shortcut assignment. Clicking OK will remove the hotkey, and clicking Cancel will leave things unchanged.

Once you have your shortcuts the way you want them, you



should save them. Use the menus Tools > Hot key presets > Save hot key set. Freeplane prompts you for a name. To save the current hotkeys, enter a name and click

OK, or click Cancel to stop the process.

To load a saved preset, use the menus Tools > Hot key presets > Load, and select the name of the preset set you want to use. Saving the presets allows you to have different sets of shortcuts for a variety of map types.

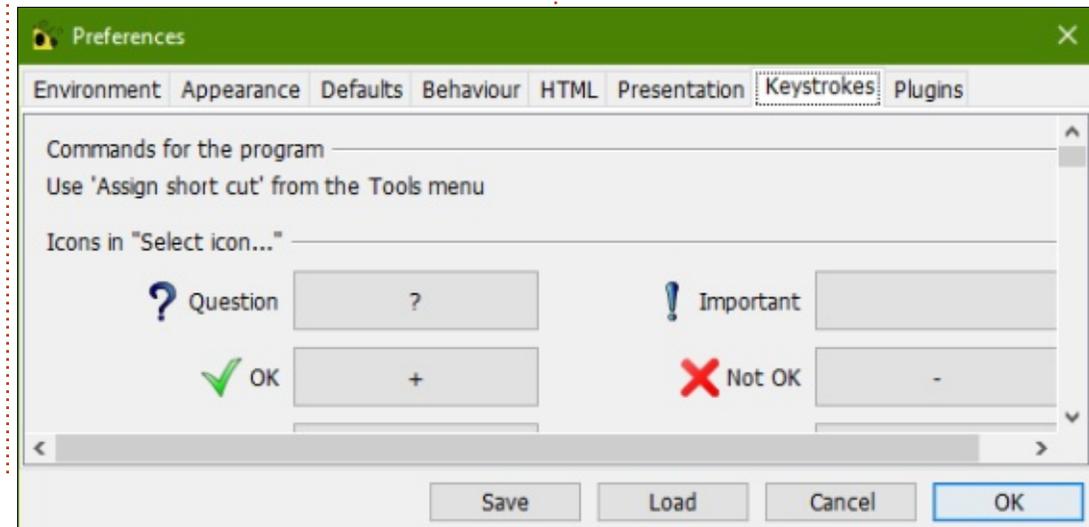
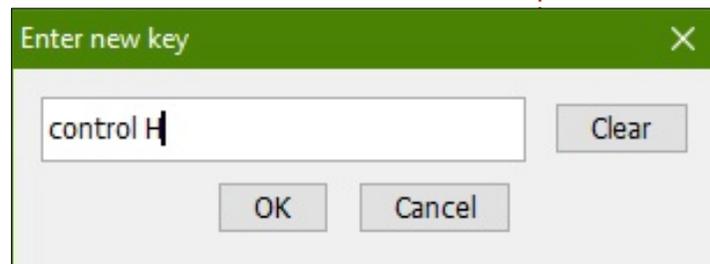
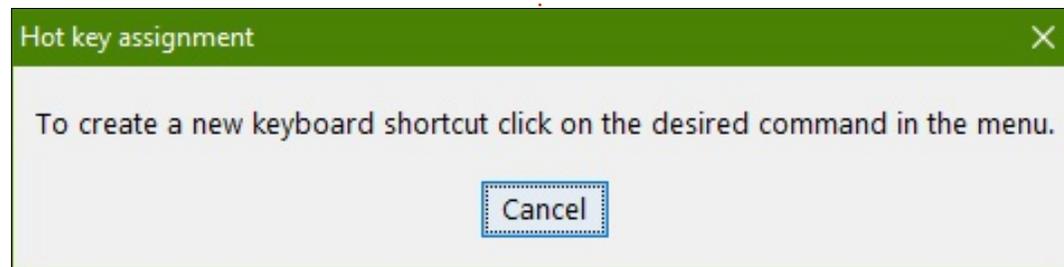
ICON HOTKEYS

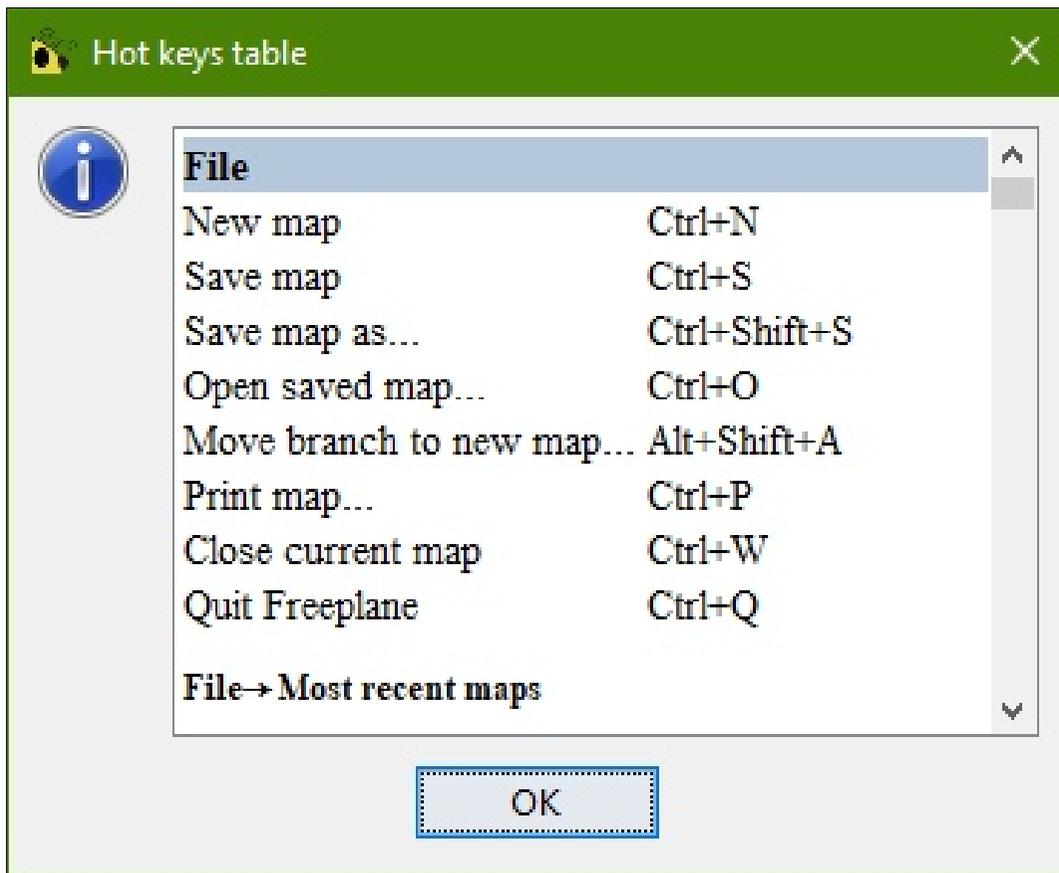
You can assign shortcuts to icons. They work only in the Icon Table dialog. By default, the hotkey for the icon table is CTRL + F2. Once the table is open, pressing the key(s) for the icon adds the icon to the selected node(s).

To assign keys to the icons, press the CTRL + (comma) to open the Preferences dialog. You find the icon settings on the Keystrokes tab. You see many hotkeys already assigned. Assign the shortcut by clicking the box beside the icon. Enter the key combination and click OK. Be careful in here as the program will let you assign the same key to more than one image.

KEY REFERENCE

In creating so many shortcuts, you might forget what you assigned to what. Help > Key reference displays a list of the menu items and the hotkeys associated with them. The list includes any shortcuts you have created.





BUT WHAT SHOULD I CREATE HOTKEYS FOR?

Well, it depends on you. If you find yourself using a menu item often and no hotkey is assigned, you should attach a hotkey to it. I like using the function keys for my most used commands. After that, use key combinations that make some sense to you. For example, if I were assigning a shortcut to

Assign hot key, I would use the CTRL + H key combo. The choice is up to you. Like everything in mind mapping, make the program work for you and the way you do things.



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



Welcome back to another issue packed with open source goodness. This time we will be looking at noise reduction. If you have ever taken a picture in low light, or at night, you know what I am talking about. It is that - 'picture of your best friend's going-away party before they moved to China, and you will not get another photo like that, as you will only see her in 4 years'. Now let me just say, Darktable has some really powerful algorithms when it comes to noise reduction. For me, they are more powerful than those of other photo manipulation programs, even the commercial ones!

Okay, let's fire up Darktable and pick a photo with noise to edit. This time, I will choose a picture you can download and follow along: <https://www.pentaxforums.com/gallery/photo-bgirl-grainy-8596/> (Clicking on the photo will enlarge it, for you to save.)

