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ubuntu Budgie

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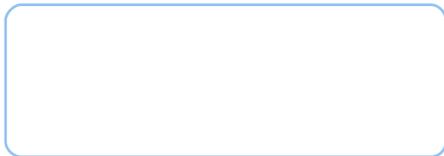
UBUNTU BUDGIE
THOUGHTS ON THE NEWEST UBUNTU FLAVOR

Full Circle

THE INDEPENDENT MAGAZINE FOR THE UBUNTU LINUX COMMUNITY

EDITORIAL

WELCOME TO THE LATEST ISSUE OF FULL CIRCLE.

No Python this month as Greg was feeling a bit under the weather, but we still have FreeCAD, and Inkscape for you. This month is also the start of a two-part piece on tmux. Tmux could be your new terminal software. A brief intro to it this month, with more coming next month.

As you can see, from the cover of this issue, we're taking a look at Ubuntu Budgie. Well, I say 'we', but I mean Alan Ward. He's giving his opinion on the latest official flavor of Ubuntu. He's a hard man to please. Will Ubuntu Budgie get his seal of approval? Read on...

If you have an Ubuntu Touch device you may want to fire it up and check for an update as the UBports team have just released their own OTA-2. It's mostly bug fixes. One of the bugs fixed is the webapps problem where things like the browser would crash when the device was connected to a monitor for convergence. That was a real nuisance as without a web browser the convergence was useless. Also with OTA-2 is an update to the Open Store. It's had a face lift. The main down side of all this is that we're still on 15.04, but the team are definitely still working on getting Touch over to the Ubuntu 16.xx branch.

As ever, keep sending in your articles. No matter how long, or short, they may be. They help keep the magazine up to snuff. This month we're back to over 50 pages, but don't let that stop you sending in more articles.

All the best, and keep in touch!
Ronnie
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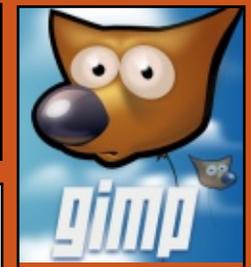
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http://tunein.com/radio/Full-Circle-Weekly-News-p855064/

LIBREM 5 IS AN OPEN SOURCE, LINUX-POWERED SMARTPHONE TO PROTECT YOUR PRIVACY

We've already come across multiple efforts of creating a perfect security-focused smartphone in the past, for example, Blackphone, GranitePhone, Turing Phone, and others. It goes without saying that they failed to cause many ripples in the vast ocean of smartphones.

Now, Purism, which is known for creating security and privacy-focused laptops, is venturing into a new arena to manufacture smartphones. Their first offering is called Librem 5, which costs $599.

Todd Weaver, the founder and CEO of Purism, says that everyone's digital rights should mirror physical rights. The device is built to protect you by default and abstain itself from any kind of tracking.

PureOS, which is created by Puris, is a derivative of the 'universal operating system' Debian GNU/Linux.

Librem 5 is a 5" phone with a metal case, high-resolution screen, and a multifunction port. It'll be able to run HTML5 applications in isolation for extra security.

Purism is running a crowdfunding campaign for Librem 5 on its own website.

Source:
https://fossbytes.com/librem-5-open-source-linux-powered-smartphone-privacy/

KOLAB NOW IS A SMOOTH ON-RAMP FOR LIBREOFFICE ONLINE

As cloud popularity grows, so does the collection of free or low-cost online office tools that services like Microsoft Office Online and Google Docs/G Suite provide.

However, those two major league offerings, along with a swarm of other cloud-based productivity platforms, are proprietary. Open source vendors have been promising a free open source online alternative. Until now, online open source office suites have been little more than vaporware.

You can get your document work done fine using an open source local installation. Exchanging documents via email attachments or shared links to files stored on Dropbox and other cloud storage farms work reasonably well for low-level collaborative team tasks.

However, the inconvenience factor kicks in very quickly when you try to handle collaborative tasks and need access to a continual stream of live edits. That is when a cloud-based open source office suite is sorely missed.

Kolab Systems last month announced Kolab Now, a full-featured online office suite. The launch had the blessing of The Document Foundation, which gave up on fulfilling promises for a free open source online version of the LibreOffice suite it sponsors.

Source:
http://www.linuxinsider.com/story/Kolab-Now-Is-a-Smooth-On-Ramp-for-LibreOffice-Online-84754.html

HANDY BACKUP FOR LINUX: MULTI-USER OPERATIONS AND PROOF-TESTING WITH UBUNTU 16.04

Novosoft, LLC updates its popular Handy Backup software to create even more comfort and functionality for Linux users. The unified, mighty solution dedicated for creating automated backup and restore actions for all types of data now has a complete, proof-tested compatibility with the latest Ubuntu 16.04 LTS stable edition of Ubuntu Linux, a popular choice among different Linux users throughout the world. Besides

tested compatibility, a new release contains some features helping effectively backup Linux server data, including a multi-user operational mode. The Windows release, Handy Backup 7.9.3, also contains some crucial improvements providing more efficient online backup, especially in complex and heterogeneous networks.

The new version of Handy Backup for Linux has a fully tested compatibility with Ubuntu 16.04, a popular Debian-based long-term service (LTS) release of a popular OS Linux distributive, which, in turn, makes a base for many other distros (e.g. Linux Mint). A user can install and update this Linux backup software solution automatically, using a dedicated repository with all the components of the program. To create and control Linux backup and restore activity, a Linux edition can use a remote Windows machine running a GUI for controlling all tasks, or instead, run a GUI component with a standard Wine emulator. This approach eliminates a difference between Windows and Linux visual components, creating a common control environment for a user or an administrator in a heterogeneous network.

Source:
https://www.cso.com.au/mediareleases/30159/handy-backup-for-linux-multi-user-operations-and/

VMWARE PARTNERS WITH PIVOTAL, GOOGLE CLOUD TO LAUNCH KUBERNETES-BASED CONTAINER SERVICE

In partnership with Google Cloud, VMware and Pivotal have launched the Pivotal Container Service (PKS), a new offering that simplifies the process for deploying containers on VMware vSphere. The service, announced Tuesday at the 2017 VMworld conference in Las Vegas, will also offer compatibility for Google Container Engine (GKE), according to a press release.

Essentially, PKS is a new Kubernetes distribution built on Kubo, an open source container platform. Kubo, born out of a partnership between Pivotal and Google Cloud Platform, is powered by BOSH and provides high availability, automation, and additional tools.

BOSH-powered Kubo can run in the public cloud or in a traditional data center, which plays into the on-premises aspect of PKS. VMware NSX-T integration is also a part of PKS, adding security and connectivity, the release said. PKS is basically a hardened, commercial deployment of Kubo.
With all the focus on availability, security, and multi-tenancy, it's clear that PKS is made for serious enterprise container deployments. Specifically, the release said, the target audience is the Fortune 2000.

As part of the announcement, VMware will also be contributing resources to Project Kubo to help further build out the open source project and better enable Kubernetes to be deployed among enterprises and cloud service providers, the release said.

Source:
http://www.techrepublic.com/article/vmware-partners-with-pivotal-google-cloud-to-launch-kubernetes-based-container-service/

WINDOW MAKER LIVE: COOL RETRO LOOK, EVEN COOLER PERFORMANCE

Window Maker Live (WML) takes an unusual approach to desktop interface management. It has an old-fashioned look with a productive new feel.

The latest version of Window Maker Live (0.95.7-4), released this month, is a Debian-based Linux distribution that uses the Window Maker window manager as the default graphical user interface. It integrates well-known open source components in a surprisingly satisfying interface.

Window Maker itself has been around since 1997. It is an X11 window manager originally designed to provide integration support for the GNUstep Desktop Environment, a free adaptation of Cocoa (formerly OpenStep).

A framework with application development tools for Unix-like operating systems and Microsoft Windows, Window Maker is part of the GNU Project.
If you are into retro computing, you will marvel at Window Maker's

success in reproducing the cool look and feel of the Nextstep user interface. That nostalgia is reminiscent of Thinkpad T61 technology.

If that level of computing nostalgia is not your passion, WML's user interface can bring you a productivity boost without the excessive GUI bloat of modern-day Linux desktop environments.

The window manager is loaded with features and speed. It is easy to configure. It is easy to use.

Source: http://www.linuxinsider.com/story/84768.html

AMD Replaces Ryzen CPUs for Users Affected By Rare Linux Bug

AMD's Ryzen 7 has been generally well-received by the enthusiast community, but there's been one low-level problem that we've been watching but haven't previously reported on. In early June, Ryzen users running Linux began reporting segmentation faults when running multiple concurrent compilation workloads

using multiple different versions of GCC. LVVM/Clang was not affected, and the issue appears confined to Linux. Moreover, it wasn't apparently common, even among Linux users — Michael Larabel, of Phoronix.com, reported that his own test rigs had been absolutely solid, even under heavy workloads.

Like the Pentium FDIV bug of yesteryear, this was a real issue, but one that realistically only impacted a fraction of a fraction of buyers. AMD had previously said it was investigating the problem (which isn't present on any Epyc or Threadripper CPUs) and it's now announced a solution: CPU replacement.

The good news is, AMD is replacing the CPUs of anyone who has this issue. Again, while the issue is real, it appears to only trigger in an extremely small number of cases when running a Linux workload under specific and particular circumstances.

Source: https://www.extremetech.com/computing/254750-amd-replaces-ryzen-cpus-users-affected-rare-linux-bug

Bodhi Linux 4.3.0 Lightweight Operating System Released In 3 Flavors

Fulfilling the needs of every kind of desktop user is one the biggest strengths of Linux. This ability also enables the developers to create Linux distributions for old computers with limited hardware capabilities.

Bodhi Linux is one such lightweight Linux distro that works like a charm. In early June, we witnessed its version 4.2.0 that came with Linux kernel 4.10 and Swami Control Panel. Now, after three months, the developers have released Bodhi Linux 4.3.0.

The Linux enthusiasts must note that just like the previous release, Bodhi Linux 4.3.0 isn't a feature release, which means that it won't bring along any new and fancy features.

The developers have called it a normal release that has been pushed to simply keep the current ISO updated. As a result, the current users of Bodhi 4.x.y series

don't need to perform the installation.

Just like the previous releases, Bodhi Linux 4.3.0 is built on the solid Ubuntu 16.04 release. The Linux kernel has been upgraded to 4.11.

The other updated packages included in this release are EFL 1.19.1, Terminology 1.1.0, and Ephoto 1.5.

Source: https://fossbytes.com/bodhi-linux-4-3-0-features-iso-torrent-download/

Linux Lite 3.6 Lightweight Distro Released With New Features

Linux Lite is often cited as one of the favorite newcomers in the overcrowded world of Linux distributions. It's known to deliver a lightweight Linux desktop experience, coupled with a beginner-friendly working environment.

Earlier this year in April, developers shipped Linux Lite 3.4 with Ubuntu 16.04.2 base and Linux kernel 4.4. Now, after five months of development work, Linux Lite 3.6 has been released.

Linux Lite 3.6 comes with lots of improvements and changes since 3.4 release. So, let us tell you about these changes in brief:
• A major feature introduced in Linux Lite 3.6 is the addition of Lite Sources. It is a repository selector that gives you the ability to select the nearest repository based on location quickly. This feature's obvious advantage is faster download speed. You can find Lite Sources in the Settings.
• The second significant Linux Lite feature is the addition of an online and offline search engine for the Help Manual. According to the developers, this is the combination of four free software projects.

As a welcome change, Arch theme for Mozilla Thunderbird has been included to ensure theme continuity.

Lite Upgrade and Lite Welcome have got some minor GUI and code changes. You'll also spot new wallpapers, better BluRay support,

and better Broadcom wireless support.

Source: https://fossbytes.com/linux-lite-3-6-release-features-download-iso-torrent/

Terminator for GNU/Linux – A very powerful command line terminal

There are more terminal applications than one can shake a stick at, so I'll say it's a little hard to really think, "Why should I use X instead of Y?" But, Terminator is definitely worth looking into and there is a reason why so many people speak highly of it.

Terminator can be installed from practically all default repositories, so there is no real need for instructions on how to get it!

I personally am a fan of Tiled Window Managers like Notion as I find that it really enhances my productivity when I don't need to

alt tab a bunch of times to the window I want, or move my mouse constantly to my dock / task bar to select windows.

It's also really helpful when I have multiple terminal windows open on the go, to have them both on my screen at once. Granted, I can snap windows to the sides of my screens and create my own makeshift tiles when running certain desktop Environments.

Terminator allows for this concept of splitting into multiple within a singular window; and that to me gives it a huge edge over more simple terminals like Konsole. I can have one window with three command lines. An example is one for VPS#1, one for VPS#2, and one for a local terminal, without taking up extra real estate on my laptop monitor; and still having room for my web browser, and maybe a music player or a video on the go!

Source: https://www.ghacks.net/2017/09/03/terminator-for-gnulinux-a-very-powerful-command-line-terminal/

Manjaro Linux Drops 32-Bit Support, Manjaro 17.0.3 Is The Last 32-bit Release

Manjaro Linux is one of the fastest growing Linux distros around. It's known for its user-friendliness and power of Arch base. Since its inception, it has been loved by the Linux enthusiasts who wished to see something fresh on their machines. Earlier this year in March, Manjaro 17.0 Gellivera was released.

Just yesterday, Manjaro Project Leader Philip Muller released Manjaro Linux 17.0.3, which is the final release of Gellivera, after two months of development. This release brings improved hardware detection, installer fixes, and the addition of the latest packages. Overall, this release has polished Manjaro as a whole.

This release has also come with a bad news for some people. As a result of the decreasing popularity of i686 hardware among the users and developers, the project has decided to drop the support for 32-bit machines.

As a result, Manjaro 17.0.3 is the last ISO that you can install on 32-bit machines. During the months of Septemeber and October, which will be the depreciation period, Manjaro 32-bit installs will still be receiving updates. After that, the architecture will be unsupported.

It's worth noting that Manjaro parent distro Arch Linux has itself dropped the support for 32-bit machines. As Manjaro depends heavily on Arch packages, this change makes sense.

Source: https://fossbytes.com/manjaro-17-0-3-released-features-last-32-bit-release/

Six-Year-Old "Loop Bug" Re-Discovered to Affect Almost All Major PDF Viewers

A bug discovered in an obscure PDF parsing library back in 2011 is also present in most of today's top PDF viewers, according to German software developer Hanno Böck.

The original bug affected the PDF parser component included with Evince, a document viewer app for Linux. It was discovered by fellow German software developer Andreas Bogk, who helped Evince fixed the flaw, and presented his findings at the 2011 Chaos Communication Camp.

The bug was mostly ignored since it was never deemed a major security issue and only affected a small app installed only on Linux desktops.

Six years later, this turned into a big issue after Böck discovered similar behavior in a large number of well-known PDF viewers.

For example, Böck found Bogk's "loop" bug in PDFium, the library that allows Chrome to render PDF documents inside the browser without any plugins.

The pdf.js library, used in a similar capacity in Firefox, is also affected. Pdf.js is also used at GitHub to render PDF documents inside the website's interface, without needing users to download the file and view it inside a third-party app. GitHub's implementation is also vulnerable

to endless loops that break PDF rendering on the site.

The Windows Runtime PDF Renderer library, or WinRT PDF, is also affected. This is Edge's built-in PDF viewer, but also the default PDF parser for the Windows "Reader App," the default PDF viewer app on Windows 8 and all later versions.

Similarly, open-source PDF parsers such as Ghostscript and QPDF are also affected, meaning the issue most likely trickles down to many other web and desktop PDF viewer apps where these two projects have been deployed.

Source: https://www.bleepingcomputer.com/news/software/six-year-old-loop-bug-re-discovered-to-affect-almost-all-major-pdf-viewers/

Mesa 17.2 Graphics Stack Released, Brings Many Improvements for Linux Gamers

Mesa 17.2 has been in development for the past

several weeks, during which it received no less than six Release Candidate (RC) snapshots, which implemented all the goodies that many Linux users will soon be able to enjoy on their personal computers, especially if they're gamers.

Highlights of the Mesa 17.2 graphics stack includes performance improvements for both the Intel ANV and AMD RADV Vulkan drivers, implementation of the OpenGL 4.5 API, though some of the included drivers won't support all of its features, as well as enhancements for the RadeonSI and Nouveau drivers.

Numerous bugs were addressed in the Mesa 17.2 series, improving support for many popular games. The Google Earth and Chromium apps also received improvements, as well as the Wayland display server.

Source: http://news.softpedia.com/news/mesa-17-2-graphics-stack-released-brings-many-improvements-for-linux-gamers-517610.shtml

MICROSOFT'S AZURE APP SERVICE DEVELOPER PLATFORM NOW AVAILABLE ON LINUX

Microsoft initially launched Azure App Service in March 2015. The unified service combined the previously separate Azure Websites/Web Apps, Mobile Services and BizTalk Services. The unified service provided a common app-hosting, runtime and extensibility model and was aimed at developers interested in building web apps, mobile apps, business apps, and so-called API apps.

On Linux, Azure App Service includes the Web App for Containers capability. Developers have the option of bringing their own Docker-formatted container images supporting Java, Python, and Go. The service also includes built-in image support for ASP.NET Core, Node.js, PHP and Ruby on Linux. Pre-built packages for WordPress, Joomla, and Drupal are in the Azure Marketplace and can be deployed to App Service.

The idea of Azure App Service is to allow developers to leave the underlying infrastructure, application environment and maintenance to Microsoft. Those who want more control can SSH into their applications for full remote access to administrative commands.

Source:
http://www.zdnet.com/article/microsofts-azure-app-service-developer-platform-now-available-on-linux/

LINUX MINT 18.3 FEATURES & RELEASE DATE

On Linux Mint blog, the development team has started telling about the features that are getting implemented. But, what about Mint 18.3 release date? As Mint 18.2, based on Ubuntu 16.04.2, was released in June 2017, we can expect Mint 18.3 towards the end of December 2017 with Ubuntu 16.04.3 base.

After that, Mint development team is expected to make a shift to a new base, i.e., Ubuntu 18.04 LTS. So, one can expect Linux Mint 19.0 to be released around June 2018, based on Ubuntu 18.04.

Linux Mint login screen has got lots of configuration options, which can be used to hide user list and enter names manually. The Linux Mint Cinnamon desktop now supports HybridSleep, which can be seen as a mixture of hibernation and sleep.

Improvements have been made to Mint Software Manager to make it look modern and polished. It no longer uses Webkit; the app has been ported to GTK3 to add HiDPI support. The user interface is inspired by GNOME Software. It has also been made 3 times faster.

To improve your efficiency and save from the trouble of opening a window and waiting for the task to complete, a Window Progress bar has been added.

Mint 18.3 is expected to be released in December 2017.

Source:
https://fossbytes.com/linux-mint-18-3-features-release-date-download/

TOR PROJECT BRINGS SECURITY SLIDER FEATURE TO ANDROID APP ORFOX

Tor Project developers recently bolstered Orfox, a Tor Browser for Android devices, to help privacy-conscious mobile browsers better customize their security.

Tor Project developers partnered with the Guardian Project to release the first iteration of the app last December. It's essentially an Android compatible fork of the Tor Browser repository that uses Orbot, a proxy app that acts as an instance of the Tor network.

The latest update to the Orfox brings the Tor Browser's security slider feature into the fold.

The Security Slider feature app lets users decide how tightly reined in they want their mobile browsing experience to be. Users can elect to disable JavaScript on all sites or just non-HTTPS sites, make all HTML5 audio and video elements tap-to-play, or disable all fonts, icons, symbols, and images depending how concerned users are of their security.

Adapting the slider to Orfox didn't come easy. Developers had to redesign the app's security settings and overhaul the slider's UI to work on a mobile app. The project took roughly four months and another four months to find its way into the app.

Source:
https://threatpost.com/tor-project-brings-security-slider-feature-to-android-app-orfox/127849/

GERMANY'S ELECTION SOFTWARE IS DANGEROUSLY HACKABLE

After hackers, believed to be Russian, meddled in both the US and French elections, Germany is likely next on the target list. And this week the Chaos Computer Club, a German collective of hackers and security researchers, exposed the results of their unsolicited audit of the country's voting infrastructure. They found that a program called PC-Wahl, used for recording, counting, displaying, and analyzing votes in German elections from the local level to the national government.

The hackers found they could corrupt the updates from the server controlling that software to re-tabulate votes at will, with potentially disastrous consequences for the country's October parliamentary election. The CCC says that VOTE-IT, the company behind the software, privately fixed the security flaws the group exposed while publicly refusing to acknowledge the vulnerabilities.

Source:
https://www.wired.com/story/security-roundup-germany-election-software-is-hackable/

OPENSOURCEPC IS OPEN FOR BUSINESS

At OpenSourcePC you can customize your computer and hardware as much as you can customize your software. They offer wraps, laser etching, custom paint, custom branding, and hydro dipping to get that exact look you want and upgrades for Ram, CPU, GPU, solid state drives, storage, cooling, and overclocking. OpenSourcePC uses Linux based

operating system Ubuntu. Linux gives the user complete control while Ubuntu is secure and user friendly offering the best of both worlds. In the future, OpenSourcePC will be adding Linux based desktops and servers to their line-up, so make sure to check in for new product updates.

Lincoln, Nebraska-based OpenSourcePC gives you the freedom and flexibility to make your computer the way you've always wanted it to be, with a Linux based operating system. OpenSourcePC offers complete customization of looks and performance as well as a wide range of accessories.

Source:
https://www.benzinga.com/pressreleases/17/09/p10027985/opensourcepc-is-open-for-business

MANJARO SPITFIRE: MANJARO LINUX GETS ITS OWN LAPTOP WITH THE HELP OF STATION X

After months of hard work, Manjaro Linux, which is an elegant Arch-based and easy-to-use Linux distro, has released its laptop in partnership with the folks at Station X. Designed by Manjaro Team, this laptop is being specially created for the Manjaro community.

This collaboration promises to deliver the ultimate Manjaro machine; the laptop also features complex kernel tweaks, custom changes to battery, CPU, sound, and streamlined settings. Manjaro Spitfire also features a laser-etched Manjaro logo on the lid.

