

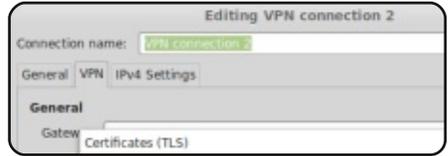




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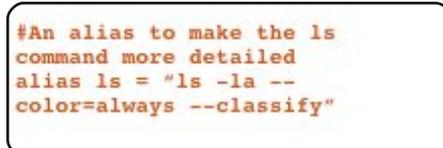


Graphics



# Full Circle

THE INDEPENDENT MAGAZINE FOR THE UBUNTU LINUX COMMUNITY



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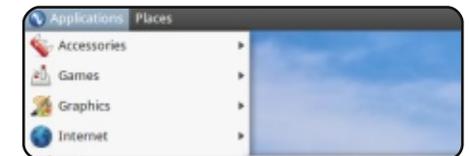
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## WELCOME TO ANOTHER ISSUE OF FULL CIRCLE.

We've got Python back with Inkscape and Blender for you this month. Fear not, the LibreOffice articles will hopefully return next month. Filling the empty shoes are articles on establishing a VPN connection, and putting Ubuntu on a Mac. I hope you like my cheeky little dig at Apple on this month's cover.

Having played around with it for several weeks now I decided to review the Arduino Starter Kit. Is it Linux? No, but it is open source. In this issue I'm reviewing the kit itself and from next month onwards I'll write a page, or two, on how I'm coping with learning electronics using the Arduino. It does involve programming (in a C-style language) so I'm sure to end up getting stumped and need help from you guys. Here's a little code I wrote today:

```
loop(){
if (articles==LOW) then (beg==HIGH);
}
```

That's right. It's begging time. We need security questions for Michael, and some desktop screenshots. This month is the last three that I have. Please, when you send them in include some details of what you're running (OS, apps, theme, icons, etc.). I'm also out of My Story submissions. So, if you'd like to tell us how you found Linux, or Ubuntu, drop me an email.

Also, our awesome news reporters are now posting news to the site (as well as here), so the FCM site is now your one stop shop for the latest Linux news. Not just Ubuntu news. Linux news. A big thanks to them for taking that on board.

**All the best, and keep in touch!**

Ronnie

[ronnie@fullcirclemagazine.org](mailto:ronnie@fullcirclemagazine.org)



This magazine was created using :



## Full Circle Podcast

Released monthly, each episode covers all the latest Ubuntu news, opinions, reviews, interviews and listener feedback. The Side-Pod is a new addition, it's an extra (irregular) short-form podcast which is intended to be a branch of the main podcast. It's somewhere to put all the general technology and non-Ubuntu stuff that doesn't fit in the main podcast.

### Hosts:

- Les Pounder
- Tony Hughes
- Jon Chamberlain
- Oliver Clark



<http://fullcirclemagazine.org>



## WINDOWS REIMBURSEMENT IN FRANCE

France is again leading the way against borderline commercial practices of the computer industry. A few years ago, a powerful Consumer Rights Organisation (UFC Que Choisir) filed a complaint against the largest consumer electronics retail chain in France (Darty). They claimed that the practice of bundling a proprietary OS with the hardware was a forced sale which is illegal in France. It went to court and a judgement ruled that, although not strictly an illegal practice, a customer had a right to know what he pays for when purchasing a computer and also that the manufacturer should provide a reimbursement procedure for the software if the customer does not want to use it. Therefore, according to the court's ruling, the real price the customer will have to pay for the bundled software should be clearly mentioned on the price tag along with the retail price of that equipment.

Companies like Acer, Packard Bell, Asus, Toshiba and Fujitsu are complying, and offer a reimbursement procedure for MS Windows. Other companies like HP, Dell, Lenovo, Apple and Sony still refuse to comply. The amount you will get back could vary from €10 to €40 for Windows XP on a cheap notebook, to as much as €200 for the latest Pro/Ultimate versions of Windows on a high end desktop.

What annoys Microsoft and the hardware manufacturers the most, is that because of this ruling they now have to disclose the price they have secretly negotiated among themselves for pushing Windows with new equipment. Nobody really knew what those deals were, but now they have to disclose this publicly as it has to appear on the price tag.

As an example, one can consult this page on Acer's support site for France, which details the procedure for being reimbursed: <http://www.acer.fr/ac/fr/FR/content/remboursement> (in French).

There is hope that this policy will soon extend to many more EU countries.

Submitted by: **Gilles Tournier**

## THE MANY ALTERNATIVE COMPUTING WORLDS OF LINUX

HAVE you ever wondered what happened to Linux? Linux is the free software created through the open source development process that many technology enthusiasts had predicted would revolutionize the world of computing.

Source: <http://www.nytimes.com/2014/04/10/technology/personaltech/the-many-alternative-computing-worlds-of-linux.html?partner=rss&emc=rss&r=0>

Submitted by: **Rahul Mehta**

## UEFI AND WINDOWS 8 UPDATE ON WINDOWS/LINUX DUAL-BOOT SYSTEMS

There have been recent reports of problems with Windows 8 Updates destroying Linux/Windows dual boot setups. My experience has been that, while there may be problems, they probably aren't as serious as some reports make them sound.

Source: <http://www.zdnet.com/uefi-and-windows-8-update-on-windowlinux-dual-boot-systems-7000028217/>

Submitted by: **Rahul Mehta**

## HEARTBEAT SSL FLAW PUTS LINUX DISTROS AT RISK

Hours after the flaw's disclosure, many Linux distributions didn't have a patch.

Now that a fix is out, OpenSSL users should make sure to update their servers. - See more at: <http://www.eweek.com/security/hcartbeat-ssl-flaw-puts-linux-distros-at-risk>.

Source:  
<http://www.eweek.com/security/hcartbeat-ssl-flaw-puts-linux-distros-at-risk.html/>

Submitted by: **Rahul Mehta**

## KINGSOFT OFFICE SUITE FOR LINUX - MS OFFICE ALTERNATIVE UBUNTU INSTALLATION

Also known as WPS Office Suite (Writer, Presentation and Spreadsheet), Kingsoft Office is a commercial, closed-source office suite which offers both a free version and a paid variant of its suite. While the paid version bears the name Professional Office 2013, the free suite is overviewed here, which looks powerful and feature-complete.

Source:  
<http://laxer.com/module/newswire/>

[view/200731/](http://www.eweek.com/security/hcartbeat-ssl-flaw-puts-linux-distros-at-risk.html/)

Submitted by: **Rahul Mehta**

## IS CLOUD COMPUTING ABOUT TO GET CHEAPER BECAUSE OF LINUX?

Cloud could finally prove cheaper than on-premise thanks to a new Linux-based technology that renders cloud hosting at half the price of Amazon Web Services (AWS), it is claimed.

Source:  
<http://www.cbronline.com/news/cloud/cloud-saas/is-cloud-computing-about-to-get-cheaper-because-of-linux-4212056>

Submitted by: **Rahul Mehta**

## SEP SOFTWARE CORP. ANNOUNCES CERTIFICATION OF ORACLE LINUX

SEP Software Corp, a leader in backup and disaster recovery solutions, today announced its

flagship product, SEP sesam, is fully certified with Oracle Linux and Oracle Unbreakable Enterprise Kernel Release 3. SEP sesam offers its users a single backup and disaster recovery solution for heterogeneous IT environments of any size. This latest certification with Oracle adds to an extensive list of certifications already available for SEP sesam

Source:  
<http://softwaredev.itbusinessnet.com/article/SEP-Software-Corp-Announces-Certification-of-Oracle-Linux-3173877>

Submitted by: **Rahul Mehta**

## GOOGLE AND RED HAT ARRANGE A MARRIAGE OF CONVENIENCE IN THE CLOUD

Google now has a special relationship with Red Hat, which in turn is eager to draw business customers to the cloud

Source:  
<http://readwrite.com/2014/04/09/google-red-hat-amazon-public-cloud#awesm=~oAYrKXkIpTOftC>

Submitted by: **Rahul Mehta**

## LINUS TORVALDS SUSPENDS KEY LINUX DEVELOPER

An argument between developers of some of the most basic parts of Linux turned heated this week, resulting in a prominent Red Hat employee and code contributor being banned from working on the Linux kernel.

Source:  
<http://www.networkworld.com/news/2014/040314-linux-280404.html>

Submitted by: **Rahul Mehta**

## LINKSYS LAUNCHES NEW ROUTER WITH OPEN SOURCE CODE

Linksys has started shipping a new router, and it's touting its latest offering as the first consumer-grade Wi-Fi router to provide thorough wireless coverage throughout the home through its four external antennas.

The WRT 1900AC Dual Band Wi-Fi router is based on the original design of the Linksys WRT 54G, a router first released 11 years ago. The new iteration of the WRT has a dual-core 1.2 gigahertz processor, 128 megabytes of flash memory, as well as eSata and USB ports. The router has been certified for 802.11ac Wi-Fi standard, and it also collaborates with OpenWrt to ensure there's an open source alternative, which will be rolled out in the next few weeks.

Source:  
<http://www.itbusiness.ca/news/linksys-launches-new-router-with-open-source-code/47992>

Submitted by: **Candice So**

## STEAMOS AFFECTED BY HEARTBLEED BUG, VALVE HASN'T UPDATED THE OS YET

The Heartbleed vulnerability has affected a large number of Linux distributions and online services and most of them have been patched, but it seems that SteamOS is still vulnerable to this particular problem.

Valve is the developer of SteamOS, a Linux distribution based on Debian "Wheezy" that is still under development. The way this distribution is updated and the fact that Valve publishes patches for it every few weeks means that SteamOS is still vulnerable to the Heartbleed vulnerability.

Source:  
<http://news.softpedia.com/news/SteamOS-Affected-by-Heartbleed-Bug-Valve-Hasn-t-Updated-the-OS-Yet-437253.shtml>

Submitted by: **Silviu Stahie**

## RASPBERRY PI TAKES OPEN SOURCE HARDWARE



## COMPUTING TO INDUSTRIAL AUTOMATION

The Raspberry Pi was originally designed to provide a low cost solution to all lovers of programming (including students). With the passage of time, a strong community around this little device has grown so as to transform the minicomputer into an object of worship. The board is inexpensive, efficient and massively supported with millions of modules sold all over the planet.

Now the maker of the Raspberry Pi has introduced a different model (shown below) aimed at advanced developers, business and industrial

environments. The Raspberry Pi Compute Module is a version with exactly the same hardware as the original Raspberry Pi, but comes with DDR2 SODIMM format.

Source:  
<http://siliconangle.com/blog/2014/04/10/raspberry-pi-takes-open-source-hardware-computing-to-industrial-automation/>

Submitted by: **SAROJ KAR**

## SARAH WATZ ELECTED BY OPEN SOURCE MATTERS TO GUIDE JOOMLA

One of the world's most popular open source content management systems, has today announced the election of Sarah Watz as the President of Open Source Matters (OSM). Open Source Matters is a non-profit organization providing legal and financial support to the Joomla project.

Members of Open Source Matters elected Sarah Watz as the new president on April 8, 2014. Other elected members who join Watz on the OSM board include

Victor Drover as treasurer and Marijke Stuijvenberg as secretary.

Source:

<http://www.cmscritic.com/sarah-watz-elected-by-open-source-matters-to-guide-joomla/#.U0jFdOrYfOQ>

Submitted by: **Kaya Ismail**

## SURU ICON THEME PACKAGE LANDS IN UBUNTU 14.04 (TRUSTY TAHR)

The Ubuntu design team announced a while ago that they were planning to update the old icon theme used until now in the recent Ubuntu OSes. Canonical made some small modifications over time, but the icons no longer fit with the plans for a convergent experience.

The first glimpse of the icons was offered during an UDS (Ubuntu Developer Summit), where the designers showed a very interesting theme that is quite unique, which fitted both the PC and phone desktops. As a bonus, the developers didn't make them flat. This was actually a big plus for the Ubuntu design team, which

managed to duck the "flat" bullet.

Source:

<http://news.softpedia.com/news/Suru-Icon-Theme-Package-Lands-in-Ubuntu-14-04-Trusty-Tahr-437192.shtml>

Submitted by: **Silviu Stahie**

## SPIDEROAK WANTS TO REPLACE UBUNTU ONE, OFFERS DISCOUNT TO USERS OF THE SERVICE

Canonical decided that it was time to pull the plug on Ubuntu One. It was necessary mostly because they could no longer compete with bigger companies who were offering better products for less money, and because they simply didn't have the manpower to deal with such a big and important project.

The company has provided ample time for the Ubuntu One users to find alternatives and to move their files to other services, but other companies, like SpiderOak, rushed to the rescue with a message dedicated to the Ubuntu fans: Dear Ubuntu One

Users: What SpiderOak Can Do For You.

The company(SpiderOak) is also looking to attract the Ubuntu One users with a special offer that can be bought by following a simple set of instructions. Here is their message: *"Psst...don't tell the Windows/Mac folks, but if you sign up from an Ubuntu Linux machine and then email us next week at support@spideroak.com, we'll offer you a special deal. It's our secret!"* also reads the SpiderOak blog.

Source:

<http://news.softpedia.com/news/SpiderOak-Wants-to-Replace-Ubuntu-One-Gives-Discount-to-Ubuntu-One-Users-437091.shtml>

Submitted by: **Silviu Stahie**

## NVIDIA 331.67 STABLE LINUX DRIVER OFFICIALLY RELEASED

This latest driver update arrives only a day after the previous Beta release, which caused quite a stir because it featured the option to overclock the video card. It may not seem like much but, in fact, this is actually great progress for the NVIDIA drivers.

The new feature is untested and it's not present in the current NVIDIA release from today. Nonetheless, there are some interesting changes and fixes that made it, not to mention the support for a few new GPUs.

It also brings more than one bug fixes; as an example, a bug that could cause some X clients to be disconnected from the X server when the screen is resized (while RandR 1.4 display offloading is in use) has been fixed, and a missing 32-bit compatibility library for libnvidia-fbc.so has been added to the x86\_64 Linux installer package. Don't forget to check out the changelog for a complete list of fixes and improvements.

Source:

<http://news.softpedia.com/news/NVIDIA-331-67-Stable-Linux-Driver-Officially-Released-436844.shtml>

Submitted by: **Silviu Stahie**

## LINUX KVM VIRTUALIZATION COMES TO IBM POWER SERVERS SOON

Since 2007, when the Linux 2.6.20 kernel was released, Linux has had its own built-in hypervisor: Kernel-based Virtual Machine (KVM). What was nice about that was that it made virtualization easy if you were running virtual machines (VM) on Intel or AMD processors with virtualization extensions Intel VT or AMD-V, respectively. What wasn't so nice was that those were the only chips you could run KVM on. Almost a year ago, IBM promised that they would port KVM to its high-end Power architecture. Now, Big Blue is ready to deliver on its promise.

In a blog posting, Jim Wasko, Director of IBM's Linux Technology Center, said that "a Power Systems version of KVM, PowerKVM, will be available on IBM's next generation Power Systems servers tuned for Linux before the end of the quarter."

Source:  
<http://www.zdnet.com/linux-kvm-virtualization-comes-to-ibm-power-servers-soon-7000028353/>

Submitted by: **Arnfried Walbrecht**

## SUSE SIMPLIFIES MAINFRAME LINUX INSTALLATION

SUSE Linux Enterprise Server for System z is optimized for the IBM System z architecture and is the No. 1 Linux installed on those mainframes. Even with little or no Linux or z/VM experience, customers can install SUSE Linux Enterprise Server Starter System for System z and take advantage of the combined solution's benefits of consolidating servers and virtualizing Linux, UNIX and Windows workloads.

"Installing Linux on a mainframe is different from installing Linux on an x86 server," said Meike Chabowski, Product Marketing Manager for enterprise Linux servers at SUSE. "The Starter System for System z makes installation quicker and easier, and customers can get a headstart on their mainframe Linux proof-of-concepts with existing IT skills."

Source:  
<http://www.ciol.com/ciol/news/212805/suse-simplifies-mainframe-linux-installation>

Submitted by: **Arnfried Walbrecht**

## CAELINUX IS THE IDEAL DISTRO FOR DESIGNING SCIENTISTS

The primary reason for adopting CAELinux is the specialized scientific and engineering computing tasks of its users. This distro comes packed with Linux versions of leading multiplatform programs that are workhorse tools. Specialized software includes dozens of titles for printing, graphical display, engineering and electronics. Even the caliber of office and computing accessories is impressive.

CAELinux is a perfect example of the power of open source to tailor the Linux operating system to users' specialized needs.

Source:  
<http://www.linuxinsider.com/story/CAELinux-Is-the-Ideal-Distro-for-Designing-Scientists-80277.html>

Submitted by: **Arnfried Walbrecht**

## "OPEN NETWORK LINUX"

## COULD BOOST VIABILITY OF VENDOR-NEUTRAL SWITCHES

The Facebook-led Open Compute Project has spent the past year building an "open" switch that can boot nearly any type of networking software, giving customers more alternatives to proprietary switch vendors such as Cisco.

Intel, Broadcom, Mellanox and Cumulus Networks jumped on board last November, contributing specifications and software that will bring the project closer to a finished design. They weren't alone, though: Software-defined networking vendor Big Switch Networks, in January, donated what it calls Open Network Linux (ONL) to the project.

Source:  
<http://arstechnica.com/information-technology/2014/04/open-network-linux-could-boost-viability-of-bare-metal-switches/>

Submitted by: **Arnfried Walbrecht**

## DESPERATELY SEEKING

## LINUX PROGRAMMERS

Few people know just how pervasive Linux has become, and that is causing a big problem for companies that increasingly rely on it. "There is a shortage of software developers in the U.S. The employment rate for these jobs is down to 2.3 percent in the last quarter. The opportunity for jobs is now there for people who come in to get this training," said Vice President Shravan Goli.

Help Wanted: computer programmers needed to code and maintain Linux systems. The Linux operating system and Linux servers are so widely used today that not enough Linux-trained coders and system techs exist. Software developers and enterprise IT departments have jobs but no takers.

To fill this shortage, the Linux Foundation has partnered with edX to offer a free online course to help computer engineers learn Linux.

Source:  
<http://www.linuxinsider.com/story/Desperately-Seeking-Linux->

[Programmers-80290.html](http://www.vision-systems.com/articles/2014/04/the-imaging-sources-announces-linux-supports-for-its-cameras.html)

Submitted by: **Arnfried Walbrecht**

## THE IMAGING SOURCE ANNOUNCES LINUX SUPPORT FOR ITS CAMERAS

The Imaging Source has announced the immediate availability of open source Linux support for all of its cameras.

Released under the Apache License 2.0, the source code is available as an open source project and allows the integration of all cameras with GigE, USB, and FireWire interfaces into popular distributions, including Debian, Ubuntu, CentOS, and Red Hat.

*"We have seen customer demand for Linux support continually grow in the past few years," said Rolf Bollhorst, CEO and founder of The Imaging Source. "In the meantime, we work with Linux every day. Therefore, it makes sense for us to offer comprehensive Open Source software at GitHub.com to integrate our cameras into popular distributions. We look forward to the feedback from our customers."*

Source:  
<http://www.vision-systems.com/articles/2014/04/the-imaging-sources-announces-linux-supports-for-its-cameras.html>

Submitted by: **Arnfried Walbrecht**

## COOL AND FLEXIBLE: THE LINUX ALTERNATIVE

Have you ever wondered what happened to Linux? Linux is the free software created through the open source development process that many technology enthusiasts had predicted would revolutionise the world of computing.

It may not be widely known, but Linux did revolutionise computing. If you own an Android phone or a Kindle e-reader, you are a Linux user. Linux is at the core of those popular devices and is found in a variety of other places, from the world's most powerful supercomputers down to the tiny Raspberry Pi device that is a favourite among electronics hobbyists.

But Linux has had less success in personal computers. Fewer than 2

percent of desktop or laptop computers run it, according to a survey by Net Applications. That could be because for the bulk of Windows and Mac users, switching entirely to Linux probably does not make sense. But exploring Linux could still be worth the time for those looking for a proven, low-cost alternative to the two mainstream operating systems.

Source:  
<http://www.deccanherald.com/content/398909/cool-flexible-linux-alternative.html>

Submitted by: **Arnfried Walbrecht**

## PYTHON 2.7 TO BE MAINTAINED UNTIL 2020

Python 2.7 will have extended support until 2020 and there won't be any version 2.8, Guido van Rossum explained at the PyCon 2014. Guido van Rossum presented his update of the 0373 PEP (Python Enhancement Proposal).

The PEP 0373 regulates the roadmap for Python 2.7. This version receives support until 2020 according to van Rossum. This prolonged support should help

companies and institutions that have not changed to Python 3 yet. At the same time van Rossum made it clear that there would be no version 2.8 of Python, so that version 2.7 is the last in the line 2.

