



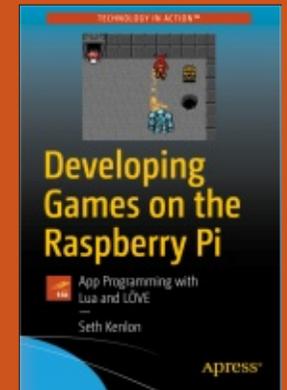
Full Circle

THE INDEPENDENT MAGAZINE FOR THE UBUNTU LINUX COMMUNITY

ISSUE #150 - October 2019



BOOK REVIEW



BODHI LINUX

REVIEW OF THIS UNUSUAL LINUX DISTRO

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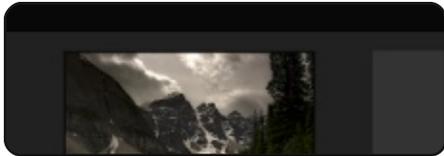
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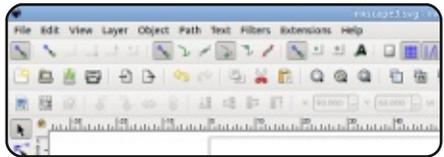
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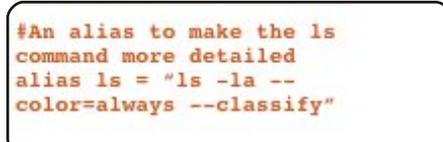
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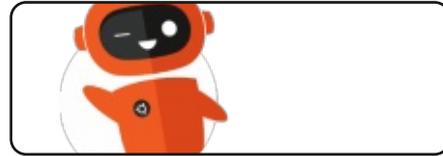
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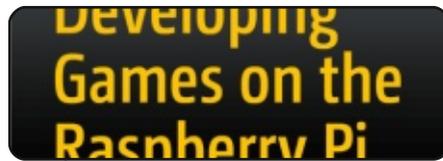
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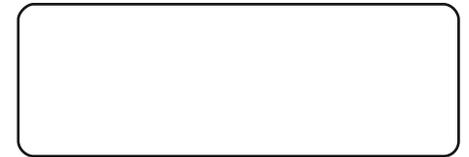
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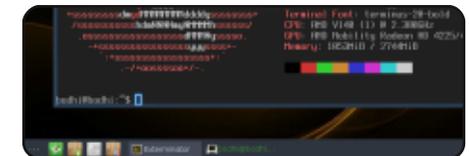
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WELCOME TO ANOTHER ISSUE OF FULL CIRCLE!

This month we have the usual Python, Darktable, Inkscape, and the continuation of the Automation series. We have an interview this month, Tsu Jan, the developer of FeatherPad the QT text editor, and as the cover shows, we have a review (from Jason) of Bodhi Linux.

On the small(er) screens we have the release of Ubports Touch OTA-11. This brings some tweaks to the browser (amongst other things) and from here on in it seems they'll be implementing Mir, and the last version of Unity from Canonical. I've also read that they want to use the next LTS as the next basis for Touch. Personally, I hope they implement more convergence compatibility and get desktop software running on Touch. I can but dream!

I have to be honest, the response to last months plea for articles was poor. Yes, we have enough articles for several more months, but I was hoping for a few more submissions to keep us going. We'll see how it goes. Currently, without exaggeration, half the magazine is written by Erik. Pray nothing happens to him.

Translations seem to also have dropped off a cliff. The only current regular translation is by the French team. If anyone out there wants to form a team and translate FCM to their native tongue please drop me a line at the email address below.

All the best, and keep in touch!

Ronnie

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LINUS TORVALDS TO ADD "LOCKDOWN" SECURITY FEATURE IN LINUX 5.4

After fiddling with the idea for a long time, Linus Torvalds has finally decided to add "lockdown" security feature in Linux Kernel 5.4. The feature will be optional and will be shipped as Linux Security Module in the upcoming Linux 5.4. The feature will bring a major change in how user-space interacts with the Linux kernel. The Lockdown feature in Linux is mainly intended to prevent root account from tampering with kernel code, thus drawing a line between userland processes and the code. The security feature will be disabled by default when it will be shipped. Upon enabling it, even root accounts won't be able to access certain kernel functionalities, thus protecting the operating system from being affected from a compromised root account. Some of the restrictions included in the Lockdown feature are the prevention of hibernation of the system, blocking write

operation to /dev/mem even for root accounts, blocking CPU MSR access, etc.

Source:

<https://fossbytes.com/kernel-lockdown-linux-kernel-5-4/>

UBUNTU LINUX 19.10 'EOAN ERMINE' BETA AVAILABLE FOR DOWNLOAD

Today, Canonical releases the official beta for the upcoming Ubuntu Linux 19.10. Code-named "Eoan Ermine," it features Linux kernel 5.3. There are several great desktop environments from which to choose too, such as KDE Plasma, Budgie, and the default GNOME. Ubuntu 19.10 is not a long term support (LTS) version, sadly, so support for the stable release will only be a mere 9 months. "The Ubuntu team is pleased to announce the beta pre-release of the Ubuntu 19.10 Desktop, Server, and Cloud products. Codenamed "Eoan Ermine", 19.10 continues Ubuntu's proud tradition of

integrating the latest and greatest open source technologies into a high-quality, easy-to-use Linux distribution. The team has been hard at work through this cycle, introducing new features and fixing bugs," says Adam Conrad, Software Engineer, Canonical.

Source:

<https://betanews.com/2019/09/27/ubuntu-linux-1910-eoan-ermine/>

LINUX CONSTRUCTION GUIDE LFS 9.0 RELEASED

Linux From Scratch (LFS) is less a distribution than a guide to creating a GNU / Linux system from the sources. Therefore, the installation of a system with quite a lot of effort and - depending on the extent - also associated with a lot of time. All sources of the system must be downloaded separately and translated according to the instructions. However, the main advantage of Linux From Scratch lies in learning how the Linux system works and

many of the applications. The same applies to the configuration. The disadvantage is also the high effort that you have to invest to get a running system. Adapting to your own needs and using new programs requires extra work.

Source: <https://www.pro-linux.de/news/1/27478/linux-bauanleitung-lfs-90-ver%C3%B6ffentlicht.html>

NEXTCLOUD 17 INTRODUCES REMOTE WIPE

Nextcloud is a server that enables secure data exchange and communication. The now released version 17 brings just over five months after Nextcloud 16 a number of innovations. One of the most important from the developer's point of view is the ability to delete data on remote devices. The remote wipe functionality gives users the ability to delete content from their devices, even when they no longer have access to it. Among other

things, sensitive data should be deleted on stolen or lost mobile devices. Other new features of Nextcloud 17 include customizations to IBM's Spectrum Scale and Collabora Online. The connection to Nextcloud Talk has been improved and the establishment of two-factor authentication has been made easier. Also new is the ability to write LDAP entries.

Source: <https://www.pro-linux.de/news/1/27480/nextcloud-17-f%C3%83%C2%BChrt-remote-wipe-ein.html>

CANONICAL OUTS MAJOR LINUX KERNEL SECURITY PATCH FOR UBUNTU 18.04 AND 16.04 LTS

The new Linux kernel security update fixes two vulnerabilities (CVE-2018-20976 and CVE-2019-15538) in the Linux 4.15 kernel used in both Ubuntu 18.04 LTS and Ubuntu 16.04 LTS, discovered in the XFS file system, which could allow a local attacker to either execute arbitrary code or cause a denial of service (system

crash). The CVE-2018-20976 issue was also fixed in the Linux 4.4 kernel. The new Linux kernel security update is available right now for users of the Ubuntu 18.04 LTS (Bionic Beaver) and Ubuntu 16.04 LTS (Xenial Xerus) operating systems using the Linux 4.15 kernel, as well as for Ubuntu 16.04 LTS (Xenial Xerus) users using the Linux 4.4 kernel. Canonical urges all users to update their systems as soon as possible.

Source: <https://news.softpedia.com/news/canonical-outs-major-linux-kernel-security-patch-for-ubuntu-18-04-and-16-04-lts-527647.shtml>

NEW ANDROID ZERO-DAY VULNERABILITY FOUND: THESE ARE THE AFFECTED SMARTPHONES

Google has discovered a new Android zero-vulnerability that allows hackers to gain unauthorized access to various Android smartphones. This discovery has been made by Google's Project Zero team. It is suggested that the Android

vulnerability rests in Android device's Linux kernel code, which provides cybercriminals root access to Android smartphones. On the contrary, the same Android zero-day vulnerability was supposedly patched back in 2017 in Linux kernel versions 3.18 LTS, 4.14, 4.4, and 4.9. However, the newer kernel versions were found to be vulnerable.

Source: <https://fossbytes.com/new-android-zero-day-vulnerability-found-vulnerable-devices/>

CANONICAL RELEASES MAJOR KERNEL SECURITY UPDATE FOR UBUNTU 19.04 AND 18.04 LTS

The new kernel security update comes a few days after another major patch released on Tuesday for Ubuntu 18.04 LTS (Bionic Beaver) and Ubuntu 16.04 LTS (Xenial Xerus) systems running the Linux 4.15 kernel. This one fixes issues affecting the Linux 5.0 kernel in Ubuntu 19.04 (Disco Dingo) and Ubuntu 18.04 LTS (Bionic Beaver) systems. On top of

that, the kernel security update fixes a flaw in the Bluetooth UART implementation that could allow a local attacker to cause a denial of service, an out-of-bounds read in the QLogic QEDI iSCSI Initiator driver, which could let a local attacker to expose sensitive information (kernel memory), as well as bugs in the XFS file system, Hisilicon HNS3 ethernet device driver, and Atheros mobile chipset driver, which could allow a local attacker to cause a denial of service.

Users are urged to update their systems immediately Canonical urges all Ubuntu 19.04 and Ubuntu 18.04 LTS users running the Linux 5.0 kernel to update their systems immediately to the new kernel versions that are available now in the main software repositories.

Source: <https://news.softpedia.com/news/canonical-releases-major-kernel-security-update-for-ubuntu-19-04-and-18-04-lts-527703.shtml>

REPORT: DOCKER HAS FINANCIAL PROBLEMS

According to media reports, Docker's container specialists appear to have economic problems. The company is therefore urgently looking for new investors. But Bearden assures that Docker is actively negotiating with two investors who could provide the company with the required capital. Docker had last nearly two years ago completed a round of investment for just under 92 million US dollars and thus since the start of the company can collect about 270 million US dollars. According to the portal Crunchbase, the company was valued at about \$ 1.2 billion at that time. A possible alternative to finding new investors could also be the sale of Docker to another company.

Source: <https://www.linux-magazin.de/news/bericht-docker-hat-finanzprobleme/>

SPARKYLINUX 5.9 RELEASED WITH LATEST UPDATES FROM DEBIAN GNU/LINUX 10 "BUSTER"

SparkyLinux 5.9 is the ninth instalment in the SparkyLinux 5 "Nibiru" operating system series, a rolling release version of the Debian-based distribution that aims to offer users access to all the new packages from the latest Debian GNU/Linux release. SparkyLinux 5 is based on Debian GNU/Linux 10 "Buster". In SparkyLinux 5.9, the developers updated the base system from the Debian GNU/Linux 10 "Buster" stable software repositories as of October 4th, 2019. It's powered by the long-term supported Linux 4.19.67 kernel and includes various other bug fixes and improvements to make SparkyLinux 5 "Nibiru" more reliable.

Source: <https://news.softpedia.com/news/sparkylinux-5-9-released-with-latest-updates-from-debian-gnu-linux-10-buster-527728.shtml>

GNU PROJECT DEVELOPERS OBJECT TO RICHARD M STALLMAN'S CONTINUED LEADERSHIP

Richard M Stallman (RMS) recently put his foot in his mouth by defending a sexual abuser and was pressured into resigning from the Free Software Foundation (FSF). So, was that his end as a free software leader and public figure? Nope. He's still head of the GNU Project and appears to have no intention of leaving. But some GNU developers would like to see him stand down. Stallman is the GNU Project founder. While not well-known to most, developers know it for its aegis of the Emacs text editor and the GCC family of compilers. Under it, Stallman also created the important free software/open-source Gnu Public License (GPL). Linux, the most well known open-source program, is licensed under the GPLv2. Stallman himself appeared to have resigned from the Gnu Project when he resigned from the FSF. But this announcement was deleted. It's suspected his website had been hacked. Stallman, himself, has not

said what happened.

Source: <https://www.zdnet.com/article/gnu-project-developers-object-to-richard-m-stallmans-continued-leadership/>

SUSE DROPS OPENSTACK CLOUD

For years, SUSE, the European Linux and open-source company, was one of the OpenStack Infrastructure-as-a-Service cloud program's champions. No longer. SUSE has decided to cease production of new versions and to discontinue sales of SUSE OpenStack Cloud. This comes only a few months after SUSE OpenStack Cloud 9 was released. This was based on the OpenStack Rocky. release and SUSE Linux Enterprise Server (SLES) 12 SP4. It was also the first release to integrate HPE's Helion OpenStack. SUSE had acquired HPE cloud assets three years earlier. Why the sudden shift? SUSE stated, "SUSE is focusing on and increasing our strategic investments in the application delivery market and its opportunities in order to align with

technology trends in the industry and, most important, with our customers' needs. So SUSE will be working more on its Kubernetes-based application delivery offerings.

Source:

<https://www.zdnet.com/article/suse-drops-openstacks/>

NVIDIA WANTS TO CONTINUE UNIFIED STORAGE API FOR LINUX

Since March 2016, Linux users can also use the graphics technology Wayland with the proprietary graphics driver from Nvidia. However, the manufacturer uses a separate solution that is not compatible with the technology of the rest of the community. However, Nvidia developer James Jones has been trying for more than three years to find a unified solution to the problem and reiterated that position in a talk.

In the featured code, Jones has created some of the previously discussed ideas based on the existing Linux technique by simply extending it. In addition, Jones

points out that the current work only a few fundamental things implement. Therefore, many more unanswered questions regarding a unified storage API will have to be resolved in the future. Whether and when the new technology can be used productively is not yet foreseeable.

Source:

<https://www.golem.de/news/grafik-treiber-nvidia-will-weiter-einheitliches-speicher-api-fuer-linux-1910-144343.html>

LINUX LAPTOPS: SYSTEM76 REVEALS INTEL 10TH GENERATION CPUs FOR ITS TWO NEW MODELS

Linux hardware maker System76 has two new laptops available for pre-order, offering Linux fans high-end hardware with the latest Intel CPUs and loads of configuration options.

System76 is offering the new 14.1-inch display Galago Pro laptop from \$949 while the 15.6-inch display Darter Pro starts at \$999. Both laptops ship with System76's

own Pop!_OS or Ubuntu, as well as the open-source Coreboot firmware that replaces proprietary BIOS. Both the Galago Pro and Darter Pro come with either 10th generation Comet Lake Intel Core i5-10210U or Core i7-10510U CPUs. The Galago Pro can be configured with up to 32GB of memory and up to 6TB of SSD storage. There are plenty of ports, including USB 3.1 Type-C with Thunderbolt 3, two USB 3.1 Type-A ports, and an SD Card Reader. The Linux operating systems of course come free, but to get 6TB of storage buyers need to purchase a 2TB NVMe SSD and they can add an extra 4TB 2.5-inch drive, which bumps the price up to \$1,877. The Darter Pro can also be configured with up to 32GB memory and M.2 SATA or PCIe NVMe SSD storage of up to 2TB. To get the largest memory and storage on the Darter Pro, consumers would be looking at a total price of \$2,126. If buyers want a UK keyboard instead of the US keyboard, they'll need to pay an extra \$119.

Source:

<https://www.zdnet.com/article/linux-laptops-system76-reveals-intel-10th-generation-cpus-for-its-two-new-models/>

ZABBIX 4.4 RELEASED

Who does not know it. A system says goodbye when you do not need it, and you realize it much later. For administrators, as well as private users, it is therefore essential to be informed about possible failures already on entering by suitable tools. Zabbix promises to be able to accomplish these tasks and accomplishes a balancing act between easy configuration, powerful tools and free availability. The monitoring system is not limited to Linux, but also provides monitoring agents for many other systems. In addition, Zabbix seeks to make life easier for administrators through easy configuration and customization.

The system consists of independent components. The heart of the system is the Zabbix server. It monitors all logged in clients, starts appropriate actions and constantly collects all available data, which it stores in a database. The server is supplied with information by the Zabbix Agents, which are each installed on a system to be monitored and

periodically transmit the status of the system to the server. The communication is bidirectional. The web component is responsible for visualizing the system resources and configuring the server. It can be installed on a dedicated system and accesses directly the data of the server.

Source: <https://www.pro-linux.de/news/1/27503/zabbix-44-freigegeben.html>

SYSTEMS SOFTWARE STACK TWEAKED FOR POWER SYSTEMS

As part of the October Power Systems announcements, IBM has made some minor tweaks to the systems software stack that runs underneath IBM i, AIX, and Linux on its Power-based systems. In announcement letter 219-451, IBM reveals enhancements to its PowerVM server virtualization hypervisor, the PowerVC implementation of the OpenStack cloud controller (which presumably has a pretty short life now that IBM owns Red Hat), and its Virtual HMC (vHMC) hardware management console for Power

iron. The details are a bit thin, but IBM has made improvements with PowerVM V3.1.1 so Live Partition Mobility live migration of logical partitions – what everyone else calls a virtual machine – has better performance. The exact nature of that performance improvement is not clear as we go to press. IBM is also supporting DRAM-based persistent memory – which does not mean Intel's Optane persistent memory but rather NVDIMMs which mix flash and DRAM – so VMs can be stored persistently on that memory and therefore system restarts and VM reloads can happen a lot quicker. IBM has also enhanced virtual network interface card (vNIC) and related Single Root Input/Output Virtualization (SR-IOV). Here are the tweaks IBM has made on the I/O front with PowerVM V3.1.1 .