This machine is powered by 7th generation Intel core processor, up to 32GB RAM, dual drive bays, and more. Thanks to an all-aluminum chassis and 1080p IPS display, powerful Manjaro Spitfire makes no compromise on looks. It also comes with custom designed Xfce themes, wallpapers, and icons.

Source:
https://fossbytes.com/manjaro-spitfire-laptop-station-x-specifications/

Windows 10's Built-In Linux Shell Could Be Abused to Hide Malware, Researchers Say

Microsoft surprised the technology world last year when it announced that users will be able to run native Linux applications in Windows 10 without virtualization. While this feature is meant to help developers, researchers believe it could be abused by attackers to hide malware from security products.

Researchers from security firm Check Point Software Technologies developed a technique that uses Bash, the Linux command-line interface—or shell—that's now available in Windows, to make known malware undetectable. They named the result Bashware.

The Windows 10 feature, called the Windows Subsystem for Linux (WSL), tricks Linux applications into believing they're communicating with the Linux kernel—the core part of the operating system that includes hardware drivers and essential services. In reality, those applications communicate with the WSL, which translates their system calls into equivalents for the Windows kernel.

WSL was first announced in March 2016 and was added as a beta feature in the Windows 10 Anniversary Update, which was released in August 2016. Microsoft announced that it will become a fully supported feature in the upcoming Fall Creators Update.

Source: https://motherboard.vice.com/en us/article/xwwexa/windows-10s-built-in-linux-shell-could-be-abused-to-hide-malware-researchers-say

Linux gets blasted by BlueBorne too

The security company Armis has revealed eight separate Bluetooth wireless protocol flaws known collectively as BlueBorne. This new nasty set of vulnerabilities have the potential to wreak havoc on iPhones, Android devices, Windows PC, and, oh yes, Linux desktops and server, as well.

While BlueBorne requires a Bluetooth connection to spread, once the security holes are exploited, a single infected device could infect numerous devices and computers in seconds. Attacks made with BlueBorne are silent, avoid activating most security measures, and require nothing from new victims except that their devices have Bluetooth on.

On Linux servers and desktops, BlueBorne can attack via the Linux kernel's implementation of the Bluetooth Host L2CAP protocol. Specifically, it impacts Linux using L2CAP version 3.3 and above. The vulnerability has been assigned CVE-2017-1000251. Red Hat rates this vulnerability as important.

The Logical Link Control and Adaptation Layer Protocol (L2CAP) works at the Bluetooth stack's data link layer. It provides services such as connection multiplexing, segmentation, and reassembly of packets for upper-layer protocols such as Bluetooth.

Source: http://www.zdnet.com/article/linux-gets-blasted-by-blueborne-too/

Sublime Text 3.0 Released With New Features

Sublime Text is one of best text editors around, there's no doubt about that. Making this tool even better, its developers have just pushed the latest and much-awaited Sublime Text 3.0 release with new features.

Compared to the last beta which was pushed out last year in September, which is about one year ago, Sublime Text 3.0 brings a refreshed UI theme, a new icon, and a new color scheme. "Virtually every aspect of the editor has been improved in some way, and even a list of the major changes would be too long," the Sublime Text 3.0 release announcement reads.

The big improvements in Sublime Text 3.0 are related to syntax highlighting, APIs, spell checking, GoTo Definition, automatic indentation, etc.

Compared to Sublime Text 2, this release is significantly faster, and the scrolling is smoother.

Talking about the particular changes from the last beta for Linux, you get apt/yum/pacman repositories for Linux, the X11 selection is updated every time on the clipboard when selection changes, improved MOD3 modifier, etc. For Windows, there's touch input support, improvements for touchpad scrolling, file change detection, font selection, fallback font handling in UI elements, etc. The improvements for macOS are Touch Bar support, custom color window title bars support, layout changes, better web browser detection, etc.

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

GNOME 3.26 "MANCHESTER" DESKTOP ENVIRONMENT DEBUTS OFFICIALLY

Dubbed "Manchester," after the city where the annual GUADEC (GNOME Users And Developers European Conference) developer conference took place this year, the GNOME 3.26 desktop environment packs many enhancements for the apps and core components included in the GNOME Stack, along with new features.

As for the main GNOME components, GNOME Shell received better search view with a new layout and support for searching system actions, more Wayland improvements, animated transitions for maximized and unmaximized windows, slightly revamped activities overview, and transparency for the top bar.

Fractional display scaling has been introduced in GNOME 3.26 to make the desktop environment look better on HiDPI displays, the Photos app comes with new zoom controls, the Maps app now lets you switch between aerial and street views using keyboard shortcuts, and System Monitor now monitors disk IO per process.

Moreover, the Boxes app now lets you share folders between guest and host, the Disks app allows the creation of new image files that can be mounted as loop devices and supports resizing of partitions together with their file system, Epiphany (Web) comes with Firefox Sync support, and the Calendar app now supports recurrent events.

Source:
http://news.softpedia.com/news/gnome-3-26-manchester-desktop-environment-debuts-officially-here-s-what-s-new-517724.shtml

ARCHLABS LINUX "MÍNIMO" 2017.09 RELEASED

ArchLabs is a comparatively newer and lesser popular Linux distro as compared to other Arch Linux derivatives like Manjaro or Antergos. It came into existence when Crunchbang's development was ceased and some fans decided to take inspiration from Bunsenlabs, which was itself a community-organized successor to Crunchbang, and create an Arch Linux based distribution named ArchLabs.

ArchLabs, in early September 2017, decided to shift their focus of ArchLabs Mínimo, aka MSE-6, as their main release. It's a stripped down, Openbox-based version of ArchLabs R2D2. For those who don't know, MSE-6 are tiny repair droids seen in Star Wars.

Mínimo's default panel, Polybar, has been tweaked. To control media volume, you can control it by scrolling anywhere. ArchLabs developers have made their point clear that Conky won't be ever included by default in Mínimo.

Audacious has been brought back as the default music player. For movies and videos, there's MPV. The web browser has got a new ArchLabs home page, which is called ArchTabs.

As ArchLabs Mínimo 2017.09 is a minimal release, the ISO size is around 950MB, which is a lot less as compared to R2-D2's 2GB size.

Source:
https://fossbytes.com/archlabs-minimo-2017-09-linux-download-review/

First Linux 4.14 release adds "very core" features, arrives in time for kernel's 26th birthday

Linus Torvalds has announced the first release candidate (rc) for Linux 4.14, the next long term stable release of the Linux kernel.

This release introduces several new core memory management features, a host of device driver updates, and changes to documentation, architecture, filesystems, networking and tooling.

It's the first of a likely seven release candidates before the new kernel reaches stable release around November.

Torvalds announced the Linux 4.14rc on Saturday, exactly one day before Linux-0.01 -- the very first kernel then coded largely by Torvalds himself -- was released 26 years ago. Today, there are some 4,300 developers working on the kernel, adding around 10,000 lines of code per day.

Kernel maintainer Greg Kroah-Hartman said earlier this month that Linux 4.14 would be this year's long term support kernel, meaning he'll be adding stable kernel patch back ports for at least two years from its release. This was announced in July. Previous long term releases were 4.4 and 4.9, which are supported until February 2018, and January 19, respectively.

Torvalds says Linux 4.14 is "pretty regular" in size compared to the smallish 4.13 release but hasn't been as smooth as during the merge window. As usual he had a few criticisms over processes, but didn't blame it entirely on contributors.

Source:
http://www.zdnet.com/article/first-linux-4-14-release-adds-very-core-features-arrives-in-time-for-kernels-26th-birthday/

Tails 3.2 release candidate has been released for testing

The LiveUSB Linux distribution, Tails (the amnesic incognito live system), has received a new release candidate for the upcoming 3.2 update that's due out on the 26th of this month. The update comes with some big under-the-hood changes to the system which should improve hardware support and the email experience.

If you've ever decided to try Tails on newer hardware, you may have had some driver issues; with this release, Tails ships with the Linux 4.12.12 kernel which is one of the latest. With it, users will get a better hardware experience; for example, the NVIDIA Maxwell series of graphics cards are now supported.

Another change which users may notice is the upgraded Thunderbird. The email client was bumped to version 52.3.0 and the Tails team said that it "should work exactly like before, or better." Seeing as Mozilla has stopped bringing major features to Thunderbird you won't see anything new but if you've noticed any issues, these might be fixed.

Over the last week or so you might have read about 'BlueBorne' which is malware that spreads to devices using Bluetooth. In order to protect against this attack, Bluetooth support is now completely disabled on Tails. Obviously, some users have Bluetooth hardware they may need so Tails is asking for feedback about the change.

Source:
https://www.neowin.net/news/tails-32-release-candidate-has-been-released-for-testing

postmarketOS: An Ultimate Linux Distro For Your Smartphones Is Coming

One of the key strengths of Linux-based operating systems is their ability to run on a variety of hardware, ranging from a decade old computers to the latest generation Intel chips. The kernel developers work day and night to keep our devices breathing running. In the past, we have also prepared a list of Linux distributions that are best suited for older computers with limited hardware requirements.

This brings us to the question —

Why aren't tons of Linux operating system options available for mobile devices? The mobile ecosystem is chiefly dominated by Android and iOS, with Android enjoying a presence on a wide range of devices. But, on the fronts of updates, even Android fails to deliver. Very often the top-of-the-line flagship devices are deprived of the latest updates just after 2-3 years. To solve this question, postmarketOS has appeared on the horizon.

postmarketOS is based on Alpine Linux distro, which is a security-oriented and lightweight Linux distro. Alpine Linux needs 5-6MB for base installation. postmarketOS has an aim to bring a ten-year life-cycle for smartphones, so that they can continue to receive updates. postmarketOS, being developed by Oliver Smith, doesn't intend to restrict users to one user interface. The user can choose from different interfaces like GNOME, Xfce, KDE, etc.

Source:
https://fossbytes.com/postmarket os-linux-distro-smartphones/

Linux Mint 18.3 Ubuntu-based operating system is named 'Sylvia'

Ubuntu 17.10 is almost here, and many Linux users are excited. Canonical's operating system is already excellent, but it will soon be even better thanks to a new default desktop environment -- GNOME. What this means for the Ubuntu-based Linux Mint's usage remains to be seen. You see, many people choose Mint because they do not like the Unity DE. Now that Ubuntu has ditched Unity, the reasons to opt for a distro based on Ubuntu rather than using "The Real McCoy" are dwindling.

But OK, if you are still a diehard Linux Mint user for some reason, I have some interesting news. Version 18.3 is coming soon, and we now know the official code name. As is typical with the Mint operating system, a woman's name is being used. This time, "Sylvia" has been selected. Besides the name, we know some other interesting tidbits -- the distro will be getting a secondary default backup tool (Timeshift), and Xreader is being significantly improved.

"Timeshift is an excellent tool which focuses on creating and restoring system snapshots. It's a great companion to mintBackup which focuses on personal data. The two applications will be installed by default and complement each others in Linux Mint 18.3. We're currently working with Tony to improve translations and desktop integration for Timeshift, add window progress support into it and improve its support for HiDPI," says Clement Lefebvre, Linux Mint.

Source:
https://betanews.com/2017/09/18 /linux-mint-18-3-sylvia/

Linux Kernel 4.12 Reached End of Life, Users Are Urged to Move to Linux 4.13

The Linux 4.12.4 point release is now available for all users using the Linux 4.12 kernel series, but it seems that this is the last maintenance update to be issued for this branch, which is now marked as EOL (End of Life) on the kernel.org website and will no longer receive support.

Therefore, all users using the Linux 4.12 kernel series are urged to upgrade to a newer kernel branch, such as Linux 4.13, which received its third maintenance update today. Of course, you can also choose to update to Linux kernel 4.12.4, but keep in mind that it's the last patch.

If you're using a GNU/Linux distribution powered by a kernel from the Linux 4.12 series, please consider upgrading to the Linux 4.13 kernel as soon as possible. If you don't know how to compile your own kernel, you should ask your distro's maintainer to upgrade the kernel packages to Linux 4.13.

Linux 4.13 is the latest stable and most advanced kernel series, released two weeks ago with numerous new features and improvements. Unfortunately, it's also not a short-lived branch, so you're better off waiting for the next LTS version, Linux 4.14, whose development was kicked off by Linus Torvalds last weekend.

Source: http://news.softpedia.com/news/linux-kernel-4-12-reached-end-of-life-users-are-urged-to-move-to-linux-4-13-517770.shtml

THE ISS JUST GOT ITS OWN LINUX SUPERCOMPUTER

A year-long project to determine how high-performance computers can perform in space has just cleared a major hurdle -- successfully booting up on the International Space Station (ISS).

This experiment conducted by Hewlett Packard Enterprise (HPE) and NASA aims to run a commercial off-the-shelf high-performance computer in the harsh conditions of space for one year -- roughly the amount of time it will take to travel to Mars.

Many of the calculations needed for space research projects are still done on Earth due to the limited computing capabilities in space, but this in turn create causes a problem in terms of transmitting data to and from a spaceship. While this approach works for space exploration on the moon or in low Earth orbit, when astronauts can be in almost real-time communication with Earth, the further they go towards Mars, the greater the communication latencies.

This means it could take 20 minutes for data to travel from a spacecraft back to Earth -- and then another 20 minutes for a response to reach the astronauts.

The hardware, which the company dubs the 'Spaceborne Computer', is an Apollo 40 server with a high-speed HPC interconnect running Linux. It runs in a water-cooled enclosure and HPE has developed additional software to address the environmental constraints and reliability requirements of supercomputing in space.

Source: http://www.zdnet.com/article/the-iss-just-got-its-own-linux-supercomputer/

KALI LINUX 2017.2 RELEASED WITH NEW HACKING TOOLS

In 2016, the Kali Linux developers decided to make a switch to the rolling release model. As a result, Kali Linux ensures that your ethical hacking setup is regularly updated with new security patches and features. As a follow-up to Kali Linux 2017.1, which was released in April 2017, the developers have just released Kali Linux 2017.2.

The latest version has all the updates and fixes released since 2017.1. Kali 2017.2 has lots of new and updated packages that are surely worth checking out. It goes without saying that these new tools are in addition to the standard security and package updates being received via Debian Testing.

Kali team has also worked to improve the overall integration of Kali Linux packages. Program usage examples, which is one area in particular, have been improved to help reduce confusion for both Kali veterans and newcomers.

Kali Linux is available for both 32-bit and 64-bit architecture. Kali ARM and Kali Virtual images have been updated. You also have different desktop options to choose from.

Source: https://fossbytes.com/kali-linux-2017-2-tools-download-iso-torrent/

The last few months of my life have been dedicated to a large project for university. In the course of this project, I was designing a website to go along with a database (the main focus). Therefore, I decided to stick to only the newest CSS technologies, in order to speed up development. During this time, I learned a few neat tricks and uses for CSS grids, that I felt I should share with my readers.

CODE

All code and examples have been placed on Codepen for easy access:
https://codepen.io/lswest/pen/NvQMbG

THE PLAN

As most readers probably read in my column in FCM #123, CSS Grids is a new layouting tool that allows you to define columns and rows, and then to either place the direct descendents automatically within this grid, or to define the size and location of the items manually.

For anyone who is not experienced with older approaches to layouts in CSS, this was not the case. Originally it was done with floating items left and right (which involved a fair few hacks and caveats), and, more recently, it was done with Flexbox. While CSS Grids do not replace Flexbox, they are more suited to general layout. The reason for this is that Flexbox acts in one direction - horizontally or vertically. Imagine you have 3 elements, and you want a split of 1 element left, and two elements stacked vertically on the right half. With Flexbox you would need to define a container for both the horizontal and the vertical directions. With CSS Grid, you simply define the element on the left as taking up two rows.

So far, so good. The problem I originally ran into was that I was applying the ideas of CSS Grids to my 'usual' approach - I was redefining everything as I needed to change it for media queries. This means my mobile-first approach (no media query) would define a CSS Grid completely, and later media queries (for larger screens) would completely redefine it. I was then also reassigning elements repeatedly to make sure they appeared in the right locations on the grid.

I then read an article on CSS Custom Properties (see Further Reading #1). After reading it, I was rethinking how you could use CSS Custom Properties and media queries to effectively stop repeating yourself. I immediately thought to myself "I can use this with CSS Grids!". And so some experimenting began - focusing mainly on CSS Grids' area definitions, and proceeded to the point where I was using only media queries to rewrite CSS Custom Properties, and to relabel my CSS Grid's areas.

THE EXPLANATION

The plan above may have left you wondering exactly what I meant. That's what this section is for! At this point, I ask you to please open the Codepen link from above, and to follow along as I explain.

CSS CUSTOM PROPERTIES

I define these right at the top of the CSS file, using the :root selector (which selects the HTML tag, in this case). You can, naturally, do this differently. However, most articles and examples I've seen do this also, to ensure that all children inherit the variables properly.

I also define only 3 Custom Properties - var-columns which configures the basic columns for our grid, var-rows which does the same for the rows of the grid, and var-aside. The var-aside variable is there only because I have one layout where the sidebar is completely hidden. One could do this step without the Custom Property, but I wanted to stay on theme.

So, at the end, we end up with the following variable values: var-

columns=1fr 1fr 1fr 1fr, var-rows=6rem 1fr 6rem, var-aside=block.

This means we end up with a grid that has 4 equally sized columns, and 3 rows (with a fixed-height header/footer row, and the main content row growing to fill the space).

DEFINING OUR AREAS

Moving on to the next selector (line 7), I then define the body of the website. I set the height and width to 100vh and 100vw respectively to ensure the body fills available space (I do this on most websites, but specifically I do this here since I have no content on the page). I also remove any margins on the body, as it causes scrollbars when the body is the full height/width of the viewport.

The next few lines are the most important. I define display: grid; to get the process started. Then I load in the rows and columns variables to initialize the grid. The key point is the next declaration, where I define the various areas I want to assign elements to. Think of it as crude ASCII art of the

layout. By default, the body should contain one row dedicated to the header, a sidebar taking up the left column, a main section taking the remaining three columns on that row, and another row entirely dedicated to the footer.

REDEFINING OUR GRID

The next set of lines (20-61) are all stand-ins for what would typically be media-queries. The reason I use classes here is due to the fact that I wanted to allow users to jump between the layouts without opening a developer console. Instead, I use JavaScript to add classes to the body, effectively emulating the functionality. For clarity, I'll give you an example (shown top right) of what the body.mobile class would look like as a media query.

Now to be fair, I do advocate for a mobile-first approach in actual projects. For the case of this demo, it made more sense to start with a desktop style. Therefore the section in the max-width: 48em; media query would be the default settings, and you would want to use a min-width query to overwrite it with what we used at the start of

```
@media screen and (max-width: 48em) {
    body {
        --var-columns: 1fr;
        --var-rows: 6rem 1fr 1fr 6rem;
        grid-template-areas:
            "header"
            "main"
            "aside"
            "footer";
    }
}
```

the CSS file.

One very important fact to remember is that your grid-template-areas must have the right number of rows and columns. Even if you're assigning an entire row with 5 columns to one area, you will need to include the area name for each column.

Some readers may also be wondering why we're redefining our variables in a body selector instead of :root. This is the strength of CSS Custom Properties - you can override them like any other CSS property. This means no more need to reset variables (except as needed for children elements). Since we're only using the variables in body, it made sense to define them there and shorten our media query (by removing a selector).

This may become clearer by looking at the no-aside version of the body (lines 47-56). As you can see, the only change needed for the body was the redefining of our grid-template-area (no custom properties were overwritten). However, a second selector (body.no-aside aside) then changes the var-aside variable to none. Since the variable is used later in the CSS file, nothing else needs to be done here. By defining that variable to be none, the display: statement becomes "display: none;" and for other views, the variable is untouched. It also works in this case if you leave out the default declaration (var-aside: block;) as the statement will just silently fail with an invalid variable, and since the default display is "block", the end result is the same. I wouldn't recommend doing this, however, as it's unclear in the long

run.

The HTML

As you can probably tell, the HTML being used here is pretty clean. There are only the 4 main elements (header, main, aside, and footer). I put the aside tag before main because it was going to be on the left by default, but, with CSS grids, it no longer matters exactly what order the tags appear in.

The onclick definitions in the nav tag are also there only to enable the JS swapping of classes. This means you can finally begin writing clear, semantic HTML5 markup!

Can Children Inherit the Grid?

No. CSS Grids can be applied only to direct descendents of the container element (so header, main, aside, and footer in our above example). Anything deeper than that (nav, for example) cannot be placed on the grid. That being said, you can either nest another CSS grid, or, since this is dealing with only one direction, use Flexbox.

Progressive Enhancement Approach?

The reality of the world of web design is that not everyone is using the newest web browsers. Depending on the project you're working on, it may very well require you to support older systems. My suggestion here is then to define your standard styles to support browsers that support only the basics (depending on what you need to support, this may be floats). Naturally, depending on how complicated the backwards compatibility is, it may be best to create a separate CSS file that newer browsers can ignore (such as a file that is loaded in an IE hack). For browsers that aren't quite as difficult as IE, you can most likely get away with using @supports to progressively enhance the functionality of your website.

Suppose, for example, you've defined a basic "fallback" layout, which gives a usable (but different) experience for any browser that doesn't support flexbox or grid. Then, at the end of the file, you will want to define a @supports(display: grid;) block (for example). In this block, you then define all your CSS Grids. As only browsers that support @supports, and display: grid; will run the block, you can be certain the layout will be used where it is supported. A caveat here is that some newer versions of IE and Edge support @supports, and CSS Grids, but not all features of CSS Grids. Therefore, you may need to check for support of a different CSS Grids property such as @supports(grid-area: auto;). Naturally, only do this if you actually use settings that are unsupported in Microsoft Edge. Similarly, you can check for support of Flexbox before using it in your CSS.

Should I Use It In Production?