Source:  
[http://www.linux-magazin.de/content/view/full/86680?utm\\_source=LMO&utm\\_medium=email&utm\\_campaign=LMO-Newsletter](http://www.linux-magazin.de/content/view/full/86680?utm_source=LMO&utm_medium=email&utm_campaign=LMO-Newsletter)

Translated by: **Arnfried Walbrecht**

## MAKULU LINUX 6 MATE HANDS-ON: A GOOD PATH TO LINUX FOR XP USERS

I wrote about Makulu Linux 5 Xfce a couple of weeks ago, and at the time I said that I loved the distribution but I hated the installer. Now, thanks to a lot of hard work, Makulu Linux 6 has been released, with an updated (hopefully improved and simplified) installer and a new MATE desktop added to the Makulu Linux family.

Source:  
<http://www.zdnet.com/makulu-linux-6-mate-hands-on-a-good->

[path-to-linux-for-xp-users-7000028368/](http://www.path-to-linux-for-xp-users-7000028368/)

Submitted by: **Peter Odigie**

## PLUMGRID ACHIEVES CERTIFICATION FOR RED HAT ENTERPRISE

PLUMgrid, the leader in Virtual Network Infrastructure (VNI), today announced that PLUMgrid VNI 3.0 has achieved certification for Red Hat Enterprise Linux OpenStack Platform. The certification ensures that PLUMgrid VNI 3.0 has been integrated, tested and certified for use with Red Hat Enterprise Linux OpenStack Platform.

PLUMgrid VNI 3.0 is a secure virtual networking product for large-scale OpenStack clouds. Built using PLUMgrid Platform and IO Visor™ technology, it provides an easy and simple solution to build cloud infrastructure at scale and offers secure, multi-tenant network services to OpenStack cloud users. Based on a highly automated workflow, PLUMgrid VNI 3.0 enables applications and users to deploy private Virtual Domains™ in seconds without changing the physical network

fabric.

Source:  
<http://www.marketwatch.com/story/plumgrid-virtual-network-infrastructure-achieves-certification-for-red-hat-enterprise-linux-openstack-platform-2014-04-14>

Submitted by: **Arnfried Walbrecht**

## IBM: Now Is The Time For KVM

IBM says that now is great time for KVM (Kernel-based Virtual Machine) technology as a result of key contributions from its large developer community.

The KVM hypervisor is an open source virtualization technology and, increasingly, it is becoming an important tool in any Linux user's handbook, especially in light of OpenStack.

KVM is a full virtualization solution for Linux on x86 hardware containing virtualization extensions (Intel VT or AMD-V) and consisting of a loadable kernel module (kvm.ko) that provides the core virtualization infrastructure,

and a processor-specific module (kvm-intel.ko) or (kvm-amd.ko).

IBM says that hypervisors have had to better manage compute, network, and storage resources — and that this need that has been fulfilled by KVM.

Source:  
<http://www.drdoobbs.com/open-source/ibm-now-is-the-time-for-kvm/240167057>

Submitted by: **Arnfried Walbrecht**

## LINUX IS ABOUT TO TAKE OVER THE DESKTOP BUT NOT LIKE YOU THINK IT WILL

For years I've heard that year X is the year of the Linux desktop and I've always scoffed at it. I scoffed because it's ridiculous to think that Linux or Mac OS X or anything could supplant Windows on the desktop. That is until now. And don't get me wrong, it won't happen for at least another year in businesses but for personal computing and BYOD, it's already happening. The Linux that's taking over the desktop is called the Chrome OS and it will happen on the Chromebook device.

Yes, I know I write a lot about Chromebooks but they fascinate me. I'm kind of obsessed by them. I wish that I had been more receptive to them two years ago when I first saw one. But I guess there's a time and a place for everything. And it just wasn't my time yet.

But the business Chromebook revolution is about to happen and either you'll be part of it or you'll be left behind.

Source:

<http://www.zdnet.com/linux-is-about-to-take-over-the-desktop-but-not-like-you-think-it-will-7000028417/>

Submitted by: **Arnfried Walbrecht**

## AMD DEMOS NEXT-GEN X86 SERVER APU RUNNING FEDORA LINUX

Chipmaker AMD has announced a major milestone in the development of its enterprise software ecosystem with the first public demonstration of its second-generation AMD Opteron X-Series APU, codenamed "Berlin," running

Fedora Linux at the Red Hat Summit 2014.

According to AMD this is an important development for companies looking to transition to x86 APU servers but who don't want to introduce new tools and software platforms into the IT environments, so this demo represents a step forward in expanding the footprint of x86 APU accelerated performance within the data center.

Source:

<http://www.zdnet.com/amd-demos-next-gen-x86-server-apu-running-fedora-linux-7000028505/>

Submitted by: **Arnfried Walbrecht**

## GOOGLE'S REMOTE DESKTOP APP FOR ANDROID OFFERS ACCESS TO WINDOWS AND LINUX MACHINES

Android users can now access their desktop computers with a Chrome Remote Desktop (RDP) app. Based on Google's recent introduction of its Chrome RDP extension, the Android app is designed to make it even easier to

access your computer from a remote location.

The extension requires the Chrome web browser to be installed on both machines, but once it is up and running, controlling it is as simple as deciding on and sharing a PIN code. Once the PIN code has been shared once, there is the option to bypass it in the future, making it ideal for helping less than tech-savvy friends and relatives.

Source:

<http://www.theinquirer.net/inquireur/news/2340475/googles-remote-desktop-app-for-android-offers-access-to-windows-and-linux-machines>

Submitted by: **Arnfried Walbrecht**

## UBUNTU CHASES AFTER RED HAT WITH OPENSTACK AND DOCKER BUNDLES

Even if Canonical hasn't remade the consumer desktop with Ubuntu or made much of a dent with Ubuntu as a phone or tablet OS -- at least, not compared to the way Google has with both Android and Chrome -- there's no denying

the presence of Ubuntu as a server.

With the release of Ubuntu 14.04 on Thursday, Canonical is attempting to further define how it stands out from enterprise-centric distributions like Red Hat even as it shares features typically associated with Red Hat.

To do that, Canonical is focusing Ubuntu even more on the features used by the service providers who have taken it to heart, such as Netflix, Comcast, Verizon, and NTT. Two of the key technologies revved in the new Ubuntu release, Docker and OpenStack, are quickly becoming cornerstones for how such companies build their systems.

Source:

<http://www.infoworld.com/t/linux/ubuntu-chases-after-red-hat-openstack-and-docker-bundles-240568>

Submitted by: **Arnfried Walbrecht**



Earlier this month, I received an email from a reader of Command & Conquer, asking me to write an article on using Git – specifically things such as what a fork is, what pulling is, and what exactly a commit is. He also followed it up asking about automerge errors and how to fix them. I will do my best to cover each of these points in particular. However, as most of my experiences with Git are via Github, which offers some extra functionality on their website that isn't the “vanilla” Git experience, there may be some aspects of my explanations that do not apply to a custom git server.

## GENERAL INFORMATION

In Git, you can create a repository (which typically contains a master branch). However, a repository can contain multiple branches – such as stable, testing, and development. A repository can be forked by anyone, and that will result in a local repository for the user who forked it.

## A BRANCH

A branch could essentially be considered a snapshot of your project at a certain point. Some people advocate assigning every change to a branch, while some people keep only one or two active branches (while keeping the master branch as a basis for any future branches). Via example: If you are actively developing a web browser, you could keep two branches – stable and testing.

- Stable contains the source code for your last official release – which is hopefully bug-free.
- In order to keep development moving along, you would also have a branch called Testing, which contains all the bleeding edge code. You can track your changes, and get input from beta testers, in order to work your way towards a new update to stable. Once you reach a point in testing that's stable and running as you'd like it, you would then update those changes to stable, and keep working on testing.

## A FORK

Is when a user sees a project they like (i.e. the web browser project from my last example), and think to themselves “I could do this better”, or “I'd love to help create this”. Instead of assigning users the ability to edit the official repository and its branches, the user would instead create a fork of the project. You can imagine it as a highway (the official repository), with turn-offs for every user who is contributing to it, which leads to their local copies. This is useful, as it prevents the main goal of the original project from shifting – if you want to re-purpose the code for a web browser to create an image gallery, you can fork it as normal, and make any changes you'd like.

Some of you may be wondering how these forks can help contribute anything to a project, if it's essentially a copy. This is handled by something called a merge (explained below).

## A COMMIT

Before we discuss what a merge is, we should first explain commits. Whenever you change a file in your local repository, you can choose to save it as a commit (i.e. a change), give it a brief explanation, and then push (upload) it back to your remote repository, so that the updates can be propagated through all forks based off that repository, as well as give the most recent versions to any new forks.

## A MERGE

Once you've committed changes to your remote repository, and believe that it would help the original project, you can then send a merge request for that commit (or a series of commits). This then sends a notification to the owner of the original repository, and includes information on the commit, displays a comparison of the before/after, and indicates any conflicts (if, for example, you've already changed the line of code slightly, and the patch can

therefore no longer “find” it). Say you write a patch for the web browser that allows users to define their own CSS (cascading style sheets), in order to style their browser and website views to their specifications. To do so, you adjusted a for-loop that runs over all files within folders called “config” and “data”, to include the folder “styles”. However, upstream (the original project), has changed the name of the config folder to “conf”. This means that the loop looks different than expected to the merge request – which raises a conflict with the original developer. They can then choose to resolve it, or ignore it.

## RESOLVING CONFLICTS

If you run into conflicts with merges (i.e. two people edit the same file, or one person edits it and another deletes it), you will generally need to resolve it manually. To go about doing this, you would run

```
git status
```

This will give you information about what files are in conflict, as well as give you instructions to

indicate when you have solved the conflict.

Viewing the actual conflict is as simple as opening the file after the merge has failed – the file should contain a block that looks something like:

```
the number of planets are  
<<<<<<< HEAD  
nine  
=====  
eight  
>>>>>> branch-a
```

The series of less than/greater than signs mark the area of the conflict, and the line of equals signs mark the two different changes. Branch-a refers to which branch this conflict is occurring in. To resolve this, simply delete the conflict markers (less than, greater than, and the equals signs), as well as deleting either your change, the other person's change, or replacing the entirety of the conflict with a new edit (i.e. something that contains both edits). Once the markers are gone, you can go about adding it to the commit list, and pushing it to the remote repository.

In the case of a conflict caused by someone deleting a file, you can

resolve it in one of two ways:

- Adding the file back, and then committing it (which essentially overrules the commit where it was deleted).
- Deleting the file with `git rm`, and then committing the change again.

## WHAT IS A PULL?

A pull is a combination of `git-fetch` and `git-merge`. `Fetch` essentially asks for any changes to the repository, and downloads the commits. `Merge` then tries to integrate the new information into your existing copy of the repository. Instead of having to do these things one by one, `Git` instead offers the `pull` command, which automatically attempts to merge anything downloaded via `fetch`.

## WHAT, NO CODE?!

This month, I decided I would focus on explaining the terminology and illustrate some aspects of `Git`. Next month, I will run you through a series of examples for setting up a `git` repository, cloning it, editing the branches, creating a commit and resolving a conflict. For anyone

who does not want to wait a month, there are links to information in the further reading section below.

Hopefully this article has helped to shine some light on the terminology of `Git`. If you have questions, comments, recommendations, or suggestions, you are welcome to email me at [lswest34+fc@gmail.com](mailto:lswest34+fc@gmail.com).

## Further Reading

<http://git-scm.com/doc> – Git Documentation

<http://githowto.com/> - Git Howto website

<https://help.github.com/> - Github offers some well-written explanations for the typical uses of `Git`, as well as explaining Github-specific features well.



**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](mailto:lswest34@gmail.com).



This month, I thought I would create a routine that makes a license key from an email. We all know the reason for having a license key, and if you ever need to have a quick and dirty set of routines to do it, you can use this. Remember, Python is a scripting language, so the source is always readable. There are ways around this; we'll discuss them in another article. Let's take a look at the "gross" logic behind the code, before we actually dive into the code.

First, we will ask for an email address and then break it into two parts, the local part (the part before the "@" character) and the domain part (the part after the "@" character). There are very specific rules for email address validity, and it can get very complicated. For our purposes, we will only use some of the rules and only on the local part. You can do a web search on the actual rule set. In our code, we will only look at:

- lowercase characters
- upper case characters
- numbers between 0 and 9

- special characters (!#\$%&'\*+/-=?^\_`{|}~.)
- period characters are allowed, but may not be repeated next to each other (...), etc)

Once we have validated the email, we then will create a "checksum character" which is based on the ascii value of each character in the entire email address, and then divide it by the number of characters in the email address. For example, let's use a mythical email address of fredjones@someplace.com. If we walk through the email address, we can get the ascii value of each character by using the ord() function. When we add up each of the ascii values, we get a sum of 1670, then we divide that by the length of the email address (23); we get 72. Remember we are using integer division here, so our result will be an integer.

Now that we have our checksum value, we subtract 68 from that (ascii 'D') to create an offset. We use this offset when we encode each character in the email. Just to

```
localvalid1 = "abcdefghijklmnopqrstuvwxy"
localvalid2 = "ABCDEFGHIJKLMNPOQRSTUVWXYZ1234567890"
localvalid3 = "!#$%&'*+/-=?^_`{|}~."
Offset = 0
```

make things a bit harder to decode, we put the length (with offset) as character position 2 and the checksum as character position 4.

So for the email fredjones@someplace.com we get a license key of:

```
j[vHihnsriwDwsqitpegi2gsq
```

Lets get started with the code. Since this is the 53rd article in the series, I won't be quite as verbose from here on out.

First our imports.

```
import sys
```

```
def IsValidEmail(s, debug=0):
    email = s
    pos = email.rfind("@")
    local = email[:pos]
    domain = email[pos+1:]
    if debug == 1:
        print local
        print domain
    isgood = False
    localvalid = localvalid1 + localvalid2 + localvalid3
```

Now (as shown above right) we will create a string that will include all of our "legal" characters for the IsValidEmail function. I've split it into 3 strings so it fits nicely for the magazine. We combine them in the IsValidEmail routine. We also set a global variable 'Offset' to 0. This will be the value that we add (later on) to each character when we create the encoded string.

Now for our first function. This (below) is the IsValidEmail routine. Basically we pass the email in the variable s, and an optional debug flag. We use the debug flag, as we have done in the past, to provide

some print statements to see how things are going. Usually we would simply pass a 1 as the second parameter if we want to see the progress verbosely.

First we assign the passed in email address to the variable 'email' and find the '@' character that separates the local from the domain portions of the email. We then assign the local portion of the email to (I think it's appropriate) 'local', and the domain portion to 'domain'. We then set the boolean isgood flag to False and finally create the 'localvalid' string from the 3 shorter strings we set up earlier.

Next (top right) we simply walk through each character in the local portion of the email against the list of valid characters using the in keyword. If any character in the local portion of the email fails the test, we break out of the for loop, setting the 'isgood' flag to False.

Finally, we look for any set of period characters that are contiguous. We use the string.find routine that will match anything that is like '..' or '...' and so on. Being a lazy programmer, I used only a single "double dot" check

that works for anything more.

```
r = email.find("..")
if r > -1:
    isgood = False
```

The last thing we do in the routine is return the value of the 'isgood' flag.

```
return isgood
```

The next routine (bottom right) is the CheckSum routine which is fairly short. We walk each character in the email and create a running sum of the ascii value of each using the built-in 'ord' type conversion. As I stated earlier, we take that sum and divide it by the length of the email address. We return the checksum value and the character represented by that checksum.

Now for the EncodeKey routine. While it looks simple, it requires some concentration so pay attention! We assign the Offset variable to global status so we can change it within the function and so it can be used in other functions. We then set the Offset variable to the checksum minus 68. As in the example presented at the beginning of the article, it would be 72-68 which equals 4. We then

```
# Check Local Part
for cntr in range(0, len(local)):
    if local[cntr] in localvalid:
        if debug == 1:
            print local[cntr], ord(local[cntr]), "True"
        isgood = True
    else:
        if debug == 1:
            print local[cntr], ord(local[cntr]), "False"
        isgood = False
        break
```

```
def CheckSum(s, debug = 0):
    sum = 0
    email = s.upper()
    for cntr in range(0, len(email)):
        if debug == 1:
            print email[cntr], ord(email[cntr])
        sum += ord(email[cntr])
    cs = sum/len(email)
    if debug == 1:
        print ('Sum = %d' % sum)
        print ('ChkSum = %d' % cs)
        print ('ChkSum = %s' % chr(cs))
    return cs, chr(cs)
```

step through each character of the email address adding the offset to the ascii value of that character. For the 'f' in 'fredjones', it would be 102 + 4 or 106 which equates to 'i'. Using the counter variable 'cntr', we then determine what we add to the 'NewEmail' string we build up character by character. Notice in the code that we go from 0 to the length of the email, so character 0 is 'f', character 1 is 'r' and so on. Now comes the part that might confuse some of you. If cntr is a

value of 1 ('r'), we insert the character for the length of the email + 68 and then the offset character, which using our example would be iYt. The next time we go through the loop, cntr will equal 2, but we already have 3 characters in the email. That's where we want to insert the checksum character ('F') and then the third character offset. From there, we simply add each offset character to the string, and when the loop is done, we return the key (top right).

The DecodeKey routine (bottom right) basically reverses the process we used in the EncodeKey routine. One thing you might notice here is that in the first 'if debug' statement of this function, I used '!= 0' rather than '== 1', simply to remind you that the two can be interchangeable.

The DoIt function (below) asks for an email address using 'raw\_input', then calls the functions in order to create the license key.

Lastly, we call the DoIt routine.

```
if __name__ == "__main__":  
    DoIt()
```

Now, obviously the output is not super-encrypted, and if someone were to put in a fair amount of time, they could figure out what we used to create the key fairly easily. However, it should give you enough of a starting point

that you could simply modify the code to make it much harder to break. You could, for example, use a random number rather than the 'D' (68). If you do that, set a seed in the code so that it will always generate the same random number. You could also go a bit deeper and put the offset value somewhere into the license key, maybe the last character so you could use that as the decryption offset.

As always, the full source is available at <http://pastebin.com/MH9nVTNK>. Until next time, enjoy.



**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. His website is [www.thedesignedgeek.net](http://www.thedesignedgeek.net).

```
def DoIt():  
    email = raw_input("Please enter email address -> ")  
    isok = IsValidEmail(email,0)  
    if isok == True:  
        csum,csumchr = CheckSum(email)  
        ke = EncodeKey(email,csum,0)  
        print("License Key = %s" % ke)  
        print("Original email = %s" % DecodeKey(ke,0))
```

```
def EncodeKey(s, csum, debug = 0):  
    global Offset  
    email = s  
    Offset = csum - 68  
    if debug == 1:  
        print("Offset is %d" % Offset)  
    NewEmail = ""  
    for cntr in range(0,len(email)):  
        ch = ord(email[cntr]) + Offset  
        if cntr == 1:  
            NewEmail = NewEmail + (chr(len(email)+68)) +  
chr(ch)  
        elif cntr == 2:  
            NewEmail = NewEmail + chr(csum) + chr(ch)  
        else:  
            NewEmail = NewEmail + chr(ch)  
    if debug == 1:  
        print cntr, NewEmail  
    return NewEmail
```

```
def DecodeKey(s, debug = 0):  
    global Offset  
    eml = ""  
    for cntr in range(0,len(s)):  
        if debug != 0:  
            print cntr,s[cntr],ord(s[cntr])-  
Offset,chr(ord(s[cntr])-Offset)  
        if cntr == 0:  
            eml = eml + chr(ord(s[cntr])-Offset)  
        elif cntr == 1:  
            eml = eml + chr(ord(s[cntr])-Offset)  
        elif cntr == 3:  
            csumchr=s[cntr]  
        else:  
            eml = eml + chr(ord(s[cntr])-Offset)  
    if debug == 1:  
        print eml  
    return eml
```



# HOW-TO

Written by Cork Marino

# Establish An OpenVPN Connection

A VPN connection is an encrypted connection to a server. The acronym VPN stands for Virtual Private Network. When you connect to a VPN server and type in a web address, the request is sent via an encrypted signal to the VPN server which then sends you back the web page.

Establishing a VPN connection will keep your ISP or government from recording your browsing history. It can also be used to visit sites that your network administrator has blocked (in some countries youtube is blocked). An OpenVPN connection is the most secure type of VPN, because not only is the connection encrypted by a password, but also by three certificates. There are many places online that sell VPN services. In my tutorial today, I will use vpnbook.com's service, because it is completely free, and runs entirely off donations.