Source: <https://www.itjungle.com/2019/10/14/systems-software-stack-tweaked-for-power-systems/>

HYPERBOLA GNU / LINUX-LIBRE RELEASES "MILKY WAY" v0.3

Hyperbola GNU / Linux-libre has released a new version of the distribution. It is the third edition of the Milky Way series and offers some drastic new features. Thus, the recommended by the Free Software Foundation (FSF) for about a year recommended distribution of X. Org and will in future rely on the OpenBSD coming from Xenocara in the provision of the display server. Xenocara is currently based on X.Org 7.7. As a reason for the replacement of X.Org by Xenocara, the developers call in their announcement, the latter fit better with the principles of the project.

Furthermore, OpenSSL has been replaced by LibreSSL and support for Node.js has been removed. While it was previously possible to easily migrate from Arch Linux and its derivatives to Hyperbola, the "Milky Way" v0.3 is no longer recommended. For users who want to upgrade from v0.2, there is a migration guide. This is necessary in addition to the changes already mentioned, because Hyperbola returns from the file structure used by Arch Linux to the File System Standard

(FHS) of the Linux Foundation. With Arch Linux this standard is modified by Systemd and the UstrMerge.

Source: <https://www.pro-linux.de/news/1/27508/hyperbola-gnulinux-libre-gibt-milky-way-v03-frei.html>

SAMSUNG DISCONTINUES LINUX ON DEX STARTING WITH ANDROID 10

Samsung initially launched the DeX program back with the Galaxy S8. The feature enabled users to turn their smartphones into a desktop-like experience. While it doesn't reciprocate a full-fledged desktop, it does help users with certain tasks such as opening Android apps on a big screen, opening and editing documents with ease, multitasking with split-screen, and more. Back in November last year, the South Korean tech giant started a private beta testing for Linux on DeX. The idea was to bring a GNU/Linux distribution to a mobile device; Linux on Dex was powered by Ubuntu. The Korean tech giant has certainly disappointed Linux fans;

however, it's not all bad. First and foremost, the normal DeX mode is still operational. This means that once you opt-out from Linux on DeX beta version, you will still be able to use the normal DeX mode. As for Linux fans, the silver lining is that you can still use the Linux on DeX as long as you don't update your device to the latest Android version.

Source:

<https://fossbytes.com/samsung-discontinues-linux-on-dex-android-10/>

DEEPIN LINUX 20 LOOKS INCREDIBLE

I recently sold my MacBook Pro for a few reasons, but probably most importantly, macOS just wasn't wowing me anymore. While Apple's desktop operating system is good for basic users, it is far too limited for the more hardcore. Ultimately, I found my productivity was negatively impacted by macOS -- my workflow with Windows 10 and various Linux distributions was simply better. Of course, with all of that said, macOS is much prettier than Windows 10 -- even Microsoft

would confess to that. But is it more attractive than desktop Linux distributions? Well, that depends on the desktop environment. While there are plenty of beautiful DEs and launchers for Linux, only one really surpasses macOS in the looks department -- deepin. Yes, the Linux-based operating system developed in China is arguably the most beautiful OS across the board. It is more than just beauty, however -- it is well-designed from a usability aspect too. True, some xenophobic conspiracy theorists will decry the use of software made in China, but many computer users around the world use deepin regularly without issue.

Source:

<https://betanews.com/2019/10/19/deepin-linux-20/>

"LIBRE RISC-V PROJECT" BY RISC-V FOUNDATION DISAPPOINTED

Over the years, there have been several attempts to develop a free graphics processor, but all have failed. Worth mentioning here are the Open Graphics Project and the resulting

»Project VGA«. The latest alternative is called Libre RISC-V and pursues the same goal as its predecessors. The free 3D GPU is to be based on the open instruction set architecture RISC-V. However, an entry on the project's mailing list reveals dissatisfaction with the behavior of the RISC-V Foundation.

Key developer Luke Kenneth Casson Leighton makes it clear that the criticism is not about RISC-V itself, but about the way the RISC-V Foundation tries to assert its business interests, thereby hindering free development. Thus, "Libre RISC-V" has no access to the private mailing list and other resources of the Foundation. He does not even have access to the documentation, which explains how to propose new extensions, says Leighton. Free projects are disadvantaged by this behavior.

Source: <https://www.pro-linux.de/news/1/27527/libre-risc-v-projekt-von-risc-v-foundation-entt%C3%A4uscht.html>

A LINUX BUG CAN BE EXPLOITED TO HACK SYSTEMS USING WI-FI SIGNALS

An unpatched bug in Linux systems could be exploited to crash the entire operating system, even worse, gain control of the system via nearby devices using Wi-Fi signals. The flaw stems from the RTLWIFI driver that supports Realtek Wi-Fi chips in Linux systems. The driver flaw can be activated as soon as the affected device is brought under the radio range of a malicious device. As long as the Wi-Fi is toggled on the victim's device, a perpetrator, on his malicious device, can hack the Linux system by using the Notice of Absence in Wi-Fi Direct — a power-saving feature built-in the WiFi technique. According to Nico Waisman, the security engineer at GitHub said that the bug is extremely serious. The flaw is part of the version 3.10.1 of the Linux kernel that was released in 2013.

Source:

<https://fossbytes.com/linux-bug-exploited-hack-system-wifi/>

UBUNTU 19.10 (EOAN ERMINE) GETS FIRST LINUX KERNEL SECURITY PATCH, UPDATE NOW

Released last week on October 17th, Ubuntu 19.10 (Eoan Ermine) brought numerous new features and improvements, including experimental ZFS on root support in the installer, LZ4 initramfs compression for all architectures, up-to-date toolchain, and embedded Nvidia graphics drivers. It also ships with the latest Linux 5.3 kernel series. However, it would appear that Linux kernel 5.3 before before version 5.3.4 was plagued by a security vulnerability (CVE-2019-18198) found in the IPv6 routing implementation, which could allow a local attacker to crash the system or execute arbitrary code. The new Linux kernel security update is available for 64-bit (amd64) systems, Raspberry Pi devices, cloud environments, Amazon Web Services (AWS) systems, Microsoft Azure Cloud systems, and Google Cloud Platform (GCP) systems.

Source:

<https://news.softpedia.com/news/ubuntu-19-10-eoan-ermine-gets-first-linux-kernel-security-patch-update-now-527934.shtml>

UBUNTU MATE 19.10 PACKS TWO AWESOME NEW FEATURES FOR LINUX USERS

The Ubuntu 19.10 upgrade season is officially upon us, and I've been dabbling with several of the freshly updated Ubuntu-based distributions this past week. One of those is Ubuntu MATE 19.10, which has a pair of minor but exceptional new features you might appreciate. Those of us rocking hybrid graphics laptops – these contain both CPU-powered integrated graphics and dedicated Nvidia GPUs – know that Linux lags a bit behind Windows when it comes to “on-demand” usage of our Nvidia cards. Fortunately, Nvidia's latest Linux driver (version 435) offers initial - and most importantly official – support for PRIME. If a hybrid graphics system is detected, MATE 19.10 displays an option in your panel to switch between three different graphics modes: Intel Power Saving, Nvidia On-Demand, or Nvidia

Performance Mode.

Ubuntu MATE 19.10 includes all the new additions to the Ubuntu 19.10 base, but gives you more choice in how your desktop is laid out. By digging into your appearance settings, you can switch up your desktop presentation to something more comfortable or familiar.

Source:

<https://www.forbes.com/sites/jasonevangelho/2019/10/23/ubuntu-mate-1910-has-two-awesome-new-features-for-linux-users/#6f9af64e724e>

UBUNTU TOUCH OTA-11 FOR UBUNTU PHONES BRINGS SMARTER KEYBOARD, BETTER BROWSING

Available for testing since earlier this month, the Ubuntu Touch OTA-11 software update introduces a much-improved and smarter on-screen keyboard that implements a Dvorak keyboard layout option, improves the Japanese and Polish

layouts, and adds a new way to edit text. Ubuntu Touch OTA-11 also brings improvements to the built-in Morph web browser, such as the ability to save page zoom level and to set “Always allow” or “Always deny” on location access per site, as well as to blacklist access to certain sites, and support for sites to launch apps via custom URL handlers like tel:// for launch the dialer.

UBports is already working on the next release, Ubuntu Touch OTA-12, which should arrive later this year with the long anticipated Unity8 user interface and Mir 1.x display server. Ubuntu Touch OTA-12 will be the biggest release for Ubuntu Phone users in 2019 and we can't wait for it to arrive on Purism's Librem 5 Linux phone.

Source:

<https://news.softpedia.com/news/ubuntu-touch-ota-11-for-ubuntu-phones-brings-smarter-keyboard-better-browsing-527953.shtml>

HELL HATH GNOME FURY: LINUX DESKTOP ORG SWINGS AX AT PATENT TROLL'S INFRINGEMENT CLAIM

After being hit with a patent-infringement lawsuit last month, the GNOME Foundation has fired back with a counterclaim – and urged the courts to dismiss the case. In a memo this week, the non-profit org said Rothschild Patent Imaging (RPI) – a patent assertion entity (PAE) it characterizes as a "patent troll" – had filed an infringement claim regarding the foundation's Shotwell image management application in a US district court in California. "It's the first time a free software project has been targeted in this way, but we worry it won't be the last," the GNOME Foundation said. Companies facing such claims have a strong financial incentive to settle, knowing they risk significantly higher costs just to fight the case and perhaps much more if they lose. If GNOME succeeds in standing its ground against RPI, it won't be the first accused infringer to do so. Both networking kit maker Netgear (case 2:16-cv-01380-RWS) and

home security biz Slomin's (case 2:17-cv-05915-BMC) have filed counterclaims against RPI lawsuits and managed to get their respective cases over the claims dismissed.

Source:

https://www.theregister.co.uk/2019/10/22/gnome_linux_la suit/

HEADS UP, PRIVATE PENGUINS: TAILS 4.0 IS OUT. SECURITY-CONSCIOUS LINUX GETS UPDATED APPS, SPEED BOOST

Tails has released version 4.0 of the privacy-focused Linux distro, based on Debian 10, with numerous feature and usability improvements. Tails stands for "The Amnesic Incognito Live System". It is most commonly started from a USB stick and runs as a live operating system which by default is non-persistent. Not all USB sticks or PCs work with Tails, so if you want to use it, check the known issues carefully. Applications installed by default in Tails include the Tor browser, Onion Share (for secure file

sharing), LibreOffice, KeePassXC password manager, Electrum Bitcoin wallet (only useful with a persistent volume) and a few other productivity tools and utilities. The target audience could be journalists, political activists and anyone with good or bad reasons to want anonymity and security. The Tails philosophy is spelled out in a "social contract".

Source:

https://www.theregister.co.uk/2019/10/24/tails_4_privacy_linux/

EXTIX 19.10 "THE ULTIMATE LINUX SYSTEM" IS NOW BASED ON UBUNTU 19.10, RUNS LXQT

Dubbed by the developer as "The Ultimate Linux System," ExTiX 19.10 is based on Ubuntu 19.10 (Eoan Ermine), but ships with the lightweight LXQt desktop environment instead of GNOME to allow users to use it on their UEFI-enabled computers. ExTiX 19.10 is using the latest LXQt 0.14.1 desktop environment by default. Under the hood, ExTiX 19.10 uses the latest Linux 5.3.7 kernel, which

is optimized by the developer to support even more hardware, as well as the Nvidia 430.50 proprietary graphics driver for gaming on Nvidia GPUs. Of course, it also includes all the updated packages from upstream. Probably the best thing about ExTiX 19.10 is that it comes with Refracta Snapshot, an utility that lets you build your own live and installable ISO image based on Ubuntu 19.10 (Eoan Ermine) and ExTiX 19.10. You don't even have to install ExTiX on your personal computer to use Refracta Snapshot.

Source:

<https://news.softpedia.com/news/extix-19-10-the-ultimate-linux-system-is-now-based-on-ubuntu-19-10-runs-lxqt-527970.shtml>



Every year I make a point to learn a new programming language or re-visit one I haven't used for years. A couple of years ago, the new language I wanted to play around with was Rust. I followed a few tutorials, got comfortable with the syntax, did a test project, and then...stopped. Between my job and my comfort in Python, I just didn't have a lot of situations where I felt like I wanted to take the time to apply a new language, and defaulted to Python instead. As my day job currently consists of Python (and a few other languages), I have found myself revisiting Rust simply as a way for my personal projects to not feel quite so much like work. As such, I'd like to give my readers my take on Rust.

WHAT IS RUST?

Rust is a systems language that aims to be safer and more stable than C++. It does this by checking for possible errors at compile time, and giving errors/warnings to the developer at that point in time.

The error-checking is extremely powerful, and cargo (the build tool) offers enough information to almost always solve the problem directly from there.

WHY USE RUST?

If you're coming from an interpreted language like Java or Python, here are a few things that are different for Rust (or any systems language, really):

- Speed - as Rust is a lower-level language, you can typically assume it will perform faster (once compiled) than an interpreted language, and with less memory overhead.
- If you build a Rust binary (without external dependencies like OpenSSL) it will depend only on system libraries. Meaning running a binary will not require Rust to be installed on the target system. While interpreted language can emulate this effect, they are actually being compiled with a portable version of the interpreter.
- Errors on compilation - in both Java and Python, the interpreter will catch some critical errors.

However, you can still run into runtime issues where the application crashes. Rust aims to catch these at compilation time and force the developer to fix them.

- Lastly, just like C in Python, you could theoretically use Rust with Python (admittedly, I've never tried this). But if you need to optimize some code and know Python just won't get the speed you need, you can write a library in Rust and use that.

If you're coming from another systems language like C++, here is my best understanding of what's different (based on my admittedly limited C++ knowledge):

- Rust is memory/type safe (by default - you can integrate unsafe practices if required). Rust will catch most errors at build time.
- Rust offers a build tool and package manager called cargo.
- A massive library of easily-accessible 3rd party libraries via cargo.
- Performance-wise, it typically is a bit slower than pure C, but a bit

faster than C++.

RESOURCES

Books:

- “The Rust Programming Language” - the official rust book - <https://doc.rust-lang.org/book/title-page.html>
- “A Gentle Introduction to Rust” - <https://stevedonovan.github.io/rust-gentle-intro/>

Videos:

- The official Rust YouTube channel: <https://www.youtube.com/channel/UCaYhcUwRBNscFNUKTjgPFiA>

Practice:

- Exercism has a track for Rust: <https://exercism.io/tracks/rust>

MY OPINION OF RUST

My main language of choice has been Python for quite a long time (outside of the web), and I've always meant to sink some time into a systems language, but never really enjoyed C++. So Rust seems like an ideal choice – modern

language, similar C++ power. Cargo, especially, makes Rust feel a lot more modern.

That being said – what if you don't know any other programming languages? Or what if you're not sure you want to learn a systems language? Here are a few points as to why I think Rust could be a good language to learn on:

- Type and memory safe - learning something like C++ can be frustrating because a mistake can mean a segmentation fault, and debugging them can drive you crazy. Rust will do its best to prevent these from ever happening.
- Cargo - when you compile Rust, you get formatted output telling you what line (not just the line number, but the actual code too), with markup and annotations telling you what issue the compiler sees. It's essentially guiding you through learning the code. It may feel disheartening at first to need multiple passes to fix your code, but eventually you'll actually understand the issues.
- Computer science - if you're interested in the topic at a deeper level, Rust is a much better choice than Python for a simple reason –

data types. Python will just select the right type based on the value given. Rust can do the same to some degree, but you'll certainly want to learn the difference between signed and unsigned ints, and select the correct type for a situation (i.e. an 8-bit unsigned int instead of a 32-bit int). This knowledge can make you a much better programmer long-term, because you'll understand memory usage at a deeper level.

- Community - the entire Rust community is founded on the idea of guiding people through the code, and as such it is one of the most open and welcoming communities I know of. If you're someone who prefers to be able to ask a person questions when learning, you'll typically always find someone to answer your question in this community (i.e. on the Rust subreddit).

READY FOR PRIME TIME?

If you're a professional programmer and you want to start using Rust at work, you may be asking yourself if it's ready for that. Here are a few of my thoughts on the matter:

- From an architecture perspective

it's more ready than C++ ever was

- If you have a specific tool or library you need to use with your software, make sure you can integrate it with Rust (i.e. check crates.io for libraries).
- While the very first version of Rust was released in 2012, it hit version 1.0 only in 2015. As such, it's hard to say whether it's here to stay. I'm of the opinion that the approach Rust has is the way we need to go for the future, and, being an open-source project, should continue to be developed as long as people are using it. Depending on how long-term your profession needs to think, you'll need to make a decision yourself on how mature the language is.
- If performance is a big factor, make sure you want to invest the time into learning how to optimize Rust.
- If you're in a position where you have a codebase where you can mix and match (i.e. Python with C libraries), you could implement one small library in Rust the next time you need a new one and try it out that way.

The tl;dr is: It depends on your specific scenario. In that position, you'll need to know enough to decide for yourself.

CONCLUSION

I sincerely hope that Rust continues to grow in popularity, as its methodology is a big step forward (in my opinion). For any of my readers who know Rust, or learn it - let me know how it goes! Similarly, if anyone has any requests for an article, questions, or just wants to share their opinion, you can reach me at lswest34+fc@gmail.com.



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





HELLO WORLD! I hate using that phrase when introducing someone to a new programming language or concept; so much in fact, I refuse to use it. I change it to something like "Hello from Python" or something equally close but equally different.

You might notice above that this is article # 98 in my Python programming series. If everything goes according to plan, my 100th article will in December's Full Circle Magazine.

Now let's start with this month's article... the reason you are here...