That depends entirely on what you're producing. If you're simply worried that CSS Grids is too new to be used, keep in mind that websites such as the New York Times have already shipped production sites with Grids. If you're asking because you mainly support IE and Microsoft Edge, then I would say use it as you can, but don't force yourself to spend massive amounts of time on features both browsers don't fully support. That being said, Microsoft Edge does support CSS Grids - though there are a few restrictions.

However you decide to do it, if you want to use Grids, I recommend you start with the grid layout first. Why? Because it's by far the most efficient and quick way to lay out a website. I use it for all my prototypes and mockups, because, in those cases, time is of the essence, and I can always pass it to my clients with the indicator that it must be viewed in a modern browser. Only once you're happy with the new, fast approach, should you slog back into the wasteland that is browser hacks and idiosyncrasies.

I hope this article is interesting for at least a few of my readers. If you're one of them, feel free to share examples of your CSS Grids projects or talks/presentations about them with me. If anyone has any comments, questions, or requests for future articles, feel free to email me at lswest34@gmail.com.

FURTHER READING

https://madebymike.com.au/writing/using-css-variables/ - article on using CSS Custom Properties.

https://www.youtube.com/watch?v=7kVeCqQCxlk&index=19&list=PLQjv2GANsZ1JAKzoz631tlyIOZiJ3T2R6 - YouTube Video on CSS Grids (from WordCamp).

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.

From the website: *Luminance HDR is an open source graphical user interface application that aims to provide a workflow for HDR imaging.*

From me: It's a fantastic tool to use for photo manipulation.

Website:
http://qtpfsgui.sourceforge.net/
Current version: 2.5.1
License: GPL v2

Linux is not as flush as Mac with photographic programs, not by a long shot. However, there are a few gems. Luminance HDR is one of them.

The workspace is not crowded with stuff, and it actually provides a pleasant way to work.

At first, this can be misleading – as a very powerful editor lies beneath.

Let's dive in, shall we?

Luminance HDR works with RAW image files. Opening one will put your image in the right-hand pane and immediately display possible variations on the photo. Clicking on any of these immediately changes the display for you, to get a bigger preview. Notice that every time you do this, it opens in another panel. Neat!

The panes are resizeable – so if you have that 80-inch monitor on your desk, and need to see more, well... you are catered for.
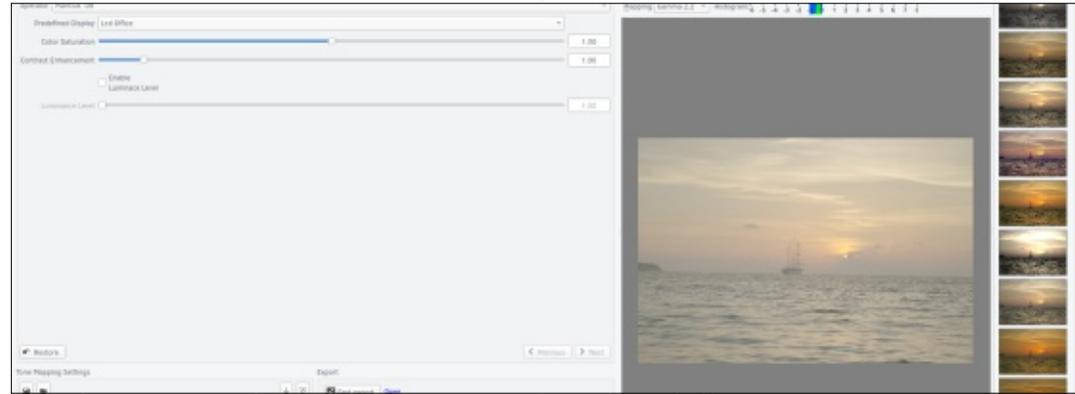

The top panel is self explanatory and I have to point out "white balance" - a very handy button. You will notice there is a "Save As" button, but not a "Save" button, to stop you accidentally overwriting your files.
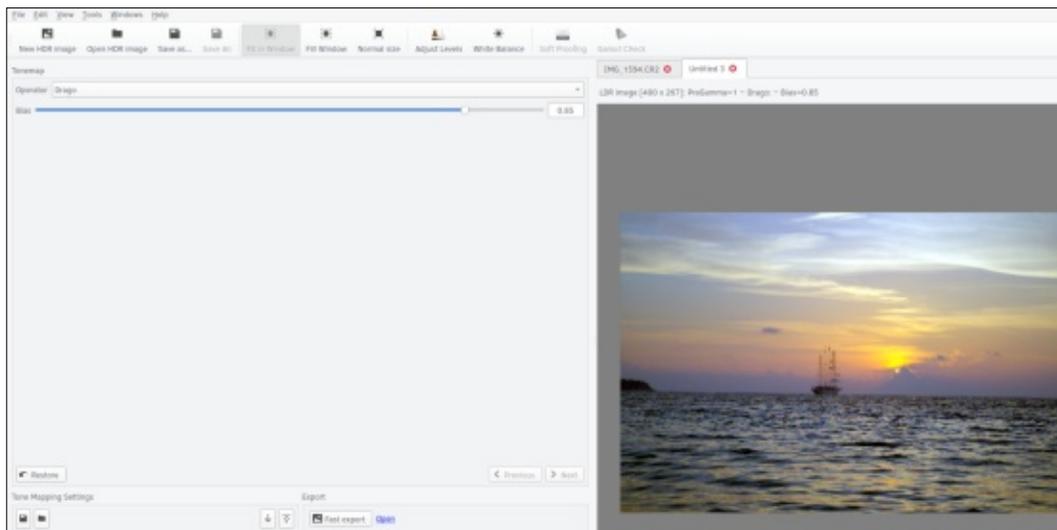
Now let's get down to the meat and potatoes! Above is an example of how easy it is to get started... I have opened a picture. It seems rather dull.

So (as shown below) I click on one of the more colourful images to the right. (Notice the new "untitled" tab):

Rich red colours now adorn my picture. Too red you say? Well, use the magic "white balance" button! (shown on the next page, top left)
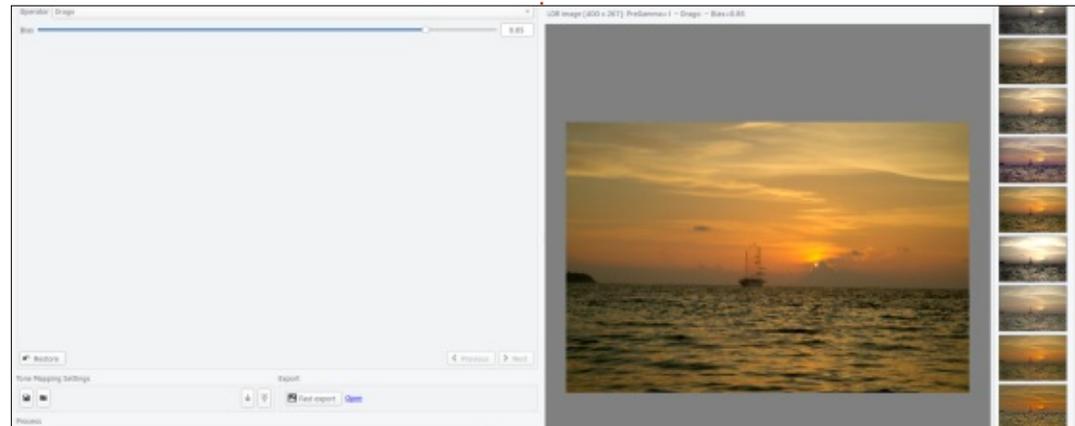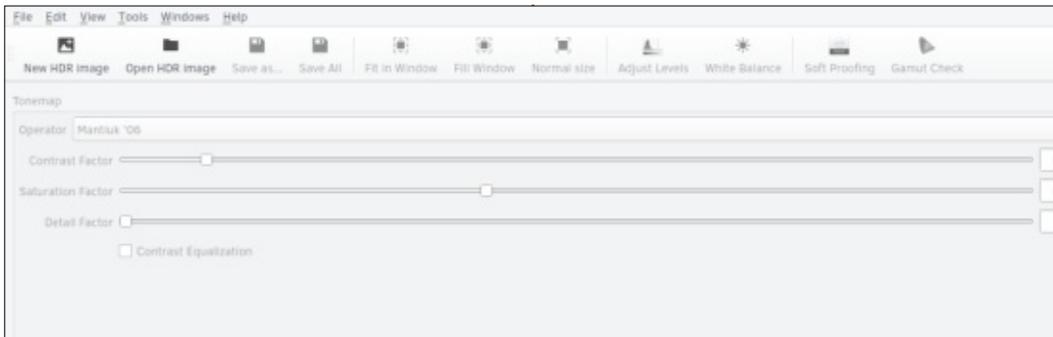
Now that looks more like how I remember it!

Hooray!! You are now an expert! Just kidding... within a matter of 3 clicks I have ended up with a photo worthy of showing someone. Note the workflow, I did not need to leave the screen I was working on, I did not adjust things manually. (Although this is also an option).

Working with your RAW images in Linux has never been easier! If you can, I would suggest making a donation to this amazing piece of software.

Click on "Help" > "Make a donation".

Now that we have scraped the

TIP OF THE ICEBERG, let me know if you would like more?

Find me on the **Full Circle Magazine Telegram Group**. *EriktheUnready*. If you are not on the Full Circle Telegram group, ask yourself: WHY NOT!

FCM Telegram Group URL:
https://t.me/joinchat/BqDEzj7o5F QkPzHjvccQnw

In this series, we will be examining the world of FreeCAD, an open-source CAD modelling application that it still in Beta, but has been gaining acceptance in recent years. Naturally, it is readily available in the Ubuntu repositories. In the fifth article on using FreeCAD, we worked on an architectural project in two different ways. In the first place, we used the Arch workbench to create a modern architectural project, in which supplementary information is given to the computer, so using FreeCAD to create a Building Integrated Model (BIM). Since this approach is in an early stage of development, and is limited to simple forms, we then used a more traditional approach to create volumes in the same way as in previous projects, but on a larger scale. The sweeping technique allowed us to create an element with the shape of an arch by sweeping one sketch (a profile) around another sketch (the outline of an arch).

In today's part of this series, we will extend FreeCAD's possibilities using a little Python programming to create a helicoidal surface in the shape of a mechanical gear wheel.

PROGRAMMING FREECAD? AND WHY PYTHON?

As many readers will be aware, the world of program language implementation is divided into two main categories. There are programming languages such as C or Fortran for which the source code needs to be compiled (into our computer's machine language) in order to be executed. There are also interpreted languages that do not need to be compiled (or "translated", to give a mental picture of what is happening when using a compiler), but may be interpreted directly by a special program on the user's computer, called an interpreter. This is the case of many programming languages with a wide acceptance in our days, such as PHP on servers or Python on users' computers. As a side-note, the Java language tends to pertain mostly to the former, compiled category (though with caveats), while the very similarly termed Javascript is actually quite a different beast and is mostly used interpreted by web browsers.

FreeCAD has been built in Python, thus an interpreted language. This is quite convenient for several reasons. In the first place, it makes the application more easy to transport to other computer architectures and operating systems, as long as a Python interpreter is available for the desired platform - and Python is getting quite ubiquitous, indeed.

In the second place, we can open a console view of FreeCAD's inner workings by simply choosing menu option View > Views > Python console. Each action we carry out through the User interface is actually converted into Python commands the program's core logic - and we can see it in real time in this console. If, for instance, I create a new project, switch to the Draft workbench, and draw a line, Below is what actually happens.

This is quite neat, since one can learn about the different commands used in an interactive way. Naturally, once one has a grasp of the fundamentals, they can be used to write one's own scripts, and have them executed by FreeCAD.

```
>>> import WebGui
>>> from StartPage import StartPage
>>> WebGui.openBrowserHTML(StartPage.handle(),'file://' + App.getResourceDir() + 'Mod/Start/StartPage/','Start page')
>>> App.newDocument("Unnamed")
>>> App.setActiveDocument("Unnamed")
>>> App.ActiveDocument=App.getDocument("Unnamed")
>>> Gui.ActiveDocument=Gui.getDocument("Unnamed")
>>> Gui.activateWorkbench("DraftWorkbench")
>>> import Draft
>>> points=[FreeCAD.Vector(-5.26563731752,-5.3714927212,0.0),FreeCAD.Vector(3.9703203574,-0.340363797945,0.0)]
>>> Draft.makeWire(points,closed=False,face=True,support=None)
```

To take an example, let us write a simple Python script that will create a simple box shape. Create a new file called "test1.py", and copy in the code shown top right.

The Part library contains the tools from the Part workbench. We begin by creating a new project, called "Box Model". We make this the active document (window), and add a new object based on the "Part::Box" prototype, naming it "box1". We set its dimensions, and have the document recalculate itself. We then tell the user interface ("Gui") to zoom the view to fit the new object, and select the Axonometric (3D) view.

To execute our script, switch to a terminal window in the same directory we have the .py file, and issue command:

`freecad test1.py`

We will see FreeCAD start up and execute our script line-by-line, giving the final result shown below.

As a second example, let us build something slightly more complex: the shape of a tin that consists in a flat shape (two arcs connected by straight segments), that will then be extruded to form a volume. Bottom right is the script, in file "test2.py".

Let us comment on the differences with the previous example. In this case, we begin our new object by creating four vectors V1 to V4, that indicate the

```
import Part

doc = FreeCAD.newDocument("Box Model")
doc = App.ActiveDocument
box1 = doc.addObject("Part::Box", "box1")
box1.Height = 40
box1.Width = 30
box1.Length = 50

doc.recompute()

Gui.SendMsgToActiveView("ViewFit")
Gui.activeDocument().activeView().viewAxometric()
```

```
import Part

doc = FreeCAD.newDocument("Tin")

V1 = FreeCAD.Vector(0,10,0)
V2 = FreeCAD.Vector(30,10,0)
V3 = FreeCAD.Vector(30,-10,0)
V4 = FreeCAD.Vector(0,-10,0)

L1 = Part.Line(V1,V2)
L2 = Part.Line(V4,V3)

VC1 = FreeCAD.Vector(-10,0,0)
C1 = Part.Arc(V1,VC1,V4)
VC2 = FreeCAD.Vector(40,0,0)
C2 = Part.Arc(V2,VC2,V3)

E1 = Part.Edge(L1)
E2 = Part.Edge(C1)
E3 = Part.Edge(L2)
E4 = Part.Edge(C2)

W = Part.Wire([E1,E2,E3,E4])
F = Part.Face(W)
P = F.extrude(FreeCAD.Vector(0,0,10))
tin = doc.addObject("Part::Feature", "tin_solid")
tin.Shape = P
doc.recompute()
Gui.SendMsgToActiveView("ViewFit")
Gui.activeDocument().activeView().viewAxometric()
doc.saveAs("tin.fcstd")
```
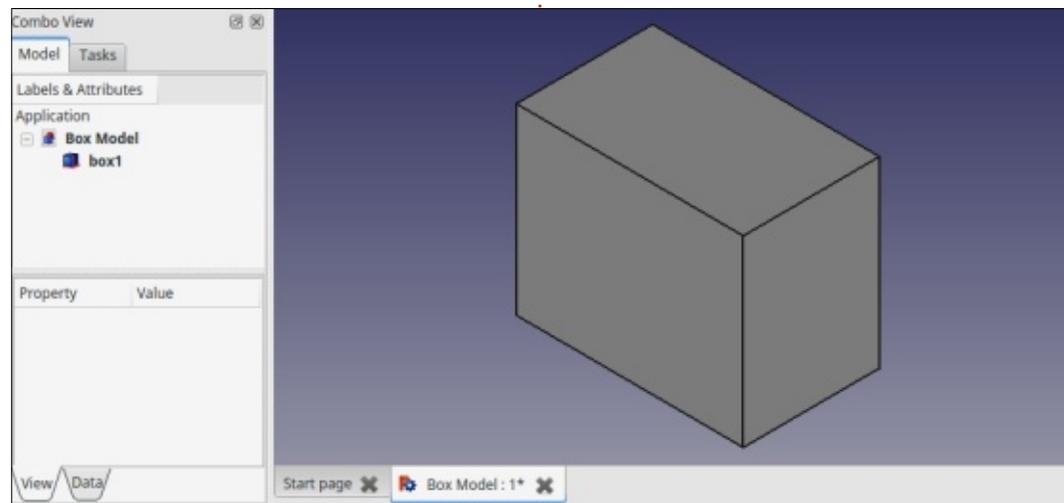
positions of the connection points between the arcs and the straight lines. We then create the two straight segments, L1 and L2, and finally the two arcs C1 and C2. We then need to convert these four items into Edge objects, E1 to E4, which are then connected into a Wire object W. This is the outline of our tin's top. Please ensure lines and arcs are set up in the correct order, otherwise connectivity errors may ensue. Finally, the Wire is converted into a bidimensional Face object F, which is then extruded into a Shape P. A generic volume is derived from "Part::Feature", and is given P as its shape.

As a final note, the finished project can be saved directly from our script, by calling the doc.saveAs procedure. When executed from the terminal, shown below is the result of our script.

LETS DRAW SOME GEARS

Scripting can come in useful when we need a shape that contains many similar, but different and calculable parts. In such cases, writing a program to iterate over our shapes can be cost-effective in terms of our time. A typical case is when creating a mechanical gear wheel. Such a wheel can be seen as a combination of an exterior shape, formed by a certain number of teeth or cogs, and an inner shape that delimits the axis. This can be either smooth or splined so that the axis can transfer torque to and from the wheel. Both the interior and the exterior wheel forms are formed of a basic shape or motif, that is iterated at a fixed angular offset between each individual tooth.

Let us concentrate on the exterior shape, slightly more complex than the interior splines. Each individual tooth is centered at a certain radius from the wheel center, or pitch surface. In our case, we specify a 100mm radius. Simplifying somewhat, this is the point at which the other gears connected to this one will transfer their force. Points 3 and 6 in our schematic are on this surface. Going outwards, teeth extend to an outer limit, the top flat. Points 4
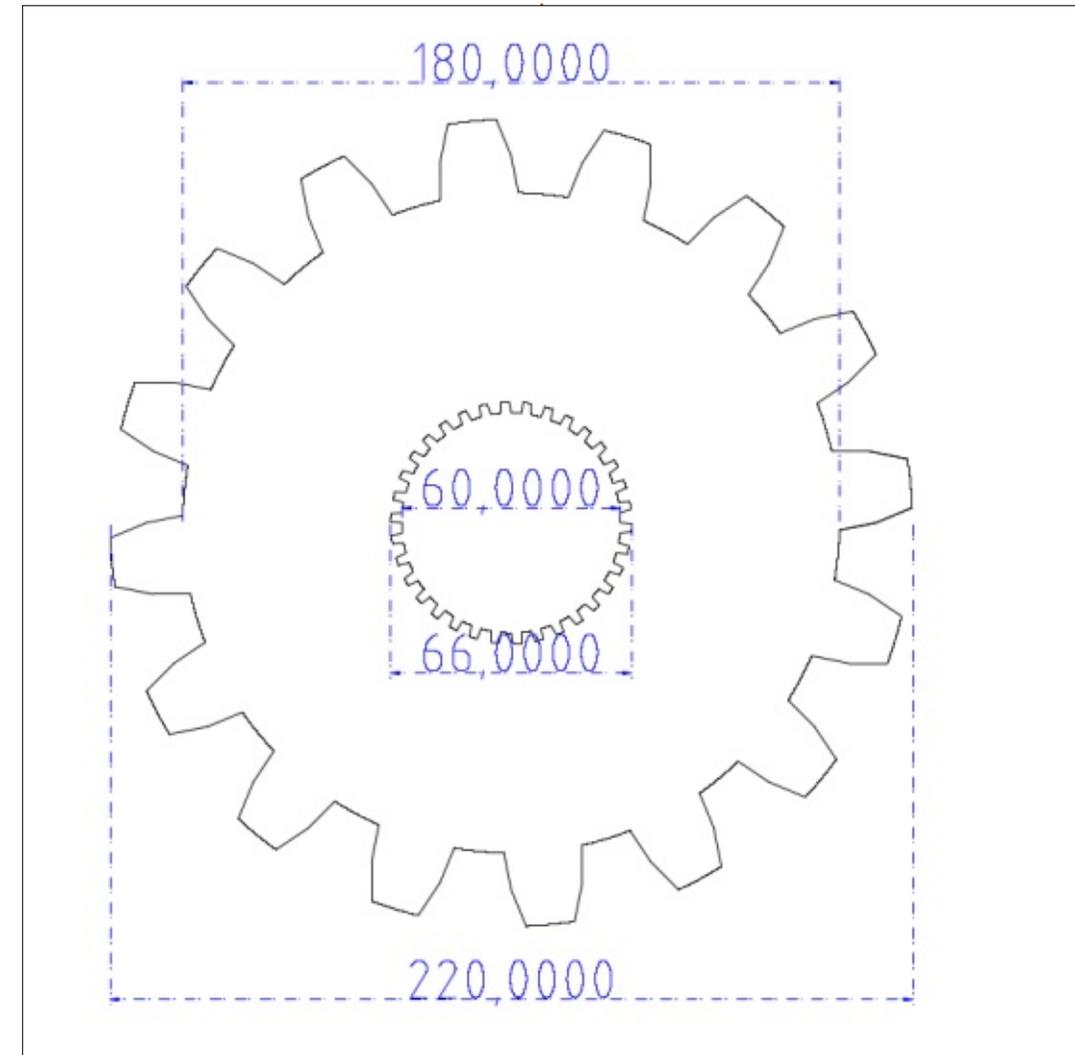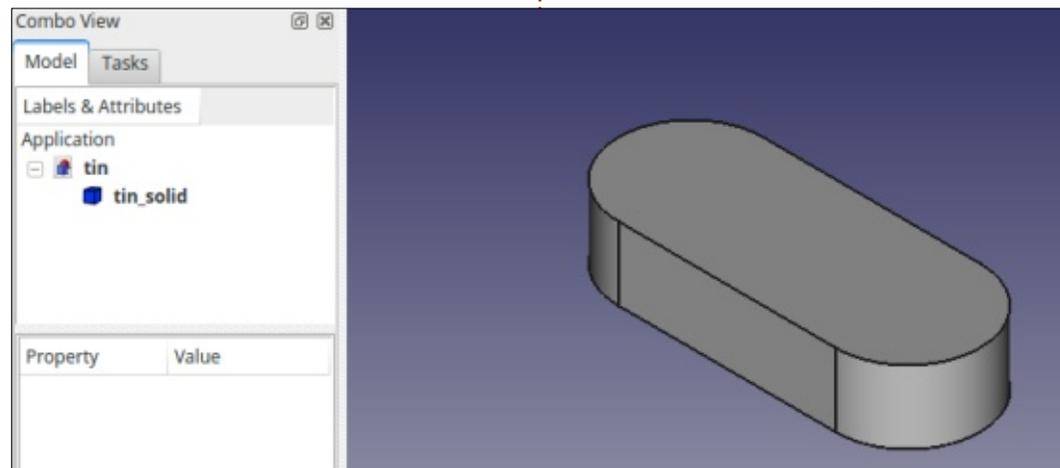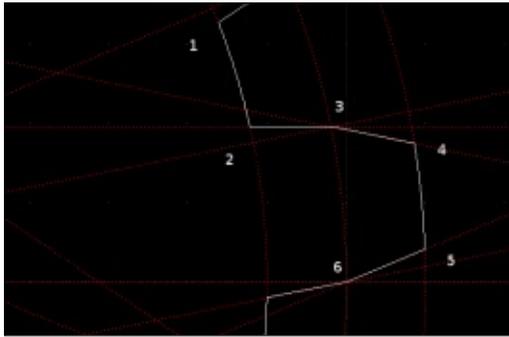
and 5 are on this radius, in our case taken at 110 mm. Finally, we need to "make some space" inwards, to accommodate the other wheel's teeth. So we go inwards to the bottom flat, at radius 90 mm in our case, and holding points 1 and 2. We will iterate this basic shape over the 16 teeth of our wheel.