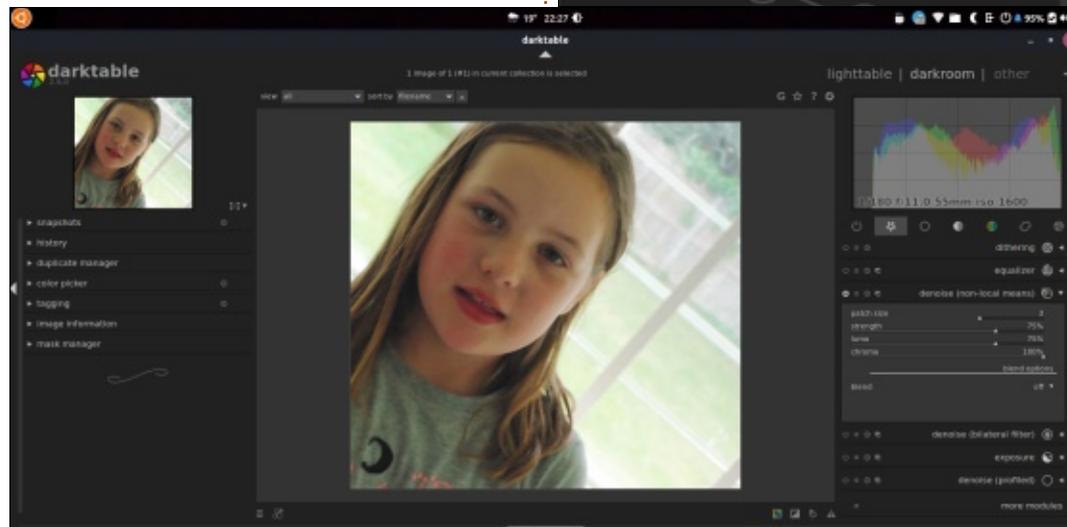
It is difficult to find grainy pictures on the internet as people

put forward only their best photography. Steal this one from the Pentax forum. It is not really stealing, it's 'borrowing'. We are substituting the random kid for our friend - for educational purposes.

Once you have the random kid on screen, I need you to click on more modules on the right. Click on everything from "denoise" to "exposure", close the 'more modules', and you should see the things you have chosen in your list. (When you choose them, a star will appear beside the module - basically adding to favourites). If you would like to know more, the list is here:

<https://www.darktable.org/usermanual/en/modules.html>

Our goal is to get the maximum SNR (Signal-to-Noise Ratio), that is the maximum detail possible. We want to have a picture as a keepsake of (some random kid) before she moved to China.



As you can see the 'power' icon is greyed out on each of the modules. This means they are switched off. If you hover over each icon, you should see a tooltip. Now the profiled de-noise is the easiest. It will profile your lens and speed and work back from there. This is great if you used your camera to shoot the picture. This does not work so well with unknown cameras, like mobile phones. I want you to turn it off and on, and look to the right of the kid's face at the window in the background. Where it is lighter, this tool does a very good job, but it does not do so well in the dark areas. You have two settings: non-local means and wavelets. You can read up about these methods on the Darktable website, but, for now, we are sticking to the practical so you can get to learning by doing. Turning these modules on and off takes some computing power, so if there is a pause, or your CPU fan spins up, this is normal, unless you have the top-of-the-range CPU.

Your homework is to go

HOWTO - DARKTABLE

through each of the “blend modes” to see what they do.

This is what you will use with your own camera and photos most of the time. Should your noise, however, be tiny colour spots, you would need to use “wavelets” with “color” blend mode. Lots of times, you will see that you get tiny red spots instead of white ones if you take pictures at night with a flash. This is where you fix it. You can Zoom in on the kid’s red cheek to play with this. This is the method you use to get rid of annoying color noise in pictures that are supposed to be black, like for instance, black clothing.

Tip: Don’t be afraid to zoom in and get a better look at what is changing.

Back to our stolen picture. One of the strengths of Darktable is the ability to ‘layer’ corrections. You will see a difference in the way you ‘layer’ your corrections. Should you do local means BEFORE you do wavelet correction, it will look different than if you did it the other way around. This, I cannot give you a recipe for, the only tutor is experience. In my humble experience, it is better to start

with red, then green, then blue, then local means, but this does not work universally. Do what works for you. Do not be afraid to undo everything and try something different. Darktable does non-destructive editing. Now we want to layer the next round of corrections on our photo. To do so, simply click on the very last tiny icon in the row where the on / off switch was, and select ‘new instance’. (If your middle mouse button is clickable, that is your short-cut).

This is, by no means, comprehensive or the only way! If you look at our second image, you will see that our few selected modules are under the star = favourites, however the ‘correction group’ is the second last icon with the ‘broken circle’. As you added modules to favourites, so you can add too under correction group. Double click your modules to add.

Tip: For some reason, mousing over some drop-down options does nothing, but hovering your mouse over them, and rolling your mouse wheel to move the list below your mouse pointer, does then apply the effects on-the-fly so you can preview them.

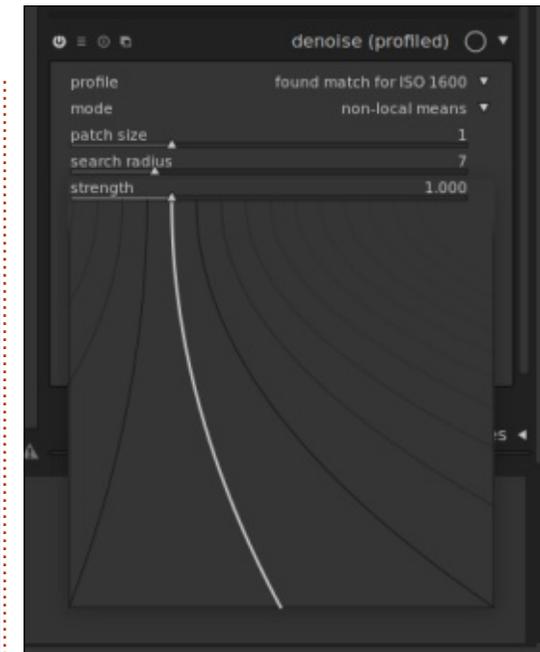
Before you go charging off, I want to say that not all noise is bad. When you make prints, minimal noise will disappear and if you overdo denoising, you will lose detail.

Tip: After denoising, it is a good idea to ‘up’ your sharpness on a picture to get back any edges that denoising softened.

Tip: If you have a picture with a lot of dark areas, ‘up’ your exposure very slightly to expose the noise. (Low light photos too).

Tip: Adjusting by slider, is also not the only way. Right-click the number to be able to enter your own values as in the last picture.

Next issue: we will continue with more Darktable. We will be using the same picture so do not discard it yet!



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



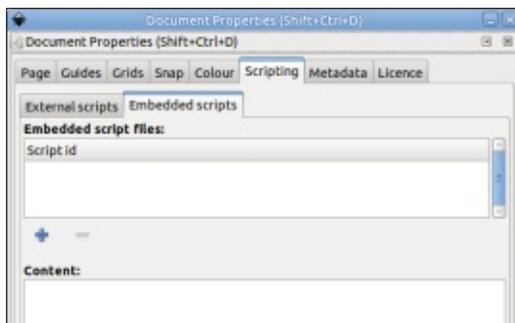
HOW-TO

Written by Mark Crutch

Inkscape - Part 83

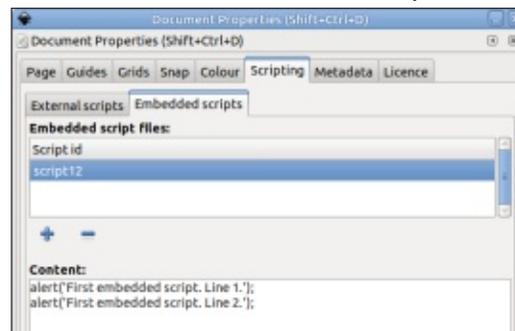
Last time, we looked at some very basic JavaScript to alert or log a message when you click on an object in your drawing, or move the mouse over it. The one-line boxes in the object properties are okay for such short snippets of code, but you wouldn't want to write anything too complex in there. Instead, Inkscape has a couple of other mechanisms for using larger amounts of code in your page: embedded scripts and external scripts.

Both of these features live in the Document Properties dialog, so open that first (File > Document Properties, or CTRL-SHIFT-D), then switch to the "Scripting" tab. Within that area are two other tabs; in this article we're going to look at the second one, "Embedded scripts".



In my opinion, there are a few issues with the UI in this dialog. You might think you can just go ahead and type some JavaScript into the "Content" section, but that won't actually create anything in your file. Instead you must first either select an existing entry from the "Embedded script files" section, or create a new one using the "+" button and then select it. I don't know why the Content section isn't disabled until something is selected, nor why a newly created entry isn't selected by default, but so long as you remember that anything typed into the bottom section will be lost unless there's an entry selected in the top, you'll be okay.

Let's create a new entry by clicking the "+" button, then select it and enter a little JavaScript into



Note that our alert() calls finish with semicolons, so the JavaScript interpreter knows where one statement ends and the next begins. Save your file, and open it directly in a web browser. You should immediately see two messages appear, even before the content of your document is rendered. JavaScript statements entered like this – outside of any function – are part of the global scope, and are executed as soon as the file is loaded.