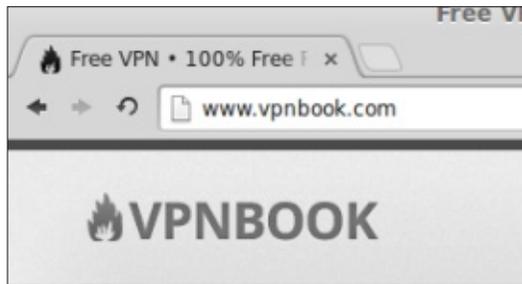
First, you will need to install a few packages to get going. Open a terminal and type in:

```
sudo apt-get install network-manager-openvpn
```

Then:

```
sudo apt-get install network-manager-openvpn-gnome
```

Once those are installed, open up a browser and go to [vpnbook.com](http://vpnbook.com).



Scroll down and click on the tab that says OpenVPN (shown below).

**Free OpenVPN and PPTP VPN**  
Choose your preferred VPN type below for access details. No registration or sign-up is required.

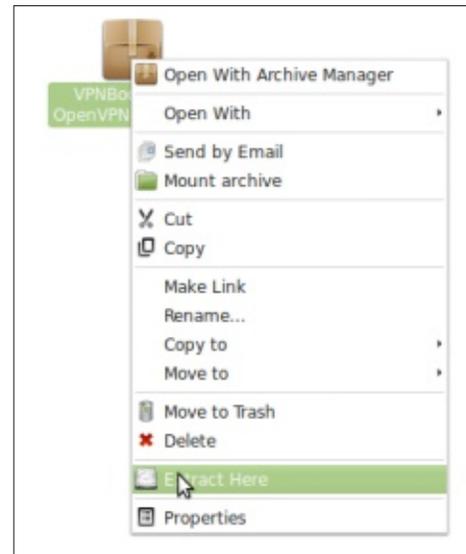
NEWS PPTP **OpenVPN** Dedicated VPN

Free OpenVPN Account (Requires Download of the free opensource [OpenVPN Client](#), offers the best anonymity and is impossible to block by your government, school or Employer.) - You should try all the profiles and see which provides the fastest and most reliable connection.

- Server #1: [Download Euro1 Server OpenVPN Certificate Bundle](#)
- Server #2: [Download Euro2 Server OpenVPN Certificate Bundle](#)
- Server #3: [Download UK Server OpenVPN Certificate Bundle \(UK VPN - web surfing on](#)

Download one of the certificate bundles.

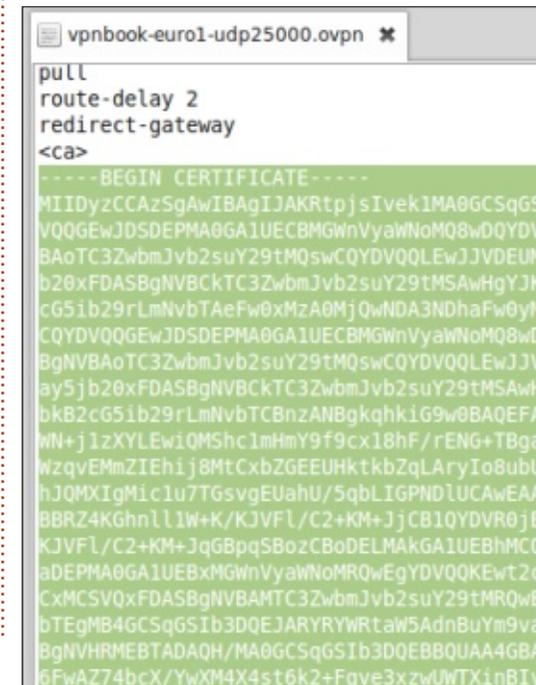
Extract the downloaded archive as shown here:



Create 3 new empty text files in the folder with the Certificates.

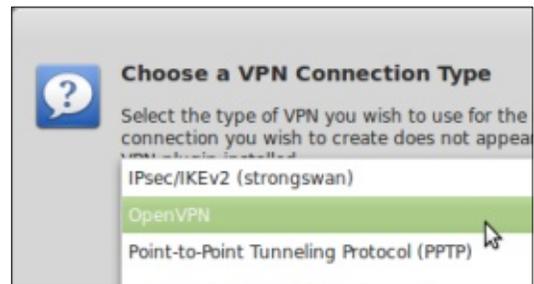
Call them:  
**ca.cert**  
**certificate.cert**  
**key.key**

Next, open up one of the .ovpn files with the text editor. All of the files are the same, but with different configurations. One by one, copy everything between the tags <ca></ca>, <cert></cert>, and <key></key>. Place each one of the selections in the new files: ca.cert, certificate.cert, and key.key.

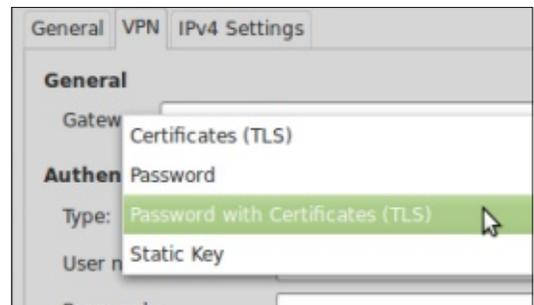


# HOWTO - ESTABLISH OPENVPN CONNECTION

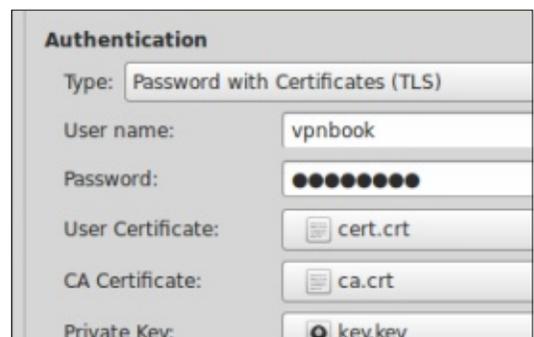
Go to Network Manager and add an OpenVPN connection.



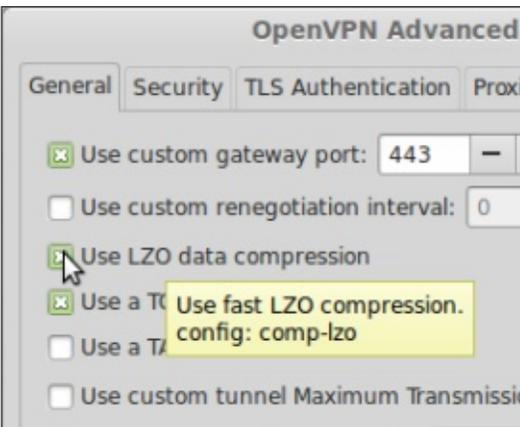
Change 'type:' to 'Password with Certificates (TLS)'.



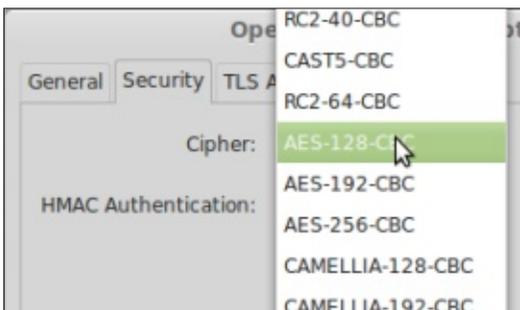
Fill in the username and password and upload the appropriate certificates that you just created. In the text area that says 'Gateway:', copy and paste the IP address that is found at the top of the .ovpn file.



Finally, click the 'Advanced...' button and change the settings under the 'General' tab to match those of the .ovpn file.



Then click the 'Security' tab and change the type of cipher to match the one suggested in the .ovpn file.



Although these steps are a little tricky, if you hover your cursor over one of the options, then it will tell you which text to look for in the .ovpn file. Save your changes.

Now, you're ready to establish

the connection.

Now that you're connected, be sure to follow vpnbook.com on facebook or twitter in order to receive the password updates, which are changed weekly. And don't forget to donate to them, so they can keep providing their free service.



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](http://podcast.ubuntu-uk.org)



The last piece on Ubuntu and the Mac in our favorite magazine seems to be Darkmaster's "Ubuntu on the Mac Mini", back in June 2007's FCM#02. Since there has been some progress both on Apple's and on Ubuntu's sides, let's take a fresh view of the process.

Before installing a GNU/Linux on an Apple computer, be it Ubuntu or some other distribution, perhaps the first question we should ask ourselves is: "why?" After all, the original operating system on these machines, Apple's OS-X, is a first-class BSD derivative that is known for its stability, and has benefited from what is generally considered one of the nicest graphical interfaces around. Nowadays, it is essentially free (as long as you buy the hardware), and even integrates many Free and Open-Source Software (FOSS) packages such as Apache and OpenSSH. Others, such as Gimp and Inkscape, are easy to add. So, if it ain't broken, why fix it?

Perhaps the first reply that

comes to mind is: "because it is possible to do so." It does have some technological interest. But we are also combining what is - in my perhaps subjective opinion - one of the best hardware platforms available (Apple's computers) with one of the best options for software: GNU/Linux in general, and Ubuntu distributions in particular. Is changing from OS-X to Ubuntu really a step forward? After all, Apple's people are the ones who make the hardware, so, from a logical standpoint, they should also be in the best position to make the software for it.

Actually, this is perhaps not quite the case any more. Apple's computer hardware is nowadays a mix of commodity components built by other manufacturers (that can easily be acquired off the shelf), and some specific parts that are designed and built to Apple's specifications. These specifics include some - such as "logic boards" in Apple's parlance ("motherboards" for everybody else) - that definitely help maintain their reputation for quality.

However, even the motherboards are built using well-known chipsets that are also used by other manufacturers, and thus catered for the Linux kernel. So Apple's operating system no longer has an edge over FOSS alternatives as regards hardware support.

On the other hand, do GNU/Linux and Ubuntu have an advantage over Apple's OS-X from a software standpoint? I advance that yes, they do - and that the advantage is two-fold. In the first place, FOSS has a wide-open code base that can be audited in full. This may or may not be an important point for the security-conscious, but it certainly is so as far as bug-tracking and program quality go. The more eyes can examine the code, the more errors are detected and corrected - fast!

The second advantage is a centralized software repository, that programs can easily be located in and downloaded from. This may seem minor at first glance, but consider: which other operating system allows us to easily install

complex applications with a one-line terminal command - or, should we prefer, a choice of (at the very least three or four) different graphical software managers? Bashing Canonical for more-or-less imposing Unity as default desktop has been in vogue for the last couple of years. Their commercial policies may also rub the wrong way. But, on the other hand, they have shown much common sense and rendered the user community a good service in choosing Debian's apt package management system, and in providing both updated packages and a repository to download them from.

From this point of view, using Ubuntu on an Apple computer does make sense: we immediately and easily access a large repository of up-to-date applications. They are also available in more languages and locales than much of Apple's offering, though it must be said they too have made progress in recent years. But even today, some languages are not readily available: for example, Euskara (Basque) is still not officially supported by

# HOWTO - PUT UBUNTU ON A MAC

Apple (<http://www.apple.com/osx/specs/>). No such problem with Ubuntu - which shows us the real power of FOSS is that people can participate and help out in many ways, not only programming.

On a further note, using Ubuntu on Mac hardware can help maintain compatibility between Mac and PC machines that must work together in the same environment. The applications would be the same on both sides - and, if they are not, it is a simple matter to install whatever is needed.

So, now we have discussed why install Ubuntu on a Mac, let's see how to actually do so.

Before beginning, the customary word of warning: we will be modifying extensively the computer's hard drive. Things can go wrong - not very often, but the possibility exists.

If you wish to retain Apple's OS-X just in case, you may be better off swapping the hard drive and using a second one - that way, you will always be able to come back to your original configuration if needed. Otherwise, make sure you

have the OS-X installation DVD handy. In any case, please do make sure you have your user data fully backed up, perhaps even in more than one place.

Running both OS-X and Ubuntu is possible on a Mac, using either Apple's Bootcamp or the open-source rEFInd boot menu software (<http://www.rodsbooks.com/refind/>) to switch between them at boot time. However, if we are installing Ubuntu on an older computer, its hard drive will probably be rather smaller than on more recent machines, and perhaps too small to comfortably fit both operating systems as well as user data.

Double-booting between the two operating systems is not something I would recommend as a first-time experience.

As you could imagine, the installation process is easy and painless. In the first place, we will need an install CD. For Ubuntu 13.10:

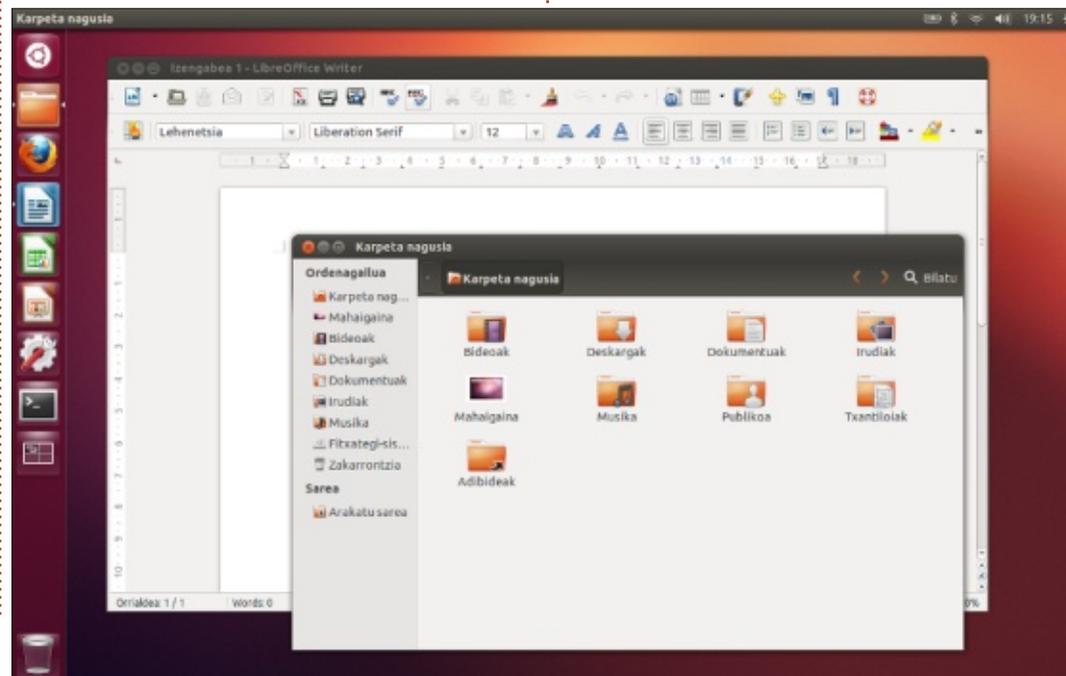
- for the PowerPC architecture (G3, G4 and G5 Macs), server ISO images are available at <http://cdimage.ubuntu.com/releases/13.10/release/>
- for the more recent Intel architecture (Macbooks and Macbook Pros since late 2006), 64-bit server and desktop ISO images

are available at <http://releases.ubuntu.com/saucy/> - choose the "amd64+mac" images for Intel Core Duo-based computers with 64-bit processors.

There are some models with early Intel processors that have only the 32-bit architecture. These include early 2006 Macbooks and Macbook Pros with the Yonah Core Duo. If you have one of these, you will need the Ubuntu i386 ISO images that support Intel 32-bit architecture. The more recent versions (since 2012) support the GUID Partition Table (GPT) disk tables used by Macs, though earlier versions may not.

I had an Ubuntu 12.10 CD from the Canonical shop lying around that I could throw at my mid-2007 white Macbook, the test machine. If you prefer using a USB stick you will find clear instructions at <http://www.ubuntu.com/download/desktop/create-a-usb-stick-on-mac-osx>.

With the CD inserted and the "C" key pressed, the BIOS reads in the CD and from that point onward the boot process is strictly as usual on Intel machines. If you are using a USB drive, you will need to keep



# HOWTO - UBUNTU ON A MAC

the “Alt” (“Option”) key pressed instead.

If you are using the original hard drive, it will probably already have a GPT partition table. Whether you are using a new hard drive or a recycled one, if it already contains a MS-DOS partition table you will need to create a GPT table instead. Simply boot the Ubuntu as a LiveCD, open a terminal and use the command:

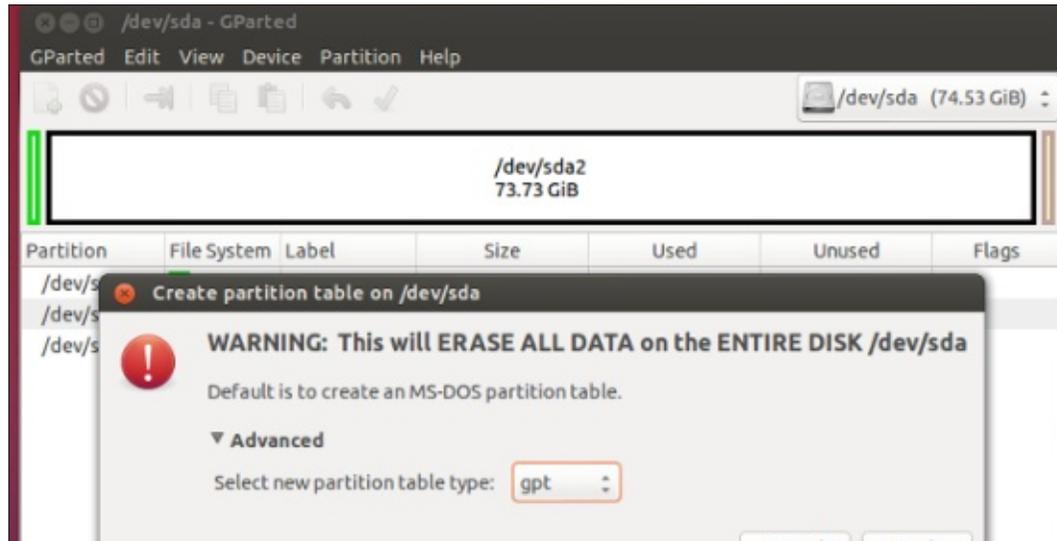
```
sudo gparted
```

to fire up the gparted disk configuration tool. The partition creation tool may be found in the Device menu.

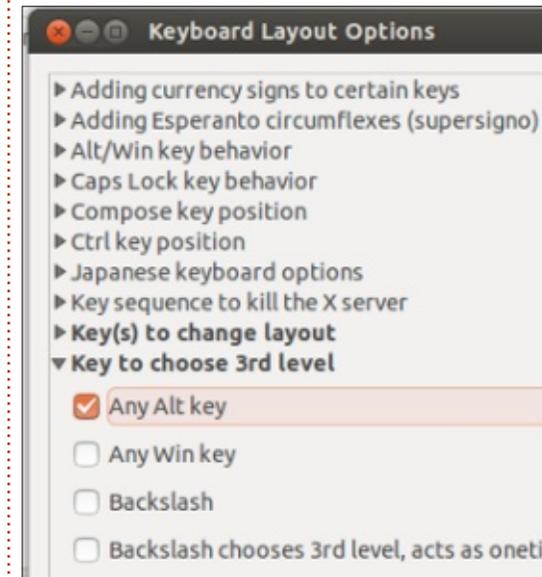
From that point onwards, you can start the installer and follow the usual process. The only point that needs attention is to choose the specific Mac keyboard, especially if you are installing on a Mac laptop without an external PC-type keyboard.

Once the computer has ejected the CD and rebooted, the system comes up and configuration may be performed in the usual way.

Several tweaks may be useful to

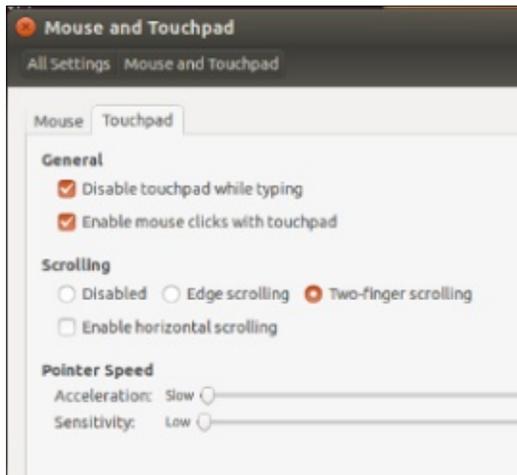


get the best out of the user interface. In the first place, keyboard symbols accessed through the “Alt” (“Option”) key do not work as expected by users of OS-X. This can be configured, through the System Settings > “Keyboard” application. At the bottom of this screen, choose “Options” to get to Keyboard Layout options, where you can choose which key combination activates the “3rd level” interpretation for each key: choose “Any Alt key” to replicate the normal Apple keyboard usage.