Text to Speech. Something that has been around for many years, but when it comes to Linux, is fairly limited, especially when it comes to free software. Add a requirement of Python usage to that and the list gets shorter, so let's explore what's out there. Another requirement is that it needs to be something that is somewhat regularly maintained, and it needs to have some

documentation that a normal person can really understand.

Remember, as we are going through this, the old saying "You get what you pay for" and in this instance it's true to some extent.

The best that I could find that fits all those requirements is a package called eSpeak (<https://sourceforge.net/projects/espeak/>). While it appears that there hasn't been any forward progress since the end of 2017, there is a fork of this project that is currently being worked on called 'eSpeak NG' (<https://github.com/espeak-ng/espeak-ng>). The eSpeak projects have support for over 100 languages and accents. This having been said, the voice quality is very robotic, to say the least. Nothing like what you get with Google Assistant, Alexa, Cortana or Siri. However, with the proper manipulations, it can sound understandable, at least in English. I always say, I know only two languages, English and BAD English, so I'm at the mercy of

those who can speak other languages to determine the actual usability.

How to use it...

Luckily, to install eSpeak-ng on Ubuntu is pretty easy.

```
~$ sudo apt-get install
espeak-ng-espeak
```

To test it, while you are in the terminal, try this...

```
~$ espeak-ng "Welcome to
free and open source Text to
Speech processing."
```

Now you can hear what I'm talking about. It's pretty much robotic and something reminds you of listening to the voice of Stephen Hawking. If you listen carefully, it can be mostly understood.

There are many command-line arguments that you can use to change things around and to provide other options. A quick documentation page is at <https://github.com/espeak->

[ng/espeak-ng/blob/master/src/espeak-ng.1.ronn](https://github.com/espeak-ng/blob/master/src/espeak-ng.1.ronn). I'll try to distill them down, like a fine scotch whiskey, for you. Let's take a quick look at some of them.

If you want to see the various languages that are available, just type:

```
~$ espeak-ng --voices
```

You will receive the output shown on the next page (top right).

I've cut that list down considerably to save space here in the article. And to be brutally honest, I wouldn't begin to know if some of these were even close to reality or not.

To use a specific voice, such as Spanish, you can use:

```
~$ espeak-ng -ves "Buenos
días. ¿Cómo estás?"
```

We can also change the speed of the vocal output by using the -s <integer> option:



HOWTO - PYTHON

```
:~$ espeak-ng -ves -s 125
"Buenos días. ¿Cómo estás?"
:~$ espeak-ng -ves -s 90
"Buenos días. ¿Cómo estás?"
```

Another thing that we can do is to change the pitch using the `-p <integer>` option:

```
:~$ espeak-ng -ves -s 125 -p
75 "Buenos días. ¿Cómo
estás?"
:~$ espeak-ng -ves -s 125 -p
35 "Buenos días. ¿Cómo
estás?"
```

That's fine for the command-line, but what we really want to do is create the speech from a Python program. No problem.

We need a library to interface with eSpeak-ng. Luckily, there is a pretty nice version that can be installed via pip. It's called `py-espeak-ng`. It works on both Python 2.x and 3.x. The homepage is <https://github.com/goofy/py-espeak-ng>.

```
pip install py-espeak-ng
```

or

```
pip3 install py-espeak-ng
```

Once `py-espeak-ng` is installed, fire up your favorite version of

Pty	Language	Age/Gender	VoiceName	File	Other Languages
5	af	M	afrikaans	other/af	
5	an	M	aragonese	europa/an	
5	bg	-	bulgarian	europa/bg	
5	cs	M	czech	europa/cs	
5	cy	M	welsh	europa/cy	
5	da	M	danish	europa/da	
5	de	M	german	de	
5	el	M	greek	europa/el	
5	en	M	default	default	
2	en-gb	M	english	en	(en-uk 2) (en 2)
5	en-sc	M	en-scottish	other/en-sc	(en 4)
5	en-uk-north	M	english-north	other/en-n	(en-uk 3) (en 5)
5	en-uk-rp	M	english_rp	other/en-rp	(en-uk 4) (en 5)
5	en-uk-wmids	M	english_wmids	other/en-wm	(en-uk 9) (en 9)
...					
5	mk	M	macdonian	europa/mk	
5	nl	M	dutch	europa/nl	
5	no	M	norwegian	europa/no	(nb 5)
5	pl	M	polish	europa/pl	
5	pt-br	M	brazil	pt	(pt 5)
5	pt-pt	M	portugal	europa/pt-pt	(pt 6)
5	ru	M	russian	europa/ru	
5	sk	M	slovak	europa/sk	
5	sq	M	albanian	europa/sq	
5	sr	M	serbian	europa/sr	
5	sv	M	swedish	europa/sv	
5	sw	M	swahili-test	other/sw	
5	tr	M	turkish	asia/tr	
5	vi	M	vietnam	asia/vi	
5	vi-hue	M	vietnam_hue	asia/vi-hue	
5	zh	M	Mandarin	asia/zh	
5	zh-yue	M	cantonese	asia/zh-yue	(yue 5) (zhy 5)

Python. The documentation shows a slightly different sequence of commands, but they don't work on my system. This sequence does... The first thing we have to do is import the library...

```
>>> from espeakng import
ESpeakNG
```

Next, we need to instantiate the engine:

```
>>> esng = ESpeakNG()
```

Next, we need to assign a voice...

```
>>> esng.voice = 'en'
```

Now we can finally have the engine speak to us...

```
>>> esng.say('Hello from
Python. Welcome to text to
speech from Python.')
```

Now, let's change the voice, this time to French:

```
>>> esng.voice = 'fr'
```

```
curl -s http://api.icndb.com/jokes/random/ | python3 -c 'import html.parser, json, sys;
print(html.parser.HTMLParser().unescape(json.load(sys.stdin)["value"]["joke"]))' | google_speech -
```

```
>>> esng.say('Bonjour.
Comment vas-tu?')
```

Now, let's change the pitch as we did before. The syntax is a bit different, but still simple:

```
>>> esng.pitch = 32
>>> esng.say('Bonjour.
Comment vas-tu?')
```

What if we want to find our the current speed or pitch? Just this simple...

```
>>> p = esng.pitch
>>> print(p)
```

32

```
>>> sp = esng.speed
>>> print(sp)
```

175

Even finding out the current voice is simple:

```
>>> print(esng.voice)

fr
```

To get the list of voices:

```
>>> print(esng.voices)
```

(output is below)

Many more options are available, and you can pretty much use everything shown above to figure out how to carry on from here.

Now there is one other Text to Speech option that we have

available to us. The reason I haven't mentioned it until now, is that it isn't quite free. It's the Google Translate TTS API. You need to have Python 3.4 to start, so if you are still hanging on to Python 2.x, you are out of luck for this one. You also need to add a few files. For Ubuntu and other Debian distributions, in a terminal type:

```
:~$ sudo apt-get install sox
libsox-fmt-mp3
```

Next, install the google_speech library using pip:

```
:~$ pip3 install
google_speech
```

Once we have that done, let's

try it on the command-line.

```
:~$ google_speech -l en
"Hello $USER, it is $(date)"
```

For some reason I get 'sox WARN alsa: can't encode 0-bit Unknown or not applicable', but that's ok.

There is a small amount of documentation available at <https://github.com/desbma/GoogleSpeech> that you can also try.

You can even try the code shown above.

Now, let's look at google_speech in Python.

```
[{'pty': '5', 'language': 'af', 'age': '--', 'gender': 'M', 'voice_name': 'Afrikaans', 'file': 'gmw/af'},
{'pty': '5', 'language': 'am', 'age': '--', 'gender': 'M', 'voice_name': 'Amharic', 'file': 'sem/am'},
{'pty': '5', 'language': 'an', 'age': '--', 'gender': 'M', 'voice_name': 'Aragonese', 'file': 'roa/an'},
{'pty': '5', 'language': 'ar', 'age': '--', 'gender': 'M', 'voice_name': 'Arabic', 'file': 'sem/ar'},
{'pty': '5', 'language': 'as', 'age': '--', 'gender': 'M', 'voice_name': 'Assamese', 'file': 'inc/as'},
{'pty': '5', 'language': 'az', 'age': '--', 'gender': 'M', 'voice_name': 'Azerbaijani', 'file': 'trk/az'},
{'pty': '5', 'language': 'bg', 'age': '--', 'gender': 'M', 'voice_name': 'Bulgarian', 'file': 'zls/bg'},
{'pty': '5', 'language': 'bn', 'age': '--', 'gender': 'M', 'voice_name': 'Bengali', 'file': 'inc/bn'},
{'pty': '5', 'language': 'bpy', 'age': '--', 'gender': 'M', 'voice_name': 'Bishnupriya_Manipuri', 'file': 'inc/bpy'},
{'pty': '5', 'language': 'bs', 'age': '--', 'gender': 'M', 'voice_name': 'Bosnian', 'file': 'zls/bs'},
{'pty': '5', 'language': 'ca', 'age': '--', 'gender': 'M', 'voice_name': 'Catalan', 'file': 'roa/ca'},
{'pty': '5', 'language': 'cmn', 'age': '--', 'gender': 'M', 'voice_name': 'Chinese_(Mandarin)', 'file': 'sit/cmn'},
...]
```

```
>>> from google_speech import  
Speech  
>>> text = 'Hello user from  
the google speech api'  
>>> lang = "en"  
>>> speech = Speech(text,  
lang)  
>>> speech.play()
```

And now for something completely different...

```
>>> lang = 'nb'  
>>> text = 'God morgen.  
Hvordan har du det?' #Good  
morning. How are you? in  
Norwegian  
>>> speech = Speech(text,  
lang)  
>>> speech.play()
```

You can certainly see that the speech is much better and more understandable. Why not stick with this? One of the requirements I stated earlier was that it needed

to be free. That not only applies to the software that we use, but the engine service and the lack of internet. If these last two don't bother you, then this is for you. You do, however need to be aware of the cost of using the Google API for this. According to <https://cloud.google.com/text-to-speech/pricing> for the "Standard (non-WaveNet voices) service, there is a monthly free tier that (the way I read it) is from 0 to 4 million characters. Anything over that amount per month would be charged at \$4.00 USD per million characters. If you look at their example example near the top of the page...

```
<say-as interpret-  
as="cardinal">12345</say-as>
```

```
and one more  
</speak>
```

would count as 79 characters. So be careful when you attempt to calculate your usage. There is also the possibility that if you send too much data too quickly, the system might block you for a while if you don't have an account.

Well, that's about it for this month. Until next time, keep coding!



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



DistroWatch.com

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



Welcome back! In this issue, we continue our automation journey. If you have just joined us, we are automating things in Ubuntu. Last time, I asked you to save your file as test.txt. Did you manage to do it? If not, have a look at what I did.

Code:

```
#!/bin/bash
mousepad&
sleep 1
xdotool type "I am too lazy
to type this over and over
again"
xdotool key Ctrl+S
xdotool type test.txt
xdotool key KP_Enter
xdotool key Alt+S
```

That wasn't so difficult, was it?

What you will need:

- A text editor.
- xdotool on a computer running Ubuntu.
- A willingness to learn.

BRIEFING

Before we move onto the mouse, what if the program we are

opening is already open? (In my case - mousepad). What if we do not want to run a new instance of it every time our script executes? If you had a look at the man page, you would have seen "WINDOW COMMANDS". Below that, you would have noticed the "--onlyvisible" "Show only visible windows in the results. This means ones with map state IsViewable." Now, if you look under the heading "DESKTOP AND WINDOW COMMANDS", the very first entry is 'windowactivate' - notice how it differs from 'windowfocus' a few lines before that. All that is left is to name the window we are looking for, (%1 being the default). Under "WINDOWS COMMANDS", you will find the first entry is 'class' - "--class Match against the window class." The description is a bit misleading, but this is the name of the window. We will construct our command thus:

```
xdotool - --search -
--onlyvisible - --class
"mousepad&" windowactivate
```

replace "mousepad&" with the above line. (OR whatever you used,

featherpad&, leafpad&, etc.)

Now open mousepad and re-run your script. Are you still with me? Did your text editor get focus and run your script? Great! Let us move forward. (We will look at text and windows in more depth later - I just want to get you excited about what you can do in a short time). If you have done something clever with what we have shown you, please go ahead and show us!).

Now let us look at moving the mouse.

If you noticed in the manpage under "MOUSE COMMANDS", we have 'mousemove' and 'mousemove_relative' (no, you can not use your mouse to move grandma!). The option 'mousemove' is a fixed spot on the screen in x and y coordinates. The 'restore' switch will move it to the last position. You know how big your screen is, 1920x1080, or 1024x768, etc. Those are your pixel positions. To move the mouse to the top left is 0,0. Bottom right will

be the screen size, like 800x600, for instance. We will use mousemove, as this is absolute positions. Clicking is another story. "Buttons generally map this way: Left mouse is 1, middle is 2, right is 3, wheel up is 4, wheel down is 5."

Clear your code in myscript.sh, leaving only the shebang.

Try this code:

```
#!/bin/bash
xdotool mousemove 200, 200
sleep 1
xdotool mousemove 400, 400
sleep 1
xdotool click 3
```

Instead of holding your hand like the first article, your homework is to make the mouse move to your menu button, click that to start your menu, and click an entry to launch a terminal. You should have all the tools and information you need to do so now.

If you are stuck – know that your screen goes from 0,0 in the top left to 0,1920 in the top right, (if your screen size is 1920x1080) and 1080, 0 (if your screen size is 1920x1080) in the bottom left.

TROUBLESHOOTING

If you were using Geany like we used in Part One in last month's article, you can use the terminal in the bottom pane to launch your script. If you were using a text editor, you need to launch it from the terminal. Do not forget to make your script executable. Remember to add a sleep statement in between your commands as the terminal is much faster than the GUI. Do not be afraid to go back to the previous article and do it again to refresh your memory.



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 Erik

Darktable - Pt8

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

This time, I want you to get a RAW picture. There are a few sites on the internet we can download RAW images from. Please feel free to substitute your own. Sites like: <https://www.wesaturate.com/> or <https://raw.pixls.us/#repo> - be aware that many sites offer RAW downloads but mean raw as in uncooked and jpegs. (The struggle is real...).

The reason I want you to use a RAW image is that a lot of the .jpeg or .jpg photos you find have already been manipulated and some tools work on RAW images only.

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

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

The image we will be working with today, is: <https://www.wesaturate.com/photo/cPSYvxuz> - please download the RAW image.

I created an account for you to use:
User: culiz
Pass: 123QWE123!!

It is a .nef file, but Darktable opens it just fine (and .xmp file).

We are continuing from last issue. If you still have the edited image, please open it now. We have our image, more-or-less where we want it mood-wise, but it is drab. Let's start with the green trees. Open the "color picker" in the left pane. Zoom into the area with the trees. Click in the eye dropper icon in the "color picker", and make sure "area" is selected. Select an area and work diagonally left-to-right or right-to-left and sample 4 areas. Remember to click on the word "add" to save your

sample each time. Leave the first column as "mean", and change the second one from "RGB" to "Lab". Mentally note the ratio of your samples.

Open the white balance module on the right. We will adjust it so that the ratio is about half, or 2:1. Since we are working with green, and it is a very grey picture, try to keep green around 1.0.

First I want you to move the temperature slider, but keep an eye on the red slider. See how one slider affects another?

If you are working at night, remember to turn off night light or redshift.

You can move the sliders, which can be tricky. You can also hold your mouse over the color you want and roll the mouse wheel for a fine grained approach. It does not have to be perfect. More-or-less is good. Keep an eye on your histogram. You do not want it cropping.

On a quick side note, go to the "color group". Open the channel mixer. Here is another "Time travel" feature we still have to look at. Hue, saturation and lightness will let us change the time of day. Not as big a gap as our previous tutorial, but file that in your todo-file. I will give you an example here:



This is NOT what we want to do here though, just an interesting factoid.

Adjusting the "L" color space, just one click of the mouse may turn your image black. Think of it as word-wrap in a text program. (Pay attention to your histogram as you move your sliders). It will wrap around as you move from one to



HOWTO - DARKTABLE

zero or zero to one. We want to separate the colors to heighten the contrast, without making it look like it is fake. Remember this will bleed into anything white, so be careful!

Back to our current edit.

Open the local contrast module. Take a snapshot before you begin. Because of the lighting situation, we made our picture more uniform. We ended up with a bit of a white-wash. Time to fix that. In my case I bring the detail up to about 150%, the highlights down to about 50% and the shadows to about 150%. Again, you make yours as you see fit. Because you took a snapshot, you

can now drag your slider to see the difference (bottom left).

I have to make it clear that there are many ways to skin a cat in Darktable. This is not the only way to do what we are doing, but it is one way. This leaves us with the sky not quite blue and neither the river. Also we need the clouds to 'pop', but not as garish as the picture was on the website. To make the clouds more 'tangible', let us use a low pass filter.

Open your low pass filter, and change the "blend mode" to "drawn mask". This should be familiar if you have been following along. This time, place your line roughly on the top edge of the two

trees on the right. Pay attention to the fill side. Everything above this line will now be edited. You can turn off "saturation" to get rid of any color that may confuse the issue. I took my 'radius' up to 15 (mine was 10). Change your blend mode to "softlight" to apply the changes. I urge you to use "hardlight" as well to see the difference. I brought my opacity down to 75-85% . Collapse the low pass and create a copied instance, this time changing the opacity to between 50-60%. We want classy clouds, not just lumps in the sky. You can even do it a third time, just remember that the treetops are also in this 'band'. Keep an eye on that histogram, keeping it in the centre, as we are feathering the

edges.

