



Full Circle

THE INDEPENDENT MAGAZINE FOR THE UBUNTU LINUX COMMUNITY

ISSUE #121 - May 2017

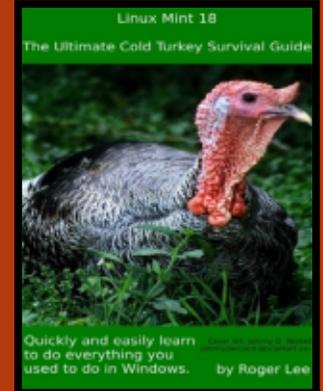


ubuntu@ubuntu: ~

```
ubuntu@ubuntu:~$ mount | grep sd  
/dev/sda1 on /isodevice type ext4 (rw,relatime,data=ordered)  
gvfsd-fuse on /run/user/999/gvfs type fuse.gvfsd-fuse (rw,nosuid  
user_id=999,group_id=999)  
ubuntu@ubuntu:~$
```

Install
Ubuntu
16.10

BOOK REVIEW



INSTALL UBUNTU USING NO EXTERNAL MEDIA

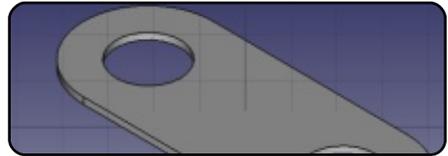
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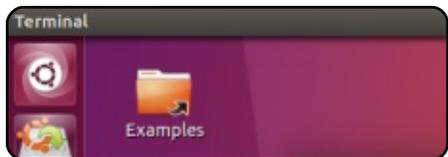
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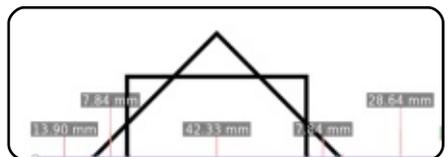
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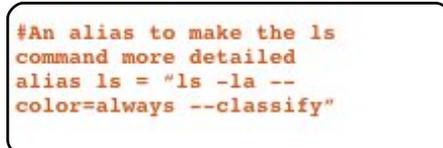


Graphics

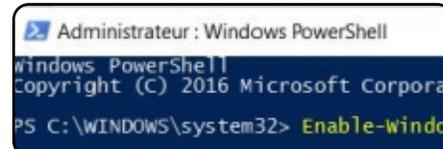


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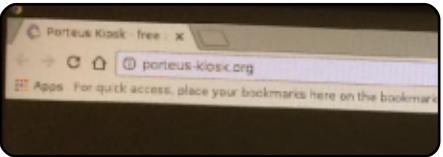
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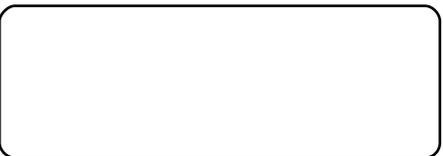
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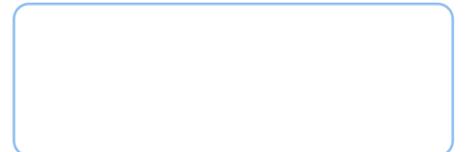
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WELCOME TO THE LATEST ISSUE OF FULL CIRCLE.

I hope you enjoyed last month's bumper issue, and you're ready for more. As per usual we have some Python, FreeCAD, Inkscape, and Kdenlive. Alan Ward has written another unusual HowTo on installing Ubuntu using no external media whatsoever. It's like wizardry!

AuntieE (from the French translation team) has written up an interesting article on installing BASH in Windows using the Windows Subsystem Linux (WSL). I never thought I'd see the day when Windows/Microsoft would allow, even encourage, people to install Linux. Even if it is just a small part of Linux. It's a very powerful part of Linux.

Elsewhere this issue we have a book review, Lucas takes a quick look at the Go programming language, SJ Webb gives a short review of the Porteus Kiosk distro, and Oscar reviews the game Total War: Warhammer.

As ever, keep sending in your articles. We're always looking for more items to publish. Even if it's just a quick introduction to a piece of software you regularly use, I'm sure it'd help someone out there who's interested in learning that particular thing. Please send them to: ronnie@fullcirclemagazine.org. Don't forget to include screenshots within the document to show what you're doing. Ignore text formatting and layout as I do that in Scribus.

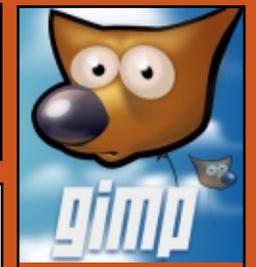
All the best, and keep in touch!

Ronnie

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HIKEY 960: GOOGLE AND HUAWEI'S HIGH-END RASPBERRY PI ALTERNATIVE RUNS ANDROID 7.1 AND LINUX

Whenever we hear the name Android, the first thought that comes to our minds is an operating system that powers the most of the smartphones around the world. But, with time, it has grown to become one of the key players in the operating system world by finding its place on smart devices, televisions, computers, cars, etc. This has also created new opportunities for Android developers as they can code apps for devices of different form factors.

Now, to help the developers code software for ARM systems without being dependent on Chromebooks or Intel x86 systems, Google, Huawei, and Linaro have launched HiKey 960. It costs \$239 and measures 85x55mm.

HiKey 960 single board computer is a powerful Raspberry Pi alternative that runs Android. The device is powered by the Huawei's octa-core Kirin 960 chip that powers the Mate 9 flagship.

Source:

<https://fossbytes.com/hikey-960-google-huawei-raspberry-pi-alternative/>

GCC (GNU COMPILER COLLECTION) 7.1 RELEASED TO CELEBRATE 30 YEARS SINCE GCC 1.0

Believe it or not, GCC 7.1 marks the 30th anniversary of the GNU Compiler Collection's first Beta release. It's a major release featuring lots of new functionality and improvements that aren't available in GCC 6.x or any other previous branch of the project, which makes it the recommended version for all platforms using GCC.

Prominent new features of GNU Compiler Collection 7.1.0 include experimental support for all the current C++17 draft library features in the C++ frontend, bringing the `-std=gnu++1z` and `-std=c++1z` options, as well as of some of them in the `libstdc++` library, support for the Address Sanitizer to report the use of variables after leaving their scope.

GNU Compiler Collection can now can be configured for OpenMP 4.5 offloading to Nvidia PTX GPUs (General-purpose Computing on Graphics Processing Units), the emitted diagnostics received improvements to locations and location ranges, suggestions for misspelled identifiers, fix-it hints, option names, and a bunch of new warnings.

Source:

<http://news.softpedia.com/news/gcc-gnu-compiler-collection-7-1-released-to-celebrate-30-years-since-gcc-1-0-515368.shtml>

CLOUDLINUX 6 GETS NEW BETA KERNEL TO BACKPORT A FIX FOR R1SOFT'S BACKUP SOLUTION

The updated CloudLinux 6 Beta kernel is tagged as build 2.6.32-673.26.1.lve1.4.26 and it's here to replace kernel 2.6.32-673.26.1.lve1.4.25. It is available right now for download from CloudLinux's updates-testing repository and backports a fix (CKSIX-109) for R1Soft's backup solution from CloudLinux 7's kernel.

Source:

<http://linux.softpedia.com/blog/cloudlinux-6-gets-new-beta-kernel-to-backport-a-fix-for-r1soft-s-backup-solution-515291.shtml>

ULTIMATE EDITION LINUX: ROUGH ROAD TO A NICE DESTINATION

Ultimate Edition has a lot going for it. However, the latest

release, version 5.4, also reflects numerous missteps that developers of a seasoned Linux distro should avoid.

Ultimate Edition is a fork of two popular Debian-based Linux families -- Ubuntu and Linux Mint. First released in December 2006, this distro aimed to take the best of both Linux entities and blend in a fresh mix of visually stimulating features.

Ultimate's developers took a path that diverged somewhat from the two new desktop environments that were the hallmarks of its forked heritage. Ubuntu crafted the Unity desktop, while Linux Mint popularized the homegrown Cinnamon desktop.

Instead, Ultimate Edition Linux focused on the MATE desktop. The MATE community forked the discontinued GNOME 2 environment when the GNOME 3 community introduced some radical user interface changes.

This latest version, released last month, is based on the just-released Ubuntu 17.04 and adds the Budgie desktop. This is my first major disappointment in dealing

with the Ultimate Edition. The developer, who goes by the moniker "TheeMahn," said that this release would offer Budgie as an option -- but it was still missing three weeks after version 5.4 hit the download queue.

Source:
<http://www.linuxinsider.com/story/84502.html>

APRICITY OS, AN ARCH LINUX-BASED DISTRO, IS NOW OFFICIALLY DEAD

Last year in August, we told you about the first stable release of Apricity Linux distribution. It was designed for beginners, who wished to use an easy-to-install and ready-to-use operating systems. Based on Arch Linux, the OS initially shipped in Cinnamon and GNOME flavors. In a sad development, the short journey of Apricity OS has come to an end.

In a post on the Apricity OS website, the team of developers announced that Apricity is now officially dead. "Like all good things, Apricity OS must come to an end," the team wrote.

Source:
<https://fossbytes.com/apricity-linux-distro-dead-end/>

CINNAMON 3.4 DESKTOP OFFICIALLY RELEASED, IT'S COMING SOON TO A DISTRO NEAR YOU

Linux Mint project leader Clement Lefebvre was happy to announce today the official availability of the Cinnamon 3.4 desktop environment for GNU/Linux distributions.

Prominent features of Cinnamon 3.4 include desktop grid, support for mozjs38, support for more Wacom devices, wildcard support in file searches, a new list widget for Spices settings, a multi-process settings daemon, desktop actions in the panel launcher, and separate processes for desktop handling and file manager in Nemo.

Also worth mentioning is better support for the configuration of sensitivity and acceleration for mice, support for lightdm-settings in System Settings, support for manage-systemd-units, extra

configuration options for the screensaver, as well as theming engine improvements for margins and the system tray area.

Source:
<http://news.softpedia.com/news/cinnamon-3-4-desktop-officially-released-it-s-coming-soon-to-a-distro-near-you-515553.shtml>

MARK SHUTTLEWORTH: UBUNTU ON THE DESKTOP WILL REMAIN IMPORTANT TO CANONICAL

The Canonical and Ubuntu founder was interviewed by theCUBE, who were very curious to know what the state of Ubuntu Linux was these days, given that Mark Shuttleworth shocked the Open Source community when he announced last month that development of the Unity interface was shut down, along with the convergence vision.

Of course, Mark Shuttleworth answered that his dream was always for Ubuntu to go mainstream on desktop, cloud, and IoT, but things don't always go the way we want them to. According to

Shuttleworth, Ubuntu appears to be the de facto standard for cloud computing and data centers.

In the interview, Shuttleworth said that he thinks Ubuntu on the desktop will remain important to Canonical in supporting developers, who are the blood life of free software, Open Source, and IT innovation, but as a business Canonical chooses to focus on the cloud and IoT (Internet of Things).

Source:

<http://linux.softpedia.com/blog/mark-shuttleworth-ubuntu-on-the-desktop-will-remain-important-to-canonical-515529.shtml>

NETWORKMANAGER 1.8 IS OFFICIALLY OUT, HANDLES PINs FOR PKCS#11 TOKENS AS SECRETS

NetworkManager 1.8 is a major release that introduces numerous improvements and new features over the NetworkManager 1.6 series. Prominent ones include more flexible configurations for hostname management, as well as support for more route options

like mtu, lock-mtu, initrwnd, lock-initrwnd, cwnd, lock-cwnd, tos, window, lock-window, pref-src, src, initcwnd, and lock-initcwnd.

The nmcli component has been updated in this release to be able to produce more machine parsing-friendly output, new "driver:" device specification was implemented in NetworkManager.conf to support matching of networking devices, the ability to handle PINs for PKCS#11 tokens as secrets was added, and EAP-FAST support in wpa_supplicant was improved.

Among other noteworthy improvements that landed in the NetworkManager 1.8 stable series of the open-source network connection management tool, we can mention support for creating and managing dummy links, support for attaching user-data in the form of key-value pairs to network connection profiles, and the ability to set a hardcoded MAC address to teaming devices.

Source:

<http://news.softpedia.com/news/networkmanager-1-8-is-officially-out-handles-pins-for-pkcs-11-tokens-as-secrets-515601.shtml>

KDE PLASMA 5.10 WILL LET YOU INSTALL SNAPS AND FLATPAKS, SUPPORT GNOME'S ODRS

KDE Plasma 5.10 promises many new features and improvements over the KDE Plasma 5.9 release that probably many of you are using right now on your GNU/Linux distributions, but which reached end of life with the release of the KDE Plasma 5.9.5 maintenance update last month.

So now most of the hardcore KDE fans are expecting for KDE Plasma 5.10 to land, which will happen at the end of the month, but, until then, there's a Beta that should arrive for public testing on May 15, to give users an early taste of what they should expect from the major release of the popular desktop environment.

It just happens that we got our hands on some of the features coming to the KDE Plasma 5.10 release, so we'd like to share them here with you. For starters, you should already know from our previous reports that Folder View will be the default desktop,

featuring spring loading, a unified drop menu, and a revamped rename UI.

The second awesome feature of the KDE Plasma 5.10 desktop environment will be support for installing applications as Snaps or Flatpaks via the Plasma Discover graphical package manager, which now supports GNOME's ODRS (Open Desktop Ratings Service) for reviews and comments on apps.

Source:

<http://news.softpedia.com/news/kde-plasma-5-10-will-let-you-install-snaps-and-flatpaks-support-gnome-s-odrs-515658.shtml>

LINUX AND OTHER OPEN SOURCE TECHNOLOGIES PROTECT ONLINE PRIVACY: SNOWDEN

Edward Snowden, the whistleblower is living in exile since 2013 when he uncovered the NSA's surveillance operations. However, the tech world's Robin Hood makes quite a few virtual appearances and gives his views on the state of privacy.

Snowden's latest Q&A interaction happened with the OpenStack Foundation's COO Mark Collier over a video conference call during the OpenStack Summit. Snowden emphasized that premium cloud platform and proprietary software are a dent on people's privacy.

The NSA hacker has a soft spot for open source software as it allows people to share information without external interference. A few names he mentioned include Tor network, Debian open source OS, and the anonymity optimized Tails Linux distribution. He used a number of open source software during his 2013 revelation.

Source:

<https://fossbytes.com/linux-and-other-open-source-technologies-protect-online-privacy-snowden/>

USING PIDGIN FOR MULTIPLE CHAT PROTOCOLS SIMULTANEOUSLY IN GNU/LINUX

Pidgin is a wonderful application used for

connecting to multiple chat protocols through a single application, making it much easier to chat to more people at once, and saving on system resources at the same time.

I'm a multitasker, I always have multiple windows open and multiple things on the go simultaneously, but one thing I can't stand is having to use multiple apps with similar purposes, separately, when I can find a way to link them all together.

Pidgin satisfies this for me, and allows me to have my Skype, Facebook Messenger, and almost any other messaging related service all under all one handy little application.

Something to note about Pidgin and Skype however, is that video and audio calls are not supported. If a friend of yours tries to call you, they will be notified you are unavailable, but you will not even see that they called you, so adding your account to Pidgin is only useful for text conversations.

Source:

<https://www.ghacks.net/2017/05/14/using-pidgin-for-multiple-chat-protocols-simultaneously-in-gnulinux/>

UBUNTU LOGIN SCREEN SECURITY FLAW COULD ALLOW ANYONE TO ACCESS YOUR FILES

A flaw of medium priority has been found in Ubuntu Linux operating system. Due to a bug in LightDM display manager, the guest sessions aren't properly confined. This problem stepped in when user session handling moved from upstart to systemd in Ubuntu 16.10. Canonical has released a patch for this vulnerability and you need to install security updates to get the fix. After the widespread havoc caused in the closed world of Windows by the WannaCry ransomware, it's time for the Linux users to update their systems and patch a medium priority flaw that has the potential to do a considerable amount of damage. The issue being talked about here deals with LightDM, the display manager that powers the Unity Greeter login screen.

Reported by OMGUbuntu, the affected versions are Ubuntu 16.10 and Ubuntu 17.10. Due to this flaw in LightDM, it doesn't correctly configure and confine the guest user session which is enabled by default on Ubuntu Linux. By exploiting the same, a notorious hacker with physical access can grab the files and gain access to the other users on the system. Please note that the files in a user's home directories can also be accessed.

Source:

<https://fossbytes.com/ubuntu-login-screen-security-flaw-lightdm/>

LINUX-BASED TIZEN 4.0 OPEN SOURCE OPERATING SYSTEM RELEASED

At the Tizen Developer Conference (TDC) 2017, Samsung Electronics unveiled Tizen 4.0 open source operating system. The Korean tech giant showed off the new version of the Linux-based operating system and said that Tizen 4.0 OS has a wider range of applications to devices.

It should be noted that Tizen 1.0 was announced at TDC 2012; since then, it has touched almost all of Samsung's products. After bringing Tizen to smartphones, televisions, etc., Samsung is now planning to integrate Tizen 4.0 OS into more household and IoT devices. This will be done with the help of Tizen Real Time (RT).

Samsung has also entered into a collaboration with Microsoft, which allows the developers to easily develop Tizen application with popular programming languages. Specifically, C# developers can make Tizen apps using .NET and Xamarin framework.

To expand Tizen ecosystem, Samsung is strengthening the cooperation with Samsung ARTIK, Broadlink, Commax, and Gypse.

Source:

<https://fossbytes.com/tizen-4-0-linux-operating-system/>

FASTER MACHINE LEARNING IS COMING TO THE LINUX KERNEL

It's been a long time in the works, but a memory management feature intended to give machine learning or other GPU-powered applications a major performance boost is close to making it into one of the next revisions of the kernel.