If you are using a laptop, the touchpad may, by default, not accept touchpad taps for mouse clicks, and may also use touchpad

side scrolling as on many PCs. This needs some additional configuration to work in the same way as under OS-X. While in System settings, you can go to the "Mouse and Touchpad" application, choose "Touchpad", and configure things the way you prefer. To replicate normal OS-X touchpad usage, choose "Enable mouse clicks" and "Two-finger scrolling".



Going with other variants of Ubuntu or simply installing other desktop managers is naturally also an option for those so inclined. On older computers, as always, Lubuntu or Xubuntu may come in handy to reduce desktop effects and speed up your workflow. On the other hand, Apple's hardware is known for using middle to higher-end graphics cards - compared to other offerings of the same age -

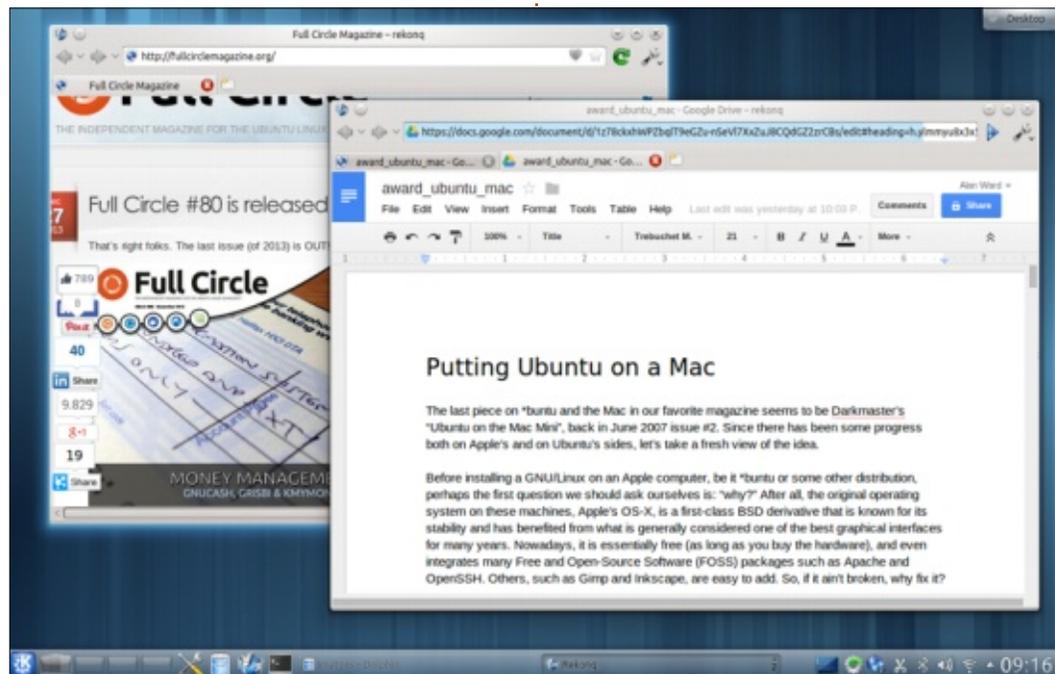
so installing Kubuntu with all the desktop effects activated is quite feasible. In such a case, however, you may be well advised to swap the existing hard drive for a newer model, an SSD if at all possible. The difference in drive access times will make for a noticeably more fluid interface.

If at any point you need help, there are several interesting articles on the Ubuntu wiki (<http://wiki.ubuntu.com>). The folks at the Mactel Support Team (<https://wiki.ubuntu.com/MactelSupportTeam/>) have also put together comprehensive documentation. Though it may

seem a little outdated (the last version mentioned is 10.04), please bear in mind that more recent versions of Ubuntu have progressively ironed out many of the technical difficulties that remained with Macs. The aforementioned GUID Partition Table and the companion EFI boot system, both used on Intel Macs, are now well-known in the GNU/Linux world due mainly to the appearance of Windows 8. However, this was not always the case in the first days of using Ubuntu on Macs.

As we have seen, putting Ubuntu (or variant) on a Mac is a

simple proposition nowadays. If you have a spare machine lying around, perhaps one that is no longer supported by recent versions of OS-X, why not give it a try?



**Alan** teaches computer science at Escola Andorrana de Batxillerat (high-school). He has given GNU/Linux courses at the University of Andorra and taught GNU/Linux systems administration at the Open University of Catalunya (UOC).



# HOW-TO

Written by Nicholas Kopakakis

# Blender Part 11b

After some days spent in hospital with a very good sample of pneumonia I am back on track and ready to talk about animation.

Animation is the process of creating a continuous motion and shape change by means of the rapid display of a sequence of static images that minimally differ from each other (source wikipedia.org).

But we, users of blender, are more interested in computer animation.

Once more we will trust Wikipedia for a description: Computer animation or CGI animation is the process used for generating animated images by using computer graphics. The more general term 'computer-generated imagery' encompasses both static scenes and dynamic images, while computer animation only refers to moving images.

A movie or an animation scene needs at least three things. A

camera, an object of interest, and, of course, a light source to illuminate the scene. If any of the values (position, rotation, shape, etc.) change through time, we can have an animation (or a movie). If none of the values change, we have a still image; however, this is not the point, so we will talk about changing the values of our objects through time. Lets jump to blender.

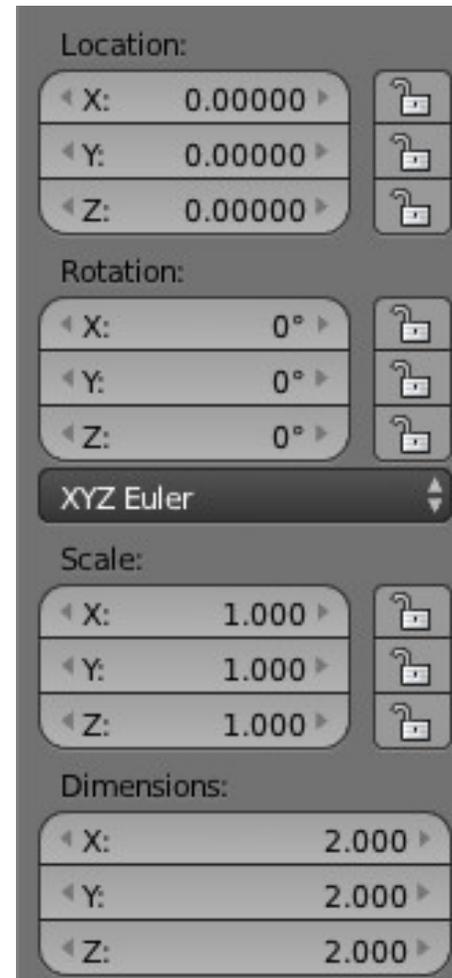
**Tip:** A new major, stable version of blender has just arrived so I suggest you grab version 2.70a. For the release notes and new features go to: [http://wiki.blender.org/index.php/Dev:Ref/Release\\_Notes/2.70](http://wiki.blender.org/index.php/Dev:Ref/Release_Notes/2.70)

Open up a new blender file.

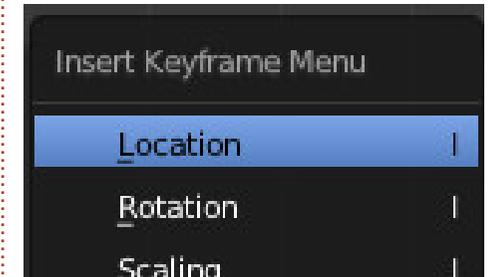
Press num-pad 3 to have side-view on your 3-d view window (in version 2.70a of blender, when you change to top, right or front view, automatically you are in an Orthographic view. If you change the view by moving your mouse holding down the middle mouse button you change the view to user

perspective view). Press the N key to bring up the properties window at the right on your 3-d view, if it is hidden.

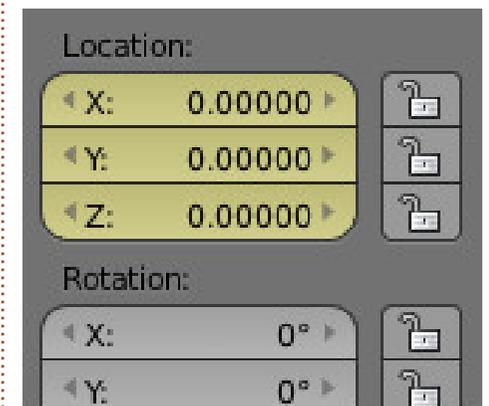
Check that everything on the properties panel looks normal like in the image below.



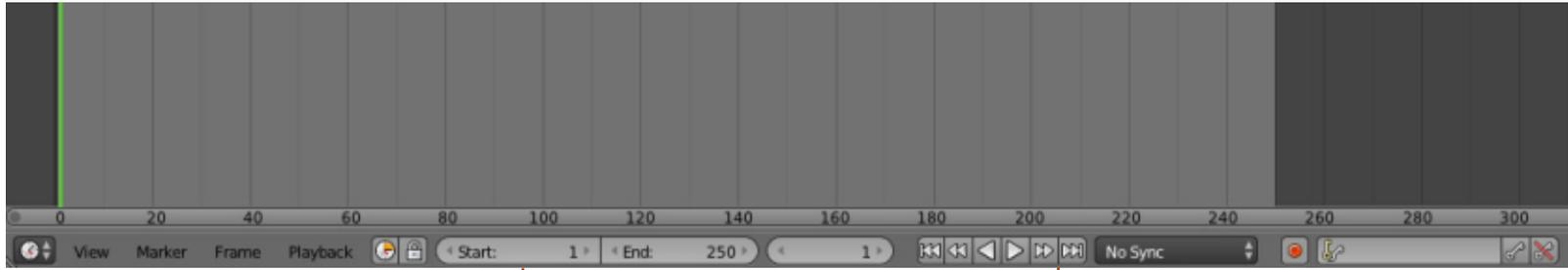
Select the cube and press the I key on your keyboard. A window pops-up titled Insert Keyframe Menu. Select Location.



Now check the properties window. It looks a little bit yellowed, as the image below. This indicates that we are on a key frame.



**Tip:** Key frame in animation and filmmaking is a point that defines the start and end point of a movement.



Now it's time to focus on another window in blender: the timeline window (shown above).

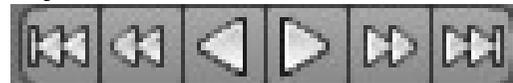
We haven't actually mention this window ever before but blender has it in its default setup. Why is that? Because time line is where all the movement (animation) is happening and creating just simple or complex static 3d-objects is not really so fun. Now, we are going to play with the 4th dimension. Time!

The green line indicates the frame that we are currently on. At the bottom of the timeline window, we can see three numbers which are (by default) 1 for Start, 250 for End, and right of the End is

the number 1. The last number is the current frame. Change that to 120 by clicking on it or by clicking on the timeline.

Back again to the 3D view window. Move the cube around and when you are satisfied with its position hit the I key and select Location to set a new location key frame.

Back to the bottom of the timeline window. Right after the current frame we have the set of keys.

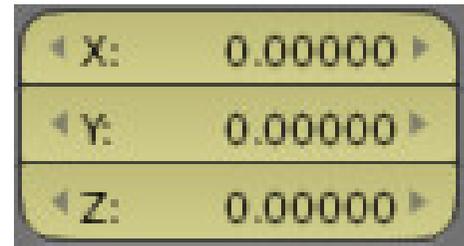


From left to right we have: Jump to the first frame, Jump to the previous frame, Play

backwards, Normal play, Jump to the next frame, and Jump to the last frame.

Let's hit the right-most key to jump to the last frame. On the properties window set x, y, z values to 0. The cube returns to its initial starting position. Hit the I key and select Location to set a new location keyframe.

Now press the first of the six

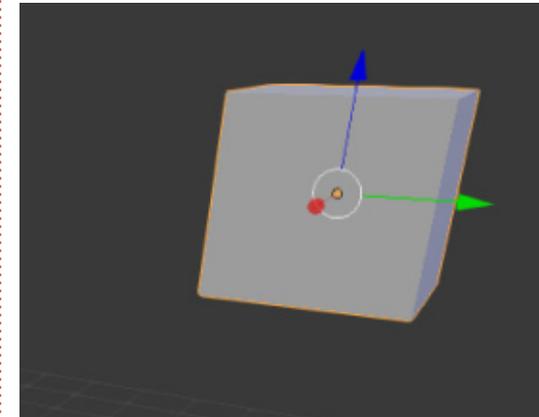


buttons to Jump to the first frame.

Back to our 3d view window. Adjust the view to have a good look of your scene.

Press the play (fourth) button. The cube starts to move.

This is your first animation.

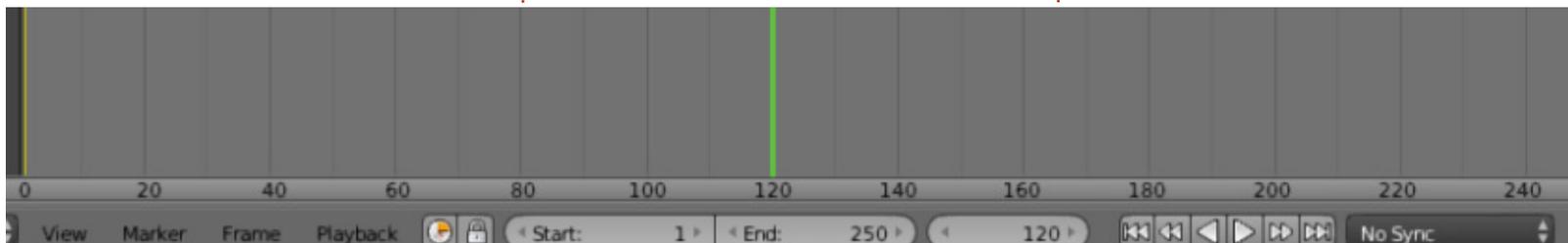


Now that we know the very, very, very basics of animation, we are ready to create interesting animation movies.

To be continued...



**Nicholas** lives and works in Greece. He has worked for a post-production house for several years and migrated to Ubuntu because "it renders faster." You can email him at: [blender5d@gmail.com](mailto:blender5d@gmail.com)





# HOW-TO

Written by Mark Crutch

# Inkscape - Part 24

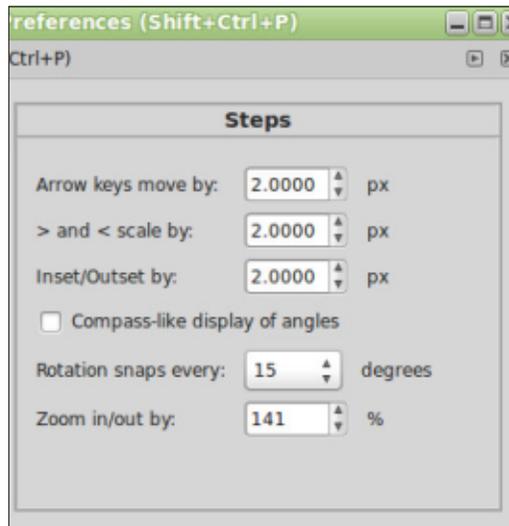
Next in my collection of “Inkscape tools I rarely use” is the zoom tool, or magnifying glass. At this point some of you may be wondering how I manage to use Inkscape without using the zoom tool, but the truth is that the program offers so many other ways to zoom that, although I'm constantly zooming in and out, I never actually use the tool that's dedicated to the task. Let's look at what the tool can do first, before examining other ways to zoom that may mean you never use it again.



You can activate the zoom tool by clicking on the icon in the tool palette, or by pressing either of two keyboard shortcuts: F3 or Z.

Once active you can zoom in simply by clicking within the drawing area. To zoom back out again, hold Shift while you click. The amount by which you zoom in or out is fixed as a percentage in the Steps pane of the application preferences (File > Inkscape Preferences). By default, it is set to 141%, although Inkscape does round the actual zoom amount a little so that zooming up

from 100% follows a sequence of 100% > 141% > 200% > 283% > 400% > 566% > 800% and so on. With this value zooming in twice approximately doubles the percentage zoom factor, but you can change the preference to something else if you wish.



Alternatively – and this is probably the best way to use the zoom tool – you can click and drag to define the area you want to zoom into. Inkscape's view will be adjusted so that the rectangle you've dragged is fully enclosed in the window. By dragging towards the edge of the drawing area this feature therefore works as a



combined zoom and pan in one operation.

That's it for the zoom tool. Two ways to zoom in (click, or click-drag) and one way to zoom out (Shift-click). Admittedly there are some buttons on the tool control bar, but they don't actually have any effect on the zoom tool itself. Instead they just provide a few useful zoom levels that are also available via the View > Zoom menu, even when you haven't got the zoom tool selected.

The icon theme used on my Linux Mint box mixes the styles of the icons somewhat – on other systems the first three buttons are often styled as magnifying glasses in the same way as the remaining images. Regardless of the icons used, the functionality remains the same. Dealing with each button from left to right – or top to bottom if you're looking at the View > Zoom menu – the functions are as shown in the table below:

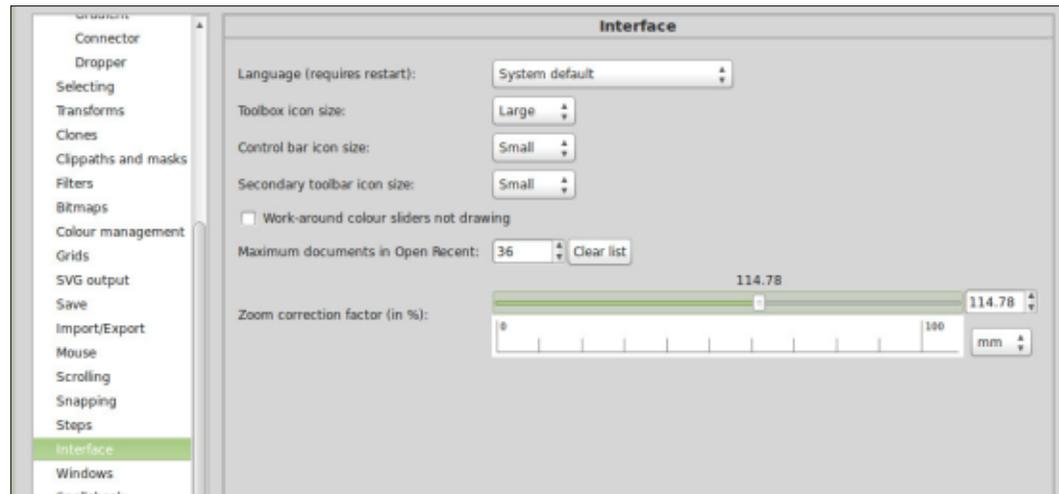
The Zoom In and Zoom Out options are fairly self-explanatory:

Title	Keyboard Shortcut	Description
Zoom In	+ or =	Zoom in by one step
Zoom Out	-	Zoom out by one step
Zoom 1:1	1	Zoom to 1:1
Zoom 1:2	2	Zoom to 1:2 (half the zoom level of 1:1)
Zoom 2:1	No Shortcut	Zoom to 2:1 (double the zoom level of 1:1)
Selection	3	Zoom to fit all the selected objects in the window
Drawing	4	Zoom to fit all the drawn objects in the window
Page	5	Zoom to fit the whole page in the window
Page Width	6	Zoom to fit the width of the page in the window
Previous Zoom	`	Change to the previous zoom in the history
Next Zoom	Shift-`	Change to the next zoom in the history



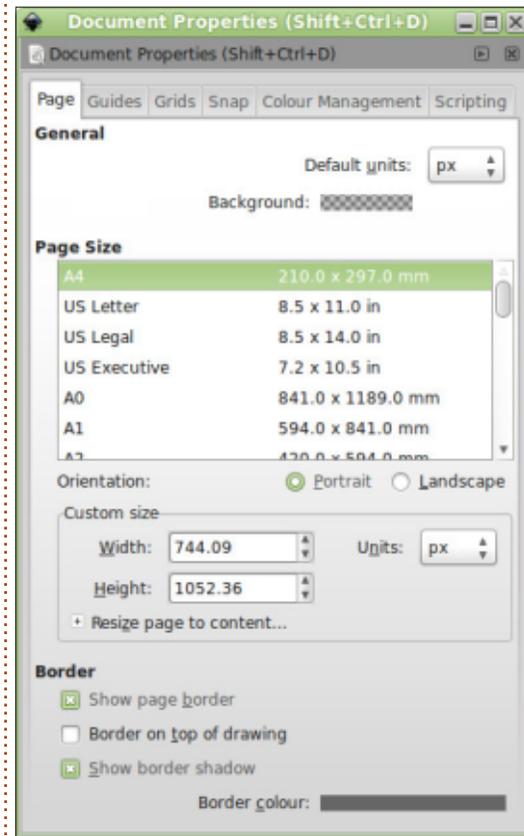
they're the same as clicking or Shift-clicking with the zoom tool, except that they are centered around the middle of the visible part of the canvas, rather than around the mouse pointer.