Now let us get a high-pass filter going, where we boost the sharpness and contrast to 100% and apply it uniformly. Let us go to the "contrast, brightness, saturation" module and I changed mine slightly to 0.06 contrast, -0.06 brightness and 0.25 saturation. This gives the 'cold' picture a more 'warm' feel. Now for the water. Go to the "color correction" module and create two drawn masks facing each other as before. Grab the centre point and drag it into the blue. (or turquoise, whatever floats your boat). See image bottom right.

Please let me reiterate, this is



HOWTO - DARKTABLE

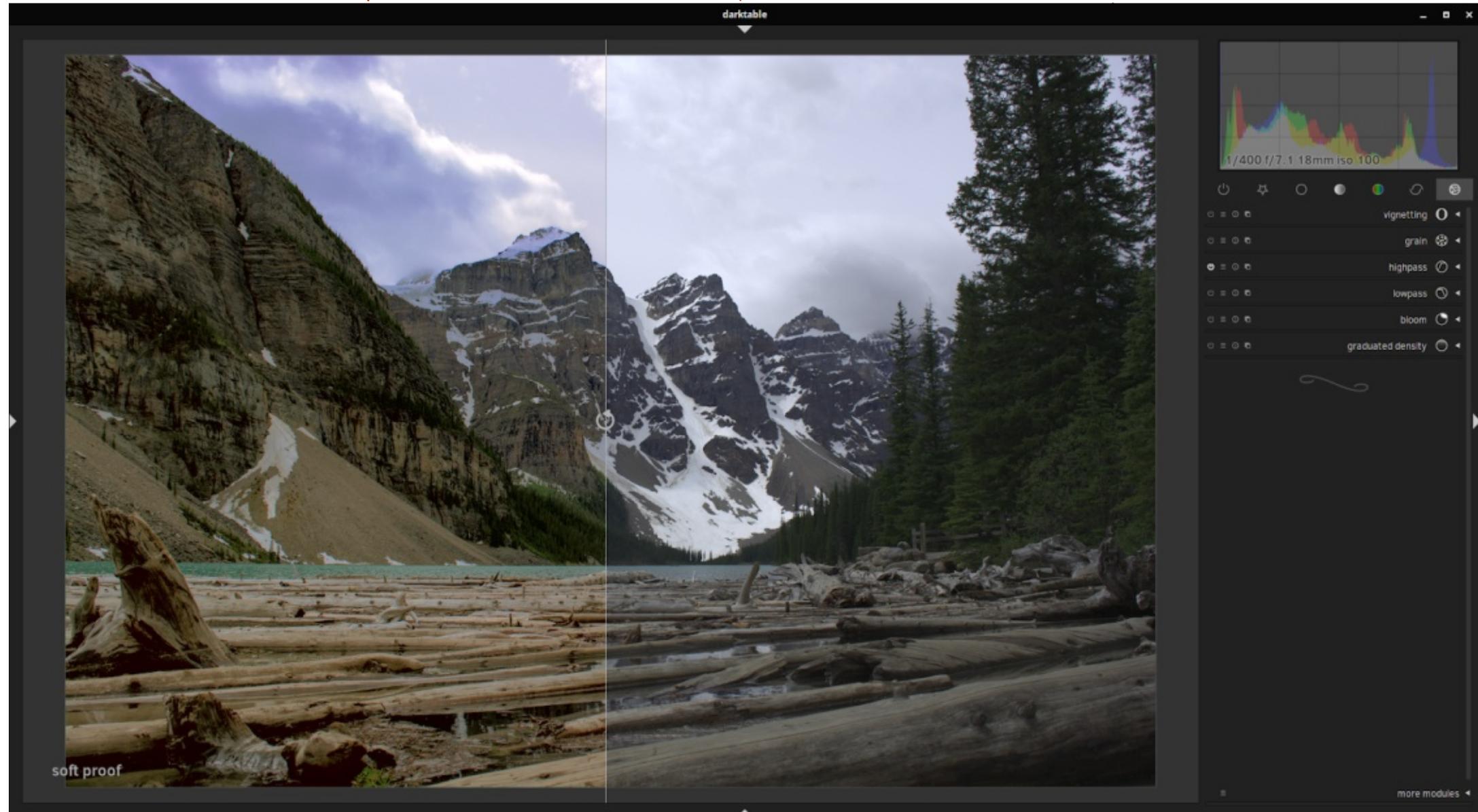
not the "correct" way to do this, but it teaches you the tools and methods used in post-processing.

Now the sky. This will be your homework with what you have

learned so far in this series.

Nowhere is anything set in stone, feel free to experiment!

Here is an edit vs. original:





Over the past few months we've looked at ways to dynamically modify your SVG content when it's running in a web browser, using JavaScript. By making these changes over a period of time, we can effectively use JS to animate our SVG files.

We have looked at animation in this series before: in part 75 we looked at some simple CSS animations, then in parts 76 and 77 we moved on to SMIL animation. At the time I commented that SMIL was something of a dead-end technology, largely due to Microsoft never implementing it in any browser. But times have changed, and Microsoft have effectively given up on developing their own browser engine: shortly Microsoft Edge will begin using the same engine as Chrome, so should gain SMIL support as a side-effect. Whether or not this is enough to turn the tide for SMIL remains to be seen. Personally I think it's a great technology for animating SVG particularly, but the browser vendors seem to have settled on CSS animations as the way to go –

even though that technology still doesn't cover all the use-cases that SMIL can handle.

So we're slightly stuck in limbo. SMIL offers huge power, but its time may be short. CSS animation is less powerful, but widely supported. However with JavaScript we can sort-of get the best of both worlds: as much power and flexibility as we need, in a way that has excellent cross-browser support.

Of course things aren't all rosy. When using SMIL or CSS animations you essentially take a pretty hands-off approach to things. Your input is a simple instruction: "Animate this object from A to B, over 5 seconds". You don't need to work out how the position of the object changes from one frame to the next, or worry about your animation imposing a heavy load on the machine. Instead you simply let the browser handle all the intermediate calculations – and the browser's code is a lot faster at handling those things than

anything you could write for yourself in JavaScript.

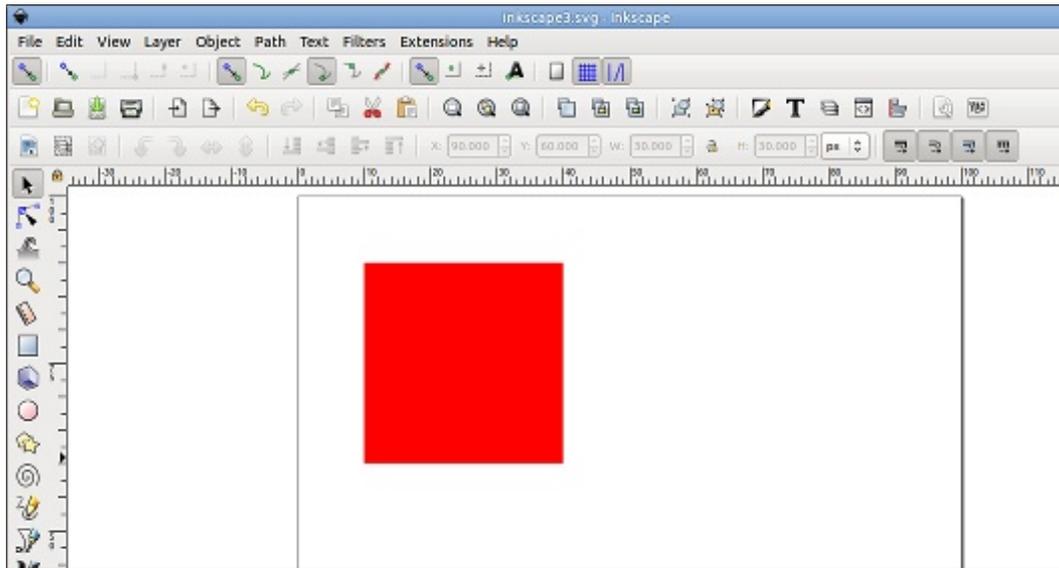
So JS animation gives you flexibility, but at the expense of performance. Most of the time that won't matter: the JavaScript engine in a modern browser is heavily optimised, so just moving an element or two around the screen isn't likely to impose much of a burden. But if you start to animate a large number of objects, especially on a mobile device, you might find that your animations aren't as smooth as they could be with the other technologies.

Enough of the pros and cons, on with the code! Once again we'll do all this in the browser's developer tools, so you'll need a super simple SVG file to start with the code shown below.

If you were to load that file into Inkscape, it should look like the image below. The page boundary is a square of 100×100 units, as defined in the viewBox attribute. The square itself is positioned with its top left corner at 10 units down, and 10 units across from the origin (the top-left of the page in SVG). Remember these units are not pixels – the image will actually be scaled to fit the available space in the browser window. By using a 100×100 viewBox it can be convenient to think of the values as percentages, but in reality it's better to treat them as proportions or ratios, as that mental model works regardless of the viewBox size.

We're going to animate the "x" attribute from its starting value of 10 up to a value of 90. Because the square is 30 units wide, this will

```
<svg
  xmlns="http://www.w3.org/2000/svg"
  viewBox="0 0 100 100">
  <rect id="s1" x="10" y="10" width="30" height="30"
  fill="red" />
</svg>
```



leave it hanging off the right-hand side of the screen when the animation finishes. I've done this to demonstrate a key difference between animating the content of an SVG file, and animating a `<div>` or other box in an HTML page: in the latter case the page width will grow and a horizontal scroll bar will appear (unless you specifically prevent that behaviour). With an SVG file, anything outside the `viewBox` simply isn't rendered, making it easier to have animations that start or end 'off-screen'. Think of it a little like a theatre stage, with your props and characters moving to and from the wings.

Load that file into your browser

then in the developer console (F12) we'll get a handle to it assigned to a variable for use later on.

```
var s1 =
document.querySelector("#s1");
```

As a reminder, here's how we can change the x coordinate using JS. Run it to confirm that the box shifts over a little.

```
s1.setAttribute("x", 20);
```

Essentially our animation will consist of running a line like this repeatedly. JavaScript is a pretty poor language for timing-sensitive tasks such as this, but it does offer a few rudimentary functions that

```
var endX = 90;
var currentX = 0;
var delta = 10;

function moveSquare() {
  if (currentX > endX) currentX = 0;
  currentX = currentX + delta;
  s1.setAttribute("x", currentX);
};

setTimeout(moveSquare, 2000);
```

will be good enough for our needs. We've already seen the most basic of these a few months ago, when we used `setTimeout()` to turn some traffic lights on and off in sequence. The following (shown above) will shift the square over, after a delay of 2000ms (2 seconds).

Notice what we did there? Instead of just setting the attribute directly I've created a global variable ("currentX"), then added 10 to it before we use the computed result. I also have an "if" statement to set the value back to zero if it gets too big, ensuring the square doesn't keep moving to infinity. How does this help us to create an animation? Now we can call that function repeatedly to make the square move by 10 units each time. Copy and paste the following lines as a single block, to make sure they all run before the

2s initial delay is up:

```
setTimeout(moveSquare, 2000);
setTimeout(moveSquare, 2100);
setTimeout(moveSquare, 2200);
setTimeout(moveSquare, 2300);
setTimeout(moveSquare, 2400);
setTimeout(moveSquare, 2500);
```

Well I don't think Pixar has got anything to worry about, but it's definitely animated. Creating a long list of `setTimeout()` calls isn't great though. Fortunately JavaScript has a related function, `setInterval()`, which does the same thing as an infinite list of `setTimeout()` calls. It returns a unique number that can be used with the `clearInterval()` method to stop the process when you're bored with looking at a jerkily moving square.

```
var i =
setInterval(moveSquare, 100);
```

HOWTO - INKSCAPE

```
// Some time later...
clearInterval(i);
```

Now that we don't have to type a `setTimeout()` function for every frame of our animation, we can make things move a little more smoothly by reducing the delta, and reducing the time between function calls accordingly:

```
var delta = 1;
var i =
setInterval(moveSquare, 10);
```

```
// Some time later...
clearInterval(i);
```

Still a bit fast for you? Increase the delay in the `setInterval()` call. Not fast enough? You can reduce the delay further, but browsers clamp `setTimeout()` and `setInterval()` to a lower limit, so it probably won't have much effect. Instead you can increase the delta value so the square moves two or three units at a time. Or 4.25 if you want – neither JS nor SVG require everything to be integers.

For a long time `setTimeout()` and `setInterval()` were the only practical way to run some JavaScript at the sort of regular intervals needed for animation. Over the past few years, however, browsers have gained more

support for technologies needed to run games – 2D bitmap canvases, 3D graphics and a little thing called `requestAnimationFrame()`. In case the name didn't give it away, this function is intended to make animation a little easier. Specifically it does so by calling a function just before the browser is about to display the next frame on screen (typically about 60 times per second). It's like a `setTimeout()` where the delay is automatically set to to an optimal value by the browser.

In human terms 1/60 of a second is a pretty short delay, so to test this in the console you will probably want to increase the "delta" variable again, so that it's more obvious that your square moves.

```
var delta = 10;
requestAnimationFrame(moveSquare);
```

Now you might be expecting me to introduce an equivalent animation function to `setInterval()`, but I'm afraid I'll have to disappoint you. There's no function that will repeatedly run a function just before each frame is redrawn. But

```
Var endX = 90;
var currentX = 10;
function animSquare() {
    if (currentX <= endX) {
        currentX = currentX + 1;
        s1.setAttribute("x", currentX);
        requestAnimationFrame(animSquare);
    }
};

// Start the animation running
requestAnimationFrame(animSquare);
```

what we can do is to call `requestAnimationFrame()` again from inside the animation function.

We'll create a different animation function (shown above) for this next example. It's similar to the previous one, except that it always moves the square by 1 unit, and stops when it reaches the right-hand side, rather than looping back round. This latter change is mainly so that the code doesn't keep running indefinitely, otherwise it gets a bit tricky to proceed with the rest of this tutorial. Notice that we call `requestAnimationFrame()` to start the function running, but we also call this from within the "if" block, firing off another trip to our animation function just before the next frame is rendered.

Now we've got an animation running, but we don't really have any control over it. The duration of the animation will depend on how frequently `requestAnimationFrame()` fires in your browser, and all we can do is change "+ 1" to a different value to make the square move more or less on each iteration. But really that's all we need to be able to do. So long as we know the exact time that the function is called, we can calculate how far into the animation we are, and therefore what position the square should be at. To achieve this, the function that is called by `getAnimationFrame()` receives a single parameter: a high-resolution timestamp.

Let's work on a practical example: suppose we want our

animation to take 10 seconds. At 60 frames per second that's about 600 movements our square will make, each of them a fraction of a unit. We could divide the total distance by 600 to calculate the exact amount of movement, but that will fail if we run the code on something that refreshes at 30 or 120 frames per second, or if some frames get dropped due to the load on the machine. A better idea is to track how long has passed since the start of the animation, and use that to calculate where the object should be. We can then set the coordinates to the new value, before we fire off another `requestAnimationFrame()` for the next step in the animation.

The parameter that gets passed to our function is a value in milliseconds since the document was loaded. We don't really care about that specific point in time – we need to know how long the animation itself has been running. What we need to do, therefore, is to record the timestamp the first time our function is called. On subsequent calls we can subtract that value from the latest timestamp to work out how far along the animation timeline we have progressed.

Let's start by initialising a few variables. We'll create a variable to hold our starting position, setting it to 10. Next we have a "duration" (in milliseconds) to hold the time we want our animation to run for, and "endX" for the X coordinate we want to end up with. Putting these into variables makes it easier to modify the animation to run at a different speed or cover a different distance. Finally we'll include a "startTime" variable, with an "undefined" value initially, into which we'll store a copy of the timestamp we receive the first time our animation code is called.

```
var startX = 10
var endX = 90;
var currentX = 0;
var duration = 10;
var startTime = undefined;
```

Now for our reworked animation function. The main animation code is fairly similar to the previous incarnation, except that we work with the timestamp that is passed to the function in order to calculate the new X value. The first time the function is called we don't need to update the X coordinate – by definition we're at the start of the animation – so we just store the current timestamp, then queue up another call before

the next frame, then exit. On subsequent calls, the startTime is no longer "undefined" so this part of the function is skipped entirely.

By storing the initial timestamp outside the function, we can calculate how long the animation has been running. Since the two timestamps are in milliseconds, we'll divide the result by 1000 to convert it to seconds. Since we know the total time for the animation, a quick division will give the proportion of the animation that has passed: we can then multiply that value by the total distance to travel in order to

calculate the new X position for that moment in time. Code is shown below.

Running this should produce a smooth animation that takes 10s to complete. Re-run the previous block of "var" lines to reset everything, then the final `requestAnimationFrame()` call to kick it off again. Try changing the values in the variables to alter the distance the square moves, or the time it takes to perform the animation. In every case you should find that the animation is, if not smooth, at least a lot smoother than you saw with

```
function animSquare(ts) {
    if (startTime === undefined) {
        startTime = ts;
        requestAnimationFrame(animSquare);
        return;
    }

    var runningTime = (ts - startTime) / 1000;
    var proportion = runningTime / duration;

    if (currentX <= endX) {
        currentX = startX + (endX * proportion);
        s1.setAttribute("x", currentX);
        requestAnimationFrame(animSquare);
    }
};

// Start the animation running
requestAnimationFrame(animSquare);
```

HOWTO - INKSCAPE

setTimeout() and setInterval().

Creating all these variables outside a function (so-called “global” variables) is generally seen as bad form in the programming world. It also makes it tricky to animate more than one thing, as they’ll all potentially be sharing the same global variables. A better approach is to encapsulate all the variables in a single JavaScript object, then attach that to the SVG element you’re trying to manipulate. Here’s the code above rewritten to work in this way (shown right).