Now repeat the process to create a second embedded script file, with similar alert() calls, but the message changed to 'Second embedded script...'. Save your file, and reload it in your web browser (F5). You should see four messages displayed in succession – but, if you read the details, you'll notice that the ones from your second script are displayed first! This is something to be very careful with: the scripts appear in the XML file,

and are therefore processed by the browser, in the order they appear in the list, not in the order you created them. In another UI faux-pas, however, it's not possible to re-order the scripts in this dialog.

One way around this problem is to just use a single embedded script, and manually reorder your lines in the Content box. Multiple scripts are all just concatenated together by the browser anyway, so whether you use a single script, or a hundred, it doesn't matter from a JavaScript perspective. Note, however, that the Content box is a little short, and can't be resized (another UI fail). If you want to put a lot of code into your file, then, being able to see only a tiny sliver of it at a time will make it rather difficult to work on.

Usually, the ordering of the scripts isn't too much of a problem, as JavaScript code is typically arranged into functions. The order in which the code executes then depends on the sequence in which the functions are called, not the order they appear in the file. This



also goes some way to explaining why the fields in the Interactivity section of the Object Properties dialog allow only a single line of code: typically they have to make only a single call to execute a separate multi-line function. As an example of this, let's use a function in an embedded script to change the fill color of an object when it's clicked on.

In a new file, create a simple object – a square or circle – with a visible stroke and an obvious fill color. I've stuck with the red rounded rectangle I used last time. Now create a new embedded script file, with the following content:

```
function change_to_blue(elem)
{
  elem.style.fill = 'blue';
}
```

We've created a function named `change_to_blue()` which takes a single parameter that we've chosen to call "elem" as it represents a single XML element in your file. This parameter will be a reference to the object you click on, and the body of the function just sets the fill color on that object to "blue" (a valid CSS color name). By putting our fill change

inside a function we prevent it from running as soon as the page is loaded. Instead we have to explicitly call it from somewhere else in our file. That somewhere else is the "onclick" field of the Object Properties dialog, which I covered last time. To call our function, we simply have to invoke it by name, but we also need to pass a reference to the object you clicked on. JavaScript has a keyword, "this", which means different things in different contexts – but in the case of a simple event handler like this, it gives us the reference we need. Therefore the line to put into the onclick field is this:

```
change_to_blue(this);
```

Save and reload your file, then click on your red object. It should turn to blue. See, interactive SVG isn't so tricky after all!

Try creating more objects, each with a different fill color, but each with the same line in their onclick field. Notice that clicking each one changes the color of only that specific element, thanks to the "this" keyword.

Rather than just set the color to

blue, how about creating a toggle between two colors each time the object is clicked. The code's pretty straightforward: we just test to see if the fill color is currently 'blue' and, if so, set it to 'red'. Otherwise we explicitly set it to blue. Here's the code:

```
function change_to_blue(elem)
{
  if (elem.style.fill ===
'blue') {
    elem.style.fill = 'red';
  } else {
    elem.style.fill = 'blue';
  }
}
```

If you're not familiar with JavaScript, be particularly aware of the '===' in the 'if' statement: this triple equals means "are both the value and the type of the variable identical?" It's a more robust check than double equals ("are the values effectively the same, even if the types are different"), and is not the same at all as a single equals, which is used for assigning a value to a variable, not for testing it.

This new code is all well and good, but it would be better still if, instead of simply toggling between blue and red, we toggled between blue and whatever color the object previously had. To do this we need

to store the old value of the fill color before we change it to blue, then use that stored value when we turn it back again. Fortunately for us, the "elem" reference that is passed in ("this" on the calling element) is a JavaScript 'Object' (not the same as an object you draw in Inkscape), which can hold additional custom properties. We'll dynamically create a new property, called 'previousFill' to hold the value of the fill just before we change it. Our toggling code becomes this:

```
function change_to_blue(elem)
{
  if (elem.style.fill ===
'blue') {
    elem.style.fill =
elem.previousFill;
  } else {
    elem.previousFill =
elem.style.fill;
    elem.style.fill = 'blue';
  }
}
```

In the "else" section we store the old fill in our 'previousFill' property; in the "if" section we use that value instead of the string "red". Strictly speaking, we should probably also rename the function to `toggle_fill()` or something similar – but that suggests we could toggle to a color other than blue, which the code doesn't do at

the moment.

Let's extend it a little further so that we can toggle to a different color. By taking an optional second parameter we can let the calling code determine what the toggle color should be, but still fall back to blue as a default. The toggling code becomes this:

```
function toggle_fill(elem,
color) {
  if (color === undefined)
color = 'blue';

  if (elem.style.fill ===
color) {
    elem.style.fill =
elem.previousFill;
  } else {
    elem.previousFill =
elem.style.fill;
    elem.style.fill = color;
  }
}
```

Note that we test the color variable to see if it's the special value 'undefined'. Note that this is a primitive type in JavaScript, like 'Number', 'String' or 'Object', so we're testing to see if color is this special type, not testing to see if it's a string containing the word "undefined". That's why there are no quotes around the word in the code.

Whenever a parameter is

missing in a function call, the corresponding value in the receiving function is given a value of 'undefined'. By explicitly testing for this, we can therefore decide what to do if the parameter is omitted – in this case use a default value of 'blue' instead. There are various ways to handle missing and default parameters in JavaScript, but this particular syntax is clear, robust, and works even in older browsers.

With this default value in place, the calling code can be any one of these examples:

```
toggle_fill(this);
toggle_fill(this, undefined);
toggle_fill(this, 'yellow');
toggle_fill(this, 'red');
```

This toggle_fill() function can therefore work with just a single parameter – in which case 'color' is undefined and gets set to 'blue' – or with two parameters. If the second parameter is explicitly set to 'undefined' then it's the same as using just one parameter; otherwise the value will be used to set the fill color. But see how already, with only a short function like this, we've exceeded the number of lines in the Content box in Inkscape. I hope you like coding

through a letterbox!

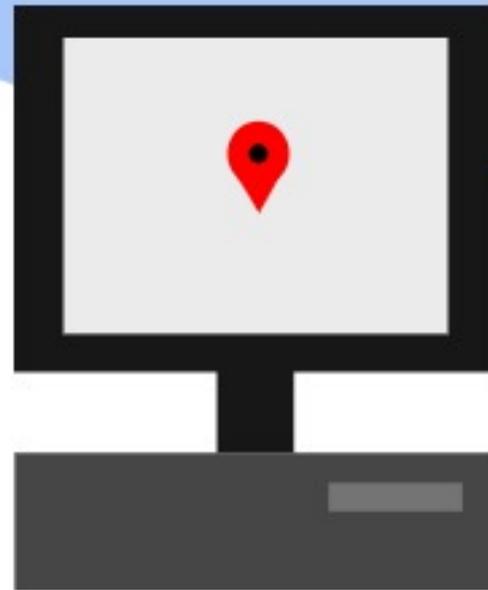
Although this function is a lot more flexible than our original creation, you should be aware that not all valid CSS colors will work in this type of code: rgb() values might get returned by the browser as hexadecimal strings, for example, or the it might change the case, either of which will stop the equality test from working. Code like this, which makes assumptions about data without testing those assumptions rigorously, is fragile and easily broken. But writing this code in a less fragile way isn't easy, and is certainly outside the scope of this tutorial series. For now you can play around with the code just to get a feel for embedding JavaScript into your SVG files. Next time, however, I'll show you how to use CSS classes, in conjunction with JavaScript, to make toggling fill colors (and other styles) far more robust.



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

Meanwhile in the Antarctic...

This is the only place google earth means nothing...



THE DAILY WADDLE

by: ErikTheUnready





LINUX LOOPBACK

Written by S. J. Webb

BSD - Pt1

ATT developed Unix as a closed source operating system. Eventually, the American courts ruled that the code need to be offered as an open source product. At this time, ATT was a monopoly on the verge of being broken up into smaller companies. There was virtually no telecommunications competition in the later half of the 20th century.

Unix was available to the general public. Eventually, different universities took hold and "developed" Unix into different

versions. The most notable version is the Berkley Software Development created by the University of California, Berkeley.

The operating system was given freely to other companies under a permissive license. Eventually, this software was called BSD for short.

The most well known BSD is macOS developed by Apple.

There are numerous BSD



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UNIX

MS DOS

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*UNIX is a trademark of AT&T Bell Laboratories. **MS-DOS is a trademark of Microsoft Corporation. ©1988 AT&T Information Systems.

derivatives today. FreeBSD, OpenBSD, DragonflyBSD, and NetBSD are the most popular bases. Yet each one has a different direction or purpose. NetBSD can run on any computing hardware. DragonflyBSD specializes in multi-threading and, to a certain extent, microkernels to develop a seamless operating system, yet it runs only on certain platforms. OpenBSD is extremely security focused. FreeBSD's main goal is an operating system for any use. The most popular BSD today is FreeBSD. There are other numerous forks from these four upstream operating systems.