Zoom 1:1 might initially suggest zooming to 100%, but that's not the case. What it actually does is zoom so that Inkscape's internal pixel size is represented by a single pixel on the screen – so something drawn as 300px wide will actually take up 300 pixels on the monitor. This can be used so that objects drawn using real-world units, like millimetres and inches, will appear at the correct size on the screen. For it to work, however, you need to calibrate Inkscape to your screen using the File > Inkscape Preferences > Interface pane. Find a small ruler and set the units pop-up to match. Then hold the ruler to the screen and adjust the slider until the on-screen measurements match the graduations on the ruler. It's a fiddly process, but usually only needs to be done once. Be aware, though, that it just calibrates Inkscape to that one monitor – if you replace it, or have a multi-monitor setup you will need to go through the process again when you use Inkscape on a



different screen.

The Selection, Drawing and Page options are also permanent features of the “commands” toolbar, so, assuming you have that visible, there are three more reasons why you may not need the zoom tool. Zooming to the current selection is clear enough, but what's the difference between Drawing and Page? Drawing refers to the extent of all the objects you've drawn. It could be smaller than the page size, or bigger if you've created or dragged any shapes beyond the page's boundary. Page is the area that's defined in File > Document Properties, and is usually displayed as a rectangle with a drop shadow in the background of the canvas –



although both the rectangle and shadow can be turned off in the Border section of the Document Properties dialog, if you prefer.

Inkscape keeps track of each zoom level you change to, and the last two commands let you cycle back and forth through this history. The keyboard shortcuts use the backtick key, which isn't commonly used by most people – if you have trouble finding it, it's usually at the top left, just before the number keys.

It's worth noting that all these keyboard shortcuts are global: you don't have to use the zoom tool for them to work. So not only can you access all these zoom options from the View menu at any time, but also just by pressing a few keys.

But that's not all! There are yet more zooming shortcuts that really make the zoom tool redundant if you can remember them.

The tool lets you zoom in by clicking somewhere in your drawing, but you can achieve the same effect without switching tools just by clicking with the middle mouse button or scroll wheel. Zooming out, as you may

guess, is achieved by Shift-clicking the middle mouse button or wheel. And how about the zoom tool's one useful ability: dragging a rectangle to define a zoom area? Just hold shift and then click-drag with the middle mouse button instead.

As you can see, there's not a single function of the zoom tool that isn't also available globally when you're using other tools. Switching back and forth between tools slows down the drawing process, so by learning some of these shortcuts you'll change tools less, and speed up your work.

There are two more zoom shortcuts that are well worth remembering. I introduced the first one way back in part two of this series, but it bears repeating once more. It's the way that I usually zoom in and out, and I've always found it to be the fastest and most convenient option if you're using a mouse with a wheel. Just hold down the Ctrl key and roll the mouse wheel to make Inkscape zoom in and out, centered on the mouse position. When coupled with a click-drag of the wheel to pan the canvas you can move around your drawing extremely

quickly.

If you've come to Inkscape from some other vector graphics program, you may be used to the wheel controlling zoom without any additional keyboard modifiers. If you prefer this way of working, you can change Inkscape's behaviour via the Scrolling pane of the Inkscape Preferences dialog. Check the "Mouse wheel zooms by default" option to enable this mode, which also has the side effect of mapping Ctrl-wheel to panning the canvas up and down.

The last zoom shortcut is the Q key, which activates Quick Zoom mode. It's quick because the zooming is only temporary: when the key is released Inkscape will go back to the previous zoom level. It's particularly useful for making minor changes to an object, or having a close-up look at it without losing your current context. With no objects selected pressing Q will double the current zoom level, centered around the middle of the visible canvas area. Pressing and releasing this shortcut is like pressing the "+" key twice to double the zoom, followed by the backtick key twice to revert to the previous zoom level. With objects

selected, it behaves similarly to the Selection zoom described above, in that the canvas will be zoomed and panned to ensure that the selected objects fill the screen. Pressing, then releasing, the Q key is therefore similar to pressing "3" followed by the backtick.

A quirk of Inkscape's input focusing code affords the Quick Zoom shortcut another little feature. Press and hold Q to zoom in, then move the mouse outside the canvas area, onto a toolbar or even outside the window entirely. Releasing the Q key now will leave Inkscape "stuck" at that zoom level even when you move the mouse back in. Essentially the canvas is waiting to receive a message that the Q key has been released, but it's a message that's already been sent and lost to another part of the interface. You can now make your edits without the difficulty of holding the Q key down at the same time. And when you're done? Just press and release the Q key within the canvas area once again. It won't zoom in, as the program still thinks the key is already pressed, but it will finally receive the release message it's been waiting for, and put you back to your previous zoom level.

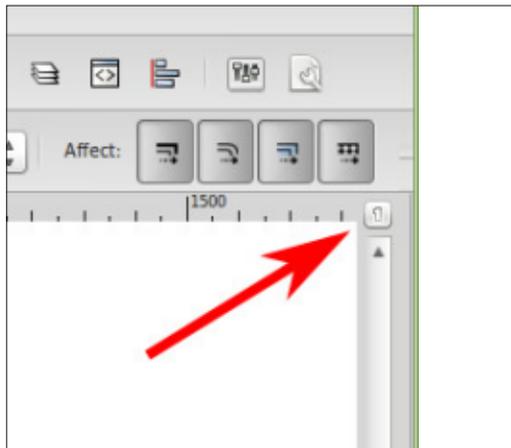
Keeping track of the specific zoom level isn't usually an issue, as you can orient yourself by the objects in your drawing. If you do want to see the value, though, the right hand side of the status bar holds a zoom spinbox (originally introduced in part three of this series). You can focus it by pressing Alt-Z, then type in a zoom level or use the context menu to choose a few sensible defaults – including yet another way to select Page, Drawing or Selection. I suppose that might be useful if you've hidden the "commands" toolbar, can't remember the keyboard shortcuts, don't want to switch to the zoom tool and can't find the View menu because your Ubuntu Unity or MacOS interface has moved it way up to the top left of the screen while your mouse is at the bottom right.



I'll round off this article with the last zoom related feature in Inkscape that I know of. By default, resizing the Inkscape window doesn't affect the zoom, it just reveals or hides more of the canvas area. But there's a small toggle

## HOWTO - INKSCAPE

button just above the vertical scroll bar that can be used to change this behaviour. Toggling it on will cause a change of the zoom value when the window is resized, so that it still shows the same content but at a larger or smaller scale. It uses the same icon as the 1:1 zoom button, looking like this on my Mint system:



If you prefer the behaviour when it's on – the zoom changing as the window is resized – you can set it as the default in the Windows pane of the Inkscape Preferences dialog. The option is towards the bottom of the pane, and is labelled as “Zoom when window is resized”. Regardless of the default value, you can still use the toggle button to change it on a per-window basis if you want to.

Inkscape is so replete with shortcuts, icons and menus for zooming that you may never need the Zoom Tool again. But if you struggle to remember keyboard shortcuts or menu locations, then it does at least provide a visual grouping of most of the main zoom options, so go ahead and use it if you prefer. If there's one thing the Inkscape developers offer in abundance it's choice, so go ahead and choose the approach that's best for you.



**Mark's** Inkscape created webcomic, 'Monsters, Inked' is now available to buy as a book from <http://www.peppertop.com/shop/>

## PYTHON SPECIAL EDITIONS:



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## 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 :

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### 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.**





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# ASK THE NEW GUY

Written by Copil Yáñez

Hi, everyone! Welcome back to Ask the New Guy!

If you have a simple question, contact me at [copil.yanez@gmail.com](mailto:copil.yanez@gmail.com).

Today's question is:

**Q: I have a DVD of *Brozen* that my kids watch so often, I'm afraid it's going to wear out. How do I make a backup copy just in case?**

**A:** I loved *Brozen*, the totally non-existent, non-infringing movie I just made up about two bros living in a frozen kingdom with their magical snowman, Aloof!

Like you, my kid is wearing a hole in the DVD. In my case, though, it's because he keeps trying to watch it by scraping it along the floor under his shoe. Is that the same problem you're having? No? Well, no matter. I think we're after the same solution.

But first, a word about piracy. I am a firm believer that artists should be paid for their work. The

specific scenario I'm talking about here involves making a backup copy derived from a legally purchased DVD. Everyone's butt covered now? Go ahead, I'll wait while you check. Good, let's move on.

Now, if you've read any of my past answers, you'll know I tend to muck my way through tutorials like a 70's swinger might organize his first party: in a haze of confusion, shame, weird stains you can't account for, and lots and lots of screaming. This time is no different. So toss your keys into that fishbowl over there, and let's jump right in!

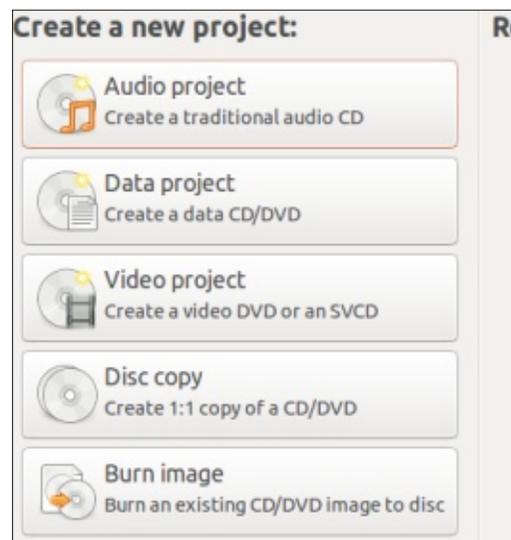
First stop, Google. I type in "make backup movie dvd ubuntu." Of the hits that come back, a lot of them reference Brasero, so I go looking for that in the Unity search box.

One of the things I love about Ubuntu is that it lets me work the way my mind does. I tend not to keep a lot of things in memory if I'm not going to use them regularly.

I like to save that space for my astronaut erotica. Can you even imagine the stuff you could do in zero-g? Now you don't have to.

Anyway, the Unity search field lets me forget where all those programs and files that I use once in a blue moon are located. Instead, I just type in what I'm looking for, and get what I need quickly. As it turns out, Brasero has been a default program in Ubuntu for quite some time, so when I type it into the search field, it comes up instantly.

The Brasero menu is pretty straight forward:



You can burn music, video and data to a CD or DVD. For our purposes, we want to make a 1:1 copy of a DVD, so we select Disc Copy. In the window that pops up, you can select your disc in the top pull-down menu.

For some reason, the Brozen name wouldn't appear in the upper pull-down until I removed the DVD and reinserted it (which apparently is the DVD player equivalent of jiggling the key in the lock to get it to work).

In the bottom pull-down menu, you'll select where to put the backup copy you're creating. If you want a hard copy backup, obviously you'll need a DVD writer.

I have a DVD writer, but no DVDs handy. Honestly, I actually despise physical media. I can't stand that we have to go "places" to "get" movies and music. There's always so much sun and fresh air involved (\*shudder\*). That was the Blockbuster model, and I'm still bitter about the HUNDREDS of dollars I spent in late fees with

them. This is the 21st Century! If I can't have a digital file flung at my IP address at the speed of light, then the DVD better be delivered by a sentient artificial intelligence that will make popcorn for me and put the DVD into the tray (neither of which I have the patience or intelligence to do myself).

Since I have no DVDs right now, I select "Image File," which is an ISO file, similar to the files you burn to DVD and use to install Ubuntu. Now click on "Properties" and tell Brasero where to put your newly burned ISO file.

All set? Okay, click "Create Image" to make your Brozen ISO. What's it doing now? I don't know. It's magic to me, and I half expect a genie to pop out of my computer and present me a bill for all the wonderful stuff he's been doing for me all these years. Also, he'll be blind because of what he's seen. Sorry, genie dude.

Anyway, you'll see the progress as your ISO file is created. When Brasero finishes sacrificing goats to the Norse God of DVD burning, or whatever it does to give me what I want, you have a new ISO file. You can now turn around and burn a

new DVD using that file. You could have done this all in one go by selecting the DVD burner as the "destination" folder in the last step. But with the ISO file, you can store it on your computer and then make a hard copy when you need it. Let's do that now.

Take out the original DVD and put in a blank disk. Click on the Brozen.iso and select "Burn image to disk." In the top menu you'll select the ISO image you just created, and in the bottom menu you'll choose your blank disk. Click "Create Image" and Bob's your uncle!

When Brasero is done burning you a shiny new DVD, put that bad boy in a safe place for when the inevitable happens and your DVD ends up coated in peanut butter and cracked in three.

That's pretty much it! But you probably want to double-check that your video plays back without any glitches (slowing down the burning speed via the "Properties" menu before you burn the DVD will help with this). To check the playback, fire up VLC, a robust media player that plays just about every format known to humanity.

Unlike Brasero, VLC isn't installed by default, but you can find it in the Ubuntu Software Center.

Once you have VLC running, go to the "Media" menu. If you're checking the hard copy DVD, select "Open disk" and navigate to the DVD in your DVD player. If you're checking your ISO file, select "Open file" and select your ISO. In either case, if everything worked properly, playback should begin shortly!

One last step to keep everything as neat and tidy as possible. And by neat and tidy, I mean legal. Or (if you're in America) as legal as possible given conflicting legal guidance on the issue.

Find the digital ISO file you used to create your DVD. Delete that file (making sure to empty the trash so it's no longer available on your computer). The only copies you should have now are your original purchased DVD and the "archive" copy that goes into storage with the old snow tires you never got around to putting on your car and now it's Spring.

A dark day will come, my friend,

when the kids are screaming for that adorkable snowman that bears absolutely no resemblance to the snowman from a completely different movie with a similar name, but isn't the same because I just told you it wasn't. Anyway, you'll open the Brozen DVD case to find shards of what used to be a playable disk. As they cascade through your fingers like so many digital snowflakes, you'll remember that tiny moment of lucidity when you made a backup copy.

Now go ahead and enjoy Brozen, the charming story of a bro looking for lost love, and another looking for lost beer. Or something. I usually nap when the kids are watching a movie.

Good luck, and happy Ubuntuing!



**Copil** is an Aztec name that roughly translates to "you need my heart for what again?" His love of women's shoes is chronicled at [yaconfidential.blogspot.com](http://yaconfidential.blogspot.com). You can also watch him embarrass himself on Twitter (@copil).





As a computer refurbisher, I work with used equipment. In fact, until December of last year, I worked almost exclusively with used equipment. I say almost because I bought a new fanless PCIe video card and 2TB hard drive for our XBMC media center over the past couple of years. December marked the first time since 2001 that a system I built contained almost all new parts - and what a difference!

The system I built contains: an AMD A8-5600K 3.6GHz Quad-Core Processor (overclockable to 3.9GHz), a Gigabyte GA-F2A85XM-D3H Micro ATX FM2 Motherboard, G.Skill Ripjaws X Series 16GB (2 x 8GB) DDR3-1866 Memory, an Antec Three Hundred Two ATX Mid Tower Case, a Corsair 430 watt power supply unit, and the single used part a 250GB Seagate Hard Drive.

Compared to the Core 2 Duos and my lovely wife's AMD AM3+ quad core from several years ago, the new system is a dream. An average DVD rip+encode takes

about 13-15 minutes. I can actually open 5 or 6 photographs in GIMP without waiting and waiting. Best of all, it's one of the quietest systems we have in the house.

It's been a busy several months at home and work, so I never really got much of a chance to tinker with the new system other than putting Linux Mint 16 Cinnamon 64-bit on it and doing a few small tasks. Over

the past several months, I've been finding small annoyances with Mint, so I decided to check out some other Linux distributions, the first of which was PinguyOS.

PinguyOS claims it's designed to "look good, work well, and, most importantly, to be simple to use." The PinguyOS website suggests that it's designed to appeal to people who are new to the Linux

world. I'll let you decide whether the claims are true after reading my experience with it.

I chose to boot the live environment before installing. PinguyOS booted up just fine except it detected my screen as if it was a 1440x1024 (a weird resolution). I had to mouse around to access all areas of the desktop. During the install I also had to replug in the receiver for my wireless keyboard, which stopped working the moment the PinguyOS Live DVD loaded.

Once I installed the proprietary drivers, things looked and worked at a normal 1920x1080 resolution. PinguyOS looks pretty cool - there are 2 docks, one on the left and one at the bottom (Docky), plus Conky on the right side of the screen for loads of system information. PinguyOS uses Webilder, a program that changes wallpaper from Flickr based on tags (or Webshots based on a webshots account) so the wallpaper is changing constantly. The default Conky theme looks



good and is well implemented.

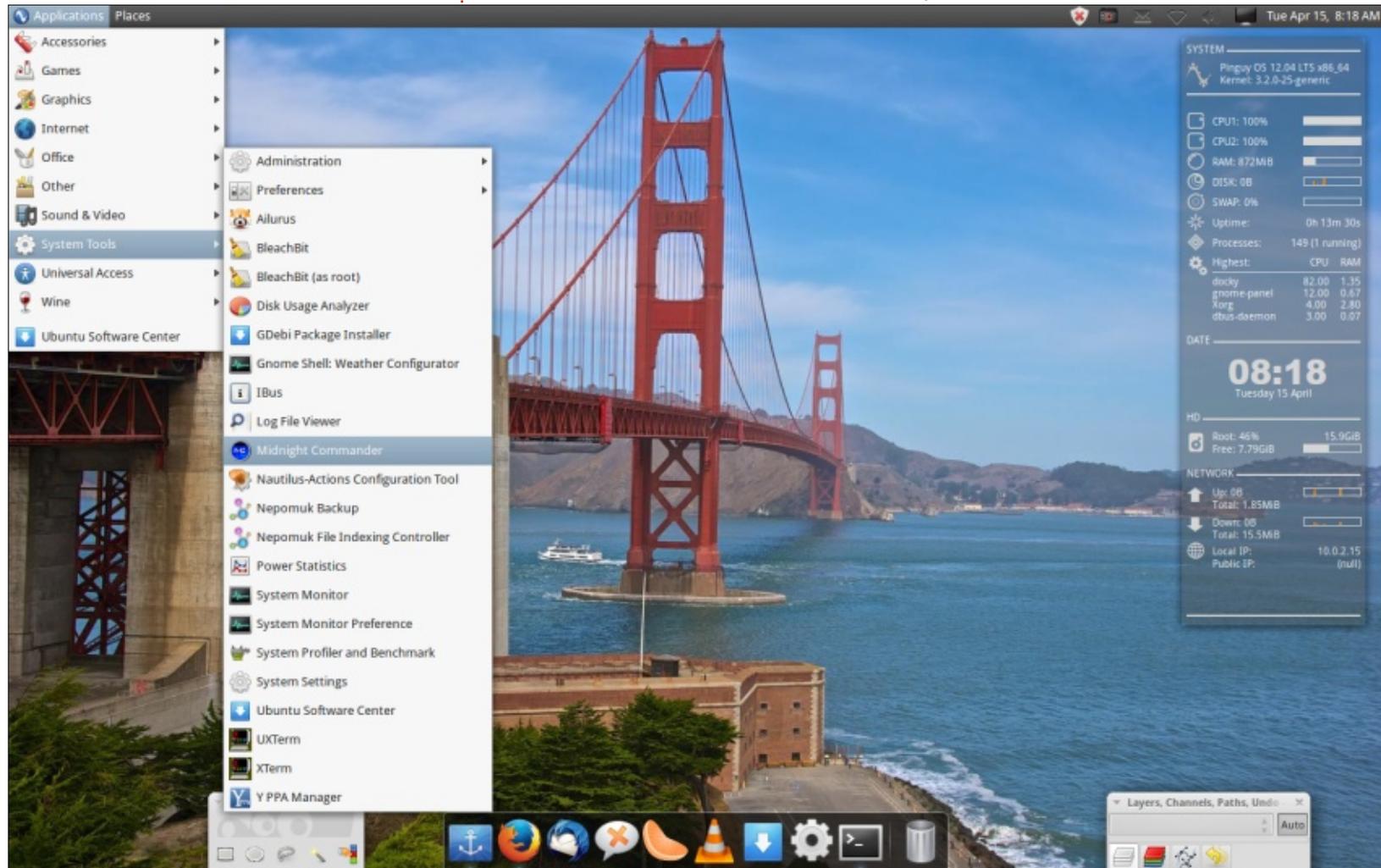
PinguyOS 12.04 (the version available on the web site downloads section) included the broken/defunct mediabuntu repository. It also included a repository with an invalid/mismatched security certificate. This wouldn't be a big deal for someone with Debian/Ubuntu experience, but new users might get frustrated trying to understand why their Linux updates are broken. Another annoyance was the amount of network traffic (which ironically was more pronounced thanks to the cool looking conky setup). Imagine for a second those limited to using a pay-per-gigabyte connection limited to so many gigabytes; extra traffic isn't what these people want/expect.