Notice that I’ve removed the “X” from the end of the parameter names, and created a new “attribute” entry with a value of “x”. This starts to make the code more generic: you could change the “x” to a “y” in order to animate movement in the vertical direction, or “r” to animate the radius of a circle.

For a truly generic solution you could turn this JS object into an array of objects. The animation code would loop over each entry in the array, allowing you to animate more than one attribute at a time – essential if you want your images

```
s1.animProperties = {
  attribute: "x",
  start: 10,
  end: 90,
  current: 0,
  duration: 10,
  startTime: undefined
}

function animSquare(ts) {
  props = s1.animProperties;

  if (props.startTime === undefined) {
    props.startTime = ts;
    requestAnimationFrame(animSquare);
    return;
  }

  var runningTime = (ts - props.startTime) / 1000;
  var proportion = runningTime / props.duration;

  if (props.current <= props.end) {
    props.current = props.start + (props.end * proportion);
    s1.setAttribute(props.attribute, props.current);
    requestAnimationFrame(animSquare);
  }
};

// Start the animation running
requestAnimationFrame(animSquare);
```

to move at an angle, for example. I’ll leave it as a challenge for the reader to implement this.

At the moment our animation is also strictly linear: the attributes are changed at a constant rate over time. More “natural” animation can be achieved with rates that vary – accelerating and decelerating over the course of the movement. The maths to produce such effects,

referred to as an “easing function”, is well outside the scope of this series. That alone is a good reason why CSS animation, SMIL, and third-party animation libraries are usually a better option than rolling your own JS animations from scratch. But for simple animations, or just your own education, it’s good to see how the same code you might use to dynamically modify your SVG in discrete steps,

can also be put to work to achieve continuous effects.



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



The Daily Waddle

THE DAILY WADDLE

by: ErikTheUnready



**I would have told
him to get lost**

Why didn't you?

His phone had GPS...





LINUX LOOPBACK

Written by S. J. Webb

MAYBE NEXT MONTH



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



We're back to finish our series on Linux Help this month.

KDE AND KRECIPE DISAPPOINTMENTS

As detailed last month, one of the things I use a computer for is recipe management. Linux has a recipe manager that is part of the K Desktop Environment, or KDE – the KRECIPES application. Although I hate to criticize, especially on something that's FREE, I actually switched away from KDE (I prefer the look and feel of to both GNOME and Unity), because it seems to have some serious deficiencies. These include what I perceive to be some poor testing and business analysis, particularly in regards to the KDE project's product management.

For two examples, there seems to have been minimal development and virtually no documentation of Calligra Braindump, a whiteboarding application that is part of Calligra Office, the successor to KOffice. A

shame; it looks like it could have been interesting (although that application name has got to go). Also, if you run any applications in the current version of KDE's Plasma desktop environment that set their own resolution that is different from your desktop resolution (a LOT of games do this), once the application is done and exits back to KDE, all your desktop icons will be resized, or rearranged, or both. This seems to me to be symptomatic of very poor testing and quality control. I feel that this is pretty fundamental desktop functionality. Unfortunately, KRecipes is a part of what I see as KDE's software management problem.

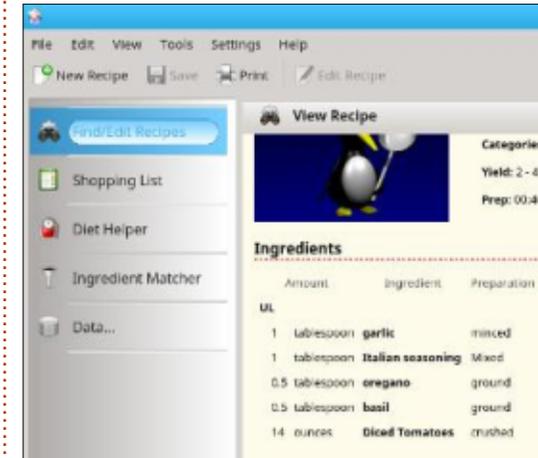
I firmly believe that recipe management is an important practical use of a computer. As a diabetic, cooking for myself can be very helpful in managing my diet and my blood sugar levels, but I do also think knowing how to cook is an important life skill that everyone should have, at least to some degree, and the computer is a natural tool to help with this.

However, KRecipes has been unmaintained for some time now (since 2016), and promised documentation seems to have never been completed.

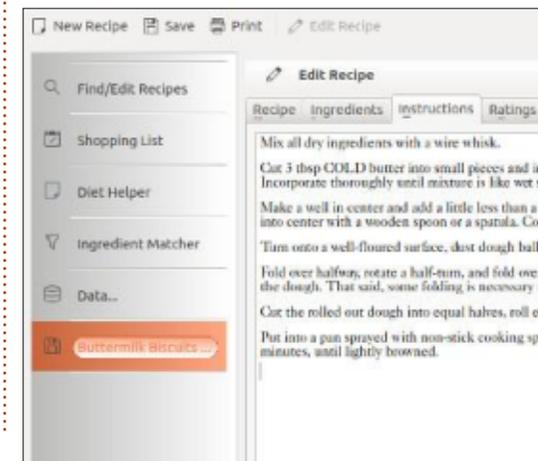
I posted to the KDE forum to request help for the issues I've had with KRecipes (refer back to last month's Everyday Ubuntu for details, but the short version is it won't save pictures or instructions). I won't reproduce the single response I got, but the honest truth is that it was not at all helpful. When requesting help in Linux, we should all be mindful that any help we get is volunteered, so sometimes you just get what you paid for. If anyone is interested to see the question I posted and the single response, it can be found here: <https://forum.kde.org/viewtopic.php?f=22&t=161843&p=420596#p420596>.

Strangely, I pulled out my old Kubuntu cloudbook (which I set aside due to the broken Plasma desktop), and pictures still don't work, but at least instructions are

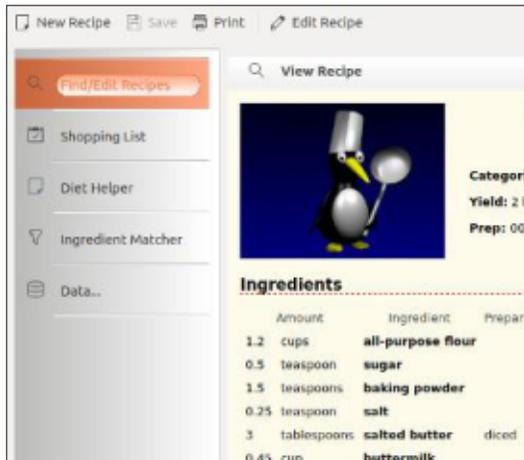
saved. The interface also looks a good deal different:



As compared to how it looks in Unity (although this is the 'add new recipe' function, so you can see the instructions it refuses to save – you can still see the difference in the interface):



Just for further comparison to the interface under KDE, here's the main recipe interface in the Unity desktop after adding everything. Note the lack of instructions even after typing in and saving them:



In the KDE screenshot, it's cutting off the recipe title at the top due to the cloudbook's resolution. For the record, this is my simple recipe for homemade marinara sauce.

I suppose that the KRecipe application simply runs differently (better, apparently) in the desktop environment it was actually designed for, but that's actually a condemnation – it absolutely should have also been tested properly in Unity and in GNOME. Apparently, that was not the case.

As a former business analyst who dealt with similar testing concerns during my career, I can tell you that I, and my teams, were frequently so overtasked that it was practically impossible to test things effectively and thoroughly, but it's no less disappointing that this is apparently where we often are today when it comes to software development. Thorough testing is apparently no longer regarded as a priority in many organizations, and that's a shame (climbing down from soapbox now...).

CHALLENGE TO THE READERS

Since I could not get help on this issue or find anything with Google searches, I'd like to throw this issue out to the readers here: Does anyone know if there are parameters to get KRecipes to accept and save pictures properly (I'm guessing they may have to be a certain size in pixel height and width, but could not confirm), or why it won't save instructions properly? For the record, I'm using Ubuntu 16.10 64-bit, Unity as the desktop environment, and KRecipes 2.1.0, the latest (and

evidently final) version. Feedback is, as always, welcomed at acer11kubuntu@gmail.com.

ALTERNATIVES?

A little research showed some possible alternatives to KRecipes. One is Gourmet Recipe Manager, which I installed using Synaptic Package Manager. Sadly, it fails more epically than KRecipes, as it crashes immediately upon launching with no error message and generates no error log that I could locate, so I have no idea how to even start troubleshooting the issue with it. Hopefully, maybe readers here can install and use it successfully, but I could not. Other alternatives (with a tip of the hat to Full Circle's own Q&A columnist ErikTheUnready for this list) include:

- Gnome recipes
- Kookbook
- AnyMeal
- Taco recipe manager
- PHPrecipebook

I still could not get any of these to install or work properly. This is where you sometimes have to find alternate ways to get to your desired end result.

WHAT DO YOU REALLY WANT TO DO?

KRecipes had some capabilities I would have liked, but the unvarnished truth is: Nothing that was crucial. So, we're going to use the tools we have available in a 'stock' Ubuntu setup: File management and LibreWriter. We can use our file system as a flat file database of sorts, and use LibreWriter to generate our individual recipes.

BUTTERMILK BISCUITS FOR Two

Here's the recipe from last time that I adapted from one I found on YouTube, on Ken Click's channel. Check out Ken's YouTube channel at https://www.youtube.com/channel/UC4bgbP1BW74_DE8loU45i6Q. Ken also kindly granted permission to use not only the recipe in Everyday Ubuntu, but also to use his biscuit thumbnail picture. So, here is the adapted recipe again (you can find Ken's original, that uses whole milk, on YouTube at https://www.youtube.com/watch?v=wY_dqphsaku):

Buttermilk Biscuits for Two

Ingredients:

- Just over 1 cup all purpose flour
- 1/2 teaspoon sugar
- 1 1/2 teaspoons baking powder
- 1/4 teaspoon salt
- 3 tablespoons cold salted butter
- A little under 1/2 cup buttermilk

Instructions:

- Mix all dry ingredients with a wire whisk.
- Cut 3 tbsp COLD butter into small pieces and incorporate into dry ingredients. This can be done by fingers, fork, or pastry cutter. Incorporate butter thoroughly until mixture is uniform, with a texture like wet sand.
- Make a well in the center and add a little less than a half cup of buttermilk. Slowly and gently start pulling flour into center with a wooden spoon or a spatula. Continue until all flour is incorporated.
- Turn onto a well-floured surface, dust dough ball with flour, and flatten out with hands or rolling pin.
- Fold over halfway, rotate a half-turn, and fold over again, re-flatten. Repeat about 4 or 5 times, but do not overwork the dough.

That said, some folding is necessary to make the biscuits come out flaky.

- Cut the rolled out dough into four or five equal portions, roll each into a ball and flatten until about 1 to 1 1/2 inches thick.
- Put into a pan sprayed with non-stick cooking spray and place in a preheated 400 degree oven for 10-12 minutes, until lightly browned.

Yield: Four to five biscuits

And here is Ken's thumbnail picture of his tasty biscuits:



ADDING A NEW RECIPE

Okay, so now let's set up our file structure. I put my recipes in a folder within the existing documents folder in the Home location. Invoke the File Manager by going to the Dash (top icon in the Launcher, the icon tray that runs down the left side of the

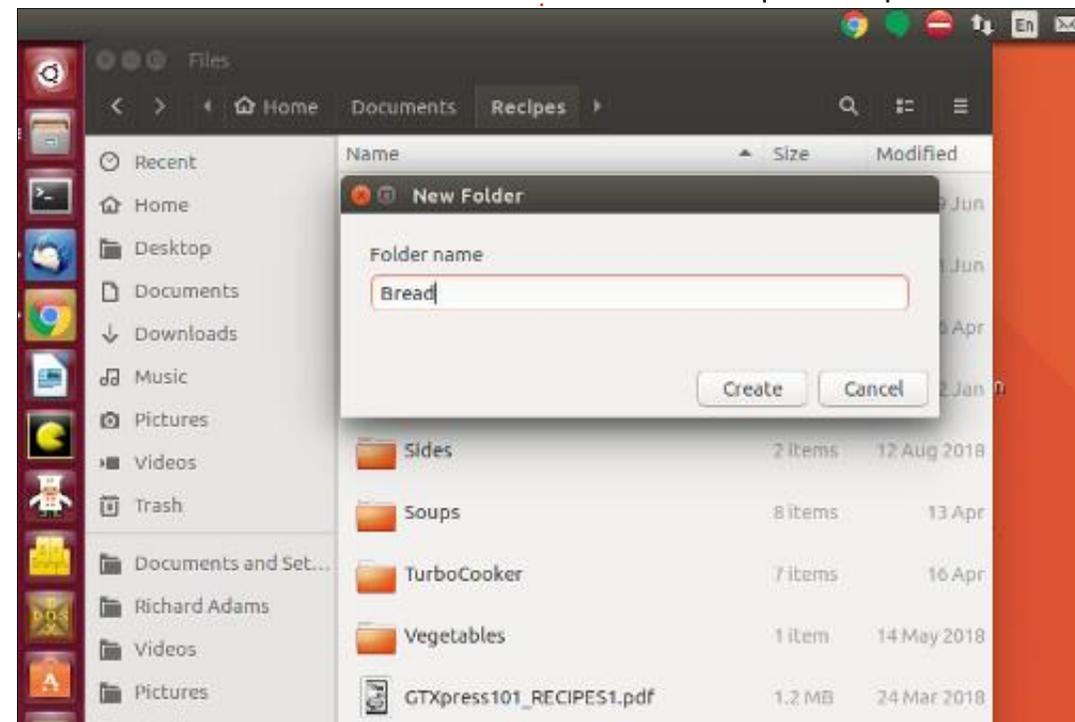
screen by default on Unity), and search for 'Files'. That should be sufficient to bring up your File Manager. In most cases, you can also just click the icon on the Launcher that looks like a file drawer, it will usually be the second from the top:



Let's create a 'bread' folder under the existing Recipes folder that I created earlier (you can create your Recipes folder the same way we're creating the 'bread' subfolder). In the File Manager, click the 'hamburger' menu in the top right and select 'New Folder', then type in the folder name 'Bread'. Simple, but effective.

CREATING THE RECIPE DOCUMENT

Similarly, creating the recipe document is quite simple. Go back



to the Dash and type in 'write', which should be sufficient to locate LibreOffice Writer (unless you already have it as a desktop shortcut, which I recommend, or on the Launcher, which is also a good idea). Launch Writer and put a title at the top.

I like to Google for images that illustrate whatever the dish is. For illustration purposes here, I'm

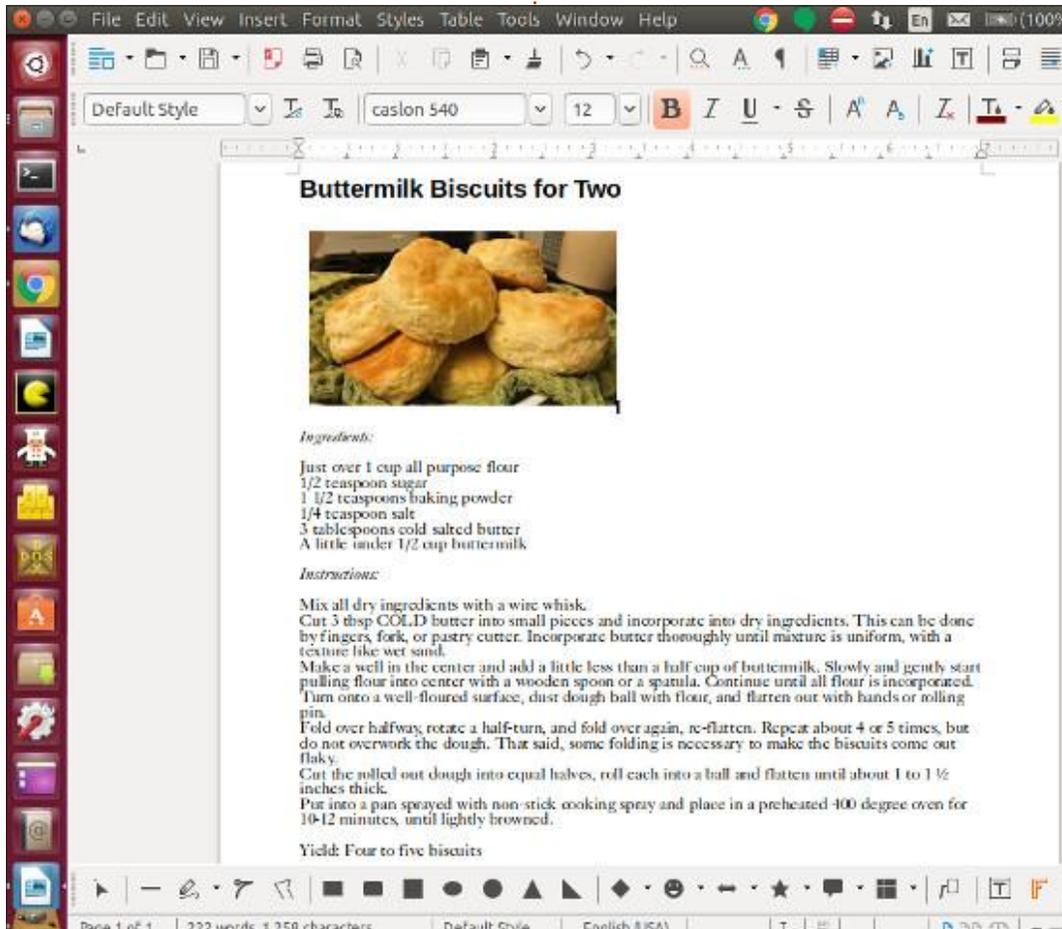
going to use Ken Click's thumbnail that I have already downloaded to the Recipes folder. In Writer, go to Insert – Image, then navigate to your image file and double-click it to insert it. Alternatively, you can web search and find the desired image, right click it in your browser and select Copy Image. Then, in Writer, position your cursor where you want the image and right click, then do a Paste.