Heterogenous memory management (HMM) allows a device's driver to mirror the address space for a process under its own memory management. As Red Hat developer Jérôme Glisse explains, this makes it easier for hardware devices like GPUs to directly access the memory of a process without the extra overhead of copying anything. It also doesn't violate the memory protection features afforded by modern OSes.

One class of application that stands to benefit most from HMM is GPU-based machine learning. Libraries like OpenCL and CUDA would be able to get a speed boost from HMM. HMM does this in much the same way as speedups being done to GPU-based machine

learning, namely by leaving data in place near the GPU, operating directly on it there, and moving it around as little as possible.

These kinds of speed-ups for CUDA, Nvidia's library for GPU-based processing, would only benefit operations on Nvidia GPUs, but those GPUs currently constitute the vast majority of the hardware used to accelerate number crunching. However, OpenCL was devised to write code that could target multiple kinds of hardware—CPUs, GPUs, FPGAs, and so on—so HMM could provide much broader benefits as that hardware matures.

Source:

<http://www.infoworld.com/article/3196884/linux/faster-machine-learning-is-coming-to-the-linux-kernel.html>

GOOGLE MAKES KOTLIN A FIRST-CLASS LANGUAGE FOR WRITING ANDROID APPS

Google today announced that it is making Kotlin, a statically typed programming language for the Java Virtual Machine, a first-class language for writing Android

apps. Kotlin's primary sponsor is JetBrains, the company behind tools like IntelliJ. It's 100 percent interoperable with Java, which until now was Google's primary language for writing Android apps (besides C++).

The company also today said that it will launch a foundation for Kotlin (together with JetBrains). JetBrains open-sourced Kotlin back in 2012 and version 1.0 launched just over a year ago. Google's own Android Studio, it's worth noting, is based on the JetBrains IntelliJ Java IDE, and the next version of Android Studio (3.0) will support it out of the box.

Because Kotlin is interoperable with Java, you could already write Android apps in the language before, but now Google will put its weight behind the language. Kotlin includes support for a number of features that Java itself doesn't currently support.

Google noted in a later keynote that this is only an additional language, not a replacement for its existing Java and C++ support.

It's worth noting that the Kotlin announcement garnered what was

likely the loudest applause from Google's I/O keynote announcement today.

Source:

<https://techcrunch.com/2017/05/17/google-makes-kotlin-a-first-class-language-for-writing-android-apps/>

UBUNTU 17.04 (ZESTY ZAPUS) RECEIVES FIRST KERNEL SECURITY PATCH, UPDATE NOW

Canonical released what it would appear to be the first security patch for the kernel packages of the recently released Ubuntu 17.04 (Zesty Zapus) operating system, addressing a total of six vulnerabilities discovered by various developers.

Announced a month ago, on April 13, 2017, Ubuntu 17.04 shipped with a kernel from the Linux 4.10 series, which is still maintained upstream receiving weekly patches that fix bugs and security issues, but also update drivers and add new functionality. But the time has come for Ubuntu 17.04 users to update their

kernels.

According to Ubuntu Security Notice USN-3293-1, multiple security issues are affecting the linux-generic (including lpaе), linux-lowlatency, and linux-raspi2 kernel packages of Ubuntu 17.04 and its official derivatives using the same kernels, such as Kubuntu, Lubuntu, Xubuntu, Ubuntu MATE, Ubuntu GNOME, etc.

Canonical also released new kernel security updates for all other supported Ubuntu releases, including Ubuntu 16.10, Ubuntu 16.04 LTS, and Ubuntu 14.04 LTS.

Source:

<http://news.softpedia.com/news/ubuntu-17-04-zesty-zapus-receives-first-kernel-security-patch-update-now-515806.shtml>

ELEMENTARY OS LOKI 0.4.1 LINUX DISTRO NOW AVAILABLE FOR DOWNLOAD

Despite the death of Unity, there is still no shortage of desktop environments for Ubuntu. In fact, there are some Linux-based operating systems that exist

mostly to provide an arguably better environment and experience. Two good examples of this are Linux Mint and elementary OS. While these distros are more than just Ubuntu with an alternative DE, the UI is largely the star of the show. While Mint caters to folks that have trouble moving beyond the interfaces of yesteryear, elementary instead focuses on a forward-looking experience.

Today, elementary OS Loki -- the latest version of the operating system -- reaches a new milestone. Release 0.4.1 adds many new features, including an updated 4.8 kernel, improved Kaby Lake support, and most importantly, the all-new crowd-funded AppCenter!

Installing new apps on Linux can be a big pain point for new users, and so far, no one has really gotten it right. Their approach to user-friendly design and experience should translate well to this new AppCenter, and I only expect it to get better with time.

The team uses a "pay what you want" download scheme, but you can enter \$0 to get it free.

Source:

<https://betanews.com/2017/05/18/elementary-os-loki-linux-041/>

FEREN OS: A LINUX DESKTOP GAME-CHANGER

Feren OS is a polished and well-stocked Linux distro that comes close to being an ideal replacement for Microsoft Windows and macOS. In fact, this impressive Linux OS is a very attractive replacement for any Linux distro.

The only impediment to this assessment is dislike of the Cinnamon desktop. Feren OS does not give you any other desktop options. However, it comes with a wide assortment of configuration choices that let you tweak the look and feel into almost any customized appearance you could want.

It also is super easy to install. This makes it suitable for those migrating to Linux -- or at least to this operating system. Feren OS offers a specialized software repository that is colorful and efficient to use. It has several specialized launchers to install and

configure software packages with a single mouse click.

Feren OS 2017.0 "Murdock" was released earlier this month. This distro is a relatively obscure Linux OS based on Linux Mint's main edition.

Feren is a relative newcomer that first appeared in late 2015. Since then, Feren OS has acquired considerable maturity. It shows very little evidence of being a newcomer. It has its own personality, so you will not feel like you are using a Mint clone.

Even the in-house customization of the Cinnamon desktop environment gives it a considerably different atmosphere than the current Linux Mint Cinnamon iteration.

Source:
<http://www.technewsworld.com/story/84541.html>

THE FULL CIRCLE WEEKLY NEWS



A short podcast (<10min) with just the news. No chit-chat. No time wasting. Just the latest FOSS/Linux/Ubuntu news.

RSS:
<http://fullcirclemagazine.org/feed/podcast>



The Ubuntu Podcast covers all the latest news and issues facing Ubuntu Linux users and Free Software fans in general. The show appeals to the newest user and the oldest coder. Our discussions cover the development of Ubuntu but aren't overly technical. We are lucky enough to have some great guests on the show, telling us first hand about the latest exciting developments they are working on, in a way that we can all understand! We also talk about the Ubuntu community and what it gets up to.

The show is presented by members of the UK's Ubuntu Linux community. Because it is covered by the Ubuntu Code of Conduct it is suitable for all.

The show is broadcast live every fortnight on a Tuesday evening (British time) and is available for download the following day.

podcast.ubuntu-uk.org



I recently started working on a project using Google's Go programming language. As I had previously only completed the tour and a few minor tasks, this was my first experience using it for a larger project. Over the course of the project, I am essentially creating a web app (linked to a PostgreSQL database). I won't go into the details of the actual project, but I will be sharing what I've learned so far.

THE SETUP

You can install Go using apt:

```
sudo apt-get install golang-go
```

If you want a more recent version of Go, there are more instructions on their GitHub page: <https://github.com/golang/go/wiki/Ubuntu>

EXAMPLE CODE

I've thrown together a small set of sample code into a Gist, which can be found here:

<https://gist.github.com/lswest/fee0fb8685b0d9bed03e864a78f7f1a>

If you decide to download the files, be sure to place the two html files in a subdirectory called "tmpl", or update the path in the app.go file.

THE BASICS

There is a tour over at <https://tour.golang.org/welcome/1> which is a very good spot to start. Naturally, you can also follow other tutorials or books.

Once you've written your code, you can either compile it using go build or run it locally using go run. While Go can be used for other projects besides web-based apps, I won't be going into detail for those uses.

TEMPLATING

The above example code is essentially a 'hello world' application, but covering a few aspects that I had trouble

implementing correctly right off the bat. A few important notes:

- On line 23 (<https://gist.github.com/lswest/fee0fb8685b0d9bed03e864a78f7f1a#file-app-go-L23>) the Funcs(funcMap) section adds in customized filters for use in the template (in this case, enabling the use of a ToLower filter).
- On the same line, the ParseGlob line is necessary for working with partial templates, as, without it, the {{define "header"}} line would not be parsed, leading to errors. If you're not using a tmpl directory, ParseGlob("**") should work.

Generally, this templating works pretty much like Jinja2, for anyone who has used that. Dynamic elements (such as those loaded from structs) are in curly braces, and all fields begin with a ".", indicating that you're expecting to find the variable in the current object. Filters are attached to variables via a pipe. Stringing multiple filters together should work (though I haven't tested it).

URLS

If you execute 'go run' in the project directory, navigating to <http://localhost:8081/> will yield a generic looking "Hello World" file. If, however, you head to <http://localhost:8081/Lucas>, the page will instead greet the name given in the URL.

The example is very basic - if you want some "homework," try to (for example) correctly capitalize the name, even if it's lowercase in the URL.

The code itself is relatively straightforward - on line 15, I set up the generic page, and then I check if the length of the URL Path (everything after the domain) is longer than the length of "/" (so, 1). If the length is longer, that means there is a parameter given (in this case, the name), and the 'hello' variable gets overwritten with the new title/content. If it's shorter or equal to 1, then it should just be the fallback page, so nothing changes (as there is no 'else' statement).

After the 'if' statement, the rest

of the viewHandler function is dictated by the templates package. The funcMap contains a map (for anyone who uses Python, they can be thought of as dictionaries) of filter names and the functions they map to. This could be used for custom functions as well. Afterwards, the template files are loaded. The function 'template.Must' simply ensures that the program throws an error and a panic if no template files are found. And lastly, the ExecuteTemplate function asks for a ResponseWriter ("w"), the name of the template to load (based off the filename), and the object to load ("hello").

STRUCTS

Lines 9-12 create a struct called "Page" which contains two string fields - Title and Content. This is essentially creating a special data type. Structs can be initialized via Page{Title, Content}. Naturally, the more variables you include, the longer the initialization is.

DEBUGGING

If you run into issues, you can import the "fmt" package, and use

fmt.Printf to print formatted text to the terminal.

CONCLUSION

This is a very basic example, but should still serve as a jumping in point for anyone interested in working with Go. If anyone runs into issues, or has suggestions how to complete any of the steps in a more "Go Fashion", feel free to let me know at lswest34+fcem@gmail.com. Similarly, if you have any requests for article topics I should cover, you can let me know via email.



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.

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HOW-TO

Written by Greg D. Walters

Python In The Real World - Pt 78

Last month, we started a bluetooth enabled Temperature/Humidity sensor program. This month, we will continue with the combined sketch.

I'll include the Fritzing wiring diagram just in case you missed it last month.

As I said last month, the VCC positive voltage into the bluetooth module is 3.3VDC from the Arduino. If you use the 5VDC, you will most likely destroy the bluetooth module.

THE CODE

With just a glance, you should be able to see that the script for this month (<https://pastebin.com/F7FvLVV7>) is simple: a combination of the DHT script and the Bluetooth script. The only major changes are to support the reading and sending of the DHT values in the handleBluetooth routine.

Herein the handleBluetooth routine to tie together the DHT data and send it along whenever it is requested. I purposely over-coded the routine so you have more information than needed. There really isn't a need to have the delay after each and every case. Just one at the end would have done just fine. I also didn't need to duplicate the code for reading/transmitting the temp/humidity in the "All" case. I could (and maybe should) have created a separate function for each and then simply call the routines, but I wanted to be explicit in my sample script.

The sketch is available on Pastebin at <https://pastebin.com/F7FvLVV7>.

As a bit of a side comment, you might wonder why we are still concentrating on Python as a programming language. TechRepublic just recently published a piece on the top 3 programming languages to learn. Python is #3. You can find the article at

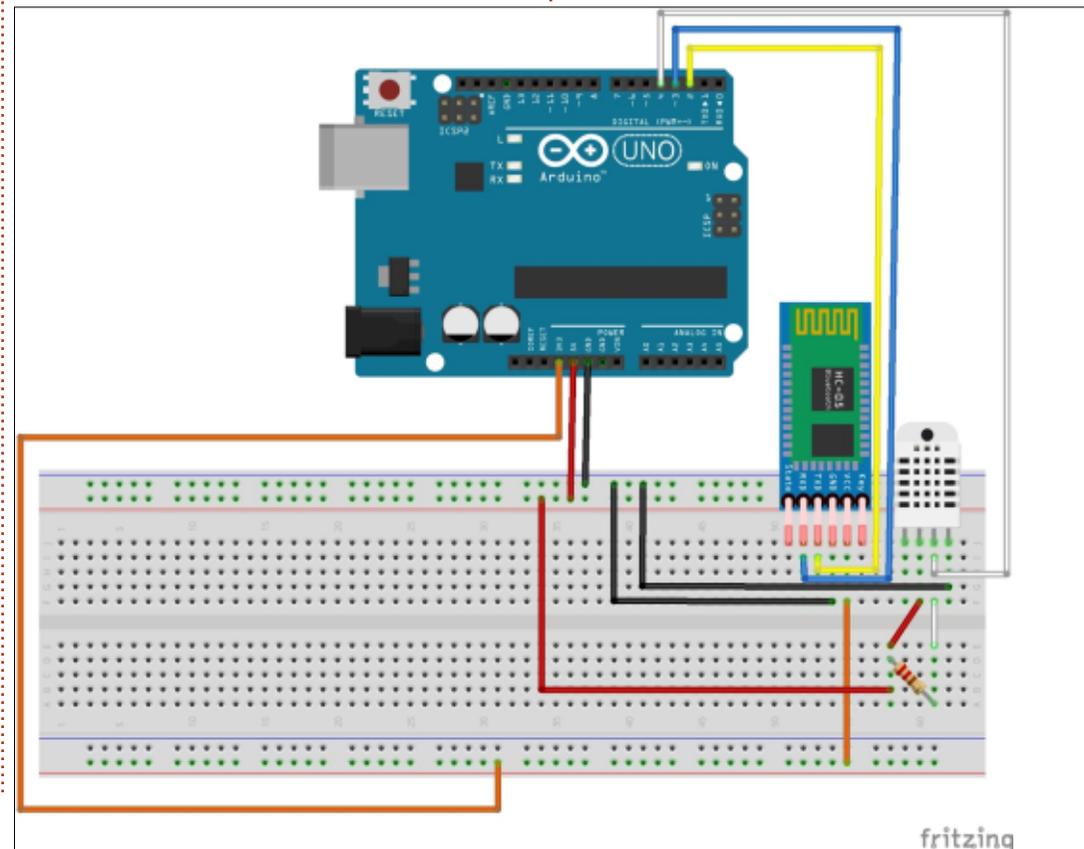
<http://www.techrepublic.com/article/how-to-learn-programming-3-languages-to-get-you-started/?ftag=TR Ee09998f&bhid=21183116384784001061743673481364>.

Since I'm in the process of moving, I will leave the RPi and Python side of things until I get somewhat settled. Until then, have

fun.



Greg Walters is owner of RainyDay Solutions, LLC, a consulting company in Aurora, Colorado, and has been programming since 1972. He enjoys cooking, hiking, music, and spending time with his family.



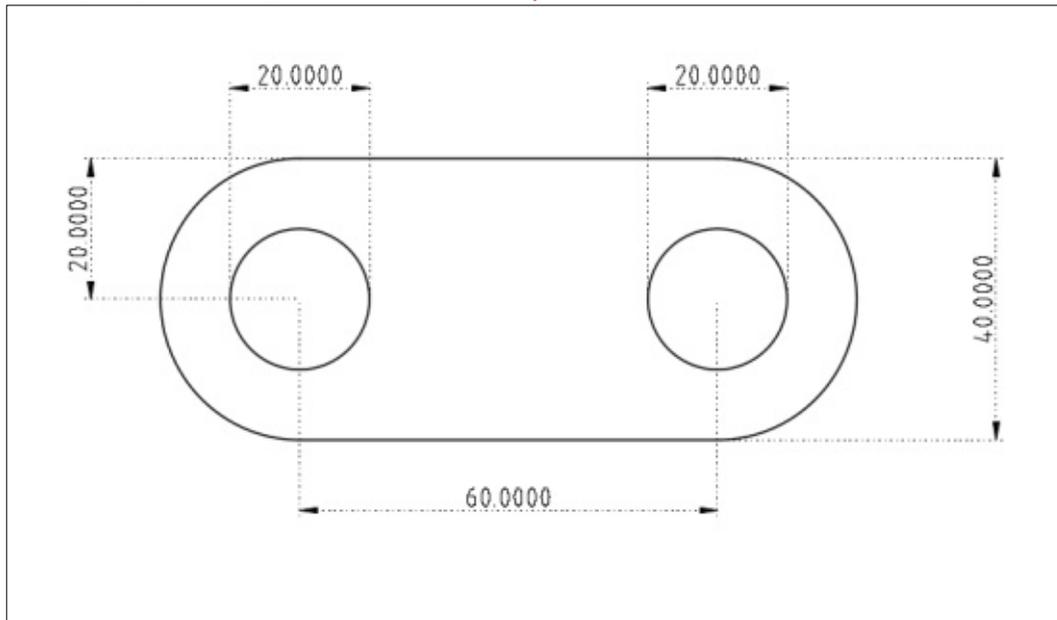


HOW-TO

Written by Alan Ward

In this series, we will be examining the world of FreeCAD, an open-source CAD modelling application that is still in Beta, but has been gaining acceptance in recent years. Naturally, it is readily available in the Ubuntu repositories. In the first article on using FreeCAD, we went over the basics of choosing and installing a CAD application for Ubuntu or GNU/Linux, and reviewed some salient points of the FreeCAD user interface.