I decided to look into the network traffic problem and pinned it down to webilder downloading images and the fact I had Firefox open. You might think, okay what's the big deal unless you're streaming a video? The big deal is the Extensions, no less than: Adblock Plus, the British English dictionary, DownloadHelper, Download Statusbar,

DownloadThemAll, Email This, Flash Aid, Novell Moonlight, Plaintext Links, Rehost Image, Resurrect pages, Search Preview, Shareaholic, SkipScreen, Speeddial, Ubuntu Firefox modifications, YoutubeIT, and Addon Compatibility add-ons were installed. This doesn't even include the plugins which include: the DivX

plugin, Gnome Shell integration, the Google Talk plugin, a video accelerator for Google Talk, the IcedTea plugin, MozPluggler, geko-mediaplayer, the QuickTime and Realplayer plugins, Shockwave Flash, and finally a Windows Media player plugin. Did I mention the included Firefox was version 13.0.1?

I know the feeling of wanting to help new computer users. There was a time when our organization put together systems and installed lots of "useful" extra software (SuperTux 2, LinCity, half a dozen other games, plus a dozen other programs). What we found out after several months was that the software tended to slow the



systems down more than it helped people discover useful FLOSS. The Drupal CMS mantra of not going crazy with modules seems to apply equally when installing software or plug-ins. It might be nice to have that extra functionality, but you risk performance.

The same rule applies to the interface. Docky looks great, but it crashed a lot while I was doing normal work. I might expect this kind of behaviour on a machine with low resources, but not on something with a fair amount of CPU power and 16GB of RAM. Yes, I only had to run Docky to get the docks back, but who wants to do that six times in an hour?

The upside of PinguyOS is the impressive collection of interesting software. The games menu is sparse but includes djl and PlayOnLinux, a wine front-end to help play Windows games on Linux. I tried Diablo III and it failed to install. This is by no means the fault of PinguyOS, but I can see some users getting frustrated at this point.

The graphics menu includes several programs including DiscWrapper (a cover designer for

discs), Evince document viewer, LibreOffice Draw, a viewer for SONY ebook files, Pinta image editor, Rapid photo downloader, Shotwell (for organizing photographs), Simple Scan (scanning), and Webilder desktop. If you're used to Ubuntu and Mint, these choices are a pleasant deviation from the typically installed applications. I missed GIMP, but checking out Pinta made me think again about what to install as an image editor. GIMP still feels more polished, but Pinta looks good too. I liked the fact that PinguyOS includes software I don't regularly use. While I'm not fond of the webilder software it's one more tool in the arsenal of tools when someone asks me "how can I automatically change my wallpaper in Linux?"

The Internet menu also boasts an impressive array of software including: Deluge Bittorrent client, Desktop Sharing preferences, Dropbox, Empathy (instant messaging), Firefox, Gwibber, Mumble, PS3 Media Server, Remmina remote desktop client, Skype, Teamviewer 7, Thunderbird mail client, and Xchat. I'm not trying to slag PinguyOS but if you're at all concerned about

privacy, you probably don't want to run either Dropbox or Skype. Also, in my experience, Teamviewer only tends to work with clients using the same version of Teamviewer. Teamviewer 9 is the current version. I didn't test to see if version 7 worked, but I expect it likely does – provided you connect to other version 7 clients. Missing from the Internet menu is an FTP client. Firefox, Gwibber and Empathy are all pretty standard choices and I always install Remmina on any machine, it's a great choice for a remote desktop client. PS3 media server is useful if you want to stream your media to DLNA/UPnP clients (XBMC or UPnP software on a tablet for example).

The office menu includes Calibre ereader, Evince document viewer, the standard LibreOffice software, and wxBanker Finance Manager. WxBanker is sparse compared to GNUCash, but I like the fact that it's something I might have not checked out normally.

I was surprised to see Lightscribe software included in PinguyOS. This isn't the text-only Lightscribe software, but a version that lets you burn pictures plus text on Lightscribe CD/DVDs

(provided you also have a Lightscribe DVD-Writer). Very cool.

The sound and video menu includes Arista transcoder, Brasero disc burner, Cheese photobooth, Clementine music player, DeVede DVD/CD creator, gtkpod for downloading from iPods, Handbrake video encoder, OpenShot video editor, PS3 media server, Sound recorder, VLC and XBMC. When I put a DVD in, PinguyOS prompted me to select the software to open the DVD with. I chose VLC and the DVD displayed for a brief moment before returning back to the VLC interface. I know enough to run `/usr/share/doc/libdvdread4/install-css.sh` (to install DVD decryption software), but new users whom PinguyOS is targeted at may not. I also needed to choose the correct device for my Bluera player (`/dev/dvd` doesn't work). Of course, distributions like Ubuntu are no different in this respect, but, after I installed libdvdcss, VLC behaved really badly when I tried opening one disc.

Deleting the `.config/vlc` and the `.local/share/vlc` folders didn't seem to fix the problem. I thought like a Windows user would, and tried

rebooting. None of these solutions solved the DVD playback problem. I haven't had a problem with VLC on other distributions. When VLC didn't work for me I thought I'd try some of the other sound and video applications. Cheese also had issues, it didn't detect the Logitech webcam I was previously using with Cheese under Linux Mint. I wish I could say these were the only problems, but after opening a few programs, conky was showing the CPUs at 100% usage and PinguyOS was working sluggishly.

Like the other menus, the system tools menu shows a lot of programs installed. Again, I like the effort undertaken to provide some interesting tools. I've heard of, but not used Bleachbit before. Bleachbit clears cache files, temporary files and discards various junk files. There are approximately 17 tools (excluding the sub-menus).

PinguyOS uses Ubuntu Software Centre as the graphical package manager and Linux Mint Updater to handle updates. I like the choice of Mint updater since it lists the severity of each update. The Ubuntu Software Centre worked without a hitch, but, as I

mentioned before, Mint Updater had some issues because of the broken repository and the repository with an invalid security certificate.

Forums for PinguyOS are located at: <http://forum.pinguyos.com/>. New users might look to forums for answers, but as a refurbisher who has worked with a lot of new Linux users, it's less likely – unless the person has a lot of interest in the system itself (most just want things to work). PinguyOS also maintains an IRC chat channel #PinguyOS on FreeNode.

So is PinguyOS just another abandoned distribution? Absolutely not, the latest from the PinguyOS blog shows work done on version 14.04. The blog also shows work done for version 13.10, but the downloads page shows only 12.04. Even with updates, PinguyOS 12.04 seems to be less stable than running Xubuntu or Linux Mint. Given my experience, going crazy installing gobs of software on systems before I know some things are going to be broken.

There are lots of cool things to

be said about PinguyOS, the software selection is great, the look is cool, and it's pretty complete as a desktop distribution. But to me the stability issues (dockey, vlc), broken repositories, lack of support for my common webcam under cheese, and resource hogging (100% CPUs, extra network traffic from webilder and Firefox plugins) detract from the overall usefulness of PinguyOS as a new user distribution. Don't get me wrong, I think PinguyOS is pretty cool, but I wouldn't use it as my default distribution. My search for a new distribution continues...



**Charles McColm** is the author of *Instant XBMC*, and the project manager of a not-for-profit computer reuse project. When not building PCs, removing malware, encouraging people to use Linux, and hosting local Ubuntu hours, Charles blogs at <http://www.charlesmccolm.com/>.



## EXTRA! EXTRA! READ ALL ABOUT IT!

Our glorious news reporters are now posting regular news updates to the main Full Circle site.

Click the NEWS link, in the site menu at the top of the page, and you'll see the news headlines.

Alternatively, look on the right side of any page on the site, and you'll see the five latest news posts.

Feel free to discuss the news items. It's maybe something that can spill back from the site into the magazine. **Enjoy!**



# REVIEW

Written by Ronnie Tucker

# Arduino Starter Kit

I've always loved electronics. I did a couple of years of it at college before moving on to other things, but every now and then I keep going back to it. Recently, I've been bitten by the bug again and I got out the power supply, breadboard, resistors and multimeter to have a tinker. This time, however, I decided to take the plunge and get either an Arduino or a Raspberry Pi. The Pi seemed like overkill to me. I'm not interested in a mini-computer. I just want something that I can easily control, so I went for the Arduino (Uno) Starter Kit.

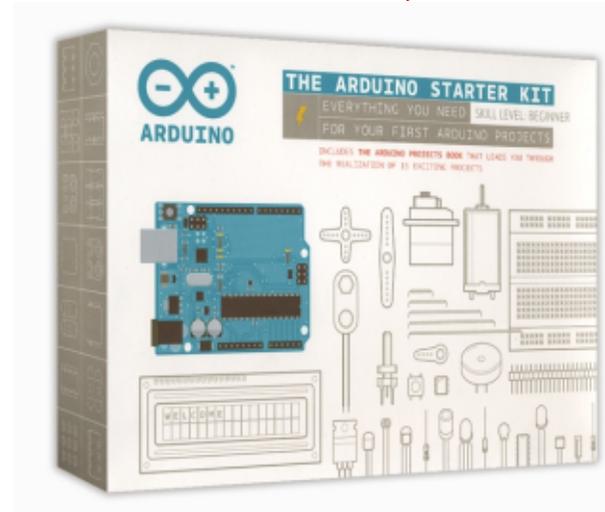
The Starter Kit includes everything you need to complete over a dozen Arduino projects. All the projects are in the Arduino book, which is in the box, with the code being in the book also, but available in the IDE (more on that soon). The box has an impressive amount of pieces. Everything from resistors, capacitors, and transistors, through to an LED screen and even a nice wooden mount for your Arduino and (supplied) breadboard.

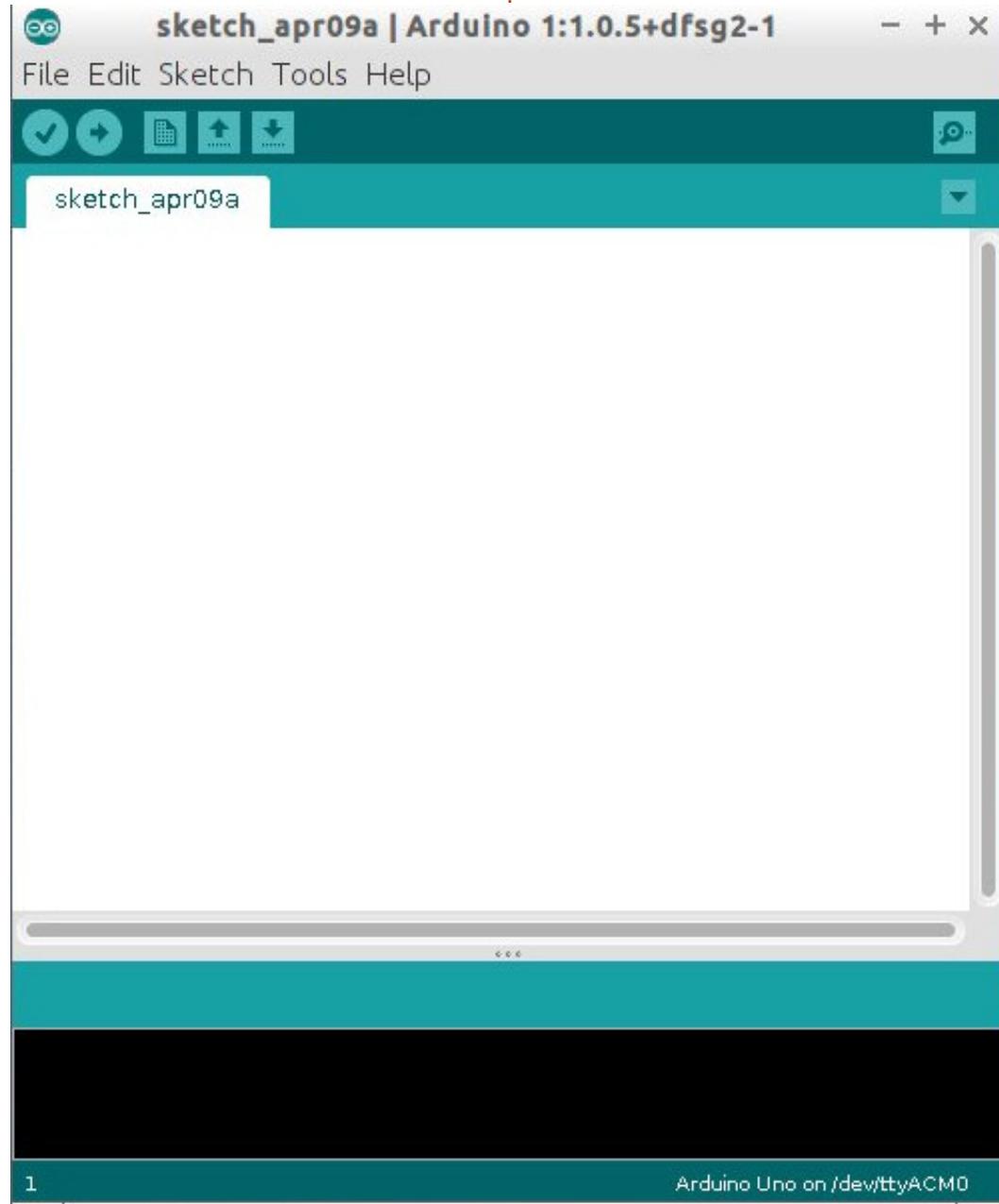
It doesn't matter how tiny someone tells you the Arduino is... it's not until you see it in the flesh that you realize that it's about half the size of an iPhone/Nexus 5. About the size of a small Post-It notepad.

The whole idea behind the Arduino is that you can hook electronic components up to it, and then, by running some code, you can control those components. Clumps of saved Arduino code are called 'sketches'. These are prepared using the Arduino IDE – which can be downloaded to your desktop/laptop either from the Arduino site or via your package manager using:

```
sudo apt-get update && sudo apt-get install arduino arduino-core
```

You write your 'sketch' in the IDE, then click the 'send' button (the right arrow icon, beside the tick mark). The code is compiled (you see a progress bar), transferred to the Arduino, run on it, and the results are there for all to see.





The supplied projects range from simple (flashing LEDs) through to the more complex ones such as the touchy-feely lamp which requires you to touch a piece of tinfoil.

At almost £70 (€80), the Arduino Starter Kit may seem pricey, but, for what you get, it's great value for money. The packaging is high quality and very well done. The book has a nice embossed cover, colour throughout; diagrams are very well done (both circuit diagrams and how things should be laid out on the Arduino and breadboard), and written in an easy-to-follow manner. The Arduino board itself is very well made, and with a nice white underside with the Arduino infinity logo. Everything that you'll be plugging into is marked both on the board and on the side of the sockets. Analogue sockets are marked with the tilde (~) symbol to remind you of this.

The one minor niggle I have (and the only reason for deducting 0.5 in my rating) is with the style of book. A ring-bound book would have been so much easier to lay flat on the workbench while

working through the examples.

From next month onwards, I'm going to document my experiences with the Arduino. Good, or bad, I'll write a page/two. Not only to solicit help and advice from you folks, but to hopefully give others a taste of how easy/hard it is to use, and work with, the Arduino.

### To the workbench!

I bought mine via Amazon (UK), but you can get more information on the Starter Kit (components list), and buy it, from the Arduino (EU) site:

[http://store.arduino.cc/index.php?main\\_page=product\\_info&cPath=2&products\\_id=185#.U0UX2XWx2oW](http://store.arduino.cc/index.php?main_page=product_info&cPath=2&products_id=185#.U0UX2XWx2oW).



**Ronnie** is the founder and (still!) editor of Full Circle. He's also a self-taught (part-time) artist who draws both serious and silly things. His work can be seen at:

<http://ronnietucker.co.uk>.



# WHAT IS

Written by Cuiv

**M**ining used to be done with CPUs only. It is now also done with GPUs (video cards, primarily AMD/OpenCL video cards), FPGA circuits (programmable chips), and ASICs (hard-coded chips designed to do one task only, like SHA256 hashes). Each is faster and/or consumes less energy than the other.

Performance is usually measured in Hashes/second: that is, the number of hashes a computer can try every second.

For SHA256-based currencies, mining is currently possible using all of the above methods. ASICs will be hundreds of times faster at mining than CPU mining, with current hardware providing over a Tera-Hash per second, versus a consumer PC providing less than 1 Giga-Hashes/s, and often less than 100 Mega-Hashes/s.

This creates a barrier to entry in terms of hardware, which must be very fast for SHA256-based currencies, and that, in turn, favors miners with access to expensive

and difficult-to-find ASICs. This is because the total computing capacity of the network is very high because of all the dedicated mining rigs and ASICs, and this in turn pushes the difficulty sky-high, making it difficult for beginners with consumer hardware to be successful at mining.

For Script-based currencies, mining is possible on CPUs and AMD GPUs (the latter offering a 10x increase over CPUs). No FPGA or ASICs are available at the moment, although one company announced their plans to commercialize an ASIC by mid-2014. This makes buying AMD GPUs risky when thinking about entering the mining market for such coins.

Other currencies, like Primecoins and Quarks can only be mined on CPUs at the present time. Primecoin GPU miners have given it an unsuccessful try, not providing much improvement over CPU miners. These currencies thus give owners of "standard" hardware the ability to participate in mining without too much of a

disadvantage.

## SOLO MINING VERSUS POOL MINING

There are two ways to mine crypto-currencies: on your own, or as part of a pool with a revenue-sharing agreement.

When you are on your own, you get money **ONLY** if you mine a block AND manage to be kept in the main chain. You then earn the full block reward. You could get lucky and mine a bitcoin block in seconds and earn a cool 20kUSD. But on average, consumer hardware will take around 60-70 years to mine a single block at the current difficulty. Not many currencies are profitable in solo mining, and the current difficulties need to be analyzed carefully.

When you are pool-mining, you are lending your computing power to a pool that gathers multiple miners at the same time. Typically, each mining computer is associated to a "worker" on the pool, which is

just a login and a password.

When mining in a pool, you will receive a fractional reward for each block that the pool solves and that remains in the main block chain. The fraction of the reward depends on:

- how much computing power you have contributed to solving the block
- the fees you pay to the pool (typically 2%)

How the pool measures your contributed computing power depends on each pool. Typically, however, a pool will define shares as a block solved with a lower difficulty than the true block difficulty (that share difficulty is defined with each pool). In other words, you are solving shares, which have no real meaning to the cryptocurrency, but not the block itself (if you do solve the block, you would have been better off solo mining :)).

The more shares you have solved for a given block (as a proportion of the total number of

# WHAT IS

shares solved by the pool for that block), the more you are rewarded. So if you have solved 10% of all the shares solved during a given round, you will get roughly 10% of the reward (minus fees and any additional reward attributed to the solver of the block).

Some pools have fixed values per share, and increasing weights for the difficulty of the share solved (a share of difficulty 8 will be counted more than a share of difficulty 7).

Note that the rules are different in each pool. Note that pools may also just run away with rewards. Cryptocurrency doesn't require trust, but pools do!

## PREMINING/INSTAMINING; OR HOW TO BECOME RICH, FAST.

One technique of exploiting a cryptocurrency is to create a new cryptocurrency, and pre-mine it. In other words, for a while, only the developers will be mining the currency, before actually giving access to a frontend and binary to the rest of the public. This means

that the developers have effectively created a large reserve of coins before anybody else could. The next step is to market the currency, so that its value soars vs Bitcoin or the USD. The last step is to sell back the coins earned during the pre-mine for a good profit and very little risk (not much development is needed because all the hard work has been done by Bitcoin, and not much power or electricity is needed to pre-mine).

Because of this, pre-mining is viewed as a disgrace by the community, and pre-mined currencies are typically avoided (although good marketing towards the less knowledgeable public may work).

As a workaround to this, some developers of new coin have simply resorted to having a difficulty adjustment that will favor people who mine during the first hours of the currency. Some coin developers make it even more difficult by making sure no binary clients are available during that period, so that only individuals who can compile the code from source can participate in those early hours.

This is referred to as "Instamine", and some of the most popular currencies have suffered from it to some extent, intentionally or not.

## THE CRYPTOCURRENCY FRONTEND

The cryptocurrency frontends are almost all based on the original Bitcoin client. When first launched, they will download the whole block chain and check all the transactions - for Bitcoin, this can take over 24 hours. Below is a Primecoin client receiving the last 6 days of blocks:

It is possible to send and receive money through that simple-to-use client.