Now, simply type in or copy and paste the text for the ingredients and instructions, then go to the File menu, select Save As, and navigate to your 'Bread' subfolder under 'Recipes' and save the document. Done! Again, simple, but effective. I've actually been using this minimalist, but quite functional, approach to recipe management for literally decades now, and it does get the job done fairly effectively.

And a HAPPY 150th ISSUE to Ronnie and the rest of the Full Circle staff!



Next month: Another installment in our ongoing Retro Gaming series, just to cleanse the palate (in a manner of speaking). Prepare to meet your (Chocolate) Doom!



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

We were calling this a "small release" originally. Our plan was to cover the backlog of pull requests that weren't quite ready for OTA-10. It turns out, that made this "small" update not small at all.

YOUR KEYBOARD, NOW SMARTER

Kugi has outdone himself this time. With this update you'll find a new way to edit text via the Ubuntu Touch on-screen keyboard: the Advanced Text Functions. Using this feature, you can move around your typed text, undo and redo actions, move around a text selection rectangle, and use the cut/copy/paste commands, all from the same overlay. To get started, press and hold the spacebar!

We are still unsure about the discoverability of this feature, so stay tuned for changes that will make it even easier to find and use!

This update also adds the option of a Dvorak keyboard

layout for the refined OSK user. The PR included fixes to allow multiple keyboard layouts to share the same correction dictionary and word overrides. Huge thanks, zoenb!

Rounding off the updates to the keyboard are improvements to the Polish layout, removing some diacritics that are not used in the language (Thanks, Daniel20000522!); the same treatment for the French-Swiss layout (Thanks, wilfridd!); and a tweak to the Japanese layout so that it respects your settings better (Thanks, Fuseteam!). If you'd like to get in on the keyboard-improving action, Tallero added instructions for building and testing the keyboard to its Readme at <https://github.com/ubports/keyboard-component>.

IT BROWSES BETTER

It wouldn't be an Ubuntu Touch release post without a section dedicated to our in-house Morph Browser. Morph is a project which

embeds Qt's integration of Chromium, QtWebEngine. This allows us to focus on making the browser itself rather than its engine.

Chris changed about 4,000 lines of code (not counting the gettext translation files) to bring us the Domain Permissions model. This adds some important features that were previously missing:

Page zoom level is now saved per-site rather than per-tab

Users may set "Always allow" or "Always deny" on location access per-site

Sites may launch other apps via custom URL handlers, such as tel:// to launch the dialer with a number pre-filled.

Users may blacklist access to certain sites or block access to all but their choice of whitelisted sites.

PUSH NOTIFICATIONS FOR ALL

Ubuntu Touch has provided a battery-friendly push notification service since before we maintained it. However, some users did not know that the service required them to log in with an Ubuntu One account before their device would register. This made sense when users had to sign in to Ubuntu One in order to install apps, but it had become more than a little strange lately.

To fix this, Rodney removed the account requirement from the client and server. Now all devices will be able to receive notifications for apps which support the service.

AND MORE

There are many more changes included in this release that can't quite merit their own section, but deserve to be mentioned.

Ratchanan and Alfred made some huge changes that facilitate

UBPORTS DEVICES

more hardware on devices that shipped with Android 7.1. We've merged many hooks for audio support, especially for calls. Nexus 5 users will be very happy to learn that we've narrowed down and fixed a problem that would cause the Wi-Fi and Bluetooth hardware to lock up from time to time, using a ton of CPU and battery.

Multiple contributors have been investigating issues related to MMS support on Ubuntu Touch. In particular, Raphaël and parksjr fixed issues with the display and management of MMS messages. Others have been looking into issues around receiving MMS messages.

We'd like to extend a huge thanks to everyone who helped make this release possible as our effort continues to be split between the "normal" release channels and the "Edge" channel. That division of our energies will come to an end soon. We'll talk more about that in the release announcement.

WHAT'S NEXT

It's finally time to share what

we've been working on since the beginning of the year. OTA-12 will deliver Mir 1.x and Canonical's last version of Unity8 to the stable channel.

As the Mir+Unity8 upgrade project shows, this was by no means a small task. With well over fifty tickets and many more problems that weren't officially filed solved, we feel that we are ready to share this work with everyone.

We'll start the process of merging the changes to various repositories the week after this release. This process will likely take a while, and during this time no updates to the devel or rc channels will be made available. Once we've got things stabilized again, builds will continue.

The Daily Waddle



**I came to the arctic for
the picturesque view**

**So where did
you find it?**

Settings -> background...





MY STORY

Written by Erik

A while back I had a daily three-hour commute, so I decided to learn another language. My cousin moved to Split for work, but the resources for Croatian were a bit limited. One of my friends then moved to Quebec and that seemed to seal the deal for me. I have an old PowerPC Mac lying about, so I signed up for "coffee-break French" on iTunes. (It was horrible by the way). I figured (wrongly) that if one could learn something in a coffee-break, I would string all those coffee-breaks together in my commute. Gzip all those short tutorials into one commute zip file. Initially, the going was tough. French seemed to be related to English, but English was not my first language. I signed up for a few other French podcasts, but listening to French people babble is weird to say the least. (No offence intended, our French translation team do an excellent job!). However, it is not a way to learn.

The good thing was, there seemed to be lots of other resources on the internet. I have

my (t)rusty Linux laptop to help me on my way, with the excellent flashcard program Anki. At first, Anki may not look like much, and the translation in the local vernacular is poor at best, but it is actually very quick to set up. It is also very simple to use. My first hiccup came trying to add a letter with a cedilla. (Under greetings, 'how are you', in French). The last time I needed to do this was in Ubuntu single digits, when I could use the control key (alt key?) to modify letters when typing. I looked at the keyboard layout and options, but could not find the option for the modifier key. The typing options now contained only 'switch to previous or next input source'. Disappointed, I installed the character map and was even more disappointed to find the keys do not have shortcuts listed. Clicking the needed character, then clicking copy, then pasting it into a text box, makes it really tedious work. - Hey, I am lazy, I like to work smarter, not harder.

Again, pointing to a modifier key was no longer an option.

Pressing ctrl+u and the hex code, also did nothing. I did not want to go through all of setxkbmap options, poking and prodding here and there. How could I know the UTF-8 and UTF-16 encoding for a character, but fail to type it on my own computer? What did I do wrong? I knew! Since I was using XFCE, it had to be XFCE's fault. Prodding around with XFCE and its related forums, I ended up where I started. Modifier key... Maybe it was because I did a minimal install? I suppose there was no option but to go fetch the terminal and sudo. (Admit it, you always get those two when there is a problem to be handled).

Luckily, I had an issue with an accounting program on a few Windows PCs just then and had to modify the regional settings for each of them. Then I got so busy that day, I did nothing further on the Linux machine. When I got home, I decided to do it all over on my home PC to check if I can see where I made my mistake. My home PC is a Solus install. The regional settings came to mind. I

changed languages, et cetera, but to no avail. I looked at my keyboard again in the layout display, and that is when I saw it! Somehow, I had gotten so lazy with the easy installation of Linux, that I had the installer choose my keyboard. I noticed English (US). Choosing English (Intl) brought back all my special keys with a simple right-alt key press. (Lesson learnt with blindly pressing next).

This made everything easy again. I could whiz in and out of text files or Anki with umlauts and whatnot. This made me hungry for learning more, and I actually found that the other European languages have sentence construction similar to the local vernacular. Now I am learning ten new languages with the help of open source tools and enjoying it immensely. I really wish I could have discovered this thirty years earlier. Mistakes will be made. Just be prepared to walk away from the problem to get a fresh perspective. I have lots of problems, but Linux is not one of them.



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

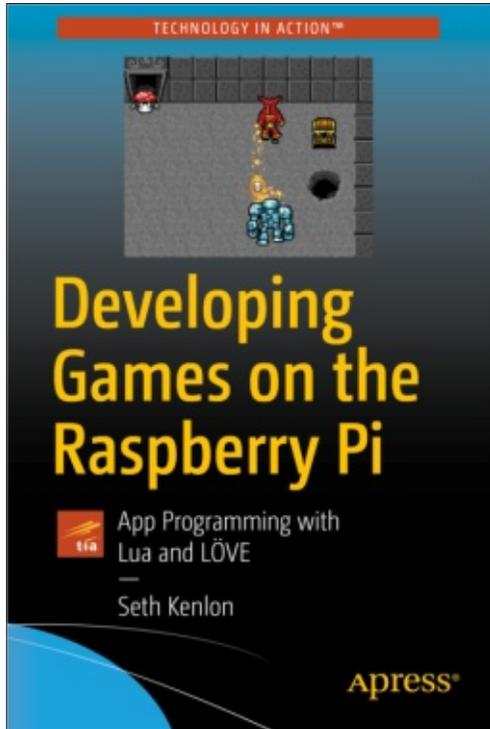
You don't need to be an expert to write an article - write about the games, applications and hardware that you use every day.



BOOK REVIEW

Written by Erik

Developing Games On The Rasp. Pi



Developing Games on the Raspberry Pi

Author: Seth Kenlon

Website:

<https://www.apress.com/gp/book/9781484241691>

Price: \$32.99

Author's Website:

<http://seth.kenlon.com/>

The waffle: "Learn to set up a Pi-based game development

environment, and then develop a game with Lua, a popular scripting language used in major game frameworks like Unreal Engine (BioShock Infinite), CryEngine (Far Cry series), Diesel (Payday: The Heist), Silent Storm Engine (Heroes of Might and Magic V) and many others. More importantly, learn how to dig deeper into programming languages to find and understand new functions, frameworks, and languages to utilize in your games."

Seth Kenlon is one of those behind-the-scenes guys who do great work. I won't say any more about him as I have linked his home page. (Really go have a look! You will be surprised).

THE BOOK

This book has homework! :)

This book assumes you are a N00B.

I have not figured out why each chapter starts with Wellington, New Zealand. Was it written in or

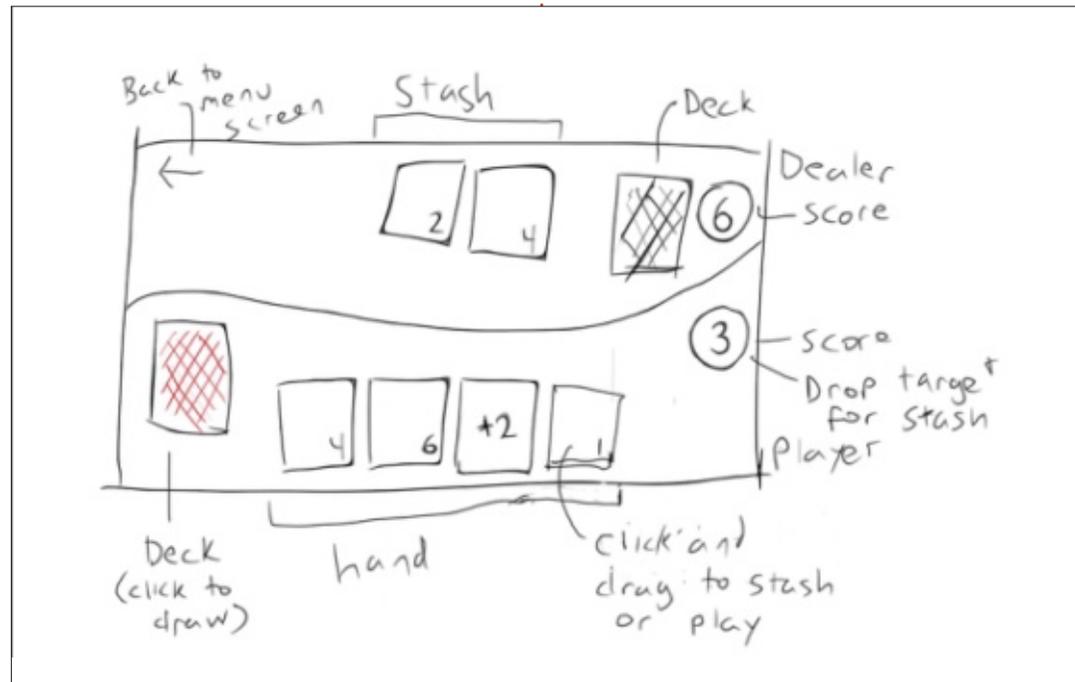
for Wellington? Is it a shout out to the author's hometown? Why every chapter? Le Sigh.

So you got yourself a Raspberry Pi computer, and you are not sure where to start? I would be screaming and pointing, here! Here! **HERE!!**

The book gets you to install fedberry, boo... hiss... but it is understandable as the author is from the Redhat stable. This does not mean you cannot follow along

from another distribution, though.

The first two chapters hold your hand and walk you through the setup that you would need to follow along. (I think I will stick to Ubuntu Mate on my Raspberry Pi, thank you!). At chapter three, you are introduced to the project you are about to make. Then you just get to dive in! Awesome. There is no horsing around with definitions and pointless examples, everything is task focussed, and you learn without realising it. You get to see



REVIEW

the author's thinking and reasoning through his drawings. Not all of it is hand-drawn though, there are full color pictures throughout.

I do not think it would be fair to do a chapter-by-chapter look at this book as it is literally bristling with information. Pick it up; it is hard to put down; you have that "one more page" feeling that you get in a non-fiction book, which is an achievement in itself. Needless to say, this book really covers everything you would need to make games with Lua on your Raspberry Pi. Colors, color palettes, GIMP, UI Design. Really, this is a comprehensive book. (I feel like I should be using exclamation marks after every sentence!).

You need to know about Git? Well, that's in here too. Need to make music for your game with open source tools? Well... that's in here too! I can not explain how well rounded this book feels. Everything is explained clearly, and at no stage do you feel left behind. It was written with someone greedy to learn in mind. I can recommend this book to anyone and everyone. Well written, well

thought out, well executed. You cannot fault a book with this much information and crystal clear explanations. Support this author, we need more like him. Hand over your hard earned savings, this is worth it. (A little expensive locally, about 600 bucks, but it can be purchased online). That would be my only peeve. The price puts it out of reach of most learners and students. Hopefully the libraries will get this soon.

The only reason this book gets 4 ½ stars is because of the steep price. (\$7 more and it would get 4).



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.



With each new review, I am trying to add something that refines the review itself. If you have ideas, or requests for a Distro to be reviewed, please let me know.

Even though I have screenshots that show my laptop specs, I am including them in the text just in case the pictures lose resolution when enlarging them, or if you are reading a text only version of this review.

So my specs:

Presario CQ56 Notebook PC 058D
64 bit AMD v140 CPU running at 2.3 GHz
AMD/ATI Radeon HD 4225
[integrated] graphics
4 Gigs of Ram

Remember I ran this test by live booting a USB flash drive and not by doing a minimal or full install. Now saying all that, my intro, and my laptop specs, let's get to my review – shall we?

I was pretty excited about giving Bodhi Linux a test drive.

Many Linux people seem to think of it as an “up and coming Distro” [like Elementary Linux, which is next on my list]. After playing around with Bodhi, I can see why it has that label!

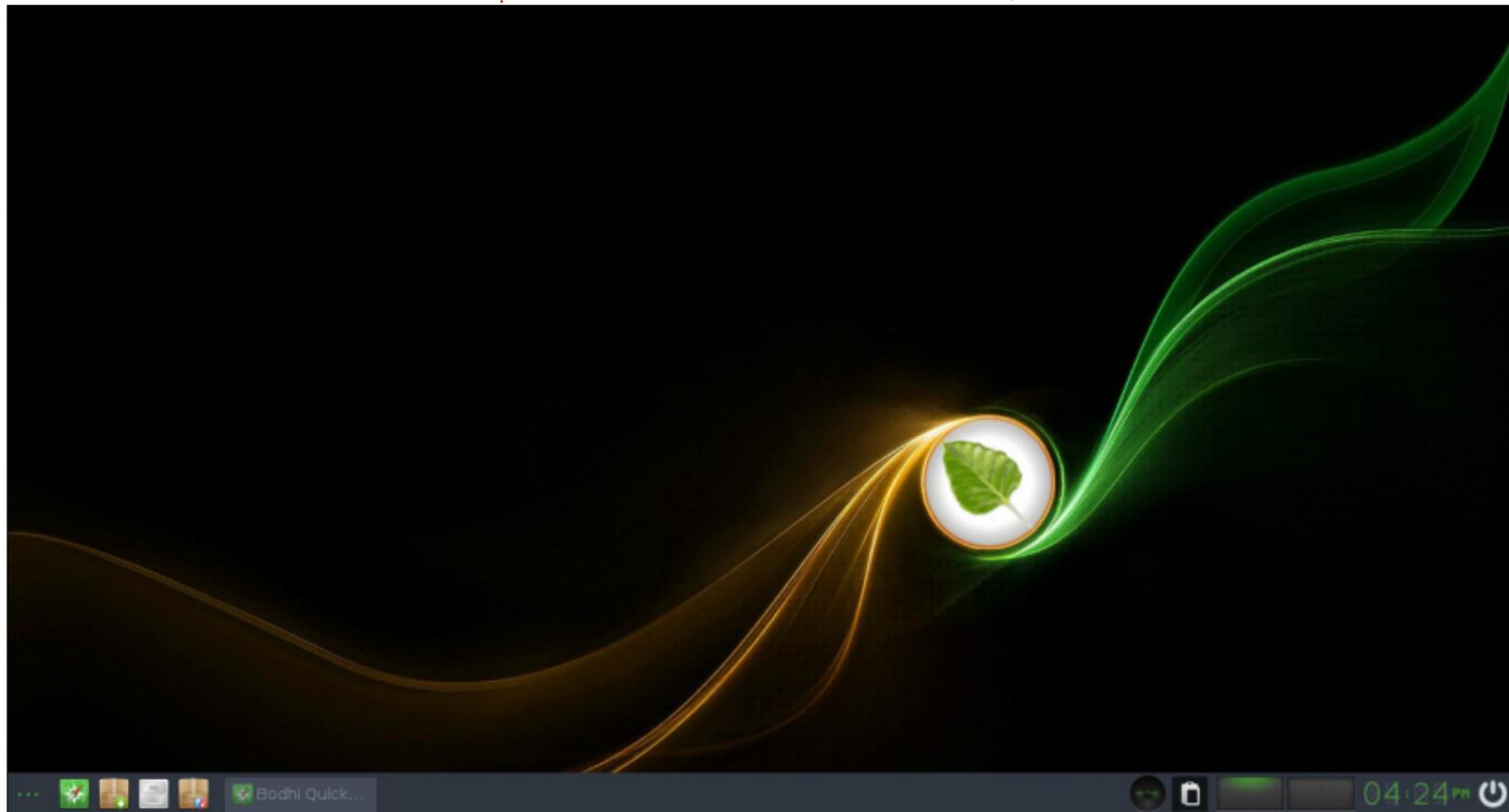
Let's look first at what the developers say the minimum specs required are as per the website

(quotes from their site will be in italics):

Minimum Requirements:

- 500MHz processor
 - 256MB of RAM
 - 5GB of drive space
- Recommended:
- 1.0GHz processor
 - 512MB of RAM
 - 10GB of drive space

As you can see, Bodhi is lightweight. It has both a 32-bit and 64-bit version so it can run even on older hardware! They definitely get points for that – because many mainstream/well-known Distros have [or are in the process of] stopped releasing 32 bit versions.