In this part, we will be creating a simple planar object to illustrate



the use of the main workspaces, drawing and extrusion tools. Constructive Solid Geometry will also be demonstrated, to punch holes in an unsuspecting piece of plain material. Here is a quick sketch of our new object: basically, it will be a flat piece of material 2mm thick, with an external shape made out of straight lines and arcs, and two circular pieces cut out from the inside. Since the author is a European, all dimensions are in millimeters, though the reader can easily convert them into the units of his or her choice.

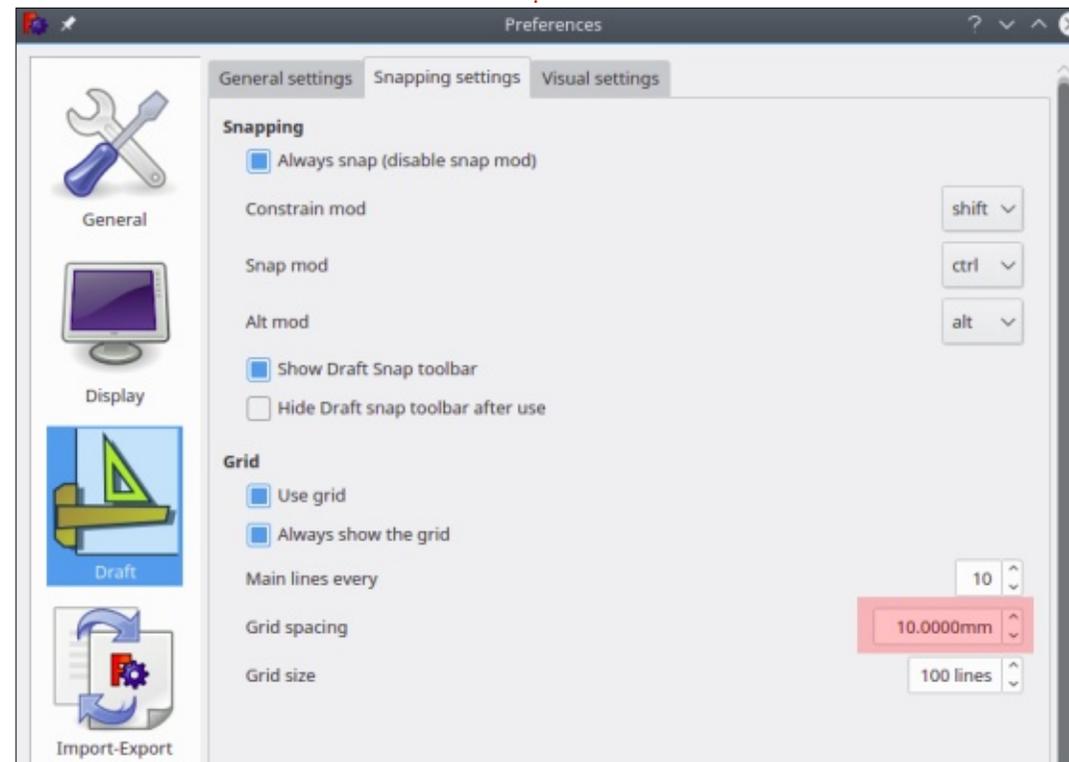
USING THE DRAWING WORKBENCH

Once inside FreeCAD, to begin a new project we can head over to menu option File > New. Alternatively, we can choose the appropriate tool from the default bar (the leftmost icon), or even use the keyboard shortcut Ctrl+N.

As discussed in the previous article, the FreeCAD user interface

has a series of workbenches, each with a specific selection of toolbars. In order to start a new project, one of the most useful is "Draft". As its name suggests, the preset toolbars in this bench contain the tools most usually used to draw up the main characteristics of the object quickly, which can then be refined with the tools in other benches.

Once inside Draft mode, there



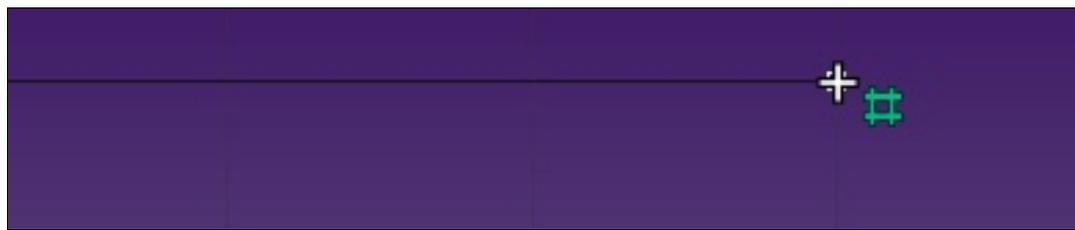
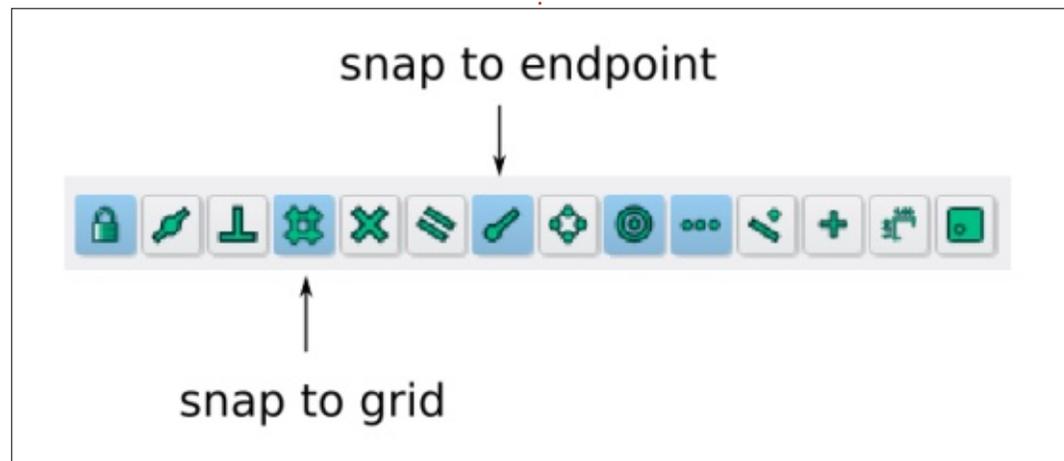
HOWTO - FREECAD

are several interface items than can be set up to facilitate working with our object. In the first place, this workbench shows us by default a grid pattern set up within the X-Y plane, that we are watching from above (down the Z axis). This grid has lines set up, with spacing of one millimeter, which may be a bit fiddly with the dimensions of our piece. So the first thing to do may be to head over to menu option Edit > Preferences. Here, we can configure the Draft workbench to our specific needs. One of the option panes, "Snapping settings", allows us to specify grid spacing. I set this to 10 millimeters, which makes it easier to get a clear sense of the dimensions of each element in our drawing.

We can now adjust the zoom

factor (e.g. with the mouse wheel, or swiping vertically on a laptop's touchpad) so as to see at least four vertical grid divisions spanning 40 mm - note the view's visible dimensions in the window's lower right corner.

As for the toolbars, for some reason the bar related to snapping points to the grid is usually collapsed. Snapping, or letting the user interface guide the point indicated with the mouse, is one of the most powerful features that is shared by many CAD programs. In this toolbar, we can configure snapping options to help up easily draw clean diagrams with object elements precisely aligned. As with all toolbars in FreeCAD, we can move the snapping toolbar to a place where we can examine its contents better.

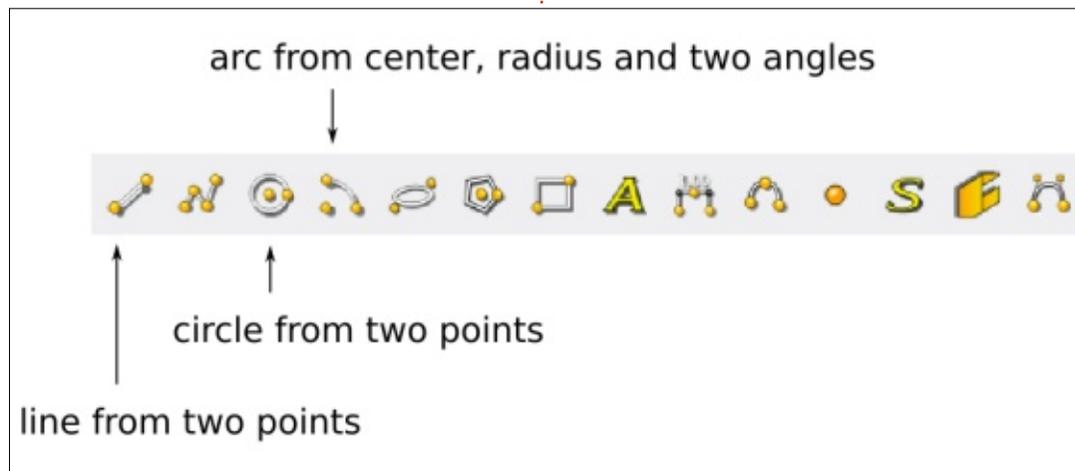


As a matter of personal choice, I tend to activate the options for snapping to the grid, which in this case will ensure the endpoints of our lines, for example, get coordinates that are integer multiples of 10 mm. I also tend to activate snapping to endpoints, which helps when drawing the last element of a multiple-segment closed path.

As for the drawing tools themselves, they are grouped into another toolbar. FreeCAD does show commendable consistency across toolbar icons, so while the previous (snapping) toolbar had

icons all in the same shade of green, drawing tools are all shown with icons in yellow and black. In this project, we will be using the tool to draw a straight line from two points, the tool to draw a full circle from its center and a point, and the tool to draw a circular arc.

Let us begin (above) by drawing the top line of our shape, from coordinates (-30, 20) to (30, 20). Since we have snapping to the grid activated, we will see the mouse icon change to show a green grid icon whenever it detects we are close to a grid intersection, and thinks we may wish to place this



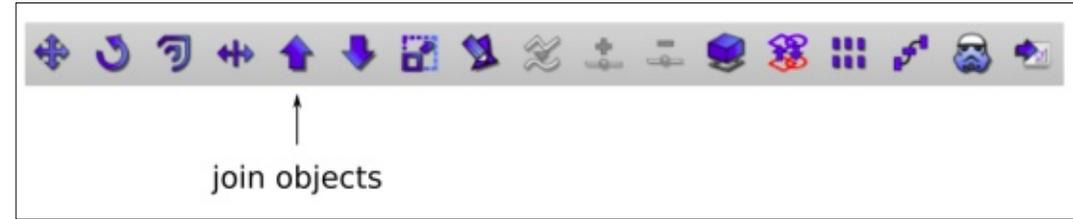
point at this place.

We can then go on to draw the bottom segment, from coordinates (-30, -20) to (30, -20). Once we have the two horizontal lines set up, let us change to the arc drawing tool. To draw the circular arc closing the right end of our piece, first select the center of the arc at coordinates (30, 0). Then click on the end of the top horizontal line at coordinates (30, 20) once to indicate the radius of our arc, and a second time to indicate the point where we are beginning our arc. Finally, click on the end of the lower horizontal line at (30, -20) to give the endpoint of our arc. When clicking on the end of the horizontal lines, our mouse cursor

should change to the appropriate green icon to show us FreeCAD has detected a previous line and is placing the new point at these precise coordinates. The drawing, so far, should resemble the following capture.

We can now proceed to draw the arc on the other side of the piece, closing the outside shape. With the tool to draw circles, we can put in the two circles at coordinates (-30, 0) and (30, 0), both with radius 10 mm.

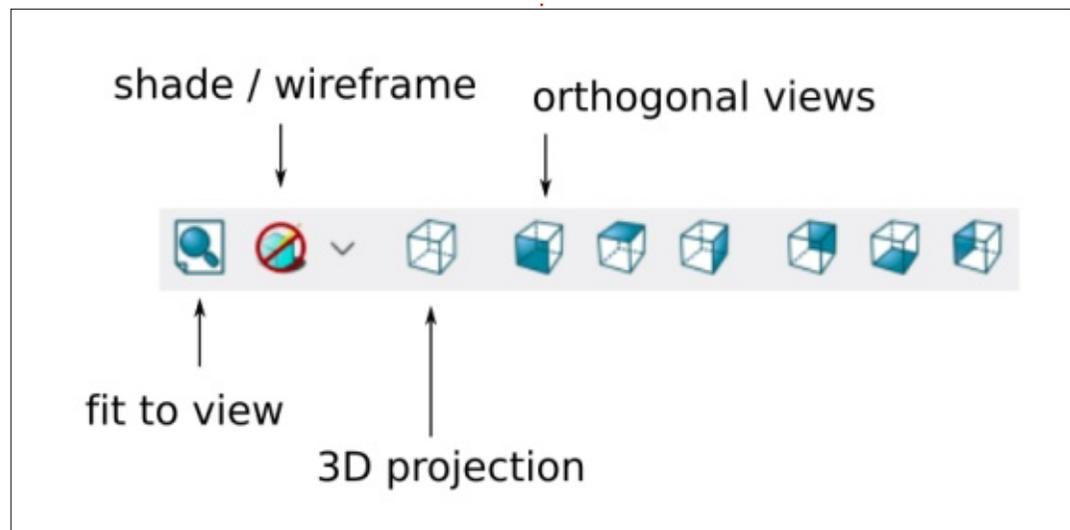
One final point is that the outside of our piece is, for the moment, a collection of four different segments: two Line objects, and two Arc objects. This



can clearly be seen in the “Combo View” window at the left hand side of the screen. Further on, we will need to convert this object into a 3D object, and for this reason we must convert the collection of four segments into a single path. This is done with the “join objects” tool in the modification toolbar. Select all four segments, either in the combo view or in the drawing itself - holding down to Ctrl key to select multiple objects - and use this tool. In the combo view, we will see the four segments disappear, to be replaced by a single Wire object.

IN THE PART WORKBENCH

Once we have the planar part of our project set up - in essence, a horizontal projection of the final piece - we can switch workbenches and choose “Part”. This is where we will give the piece its 3D touches. To begin with, let us use the views toolbar to switch to a 3D projection view, to see the piece in its current shape as a flat drawing contained within the X-Y plane. Depending on the current zoom factor, it may be useful to also choose the “fit to view” button to



HOWTO - FREECAD

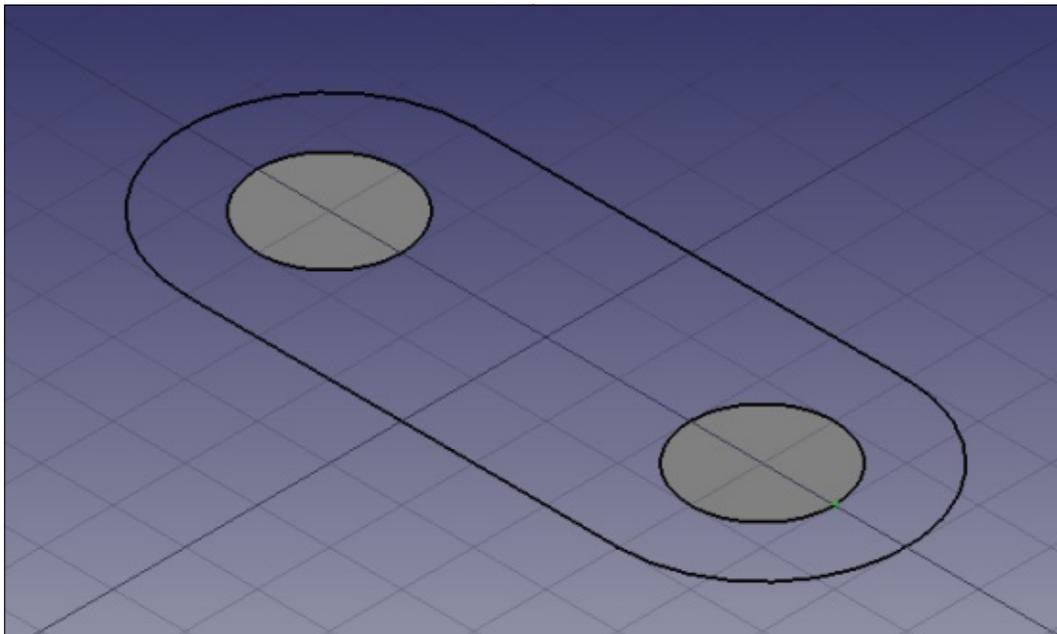
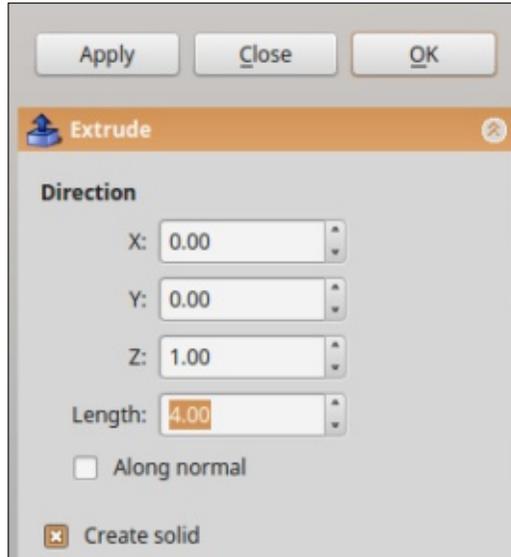
get the whole part nicely centered in the view window.

Below is what we should see at this point: the outer Wire and the two inner Circles.