Our script (right) will simply draw a series of lines from vertices 1 through 6 of each cog, and then on to vertex 1 of the next cog. Since Python has a mathematical library "math", sine and cosine functions can be used to calculate a pair of X and Y-axis coordinates for each vertex. The script itself is quite straightforward. As a note, in our example we are using only straight segments. However, in a real gear wheel, the bottom and top flats, and the contact faces, would more usually be drawn with arcs.

```python
import Part, math
radius = 100 # wheel pitch surface radius (mm)
bottom = 90  # bottom land radius (mm)
top = 110    # top land radius (mm)
teeth = 16   # number of teeth
doc = FreeCAD.newDocument("Cog")
vertex1 = []
for i in range(0, teeth):
        x = bottom * math.cos(2 * math.pi * (i - 0.45) / teeth)
        y = bottom * math.sin(2 * math.pi * (i - 0.45) / teeth)
        vertex1.append(FreeCAD.Vector(x, y, 0))
vertex2 = []
for i in range(0, teeth):
        x = bottom * math.cos(2 * math.pi * (i - 0.05) / teeth)
        y = bottom * math.sin(2 * math.pi * (i - 0.05) / teeth)
        vertex2.append(FreeCAD.Vector(x, y, 0))
vertex3 = []
for i in range(0, teeth):
        x = radius * math.cos(2 * math.pi * i / teeth)
        y = radius * math.sin(2 * math.pi * i / teeth)
        vertex3.append(FreeCAD.Vector(x, y, 0))
vertex4 = []
for i in range(0, teeth):
        x = top * math.cos(2 * math.pi * (i + 0.1) / teeth)
        y = top * math.sin(2 * math.pi * (i + 0.1) / teeth)
        vertex4.append(FreeCAD.Vector(x, y, 0))
vertex5 = []
for i in range(0, teeth):
        x = top * math.cos(2 * math.pi * (i + 0.4) / teeth)
        y = top * math.sin(2 * math.pi * (i + 0.4) / teeth)
        vertex5.append(FreeCAD.Vector(x, y, 0))
vertex6 = []
for i in range(0, teeth):
        x = radius * math.cos(2 * math.pi * (i + 0.5) / teeth)
        y = radius * math.sin(2 * math.pi * (i + 0.5) / teeth)
        vertex6.append(FreeCAD.Vector(x, y, 0))
edges = []
for i in range(0, teeth):
        nexti = (i + 1) % teeth
        L1 = Part.Line(vertex1[i], vertex2[i])
        edges.append(Part.Edge(L1))
        L2 = Part.Line(vertex2[i], vertex3[i])
        edges.append(Part.Edge(L2))
        L3 = Part.Line(vertex3[i], vertex4[i])
        edges.append(Part.Edge(L3))
        L4 = Part.Line(vertex4[i], vertex5[i])
        edges.append(Part.Edge(L4))
        L5 = Part.Line(vertex5[i], vertex6[i])
        edges.append(Part.Edge(L5))
        L6 = Part.Line(vertex6[i], vertex1[nexti])
        edges.append(Part.Edge(L6))
W = Part.Wire(edges)
F = Part.Face(W)
wheel = doc.addObject("Part::Feature", "cog")
wheel.Shape = F
doc.recompute()
```

HOWTO - FREECAD

Once we have the cog shape in FreeCAD, we can continue using it "by hand" within the normal user interface, as a basis for an extrusion or any other operation we wish. With a similar script to draw the central, crenellated shape for the splines, we can extrude both the external volume of the gear wheel and the volume of the inner axle, and then use a boolean operation to cut one out of the other. We can thus obtain the shape of a traditional straight gear that would be found in many traditional applications such as a four-by-four vehicle's transfer box.

However, straight teeth do have the disadvantage of creating quite a bit of noise during operation, since, during each rotation, each tooth engages immediately with the other gear wheel's corresponding tooth along the complete width of the tooth. This produces the typical whining noise that can be heard from some mechanical setups. In most modern applications where smoothness of operation and low noise emissions are valued, such as vehicle gear boxes, helicoidal gears can be preferred.

To draw such a gear wheel, the same tooth pattern can be used, but swept along a helicoidal path instead of using the simple linear extrusion tool.

Start, in the Part workbench, by selecting the Part > Create Primitive menu option. Here, we can select the Helix shape. Since I wished to create a gear wheel 50 mm in width, with teeth sloped at
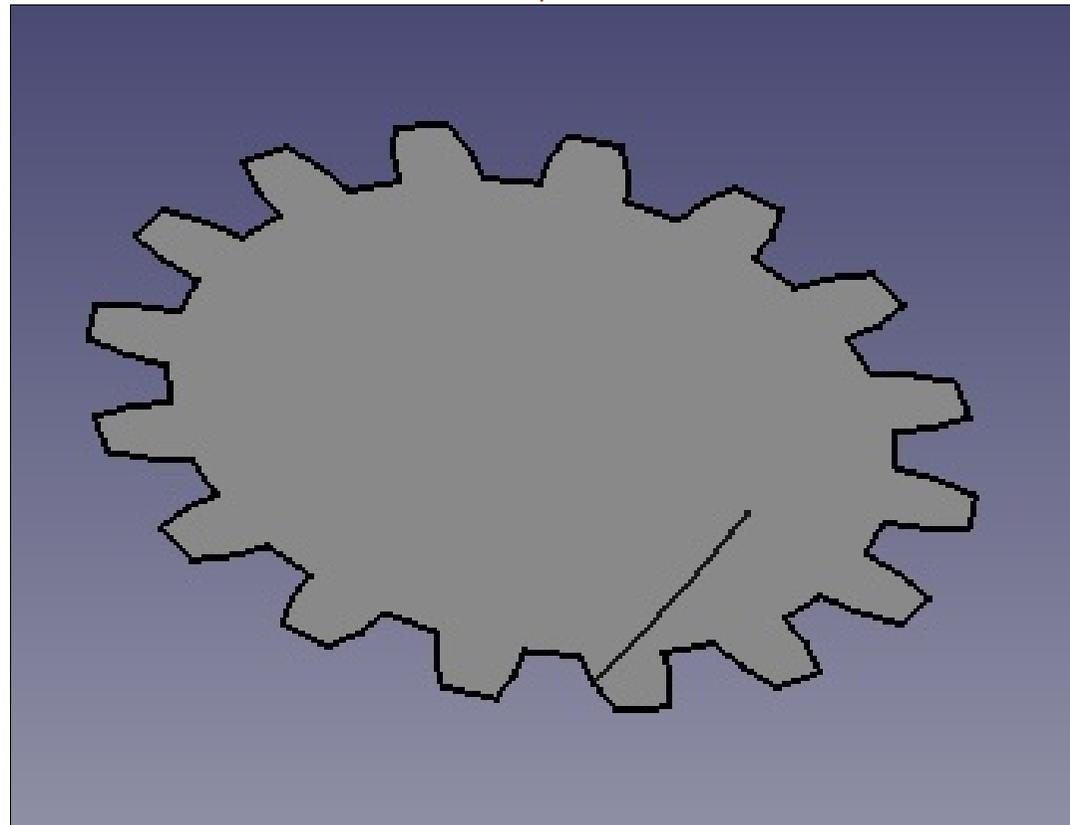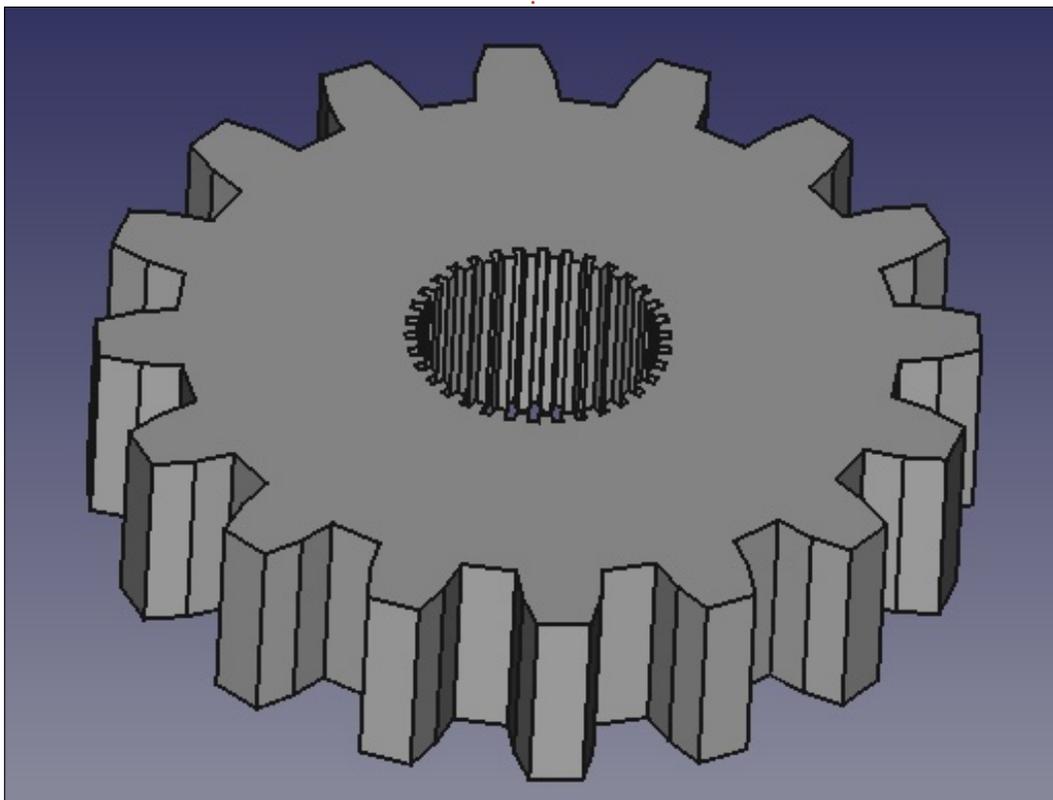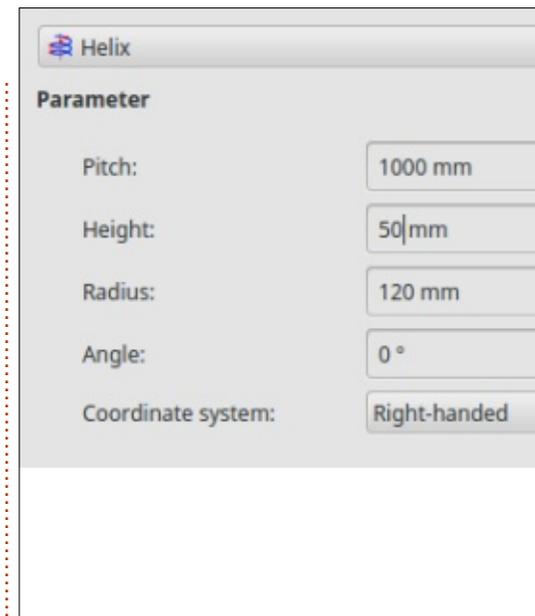
approximately 1:20 across the width of the wheel, I chose a helix height of 50 mm, but a pitch of 1000 mm between helix spires. The external radius of the helix should correspond to the point at which it will be created. Both right-handed and left-handed helices can be used, as needed.

Once the helicoidal line is drawn, it can be used as a path along which to sweep the cog's external face, using the same tools as when creating a Gothic arch in the previous part of this series. The internal surface will be created using a linear extrusion as before, since even a helicoidal gear wheel's internal splines tend to be straight so as to facilitate assembly of the wheel on its supporting axle. The resulting wheel is actually a fair approximation of an actual gear. Some aspects would be made better, though, such as bevelling external edges to make them less aggressive, or cutting out part of the gear wheel's material to make it lighter and use less material in fabrication. These operations can also be done in FreeCAD, and are left as an exercise to the reader (hint: use a revolution surface to create cutouts for each face).

WHAT NEXT?

In this article on using FreeCAD, we extended FreeCAD's possibilities using a little Python programming to create a helicoidal surface in the shape of a gear wheel. Once the basic shape has been drawn using a script, it can be used in combination with any other of the techniques available from the graphical interface to create the final object. Python is a fully-developed programming suite, containing many different libraries both mathematical and for other purposes, that can be used in combination with FreeCAD to create objects that do not exist within the initial library of basic shapes.

In the next part of this series, we will concentrate on a more complex primitive object that allows us to create forms and volumes with less regularity, the mesh.
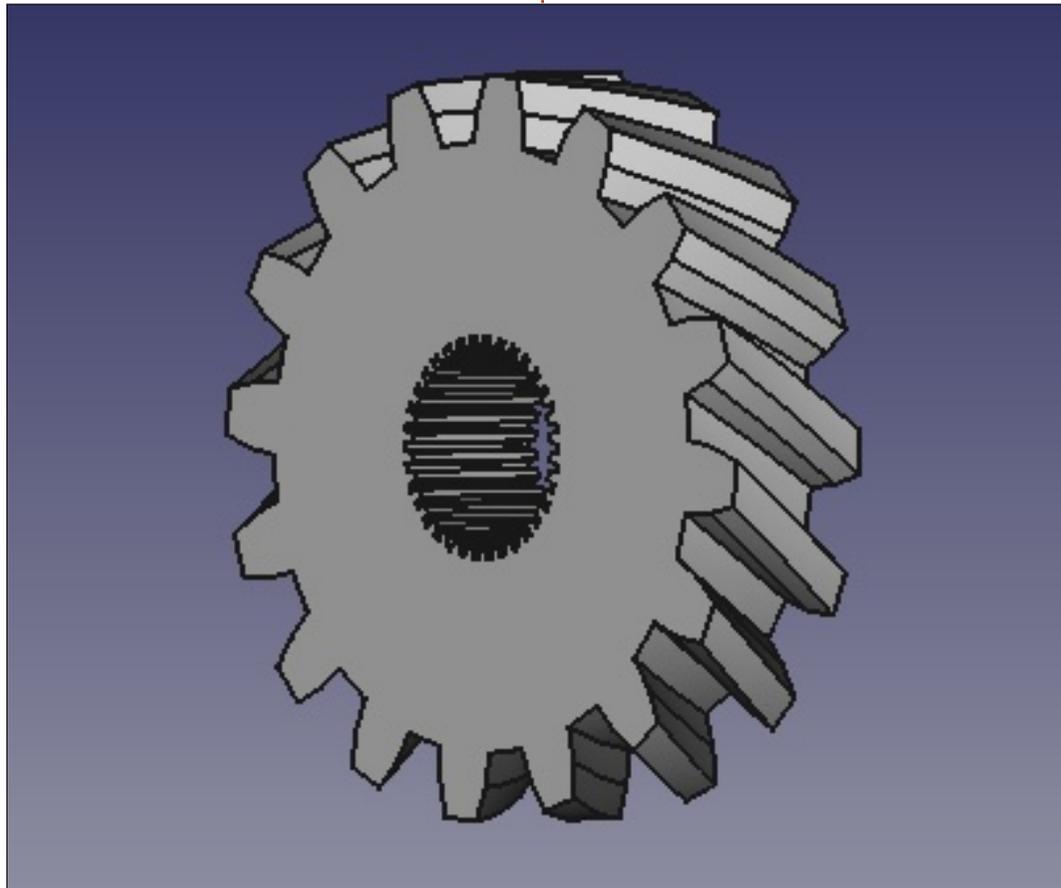
Alan holds a PhD in Information and the Knowledge Society. He teaches computer science at Escola Andorrana de Batxillerat (high-school). He has previously given GNU/Linux courses at the University of Andorra and taught GNU/Linux systems administration at the Open University of Catalunya (UOC).

If you work a lot in GNU/Linux command-line or in a terminal emulator, as a programmer or system administrator, then you will realize soon that the usage of the mouse is slowing you down in your daily work. The command-line usage, without any desktop environment, is limited to only one window. In a desktop environment, the terminal emulator provides more screens, but it needs a mouse to navigate.

The so-called tmux application brings us a flexible, productive, mouse-free, terminal environment. This can be your new IDE (Integrated Development Environment) without any GUI (Graphical User Interface). The name of the tmux application refers to the words "terminal multiplexer". This tool contains separate windows (like tabs in a text editor), and/or different horizontal or vertical panes inside a window. The windows are great to run different programs/scripts in parallel; the panes are great to run two or more programs on the same screen. The whole

environment is managed via the keyboard.

The picture shows my tmux with my own configuration. Currently, it has one window with three panes (one vertical on the left and two horizontals on the right). The left one runs a "vim", the right top one runs the "htop" application, and the right bottom one runs a pure "zsh" shell. All the programs are running in parallel and can be seen at the same time. Can you imagine a better working environment? For example, if you are a web developer, you can run the editor,

the database, and the console at the same time on one screen. And navigation between them can be achieved by just the keyboard – without using the mouse at all.

Tmux uses a server-client model which has a great benefit. When we start tmux, a new session is opened on the server. When we leave the application (this is called "detach"), the session remains open in the background together with the running windows/panes/programs/scripts. Later on, we can join this session again (this is called "attach"), and

we are able to continue the work where we left. Additionally, we can detach from the session on workstation_A, and we can reattach on workstation_B over ssh as well. This feature is similar to the one used in the GNU-Screen program.

An additional benefit is that it can be used either in a graphical environment inside terminal emulator, or in pure console mode. The memory footprint is also very impressive; it needs only 3-4 MB memory per session/window which is important when you use an old computer. Tmux is licensed under BSD.

The official website is:
https://tmux.github.io/

The source code is available in github:
https://github.com/tmux/tmux

The latest release runs on OpenBSD, FreeBSD, NetBSD, Linux, OS X, and Solaris.
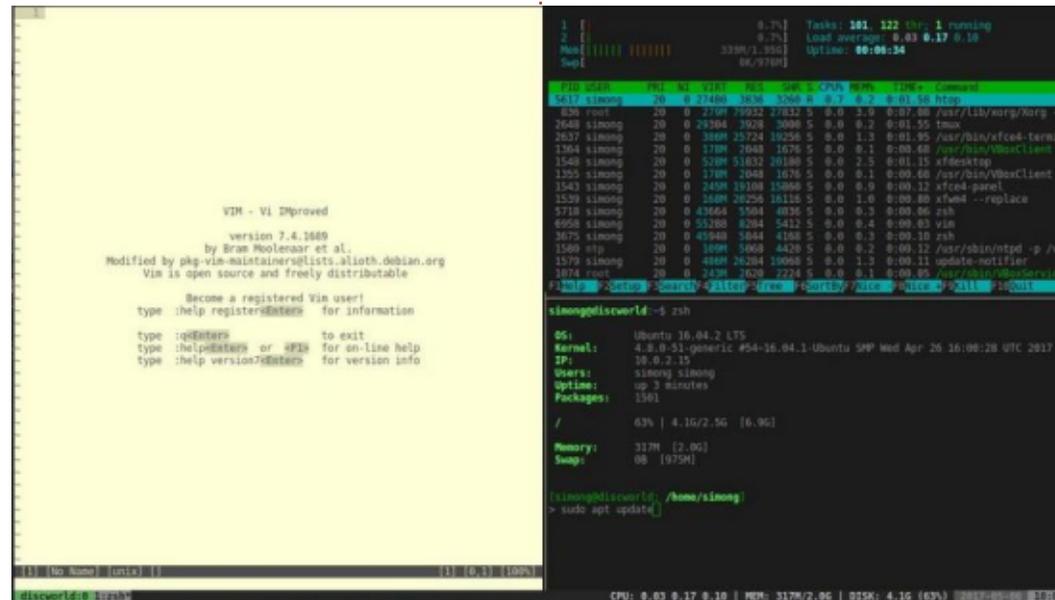
INSTALLATION OF TMUX

There are two ways to use tmux on your machine: (a) use the package manager or (b) build from source from github. Be advised that version 2.2 or higher has to be used at the time of reading this article series, earlier versions can have configuration incompatibilities or missing features. Personally, I use both Debian 8 (jessie) stable and Xubuntu 16.04 LTS, and their repositories contain the old version 1.9/2.1, so I have preferred to download the source code and compile it by myself.