There has been a mix of Linux OS with the BSD kernel. The most notable of these operations are GentooBSD, UbuntuBSD, DebianBSD, and ArchBSD. These projects attempted to offer the best of Linux and BSD. However due to the extreme niche, these projects are dormant and

unmaintained according to various sources.

In general, there are strong differences in BSD and Linux. The BSD userland consider Linux to be the kernel, while BSD is the entire operating system. The security is tighter on BSD due to its lower number of daily desktop users. Linux has a penguin, while BSD has a demon called Beastie. The releases tend to be a bit slower, and it can be difficult to install BSD using USB methods. Doing a burnt imaged ISO DVD is the easiest, consistent, and safest way to install BSD.

The packaging manager is called ports.

ZFS is the file manager. Software jails are used within the operating system.

The most popular versions of BSD according to distrowatch are: FreeBSD, GhostBSD, DragonflyBSD, TrueOS, Project Trident,

HardenedBSD and OpenBSD. TrueOS has been forked into Project Trident. TrueOS is going down a different path of modular and cutting edge software, while Project Trident will be the desktop version of TrueOS. GhostBSD is the easiest to install BSD out there onto a machine. While FreeBSD is the most documented with the largest community.

It was once said BSD is the last level of open source learning. Let's find out in the coming months. I will be using GhostBSD and the FreeBSD documentation to develop the new column that you are currently reading.



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

○ TA-8 is primarily a stability improvement release as we continue to work on using upstream technologies in Ubuntu Touch, increasing our project output.

MORPH BROWSER

Chris has continued his work to make the Morph Browser better, bringing the following improvements:

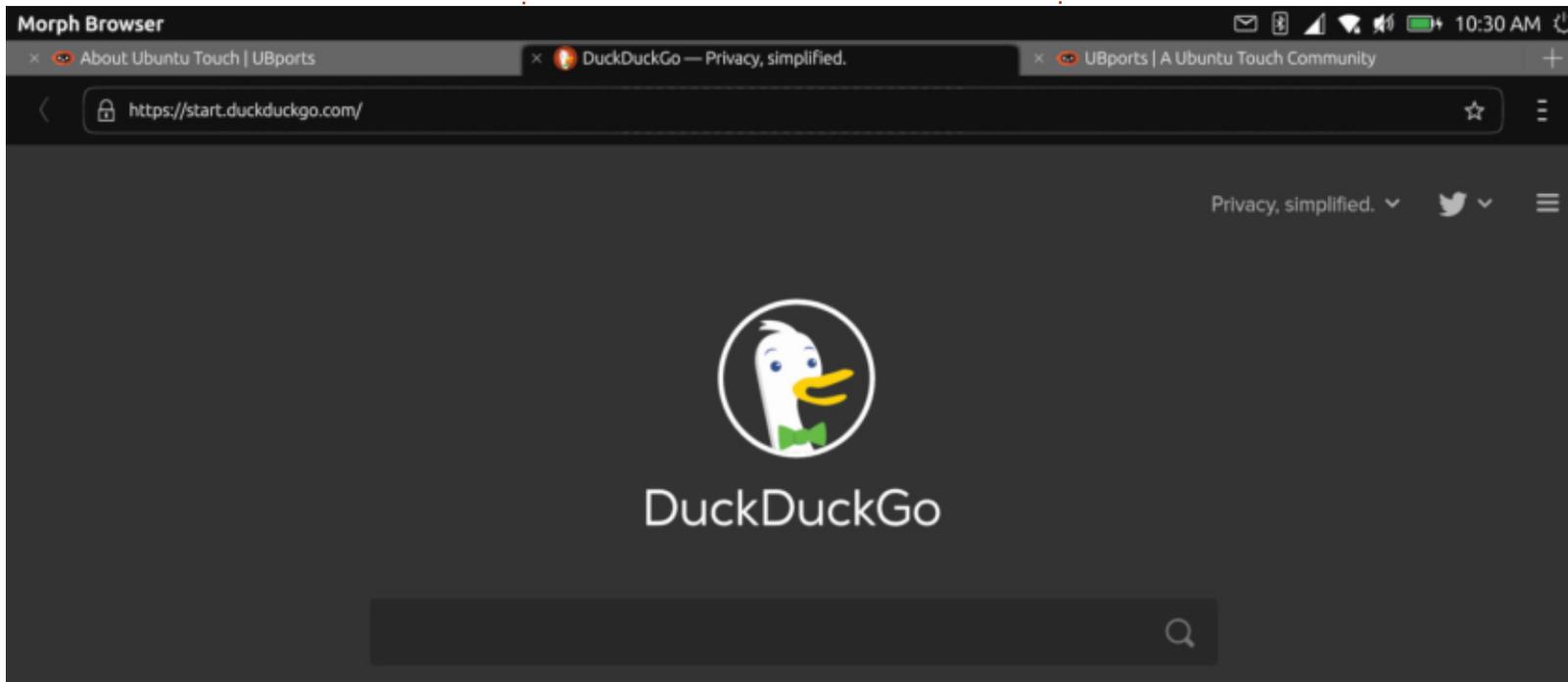
Ubuntu Touch has an experimental system-wide dark theme that is supported by most of the core apps and many of the apps in the OpenStore. Since it is experimental, it can only be enabled using the UT Tweak Tool (though some apps such as Weather, FluffyChat and TELEports have it as a built in option). This update completes support for the dark theme in the browser:

This update also fixes the display of browser error pages,

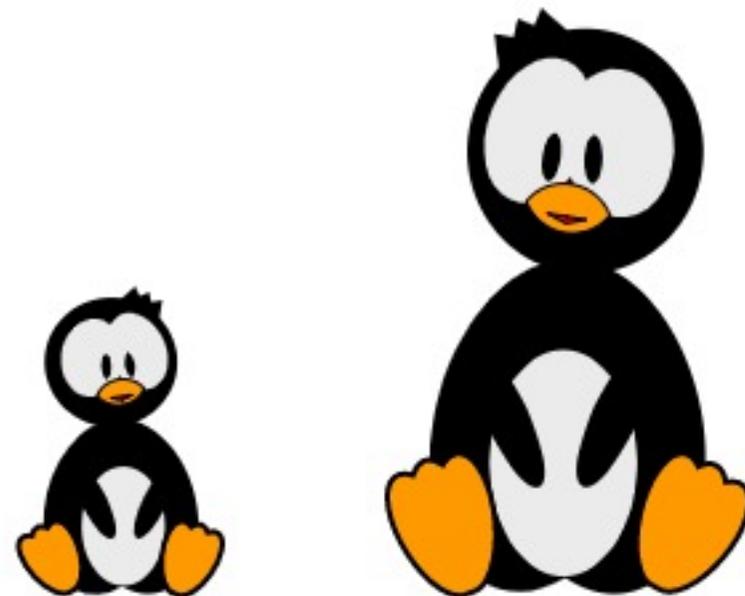
brings back favicon support for favorites, and allows apps to inject custom JavaScript into embedded Morph.Web views.

- Display a themed error page when page loading fails, fixes [ubports/morph-browser#133](#): [ubports/morph-browser#121](#)
- Fix failure to load initial page of some webapps, fixes [ubports/morph-browser#118](#): [ubports/morph-browser#121](#)
- Close all tabs in a window before closing the window, stopping any

- media in the window, fixes [ubports/morph-browser#143](#): [ubports/morph-browser#144](#)
- Add custom user scripts for webapps, fixes [ubports/morph-browser#124](#): [ubports/morph-browser#140](#)
- Bring back favicons: [ubports/morph-browser#141](#)
- When determining the height of the keyboard rectangle, take `Screen.devicePixelRatio` into account, fixes [ubports/morph-browser#52](#) and others: [ubports/ubuntu-ui-toolkit#25](#)
- Fix system theme support for tab headers, fixes [ubports/morph-browser#142](#): [ubports/morph-browser#146](#)



**Since Google earth doesn't work here son,
rather use landmarks.**



THE DAILY WADDLE
by: ErikTheUnready





So, last time I talked about user accounts and how to keep them secure in the age of the General Data Protection Regulation (GDPR). After four years of preparation and debate, the GDPR was finally approved by the EU Parliament on 14 April 2016. It was enforced on 25 May 2018, and organisations that are not compliant could now face heavy fines.

GDPR is supposed to be about consumer trust. How can your customers - and I use the word customers in a very broad sense - trust you, if you can not even secure your network? The company behind knuddels.de, a chat site, is Germany's first to be fined, so the GDPR is to be taken seriously. Let us move to the N in P.A.N.S. (or S.N.A.P) which is networking, ie. networks and network services. This is our second last pillar of the security acronym for physical, account, network and system security.

Network services are usually running all the time, so you do not

see anything really, but you do have logs to refer to. Check your logs, be proactive rather than reactive. Knuddels.de did not even know until all their data showed up on pastebin! When discussing networks and network services, I include both outward facing servers and internal networks. It is a good idea to treat them both as insecure, even if your internal network does not connect anywhere outside the company. Check it regularly. Internet capable and internet connected devices are more prolific than you think.