One of the toolbars that come by default with the Part workbench contains tools to transform flat parts into volumes. Begin by choosing one of the circles, and then use the “extrude” tool.

Since the circle is contained within the X-Y plane, extrusion will take place along the Z axis. Increment the length of extrusion to 4 mm, so the final piece will be a

cylinder 4 mm in length. Also make sure the “Create solid” option is checked, as otherwise only the walls of the cylinder would be created.

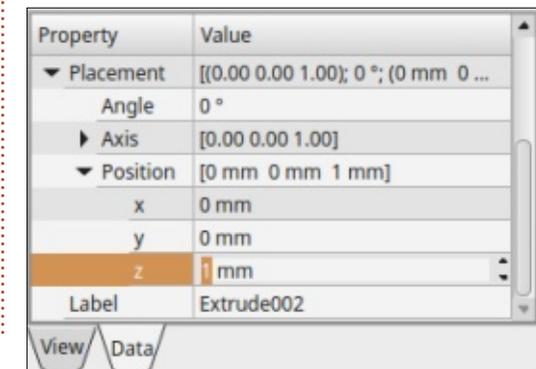


Now do the same with the other circle, converting it also into a cylinder 4 mm high. Finally, let us make an extrusion from the Wire piece, but this time only 2 mm high.

By the end of this process, if we choose a lateral orthogonal view in the view toolbar, we should see the two cylinders protruding from the main part. However, their bases are all on the same plane. This is not suitable for us, since the next operation will be to subtract the cylinders from the main part, thus creating two holes. If we leave things as they are, there may be some confusion at the lower face of each hole. It is best to make sure the cylinders protrude both

above and below the main piece.

To do so, we will simply displace the main part upwards by one millimeter. This is done by clicking on the part in “Combo view”, where it will probably be labeled as “Extrude002” or something similar. Then click on the tab marked “Data” at the bottom of the Combo view, unfold option Placement, then Position, and





increase the value for “z” from 0 mm to 1 mm.

At the same time, one should see the main part going upwards in the main view, giving this result:

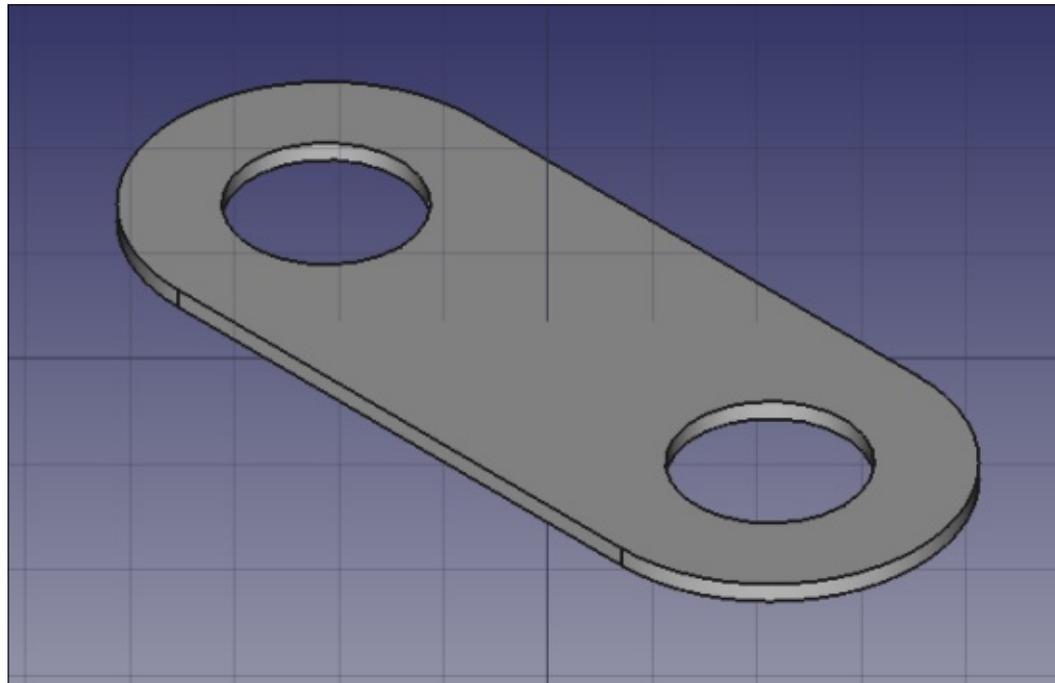
Finally, we can make the holes in the main part. To do so, start by selecting both cylinders in the Combo view, and then choose menu option Part > Boolean > Union. This should make the cylinders disappear from the Combo view, and be replaced by a single Fusion object. Inside the Combo view, choose first the main part Extrude002, and then (with the Ctrl key), also choose Fusion. Then choose Part > Boolean > Cut. Voilà, we have cut out the two holes from the main part.

In the last operation, the order of choosing the main part, and then the fusion of the two cylinders, is important. If one proceeds otherwise, FreeCAD will try to cut the main part out from the two cylinders, giving four very thin cylinders - definitely not what

we expected!

WHAT NEXT?

In this article on using FreeCAD, we created a simple planar object to illustrate the use of the main workspaces (Draft and Part), drawing tools, and extrusion. Constructive Solid Geometry was used to unite two cylinders, and the resulting Fusion object was used to cut two holes in the main



piece thus creating the final object. In the next part of the series, we will use further tools to create a more complex 3D object, representing a Y-junction between two pipes of different diameters.



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).



Installing Ubuntu is not a complex process these days. Downloading an ISO image, and alternatively burning a DVD or creating a bootable USB to launch a LiveCD that can then be installed, is a well-documented process. Looking back at earlier times, this was not always the case. Many of us can still remember when the Knoppix CD was the first GNU/Linux distribution that could actually launch a live environment, and it was still some time after that until the first installable LiveCD images came out. So it can be said that much progress has been made on the ease-of-use of installation media.

However, we are never satisfied. Having to burn the image to a CD or DVD just to test out a new distribution soon lost its attractiveness. Using an USB pendrive was a move in the good direction, but nowadays one does not always have a spare pendrive lying around. I tend to lose mine, and think I may possibly not be the only one. Most administrators of large networks soon learn to make

an ISO image available to boot over the network using PXE, but this may not always be possible, or even attractive, for more casual users, since it does mean messing around with your local DHCP server.

So, what if we went one step further and did away completely with an installation medium? The scenario is as follows: suppose we have a functioning Ubuntu installation on a computer, at a certain version of the distribution. We then download a new version as an ISO file to our hard drive, and

wish to install the new version over the existing one, without using any other local drives, an optical reader, or anything else connected via USB. It's just us, and our computer's single internal hard drive.

A point to be noted is that we will be needing sufficient RAM to hold most of the ISO image as well as running the Live CD environment, so our computer will be best off with at least the 4 GigaBytes memory size that has been standard for laptops for some time now.

Read on, dear reader, and find out how. Though, be warned: things will likely get fairly geeky at times. Do not try this on a computer you would not be happy to format completely, and make a backup of any user data before proceeding. Qapla'!

I started out with a very slightly tweaked installation of Ubuntu 14.04. Partitioning of the hard drive was left to the Ubuntu installer's default settings, and as a result we ended up with only two partitions:

`/dev/sda1 (ext4 file format)`
containing both the operating system and user data;

`/dev/sda2` as a swap space.

The only main changes done to the system configuration are user preferences such as the WiFi network, Firefox browser history, and the desktop background. It would be nice to retain these, as well as any user files on the hard drive.



HOWTO - INSTALL UBUNTU

I then downloaded a more recent version of Ubuntu, ISO file: "ubuntu-16.10-desktop-amd64.iso", to directory /home/alan/Downloads. (That version is no longer current, but the procedure remains the same.)

BOOTING FROM AN ISO IMAGE

The first major challenge in this project is to boot from the ISO file image on our hard drive. Luckily, GRUB is well able to do this - with some persuading from the command-line. However, when a single Ubuntu system is installed on a drive, then, when booting, the default GRUB configuration times out and immediately launches the only operating system it sees. We will need some time to enter GRUB command-line mode. To solve this problem, edit the default configuration file using:

```
sudo gedit /etc/default/grub
```

commenting out or erasing the line that starts with GRUB_HIDDEN_TIMEOUT . This configuration then needs to be put in place with command:

```
sudo update-grub
```

We can then reboot. Once the GRUB menu comes up, hit key 'c' to obtain a command-line that starts with the 'grub>' prompt.

We now need to tell GRUB to use the first partition of our hard drive as its boot drive. We then tell it to identify the ISO filename in variable \$isofile. We create a loopback drive with the filename, which basically sets up the file as a virtual disk drive. We then load the Linux kernel and the initial RAM disk. So, successively:

```
set root=(hd0,msdos1)
```

```
set  
isofile=/home/alan/Downloads/  
ubuntu-16.10-desktop-  
amd64.iso
```

```
loopback loop  
(hd0,msdos1)$isofile
```

```
linux  
(loop)/casper/vmlinuz.efi ro  
boot=casper iso-  
scan/filename=$isofile toram
```

```
initrd  
(loop)/casper/initrd.lz
```

```
boot
```

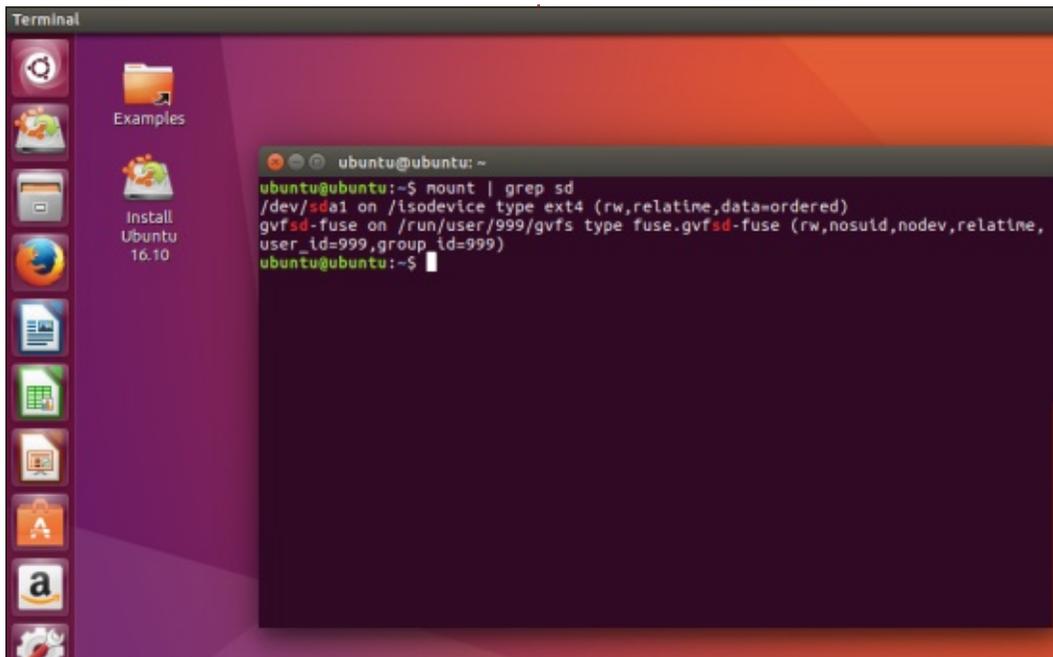
Naturally, these commands may need to be tailored to suit your specific setup, both as regards the partition on which the ISO file is located, and concerning the

filename and directory. Please take extra care to append parameter 'toram' to the line loading the kernel - this shall be explained further on.

We should boot successfully into the LiveCD environment. Depending on the speed of our hard drive, boot times should compare favourably with that of booting from a USB pendrive and, obviously, without the hassle of actually creating the USB drive in the first place.

If all we need is to test the new distribution, then this is it. We can use the Live CD environment exactly as we would if we had booted from a DVD or a pendrive, and without altering the configuration of our hard drive.

But, since we wish to install the new system onto our hard drive, some tweaks need to be applied. The main question that needs to be addressed is the fact that the Unity installer, Ubiquity, does not like to modify a partition on a disk drive that it has booted from - and our ISO image is contained within the same partition /dev/sda1 which we will now be modifying.



HOWTO - INSTALL UBUNTU

Now, the parameter 'toram' appended to the kernel in GRUB comes to the fore. This parameter told the kernel (through the Casper boot hook) to load the complete ISO file into RAM during boot. It is for this reason that we need a bit more RAM available to us than would normally be required to boot a Live CD. The time taken to load the file into RAM also explains why the boot process may seem slightly slower than expected if our computer has a fast SSD hard drive.

However, even though the ISO file's contents have been loaded into RAM, the file itself is still left mounted on the directory /isodevice. This needs to be unmounted with the command:

```
sudo umount /isodevice
```

before proceeding. We can check that no other disks have been left mounted with the command:

```
mount | grep sd
```

We should see one single line reporting on gvtsd-fuse, and nothing more. Once this is the case, we can proceed with system

installation in the usual way. The one caveat is concerning disk partitioning. To retain user files, it is best to select 'Something else' and partition the hard disk manually. In my (very simple) situation, I will choose /dev/sda1, use it as an extended 4 file system mounted on /, but NOT format it. In essence, I am retaining the very same partitioning scheme used before.

Since we are not formatting the partition destined for installing the operating system, the installer will complain about this and tell us that "Directories containing system files (/etc, /lib, /usr, /var, ...) will be deleted during the install." This is

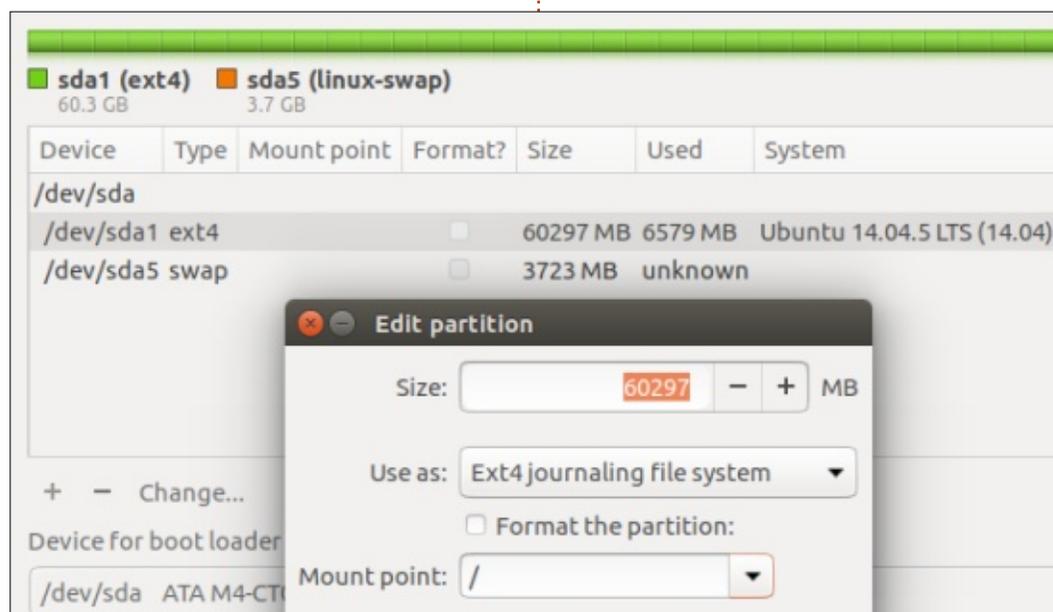
fine with us, since user data is contained within /home.

If I were using a separate /home partition, I could tell the installer to mount it on /home, but obviously not to format it either. In either case, using the same user accounts' names will enable us to find our files back in the same places and accessible on the new system.

We can proceed with installation and, once finished, reboot as usual. As can be seen, all our user preferences and files - such as the desktop background - have been carried over. For whatever reason, the only element

that was not preserved was the configuration for WiFi, which needed to be created anew.

The final result of this manipulation is that we have been able to reformat a computer running Ubuntu 14.04, with Ubuntu 16.10. This has been done by simply downloading the ISO file for the new version of the distribution, and using a combination of GRUB and Casper to boot it into RAM, without using any disks aside from our internal hard drive. Though some care must be exerted, the procedure should be accessible for many advanced users. For others, just being able to boot into a Live CD without needing to prepare an USB pendrive may be something of a time-saver when testing out several different options.



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).

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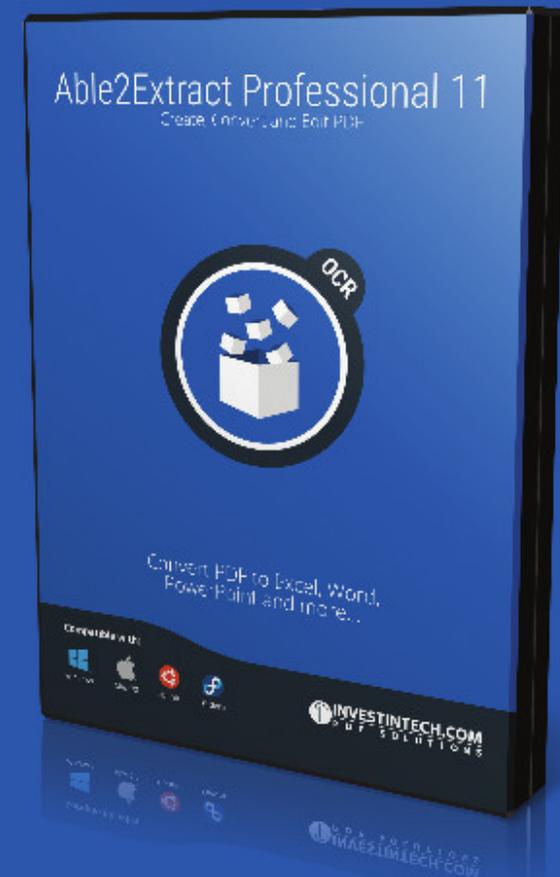
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HOW-TO

Written by Mark Crutch

Inkscape - Part 61

Prior to last month's celebratory distraction, I was advocating that readers should install Inkscape 0.92 and begin posting files that use its SVG 2 features online, as a way to help show the browser vendors that there is a demand not only for SVG on the web in general, but for a format that lives and grows to encompass more capabilities than those that were baked into the specification over 15 years ago. The release of 0.92 also offers an option to turn off "spacebar panning", which was my biggest complaint with 0.91. So, I have finally retired my old 0.48 system and move entirely to 0.92. Which gives me a prime opportunity to spend a few months introducing some of the new features of 0.91 and 0.92 that I haven't covered in any real detail to date.