The tool has dependencies as well, be sure that the needed packages are available on your system: GCC compiler, libevent and ncurses. Let's get them:

```
sudo apt install build-
essential libevent-dev
libcnurses5-dev
```

Tmux can be downloaded from its main web page or directly from github. The latest version is 2.4, available since April 20, 2017. Type the following commands in terminal:

```
cd ~

wget
https://github.com/tmux/tmux/
releases/download/2.4/tmux-
2.4.tar.gz

tar -zxvf tmux-2.4.tar.gz

cd tmux-2.4

./configure

make

sudo make install

cd ..

rm -rf tmux-2.4/ tmux-
2.4.tar.gz
```

In order to be sure that the installation was successful, get the version of the newly added tmux:

```
tmux -V
```



```
tmux 2.4
```

Starting tmux is very simple; in a terminal/console:

```
tmux
```

After executing the start command, the following screen will be shown:

What you see (below) is an opened tmux "session" (labeled with "[0]" in the status bar) with one active window (labeled with "0:zsh*" in the status bar). It seems similar to a normal terminal or console, every command can be executed in the same way. Additionally, the screen has an informal status bar which has a configurable layout. Quitting from

tmux is also very easy:

```
exit
```

This will terminate the current tmux session.

CONCLUSION

This article covers the first steps to become a daily tmux user. Hopefully, it was enough to draw attention to this impressive tool. The next chapters will bring us the detailed usage of sessions, windows and panes. Later on, we are going to dig into the configuration of tmux. Get Productive! Get tmux!

Command Reference
tmux = start the program
tmux -V = get the version of tmux
exit = terminate the program

Gabor is an electrical engineer who likes developing home-made embedded projects, and he is an enthusiastic user of GNU/Linux.

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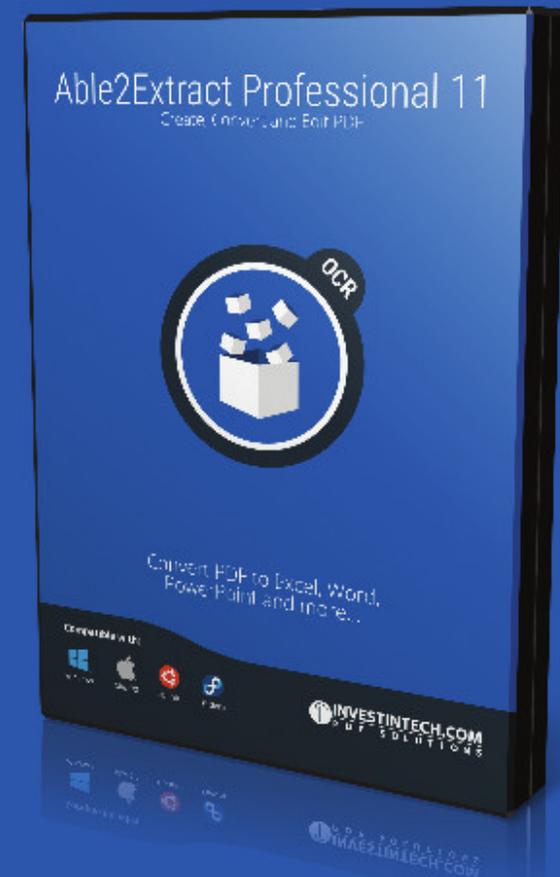✔ Edit PDF content and even split and merge documents in any way imaginable

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In parts 42 to 47 of this series, I described, in some detail, each of the "Live Path Effects" in Inkscape at the time, culminating with the new LPEs added in 0.91. Since then, the release of 0.92 has seen the addition of many new effects, so I'll spend the next few articles introducing each of them. I will assume, however, that you're already familiar with the idea of LPEs, as well as how to add and remove them. There are also a few user interface conventions that are common to many of the effects, which I'll also assume familiarity with. If necessary, you might want to re-read the earlier parts of the series to remind yourself of the details.

To begin with, we'll take a look at a few LPEs that are also exposed through other parts of the Inkscape interface – the "convenience" effects that are

bound to toolbar buttons in the Pencil (Freehand) and Bézier tools. Both tools previously offered the ability to create either regular Bézier paths, or to use the "Spiro" algorithm to easily create smoothly curving shapes. To this roster has been added a third option: BSpline paths.

Like Spiro shapes, BSpline paths are also smooth, with seamless transitions from one segment to the next. The difference, to the end user, is that Spiro paths are made of circular arcs defined by points that lay on the path itself; when you use the Node tool to edit the path, you simply change the position of the ends of each segment. BSpline paths, on the other hand, are defined by points that "pull" the path in their direction, with handles to set the "weight" or strength of that pull. This allows for tight, asymmetric

curves that aren't possible with Spiro paths.

Despite initial expectations, the handles that set the weight of each node can't simply be dragged around – you have to also hold down the Shift key, for reasons that presumably made sense to the developer. In this screenshot, you can see a circular path that's had the BSpline LPE applied in order to distort it into an egg shape. The general shape is set by the square node handles, but moving the circular "weight" handles has allowed the top to become more pointed, and the bottom more rounded (for reference, the equivalent shape using a Spiro path required twice as many nodes).
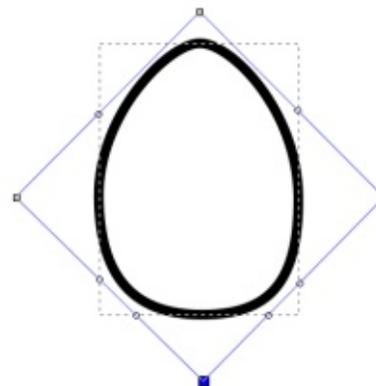
If you implicitly add the BSpline LPE by enabling that mode in the Pencil or Bézier tools, you have extremely limited control over the effect. In the Pencil tool, the value of the smoothing field will have an impact on the number of nodes that are placed – set this too high and you'll get very few nodes, with a BSpline that doesn't really reflect what you've drawn. In the Bézier tool, the only choice you have is to
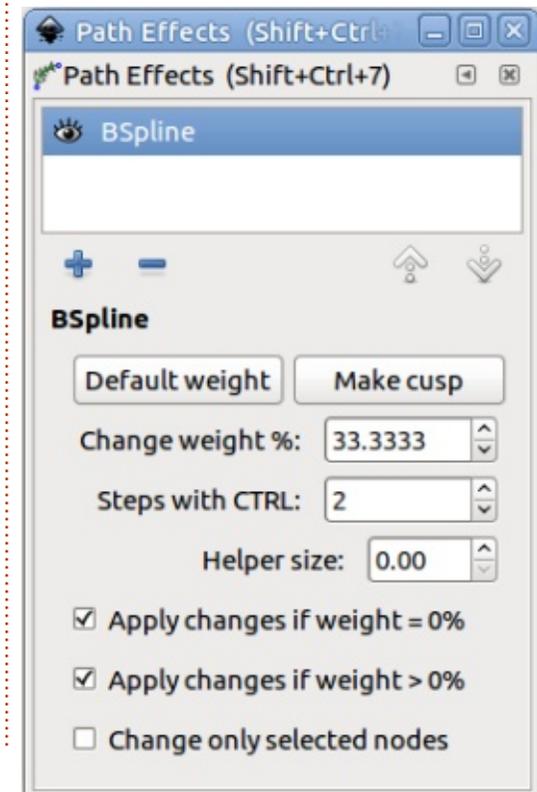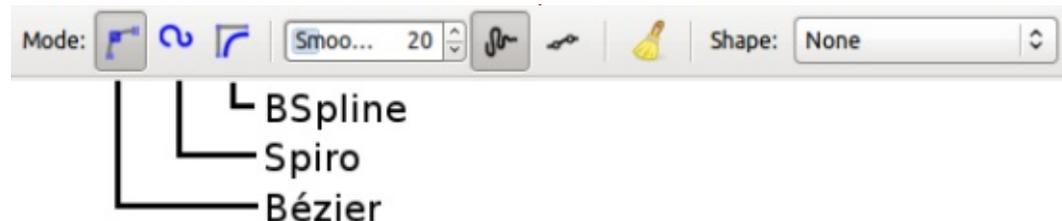
either click to place a normal node, or Shift-click to place a cusp, or corner node. The latter has a weight of zero, allowing for sharp transitions in your otherwise smooth path. If, however, you explicitly add the BSpline LPE to a path – or if you open the Live Path Effect dialog for a path that's had it implicitly added – you'll get a few options in the UI to let you tweak your shape.

As is often the case with the Path Effects dialog, the labelling and arrangement of the controls could definitely benefit from some improvement. For a start, the first thing you need to interact with is the last section of the dialog – the three checkboxes at the bottom. These dictate which of your nodes will be affected by changes to the upper half, and failing to set these correctly can result in too many, or too few, of your nodes being changed.

If the first checkbox is selected, any changes will affect only nodes with a weight of 0%. A better way of saying this is that the changes will affect only cusp nodes. The second checkbox does the same but for non-cusp nodes. Checking both allows changes to all nodes; checking neither will stop your changes affecting anything at all. The third checkbox further limits changes to only those nodes that are selected. The effects are cumulative, so if the just the first and third boxes are ticked, your changes will affect only the selected cusp nodes, and will not affect any non-cusp nodes, even if they're also selected.

Moving to the top half, the Default Weight button sets the nodes to a weight of 33.333%. In other words, it positions the node handles a third of the way from one node to the next. Make Cusp, as you might imagine, turns the nodes into cusp nodes. It obviously makes sense to use this only if the second checkbox is also ticked.

Change Weight % lets you adjust the weight of all the targeted nodes. It should probably be labelled "Set Weight", as putting a value in here sets an absolute value, not a relative one. For example, putting 25 in will set the handles to a quarter of the distance between the node and its neighbours – it won't adjust their existing positions by 25%.

There is a convenience feature when changing the positions of the handles interactively on the canvas: if you hold down Ctrl rather than Shift, you can set the handles to pre-set positions. By default, these are at 0% (cusp node), 33%, 66% and 100%. Given that the two extremes are always possible, the "Steps with CTRL" option lets you define how many intermediate steps are available. Set this to 3, for example, to get steps at 25%, 50% and 75%. As for the "Helper size" control, your guess is as good as mine! As far as I can tell, it simply draws some circles on your path of the specified size. How these are meant to help you, I don't know.
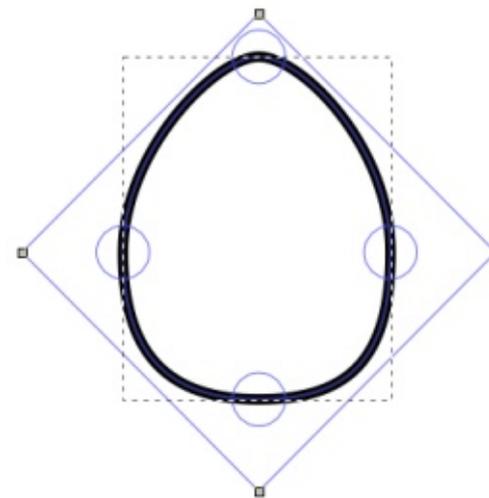
In practical terms, the controls available through the LPE dialog are of questionable benefit. For artistic purposes, you're more likely to just adjust the node positions and weight handles on the canvas until your path is visually of the right shape. Personally, I find the BSpline option on the Pencil tool to be of little use, as it's tricky to get the smoothing to just the right balance between too little effect and too much. On the Bézier tool, however, it makes much more sense. You can click-click-click to define the shape of your object, and an outline of the BSpline path is shown interactively as you do so, letting you more clearly see what the result will look like when you finish. With 0.92, this interactivity also extends to the Spiro option on the Bézier tool, which makes this mode much easier to work with too.

The Pencil tool has acquired another LPE shortcut, which is potentially far more useful: Smoothing. When drawing with the Pencil tool, Inkscape will tend to create lots of nodes, faithfully reproducing every jitter and bump your hand makes as you move the mouse or stylus around. Smoothing attempts to compensate for this by averaging

out your movements to create a smoother – arguably more "vectorish" – path. By adjusting the amount of smoothing applied, you can find the right trade-off between faithful reproduction and oversimplification.

The trouble with this process in the past was that smoothing was applied only at the point of recording your movements. You would set the smoothing control and Inkscape would average your movements as you went along, completely replacing the original position data with its own calculated equivalents. If you set the smoothing control too high, there was no way to reduce it afterwards and regain some of your finer details.

Looking back to the toolbar image at the start of this article, you can see the smoothing slider after the BSpline button (note to the Inkscape developers: make this control a bit wider, and you could populate it with something more useful than "Smoo…"). Immediately after that is a new button that toggles between the previous smoothing method, and the new LPE-based approach. If the LPE Smoothing button is

selected, an additional new button appears besides it, as shown in the screenshot, which looks like a pair of wonky spectacles.

With the LPE Smoothing button toggled off, the Pencil tool will behave as it always has (see part 18 of this series for a little more detail). In this mode, you set a smoothing value, then draw something and see it converted into a simplified version of your original path. Select it and check the status bar to see how many nodes it has: high levels of smoothing can produce paths with drastically reduced numbers. With the path selected, switch back to the Pencil tool and try modifying the smoothing value. You should see no change to your path, or the number of nodes it has – all you're doing is changing the smoothness value that will be used for the next path you draw.

Now toggle the LPE button on, and repeat the exercise. As you draw, you'll see the original rough path, which then gets converted into a smoother version when you finish. Switch to the selection tool to check the number of nodes; again you'll see a low number, but this time it also says "path effect:

Simplify", confirming that an LPE is in play. Here's the big difference though: return to the Pencil tool and change the smoothness value. Your path should move from rough to smooth and back in real-time as you drag the slider around. Did you set the value too high or low when drawing the path? Just change the value afterwards!

To achieve this feat, Inkscape actually stores the original path, as though you had set smoothness to its lowest value. It then automatically applies the Simplify LPE, which does the same job as the Path > Simplify option, except that it does so as a live (and reversible) process.

There's no doubt that the added flexibility of the Simplify LPE can be a huge advantage, so why would you ever want to turn it off? Well, as you might expect, such flexibility comes with a cost: in this case, it's the cost of processing the LPE every time the path is rendered or changed. For one or two paths it might not have much of an impact, but, as with filters, too many live effects can rapidly drag your PC to a crawl. There is, however, a compromise in the form of the wonky glasses

button. Clicking this will "flatten" the path by replacing the original shape with the output from the Simplify LPE, then removing the effect completely. This fixes the smoothness so you can no longer alter it by adjusting the slider – but it also means that Inkscape no longer has to calculate it in real-time.

If you open the Live Path Effects dialog, you'll find that the Simplify LPE has a few controls to let you tweak the effect.
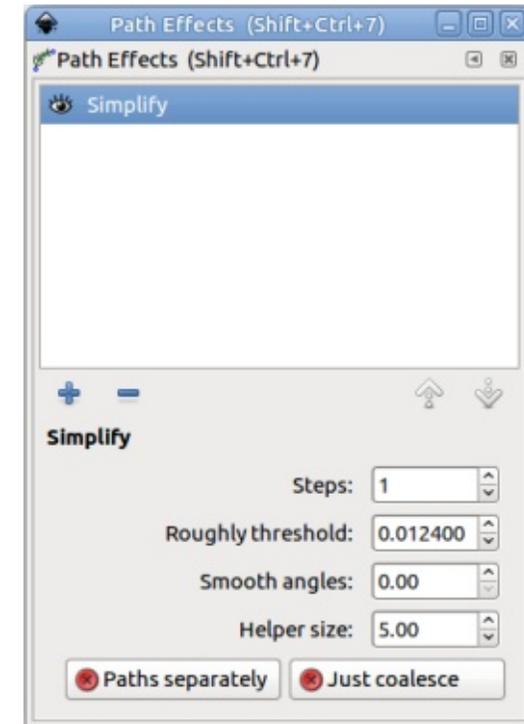
The Steps value sets the number of times that the Simplify algorithm should be applied – it's the live equivalent of selecting Path > Simplify multiple times in succession. The bewilderingly named 'Roughly Threshold' parameter is the value that gets changed when you move the smoothness slider in the Pencil tool's controls. This sets the strength of each pass of the algorithm and is what primarily defines the amount of simplification that is performed. Unfortunately, it seems to operate over a peculiar range of numbers: it is rather non-linear, with the most effect occurring at really rather small values. Fractions down to hundredths or thousandths of a unit aren't uncommon. This control would probably have been better as a slider, mirroring the smoothness control in the Pencil tool, and operating over a normalized range of values. As it stands, I recommend starting as low as you can (enter zero and Inkscape will set it to the smallest allowed value), then use your mouse-wheel over the control to adjust the value until you have the appearance you want.

The Smooth Angles control allows you to affect how the algorithm deals with cusp nodes. With this set at its maximum of 360, all nodes will be smoothed. By reducing this value, you can set a cut-off for the angle between the handles of a cusp node, above which the algorithm won't change the node. Consider a right-angle in your path: by setting this value to 80, the right-angled cusp (where the handles make an angle of 90°) won't be smoothed, and you'll have a nice sharp corner. Set it to 90 or more, however, and the right-angle will be smoothed, softening your shape. If you have tight angles in your path that you want to keep sharp, play with this parameter. It doesn't seem to work so well on acute angles, though.

Next is another Helper Size control. As with the one in the BSpline UI, this causes circles (and in this case also squares) to be drawn on the path – but I still have no idea how that's supposed to help you! The Just Coalesce button below it is also a mystery to me: it seems to have some effect on the shape of the final path, but the details of what it's doing are less than obvious.

That just leaves the Paths Separately button – for which I'm going to hazard a guess as to the function, based purely on the name. The Simplify LPE may be applied to a complex path – one made up of multiple sub-paths – or even to a group of path objects. Toggling this button on seems to apply the effect individually to each sub-path, or each path in a group. Leaving it off applies the effect to all of the paths or sub-paths as one. The distinction – and the effect it will generally have – is a subtle one, and probably not worth further consideration for most users.

This approach of exposing LPEs as buttons and options in other tools is, I think, a good one. It opens up these advanced capabilities to users who might otherwise be put off by the sometimes complex appearance of the Live Path Effects dialog, whilst still allowing advanced users access to the (sometimes bewildering) controls. But this article has barely touched on the LPEs added in 0.92, and the others aren't so easily accessed. Next month, we'll be taking a look at some of the other new effects, so if you do need a refresher on using

LPEs, now's the time to start reading those back issues of FCM that are sitting on your hard drive.

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

contents ^

Last month we reviewed Calligra-plan and how I delineate the required job tasks within a project.

If the project is longer than a couple of months, I would develop a Gantt Chart to establish the time that would define the longitudinal project goals. However, I rarely have a research project that lasts past 30 days. Yet I must develop ways to be extra efficient in my job, and thus use external batch programs and a macro mouse recorder.

I am the motion capture expert. We use motion capture to look at the range of movement and palpation styles used to treat somatic dysfunction. The process to gather motion data is simple. However it takes time to produce data from the motion capture software. I use an external batch program to automatically label the missing marker data based on predicted Euclidean Geometry. I use another batch file to predict the expected critical points from the file.

However, batch files require a cookie cutter format for effective deployment. Often times, automation is needed. I use a macro mouse recorder to do many of the repetitive data processing. For example, I would need to rename 320 .csv files to match the .dsf format. While it is an easy process, it is tedious, and boredom develops and mistakes develop. The macro recording prevents these mistakes. The recorder has the capability to automate certain tasks,and the recorder I use is xnee. Xnee is a command-line program. Full documentation can be found at https://xnee.wordpress.com/. The documentation on this application is extremely detailed and easy to install via terminal.

The Gnome DE implemented a GUI named Gnee as an interface for Xnee. The command-line is well documented, but Gnee has no documentation. After some trial by fire, I was able to get the Gnee to record my mouse movement accurately and reliably. You have to enter some basic commands to make the recorder work. When I have a chance, I will cover Gnee in fuller detail.

SJ Webb is a researcher coordinator. When he is not working, he enjoys time with his wife and kids. He thanks Mike Ferarri for his mentorship.
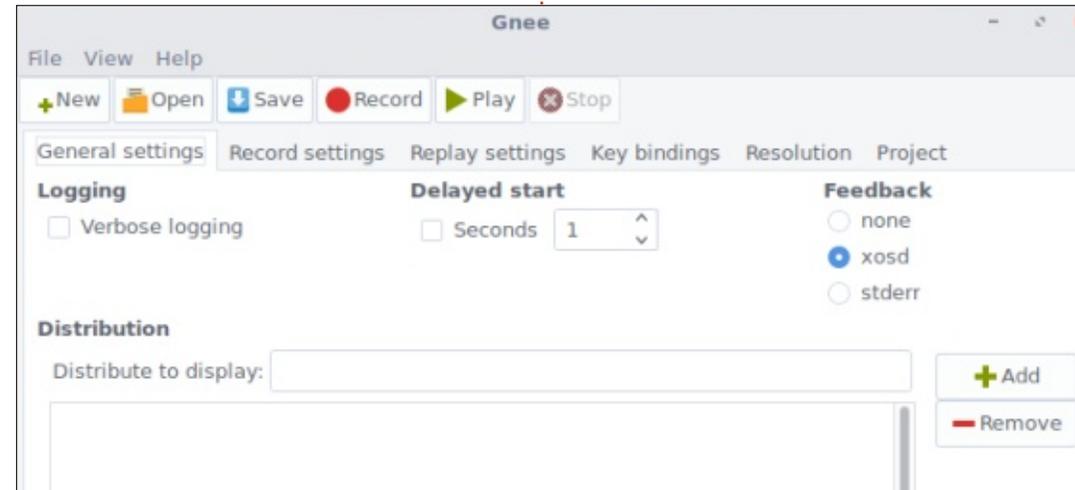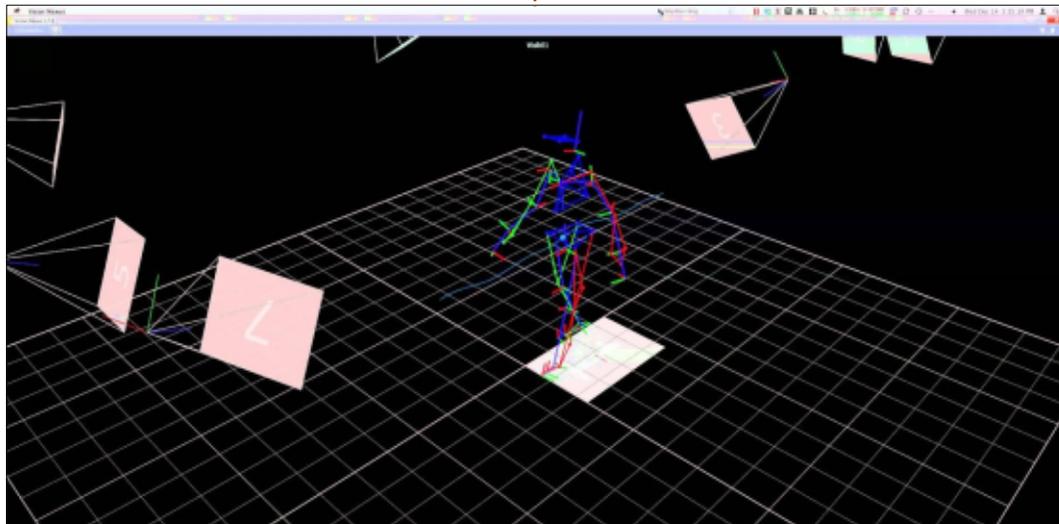
One of the big benefits of a tablet is the fact that they're thin and lightweight. This is not the case for the 2005 Xplore iX104C2 – which weighs in at just over 4.6lbs, and is more than an inch thick. In fact, the iX104C2 feels like it belongs more on a tank than in the hands of an IT technician. There are a number of versions of the iX104C, the latest of which contains an i5 or i7 processor.