It is a good idea to have a user for each of your network services. The reasoning behind this is that if that particular service gets exploited, it does not open your entire network. One has but to look on services such as metasploit to see the number of exploits for things such as SQL databases. Thus, if your database uses a root password, you will be owned. This is why you do not want your services or applications advertising themselves.

Software versions are the best giveaway to an attacker to now go look up exploits against your servers. I want to say, the same applies to networks as user accounts, least privilege. If you do not need a service, uninstall it, and if it only gets used sometimes, stop it when not in use. These days, systemd is replacing the old scripts, so if you are not familiar with it, now is the time to read up on how to use systemctl. Systemctl makes it easy to stop or disable a service, with just those words as commands.

For any business, you do not want any unsecured services. This goes for manually installed services too. Any service you install manually, *you* are responsible for the updates and patches. As always, you want the smallest attack surface, should your server get targeted. By that statement, I mean bind your services to only the needed interfaces and addresses. Should your service not need external communication, bind it to the local host (127.0.0.1). I hear you say, but we are behind a

firewall. A firewall is only as strong as its weakest rule. Iptables is rule based, so if you configured iptables and you use ipv6, you already have a hole. (Btw, if you use ipv6 - ip6tables needs to be used.) Then again, if you have an office of 20 people, why use ipv6 internally? Disable things you do not need.

Also, if you have a standalone firewall, do not rely on it exclusively. Still use local firewall rules, even if they are a pain to set up. This will add another layer of protection. We cannot say we will not get hacked, but you want to be the most difficult target to start with, and be able to prove that you did everything in your power to prevent getting hacked. I do not only include servers here, but your local offices too. Your server may be in the cloud, but it takes only one person to copy the database or make a spreadsheet with passwords, and the game is lost. Also let's be realistic; the production database may be on a secured server, but an old copy is probably floating about which the

web developers play with that may have real data, and accounting prints out customer lists / payments to spreadsheets for control purposes.

Best practice suggests having your network 'pen tested' regularly. This can be a costly option, but a necessary evil. Penetration testers will usually give you paperwork after the test, store that for as long as possible to have an audit trail should you need to prove your commitment to network security. When you watch someone playing chess, you always see things they do not, even if you are just a beginner. The same goes for networks, a fresh pair of eyes may identify something you have missed, so do not just write off penetration testing.

Network security is not only about external networks. Make sure your office network is not only secured, but that your routers, switches and wireless access points are patched up-to-date with the latest firmware. (This goes for printers and other network attached devices too). Be aware of what is connected to your network. I cannot stress this enough. Rogue access points can

be an 'in' where no hacking is required. Should you have guest internet access or staff internet access, make sure these networks do not interact with your data network.

I had a client who had SIP telephony installed, and, although the SIP router had no internet access via their connection, it was connected to the switch, and with an open WiFi. It took many calls to the supplier, who would not do anything about it as, according to them, nobody can get internet access via their equipment. Routers route, so anyone connecting to their WiFi would be routed directly to the next router, and, as it was internal, it got routed to the internet. The WiFi was not used and should have been turned off. When someone comes to work on your network, make sure they comply to **your** rules. This is why I am also not a big fan of bundling jobs together to save on salaries. When your systems administrator is also your network administrator is also your programmer, is also your project manager, is also your web developer, the important checks and balances get left in the dust. Even in very small organisations,

one IT person can get overwhelmed very quickly. I am talking to CEOs here, just because your daughter's 13-year-old friend can "fix" your home computer, does not mean IT professionals do nothing all day long, and just because you have not been hacked in the last seven years does not guarantee tomorrow will be the same.

The most successful hacks are those where the target is unaware that their networks have been compromised.

If you have customers, you have personal data and you need to protect it to the best of your abilities.

The last thing I want to touch upon concerning network services is wrappers. The nice thing about TCP wrappers is that they provide centralised control. You can check your services to see if they are wrapped with the 'ltd' command. This will list their shared object dependencies. If you see libwrap in the mix, you know it is a wrapped service. Wrapped services do not need restarts, they can change on-the-fly. Keep an eye on your host access files. Allow is always

processed before Deny, so put a watch on the /etc/hosts.allow file.

Lastly, if you do not do business with certain countries, block them, again reducing your attack surface. It's no use allowing say, Vietnam access if you are a local delivery fish-n-chips shop with info on all your customers for your local delivery routes in Lisbon. This is an example, and I am not picking on Vietnam in any way. I am purely trying to illustrate that local businesses – if you have a web server or not – that do not do business outside of their town or country, should reduce their risk level. This goes for emails too, drop emails from country prefixes you do not deal with, and the emails from Nigerian Princes should decrease accordingly. We may joke here, but phishing scams are still one of - if not the - most successful attacks today.



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



HOW-TO

Written by Ronnie Tucker

Write For Full Circle Magazine

GUIDELINES

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

RULES

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

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

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

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

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

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

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

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

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.





Author: Dennis Andriess

ISBN-10: 1-59327-912-4

ISBN-13: 978-1-59327-912-7

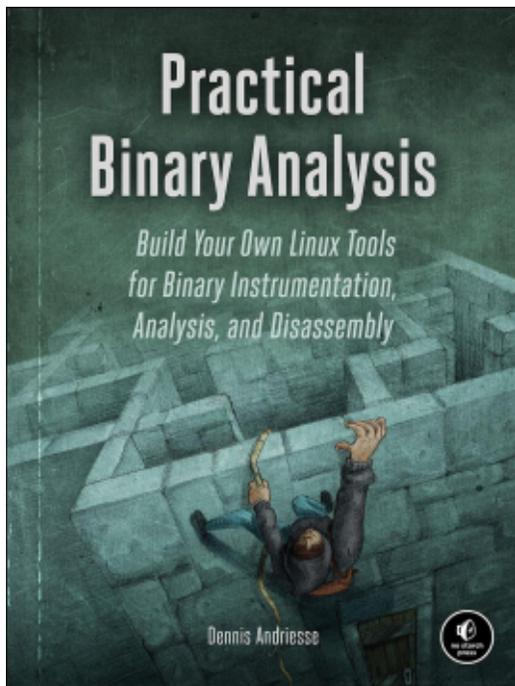
<https://nostarch.com/binaryanalysis>

Price: \$39.00

Author's home page:

<https://syssec.mistakenot.net/>

NOTE: not to be confused with 'Learning Linux binary analysis' by Packt Publishing.



Binary analysis, in this context, is the analysis of the binary contents of executable files. It is a challenging subject. The book also assumes a few things: you know programming, bash, operating systems internals and assembler. That said, binary analysis is a fast growing discipline in our ever shrinking connected world. Hackers, security researchers, pentesters, and digital forensic experts, are more prevalent than ever, and this is a 'need to know' subject for those professions. The book walks us through a lucky 13 chapters, starting with the anatomy of a binary through to Practical Symbolic Execution with Triton. The focus of the book is on x86. This book is all muscle, no fillers about the origins of DOS or UNIX, but straight to the point.

To get the most out of this book, you should be comfortable with reading code. Reading other people's code is a trigger for a lot of people – in particular reading C and assembler, including hex dumps. The author does a good job explaining, and there are lots of

examples. Chapters one to four make up the first part, which is an introduction into the different types of binaries. Both PE and ELF are explained – 32-bit falling by the wayside. By chapter four we are already building tools!

Wow! I learnt a lot in a very short period. There is a lot of information to digest if, like me, you fall in the "interested in –" category, I suggest that when you reach page 100, you put the book down and go make a cuppa, to mull things over.

In chapter five, we start with the basic binary analysis in Linux, (where we all would like to start). The author takes a different approach here, and instead of listing tools, does something really interesting in the form of a capture-the-flag exercise. If you are like me in that "interested in –" category, this is where your re-reading will start. For one, I thought hex editing was the only way to change binary code, and boy, was I surprised! Part two stretches from chapter five to

chapter seven, and is heavily laden with information, so read carefully. Do not skip the exercises at the end of the chapters.

Part three is the Advanced part of the book, where the author walks you through things like symbolic execution and binary instrumentation. This is where the static and dynamic binaries you read about in part one get linked to instrumentation. Do not be fooled by headings such as 'disassembly' and 'binary analysis fundamentals', as it's only fundamentals for three pages, before you hit recursive disassembly. One thing to note – all of the tools mentioned in this book are not free or open source. (Single user IDA pro base licence is \$2134 !!). So, following along all the way, is not an option unless you are made of money.