Many of the changes from 0.48 aren't things that are directly reflected in the user interface: the usual round of performance improvements, bug fixes and compatibility tweaks don't always make for headline news, but are

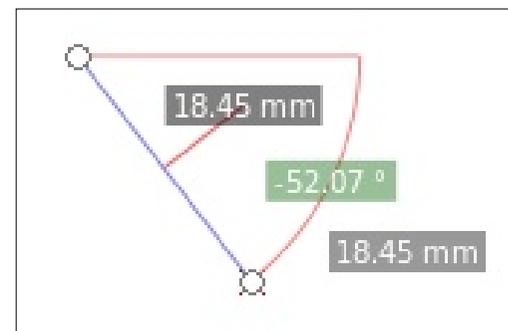
vital to the stability and capabilities of the program, nevertheless. But I'll be concentrating more on the new UI features that, as a user, will most affect your day-to-day use of Inkscape. I'll begin with a completely new tool that can be found on the main toolbar, just after the Zoom tool: the Measure tool (also referred to as the Measurement tool).



You can, of course, activate this tool by clicking on the button – or you can use the keyboard shortcut, which is "M" by default. This tool had limited utility in 0.91, but gained a lot of extra features in 0.92, so I'll be describing the latter. In either version, at its simplest, the Measure tool does exactly what you would expect: it lets you measure the distances, and angles, between parts of your drawing. In its basic mode, the measurements are ephemeral – you can make only one measurement at a time, and as

soon as you switch to a different tool, the measurement disappears. The new features in 0.92 include some slightly clunky workarounds for both of these issues, but it's still not the same as the sort of dimensioning tool you would find in a fully fledged CAD application, as will become clear.

With the tool active, start by clicking and dragging a line on your canvas. You'll see that there's a blue line that follows the mouse, and red lines marking out its angle from the horizontal. There doesn't seem to be a way to measure the angle from the vertical, let alone any other arbitrary datum line. Your line will also be annotated with its overall length, which could appear on it twice, depending on your settings. The midway annotation shows the length of



the line segment, whereas the annotation at the end shows the total length of the line. On a blank canvas, these will show the same value, as there's only a single line segment to consider.

If you now click the mouse somewhere else, the starting point of your line will move to the location you click on. This can be useful for taking several measurements from the same datum point, but it does seem counter-intuitive to me that it's the start that moves, not the end. If I wanted to take several measurements from the same point, I would naturally expect to click first on the common datum, and then click on each point I wish to measure. Instead, Inkscape requires you to drag from the first point back to the datum, and then click on each subsequent point. You can also drag the handle at either end of your line to move it to a different location, so if you're happy to drag rather than click you can use that approach to work with the datum as the first point.

Font Size: 15.00 | Precision: 2 | Scale %: 100.000 | Units: mm

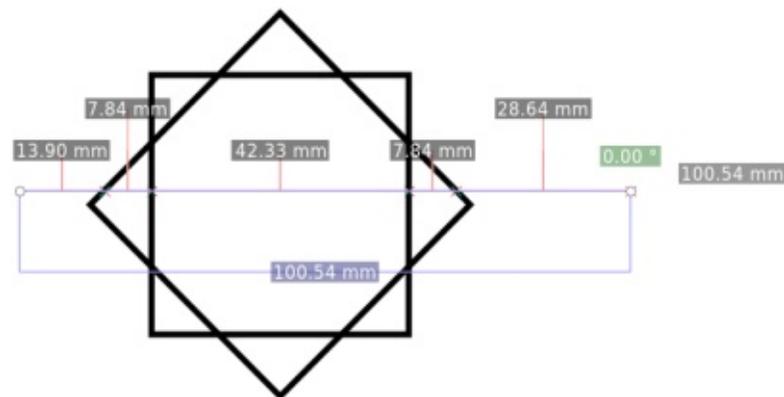
As you might imagine, holding CTRL whilst dragging the initial measurement will constrain it to particular angles based on the rotation steps setting in the Inkscape preferences. This is particularly useful to limit your measurements to the horizontal or vertical direction. It doesn't work so well when dragging the endpoints around, though, as it tries to constrain the angle of the measurement, not the direction of your mouse movement, which isn't always what you need.

The labels themselves can be modified a little using the first few widgets on the tool control bar:

Font Size and, at the other end, Units, are pretty self-explanatory. Precision dictates the number of decimal places that are shown. The Scale control adds a multiplication factor to all your lengths; setting this to 50% will halve the values shown, whereas 400% would quadruple them. It's intended for use where your drawing isn't a 1:1 representation of the original, although it would be useful to

have a mode that lets you set this value by measuring a line and entering its real length. That would make it much easier to trace a bitmap diagram, where the actual scale is not known but one of the original lengths is. Instead you'll have to place your measurement, then adjust this control iteratively to suit. For most uses, however, just leaving the scale at 100% will be fine.

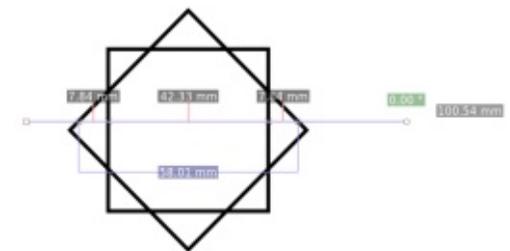
I mentioned earlier that drawing a measurement on a blank canvas only shows a single length. What happens if we draw on a non-blank canvas instead? Here's the result of drawing a horizontal line with arbitrary start and end points, over a couple of shapes:



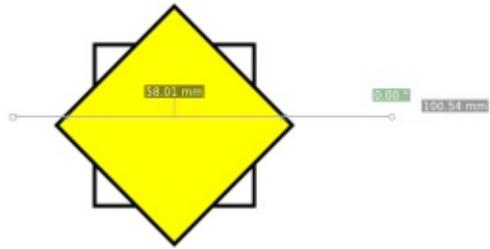
Notice how Inkscape, rather cleverly, marks the length of each segment of the measuring line between the points at which it crosses other shapes. It also shows the overall length of the line. But, in this case, my endpoints were arbitrarily chosen, so I'm probably not terribly interested in the fact that the line extends 13.90mm to the left and 28.64mm to the right. Back to the tool control bar once more...



These four buttons determine which points are considered when working out the measurements. The first has a tooltip of "Ignore first and last", and toggling that on does exactly what it suggests: the first and last points on the measurement line are dropped from the main part of the display, making it clearer to see the overall length of the section I'm concerned with (though the overall length of the measurement line does still appear at the far right):



The second button on the toolbar turns off the intermediate measurements, making for a much clearer display when you just need the overall length between a couple of points. The third button has a similar effect for any intersections that are hidden behind other objects. By making my topmost shape opaque you can see the difference when this option is toggled off:



In this particular case, the result is the same as if the second button was toggled off, but that won't always be true. If you use the measurement tool on a complex drawing, with many overlapping objects, the output can become very hard to read if you don't use this button, or the next one, to reduce the number of items that are included in the measurement process. As for that next button, it simply determines whether the measurement will be limited to objects in the currently selected layer, or in all layers. NOTE: If you turn this button off, Inkscape will, indeed, only show you measurements based on objects in the current layer, but the measurements don't update live as you switch between layers: you need to either make a change to one of the tool controls (such as toggling a button on and off again), or adjust the position of one of the endpoints of the measurement.

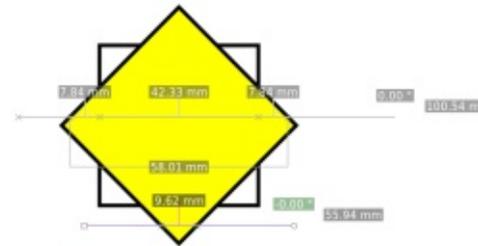
The last few widgets on the tool control bar offer some options for extra things you can do with the measurements:



The first button swaps the endpoints of the measurement line; in doing so it also switches the angle being measured from the inside to the outside angle (or vice versa). No, I don't know why it has an icon that better represents reflection than reversal.

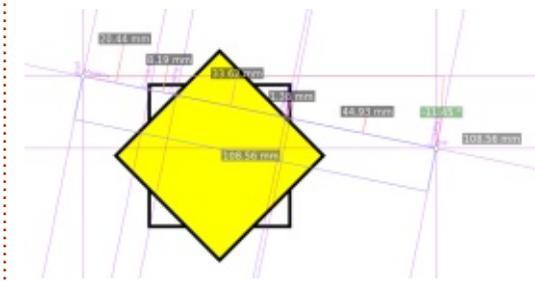
The second button's icon makes a bit more sense: the camera takes a "snapshot" of the current measurement, allowing it to hang around while you make a second measurement somewhere else. Despite the icon, however, Inkscape doesn't use the word "snapshot", preferring to refer to it as a "phantom measurement". Whatever the terminology, it renders your first measurement in gray – both lines and labels – whilst your second measurement still uses the normal colors. This feature does make it easier to compare measurements, but you can still only have one phantom snapshot, and one live measurement: if you click the

button again, the existing phantom vanishes, and the current live version is converted into a snapshot instead. In this example, you can see that my previous measurements have been converted, and I also have a live measurement going on at the bottom:



The next button on the bar will create guides that correspond to the key points of your measuring line. Be warned, this can easily create lots of guides – you'll get one that follows the direction of the measurement path, and a guide for each labelled path intersection that is drawn perpendicular to the measurement line. In addition, there will be a horizontal and vertical path for the endpoints of your line, though not for the intersection points. It's important to use the earlier tool control bar buttons to reduce the number of intersections being measured, especially if you're

working with a complex drawing, otherwise you can easily end up with way more guides than you wanted. You can, at least, immediately use Edit > Undo if you do make a mistake with the settings. If you want to remove just a few of the guides, remember that you only have to hover the mouse over a guide until it changes color, then press the Delete key to remove it – a quicker option than deleting via the guide's dialog.



Should you need to see more than two measurements at once, the next button provides something of a solution. Clicking it will convert the current measurement layout to a group of real objects. You can then enter the group and manipulate them as you would any other shapes – including deleting unnecessary measurements or changing the text of the labels. Because they're real objects, they'll still be visible when you draw another measurement. But equally, as real

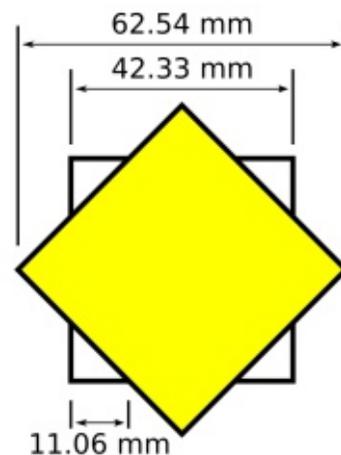
HOWTO - INKSCAPE

objects, they can be included as crossing points in any measurements themselves, should your new line cross them, which can lead to a confusing collection of lines and labels on the screen. One possible solution to this is to put your converted measurements onto a separate layer and turn off the “Measure all layers” toggle.

You might think that this button makes for a viable way to mark up the dimensions on a technical drawing, but there is a (slightly) better method. The penultimate control on the toolbar, “Mark Dimension”, will render a line with arrowheads at either end which runs the whole length of your measurement path, but with a slight offset, the amount of which is set by the last control. The length of the dimension will also be created as a text object alongside the new line; it's larger than the normal measurement labels, but can still be adjusted by a relative amount using the first control on the toolbar.

At first this might seem like a more limited choice than the previous “Convert to item” button, but, because it doesn't create a

whole load of superfluous elements, it can be used more rapidly without requiring a lot of cleaning up afterwards. The secret is to use snapping when placing the start and end points of your measurement line, so that it stretches exactly over the dimension you wish to measure. The orientation of the text will depend on the direction of the measurement path, so, if it's upside down, simply undo the operation, click the tool control button to swap the ends of the path, then “Mark Dimension” once again. You can quickly mark out a drawing in this way, but do note that, in the following example, I had to enlarge the arrowheads and draw the vertical projection lines myself (the latter was made easier with the Measurement Tool's “Convert to guides” option):



Perhaps the biggest limitation of using this method to dimension a technical drawing is that the dimensions are just lines and text objects, with no relationship to the objects they measure. If you change the size of an object, the dimensions won't update on their own: you'll need to either modify or re-create them. This, combined with the additional steps needed to produce the dimensions in the first place, is the main reason why, for anything more than the most basic of diagrams, you're much better off using a real CAD program for technical drawings. Handy, then, that FCM is running a tutorial series on FreeCAD – the program that I turn to myself when I need to draw something more technical than artistic.



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



HOW-TO

Written by Ronnie Tucker

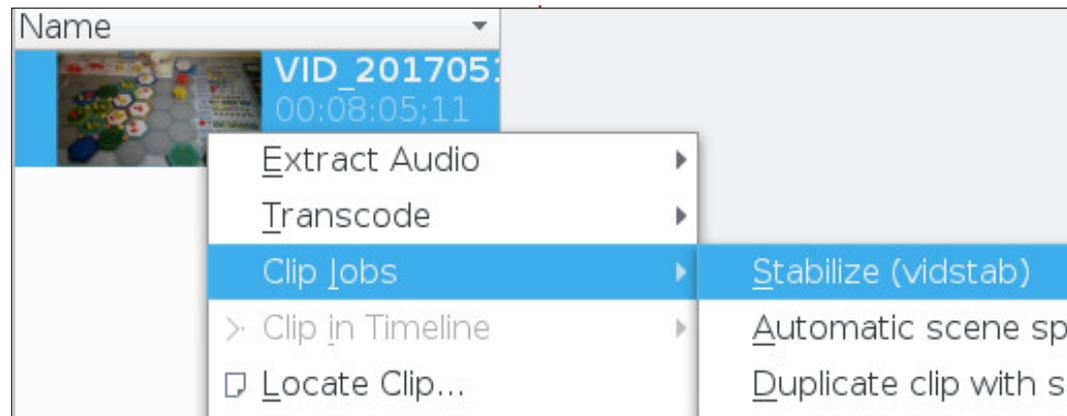
Kdenlive - Part 5

With so much video footage being shot now using mobile phones, the problem of 'shaky-cam' creeps in. Thankfully Kdenlive can fix some of it.

Word of warning: this is completely hit and miss. You'll have to tweak sliders back and forth to get the best results. There's no real-time previewing here I'm afraid.

STABILISATION

Drag your shaky video into Kdenlive as we've done before, but don't drag it down to the Video lines yet. We need to stabilise it first.



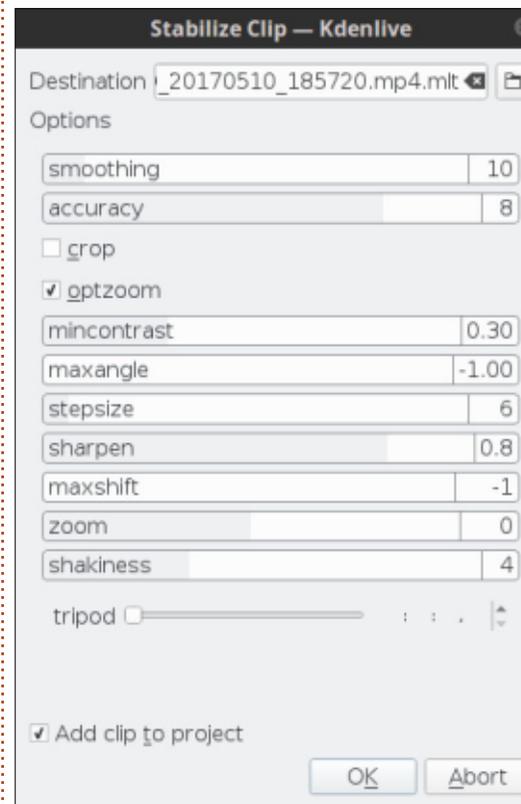
TIP: trim your shaky video file as much as you can. The shorter the shaky file, the quicker it will render out as a stabilised file.

Right-click the video thumbnail and select Clip jobs > Stabilize

Up will pop a window with many different sliders.

Destination - this is the name, and location, of the stabilised version of the original file.

Options - this is where the hit and hope happens. There's a lot of things you can tweak in here, but the ones to start with are the smoothing, accuracy and shakiness sliders. Oh, and the tripod slider too for having a reference frame.



Add Clip - it's best to leave the 'Add clip to project' option ticked.

And click OK to begin the process.

It might seem like nothing has happened, but Kdenlive is now analysing the footage and creating a new video file. If you look below the file name and time, you'll see a

progress bar slowly start to fill up.

You'll also see '1 job' above the list of videos. Clicking here will give you the option to cancel the job(s).

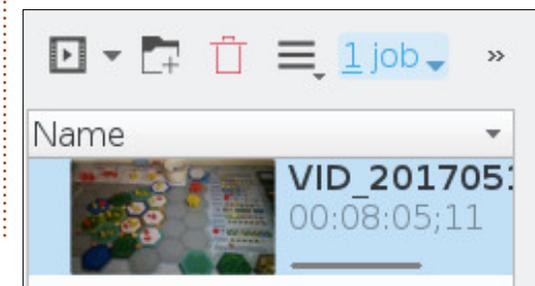
When complete, the new video file will be in your list of files for the current project.