To receive coins, you need to

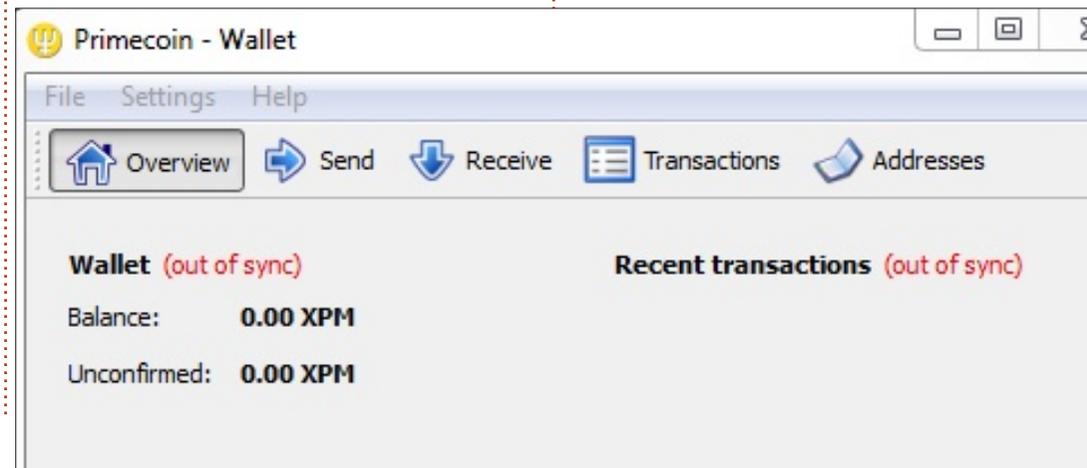
create a receive address public/private key. The client can do this for you in the receive menu.

By default, the client hides the Private key, and shows only your Public key.

You can display the Private key by going to Help, Debug Window, Console Tab, and typing "dumppriv key <public key>

Because the network takes care of maintaining the history of all transactions, the ONLY things you need to keep your wallet safe are your public and private key tuples.

**Print them.**  
**Save them.**  
**Copy them.**  
**Encrypt them.**  
**Protect them.**



# WHAT IS

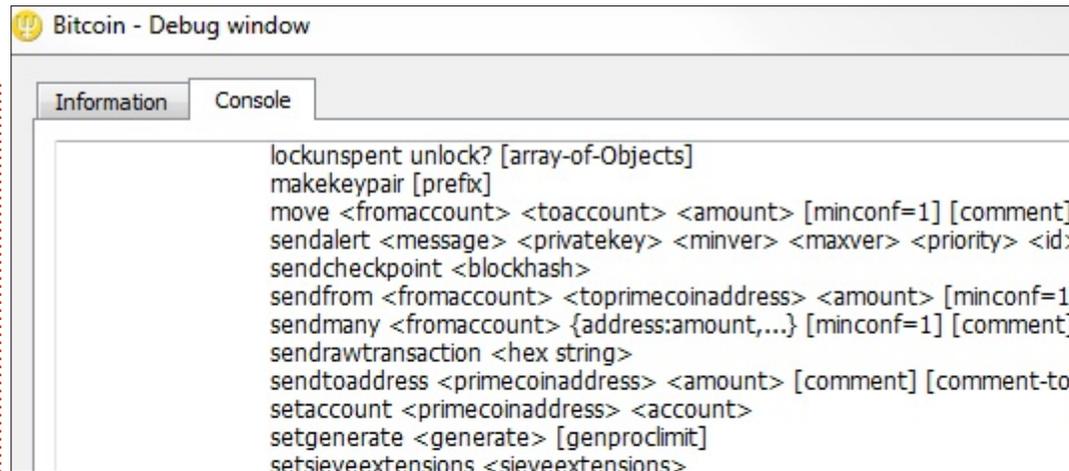
Note that the client gives you the possibility of encrypting your wallet (and therefore all your public and private keys) under the Settings menu.

The client can do solo mining, however pool mining is advised, unless you have an insane amount of computing power in your hands. Doing pool mining may use a different method/client for each currency/pool, so follow the instructions!

## AN INTERESTING PROOF-OF-WORK: PRIMECOIN

This section describes an interesting Proof-of-Work used by Primecoin.

One of the most common criticisms of cryptocurrencies is that lots of computing power and electricity is lost doing hash after hash, for nothing more than to maintain the ledger. Another criticism is the hardware that mining requires. And not knowing how the difficulties are going to evolve, it makes it very risky to invest in such hardware.



```
Bitcoin - Debug window
Information Console
lockunspent unlock? [array-of-Objects]
makekeypair [prefix]
move <fromaccount> <toaccount> <amount> [minconf=1] [comment]
sendalert <message> <privatekey> <minver> <maxver> <priority> <id>
sendcheckpoint <blockhash>
sendfrom <fromaccount> <toprimecoinaddress> <amount> [minconf=1]
sendmany <fromaccount> {address:amount,...} [minconf=1] [comment]
sendrawtransaction <hex string>
sendtoaddress <primecoinaddress> <amount> [comment] [comment-to]
setaccount <primecoinaddress> <account>
setgenerate <generate> [genproclimit]
setsieveextensions <sieveextensions>
```

Primecoin tries to avoid these pitfalls by having a proof-of-work that can currently be mined only on CPUs, and that helps the world of mathematics by finding Prime Number Chains.

Primecoin basically works in almost the same way as any other cryptocurrency: its blocks include a variable nonce and are also hashed using the SHA256 algorithm. However the goal of the proof-of-work is more involved: it requires finding Cunningham Chains of prime numbers of the first or second kind, or a bi-twin chain. More on each can be found on Wikipedia or in the Primecoin paper, but each of those chains has an origin, usually a very large number, that is not a prime. The requirement is that the origin of

the prime chain be a multiple of the hash of the block.

The difficulty is adjusted by requiring that the prime chains be at least X numbers long. There is also a fractional difficulty which is linked to the non-prime number that is outside of the chain, but would have followed the last number of the chain.

A standard algorithm is therefore to first vary the nonce of the block to find a hash that is divisible by a few prime numbers, such as 2, 3, 5, 7, and 11 (although just iterating through this can take time), which increases the odds of finding a prime chain whose origin is a multiple of the hash.

Because the numbers used are

extremely large numbers, which are not easily supported by GPUs, the only way to mine right now is via CPUs. The mining performance is measured in primes/second or chains per unit of time.

Primecoin gives a strong incentive to find better/faster algorithms to find prime chains, as well as give data to mathematicians about getting a better picture of the distribution of these chains within the natural numbers.

## HOW MUCH IS IT WORTH?

So, how much is a given cryptocurrency worth? It is all in the eyes of the beholder, like pretty much anything else that can be bought and sold, such as gold. If people think a coin has value, and are willing to pay for it, then that coin has value.

Bitcoin is currently traded at around 900 USD per bitcoin, a staggering increase from the fractions of a dollar it was worth three or four years ago. It is highly volatile, and a very dangerous investment. The people who have earned the most from Bitcoin are

those who were mining at the start. It is estimated that the creator (or creators? – it is a bit of a mystery) of Bitcoin has around 1 million bitcoins, which makes him/her/them almost a billionaire. Another popular story is that of a man having bought 27 USD worth of bitcoins a few years back, only to realize that today they are worth almost 1 million USD. And a third story is of a man who forgot the private key to his bitcoin address, having thrown the hard drive containing the wallet away. Too bad, because he had 7,500 bitcoins (around 7 million dollars!) which now have been lost...

Each coin is different, and also depends on which markets it gets listed on. Because yes, there are markets for cryptocurrencies, such as Mt. Gox (a Japanese company) and Cryptsy (an American company). These exchanges typically quote only the major cryptocurrencies (Bitcoin, Litecoin) against the dollar. Then other currencies are quoted against the bitcoin and litecoin.

As I am writing these lines, a Primecoin is quoted at 0.0047 bitcoins, itself quoted at around 915 USD. So each of the Primecoins

I own is worth (before transaction fees) roughly 4.3 USD.

After mining any cryptocurrency, a miner has two choices:

- hold the cryptocurrency in the hopes that its worth per unit will rise (it could fall!)
- immediately convert this cryptocurrency into USD

Of course one alternative is riskier than the other, but seems to be the one chosen by many miners, as they believe in cryptocurrency - this can be cited as one of the reasons the coins are valued so much.

## SHOULD I MINE A CRYPTOCURRENCY? WHICH ONE?

Mining is a relatively risk-free endeavor, although it can be frustratingly slow depending on your hardware. The only risk being taken is that the electricity and processing power that went into mining were for naught, if the value of the cryptocurrency suddenly plummets. It can therefore be “fun” to mine. Just

see it as a hobby that has the potential to bring you some revenue, and not a true source of revenue. Certainly not a replacement for your salary.

There are online return-on-investment calculators such as Coinwarz, which will indicate the cryptocurrencies that currently would provide the best return on investment for a given hardware capacity. This tends to change a lot because of fluctuating cryptocurrency to bitcoin to USD charts!

But it can give you a good idea of what would be good to mine by looking at which coins stay on top for several days in a row.

**Next month Oscar will discuss alt-coins such as Litecoin, Dogecoin, etc.**

### Main sources:

- the bitcoin paper: <http://bitcoin.org/bitcoin.pdf>
- the excellent, but fast-moving, under-the-hood explanation of bitcoin (this explanation follows

roughly the same structure, but spends more time on some points and less on others):

<http://www.imponderablethings.com/2013/07/how-bitcoin-works-under-hood.html>

• the Primecoin paper: <http://primecoin.org/static/primecoin-paper.pdf>

• an explanation of the paper: [http://www.reddit.com/r/primecoin/comments/1rp5vx/could\\_someone\\_explain\\_in\\_detail\\_the\\_algorithm/](http://www.reddit.com/r/primecoin/comments/1rp5vx/could_someone_explain_in_detail_the_algorithm/)

## COMPETITION



Win 500 Dogecoin (DOGE) by answering the following question: You can view your private key by going to \_\_\_\_\_? (Hint: the answer is in the article)

Email your answer to: [ronnie@fullcirclemagazine.org](mailto:ronnie@fullcirclemagazine.org) before Friday 23rd May. The winner will be notified via email for a valid Dogecoin wallet address.

**Oscar will be putting some of his cryptocurrency for grabs next month.**



## CONNECT TO ANDROID?

I am a big fan of your magazine, I've been reading it from issue 20-something – I don't recall exactly. In last month's issue, I found an article about how to connect an IOS device to a Linux machine, and I was impressed how detailed you guys were. It was a nice article; it explained the process so that even a noob will know how to do it.

I am writing to request an article of similar form but on connecting an Android device to Linux. With the new connection mode Google used on their OS, I find it hard to connect some devices. I found a lot of articles on the Internet which explain how to do it, but none of them seemed to work on my Samsung Galaxy Note 10.1. In the old days, using Android USB mode protocol, it was pretty easy; now with MTP stuff it is hard to get them to automatically mount when the device is connected. I will be glad to see this.

**Carlos john**

Gord says: *see FCM#80, page 40.*

## MINT KDE vs KUBUNTU

I had been using Linux Mint Cinnamon for quite a while – and I started testing out KDE but installing it as a boot option with my Mint Cinnamon. I liked it so much that, with my last update, I went for the Mint KDE edition as my main install. Since then I have noticed more and more positive reviews about KDE and its popularity (funny I never noticed them whilst using Cinnamon). Now I have installed Kubuntu in Virtualbox and am really liking what I see. I notice Kubuntu's OS as well as KDE is newer than Mint's. So my question is: what are the key differentiators between Kubuntu and Mint KDE, and any advice on why we would want to use the one versus the other?

**Danie van der Merwe**

## WHAT, NO PREDICTIONS?

Thank you for covering HomeBank in FCM#84.

I have been using Quicken for many years. Unfortunately, as excellent as the product is (and it is excellent), my version has become old and no longer works well on Linux (and not at all on Windows, even though it's a Windows program) — and I'm not about to cough up a significant annual fee for a new version that used to cost far less and probably won't even work on Linux!

I have been searching for over a year for a suitable replacement. Every Linux-compatible application that I have looked at, from GnuCash to HomeBank, lacks a feature that is critical for bookkeeping: Looking into the future.

Without the ability to enter future payments and income, both repeating and one-offs, and to then see a graph of how the future will pan out for both individual

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[ubuntuforums.org/forum-display.php?f=270](https://ubuntuforums.org/forum-display.php?f=270)

## FULL CIRCLE NEEDS YOU!



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

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

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

## WHAT IS

accounts and combined accounts, the bookkeeping application is no better than keeping a paper copy. Well, it's more convenient than paper, but functionally no better.

To my astonishment, one developer of a cross-platform product (I forget which one) went so far as to claim that such a forward-looking feature was not relevant to keeping one's books.

Tracking the future is vital to prevent overspending and to plan for major expenses, from holidays to home maintenance, paying off a loan, marketing, or having a baby. Any company knows this and does it. Well, any company that wants to stay afloat and grow. Also, any individual who wants to keep control of his finances and not slip into debt.

I don't mind whether an application is open source or closed, libre or proprietary, free or paid (within reason) — but unless a bookkeeping application allows me to not only keep books but also to plan for the future, it is useless to me or my (very) small business.

A cloud service would be even better, as I could then access my

books from my Ubuntu desktop, my Android phone, or a friend's iPad. Alas, I have also not found a suitable web-based version.

If any of your readers know of a suitable product that doesn't cost the earth, is fairly easy to use, and is either Ubuntu-compatible or (preferably) web-based, perhaps they could let you — and therefore your readers — know of it!

I'll be happy to write a review on whatever I finally purchase and use, assuming of course that I find something suitable.

**Paddy Landau**

## CUSTOMIZING THE DESKTOP

I am new to Ubuntu and I was delighted to find Full Circle Magazine.

FCM helped me a lot, though I'm still missing one thing: there are no articles on desktop settings and customization. I'd love to see a series which covers the installation of icons, themes and panels.

As I said, I'm new to Ubuntu, so I'm sure other beginners will find these topics very interesting.

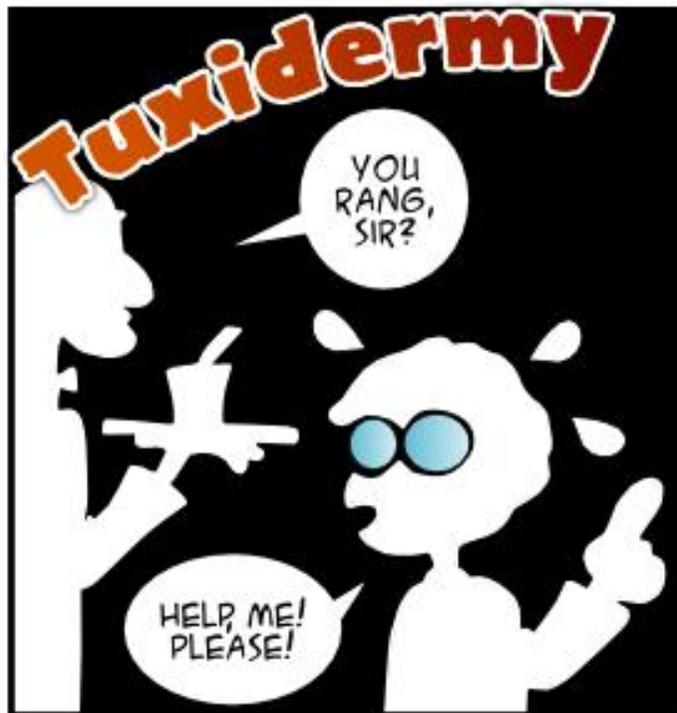
All new users spend weeks on customizing and prettifying their desktops.

And if they fail, they will return to the 'old' OS.

Customizing Gnome or Unity is not an easy thing to do. I'm using Kubuntu, which is a lot easier than these two, still I couldn't set it the way I wanted to.

There are a lot of packages on kde-look, but it's difficult to find your way around the different installation methods and desktop environments.

**László Kiss**



Penguin, penguin  
 Burning bright  
 In the systems  
 of the night

They made no sense at all to me, those words. But when I finally found out what was the secret...





# Q&A

Compiled by Gord Campbell

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

**Q** Upgrading some software the other day, now the computer will boot only in recovery mode and only to the command line. What should I do?

**A** (Much thanks to **Roy "linuxcanuck"** in the Yahoo Ubuntu Linux Group) This usually happens when an upgrade is partial.

Boot into recovery mode, then try to fix broken dpkg from the list of options.

Afterwards go into root shell and do:

```
sudo apt-get install -f
```

(this will fix an incomplete upgrade from packages already downloaded.)

Next do:

```
sudo apt-get update
```

(this will add new packages that might have been missing before.)

Then:

```
sudo apt-get upgrade
```

(this will download and install the updates.)

Exit back to recovery then choose update grub from the list. Reboot.

If this does not work then try to boot an older kernel by choosing advanced options for your distribution. It might boot into GUI, but look awful, but then you can try to fix it from there.

**Q** I have a root (/) partition and a home (/home) partition. If I set up virtual machines in Virtualbox, will they use space in my root partition?

**A** No, the virtual machines will use space in your home partition.

**Q** I want to watch or record over-the-air digital TV. What is my best bet for hardware?

**A** (Thanks to **TheFu** in the Ubuntu forums) Check out the HD Homerun network tuners. They work best when connected to your router by Ethernet cable.

**Q** How can I transfer files between two Linux systems using just an Ethernet cable, with no router?

**A** (Thanks to **SeijiSensei** in the Ubuntu Forums) Modern network adapters have an "auto-sensing" ability to detect which pair of connectors should be used. I'd give your regular Ethernet cable a try and see if it works. If not, you need to buy a crossover cable.

Once the computers are connected, give them IP addresses. On one system, run this command:

```
sudo ifconfig eth0 10.1.1.1
netmask 255.255.255.0
broadcast 10.1.1.255
```

And on the other one, this command:

```
sudo ifconfig eth0 10.1.1.2
netmask 255.255.255.0
broadcast 10.1.1.255
```

You can use the ping command to check that they see each other.

To copy files, use rsync, for example:

```
rsync -r -a -v -e "ssh -l
satimis" Temp_Storage/*
10.1.1.2:/home/satimis/Temp_Storage/
```

## TOP NEW QUESTIONS AT ASKUBUNTU

\* What are the alternatives to Ubuntu One?  
<http://goo.gl/O7ygOK>

\* What is the "Free software only" option when installing Ubuntu?  
<http://goo.gl/cpScCm>

\* How to make `man` work for shell built-in commands and keywords?  
<http://goo.gl/3jJ9PX>

\* ISP Blocked port 25 because of



spamming

<http://goo.gl/7iBGis>

\* Can a Windows virus transfer to Ubuntu?

<http://goo.gl/whfscw>

\* What's wrong with my cat?

<http://goo.gl/RBjYPY>

\* How to find active users in Ubuntu?

<http://goo.gl/27uYhi>

\* Are hard links equivalent to Windows shortcuts?

<http://goo.gl/HYiURR>

\* encrypting text editor?

<http://goo.gl/B7R2hx>

## TIPS AND TECHNIQUES



### Getting the Latest

I recently ran across a guide to installing a current version of the kernel and Nvidia video driver in my somewhat older version of Linux.

My Daily Driver is Linux Mint 13 LTS. It works fine, but I wondered if I would notice any improvement by

getting up-to-date. The blog pointed to two web pages, which apply to Ubuntu and Mint:

<http://www.upubuntu.com/2014/02/install-linux-kernel-3135-in.html>

<http://www.upubuntu.com/2014/03/install-nvidia-display-driver-33421-new.html>

I normally don't mess around with my "production system," but I decided to go for it this time.

Installing the kernel went smoothly, as I jumped from 3.2 to 3.13. However, it said I was running in Fallback Mode after rebooting. I needed to install the new video driver to get back to normal.

Partway through the procedure, I was running Linux from the command line! Fortunately, I was able to fire up my laptop and go to the web page, to see what commands I should type in. They worked fine, and when I rebooted, everything looked normal.

Did it make any difference? Yes, a little bit. I recently upgraded my monitor to a Dell Ultrasharp (yummy!) and f.lux didn't make it

dimmer and warmer at dusk, with the reverse at dawn. After the upgrade, it worked.

Long time readers know I have a temperature fetish, and I think the upgrades reduced the CPU and video card temperatures by a couple of degrees. I'm not sure of this, but I think dust build-up had raised both of them to about 50 Centigrade at idle, and now they are below that.