The C2 model appears to be the first generation of tablet that Xplore came out with. Boasting a 733MHz Pentium M processor, the IX104C2 is woefully out-of-date. Rather than send them to electronic waste or try to ebay them, we decided to put Linux on them and see what use we could make of them.

Our donation came with a bunch of car adapters, but we found a 19v 3.42A adapter to plug into the iX104. First boot turned up the dreaded "Time and Date not set" error message, normally this is an indication of a bad CMOS battery. (In this case that actually wasn't the case, but because the machine had not been charged for some time, it lost the time and date. After leaving it charging for a few hours it booted without issue). Did I mention the iX104C2 is extremely sturdy? We weren't about to tear one apart before trying Linux on it, so we attached a USB keyboard and pressed the F1 key to continue.

On the iX104C2, the F2 key will get you into the BIOS if you hit it before the operating system starts to boot. This particular model of tablet came with Windows XP. Ours came with 2 restore CDs (and a GPS module CD), but, looking at the molded plastic all around the tablet, there's no CD/DVD drive to be seen.

We use a PXE server at work to install Xubuntu. Installation was a matter of enabling network boot in the BIOS and pressing F12 for a boot menu during startup. Our installation automates most of the steps required to install Xubuntu (partitioning, user name, password, date and time), but prompted us to select whether we wanted to install via ethernet or the recognized Intel wireless interface.

The iX104C2 is thick and sports a full-size ethernet port, a VGA port, 2 USB ports, a headphone and line-out jack. Our model also had the optional GPS unit attached, and what looked to be docking pins on the left side of the case. Docking stations exist for the iX104C2, but the unit came without the docking station.

Booting Xubuntu takes about 45 seconds, what you might expect from a low-resource Parallel ATA disk-based system. Our implementation of Xubuntu includes GIMP. GIMP loaded after a few seconds.

Drawing in GIMP with the iX104C2's stylus was a positive experience, though I worked with

LINUX LABS
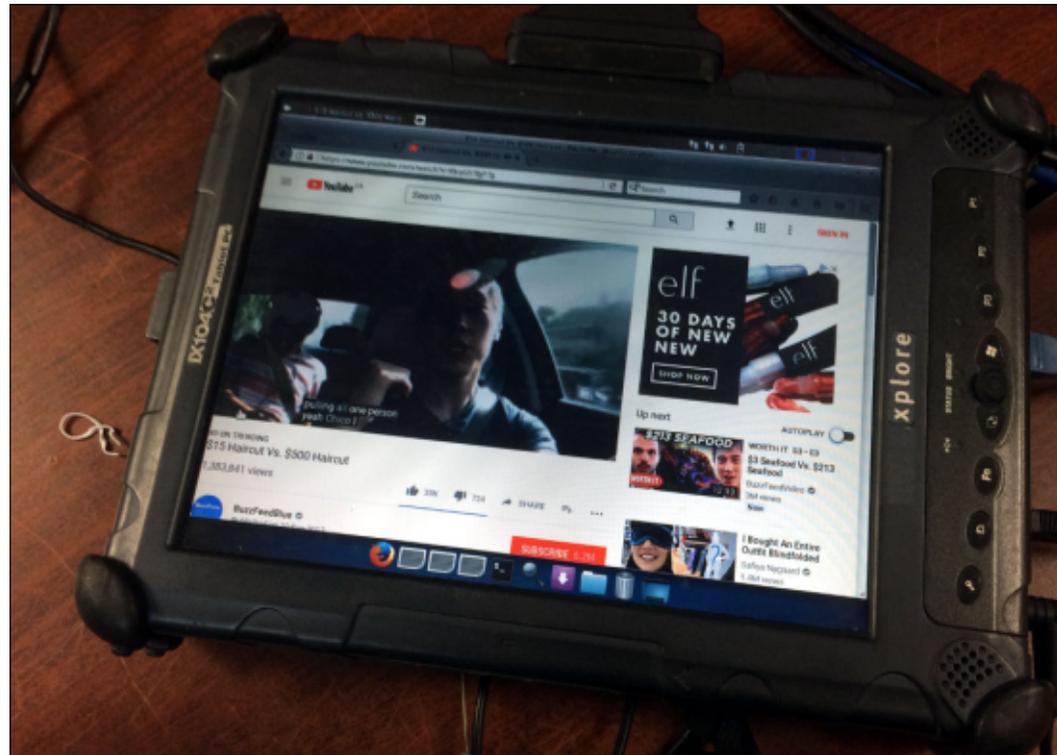
only a 64 x 64 pixel canvas (pixel art sprite for a game). The toughest part was saving the file. I tried enabling Xubuntu's on-screen keyboard, but it didn't work (this may be the fault of our implementation of Xubuntu). Attaching a USB keyboard solved the problem, but who wants to carry a USB keyboard with a tablet, let alone an almost 5 lbs tablet?

Xubuntu was surprisingly responsive considering the iX104IC2 is only a single core 733MHz machine. Wireless worked "out of the box" with no extra driver configuration needed. Our battery life showed about 1:30 hours. When new, the iX104IC2 battery lasted around 3½ hours, not particularly long.

The very odd occasion our IT department has had our ISP out for a service call (usually to replace our cable modem), we've seen them carry an iX104IC tablet. This got me thinking that although they're old, bulky and heavy, they might actually be useful for our IT technicians who sometimes are called to troubleshoot wireless issues at different buildings (wireshark anyone?).

About the same time the iX104IC2s were dropped off, we had a client bring in a long range antenna they bought off Ali Express that they wanted set up with their system. We didn't get a chance to test the antenna, but if it worked with Xubuntu, combined with the iX104IC, it would make an interesting machine for mapping wireless access points throughout a city (war driving).

Things that didn't work out of box with the iX104IC2: almost all of the buttons on the bottom of the iX104IC2 except for the Windows key. The Windows key opens the whisker menu, but the brightness button, trackpoint, lock, and programmable function keys, didn't do anything.
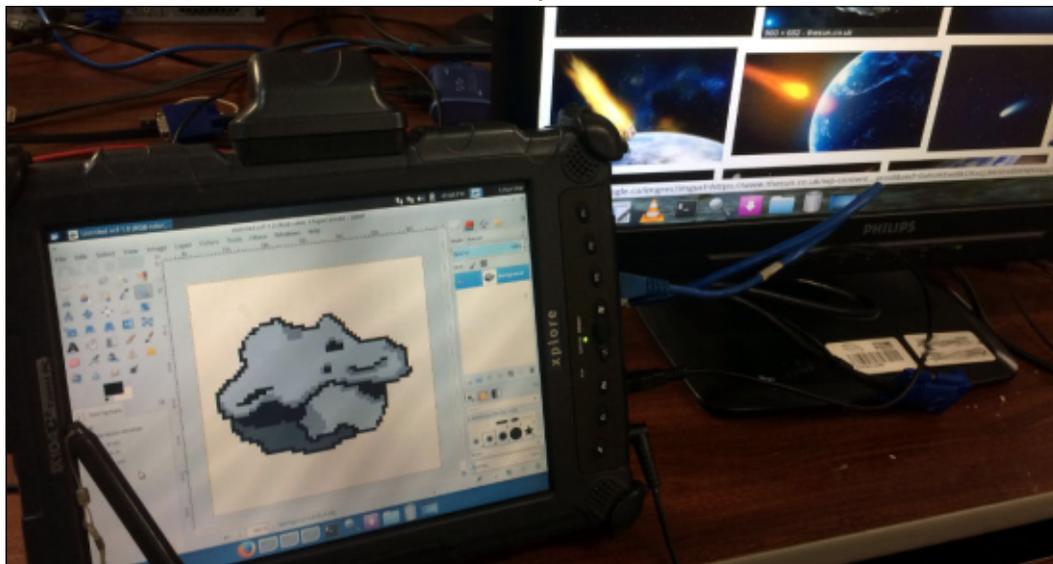
In the first screenshot, there's a youtube video playing. If you install a Firefox add-on to set youtube videos to default to 144p, you can actually watch a video, but any other setting, including the default, just plays the audio with a stuck image -- this isn't at all useful for video playback.

The stylus works well for the most part, and you don't have to even touch the screen, just hover over the area the cursor should move to. I had a bit of a problem closing windows with the stylus, but opening the whisker menu, and clicking icons, wasn't problematic. I mentioned earlier using the stylus for pixel art, it seemed to work really well, moreso than an old

Wacom tablet I once used with GIMP. Not surprisingly, the stylus is actually made by Wacom.

I wouldn't recommend going out and buying a used Xplore iX104IC2; they're ancient, heavy, and replaceable by just about any newer 10 inch $100-plus tablet out there, but they are kind of neat. I like the idea of mapping out wireless access points in the city just by driving around and seeing what it, plus the antenna, can pick up. I also like it as a pixel art device, though it is a bit on the heavy side. The iX104IC2 won't pass the spouse test at home; we have enough devices around, but we might just end up using them at work – troubleshooting the wireless issues in different buildings.

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

I moved to Ubuntu from Windows about seven years ago and I always regret that I did not start sooner. So, I installed Ubuntu in dual-boot beside Windows. At first, I was still dependent on Windows and frequently switched between Windows and Ubuntu since it was difficult to become adapted to the new software and environment. To overcome this issue, I decided to install and use most of the software of the Ubuntu environment in Windows 7 (those that could be installed on Windows). Consequently, I had to use the most common applications such as LibreOffice Writer, Calc and Draw for my daily work, and I accustomed to it very well. Then, I started to work with Gimp which is very helpful in editing images. For several years, I had heard that only PhotoShop can satisfy our imaging needs, however, I didn't convince myself to use it; I wasn't attracted to PS and I admit it was because it seemed to me very complex. For my mailing needs, I started to work with Thunderbird rather than Outlook – which I think was a pain. In other words, I created the habit

of using Open Source applications in Windows, instead of moving to Linux suddenly – which might cause me to become disappointed; that's what causes hardship for newbies – working in a new environment, and its first complex appearance.

After several months, I suddenly found myself spending the whole day doing my work and research in software that is common between Windows and Ubuntu, so I was ready to easily switch to Ubuntu without extra pain. A day changed to a week, then a month, and eventually, all my activities were now in a Linux environment! It became even harder for me to do my activities in Windows than Linux. I haven't worked with Windows 8 or 8.1, and I didn't even know their differences because I wasn't concerned. I also have little experience with Windows 10 which I don't need critically. I already have found my prefered platform.

After a period of working with Ubuntu, which applied Unity as

their desktop, I transferred to Linux Mint with the pretty Cinnamon desktop. I tried KDE but found it too 'fantasy' for my activities.

I don't claim that I left Windows completely, I needed it especially for some Dot Net programming. Since I was tired of restarting and going to windows each time I needed it, I utilized the handy application, Oracle VirtualBox, for my programming goals.

From the scientific point of view, as I work in the world of High Performance Computing (HPC), Image Processing, and Data Mining, I found the Linux very profound and attractive in these areas. My first HPC system was a combination of a real Ubuntu, installed on my laptop, and a virtual Ubuntu installed on an Oracle VirtualBox machine. Utilizing this, I could install HPC packages and test some applications which taught me HPC for the least price. For data mining applications, there is the Hadoop platform for Linux which I am also

able to install on Ubuntu

My whole master thesis was done in Ubuntu using MATLAB, and some some parts of it using Octave and Scilab. My thesis text also is written and edited in LibreOffice Writer. Actually, I forced myself to do my writings in LibreOffice to kill two birds with one stone: first, obviously doing my job, and second, become a master in LibreOffice writer which I appreciate very much. As my master thesis was related to image processing, the images were prepared for papers and documents using Gimp and Draw.

I started learning Python since I saw it was very popular in the Linux and Ubuntu world. Also, after doing some projects with Dot Net, I became familiar with the attractive Qt. I began coding C++ in it. I also have done some works with PyQt.

In Image Processing now, I use the OpenCV libraries for C/C++, Python, and Java – all on my Mint operating system. Even, I think,

their installation process is simpler in Linux than Windows.

Currently, I teach courses such as Operating System (Laboratory) and Programming Languages at university, and always encourage students to use Linux as their main operating system if they want to gain a better understanding of how a computer works and what are the main concepts of a computer. They should do their assignments in Linux, and on the most convenient distro – which I think is Ubuntu or the distros that are based on it such as Mint.

In conclusion, I think it is a good idea to move from Windows steadily and patiently towards Linux, and to use an attractive distro such as Ubuntu or Mint rather than rushing in the switching process. This approach reduces the stress of a new environment, and also makes you learn so many things about operating systems as well as several applications.

MY OPINION
Written by Alan Ward

Thoughts on Budgie

Ubuntu Budgie is one of the newcomers to the Ubuntu family. Based on Ubuntu, and with the same 16.04, 16.10, 17.04, etc, numbering scheme, this one is basically a rather practical way of packaging the Budgie desktop manager (https://budgie-desktop.org/home/) developed by the Solus Project Linux distribution (https://solus-project.com/) together with an operating system. The Solus distribution is gaining quite some acceptance among GNU/Linux users, according to its Distrowatch popularity score, which, at the time of writing, is at number 10 (http://distrowatch.com/table.php?distribution=solus). However, it does make sense for the desktop environment developers to leverage on Ubuntu's market share to gain more visibility among the very many other desktop managers in the GNU/Linux world.

The way Ubuntu Budgie (https://ubuntubudgie.org/) packages its desktop together with Ubuntu underpinnings can thus be seen as a parallel to the Neon Operating System (https://neon.kde.org/) – in both cases an easy way for novice and more advanced users to get the desktop set up and working without needing to fiddle around with an existing installation. So far, so good.

I must say, though, that my first impression was a bit of YAUR: Yet Another Ubuntu Remix. I was dubious about the additional value of having yet another spinoff of the Ubuntu system, complete with yet another CD image, yet another web page, etc. At times, the multiplicity of projects in this area makes one question whether available resources, i.e. people's time, is being efficiently used.

The project's page itself is quite nicely designed, very modern in a similar way to that of Elementary OS (https://elementary.io/). A bit the opposite of the no-nonsense (and quite old-looking) offering of Debian, Cent OS, or several other GNU/Linux distributions with more time on the clock. However, it is clear than in today's situation, a new distribution will need to propose a bit more than just a

contents ^
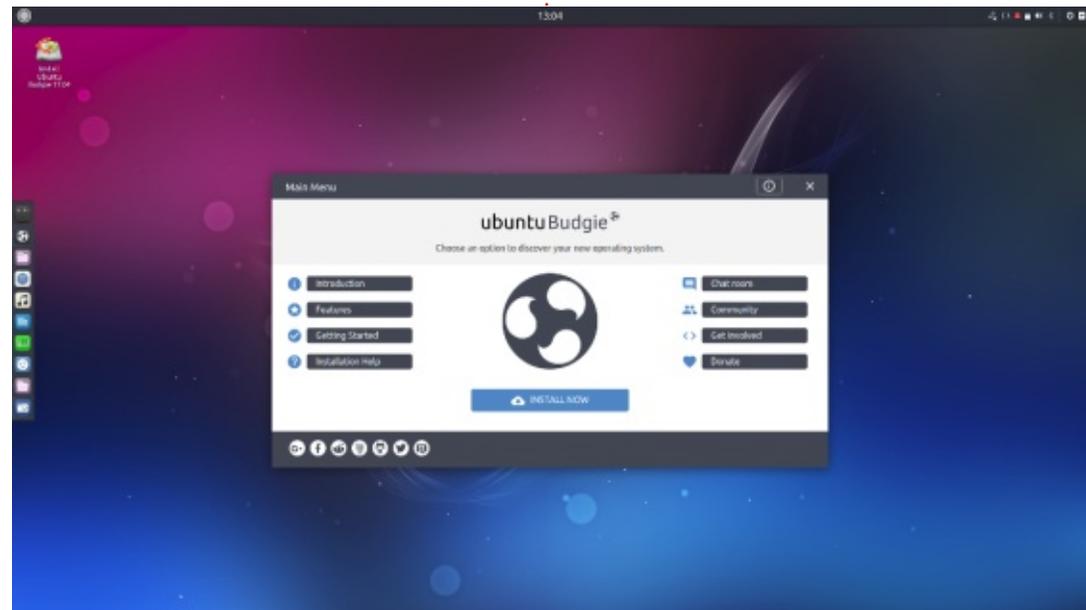
fancy web page in order to stand out among the crowd and make its presence noteworthy.

Once the appropriate image has been downloaded – in my case, the amd64 ISO image of 17.04 – it can be written to a USB drive and booted in the usual manner. There are no hiccups here. The desktop comes up fairly quickly, which is certainly a point in this distribution's favour.

A fair selection of applications is installed by default. Ubuntu's regular offerings, such as

LibreOffice, Geary, Rhythmbox, etc, are there. Most features work perfectly, though I did run into an issue with DNS resolution in the Chromium web browser - easily solved through a terminal command.

Gimp was not installed by default, and neither were some of my personal preferences for music such as VNC and Clementine. But, as usual, installation is just a terminal apt command away, or the Software application that is there if a GUI is preferred. The Plank dock is configured to stay always

visible at the left edge of the screen, and most other bits and pieces are what you would expect from a derivative of Ubuntu Gnome.

We have come, precisely, to the main point of this article. Budgie is clearly based on the same GTK 3 libraries used by the Gnome Shell. The wallpaper selector is identical, as is the file browser.

Similarities go very far. When tested on a laptop with a high-resolution (HiDPI) screen, Budgie

displays no immediately accessible options to adapt screen resolution. A quick fix was simply to install gnome-tweak-tool, and use that to set resolution correctly for this hardware.

When using Ubuntu Budgie, the user has a general feeling that the project's developers have been trying hard to make the user's life easy. Most items are easy to locate, even for newcomers to the GNU/Linux universe. A specific application - Budgie Welcome - has been written and presents us with
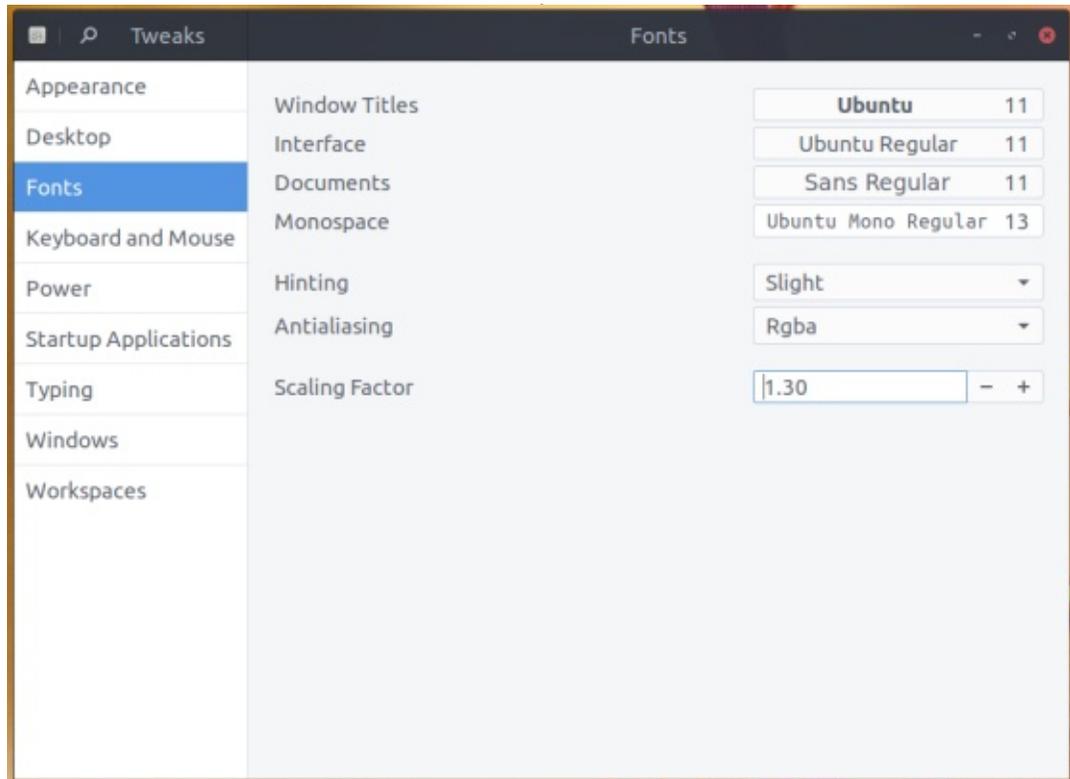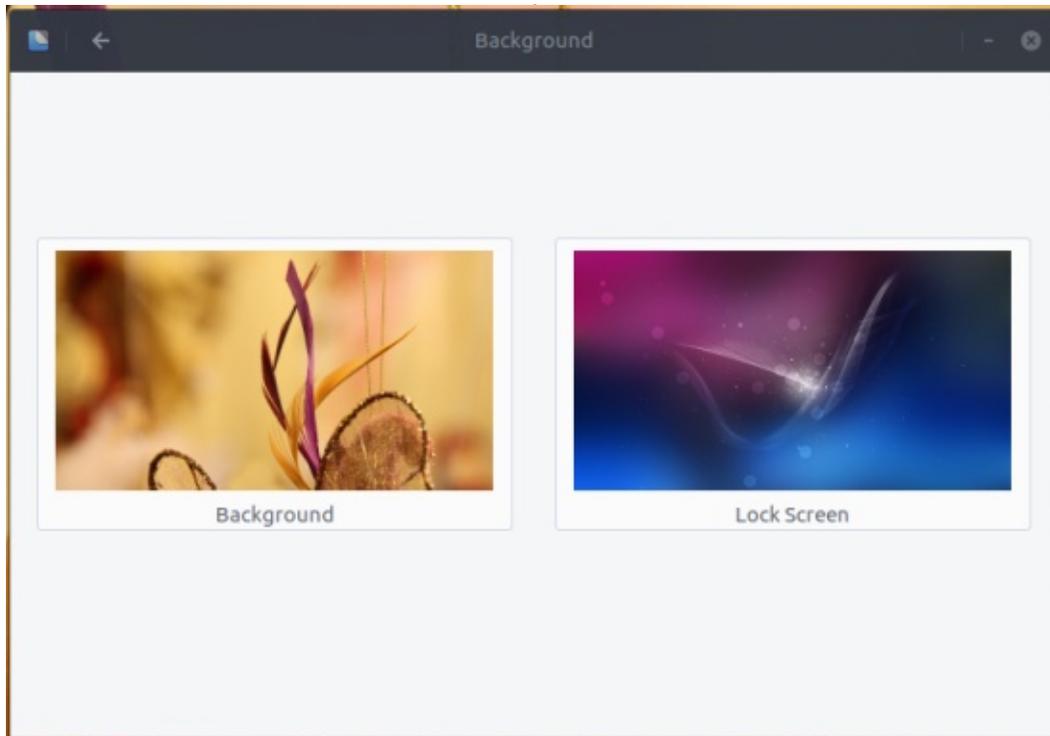
a welcome screen that, probably, will give such users a bit of a hand the first times they use the system. A complete notification panel is available, scrolling in from the right edge of the screen.