That's basically it.

Have a look at your stabilised video and see if it's better, or worse. Try again. Rinse. Repeat.

CONCLUSION

It's just a shame that it's not a more visual interface for stabilisation, but it's certainly better than nothing. Which is what most other video software seems to offer.





I began to investigate web extensions useable in Vivaldi and Midori. It soon became apparent that both of these web browsers were at the extremes. Vivaldi can use the Chrome Web Store, and Midori had a few native extensions. Therefore I decided to expand the number of web browsers. I will illuminate the extension-heavy and extension-light web browsers. Vivaldi, Opera, Epiphany, Qupzilla, and Midori will be reviewed.

Vivaldi is a forked project from the Opera Browser. Vivaldi does not have any native extensions, however it uses the Chrome Web Store. Therefore, all extensions that you have in your Google or Chromium Browser are compatible with Vivaldi. Simply go the Chrome Web Store and you can install any extension. Simply search and click the install button.

Opera has access to a large array of extensions, but it is not as numerous as Firefox. I could not find an adequate word processing extension. The Google Services are available to fill the word

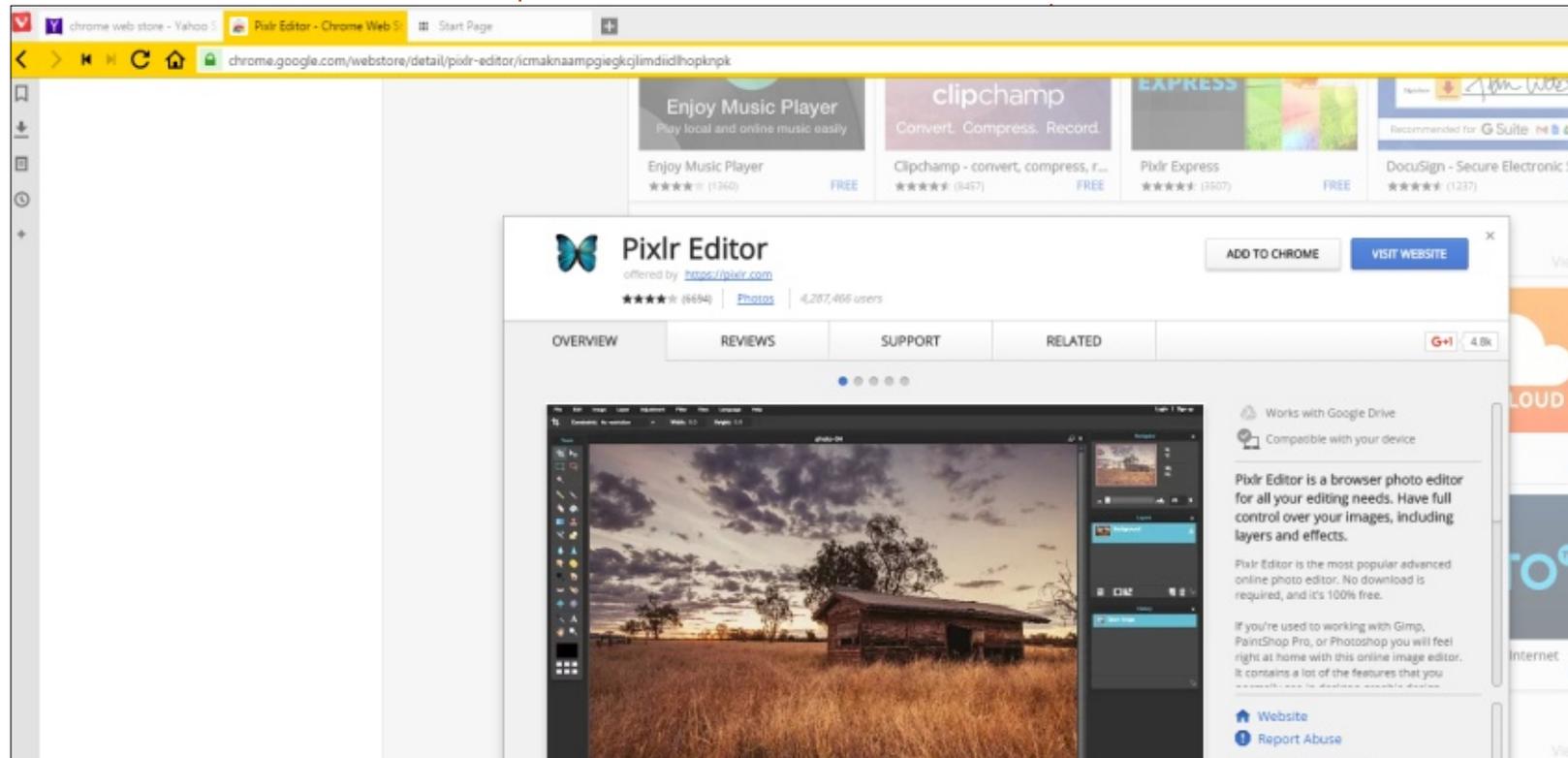
processing using Google Docs. GIMP and Pixlr are available for photo editing. The usual fill of Privacy Badger, and various VPN providers, are available in the privacy and security area. Opera has a strong productivity tab – unlike Firefox. However many of the extensions are cross referenced, possibly giving a false sense of extension numbers. Nevertheless Opera offers a nice

extension array for its users.

While the browser states it is lightweight, it works well. It is not bogged down by extra weight via code. In this case Epiphany, Qupzilla and Midori do not carry extensions. There are some extensions that offer ad-blocking for these browsers. However, I do not foresee these extensions to carry extensions. They do offer

some plugins for web functionality, but nothing else.

Reviewing the various browsers, it is apparent there is no middle ground for extensions, they are present or they are missing. If a person is looking for a replacement for the Chrome browser extensions, Firefox is the logical replacement. Chrome is a great tool that powers the Chrome



CHROME CULT

OS. The extensions enable OS capability in Chromebooks. Remember the Chrome OS is essentially a downstream project of Chromium. We have no idea how long that open source project will continue. We must remember a Chromebook is a superuser tablet with a keyboard.

Google is developing a new operating system called Fuchsia. This operating system is cited as being used in mobile devices and tablets. It is not based on any open source project, but some people are calling it an open source project. The Fuchsia code is licensed under Apache 2.0, BSD Clause 3, and MIT. These 3 licenses are associated with open source projects as cited by Wikipedia. I need to credit this picture to Wikipedia.

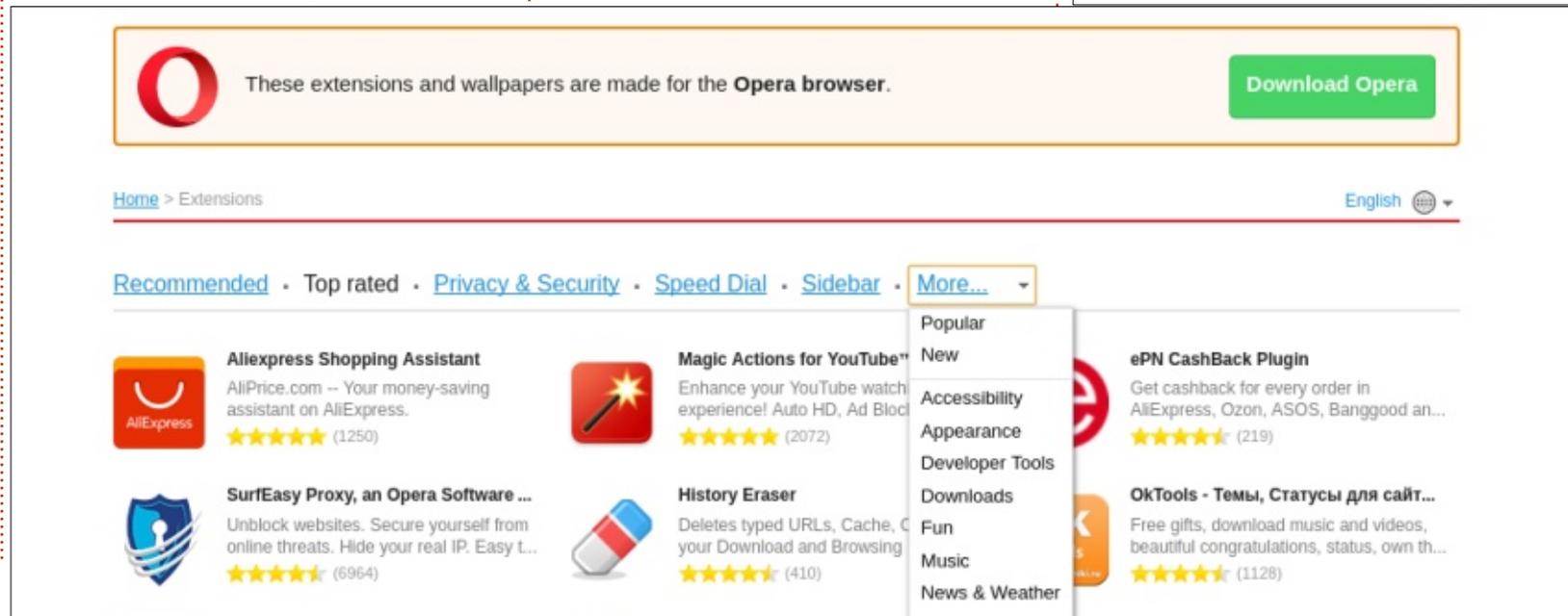
Numerous websites and tech gurus are citing that Fuchsia is not a short-term project. There are strong reasons for Google to develop Fuchsia. It would be easier to maintain one operating system than the current two operating systems. A single operating system offers a focused development with all of its programmers. Android has numerous security holes, while

Chromebooks lack the range of apps. Additionally, by using an inhouse microkernel for this new project, Google has more control over the operating system. Despite these shortcomings, Google's OSes are dominating. Android is used in more places than Windows. The Chrome OS is now entrenched in the education realm that was Apple's cash cow. Even Microsoft is offering a lightweight Windows 10S operating system that is a clone of Chrome OS. They say "Imitation is the greatest form of flattery."

Over the past months, I covered every possible angle of using a Chromebook for daily office duties.

And I realize these devices will only be a strong secondary laptop or a glorified tablet. It is clear that further refinement is needed in the Chrome OS to cross into the workstation status like Ubuntu or Fedora. The Chrome OS needs to offer more native apps working independently of the browser to be fully accepted by daily users. Perhaps a hybrid approach of cloud drive and locally controlled apps is needed.

This is the end of the Chrome Cult column, but a new column is coming soon.





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

TRANSLATIONS

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

REVIEWS

GAMES/APPLICATIONS

When reviewing games/applications please state clearly:

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

HARDWARE

When reviewing hardware please state clearly:

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

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



While I was translating the News column for the French version of Full Circle, one particular item caught my eye. It was actually about openSUSE running on Windows 10 rather than Ubuntu, because, the developers argue, openSUSE has been around for a long time and is very stable. But it did contain the following sentence : “In its Anniversary Update, Microsoft launched Windows Subsystem for Linux (WSL). This allowed the Windows 10 users to run Bash on Ubuntu on Windows 10.” I thought I'd try to find out more about this: how to install it, what can be done with it, by me in particular, just because the newness of the idea – running bash, on Ubuntu, on the Windows 10 kernel – sounded completely extraordinary. In addition, I must be among only a few Ubuntu users who actually use Windows 10 as their main operating system. So I can try the thing out with no extra effort... or very little. As the saying goes, “Fools rush in where angels fear to tread.”

My first move was to look up “WSL” with Bing on Edge, the Windows 10 browser. At first, that just got me a long list of various organizations (Spanish learners?), with, at the very bottom of the page, “Windows Subsystem for Linux.” Even using DuckDuckGo on Firefox, I got White Star Line, World Surf League, Westwood Shipping, and, finally, Bash on Ubuntu on Windows. Here's the link: <https://msdn.microsoft.com/en-us/commandline/wsl/about>. The page begins with this

“Important note

This is the first release of this brand new technology and it is branded “beta” deliberately – it’s not yet complete! We know there are issues and incomplete features, you should expect some things to work, and many things to fail. But we appreciate you playing with this feature and helping us identify the issues we need to fix in order to deliver a great experience.”

You, meaning all people, but particularly developers, are

definitely being invited to try it out and report back to Microsoft so they can fix whatever problems you come across. Basically, you can run “common command-line utilities, [...], navigate the file system [apparently even your C: Windows], and run Bash shell scripts which rely on supported command-line utilities.”

After this enticing beginning, you can watch a 17-minute long video (on the same page) where two Microsoft Senior Program Managers insist that it's not a Virtual Machine, but Bash on Ubuntu on Windows, and show

that you can do `sudo apt-get install git`. You can also do `apt-date update` and `upgrade`, which I did after my install. If you want to know... I've been writing all of this to put off having to install the thing, even though, on this same page, we are told that it's “just a few clicks”! We'll see about that.

The Install Guide is here: https://msdn.microsoft.com/en-us/commandline/wsl/install_guide, and the first thing to note is that your Windows 10 must be a 64-bit version of the Anniversary Update build 14393 or later. To find out whether you meet the

Édition	Windows 10 Famille
Version	1607
Version du système d'exploitation	14393.693
ID de produit	00326-10000-00000-AA592
Processeur	AMD Athlon(tm) II P340 Dual-Core Processor 2.20 GHz
Mémoire RAM installée	4,00 Go (3,75 Go utilisable)



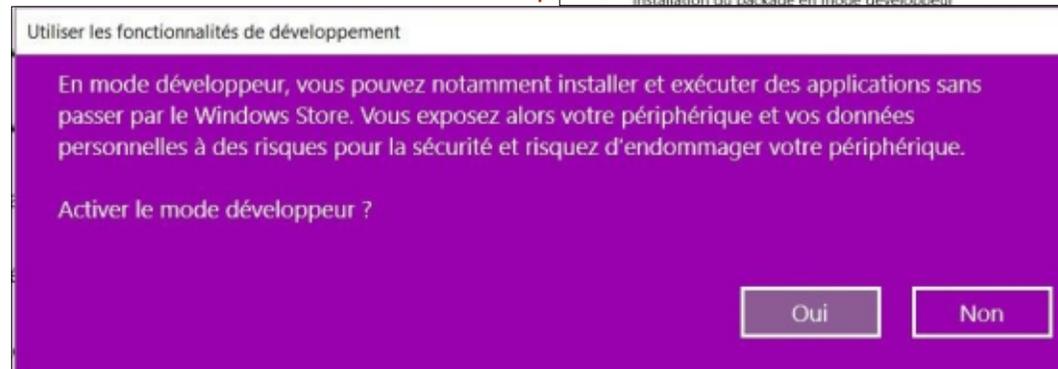
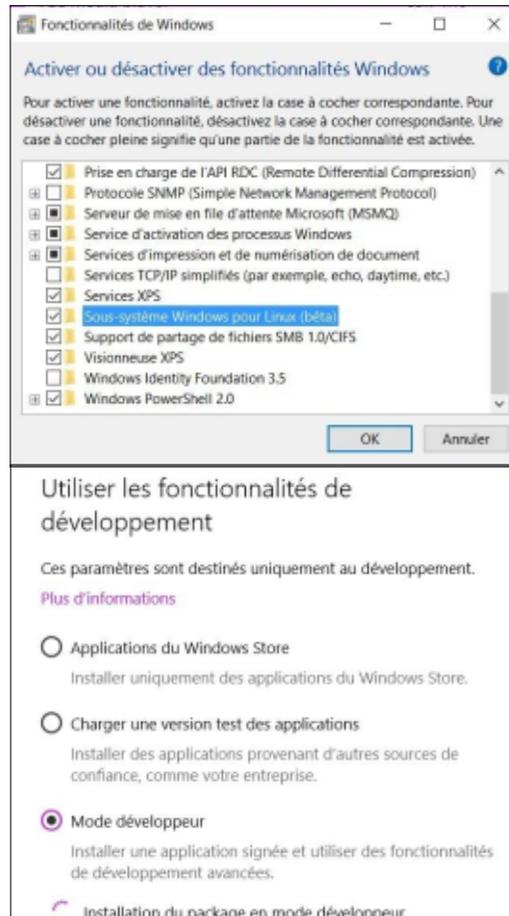
requirements, go to Settings > System > About

Looks like my five- or six-year-old Toshiba fills the bill (previous page, bottom right), but please excuse the French...

Next, you must turn on the Developer Mode (below) by hand. Go to Settings > Update and Security > For Developers, and select Developer Mode. But when I did, I got this rather daunting message:

Or, in plain English, “In Developer Mode, you can, among other things, install and run applications without going through the Windows Store. You will be exposing your machine and your personal data to security risks and may damage your machine. Are you sure you really want to do this?” When I clicked on Yes, a

package began installing. The purple circle continued turning until after I'd saved the pictures above and below.



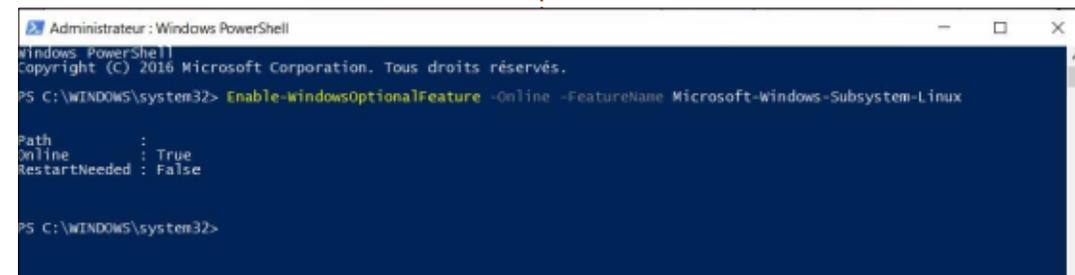
Question: will it be possible to get out of Developer Mode? Heaven only know, but sufficient unto the day is the evil thereof...