I have read a few No Starch Press books before, but this is by far the most intense one I have read, packed so full of information, it cannot be digested in one sitting. The language is not stiff

BOOK REVIEW

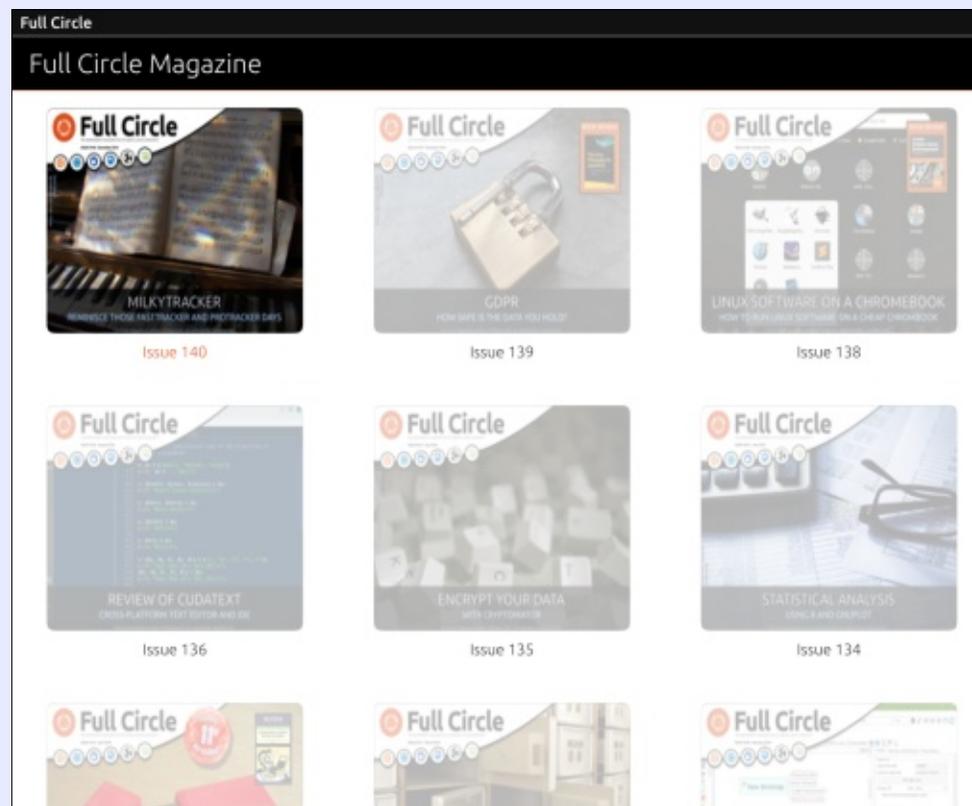
and academic, yet topics are well expressed and explained. I usually do not read the appendices of books, but for some reason I did this one. You see, the appendices are quick crash courses in the tools and x86-64 assembler. It is only a couple of pages, but again, be prepared to be bombarded with information. I am definitely going to read this book again after I read a few other primers; it has opened up an itch I never knew I had.

This book is not the usual easy-to-follow, walk-in-the-park guide from No Starch Press, but one that deserves the title of deep dive. There is no waste anywhere - just lean, mean, information. This is NOT a book for beginners. If you fall into those fields I mentioned before, this book should be on your bookshelf and I see it getting a lot of use.



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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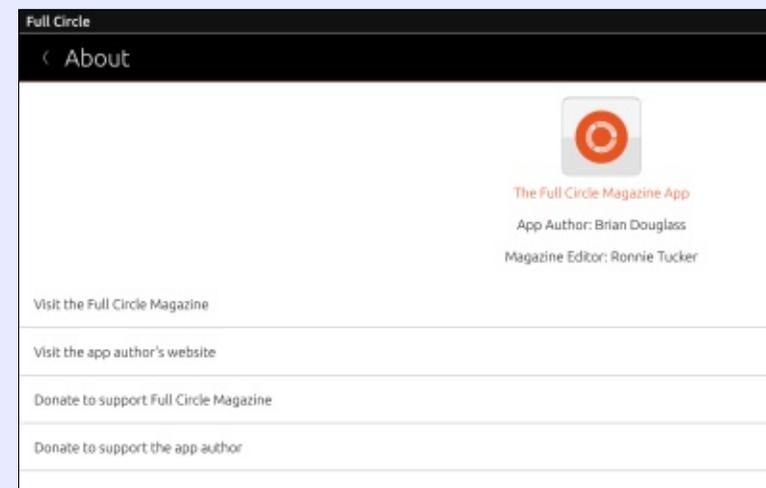
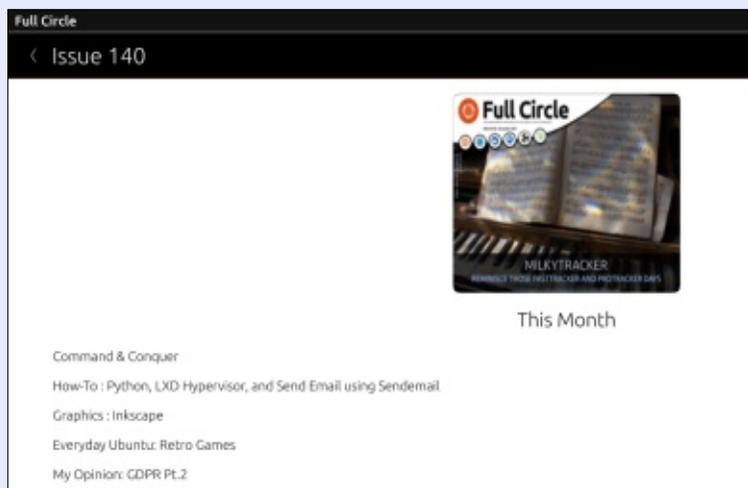
Brian Douglass has updated his FCM app for Ubports Touch devices that will allow you to view current issues, and back issues, and to download and view them on your Ubuntu Touch phone/tablet.

INSTALL

Either search for 'full circle' in the Open Store and click install, or view the URL below on your device and click install to be taken to the store page:

<https://uappexplorer.com/app/fullcircle.bhdouglass>

HUGE thanks to Brian for this.





LETTERS

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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.



DistroWatch.com

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



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.

When there is bad English spelling and grammar, I will correct these for Q&A. It just reads better for our readers and is not intended to change your questions in any way. If you are not sure about your spelling, etc, you can run your question through Google translate.

Once as an FSE, I was called to a site where the owner had issues connecting to the network, among other things. I packed all my diagnostic CD's and hit the road. On the customer premises, I found that the owner had a brand new Macbook and everyone else had Windows PCs. I had never seen a Macbook before then, but knew

they shared common ground with Linux. I was lost until I found the terminal. From there it was simple to run dmesg and view the log files to sort out all his queries. The customer wanted to know where I had honed my 'Mac skills'. When I told him that this was the first time I ever touched a Mac, he was unbelieving. I explained that a Mac was Linux under the hood (I was ignorant back then), and OSX was simply another Desktop Environment to me. What I am trying to illustrate here is that one should not ignore the command-line completely. Yes, we live in a GUI world, but the command-line is always there to assist. Even if you never use your command-line, learn to use it, it may save your bacon one day.

Q: Dear Sir, I have a Lenovo Y510P. It has issues with the SD card slot. It is very weird and frustrating. I mostly use it for transferring my photos to rawtherapee. I can't seem to find a proprietary driver to fix this. Please help me.

A: I did some digging and found that this is not Ubuntu related but Lenovo related. I hope you have extended warranty on your laptop, as it will need to go in. Lenovo have forums filled with your problem, e.g. <https://forums.lenovo.com/t5/Lenovo-P-Y-and-Z-series/Y510P-SD-Card-problems-and-More/mp/3979737#M159689>. There is no proprietary driver to fix this as it is a hardware problem.

Q: I have installed plank on Ubuntu, version 0.11.4. How can I change the icon size please. I have Googled this, but I can not right-click preferences to change them as described, as my right-click brings up "keep in dock" and not preferences.

A: The nice thing about Linux is there are many ways to do something. The reason you are seeing "Keep in Dock" is because you are clicking on an Icon. There is about half a millimetre on either end where you can right-click to get the other drop-down menu, or you can open a terminal and type

"plank --preferences", or even look in your menu, start typing plank and there should be a menu item plank preferences, or you can even hold down ctrl + alt and right-click for the alternate menu.

Q: Hello, I installed 'Frogatto and friends' on Ubuntu for my son. I realise the application is not being developed any more; however, I was teaching him to play and noticed a double tap in either direction sort of lets him slide. Somehow, he stops sliding immediately. How can I set the keypress sensitivity so this works properly? Do I need to set it in-game or Ubuntu? I want to cultivate a love for pixel art in my son and 'Frogatto and friends' is beautiful.

A: I cannot find any documentation on the slide function, so I installed the game to test. I suspect that the sliding noise and the puff of dust is an immediate stop, rather than a slide. Double-tap hold is run, so the character starts running, then stops immediately as you are not



Q&A

holding down the directional button. For future reference 'im-config' is what you use to set your input method.

Q: Ubuntu Budgie 18.04, i3 4GB ram. Noob here. I am populating my calendar with things for next year, but I have only *personal when I create an entry. If I click the arrow beside *personal, there are no other options. How do I add more categories? Google is not helping.

A: Click on "edit details" just below that, and then the drop-down arrow next to unnamed event. This will allow you to select birthdays category. Those are the only built in categories. If you want to create more, you need to click the top leftmost button and select 'calendars'. Then add a 'calendar' as a category. Be sure to choose a different colour for this calendar and, when it is displayed on your calendar, it will be a category.

Q: I have recently switched to Ubuntu so I am not familiar with it. I like to write stories and was wondering what is the best program to use?