There's one big side-effect: Linux Mint 17, the next LTS version, will come out in a few weeks, and I'm not going to be in any rush to install it. I might even leave things as they are for another couple of years.



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

## Full Circle Podcast Episode 39, Oggcamp Review

Our live episode recorded at Oggcamp on Sunday the 20th October in which the guys look back over the history of the event in this it's fifth anniversary



Your hosts:

- Les Pounder
- Tony Hughes
- Jon Chamberlain
- Oliver Clark and Freaky Clown

from the Blackpool (UK) LUG  
<http://blackpool.lug.org.uk>

Download





From Curtis Patranella: [What are your thoughts on the security aspects of] PGP and email encryption in this age of Big Brother and NSA infringement.

MB: Encryption to avoid eavesdroppers is a good method. The use of encryption will definitely increase in the upcoming years. There is a downside however, like legitimate email scanning (for viruses, spam) might be less efficient, as these tools can't "read" the emails either. Next phase will be skepticism about the strength of encryption ciphers being used, especially after the NSA revelations.

From Paul Graham: Along the lines of the Flame Virus that 'tricked' Windows into thinking it was a Microsoft Update; how secure is Linux against this sort of attack?

MB: Flame used a clever method to convince users the patch was signed by Microsoft. By chaining an invalid certificate type into that of the Microsoft root certificate, updates looked to be signed by

Microsoft. If an attacker would like to perform a similar method on Linux systems, the repository (or a mirror) of that distribution would most likely be targeted. Of course it is possible, especially with the help of an insider. Since most Linux distributions use signed packages, the chance for detecting an invalid package is high though. Since most software is open source, it's a good thing that there are people around who like to dig into the security aspect of it.

From Paddy Landau: I would like to know if it's possible to easily configure Apparmor for the everyday user, rather than for a security expert. I have tried reading the manual, but I find it too complicated to follow.

MB: Like most new software, it may take a while to learn to use it. But, once configured, not much administration is needed later on. AppArmor is already considered more user friendly than its alternative, SELinux. If configuring is still too challenging, then you might want to search for ready-to-

use configurations. For example, searching for "AppArmor MySQL" will provide links explaining what paths to configure and the required permissions.

From Ed Eckelmeyer: Whenever I raise the "security" issue, the response is that Linux (i.e. Unix) is stable, and has had years of finding and eliminating any backdoors for the bad guys. I suppose that another reason might be because there are so few Linux users (relative to Windows users) that it is not worth the effort for the bad guys to spend any time on writing malignant code. Am I blind, ill informed, or just plain lucky that I have not had any problems?

MB: Like Windows, there is also malware available for Linux and Mac OS. Fortunately, most of it is focused on specific software and often quickly discovered. If an attacker uses a so-called 0-day exploit, sooner or later someone will notice his system acting strange. With enough determination, the related exploit or malware will be discovered, and

software can be patched against it. Most (advanced) Linux users have a different mindset and report discovered vulnerabilities. There are many security researchers scanning code for weaknesses and reporting them. Another important component – which makes Linux pretty secure by default – is the type of installation. Usually it's a minimal (or default) installation, without unneeded services. If some service is needed, like turning the system into a web server, the user can decide to install a package like Apache. Due to so many Linux distributions being available, one might be lucky when some service is considered vulnerable. For example, an exploit on MySQL might work on a system running Fedora, while the same exploit might not work on Ubuntu. Why? Sometimes it's just a matter of differences in how a kernel is configured, or how binaries were compiled. For the attacker, it's almost impossible to make the perfect Linux exploit which works on all systems (32/64 bits, Intel/ARM, kernel security options, etc).



# Open Source Design

Compiled by Jens Reuterberg



When this whole Community Design thing started out a few months ago, one of the things that bothered me personally was how to convey a unified design goal? A design language that would be obviously apparent in all the design work? Something everyone could understand and take to?

One of the classic methods is to write a very extensive design document but doing that in the start of what was meant as an open process felt unfair, and being, as I am, a person who sincerely believes that if failure is a risk, you should make certain that that failure is a spectacular one, I felt ignoring it would if anything help me attain a majestic catastrophe.

We had to risk it. We had to leave that out until a bit into the process which, as anyone who has ever worked on a joint design project knows, is what designer nightmares are made of.

Now at this point, eleven weeks in, Andrew Lake, a very talented designer and developer, has

winkled out the nugget of design goal from the hundred or so threads, email conversations and chats, and tried to design a design spec-sheet to refer back to. But at the start this simply wasn't there.

To further complicate issues - we had to talk about "Vision". "Visions" tend to be loose, filled with self-obsessive dribble, and (in the corporate world) complete lies about what the company stands for.

But they are, if there were to be any form of visual goal, necessary. As such, the first project I took upon myself was to figure out some kind of vision. Something that was loose, yet still concrete enough to work as a foundation for the future design goals without being constrictive for the creative process ahead of us.

The main question to be answered was: what are, if any, the design selling-points of KDE and Plasma? Now this is one of those areas I prefer not to talk about because it is inherently unfair to

developers and designers. It demands that you look, not at what it actually is - a fully fledged, well made and rather clever piece of design - but what people think it is. "Bloated", "Techy", "Not very well designed" and "Dev centric" where some of the things I got while sitting with a notepad going through blog comments and posts on forums.

So I simply took the "techy" bit and thought about what kind of vision could be made from that? What where the positive bits of the word "techy"? The sensation you could get from it?

Being the massive nerd that I am, I thought "scifi" obviously. But not just bland futuristic laser-gun scifi - but a positive, human kind of scifi. Clean without being sterile. Bright without being blinding. Hopeful.

The science fiction of the 1960's. When adventure and technology were leading us to a brighter better tomorrow. When tech wasn't a threat and I

remembered a quote from the book, *Invisible Monsters* by Chuck Paluhniuk, when the protagonists (or antagonists depending on how you see it) climb to the top of the Space Needle, one of the remnants of the Seattle World Faire's "Tomorrow Land," and threw postcards off the top. Postcards from the future to the present. One of them writes "When did the future stop being a promise and become a threat".

That was it! Something that focuses solely on the tech but also on the human 1960's scifi. A vision of the future but as if it had been written by people in the 1960's.

It seemed to catch on - but what was more interesting was what happened next. People added things, riffed off it and did other things. They were playing, bending and toying with the vision. Making it their own.

Now, I will have to restate the vision. But hopefully still bending it, flexing it, trying its limits and then making it their own.



If you enjoyed playing Portal, then you may have some pretty high expectations from its sequel Portal 2 (beta). Valve Corporation originally released Portal 2 in April 2011 for Microsoft Windows, Mac OS X, Playstation 3, and Xbox 360. Late in March 2014, Valve released Portal 2 as a beta for Ubuntu Linux, so you can finally put down the original and start playing the sequel. Portal 2 is a puzzle-platform, first-person, shooter which has similar play mechanics as the original "Portal." However, being that this is a sequel, Portal 2 (beta) introduces many new gameplay elements to make it worth your time. One particular new addition that really caught my eye was the co-op missions. But it doesn't end there; read on to find out what else Valve has in store for us with this exceptionally well designed video game.

Much like the original Portal video game, in Portal 2 your goal is to solve puzzles from a first-person shooter point of view. You begin each level in a testing laboratory, and you must somehow find your

way out of the test chamber with the help of your portal gun. The core game concept is rather hard to describe because of how abstract it is, but, in a nutshell, you are equipped with a gun that creates blue portals through which you can teleport to another place. You step into a blue portal and you walk out somewhere else through an orange portal. Eventually, you acquire the orange portal gun which then allows you to shoot and create blue portals as well as orange portals. The puzzle rooms grow exponentially harder to solve as you advance your way up the levels. This is the end of similarities between Portal and Portal 2 (beta)



as everything else about Portal 2 (beta) is a novel idea not present in the original video game. You can read Full Circle Magazine 78 for a full review of the original Portal game.

As I mentioned earlier, in Portal 2 (beta) you have the option to play online co-op games in which you and another person must work together to solve puzzles and find your way out of a testing chamber. You must communicate with the other person and the two of you NEED to work together to solve the puzzles. If the other person has never played Portal before, it will be pretty frustrating to play

because you will not be able to advance by yourself, either both of you make it out of each level or neither one advances. This is the true meaning of co-op; two players must cooperate in order to solve the puzzles and move on to the next level.

As much as I liked the co-op part of the game, the real selling point for me was the addition of user created puzzles. Many people have found the "Perpetual Testing Initiative" a most fascinating experience. You can create your own test chamber and share it with the world, or you can download someone else's design to try and master. To find out more about the "Perpetual Testing Initiative" then head over to:

<http://steamcommunity.com/workshop/browse/?appid=620>

An interesting aspect of Portal 2 which not too many people may know about is the "Teaching With Portals" program that Valve implemented for teachers to use Portal 2 as a medium for teaching math, science, and, more

specifically, physics. Teachers who are interested in using the "Teaching With Portals" program may qualify to get the "Portal 2 Puzzle Maker" which includes the game "Portal 2." If you want to find out more about this exciting program, go to:

<http://www.teachwithportals.com/>

## PLAYING WITH PORTALS

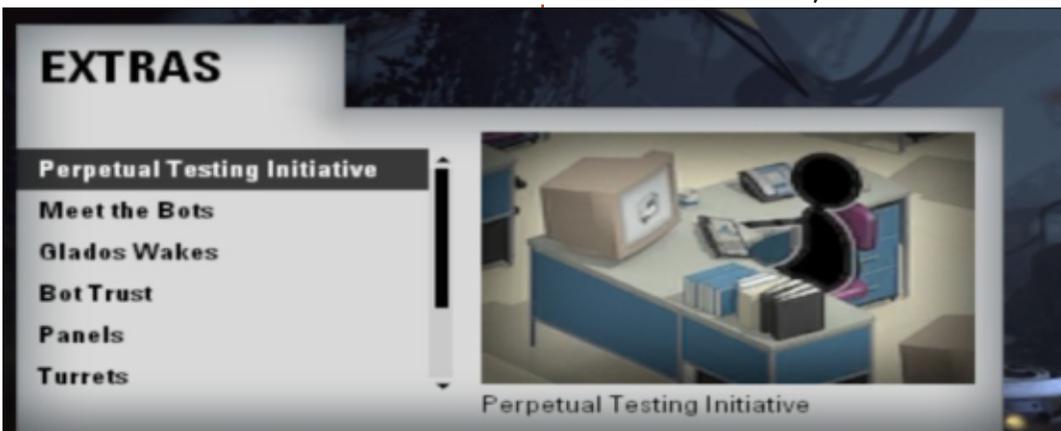
To play Portal 2 you must have a valid Steam account and you must have the Steam game engine installed in your system. If you've got both of these, you can play Portal 2 for the current going price of \$19.99. If you don't have a Steam account or the Steam game engine, then the easiest way to play Portal 2 would be to go to the Portal 2 web-page on the Steam website and click on "Add to Cart" which will make sure you've got everything you need.

When I first tried to play this game under Ubuntu 12.04.4, I ran into some minor problems. The game was installed and showed up in my Steam games library, so far so good. Then, when I tried to play it, for some reason it wouldn't play. I had to exit out of and restart

Steam then quadruple-click the Portal 2 (beta) game launcher on Steam with my mouse in order for the game to finally start. After this initial hiccup, there have been no more problems with running the game ever since. My only other complaint is that there is no support for my game controllers even though supposedly you can play the game with a controller. I got used to playing the original Portal with a mouse and keyboard, so I didn't really miss the controller very much, though it would have been nice if it did have the support. Here's the official Portal 2 on Steam link:

<http://store.steampowered.com/app/620>

Unfortunately, there are no minimum system requirements for Linux listed on the Portal 2 page; only Windows and Mac are listed.



So, based on the minimum requirements for both of those systems, we can safely conclude that the minimum system requirements are:

**OS:** Ubuntu 12.04 LTS or more recent

**Processor:** Intel Core Duo Processor (2GHz or better) / AMD 64X2 (or higher)

**Memory:** 2GB

**Hard Disk Space:** At least 7.6 GB of Space

**Video:** ATI Radeon 2400 or higher / NVIDIA 8600M or higher / Intel HD Graphics 3000

## CONCLUSION

I would love to give Portal 2 (beta) a perfect rating, however when I tally up the Pro's and Con's, I need to reconsider and take a star off. Mostly, and I really hope this is not an issue later, the fact that it's

still in beta contributes to Portal 2 not getting a perfect score.

## PRO'S:

- Very entertaining
- Easy to play
- Appeals to a wide audience
- It's everything that Portal was, but newer and better
- Co-op has been added
- You can play user created maps, or create one of your own

## CON'S:

- It's still a beta so expect it to have some glitches
- You may have to jump through a hoop or two in order to get it running, again this is due to it still being a beta
- It promises full controller support, yet neither one of my controllers worked (a Razer Onza and a MadCatz controller), hopefully ironed out by the time it's out of beta
- No minimum system requirements listed on Steam





The game may look easy and very child friendly, but, once you delve deep into the game, it will show you its retro difficulty and it is a joy to behold.

The game is filled with bright colours and cute characters – from cute little birds to bubble burping frogs – and this gives the game a wider appeal, but it soon shows that this isn't an easy game.

You play as the cute little yellow bird who sets out to save the world from a mysterious black goo, and, to figure out what is going on, you must solve puzzles and work your way towards the core of the island. I found the game helps you out – with easy puzzles at first to get used to the controls, but don't take it that this is the entire game as it lures you into a false sense of security.

One of the things I liked about the game is that there is no hand-holding as there is with many games today; it's just you and the game – with the odd trap. You must make use of the only two abilities

that you have which is stomping and whistling; yes this sounds odd, but these two mechanisms have been placed extremely well and use the environment and its inhabitants to overcome puzzles along your journey.

Toki Tori 2+ has a really good variety of environments to explore – from sunny to dark and harsher themes, so you won't be stuck with the same surroundings for too long, keeping the game interesting by using the different mechanisms. The fun of the game is exactly what drives it, figuring out what to do

next rather than being given each step handed to you. The game shows its difficulty when you feel like cussing at your screen, but you laugh at the same instance – it is a clever little game.

The world is big and allows you to take all kinds of different routes. You can choose to stay on the path you're on, or explore expert puzzles. A brilliant addition is that there are a number of really awesome things hidden, and, if you just go from start to finish without exploring, you would never know they were there. Finding

everything the game has to offer will take a huge amount of tries and many fun-filled hours. It will probably take around 15 to 20 hours.

As for flaws, there were not many that I came across. Sometimes the game would stop for a split second, but nothing that would interrupt the experience. I did also have one point where the level's music stopped playing, but I restarted the level and everything was back to normal.

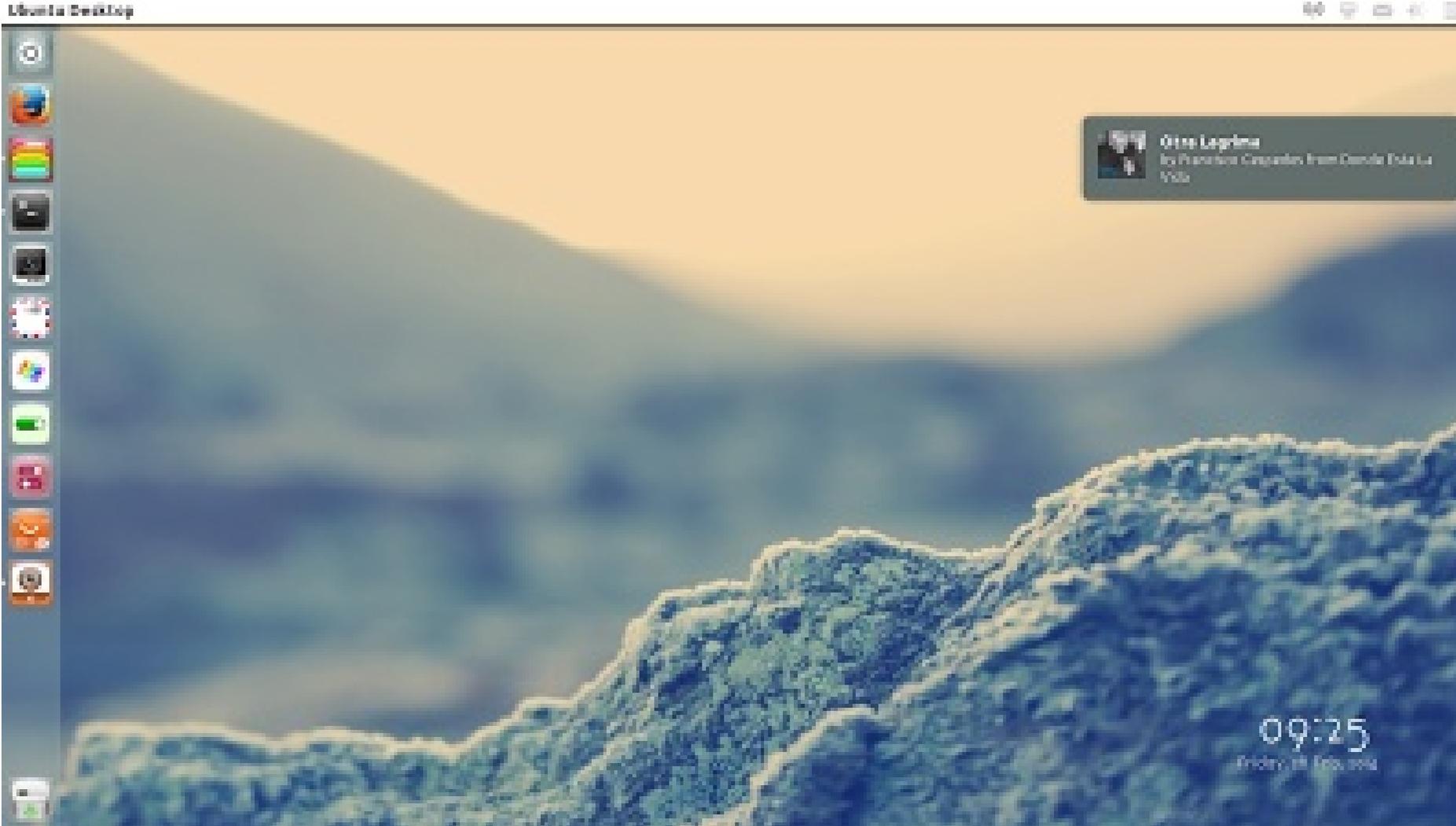
Toki Tori 2+ is a remarkably fun platformer but is also a fun challenge. Don't let the exterior deceive you; It will make you think and explore. I recommend this game; if you have the chance, give the game a try and you will love it.





# MY DESKTOP

Your chance to show the world your desktop or PC. Email your screenshots and photos to: [misc@fullcirclemagazine.org](mailto:misc@fullcirclemagazine.org) and include a brief paragraph about your desktop, your PC's specs and any other interesting tidbits about your setup.



Ubuntu 13.10  
GTK Theme: Numix-White  
Icon Theme: Square  
Conky Font: BovenocF-Light  
(<http://openfontlibrary.org/en>)

Wallpaper:  
<http://greentoadmx.deviantart.com/art/Stay-387499601>  
Acer Aspire TimeLine  
Intel Core 2 Duo

4 GB Ram  
500 HDD

**Luis R. Caballero**



Mandriva, Mageia, Archos, Xandros, Slax, SliTAZ, Knoppix, Puppy, etc, etc. My eee PC netbook has suffered... There is always a Linux distro installed in it. By 2009, I had come across "Full Circle." In 2009 I also had my own LIVE CD shipped from Canonical! I had also been using "WUBI" in my Windows-based PC. Since early 2011, I have been mostly using Ubuntu in my PC with some periods dual-booting with Windows 7. I didn't welcome "Unity" in Ubuntu at all, but now, I think, I am accustomed to it.

**Kostas Lepeniotis**

I am using a system with:

- O/S: Ubuntu 13.10
- CPU: AMD Athlon II X3 435

Processor (64 bit) @ 2913 MHz (triple-core)

- MEMORY: 1 x 2048 MB (DDR2 PC2-8500) @ 1066 MHz

- STORAGE: 2 Hard Disks: a) 1 x

160 GB, b) 1 x 1 TB

- GRAPHICS: NVIDIA GeForce 8200 (integrated)
- DISPLAY: 22" Wide TFT LCD

In 2006, I first dealt with Ubuntu 6.06 using only a LIVE CD. It took until early 2008 to install Ubuntu in

a system of mine (dual boot Windows Vista and Ubuntu 8.04). In 2009, I started testing different distros in an eee PC netbook I acquired. I.e. Ubuntu, Ubuntu Netbook Remix, Easy Peasy, Kubuntu, Xubuntu, Mint, openSUSE, Debian, Fedora,





# HOW TO CONTRIBUTE

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