Okay, next: you must enable the Windows Subsystem for Linux feature in the graphical interface by going to Start > and down to the T's, for “Turn Windows Features on and off.” At least, that's what the instructions on the Install Page say. But, on my list of things, there's nothing at Turn, and there's nothing at Windows Features. This does not bode well. Google (or in this case Bing) being my friend, I found this page: <https://windowsinstructed.com/turn-windows-features-windows/> It tells you to go into the Control Panel, but the all-business one is no longer easily available in Windows 10. What I had to do was go to Settings > System > Programs and functions. Then, at the very bottom of the list of your programs, under the title Related

Settings, there is a link to “Programs and Functions”. When you click on that link, you get the familiar Control Panel from Windows 7. In the left-hand column, you'll find what the official instructions were referring to, that is “Turn Windows Features on and off.” So I ticked the “Windows Subsystem for Linux (beta)” and clicked on OK. Windows began searching for necessary files... and I went to watch TV a bit. When I next looked at my computer it was rebooting on its own.

It's true that the Install instructions say “you must restart when prompted.” But:

- Windows rebooted without asking, and
- I was supposed to be prompted to reboot after going into the Power Shell as administrator (open the menu of Windows Power Shell in the list of programs and right-click on Windows Power Shell, then choose Run as administrator), and typing “Enable-



WindowsOptionalFeature -Online -FeatureName Microsoft-Windows-Subsystem-Linux" + Enter.

So I'll try doing that now. At least my computer is still working! AND, once it was done, RestartNeeded was False!

Now, theoretically, all I have to do is open a normal command prompt and type bash?!!!

Yesssss!!

Or, in English (bottom):
-- **Beta feature** – This will install Ubuntu on Windows, distributed by Canonical and licensed under its terms available here... Type "y" to continue:

I, in fact, typed "o" for "oui" to continue, and now Ubuntu is downloading from the Windows

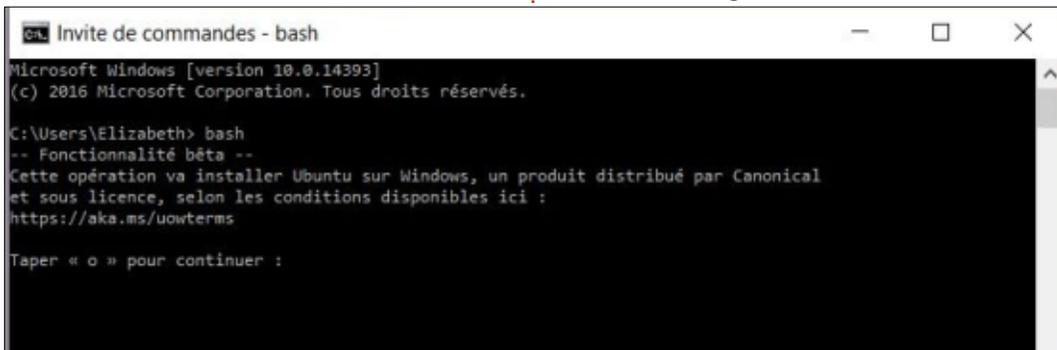
Store! (Canonical provided the code from Ubuntu 14,04 LTS, a.k.a. Trusty to Microsoft for this very purpose.)

That's done and now it's "Extracting file system, this will take a few minutes..." Once the installation has been declared successful, I'll be prompted to enter a "UNIX user name", then to "Enter a new UNIX password:", which I'll do before trying anything else. From now on, I will have a "Bash on Ubuntu on Windows" shortcut in my Start menu!!! It IS there... Awesome! Even though I'm neither a developer, nor, for that matter, a big user of the Command Line ...

I've just done an update-upgrade (below) that seemed to work normally except that

execution was denied to several things and "Upstart" couldn't connect to the socket – connection refused. AND I just wrote you a very short note with Nano to prove that Bash really does work.

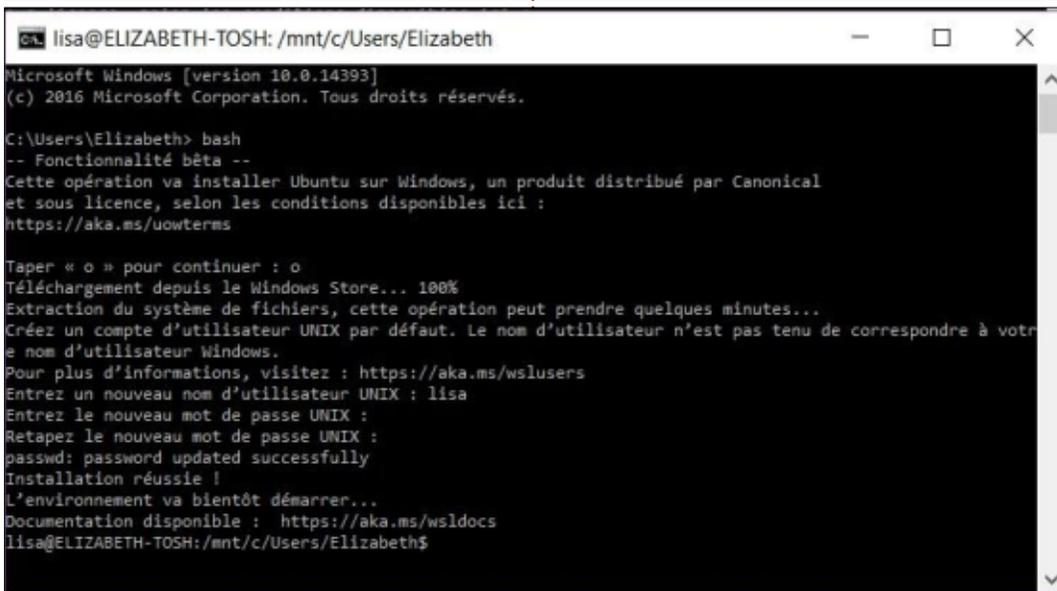
"Bash on Ubuntu on Windows" has recently been added to my list of programs!



```
Microsoft Windows [version 10.0.14393]
(c) 2016 Microsoft Corporation. Tous droits réservés.

C:\Users\Elizabeth> bash
-- Fonctionnalité bêta --
Cette opération va installer Ubuntu sur Windows, un produit distribué par Canonical
et sous licence, selon les conditions disponibles ici :
https://aka.ms/uowterms

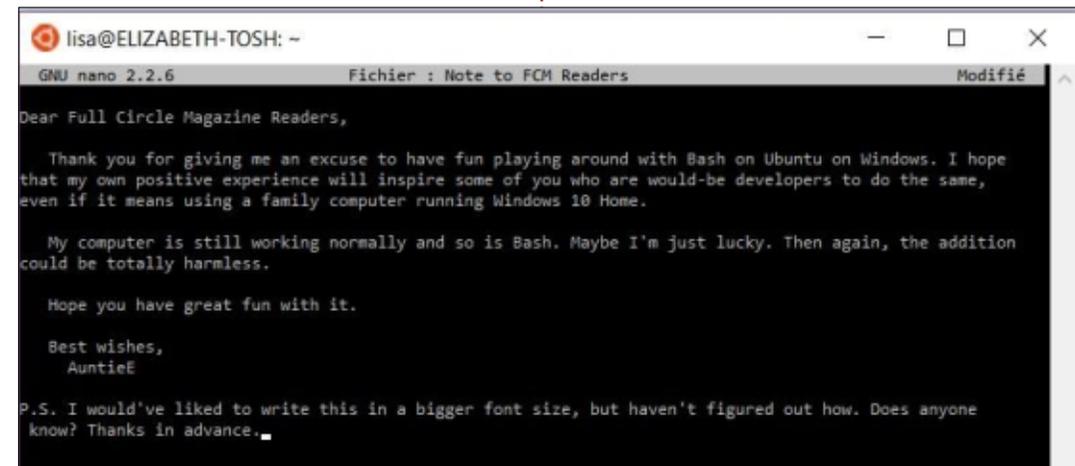
Taper « o » pour continuer :
```



```
Microsoft Windows [version 10.0.14393]
(c) 2016 Microsoft Corporation. Tous droits réservés.

C:\Users\Elizabeth> bash
-- Fonctionnalité bêta --
Cette opération va installer Ubuntu sur Windows, un produit distribué par Canonical
et sous licence, selon les conditions disponibles ici :
https://aka.ms/uowterms

Taper « o » pour continuer : o
Téléchargement depuis le Windows Store... 100%
Extraction du système de fichiers, cette opération peut prendre quelques minutes...
Créer un compte d'utilisateur UNIX par défaut. Le nom d'utilisateur n'est pas tenu de correspondre à votre
nom d'utilisateur Windows.
Pour plus d'informations, visitez : https://aka.ms/wslusers
Entrez un nouveau nom d'utilisateur UNIX : lisa
Entrez le nouveau mot de passe UNIX :
Retapez le nouveau mot de passe UNIX :
passwd: password updated successfully
Installation réussie !
L'environnement va bientôt démarrer...
Documentation disponible : https://aka.ms/wsldocs
lisa@ELIZABETH-TOSH:/mnt/c/Users/Elizabeth$
```



```
GNU nano 2.2.6 Fichier : Note to FCM Readers Modifié
Dear Full Circle Magazine Readers,

Thank you for giving me an excuse to have fun playing around with Bash on Ubuntu on Windows. I hope
that my own positive experience will inspire some of you who are would-be developers to do the same,
even if it means using a family computer running Windows 10 Home.

My computer is still working normally and so is Bash. Maybe I'm just lucky. Then again, the addition
could be totally harmless.

Hope you have great fun with it.

Best wishes,
AuntieE

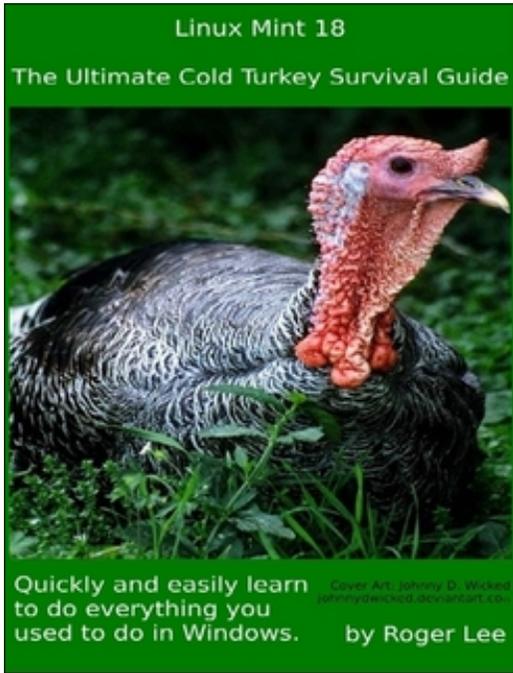
P.S. I would've liked to write this in a bigger font size, but haven't figured out how. Does anyone
know? Thanks in advance.
```



BOOK REVIEW

Written by Jim Dyer

Mint 18



The e-book starts with the following Introduction: "This ebook series began with "Linux Mint 17 - Full and Painless Migration for Anyone", which led to a super edition called "Linux Mint 17 - Abandon Microsoft Today", and now culminates with "Linux Mint 18 - The Ultimate Cold Turkey Survival Guide". This book is the 3rd journal of my complete and full conversion to using Linux Mint exclusively over a period of three years now. The amount of knowledge and chapters

has grown with each ebook. Written from the perspective of a Windows user gone cold turkey this ebook series intends to answer all of the common questions you would have after migrating to Linux. This 3rd ebook is the most complete I have ever written covering the changes in Linux tech such as SystemD, changes to APT, support for modern hardware, UEFI and GPT, power management, AMD going full open source, and Firefox supporting Netflix.com. All new Emergency chapters for those special moments when Linux Mint won't boot. QEMU with GPU Passthrough as a gaming alternative is now covered plus updated info on WINE and CrossOver. More complete printer/scanner/multifunction chapters that cover HP proprietary plugins and how to download them. Support for those who use Teamviewer on keeping yourself safe. How to download entire youtube playlists. A new extensive Security section with advanced blacklisting techniques with two perl scripts to make it easier. Blueraey compression from the shell with examples for recording VHS tapes or

any video source. And though the chapter list may look like the previous book, it all has been reworked for Mint 18 and modernized and expanded.

If you are jumping in head first and cold turkey into Linux Mint you need a friend. This ebook is your friend."

As I started reading the e-book for this review my first step was to install Linux Mint on a desktop computer so that I could read the e-book and be able to test the procedures and tips when I wanted.

I use Ubuntu 17.04 and Unity as my current desktop system so I was not familiar with Mint.

The e-book begins by promising a lot, and it delivers as promised. There is a mountain of learning and helpful tips in this e-book.

The design of the e-book is to take you through the natural steps, and issues, an ordinary user would go through in installing and using

Linux Mint.



As noted, there is a mountain of useful/helpful information in the e-book. This Ubuntu user is learning from and enjoying this e-book. It is apparent that the author poured much time and effort into the e-book. I plan to get much more familiar with Mint thanks to this e-book.

This book comes at a good point in time – an article in issue #120 of FCM suggested that the announced end of support for the Unity desktop in Ubuntu may push many of those users to Mint+Cinnamon desktop.

I recommend you buy the book and enjoy Mint for yourself. As noted earlier, it is available for purchase at the following link: <http://www.lulu.com/shop/roger-lee/linux-mint-18-the-ultimate-cold-turkey-survival-guide/ebook/product-23182850.html>



Porteus Kiosk is an interesting Linux variant. It is based on Porteus, which is derived from Gentoo Linux. I came across Porteus Kiosk on Distrowatch. Distrowatch has interesting daily news on Linux.

I read the quick description and discovered that it is a browser-only operating system. It has limited download capability and high customization during installation. It automatically wipes the web browser of items when it is restarted. Plus it runs only on 64-bit architecture with 512MB RAM. This is a streamlined operating system, useful for a public computer at a library or hotel lounge. It is maintained and is updated by the developers.

I downloaded the Porteus Kiosk Cloud variant. There are other variants, however I focused on the cloud due to my fondness for Peppermint OS and Chrome OS. The other variants are: Kiosk, Thin-client, and Server. The Kiosk appears to have Chrome and Firefox Browsers. The Thin client

has Citrix, RDP, VNC, and other applications for an educational or corporate setting. The Cloud has access to Google Drive, Desktop by Jolli, and other cloud storage drives.

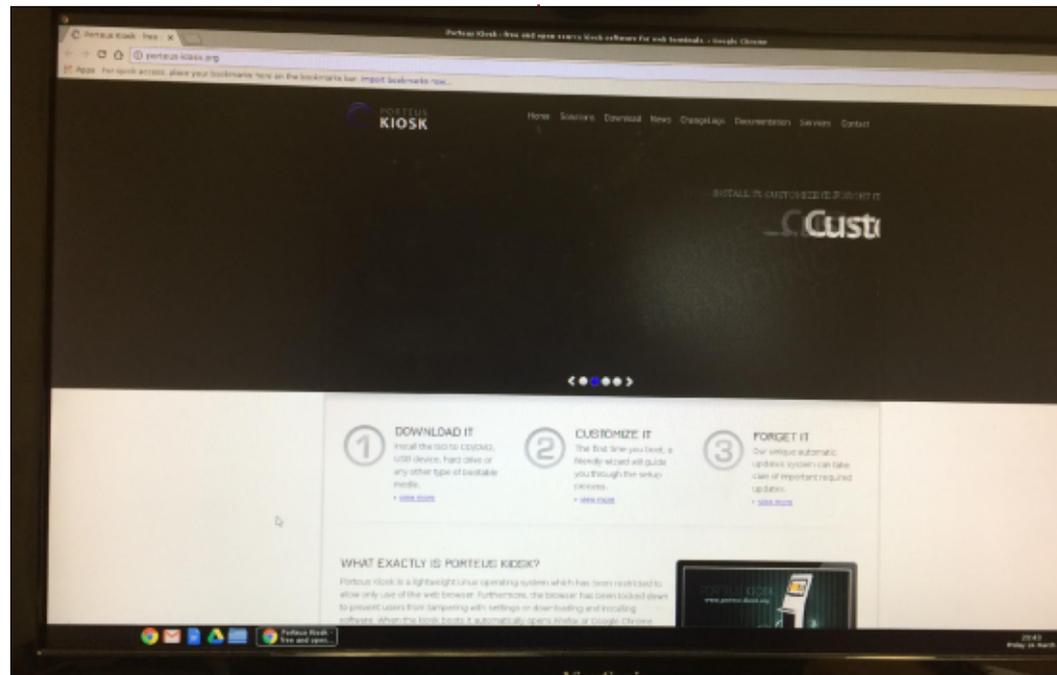
I read the installation documentation and downloaded the ISO image. You can not use Unetbootin or Rufus to burn the ISO to a thumb-drive. I used Windisk32 Image and it was successful. The Porteus Kiosk Wizard populates the screen. You

first have to establish an internet connection. You can connect using WiFi; however this was troublesome for me. I choose the wired connection. After establishing the connection, I could choose Firefox or Chrome Browser. I choose the Chrome Browser and it began downloading. I am very familiar with the Chrome Browser due to my Chromebook. I then could configure the Kiosk. I went with the basic default options.

