



# Full Circle

THE INDEPENDENT MAGAZINE FOR THE UBUNTU LINUX COMMUNITY

ISSUE #161 - September 2020



## PODCAST PRODUCTION LEARN FROM THE PROFESSIONALS

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## HowTo



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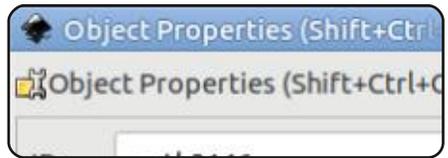
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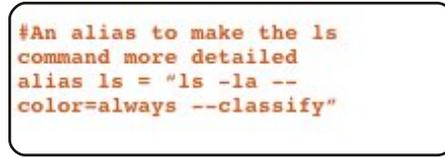
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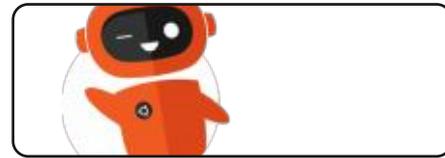


# Full Circle

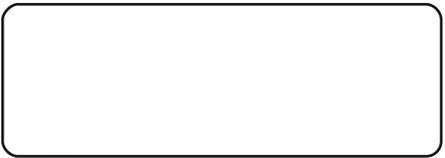
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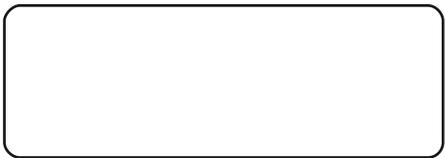
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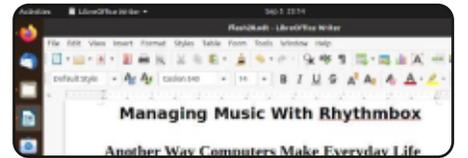
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## WELCOME TO THE LATEST ISSUE OF FULL CIRCLE

This month, we have the usual suspects of Python, Inkscape, Krita and Rawtherapee, and the next part of the series on creating a podcast in Linux. This month also brings to a close the Rust series from Erik. I'm sure he'll cook something else up for next month.

Just days before this issue went to the virtual printers we had a new update released for UBports Touch. This new patch (OTA-13) brings a veritable slew of new tweaks to the ever evolving mobile OS formerly known as Ubuntu Touch. Granted, there's maybe not much to see at the front end, but there's a lot of little changes in the back end.

In other news: our former podcast host (from about a million years ago) Robin Catling, has released a book about VirtualBox and networking. There's an ad for it in this month's issue. We'll hopefully be running a review on it soon.

That's it for this month. Stay safe and well!

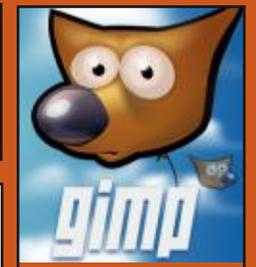
**All the best, and keep in touch!**

*Ronnie*

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## LENOVO STARTS SHIPPING THINKPAD NOTEBOOKS WITH FEDORA LINUX PREINSTALLED:

08/31/2020

Matthew Miller, Fedora Project Leader, announced that Lenovo is now able to ship the first ThinkPad laptop with Fedora Workstation pre-installed. Fedora only offers the ThinkPad X1 Carbon Gen 8 model, starting at 1287 USD.

A standard Fedora 32 build is offered, using the official project repositories, which allows only applications under open and free licenses (users who need proprietary NVIDIA drivers can install them separately). In preparation for the Fedora 32 release, engineers at Red Hat and Lenovo worked together to ensure that the distribution was ready to run on these notebooks.

<https://twitter.com/mattdm/status/1299718126175744000>

## FREE VIDEO EDITOR AVIDEMUX 2.7.6 RELEASED:

08/31/2020

A new version of Avidemux is available, designed to solve simple tasks for cutting video, applying filters and encoding. A large number of file formats and codecs are supported. Tasks can be automated using job queues, scripting, and project creation. Avidemux is licensed under the GPL and supports Linux, BSD, MacOS and Windows.

<http://avidemux.sourceforge.net/>

## NITRUX 1.3.2, MIGRATING FROM SYSTEMD TO OPENRC:

09/01/2020

Nitrox 1.3.2 distribution is available, built on the Ubuntu base and KDE technologies. The distribution develops its own NX

Desktop, which is an add-on over the user's KDE Plasma environment. ApplImages and its own NX Software Center are being promoted to install additional applications. The size of the boot image is 3.2GB. The project is distributed under free licenses.

NX Desktop offers a different style, its own implementation of the system tray, notification center and various plasmoids, such as a network configurator and a multimedia applet for volume control and playback control of multimedia content.

<https://sourceforge.net/p/nitroxos/news/2019/06/nitrox-117-available/>

## LINUX FROM SCRATCH 10 AND BEYOND LINUX FROM SCRATCH 10:

09/02/2020

New editions of Linux From Scratch 10 (LFS) and of

Beyond Linux From Scratch 10 (BLFS) are out. Linux From Scratch provides instructions for building a basic Linux system from scratch using only the source code of the required software. Beyond Linux From Scratch complements the LFS instructions with information on building and configuring about 1000 software packages covering a variety of applications, from DBMS and server systems to graphics shells and media players.

<http://lists.linuxfromscratch.org/pipermail/lfs-support/2020-September/053845.html>

## FLY-PIE RADIAL MENU SYSTEM PREPARED FOR GNOME

03.09.2020

The second release of the Fly-Pie project, a circular context menu that can be used to launch applications, open links and simulate hotkeys, is out. The menu offers cascading expandable items

linked to each other by chains of dependencies. A GNOME Shell add-on is available for download that supports installation on GNOME 3.36 and tested on Ubuntu 20.04. A built-in interactive manual is provided to familiarize you with the techniques.