However, each time I ran into a minor niggle – as are bound to arise in a relatively new product such as this one – I found that the easiest solution was almost invariably through the terminal and a quick command, instead of trying to figure out a possible fix in the desktop's menus. Such a fix was not always there to be found, either. This is the reason that makes me somewhat doubtful if this distribution, in its current state, can be recommended to first-time users or people without

some experience of managing a GNU/Linux desktop based on GTK 3.

Experienced users should be fine, though, and will welcome the general sense of ease and the lightness of operation of Budgie, compared to the full Gnome Shell for instance. With this said, the project is certainly one to be aware of, since it is still a relatively new distribution. Over time, I have hopes it gains some of the polish that a more seasoned distribution such as Linux Mint has to offer. If it does manage to last sufficiently long, it may very well become one of my personal favourites.

As a final thought, I would like to end by saying that at several times

during this test, I have been pondering on the similarities between Budgie and Gnome Shell. In actual fact, Budgie is perhaps what the Gnome Classic mode should have been from the onset: based on the GTK 3 libraries, but fairly light on resources. Most of their characteristics are similar, so the work to be done to convert either of these two desktops into a fairly satisfying lookalike for the now defunct Unity should not be unmanageable. In fact, it would perhaps make sense for the project leaders at Ubuntu, Ubuntu Gnome and Ubuntu Budgie, to come together and have a quiet chat together - if they have not done so already.

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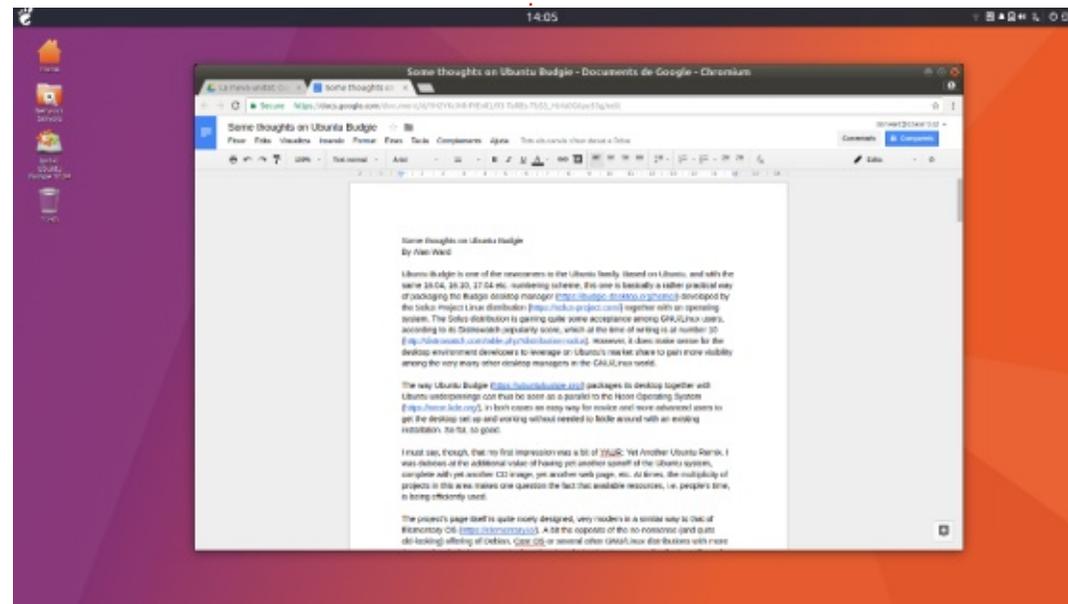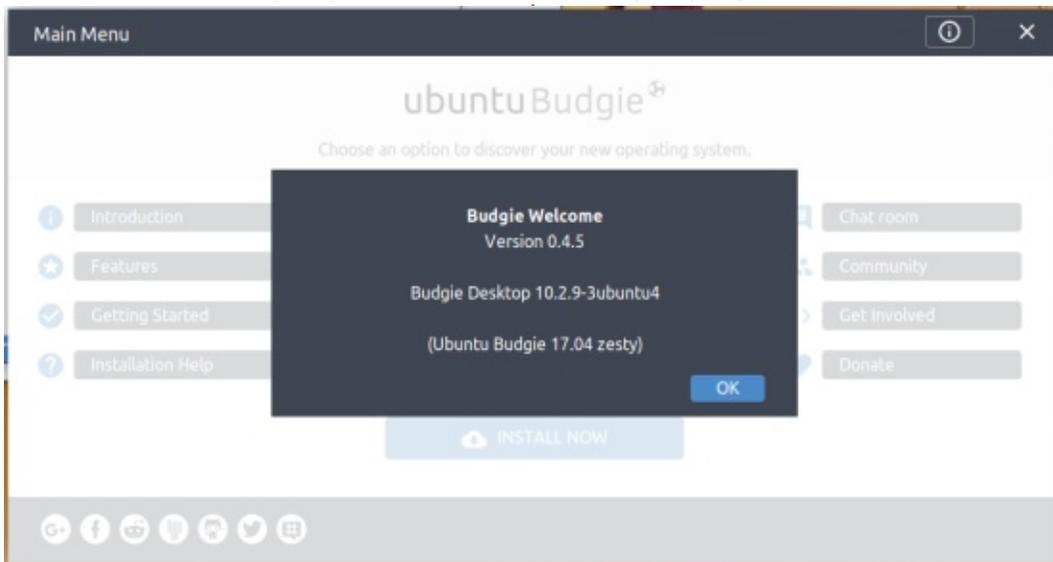
GUIDELINES

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

RULES

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

• For advice, please refer to the **Official Full Circle Style Guide**: http://url.fullcirclemagazine.org/75d471

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

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

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

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

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

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

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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.

L ast month I mentioned that we have several KODI boxes throughout the apartment that all get fed by our KODI server. Over the years, we've tried different incarnations (Netbooks, Android boxes) and ended up returning to a 1 server + various boxes (Android and a Zotac box running Xubuntu) setup.

Our main server, aptly named KODI, runs stock Xubuntu. During the install process, I made sure to set the user to auto-login. After the system was installed and updated, I installed lirc. Lirc works really well with the HP Windows Media Center remote that we use, and no extra configuration is required other than selecting "Windows Media Center Transceivers Remotes (all)" when LIRC prompts you to choose a remote or transmitter. Lirc will also ask for an IR transmitter. We got rid of our Scientific Atlanta Cable box long ago, but if you have some kind of cable box or satellite receiver, you can chose the Windows Media Center receiver v2 for the type of cable/satellite box

you have. I selected None.

Next, head over to http://kodi.wiki/view/HOW-TO:Install_Kodi_for_Linux and copy and paste the 4 lines under the Installing Kodi on Ubuntu-based distributions title to install KODI. Once KODI is installed, you can get it to autostart on login (remembering that we set the user to autologin) by clicking:

Settings Manager > Session and Startup > Application Autostart >
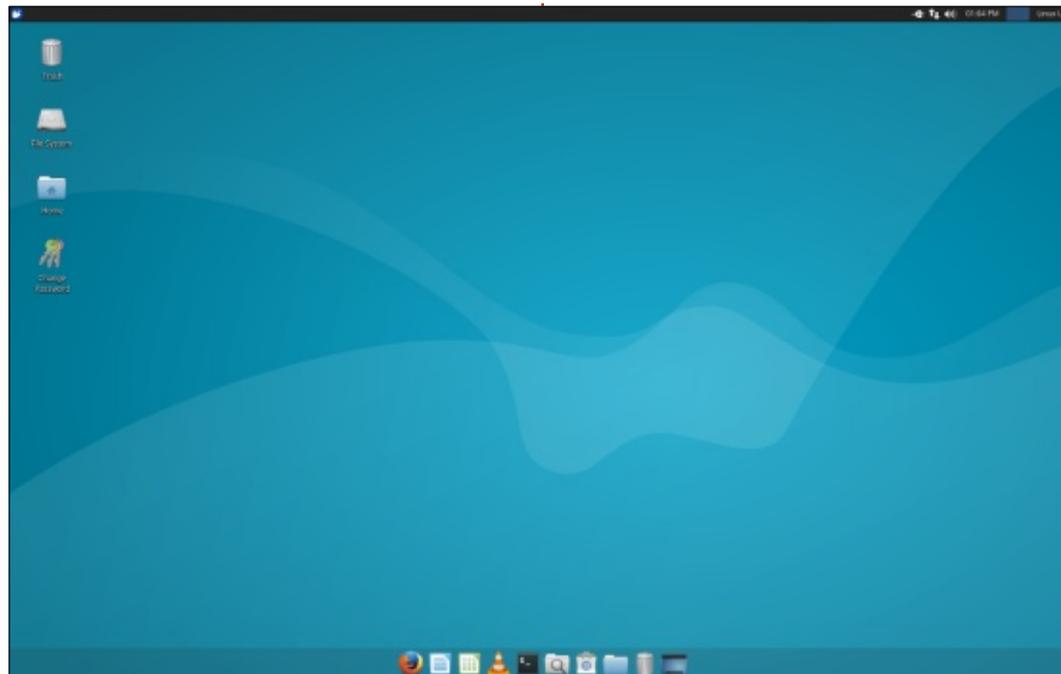
Add

Then add KODI as a startup application.

If you plan on using the PC as a PC rather than a dedicated KODI server, you might want to leave off the last step. As a dedicated server, we need a way to put files on the server. I use SSH. Installing SSH is easy:

```
sudo apt install ssh
```


The system we use to rip media runs Linux Mint. Originally, we used transcode to rip DVDs, but have long since switched to using a combination of Handbrake for DVDs and MakeMKV for Blu-ray media. That system also has a Windows partition, but we rarely use it for transferring media, but when we do, we use filezilla for the SSH connection.

Although we are running SAMBA, all media shared with SAMBA is shared with read-only as a precaution (not all family members might be as cautious as you might be). We use SSH/filezilla to do all transfers from our ripping machine to our server.

Over the years, we've upgraded across many hard drives - as a result our /etc/fstab file is a bit of a mess. Currently, we're running 2 x 3TB drives and 1 x 2TB drive (though this might change by next month). Our /etc/fstab looks like that shown at the top of the next page.

To figure out which UUID a

KODI

```
UUID=62f5be5a-9a82-44fe-9a89-21562391a23c /                        ext4        errors=remount-ro 0  1
UUID=9e085715-f7b6-4d35-8d19-47ec5607ea8c none                     swap        sw          0 0
UUID=4D07684A289AEA37 /mnt/DVD  ntfs-3g defaults,windows_names,locale=en_CA.UTF-8            0 0
UUID=a6732b72-ef69-4129-88e6-ed328d8c8786 /mnt/Blueray  ext4        errors=remount-ro 0 1
```

```
/dev/sda1: LABEL="data" UUID="4D07684A289AEA37" TYPE="ntfs" PARTUUID="400be72d-e671-4a37-b83c-51486a1c00ae"
/dev/sdb2: UUID="62f5be5a-9a82-44fe-9a89-21562391a23c" TYPE="ext4" PARTUUID="1d3487d8-8d38-494c-8ffe-61dc9c18e42d"
/dev/sdb3: UUID="9e085715-f7b6-4d35-8d19-47ec5607ea8c" TYPE="swap" PARTUUID="f172026f-cee2-43ae-bdab-80d4eb685db8"
/dev/sdc1: UUID="a6732b72-ef69-4129-88e6-ed328d8c8786" TYPE="ext4" PARTLABEL="primary" PARTUUID="bc11f0f6-fcea-424f-af3e-cfed7f6fcb74"
/dev/sdb1: PARTUUID="7e735c50-3e07-41df-b590-84dfb15535e2"
```

partition is, simply run:

```
sudo blkid
```

Running without sudo permission will turn up nothing, so make sure to use sudo to list the block id's of the devices (shown above).

The observant will notice that our boot and root drive/partition is actually /dev/sdb2. The /dev/sdb2 partition matches the UUID assigned the / (root) mount point listed in our /etc/fstab. Last year, we removed the 250GB drive we were using as the boot drive and replaced it with a 3TB drive because our other 3TB storage drive was 98% full. The /dev/sda1 drive, mounted as /mnt/DVD in /etc/fstab, is a 2TB drive we used to use as an external drive (and

thus the ntfs format). The last drive, mounted as /mnt/Blueray, is the 3TB drive we filled. The two 3TB drives were purchased much later than the 2TB drive, and were dedicated for storing our media, so ext4 made sense. Because we ran out of space on the Blu-ray drive, and that collection is only growing, the plan going forward is to buy 2 x 8TB drives and arrange them in a RAID 1 mirroring setup, plus a small SSD for the operating system drive. RAID 10 would be more ideal, but the cost of 8TB drives is a bit too prohibitive, and buying another couple of 3TB drives really doesn't leave us with enough storage space.

Earlier, I mentioned that I share media to Windows PCs (and our Android boxes) via SAMBA. Our SAMBA shares look something like:

```
[dvd]
   comment = DVD Movies
   path = /mnt/DVD/Movies
   browseable = yes
   read only = yes
   guest ok = yes

[blueray]
   comment = Blu-ray Movies
   path =
/mnt/Blueray/Blueray
   browseable = yes
   read only = yes
   guest ok = yes
```

We could have restricted guest ok to no, but, since no one is allowed to write to the share, and it's only family on our network, it was easier to allow guest access. The DVD and Blu-ray collections are on separate drives, but, to the end user browsing them from the network, they just appear as separate folders.

This covers the sharing side of

things. Once you've put content in one of the mount points, getting it in to KODI to be scraped is fairly simple. In KODI, click:

```
Movies > Add videos > Browse
```

Browse to a directory like /mnt/DVD/Movies, and in the area where KODI asks you to Enter a name for this media source, give it a title like DVDMOVIES, then click OK.

The next screen lets you set the type of content in the directory. Choose from Movies, Music videos, None. or TV shows. After you pick the type of content, KODI will list an initial "information provider." The information provider is the site KODI scrapes for the Movie/Music video/TV show information. If you have movies in their own sub-

folder, you can select the Movies are in separate folders that match the movie title switch, but even if you leave this off, KODI will scrape movies in sub-folders as long as you leave the Scan recursively switch set to on.

Clicking on OK will prompt you if you want to refresh information for all items within this path. Click OK to begin scraping. Now, if you escape back to the main KODI interface, some movies should be listed under Movies. There are a number of reasons why a movie might not be listed, but it mostly boils down to naming media correctly. The KODI wiki is the authoritative source on naming media for KODI, and covers a lot of different scenarios (for example: DVD movies spread across 2

files/DVDs):

http://kodi.wiki/view/Naming_vide o_files/Movies
http://kodi.wiki/view/Naming_vide o_files/TV_shows
http://kodi.wiki/view/Naming_vide o_files/Music_videos

If a movie (that you know is in the path) doesn't get scraped, click the settings gear in the top left corner, then click the Event log.

This is a bit of a simplified overview of our KODI server setup. Over the years, it's morphed a lot, so a lot has changed: device names, the way we named our media, even what got included with the media. When we first used transcode to rip DVDs, we never ripped subtitles. Handbrake makes

everything so easy that we started ripping subtitles. DVDs we ripped before we started, including subtitles, all got thrown into the top level DVD folder /mnt/DVD/Movies. DVDs ripped with subtitles get their own sub-directory. For example: the movie 'They Call Me Bruce' would be in /mnt/DVD/Movies/They Call Me Bruce. Incidentally typing the path in a terminal is easy if you use quotation marks:

```
cd "/mnt/DVD/Movies/They Call
Me Bruce"
```

Tab-completion works if you use quotes.

This might seem like the least planned media setup in the history of media centers, and looking at the /etc/fstab, it looks like a mess,

but it's an evolution of a system started back when KODI was still XBMC 10.0, using very different hardware. We've considered shelling out for a NAS, or simply buying one, but we like having a server that we can exit to a desktop and use if we needed so see something not in KODI.

Charles is the author of Instant XBMC, and the project manager of a not-for-profit computer reuse project. When not building PCs, removing malware, and encouraging people to use GNU/Linux, Charles works on reinventing his blog at http://www.charlesmccolm.com/.
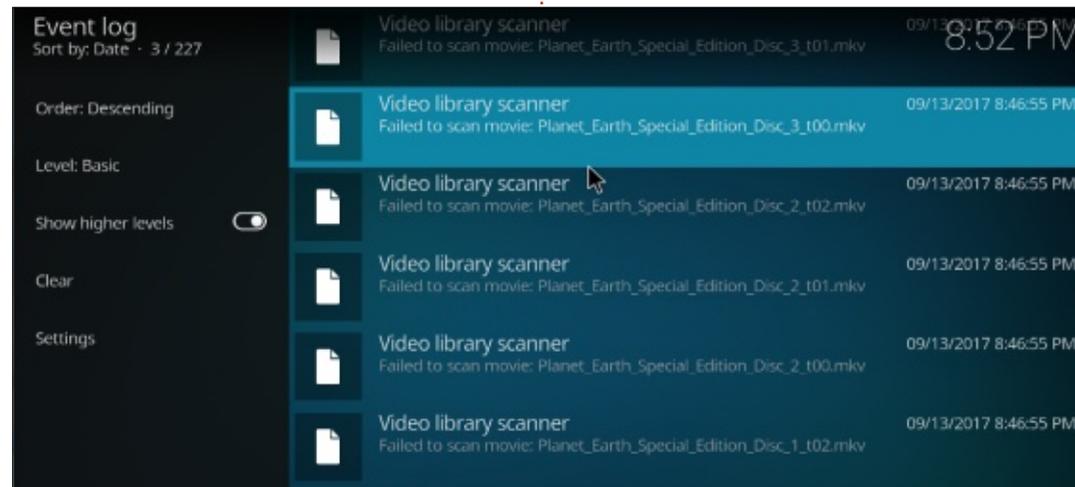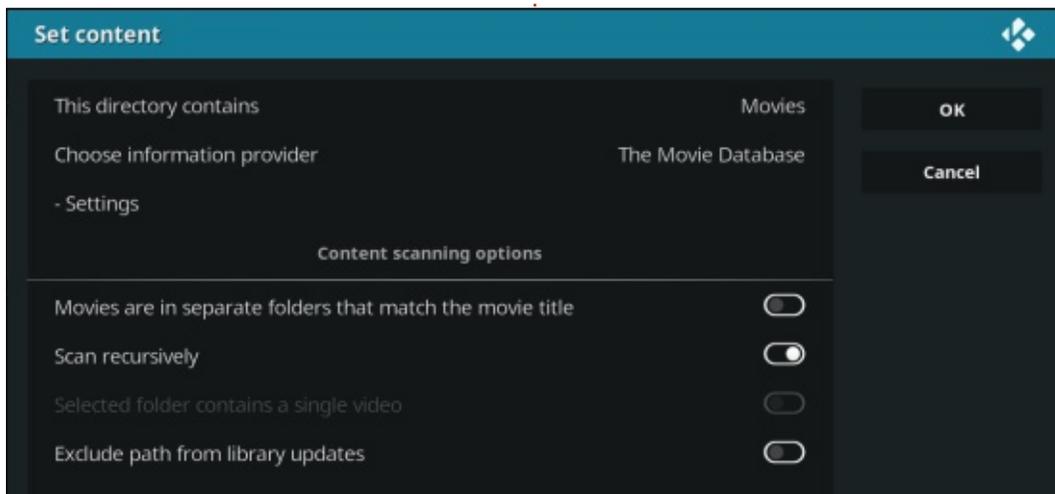
At some point in my high school life, I started to put the required effort to properly organise and plan projects and tasks. Since then, I've tried to use a variety of different apps and websites to more effectively set up reminders and apply organisation to my work life. Unfortunately, I haven't found an app that has worked well for me. I've tried Todoist, Any.do, Wunderlist, as well as using Sphinx to create my own documentation. I've even reverted to pen and paper and employed a Bullet Journal for a time. Each option has its pros and cons, but I typically run into issues when I try to use a task to also keep ideas and notes tied into a task. The most success I've had here is using the Issues section of GitLab to keep my projects organised. Still - not an ideal situation for everyday life. Instead, I recently discovered Trello.