The kiosk screen then pans

towards opt-in or opt-out for an upgrade subscription. This subscription would automatically allow the OS to be updated and supported by the Porteus Developers. The yearly fee is \$40.00 as of March 2017. You can opt out of this subscription. The next screen lets you directly install the ISO. I used the same USB thumb-drive created by Windisk32. After installing the ISO, it updated.

The user is then taken to the final GUI. In the lower left hand corner the following icons are available: Chrome browser, Gmail, Google Docs, Google Drive, and Local File Folder. This icon layout is similar to my Chromebook. I am sure Firefox has the same icons. The background is the Porteus Kiosk Logo. The system is responsive and fast. I would not call this a true Linux workstation. However it is ideal for instances where a public computer is needed. An IT expert can configure Porteus to be used to its full potential for the corporate environment, attempting to implement the cloud cheaply.





Just to give a bit of background: I have always been interested in operating systems. I started out computing with a Unitron Apple 2E copy and from that went to a Mac Classic and then an SE30.

I decided then to buy a Windows laptop and settled on a Fujitsu with a 15.6" screen. This came with Windows XP Home Edition. It turned out to be a really good machine for running virtual machines [VMs] and it was at this stage I got interested in Linux.

I think the early ones I tried were Redhat and Mandrake.

I replaced the FJ with a mid 2009 Macbook Pro [MBP] with the fast processor, 4GB of RAM, and a 256GB HDD. Later, I upgraded the RAM to 8GB and the hard disk to a 1TB HDD. I needed space because of an addiction to digital photography.

When SSDs came down in price a bit, I removed the optical drive and put in a 256GB SSD in an optical caddy.

At seven and a half years of age, that's the status now. It's still a really good machine.

However, Brexit's effect on the pound, and the recent Apple price rises, got me thinking. I know computers were expensive in the past, but in this day and age, should you have to spend a lot of money on an up-to-date laptop?

Another factor was weight. I do a lot of travelling, and usually leave the MBP behind and use an iPad on the road.

However, the iPad is not really satisfactory as a travel laptop!

There are possible Windows and MacOS machines out there that would do the job, but they all cost a lot of money.

So suddenly I thought... what about an 11" Chromebook weighing less than 1.5kg? A bit of reading online suggested that I should look at getting something with 4GB of RAM, and a 16/32GB eMMC or SSD, if I wanted to run

Linux.

It was pretty obvious that Chrome OS might be a little restrictive offline.

But... there were a number of threads about booting the Chromebook into Developer Mode and loading your favourite version of Ubuntu Linux.

So consequently I am typing this offline on a Chromebook in LibreOffice Writer.

How come?

Well, I tracked down this bit of software called Crouton.

Once open in Developer Mode with Crouton Integration in the Chrome OS quiver, you can go ahead and load a number of flavours of Ubuntu. Many of them are based on 12.04 LTS, but Trusty 14.04 LTS works brilliantly on this machine – an HP 11" Chromebook G5.

To load LXDE, I used the

following command:

```
sudo sh ~/Downloads/crouton
-r trusty -t lxde,xiwi
```

Don't forget xiwi. You need it for the dual operating system window system to function properly.

My current favourite Ubuntu flavour is Ubuntu MATE, but Unity, KDE, XFCE and LXDE are all possible with Crouton. You can go directly to all but Ubuntu MATE.

In the case of MATE, you need to load one of the light distros first – either XCFE or LXDE.

I tried both, but found the cursor sluggish with XCFE.

So I took the LXDE path.

Once you have this loaded and configured you can follow this advice - <https://medium.com/power-user/ubuntu-mate-on-a-chromebook-with-crouton-2cebd167382#.5matx4fzp> to load Ubuntu MATE.

When you get to the end of the process, you need to make sure that the startmate script you have downloaded is edited to make the reference to xfce into one to lxde and then to MATE.

Copy the startmate script to the `/usr/local/bin` directory, and make it executable...

```
sudo chmod +x  
/usr/local/bin/startmate
```

The result is that I have a Chromebook that runs Chrome OS and Ubuntu MATE together.

This machine cost £217.

You get 100GB of cloud storage from Google, and, if you need more online storage, you can look at OneDrive and/or DropBox.

NB... The first time I used the startmate script, both LXDE and MATE booted. This led to some confusion as everything seemed to be very sluggish.

However, once all was shut down, and I reran startmate [sudo startmate], all ran perfectly.

I am going to try to remove the LXDE desktop completely to

reduce the MATE load to a minimum, hoping not to mess up everything else. If I do, I will give Unity a go before reloading Ubuntu MATE.

I am running Edubuntu on the MBP from a memory stick and it has the Unity DE. I have always found Unity intriguing but a little frustrating. I find it difficult to know what apps are available. Recently I found Classical Indicator which makes Unity much more friendly.

Cleaning the system and returning to standard verified Chromebook mode is just a matter of leaving Developer Mode once you have backed up anything you have created.

The return to normal mode returns the machine to its initial status, minus your work. It doesn't affect any extensions you have loaded. They reload automatically.

If everything is saved to the cloud, you don't have to worry!



LETTERS

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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.



KODI Room

Written by Charles McColm

KODI 17



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/>.



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 My main machine with Linux Mint on it has a failed PSU as of today. I have encrypted files on that machine, I also have a thumb drive with the same files encrypted. I am using my old Dell machine with Lubuntu on it. When I put the encrypted file on the desktop and right click, I get no option to DEcrypt that file. It's very important because all my usernames and P/W's are there.

In Synaptic I see some files that pertain to GPG appear to be installed, but I don't see the program listed in the list of programs.

A (Thanks to **Dennis N** in the Ubuntu Forums) The package is named gnupg and it's installed by default on Lubuntu 14.04. But, the decrypt option is not available in the right-click menu of its file manager (PCManFM), so you will have to formulate a terminal command to decrypt any file.

For example, the command to decrypt file secrets.txt.gpg with decrypted result saved as

secrets.txt:

```
gpg -o secrets.txt -d secrets.txt.gpg
```

Q Having major issues with 17.04 and installing Teamviewer v12.0.76279. I followed the instructions (<https://community.teamviewer.com/t5/Knowledge-Base/How-do-I-install-TeamViewer-on-my-Linux-distribution/ta-p/4351>) and tried to install it with the 'Open with Ubuntu Software Center' but it gets stuck at %33.

A Install gdebi. Right-click on the .deb and select "install with gdebi".

Q Some ransomware is making the news: <https://www.wordfence.com/blog/2017/...tch-available/>

It seems to be affecting Windows machines that haven't been patched since some time in March 2017. I'm just wondering if Wine users could be affected.

A (Thanks to **HermanAB** and **SeijiSensei** in the Ubuntu Forums) WINE doesn't have the same bugs as Windows and it doesn't have SMB either.

Moreover, even if wine were infected somehow, you could just replace your ~/.wine directory with yesterday's backup. You do have yesterday's backup of /home, right?

Q What does # mean at the end of the command line prompt?

A It means you are running as root.

TOP QUESTIONS AT ASKUBUNTU

* Accidentally removed /bin. How do I restore it?

<https://goo.gl/X0Zaik>

* Is Data Transfer between 2 Ubuntu Machines possible via USB-Cable?

<https://goo.gl/L0qnO1>

* Does Ubuntu support dynamic swap file sizing?

<https://goo.gl/ZUBxE2>

* How to tell whether my HDD is IDE or SATA

<https://goo.gl/UoLGtH>

* How to install Docker on Ubuntu 17.04

<https://goo.gl/q7PFs1>

* Running a directory full of .sh files with one command

<https://goo.gl/uqJAId>

* Shell prompt customization and cmd behavior

<https://goo.gl/youUhgT>

* Search with diacritics / accents characters with `locate` command

<https://goo.gl/ekRito>

* Writing a script to go through directories?

<https://goo.gl/QSfoLT>





Total War: Warhammer is the latest game in the Total War video-game series developed by Creative Assembly and released by Sena for Microsoft Windows, OS X & Linux in 2016. Feral Interactive (<https://www.feralinteractive.com/en/games/warhammertw/>) is responsible for the Linux port as well as the newly released Mac OS X port.

Total War: Warhammer is the tenth title from the main Total War game series. The first title in the series, released back in 2000, was developed by Electronics Arts, but soon thereafter Creative Assembly took over the development process beginning with Medieval: Total War in 2002. Total War: Warhammer is the third title to be released on Linux – after the releases of Medieval II: Total War & Empire: Total War – which were also ported by Feral Interactive.

Like all of the other games in the series, this latest title is a turn-based strategy & real-time tactics video-game. All other titles in this series are historically based, except

for this one. Empire: Total War, for example, deals with the colonization of the United States as well as other British colonies, whereas Napoleon: Total War is based on Napoleon Bonaparte and his adversaries. The main element that sets Total War: Warhammer apart from other titles in the series is that it is completely fiction and almost fantasy-like. Since ultimately you need Steam to run the game, it is recommended to get the game directly from Steam (http://store.steampowered.com/app/364360/Total_War_WARHAMMER/) where it's currently selling for

\$59.99 but you can also take advantage of possible sales from other places such as Humble Bundle (https://www.humblebundle.com/gamepage/totalwar_warhammer_gamepage) or direct from Feral Interactive among other places.

Having played a couple of other games from the series, I knew what to expect from this game, but was very pleasantly surprised to discover some key new elements unique only to this title. To begin with, since this latest title borrows elements from fantasy, and

characters from the Warhammer universe, my first choice was over which faction to play. After a lengthy introduction, which introduces the different factions at war with each other, I was faced with making the decision of who to fight with. The four races given are Wharves, Greenskins (Orcs and Goblins), Human Factions (the Empire), and Vampire Counts, all of which have different factions within each race. Along with the name of each faction and a brief description, there's also an indicator which tells you the level of difficulty for each faction. After careful consideration, I decided to go with one of the Vampire Counts factions which was given a medium difficulty level.

The goal of the game is to expand your empire by any means necessary, which ultimately means through war. However, the construction of buildings & infrastructure, trade with neighbors, population control, maintaining order over your people, and fiscal & political responsibilities, are crucial



elements which need to be mastered in order to let your empire grow in a healthy yet overwhelming manner. For example, simply adding more troops to your army is not the best strategy as you'll soon run out of money – which will lead to undesired chaos and rebel uprising – which will, in turn, lead you to become bankrupt and eventually the downfall of your pitiful & greedy empire. Instead, a more carefully crafted empire which expands at the pace which both the economy as well as the enemy permit, without affecting public order or humiliation, is a better suited strategy, even though it may take longer to achieve such means.

The entire game's map is immense and there should be no rush in either exploring it nor in trying to conquer it all. This game is great in that it provides countless hours of fun which is one of the main things to look for in a video-game.

Each of the different factions has a plethora of differences well worth exploring. Although I've only played for the Vampire Counts, the best way to defeat other races is

to get to know who they are, which can best be done by either reading about them or playing them. So, for example, the Vampire ranged troops will be different from their ranged Dwarves, Empire or Goblin counterparts. The same holds true for the melee troops from each of the different factions. Also, the terrain in which each race feels comfortable can differ widely from race to race. So environments which are naturally dark will be much friendlier to the Vampire Counts than to other races. Without going into too much detail, each race will feel comfortable in specific terrains, but vulnerable in others, which is something that will need to be

taken into consideration especially before engaging in battles.

A huge game changer that's unique to this game is the use of magic. Each army can have up to 20 soldiers which in turn are led by a Lord. Each Lord also has a unique set of skills that are developed almost like a role-playing-game, and a huge part of these skills deals with magic. There are various magical methods employed and the way to develop these magic skills is through the all-too-familiar skill tree commonly used in role-playing-games. The magic can be either defensive or offensive, and sometimes it's something sort of in between, it all depends on what

you want to accomplish and how you build your tree. All in all, this adds a whole new level of enjoyment to how battles are fought in a Total War game. Recently I've also found out that Total War: Warhammer is the first in a trilogy of games which sounded very much like music to my ears. The second installment is due out this year and I'm hoping that a Linux release is planned as part of the zero-day grand release.

As almost any true PC strategy game, Total War: Warhammer is played with a mouse and keyboard. There are various maps used throughout the game but the main map is the strategic map which is where you get to see your growing empire and where you plan your expansion, or if need be, your defense when the enemy is knocking on your door. This is where you get to decide which buildings to create, maintain or demolish. This is also where you get to decide in which direction your next exploration will head and which faction you'll attack. As the name suggests, in the strategic map is where the turn-based strategy portion of the game is played. However, once you're involved in a battle, the real-time



tactical element kicks in and instead of a strategic map, you're faced with a tactical map where, instead of controlling entire armies, you control the troops within your army. This is where you get to use the magic which you've been learning and where you get to deploy the monsters you've been training, housing and nourishing. It's in this tactical map where you get to see the bloodshed and the many horrors of war. Whereas in the strategy map is where the slow and careful planning takes place, it is in the tactical map where the adrenaline pumps through your body and the quick life & death decisions must be made. This is also where the game's multi-layered graphics really get to show off and where the 360° surround-sound puts you right in the middle of the battle.

This game plays very well on Linux, as long as the settings are set according to your hardware. I strongly recommend to let the game calibrate itself and find the most desired graphics settings, before attempting to push anything higher than what your system can handle. Early on I encountered some problems with this game such as my whole system

freezing – resulting in a kernel panic and leading to a complete reboot, but, little by little, I've been able to adjust accordingly and have been able to enjoy the game without any serious issues for quite a while now. The problems I had at first were due to one of the graphics settings causing my graphics card to overheat, but, as soon as I dialed it back a bit, the problem went away. I wouldn't even blame the game for this problem since it was more of a user error as it was I who was trying to push the game engine beyond the level that my hardware could handle. Another great feature of this game is the included benchmark which can help you in finding out how much

to push the game's graphics without overwhelming your hardware. The only complaint I have about the game, and it is a very minor complaint, is that the introduction is not only played when you first begin a campaign, but it's also played every single time you start the game. It wouldn't be a big deal except for the fact that it's pretty lengthy, and, in my opinion, could really be avoided, but then again it's a staple of all Total War games so I suppose it's something we need to learn to live with.



MINIMUM REQUIREMENTS

Operating System: Ubuntu 16.04 (64-bit) or later, SteamOS 2.0
CPU: 3.4 GHz Intel Core i3-4130, 3.5 GHz AMD FX-6300
RAM: 4 GB
GPU: 1 GB Nvidia 650ti or better (driver 367.28), 2 GB AMD R9 270 or better (Mesa 13.0.1 driver compiled using LLVM 3.9)
Hard Drive: 29 GB available space

Additional Notes: Intel GPUs are not supported at time of released



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



MY DESKTOP

Written by Richard Juetten



This is a screenshot of my current Ubuntu desktop. I am in the Granite rapid, Grand Canyon, Colorado river Arizona. Photographer was on shore. I don't know what camera or lens he was using.



MY DESKTOP

Written by Sergio



This is my Kubuntu desktop. The menu and application bar is vertical (on the left) and disappears automatically. The background changes with NASA pictures downloaded from the NASA site. The countdown (bottom left) is to remind me not to go to sleep too late.





MY DESKTOP

Written by Vince

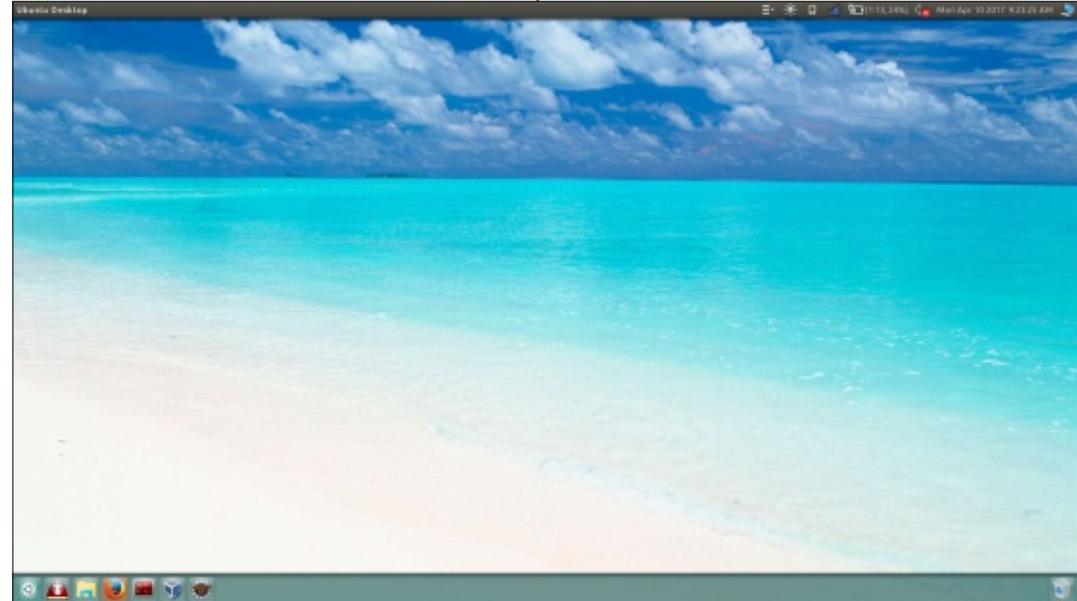


This is my Ubuntu desktop. It's a photo I took of a Queensland rail train doing a special back from the Pumpkin festival as it came into Cooroy station.



MY DESKTOP

Written by Edluel Andrew Tamon



A little adjustment of icons and cursor makes things wonderfully special this summer.

Keeping things tidy makes sure that the ambiance of my desktop keeps me inspired and productive.

Here is my simple shot of my Ubuntu desktop in my personal laptop, using Unity Tweak to adjust the panel moving it to the bottom of the screen.

OS: Ubuntu 16.04.2
Themes: Ambiance
Icons: Windows 10
Cursor: Windows 8





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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

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