Bodhi has a smaller team of developers than many mainstream Distros, but, from what I can tell, they seem to be growing. That should increase their updates and features, in theory at least.

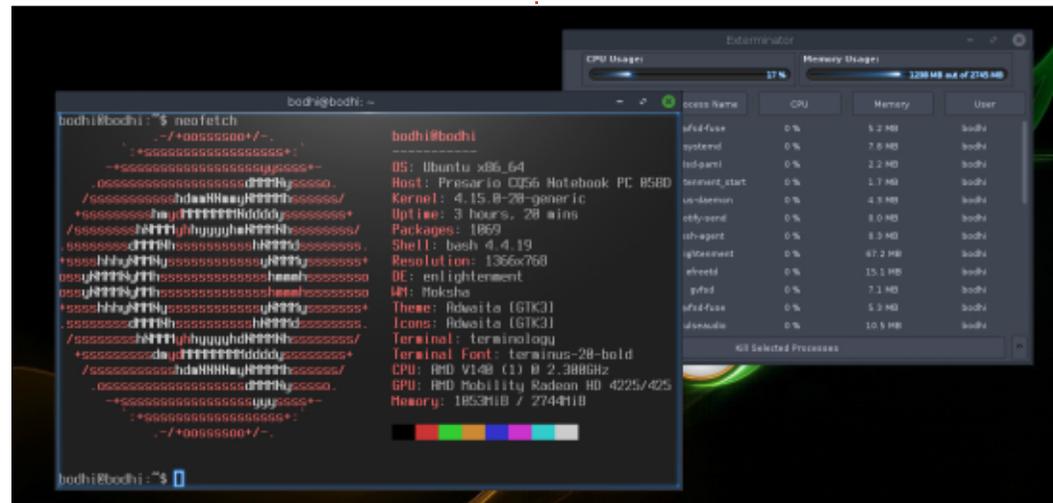
Their windows manager is called moksha desktop [their own make or fork of enlightenment 17, as the team didn't like the changes put forth in E-18]. Reading their website, it seems they consider Moksha as part windows manager and part desktop environment [DE]. The idea here seems to be simplicity. That is good for older hardware, but I found it a little too simple, restrictive almost.

I had to search for the settings to enable my wifi. It was a supported chip but still took some tinkering to get it enabled and working. The reason it took some work, was the settings manager seemed scattered to me.

After digging around, I found it and enabled my wifi; yet once I got the chip "on", I still had to manually give it my network name as it didn't scan or show any local networks [there are many networks in and near my house].

Once I had it working and was online, I noticed that there was no indicator showing that I was online in the status/taskbar. What was worse is that I couldn't find an indicator for wifi or network at all. To me that was a huge downside. I don't get into the indicator overload that some people do, but I like the time, network, and a logout menu, in my bar, yet Moksha didn't seem to want to let me see I was online. [Granted, I could always install a program like Conky and place a widget on my desktop, but for these reviews I don't like installing non-default programs if I can help it].

Let's go back to the settings manager for a moment. As I said, it was scattered, clunky even. Most settings use a vertical hierarchy.



You see a category, then under that are settings applicable to said category, then under that is the next category. Moksha used a horizontal setup for each category, and a vertical for things in said category.

The real issue I found was some categories seemed to make no sense. Even worse, some options in categories made little sense. After tinkering and searching DuckDuckGo, I found answers, but why not call a dock a dock, or even taskbar, like most other Distros do? They call it a "shelf" which is fine – they want something all their own – but I feel they should have kept some things with convention for new users.

I tried to change some

keybindings, and ran into issues there too. Yes, there were options, many of them that you could scroll through, but not many seemed to actually work. Granted, I didn't have time to really dive into that, and I'd assume this or that command for this or that keybinding maybe conflicted with an existing one. Yet I also never got a notice saying as much, so maybe not?

Okay, so my worst complaints are now done, let's talk about some of the good points, shall we? The default theme is easy on the eyes and looks really slick! The colors compliment each other nicely, and the look and feel flows together very well! Moksha has "built in" compositing which allows for fancy, smooth graphics and looks – while still being light on resources. They really did a nice job with this department, as good as LXQT has done [see my Lubuntu review for my thoughts on that].

A nice feature is the left-click menu on the desktop. It's powerful! The initial options are standard, but the nicest aspect is the favorites menu that gets populated as you use apps. To pull up that menu, you use a left-click

REVIEW - BODHI LINUX

instead of right. That provides a quick-launch functionality for your most-used apps. If you are using an external mouse, and if you center-click [click the mouse wheel], it pulls up a windows menu. So three menus in one – sort of. Nicely done indeed!

I mentioned how Bodhi is “light on resources”. Out of my 5 reviews thus far, Bodhi comes in 1st place for resource use. I tried to lock it up, opening various apps at the

same time, playing music in my browser, moving my mouse, etc. Yet it was hard to get it to lock up. Hard but not impossible. Playing media put a little drag, but then again that is no real surprise. Opening photos and ODTs and PDFs, and launching my browser, caused no discernible lag. Knowing the developers aim for lightweight, I think they really succeeded!

There was only a small selection of apps included. But the apps

were pretty standard. A browser, LibreOffice, photo viewer, and file manager. No media player though, so I couldn’t test MP3 or MP4 support. I felt that they could have included a few more apps and still maintained their lightweight status.

Being built on Ubuntu, which is built on Debian, Bodhi uses the “apt” package manager. Their AppCenter didn’t impress me. But there was also Synaptic and of

course the command line! Snap and Flatpak support can be easily enabled as well.

While there were things that I really didn’t like in Bodhi, overall I was okay with it. I can definitely tell what their goals are, and they are making progress towards said goals. If I had old hardware, and or a 32-bit machine, I would consider Bodhi. On more modern hardware though, I probably would give it a pass in favor of a more mature Distro, with more options. That being said, it’s not a bad Distro by any means. It is eloquent and resource friendly, which are both good things!

If you’d like to give Bodhi Linux a try, go to their website and download the iso and enjoy!
www.bodhilinux.com/



Jason M is old millenial who’s been an avid Linux user since Ubuntu Dapper Drake. He lives in Washington State, loves sports, and does plenty of geeky stuff like Ham Radio, web dev and these reviews!



Pedram Pourang, who goes by the nickname Tsu Jan, is the developer of FeatherPad, a new Qt-based text editor for Linux. FeatherPad has been the default text editor for Lubuntu since it moved to the LXQt desktop with Lubuntu 18.10.

Full Circle: How did you come by your nickname "Tsu Jan"?

Tsu Jan: Quite casually. It wasn't related to programming at all. My old interest in Taoism and Zen Buddhism should have played an unconscious role. Users of my programs talked about "Tsu Jan's" works, so I didn't change it but included my real name in READMEs.

I don't have a good recent photo... I guess my users imagine me with that pair of glasses and red hat in my avatar; I like that ;)

FC: Where are you from?

TJ: I'm Iranian.

FC: What is your first language and other languages spoken?

TJ: Native language: Persian. 2nd lang.: English. Other languages: German and French, but mostly for reading, not speaking. Favorite language: Esperanto.

FC: Where did you learn to code?

TJ: By myself.

FC: What do you do for a living these days?

TJ: Teaching mathematics and physics to high school and college students. Sometimes, translating from English or German too.

FC: How did you become interested in free software?

TJ: By using Linux. Who can use Linux and fail to see the high quality of open-source.

FC: Which Linux distro do you use for working?

TJ: Manjaro (for the past three years). Previously, Debian (for about eight years). Before it, Ubuntu (two years). Before it, Fedora (one year). I also tried OpenSUSE and liked it.

FC: What led you to start FeatherPad?

TJ: Each of the existing text editors had a problem I couldn't tolerate. Feature rich editors were too heavy, and sometimes lacked features of elementary editors. These things are partly about habits and tastes, I know. I had my preferences.

Anyhow, I made the first version of FeatherPad in GTK+-2.0 (the latest at that time). I wanted to share it after fixing its bugs and adding features to it, but GTK+-3.0 came out and I updated the code instead. Shortly after that, I tried Qt and found it much more flexible. Hence, rewriting it into

C++ and Qt before sharing it.

FC: Who are your main collaborators on the project?

TJ: FeatherPad is developed by me. Users kindly help me by reporting issues, asking for features, sharing their great ideas and, sometimes, making good patches -- especially for non-Linux OSES. Surely FeatherPad wouldn't be what it is without its users.

FC: FeatherPad is under rapid development these days, what can we expect in the future; any new features, such as spell-checking?

TJ: Yes. Recently I added regex search to it. I might add color customization later – for syntax highlighting. Have no plan for a spell-checker (don't want more dependencies), but who knows... (Note: Tsu Jan decided to incorporate spellchecking into FeatherPad in May 2019, using Hunspell. It should be included in the next public release, and that

INTERVIEW - TSU JAN

version included by default with Ubuntu 19.10, due out on 17 October 2019).

FC: What are your ultimate goals for FeatherPad?

TJ: When you reach an ultimate goal, by definition, you'll do nothing more. Developing a program like FeatherPad has no end. I'll continue making it better whenever I have time.

FC: What are your plans for the future?

TJ: Syntax color customization. It's a challenge because FeatherPad doesn't use any external library for syntax highlighting but does the job in its code, relying on specific colors. Users want color customization, but the code isn't ready for it yet. So, I'll have to make the needed changes at some point – but very carefully. It'll take time, especially if I find more desirable features to add ;)

Also, virtual desktop awareness and tab DND under Wayland. Unfortunately, it isn't possible yet, but I follow the rapid development

of KWin's Wayland. KDE developers are doing a great job. If Wayland virtual desktop awareness starts to work with KWindowSystem, I'll use it. Many users mistake KWindowSystem for a KDE dependency but FeatherPad will remain desktop-agnostic.

FC: Anything you would like to add?

TJ: I hope more people use FeatherPad's latest git version, instead of its latest release. I don't release a version every time I fix or add something; so, git users' reports could be very helpful.

Tsu Jan's FeatherPad github web page is <https://github.com/tsujan/FeatherPad>



LETTERS

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

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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.

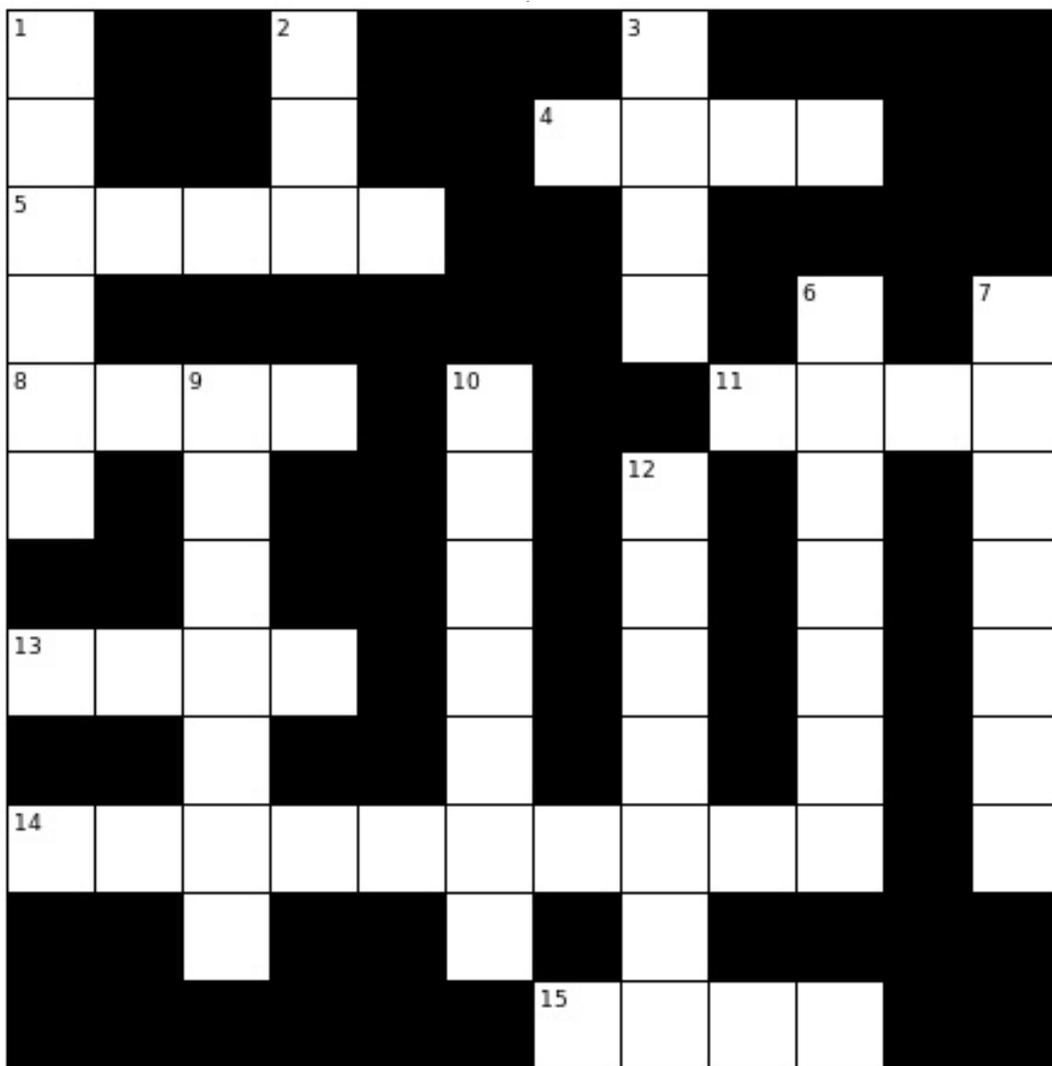
See the article **Writing for Full Circle** in this issue to read our basic guidelines.

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.*



ACROSS

- 4A: A penguin in a parka is their mascot.
- 5A: This distro ships with WPS office and WINE preinstalled.
- 8A: Russian Mandriva fork.
- 11A: Based on Trisquel.
- 13A: Rumoured to be bought out by Apple.
- 14A: It isolates each customer into a separate "Lightweight Virtualized Environment".
- 15A: Sam Nazarko is the lead developer.

DOWN

- 1D: Forked from IPCop.
- 2D: Originating from Exmouth, in south-west England.
- 3D: Bharat University thinks it's 'da boss'.
- 6D: Comes in a mail gateway and a virtual environment edition.
- 7D: Has to do with Amateur Radio and not the Terminator.
- 9D: Gentoo based distro with a large ISO, from Italy.
- 10D: Also based on Gentoo, the focus is on Multimedia.
- 12D: Smells like BeOS, tastes like Linux.

Compiled by Erik

Answers are elsewhere this issue.



Q&A

Compiled by EriktheUnready

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

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

I was planning a project for a client and the outcome was four weeks to install network points, wireless AP's, cabinets & switches, and power plugs mounted under the desks, as well as replacing lights with low power LED lighting and rewiring the building so that a generator can charge the UPS and the UPS can run the building. Channels had to be built, etc, etc. The client gave me a 'NO WAY' that it can take that long, they need to move in at the end of the week plus maybe two days... There is a method to the madness. When the

power is done, the plugs can be mounted, in turn the cabinets can be populated, etc. When you work out of order, you end up with things that need to be done afterwards. This is not ideal. Also, every project has a gremlin, hidden somewhere waiting to jump out at you - and you need to make allowances for that too. In this case, the basement was locked and no-one had a key or access. Obviously, the current power cables ran through there, forcing us to build other paths. This is why I like recipes; when I use a cake recipe, I never end up with soup. You know your system, you know your workflow. When something breaks, follow a reasonable "recipe" for problem determination and repair. Ask yourself, what changed lately. If nothing had, it may be a hardware issue! Something as minor as a bubbling capacitor in a power supply may cause an issue down the line. Go with what you know, before trying something exotic.

Q: I am learning Japanese. I have my Japanese dictionary on IOS. My ubuntu is 16.04 as I need a few things that are not in 19.10. How do I get it on Ubuntu?