A: Oh boy, this is not easy. 'Best' is a relative term. Let me give you options with reasons. If you are a seat of your pants writer, like Stephen King: focus writer / koala writer. If you do not care about aesthetics then a distraction-free writer will do, like ghostwriter or textroom. If you are a meticulous planner: Bibisco. If you are in-between those two: Plume creator. Libre Office has many plug-ins if word processors are your thing. If you are creating ebooks, Sigil. It all boils down to what you are comfortable with.

Q: My friends, I have made a minimal install. Tell me is this the problem. My eyes are bad, so I enable the screen reader. However, nothing seems to be happening when I click menus or application menu. This worked in my old Ubuntu installation, 13.10, I think. This is important to me. Sorry for my bad English.

A: "The minimal install is simply a reduced set of packages for the people who would rather layer up their own set of things." What's missing in it is orca. Just add:

```
sudo apt install orca
```

Q: I am using Geary to read my gmail on Ubuntu 16.04. However, every so often, it will ask me for a password. My gmail password is 23 random characters and I can't remember it. As I understand it, my password is saved in the Ubuntu keyring. How / where do I manage this? Is that the same as online accounts in settings? Why is it forgetting my details? My laptop is an old Acer Travelmate.

A: I am going to answer what I feel is the main question first, before addressing the others. Geary is not "forgetting" your password. Google uses a security algorithm that uses your IP address range and application when you log in to your account. When you go to another town, or to a place with, say, a VPN, or different ISP, that range changes and Google rejects the sign in. Geary now thinks the password is incorrect and asks you for the password. As Geary uses IMAP and not POP3. It does store the password in your keyring : <https://books.google.co.uk/books?id=cqJoDwAAQBAJ&q=keyring#v=snippet&q=keyring&f=false>

There is always: geary - -help (you will see the -d option)

Q: Can one set up an internet downloader for Linux without PPA's? I don't like PPA's.

A: You most certainly can! Just type: sudo apt install uget. If you prefer the command-line, check out the manpages for wget and curl.

Q: I have googled this, but to no real satisfaction. When I use Thunderbird with a Dark theme like arc dark or materia dark, I can't see anything in in the email pane. I have to use a light theme to see the contents. It is either white-on-white or the reading pane is black. It is very frustrating.

A: I usually install the monterrail themes for my clients, but I decided to test it for you. The black reading pane is a problem when changing themes, but click on an email and it goes away. To get rid of the white-on-white, I suggest using the monterrail full dark theme. At the moment Thunderbird integration seems a bit iffy. Override it with a Thunderbird theme.

Q : My computer did not boot this morning so i took out the hard disk and attached it to a desktop with Linux Mint on it. Windows partitions can be read but Mint partition says "UNKNOWN FILE SYSTEM"

A : The short answer is recover your data and reinstall Linux. There are ways to get the filesystem back, but it is too complicated and long for Q&A. Use photorec to recover your data and redo, it is much quicker and will save you lots of grey hairs.

Q : Firefox key layouts have changed as my backspace key no longer takes me to the previous page. How can I fix this?

A : In the address bar, type: about:config and accept the risk. Then, in the search bar, type backspace. Change browser.backspace_action to 0 from 2. Close the tab and test.

Q : Why is it that I had to install the intel microcode in Ubuntu 16.04, but it doesn't get installed in 18.04?

A : As I understood it, it was not

Ubuntu version related, but kernel related.

Q : My error after upgrading to 18.04 again, is 'E: Some index files failed to download. They have been ignored, or old ones used instead'. What now?

A : I would suggest looking at the complete error message. It will tell you which package failed. I will bet money it is a PPA. For 18.04, they have to say "BIONIC", you will also notice some need dependencies that are not available in 18.04 any more.

Q : After resuming from standby, one of my monitors is switched to off in the settings under Devices -> Displays. All three monitors are identical. Boot UP works 100%. The issue is when it goes into sleep mode. Then only two come on. The one monitor is switched off under the settings. What am I doing wrong?

A : Just update to the latest kernel, there was a bug floating around in the triple monitor setups on the older kernels.

Q : My error is with virtualbox on Ubuntu 18.10. I get an error of

-
'WARNING: The character device /dev/vboxdrv does not exist.
Please install the virtualbox-dkms package and the appropriate headers, most likely Linux-headers-generic' and there are more errors and it just wont start.

A : Your best bet is to remove virtualbox (I recommend purging it). Then run :

```
apt --fix-broken install
```

and then reinstall virtualbox. For good measure, run:

```
sudo apt autoremove
```

once it is uninstalled, and reboot before installing it again.



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.



INTERVIEW

Compiled by EriktheUnready

Lubuntu (Simon Quigley)

Lubuntu is a complete Operating System that ships the essential apps and services for daily use: office applications, PDF reader, image editor, music and video players, etc.

For those of you who don't know, Lubuntu just recently switched desktop environments from LXDE in 18.04 to LXQt in the 18.10 release. (If you did not, where have you been?).

In this issue, we would like to introduce you to one of the amazing people behind the popular Lubuntu, Simon Quigley. I asked Simon for an interview and he very kindly accepted to answer my questions.

Q: Simon, thank you very much for your time. First, can you tell us something about yourself? How old are you? Where do you live? What do you do for a living? When and why did you start using Linux?

A: I am 16 years old, I live in Green Bay, Wisconsin, USA, and I am a full-time student, but I

work part time at Altispeed Technologies.

I started using Linux when I was given a computer with Windows 7 on it (I was almost 13 at the time). I played with Windows for a while, and I ended up doing something along the lines of setting two processes to run on startup that were conflicting, which broke the install. I didn't know how to recover it at the time, and funny enough, I had seen this "Linux" operating system from download pages of software I frequently used. So, after the Fedora installer would not work, I installed Ubuntu 14.04, decided to reinstall with the development ISO's of Lubuntu 14.10 because I felt it ran better on my computer, and the the rest is history.

Q: How did you get involved with Lubuntu, and why?

A: I got involved with Lubuntu because I had always thought development was something interesting. (Since I was tinkering with writing websites from scratch

at age nine using HTML and CSS). Now that I was running Lubuntu, this free and open source operating system, I wanted to give back and help the community that has helped me escape from Windows. I then joined the Lubuntu IRC channel and started talking with people who would mentor me to become who I am today, people like Walter Lapchynski, to whom I am forever grateful.

Q: Who would you imagine is Lubuntu 's user base? (mostly?)

A: I would imagine people using 18.04 and before, who are looking for a distribution for their older computer and want to breathe life into those machines. The goal for 18.10 and beyond is really to give people a flexible, lean distro, that they can make the most out of using Qt 5. So, the user base is average users, I would say.

Q: What would you say to users coming from other OSes? And

would Lubuntu be the right distribution to start with and why?

A: To people who are just starting off with Lubuntu or Linux in general, I would say that you should not treat Linux like you treat Windows. Linux is a powerful tool, and if you're using it like Windows, you're not getting the most out of it.

Yes, Lubuntu would be the right distribution to start with, because it provides a familiar user interface with familiar applications on a rock-solid, stable Ubuntu base.

Q: The big leap from LXDE to LXQt, who is responsible?

A: That would be me. The team that was active when I was getting involved, without going into too much detail, wanted to keep LXDE around forever, and while some components were slowly being ported to GTK 3, LXDE is still on GTK 2. The team resources required to port to GTK 3 far exceeded the resources needed to get LXQt polished and



working for our users.

It was a bit of a struggle at times, given the people who were working on this were new to a lot of the processes, but we learned what was needed to succeed through the power of the Linux community and the documentation available.

Q: Where to from Lubuntu 18.10? Any surprises waiting in the wings?

A: Our goal from 19.04 to 19.10 is to make LXQt as ready as possible to ship to LTS users. Whether this is adding missing features or polishing as much as possible, the goal is to make this completely ready for users. Lubuntu 18.10 shipped with a few rough edges and we would like to get all of those solved.

For surprises, you might count our work on a Welcome Centre, as well as a few Calamares modules we are working on for the near future to enhance the user experience.

Q: Can you describe your personal desktop setup?

A: I switch between my laptop, which is a Lenovo Thinkpad W520, and my custom build desktop computer, which has 16GB of RAM, an AMD FX-6300 processor, and a bit of a mix-and-match of components. Both of which are always running the current development release of Lubuntu, with LXQt of course.

Q: What do you think of the current trends in desktop environments?

A: I am not a fan of GNOME 3 actively removing features, but I can also empathize with those developers, because if nobody is maintaining a given feature and it 'bitrots', you eventually have to remove it, no matter how loud people are shouting at you to keep it. This reveals an underlying point in Linux that people don't seem to get: if you can't find anyone to do the work, it won't happen. This was especially prevalent when Lubuntu dropped i386 support for 19.04 and on. Users were shouting at us to keep it, but when we put out a call for contributors to help with it sometime before 18.10 was released, nobody showed up to

help. We had about 10 people join the community after a general call for contributors, and none of them had i386 machines.