What is Trello?

Trello is an organisational tool that offers the user the ability to create boards, and each board can contain multiple lists. And each list contains items that can be fully fleshed out (with comments, due dates, markdown, labels, etc.)

Where Can I Use It?

Trello has Android and iOS apps, as well as a web app. Shortly after this article was written, Trello also unveiled desktop apps for macOS and Windows.

Boards? Lists? Seems confusing.

I actually find Trello's approach to be very similar to GitLab's Issues - you create a task, and can assign it to a corresponding list (such as must-do, could-do, and future features). You can also collaborate with others. They also offer plugins ("power-ups") that can integrate into a calendar (for example). While the free users can use one plugin, pro users can use more than one.

What I've done is essentially create a board for each major set of tasks - such as personal, Full Circle Magazine (for keeping track of article ideas), and then work boards for each of my clients. This way, I can create a list per project, or project phase. I set up the tasks as basic entries first (literally just a title), but as I do the research or have ideas, I can leave comments or edit the description to link to items, or to outline my process going forward.

## Doesn't Sound Like A To Do List To Me

I would be inclined to agree. It's definitely capable of being much more than a to do list, and better suits my needs. If I just need to set myself a quick reminder to take the pizza out of the oven, I'll more likely create a reminder in Google Inbox. I've never actually found to do lists helpful for organising long-term goals or projects, and use them mainly for a "I need to get this done today" list. The Bullet Journal approach is the exception to this, but I just found it too easy to forget to update it, and the lack of reminders didn't help.

What's Wrong With It?

Not an awful lot. The only issue I've had is their approach to reminders. You can set due dates
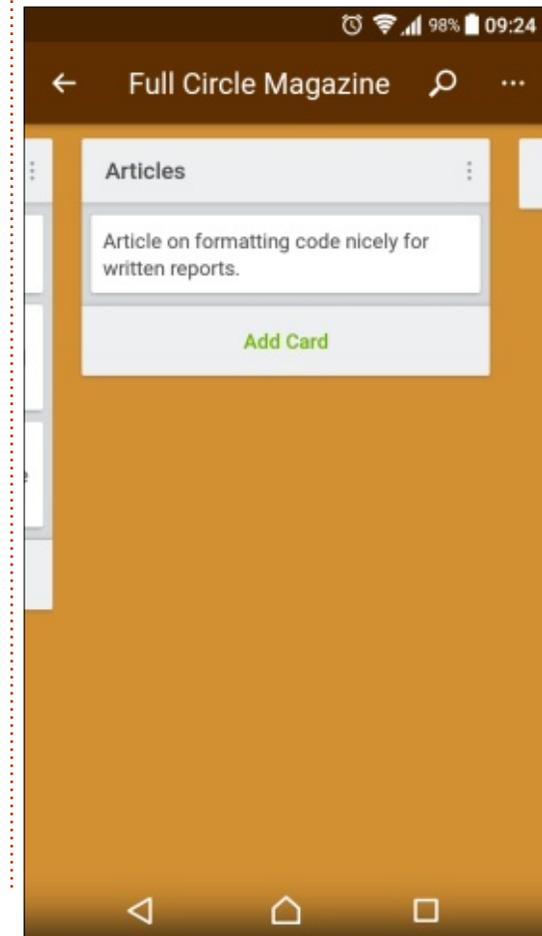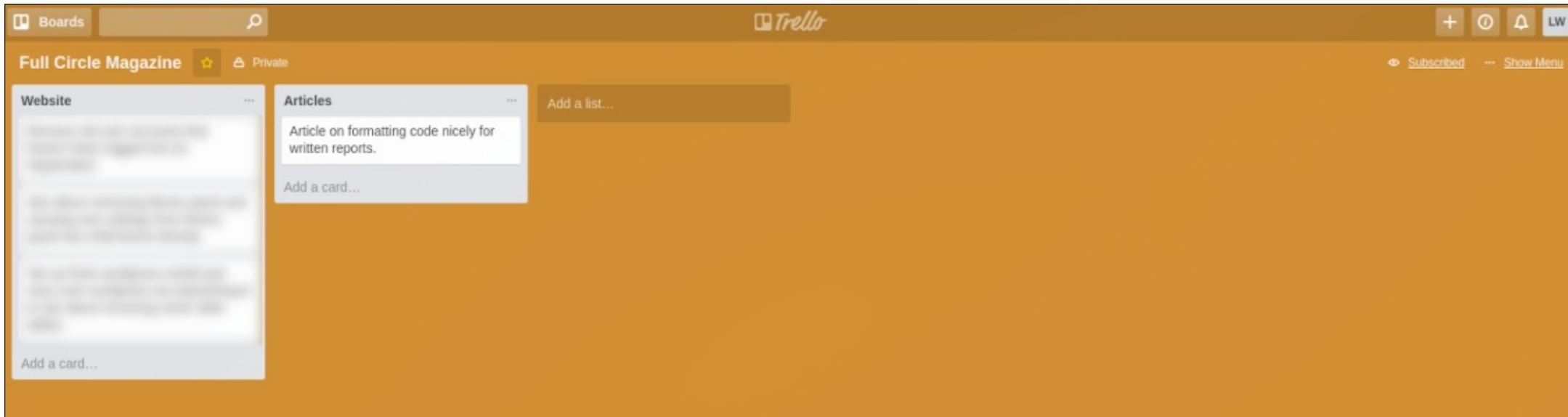
for tasks, but reminders are only sent out 24 hours in advance, and you must be subscribed to the board (and, in my experience, to the list or task as well). I would appreciate the ability to set more than one reminder (for example one 24 hours before, and one 2 hours before the deadline). Besides that, the android app doesn't seem to update in the background (but that may be my phone).

I Use X, Should I Switch?

That's entirely up to you. Are you happy using your system? If so, I see no need to change. If, however, you're like me and haven't been completely sold on anything you've used up until now, Trello may be for you. Also, if you refuse to use anything that doesn't offer a Linux desktop app, you'll need to look elsewhere.

Does it...Cost Anything?

Trello has a free user level, which is pretty functional (unlimited boards, members, checklists, and attachments). It does limit said attachments to 10MB in size, and only allows one power-up per board, but I don't find those limitations a problem for personal use. Teams and companies will be better off using one of their paid options ($9.99 per user per month when billed annually, or $21 per user per month). The full list of differences is here: https://trello.com/pricing

Conclusion

While Trello isn't the end-all, be-all of organisational apps, it suits my style of thinking and organising better than anything I've found previously. That being said, for organising things on a per project basis (especially when it needs to be shared with clients), I'll stick to private GitLab repositories. This is simply because all information would be in one place then. For everything else, I use Trello.

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.

LETTERS

TIME HAS RUN OUT ON 32-BIT SYSTEMS.

Some distributions of Linux have or are considering offering only a 64-bit version of their software. This is a point of debate amongst many Linux users, should we do this? Linux has made it possible to make a silk purse out of a sow's ear when we could take a computer that would no longer run Windows and turn the computer into a very useful device. It has been a great run. I do not doubt that there are many legacy 32-bit computer systems that are still running today, servers, and, especially in third-world countries, many desktops.

Recently, I searched Google to try to determine at what point in time the last 32-bit computer was sold. From the information found in a forum, Dell and Lenovo ceased offering 32-bit systems around January 2010. That event is coming up for its eighth birthday this year.

Time flies when we are having fun, and we have to start asking ourselves when do we stop fixing these old computers up? When do we decide that our programmers have better things to do than to keep on supporting hardware that's diminishing in use? Keep in mind that the hardware can be replaced by a faster 64-bit computer for a small amount of cash, if not free.

Speaking of a small amount of cash, we also have the Raspberry Pi computers that require coding to make Linux run on them. They are 64-bit as well, but are just different enough that they require a separate distro of the desktops that we run. So with three platforms to support, do we risk spreading our talent out too thin? I believe so, and it is time for the 32-bit distros to die.

As an end-user of Linux, I want everyone who writes code and puts distros together to be free of this burden and to put their efforts into supporting 64-bit computers. It is time for us who are running these eight-plus-year-old 32-bit battle axes to make the effort to seek out 64-bit replacements. We owe it to the coders who have given us so much.

John Eddie Kerr
Guelph, Ontario, Canada

Gord adds:

I agree with the thrust of what Mr. Kerr is saying, with a small request: Not Now, Please!

It doesn't take much CPU to run a file server; my file server is an old netbook running Mint Mate 32-bit. The next LTS release is just a few months away, and I hope I can still get a 32-bit distro then. If everyone agrees, "that's it for 32 bit," I could live with that.

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.

contents ^

Q&A
Compiled by Gord Campbell

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

Q Where does print screen (ps) get the data it places on the clipboard? If the screen image is a jpeg file, say from a 10 megapixel camera, is the whole file, full resolution, loaded into vm? and if I do a ps, will the clipboard be handed the full resolution file?

A I can't answer your specific question, but I can assure you that the resolution of print screen will be the resolution of your monitor. (I've pasted many print-screens into GIMP.)

Here's some trivia for you: the different flavors of Ubuntu have different print screen programs! I use Xubuntu; a Kubuntu user might give you a different answer.

Q Is there any way to go directly back to Desktop from suspend?

A Yes, if you don't lock the screen. I have a laptop with that setting; I close the laptop, it suspends. I open it, and it resumes where it left off.

Q Is it possible to upgrade Ubuntu MATE 17.10 Beta to Ubuntu MATE 17.10 Stable (when it comes out later) without reinstalling?

A (Thanks to *oldfred* in the Ubuntu Forums) You do not have to do anything. Normal updates will update it to the current version.

But as the development version, it has installed many apps, perhaps multiple times, many kernels and changed many settings. So log files may already be larger than normal. If you are good at house-cleaning, then you should be ok, but I prefer to just reinstall so everything starts fresh.

Q I'm new to Linux and I'm running Ubuntu Studio in hopes of being able to run all the programs I used to run on Windows. Right now, I'm trying to set up DaVinci Resolve, which has a Linux version. I follow the steps from this link here:

https://www.thefanclub.co.za/how-to/how-install-blackmagic-design-davinci-resolve-125-ubuntu-1604-lts

After completing the steps, the icon shows up on the desktop, but when I double-click to open it, nothing happens.

A The installation instructions are quite complicated. Coming from Windows, the most likely problem is that somewhere, you typed a letter in the wrong case.

In Linux, Downloads and downloads are completely different places.

TOP QUESTIONS AT ASKUBUNTU

* Create alias for ssh connecting
https://goo.gl/yPVQs6

* How to exclude a package from apt-get autoremove?
https://goo.gl/oJeD5G

* How do I find out if a PNG is PNG-8 or PNG-24?
https://goo.gl/RdR57t

* Rename all ".pdf" files to "_0.pdf"
https://goo.gl/1cj54p

* Ubuntu 16.04: Where is the network configuration?
https://goo.gl/4jXgi6

* Accidentally deleted ~/.config directory
https://goo.gl/p9TcGB

* Can I recover my Windows product key from Ubuntu?
https://goo.gl/CzLiXa

* How do I copy a file larger than 4GB to a USB flash drive?
https://goo.gl/PA2xEV

* Deleting history from ~/.bash_history
https://goo.gl/aenzT9

TIPS AND TECHNIQUES

Backup revisited

In issue 115 of Full Circle Magazine, I mentioned that I was using (free) Crashplan Home to back up my home folder. It worked OK, the biggest issue was that my file server would not automatically reconnect when I rebooted the router.

Recently, Crashplan announced that they would be removing Crashplan Home from their product lineup, effective late next year. My hat is off to them for giving lots of notice that I need to find a new approach. Thanks, guys!

For now, my crummy router is still giving me grief, but next month I hope to write about how I switched to rsync.

Gord had a long career in the computer industry, then retired for several years. More recently, he somehow found himself "The IT Guy" at a 15-person accounting firm in downtown Toronto.

Rarely do I play a video game that forces me to switch the difficulty level from the default medium setting to an easier one, Aragami is such a game. Aragami is an action-adventure stealth video game developed and published by Lince Works. Aragami was released October 2016 for Linux, Microsoft Windows, Mac OS X & PlayStation 4. The game includes a multi-player mode as well as a level editor, but this review will focus on the main single-player story mode.

As far as stealth games go, Aragami is the true definition of stealth. I've played other stealth games in the past but none compare to Aragami when it comes down to playing stealth and progressing through its 13 levels unnoticed. Staying in the shadows is the name of the game. Moving about completely unnoticed is essential to beating this game. Even the slightest movement that might lead to your discovery will eventually also lead to your death. Aragami is available through Steam, HumbleBundle & GOG for $19.99 regular price. All you have to do is buy it and install it, that simple.

As the game begins, you find out that you're a ninja by the name of Aragami who has just been created by a girl named Yamiko, or rather by an astral projection of Yamiko. Yamiko's astral projection explains to you (Aragami) that you can use shadows to hide yourself and to move around the environment. Your main purpose is to find Yamiko who is being held captive in a prison by the Kaiho. The storyline is very confusing at first, but, as you progress through the levels, things begin to make sense, and in the end the game actually has a pretty good story to tell.

So, shortly after finding out that you will cease to exist as soon as the sun comes up, and therefore you have only one night to find Yamiko and set her free, her astral projection begins to teach you skills that will help you as you infiltrate the enemy's territory. One of the first things she teaches you (and your main tool in your toolbox) is how to use shadows to move around. The basic premise is that you belong in the shadows

and the light is your enemy. If your "Shadow Essence" is fully replenished, you can move from one shadow to another nearby shadow simply by aiming at it and pressing the correct button. Your "Shadow Essence" is drained if you stand near light sources, and it is replenished by standing in the shadows. Later on, another skill you learn is how to create a temporary shadow to which you can tele-transport as if it were a regular shadow, so you can move into hard-to-reach places. So, as you move through shadows, you're able to beat the levels by going unnoticed. If, on the other hand, you're spotted, there is really no time for you to survive a samurai sword or a flying dagger, and, instead, you face a most certain death. You also learn how to execute stealth kills, but, from personal experience, you're better off not killing anyone. Once you get the hang of it, this is a pretty fun game to play.

The anime-inspired graphics, although not cutting-edge, are pretty interesting and at times

very unique due to the constant battle between shadow and light that is essential to the game. Likewise, the sound is nothing extraordinary, but, at times, certain sound effects did make me jolt out of my seat. The playability, especially the shadow-traveling part of it, is what makes this game stand out from the rest. The use of lights & shadows in the game-play, as well as the storyline, take this game to another level. Once you get accustomed to the dynamics between light & shadows, Aragami becomes a game you don't want to put down.

I didn't encounter any glitches in the game, but I'm forced to take a half star off because of the default control options that seem incomplete. When I first began playing the game, I found that there were a couple of actions that were awkward with the default button layout (both with a gamepad as well as with mouse/keyboard). I had to go into the "Options" menu to tweak a couple of buttons and make the game easier to play. For example, when using mouse/keyboard, there was an action that could only be executed with the gamepad's left trigger – which is just weird.

Likewise, when using a gamepad, there was an action that could only be executed by pressing the left-shift key on the keyboard. After I made the necessary changes, the game was much more enjoyable but this is something that shouldn't need to be changed.

⭐⭐⭐⭐✮

Minimum System Requirements
Ubuntu or equivalent 64-bit
CPU: 2GHz 64-bit CPU
Memory: 4GB RAM
Graphics: OpenGL 3 Compatible GPU with 1 GB Video RAM
Storage: 6 GB available space

My gaming box
AMD FX-6100 3.3GHz CPU (over-clocked to 3.5GHz)
Nvidia GeForce GTX 960 graphics card with Nvidia 381 driver
16GB of Kingston Hyper X RAM
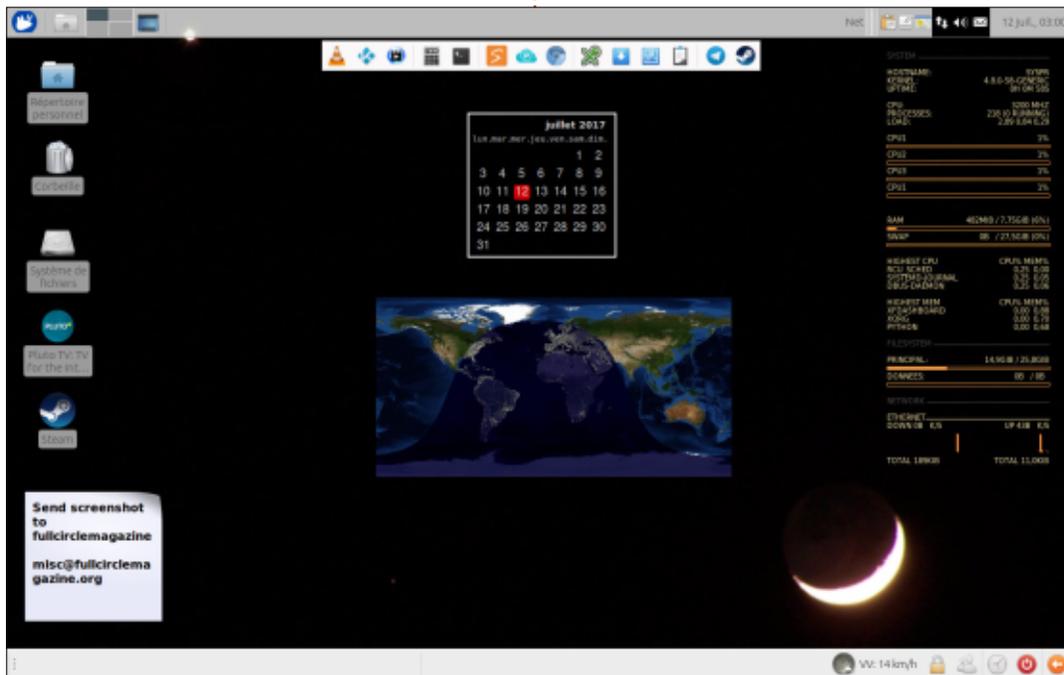Ubuntu 16.04 LTS (64-bit) with Unity desktop

Oscar graduated with a music degree from CSUN, is a Music Director/Teacher, software/hardware beta tester, Wikipedia editor, and active member of the Ubuntu community. You can email him at: 7bluehand@gmail.com

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I 'm on Xubuntu 16.04 on a computer that I've built myself; the processor is an AMD Athlon X4 750k with 6GB RAM. The wallpaper is from Xubuntu, I have conky, 2 screenlets (someone revived it http://www.webupd8.org/2017/02/screenlets-desktop-widgets-fixed-for.html), 3 panels with some applets. The little panel with applications shortcuts auto-hides when I open a window, and appears when I slide on a little bar that appears under the window title.
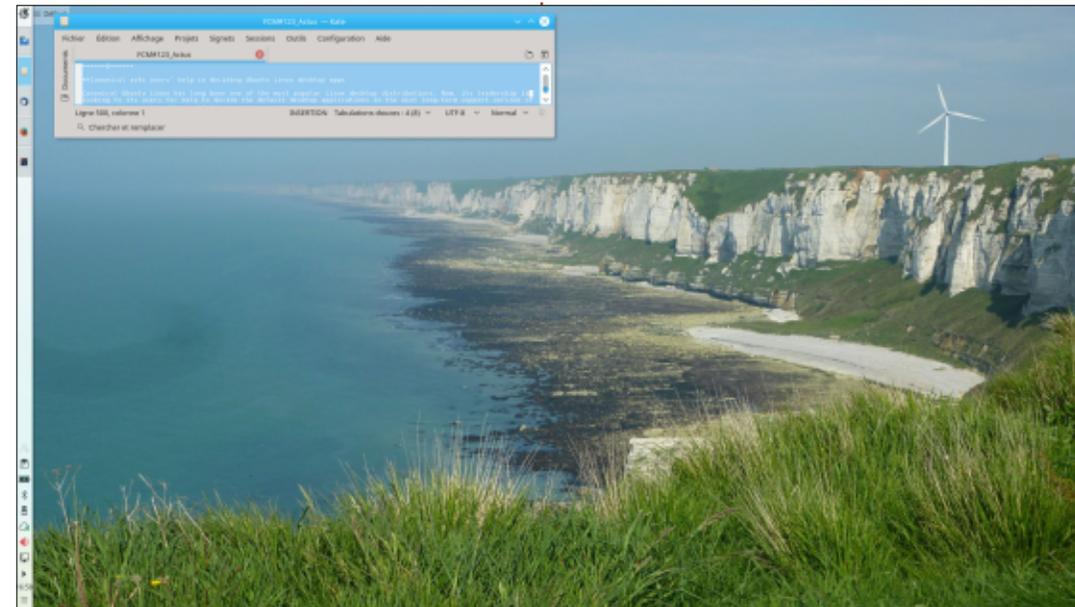
Inhan Tshen

M y new Kubuntu laptop:

• Asus K656UQ with 256 GB of SSD
• 1 TB of HHD
• RAM 8 GB
• full HD display

In replacement of the finishing Unity that I enjoyed a lot (all my favorite applications on the left in a maskable banner), I decided to switch to Kubuntu, simple to use and customisable enough.

The background is of my own, a picture of the cray cliff just at the north of Fecamp, France. I love this effect of sky, earth and cliff vanishing in a common blue mist.

In Kate, the simple but efficient Kubuntu text editor, the in-progress translation of FCM #123 News article.

d52fr

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

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

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