A: I am not sure what you are asking, but here is a link to what I think you want: <https://www.preining.info/blog/software-projects/kobo-japanese-dictionary-enhancer/>

Q: I want to create a custom Ubuntu Mate live USB which has my WiFi driver (I have a Broadcom chip in my laptop, so I need the proprietary driver) and Timeshift preinstalled. One helpful user on the Ubuntu Mate forums advised me to create a live USB with persistence with Unetbootin. I did exactly that but the live USB wouldn't save my changes. Reformatted/recreated the live USB many times, but still wouldn't save any changes. Do you have any idea how I could create this custom live USB?

A: Persistence is not what you want; you actually need to respin that distro. See: <http://linuxrespin.org>

Q: I was once considered somewhat of an ARJ God. I preferred this over LZH, LHA, Zoo, HAP, PAK, ZIP, etc, etc. My question is, just how safe is ARJ today? My query stems from the fact that I no longer know who owns and distributes this (it's available from more locations than I consider it should be), and, now being a Linux user, should I move to something more contemporary such as 7zip? The command-line use is admittedly similar enough - just curious.

A: Like yourself, I also thought ARJ was the bee's knees. ARJ is still pretty safe, if you consider that there is an open source implementation of it. See here: <http://arj.sourceforge.net>. The project is alive and kicking, and there are still updates: <https://sourceforge.net/projects/arj>. There is a nice comparison on



Q&A

Wikipedia:

https://en.wikipedia.org/wiki/Comparison_of_file_archivers.

Encryption, is the only thing really lacking.

Q: Is it possible to download and install Ubuntu onto my mobile phone - if the answer is yes, please offer some guidelines and advice – thanks.

A: Your answer is yes and no, or should I say 'it depends'. It depends on the phone and the level of access. There is a lovely little app called DriveDroid: <https://play.google.com/store/apps/details?id=com.softwarebakery.drivedroid> - you however need root access. Also, I am going to assume your phone is flush with memory and storage. As you know, Linux is not happy with 512MB of memory and space any more.

Q: Hi there, sorry for the dm, but, after reading the magazine news, I sometimes search for Linux in Google over the past hour. My results are garbage pages. How can I filter this?

A: The short answer is that you can not, but if the website is unknown to you, first use the little green dropdown arrow and choose "cached". If you get a 404, it means that page is garbage/hacked/fake.

Q: My computer is not so new any more, and I tried to install Ubuntu 19.10 on it. If I choose the wayland option from the menu, I just get lines on the screen. From the USB stick I can boot into safe VGA mode, but not once installed. Safe VGA mode works, but I can't get my screen's resolution, only 1024 x 768. How do I fix this? When I try to install proprietary drivers I get no driver... My machine is a first gen i7 with 8GB RAM and a 7300LE.

A: The problem is the old display card. The Nvidia driver you need for that is 3.04, which is not supported in the new version of Ubuntu. You can try 18.04 (which you have to install manually), or you can take it out and run on the integrated Intel pass-through. Or check your local shops for a cheap modern display card?

Q: Why is it that my fingerprint sensor works perfectly in Windows, but not at all in Kubuntu? I want to use my finger to sign on to Kubuntu, not type my helluva-long password!

A: Because hardware vendors get "incentivised" by Microsoft and they are too lazy to write drivers for Linux?

Q: Can I still install Ubuntu 18.04 or must I install 19.04?

A: Ubuntu 18.04 is supported until 2023, so it is the valid choice if you do not want to reload next year. Can I suggest you get the 18.04.3 iso to avoid lots of updates.

Q: Ubuntu updates fractures the hardware. Laptop is no boot. <image>

A: You need to boot into recovery mode and roll back. Then use the clean option to make space and fix broken packages. reboot and re-update.

Q: N-Able remote control downloads a '.jnlp' that requires Java. I have tried to open it with IcedTea plugin, but I get an error. Then I tried downloading the latest version of Java on Windows, the offline installer, and I get basically the same error. Can I not use IcedTea for this?

A: Actually, friend, you have solved your own problem, you just asked the wrong question. If the .jnlp file does not work in Ubuntu or Windows, then the problem is with the .jnlp file. I just used a .jnlp file today with IcedTea to log in to one of my servers at my ISP, so IcedTea is fine.

Q: I have a Dell T20 server and I wish to connect with SSH and change the network settings. How to do this please? Also where is a good place to backup SSH key? Please give me advice.

A: Think about this carefully. If you SSH in to a network port, you can change the address, but it does not take effect until you stop and start the network. Ifdown / ifup. If you stop it and you are on that interface, how do you bring it

up again when you are disconnected? Taking the interface down will disconnect you. SSH key you backup to a secure (locked! Not unlocked) encrypted folder on your PC or another server. Do not store it in the “cloud”.

Q : Dear Sir, I am buying a computer second-hand, with Ubuntu. I cannot access the cdrom or SD card. I have tried Googling; it asks for a sudo password, which I don't have. It is reporting me. How to fix?

A : Dear Sir. Using a secondhand (or new) computer that was preloaded by anyone other than yourself is a bad idea. You can become root and take over the PC by booting with a recovery or Ubuntu DVD. However, my suggestion is to format and install a fresh copy of Ubuntu on the machine and make it yours. Ubuntu is free and easy to install. All the software you need – Office, multimedia, etc, is installed with the operating system.

Q : What is the best ID3 tag editor for Ubuntu 19.04? Could you please elaborate on

your choice?

A : “Best” is subjective. I find that MusicBrainz Picard works for me. However, if you are a hipster, or not in the five eyes countries, this program is useless as a lookup. Where it does shine is with the ID3 tags. Did you know that lots of music players also do ID3 tag editing? Ex Falso is my fallback tag editor, as it is simple to use.

Q : I can't browse the internet but I can ping 8.8.8.8. I can't ping www.google.com.sg either, I just get unknown host. This worked fine on my school network. I am still on Ubuntu 16.04. I have asked people and they say I should check /etc/resolv.conf, but I don't want to mess with system files.

A : I am not sure what DNS servers can be accessed in your part of the world, but change your network connection (open network manager) to DHCP (address only), and add 1.1.1.1, 8.8.8.8, 9.9.9.9 in the DNS server field and save. Now just click on the WiFi name and it should go down and come up by itself. Otherwise, turn off WiFi and turn it

back on.

Q : Hello, I want to know how long the memory test runs in Ubuntu. I left it overnight and it is still running. Should I just leave it until it is done? My PC is very slow.

A : Memtest will continue looping until you press 'esc'. Just actually pass your eyes over each section and you should pick up if there was an error.

Q : I notice that my microphone volume in Ubuntu is turned on every so often. I turn it off on my laptop as I do not use it. Do I have malware I need to take care of? I am on Ubuntu 18.04 on my Acer laptop.

A : If you “overclock” your volume past 100%, it will sometimes raise the volume of the microphone as well. Chances are, this is your “problem”. That said, why not install a free antivirus and scan your computer? It cannot hurt.

Q : I have switched from normal Ubuntu to Kubuntu recently and I am enjoying it immensely.

However, I was wondering how do I edit my right-click menu. I did not seem to find a nice tutorial online. Does there exist a KDE-tweak?

A : It may be a bit long for a Q&A, so I will point you to what I think it is you are trying to do. It may be because you are searching right-click menu, try using the words context menu. You can look here:

<https://askubuntu.com/questions/719262/how-do-i-add-custom-items-to-the-context-menu-in-dolphin-in-kde-5> - and here: <https://askubuntu.com/questions/1179100/add-item-into-context-menu-in-dolphin>



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.



Where we are:

<https://www.lpi.org/our-certifications/exam-201-objectives>

(Topic 202: System Startup). In your LPIC study guide, mine is the second edition, this will be chapter 1 (pages 4 – 27). If you are using the ** free book above, it is chapter 2 (pages 47-76).

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

Since this is the 201 exam, you should be familiar with the FSH (File System Hierarchy) and LSB (Linux Standards Base). You can quickly Google those, I will wait... Right, memory refreshed!

Though we are mostly using Ubuntu here, you need to know the Red Hat side of things too. Init is the first process called during SysV boot. This initial process will now start all the other processes that are listed in the runlevel target. Don't believe me? Look at the PID of init. If Linux was a first

person shooter game, the init process would be the spawn point. The init levels today are still the same 0-6 levels (there are more, but unused) that I encountered back in the day; it has not changed, just know the differences between .deb-based systems and .rpm-based systems. You need to know that in older systems, you can usually see what is defined by printing out '/etc/inittab'. At the time of writing this, it is 2019, and most distributions run on Systemd, so you may get an error with 'cat /etc/inittab' if you are following along on a desktop version of Linux. That is OK. Try to run an old version of Fedora or CentOS in a VM to check it out. Be sure to look inside '/etc/rc.d' folder while you are at it.

The '/etc'-folder is chock full of stuff. See if you can find the rc scripts. (Runlevels 1 through 5).

Let us talk about those file names you see. K20xxxxx and S20xxxxx first. Kill scripts range from 01-99 and so do start scripts. I know you are smart enough to

realize the K or S at the beginning means Kill or Start. They are symbolic links. Your homework is to follow them through. If you don't already know, this will be a light-bulb moment. The number is the sequence in which it starts, so if you see two with the same number, they will start in parallel. Very simple, no? Well, SysV init is simple compared to systemd. That is also why so many people want rc over systemd (and the fact that it is now binary blobs instead of plain text files). To change startup on SysV init should also be simple, right? Stopping, starting, restarting services are as simple as that, you should know that by now. The LPIC study guide glances right over this subject. I really recommend reading the above free study guide.

Now an old CentOS system is not the only one you need to start in a VM, I would suggest an old version of Debian or newer Devuan. Otherwise, the next part will be hard for you to follow. You are expected to know, not only the startup process, but how to

customise said process. I need you to look at the man pages: man update-rc.d - have a look at the synopsis. You will also see they refer you to the Debian policy manual. You may ask how this worked in the real world. Well let's say you want to add the printing service to a runlevel, say CUPS. The service you want to start has to be in: /etc/init.d – you cannot just add a service that does not exist. So the syntax would be:

```
update-rc.d <service name>
start <sequence number>
<runlevel(s)> . stop
<sequence number>
<runlevel(s)>
```

WOW, that looks horrible, but in practise it is something like this:

```
“update-rc.d cups start 58 5
. stop 58 0 6 .”
```

Note the delimiters - period after start and period after stop. You may get a warning message when changing a service (if it is not the default).

To remove a service, the syntax is simply: update-rc.d <service



name> remove

Regardless if a service 'usually' runs in say, only runlevel 5, you can manually start it from /etc/init.d

Back to our Red Hat-based system. Here we use chkconfig. Starting on page 58 in the free study guide, I need you to read it. If you did your homework... and followed the links all the way through... you will know where this is heading. If you looked inside the scripts you may have noticed that right near the top, there is a "chkconfig : " followed by a number. These are your runlevels. So if you saw "345" following chkconfig, it was not the number three hundred and forty five, but runlevels 3,4,5. Now you can remove or add a runlevel here, but think it through thoroughly before doing so. Let's say we would like to add cron to another runlevel (example only); then we would add say a two to the list , so it reads "2345" and save the file. This alone does nothing. To 'pull the changes through, so to speak, in the rc.d folders you need to say the magic phrase in the terminal: `chkconfig -add cron`

To see what changes were

made, navigate to /etc/rc.d/rc2.d/ and you should see cron – in our case – has been created. Since the chkconfig was preceded by an octothorpe – it is a comment, but chkconfig read the comments! Neat hey! This is not the only thing chkconfig can do, it is handy beyond this when it comes to services. Linux firewalls work on services, yes, I know, we need a decent application firewall program in Linux, but we do not have any. So a quick way to see which services are on, for firewall configuration, type: `chkconfig --list` That said, if you edited cron to run in runlevel 2, you should see "on" in the column that represents runlevel 2. This holds true for any changes you may make – double check it here. If you turn a service on or off with chkconfig, immediately check with the: `--list` option. If you want a more fine-grained control, you can use the `--level 2 on / off` option. Example: `chkconfig cron --level 3 off`

Just be aware of the differences in systems syntax between Debian-based and Red Hat-based distributions.

No practice exam questions this month, I just want you to physically

do it in a Red Hat-based VM and see how it is done. Keep your peepers peeled in the exam for questions that specify RED HAT.

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

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

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

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



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Website: www.pathway-game.com

Price: \$15.99

From the Web: *"Adventure into the strange unknown with Pathway, a strategy RPG set in the 1930's great desert wilderness. Outwit your enemies in daring turn based combat, raid occult tombs, and make tough choices in a procedurally generated grand pulp expedition!"*

Initial issues with pathway prevented me from reviewing this game sooner, it would not run on Intel graphics. With version 1.08, this seems to be sorted. If you have an older machine and launch the game, you may think it is stuck at the first screen, but look at the bottom left and you will see a spinning skull. This will be the only indication that something is happening. See screenshot – just be patient and your game will load. The specs do say it needs at least 512MB of graphics memory, so keep that in mind.

The game ships with the original sound track with some really amazing Indiana Jones-esq music. The music titles include such gems as: 02 Somewhere in the Desert, 03 The Wrath of God, and 15 The Undead Are Coming. Gavin Harrison is truly talented. I actually have the OST playing at the moment, It is one of my favourites. If you purchase the game, really think about getting the OST too. I don't always download the OST's due to limited bandwidth, but I am glad I did. Some of those melodies will have you missing people you have never

met. (You can even buy the Digital album on bandcamp and gift it to a friend).

GRAPHICS

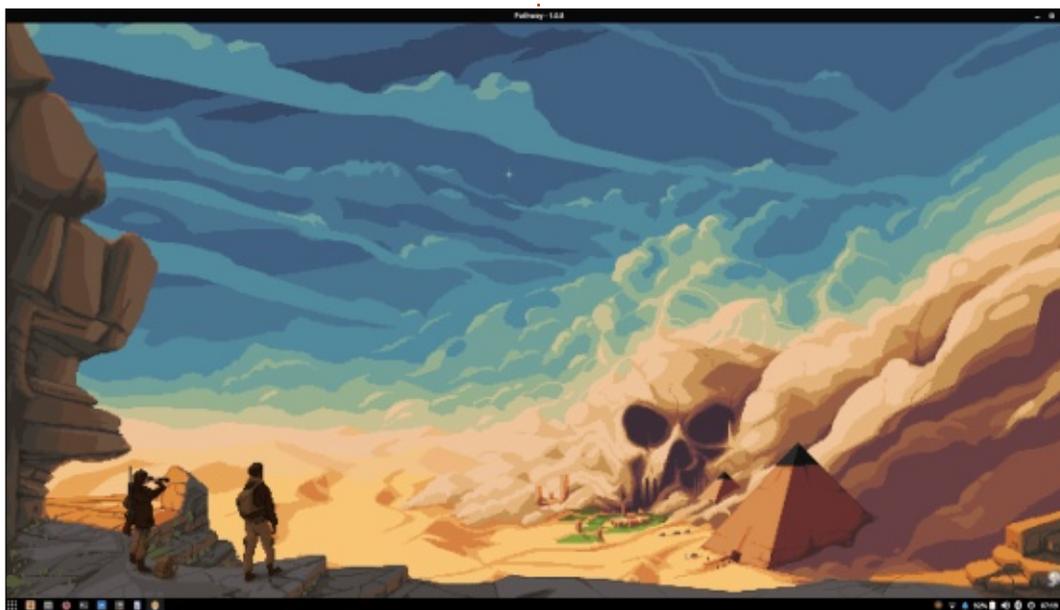
The graphics in the game are its second biggest asset. I understand they were going for the 16-bit look and they achieved it. At 1080p, the game feels a little too blocky for all the amount of detail once in-game. If you play the game at 720p though, everything looks amazing. I feel sorry for those with High DPI screens... Loading screens, etc,

look out of this world. One can see that a lot of effort went into this game by the game artists. Everything in this game feels like Indiana Jones, even the world maps are similar. (Not the game map). Speaking of game map, the tiny Jeep and people getting out of it, animation really puts this game on a different level.

(Bottom right corner you will see the spinning skull)

GAME-PLAY.

Even though the game-play is great, it does feel a tad repetitive after a while. If I had to be pedantic I would say the game needed a bit more content for the replay-ability. This is usually the issue with story driven games, it needs lots of content and side quests to make you want to play it again once finished. I love that there are critical failures present, and one can blow yourself up with a clumsy hand grenade toss. The testers seemed to have done their jobs well and I did not get stuck anywhere on the map. If this genre



UBUNTU GAMES - PATHWAY

is your type of game, you will really enjoy it; if it is not, you may find yourself drawn into this title.

SOUND AND MUSIC

I have already told you about the amazing soundtrack that screams Indie! (That's Doctor Jones to you lady!). The other sounds in the game are apt and you always feel immersed with fitting music.

STORY

Instead of giving away anything about the plot, I will tell you about the colourful characters in the game. The characters all have positive and negative traits. Baron von B, the German gentleman imposter is your sniper, Miguel Ignacio Caballero, the Spanish civil war poet, is your grenadier, and Brumhilda, Queen of the Valkyries, Icelandic fairground wrestler, is your melee specialist. There are of course, many other colourful characters to choose from. It is good to see humour brought in here.

CONCLUSION

Pathway is an overall fun game with a reasonable story line, nice colourful graphics, and good sound. The only thing I would have liked to see was that the graphics still looked 16-bit at 1080p rather than 8-bit. I would also have liked to see more missions and a little variety in the game-play. As it stands now, it is a good game, but it needs more to be a great game. It does have the potential to be a five-star game; let's see if the developers can take it there with updates.



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

Crossword answers:





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MONTHLY PATRONS

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 Alex Popescu
 Bill Berninghausen
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 CBinMV
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 Devin McPherson
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 Elizabeth K. Joseph
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 Hugo Sutherland
 Jack
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 John Andrews
 John Malon
 John Prigge
 JT
 Kevin O'Brien
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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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