Wayland is a good idea, but it's one of the technologies that we have struggled to universally implement. You know it's this way when RHEL 8 decides to adopt it as the default before Ubuntu does. This reveals the issue of fragmentation within the Wayland community that I really think should be resolved, before people are going to look at implementing it for themselves. There is the core standard, but functions like copy/paste, screenshots, etc, have to be implemented as extensions. I really think people should follow the lead of Drew DeVault, who is pioneering a lot of what Wayland needs in wlroots; I would consider it to be the most technically sound implementation of Wayland out there right now. He recently published this blog post which clears up many misconceptions about Wayland:

<https://drewdevault.com/2019/02/10/Wayland-misconceptions-debunked.html>

Q: Do you guys have any metrics on how large the user base is?

A: We don't. We have the option with the ubuntu-report tool, but ignorance is bliss in my opinion. I don't want to be over-pressured if we have a lot of users, and I don't want to feel like I'm wasting my time if we have close to zero. I just want to make the decisions that are best for the distribution without that hanging over my head.

Additionally, I already talk on a regular basis with companies who are deploying Lubuntu wide-scale on many machines, and I am much happier talking to them directly and working with them to address concerns, than getting those numbers. (If you are one of those companies, please reach out).

Q: Distrowatch.com puts Lubuntu at 23, do you think these 'rankings' are useful or are harmful to the distribution by any chance?

A: Not particularly. The people who actually go on DistroWatch and rate distributions tend to be a very small fraction of the people in the communities. So while it is cool to see that Lubuntu is above almost all other Ubuntu



Website:

https://www.gog.com/game/this_is_the_police_2

Price: \$14.99

'Interpret the law as you see fit in 'This Is the Police 2', sequel to the acclaimed noir drama 'This is the police'.

Right off the bat, I'd like to say this is not the quirky 80's police TV show-type game that 'this is the police 1' was. If you enjoyed the funny stereotyping in the first game, it's gone in the second one. Someone labelled it "racist" and now you have a turn-based strategy game without flavour. That is not to say the game is not enjoyable, it is just missing something. The graphics remind me of a visual novel, more than anything. Obviously, a lot of improvements have gone into the second game compared to the first. The improvements are not only just under the hood, but your faceless characters now have radial menus with sub-menus that contain certain 'perks' that make each unit unique. (I will reference

the first game as well as other games in the genre, as it is difficult to put it in perspective without doing so). There is a story here too, albeit much drier. It is not only a turn-based strategy game, but a management 'sim' too. This is not a strategy game though, you have been warned. The game is not difficult to pick up and play, so casual gamers may enjoy this title too.

The story centres around a cop who is a real 'bastard' (can we say

that?). However, when you actually play the turn-based strategy part, I found I could not pepper spray a suspect then go close and club him with my nightstick, or even taze a suspect then go closer and club him with my nightstick. Neither can I taze or beat a criminal who is already cuffed. So the two parts of the game do not match, and immersion is a bit shallow. (Hey, if you are a BAD cop, you are a BAD cop all the time, not only in the cutscenes!). It seems the developers got to quaking in their

boots once someone used the word "racist" in a review of the first game, and made this one "safe". There are no stereotypes other than 'rednecks', so I'd say this one is more "racist" to me. It amazed me that all the police were not depicted as women. There are no likeable characters in the story, which also lets it down.

There were a few 'niggly' things during the game which took away from the experience. Sometimes you cannot assign officers as they are not experienced enough. (What? They did not go to cop school?). Sometimes, you cannot send them because they do not like each other. (Again, what? It's their job, they are supposed to do it – if they like their co-workers or not). Sometimes, the dialogue is a little too stretched out, you can go make coffee and come back and they will still be at it. These little 'paper cuts' made me quit the game eventually.

The mechanics seem solid, but do not 'gel' for me. Your cop will break down a door, then has

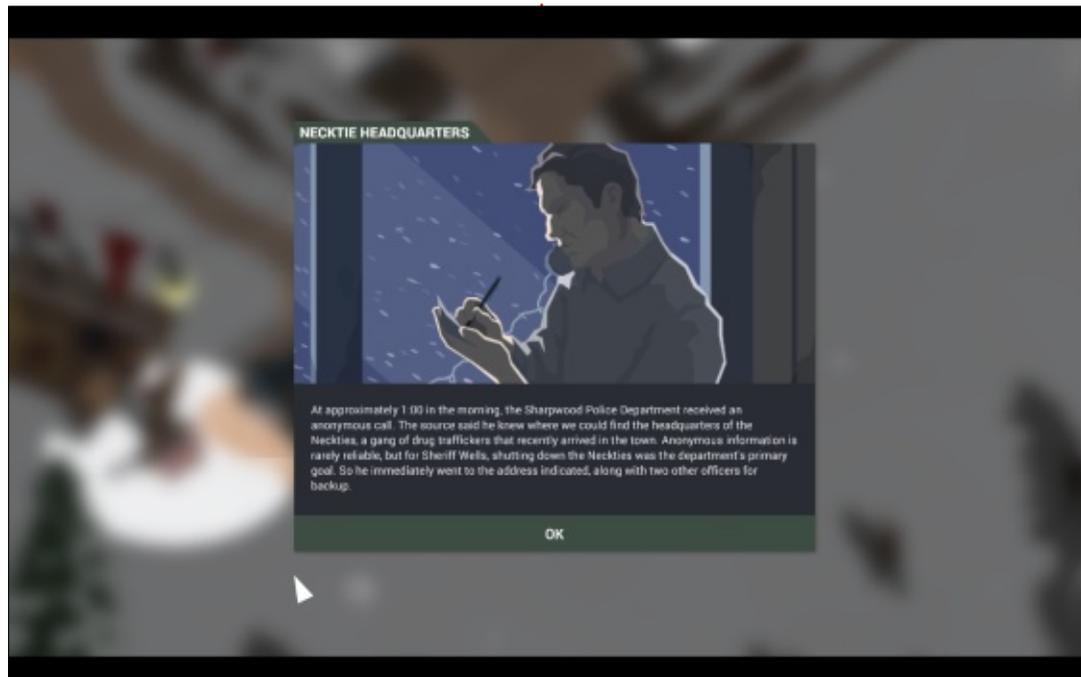
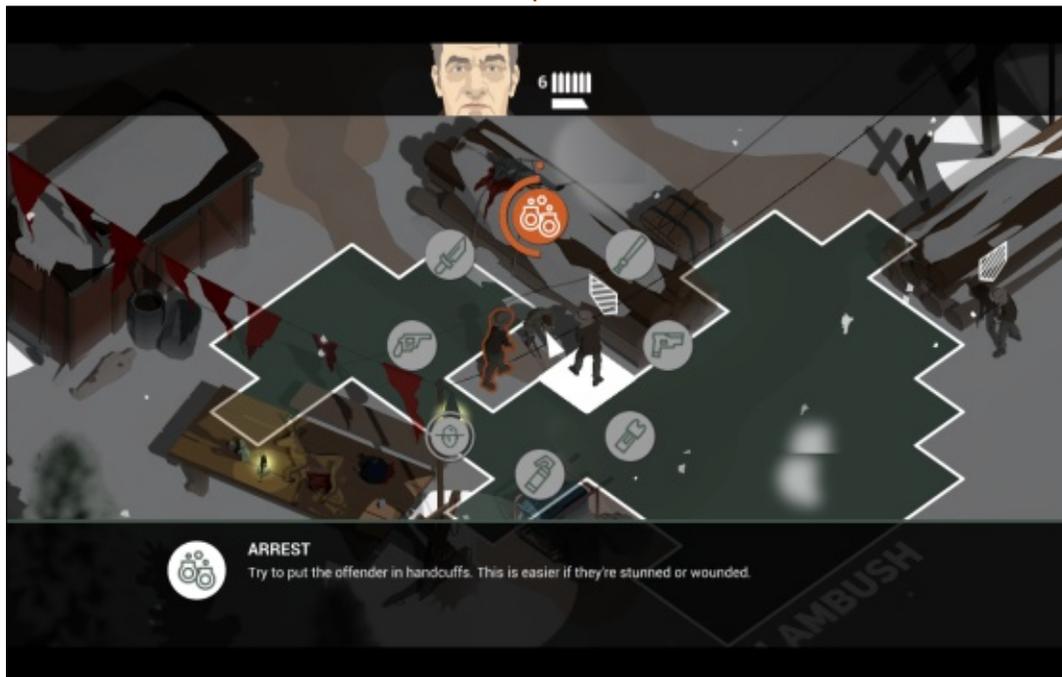


UBUNTU GAMES

enough action points to make a precise shot, but has to 'jimmy' a window. It's glass, for crying in a bucket, shoot through it! The cover system is full cover, partial cover, and no cover, and flanking a unit in cover works. If you enjoyed Jagged Alliance, you will enjoy the combat.

At \$15, I cannot recommend this game. Wait for it to go on sale and buy it. It's worth a play if you like visual novels and turn-based combat. It is not that it is unplayable, quite the contrary, it is just bland.

P.S You cannot play this on a 'low spec' machine. You will need a display card and a decent CPU.



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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