<https://schneegans.github.io/news/2020/08/31/flypie2>

## GENTOO PROJECT INTRODUCES PORTAGE 3.0 PACKAGE MANAGEMENT SYSTEM:

09/07/2020

**S**tabilized release of the Portage 3.0 package management system used in the Gentoo Linux distribution is out. The presented branch summed up the long work on the transition to Python 3 and the end of support for Python 2.7.

In addition to the discontinuation of support for Python 2.7, another important change was the inclusion of optimizations that allowed 50-60% faster computations associated

with determining dependencies. Interestingly, some developers suggested rewriting the dependency resolution code in C / C ++ or Go to speed up its work, but they managed to solve the existing problem with little effort.

<https://www.gentoo.org/news/2020/09/05/portage-3-stablized.html>

## LIBTORRENT 2.0 RELEASE WITH BITTORRENT 2 PROTOCOL SUPPORT:

09/07/2020

**A** major release of libtorrent 2.0 (also known as libtorrent-rasterbar), which offers an implementation of the BitTorrent protocol that is efficient in terms of memory consumption and CPU utilization. The library is used in torrent clients such as Deluge , qBittorrent , Folx , Lince , Miro and Flush (not to be confused with the other libtorrent library used by rTorrent). Libtorrent code is written in C ++ and is distributed under the BSD license.

They have moved away from the use of the SHA-1 algorithm, which has problems with collision selection, in favor of SHA2-256. SHA2-256 is used both to control the integrity of data blocks and for records in indexes (info-dictionary), which breaks compatibility with DHT and trackers.

<https://blog.libtorrent.org/2020/09/bittorrent-v2/>

## INKSCAPE VECTOR GRAPHICS EDITOR 1.0.1 RELEASED:

08.09.2020

**A**n update is available for the free vector graphics editor Inkscape 1.0.1 , which fixes bugs and shortcomings identified in the 1.0 release. The editor provides flexible drawing tools and provides support for reading and saving images in SVG, OpenDocument Drawing, DXF, WMF, EMF, sk1, PDF, EPS, PostScript, and PNG formats. Inkscape prebuilt assemblies are prepared for Linux (AppImage, Snap , Flatpak ), macOS and Windows.

<https://inkscape.org/news/2020/09/06/inkscape-version-101-patches-crashes-bugs/>

## GSTREAMER 1.18.0 MULTIMEDIA FRAMEWORK AVAILABLE:

09/08/2020

**A**fter a year and a half of development , GStreamer 1.18 was released, a cross-platform set of components written in C for creating a wide range of multimedia applications, from media players and audio / video file converters, to VoIP applications and streaming systems. The GStreamer code is licensed under the LGPLv2.1 license. At the same time, plugins updates gst-plugins-base 1.18, gst-plugins-good 1.18, gst-plugins-bad 1.18, gst-plugins-ugly 1.18 are available, as well as the gst-libav 1.18 binding and the gst-rtsp-server 1.18 streaming server. At the API and ABI level, the new release is backward compatible with the 1.0 branch.

<https://gstreamer.freedesktop.org/>

## KDEVELOP 5.6 APPLICATION DEVELOPMENT ENVIRONMENT RELEASED:

09/08/2020

After six months of development, the release of the integrated programming environment, which fully supports the development process for KDE 5, including using Clang as a compiler, is out. The project code is distributed under the GPL license and uses the KDE Frameworks 5 and Qt 5 libraries.

<https://www.kdevelop.org/news/kdevelop-560-released>

## FEDORA 34 INTENDS TO REMOVE ON-THE-FLY SELINUX DISABLING AND MIGRATE TO KDE FROM WAYLAND:

09.09.2020

For implementation in Fedora 34, a change is outlined to remove the ability to disable SELinux at runtime. The ability to

switch between "enforcing" and "permissive" modes during bootup will be preserved. After SELinux initialization, LSM handlers will be placed in read-only mode, which improves protection against attacks aimed at disabling SELinux after exploiting vulnerabilities that could change the contents of kernel memory.

To disable SELinux, you will need to reboot the system with the "selinux = 0" parameter in the kernel command line. Disabling by changing the / etc / selinux / config (SELINUX = disabled) settings will not be supported. Previously, support for unloading the SELinux module was deprecated in the Linux 5.6 kernel.

<https://www.mail-archive.com/devel-announce@lists.fedoraproject.org/msg02358.html>

## ZORIN OS 15.3 RELEASED:

09.09.2020

Zorin OS 15.3, based on the Ubuntu 18.04.5, is out. The target audience are novice users

accustomed to working in Windows. To control the appearance, they offers a special configurator that allows you to give the desktop a look typical for different versions of Windows, and the package includes a selection of programs close to the programs that Windows users are used to. The bootable iso is 2.4 GB in size (there are two builds available - a regular one based on GNOME and "Lite" with Xfce). It is noted that Zorin OS 15 builds have been downloaded over 1.7 million times since June 2019, and 65% of the downloads are by Windows and macOS users.

The new version migrates to the Linux 5.4 kernel with support for new hardware. Updated versions of custom applications, including LibreOffice 6.3.6.

<https://blog.zorin.com/2020/09/08/zorin-os-15-3-is-here/>

## CINE ENCODER 2020 SE 2.4 VIDEO PROCESSING SOFTWARE:

09.09.2020

A new version of Cine Encoder 2020 SE has been released for video processing with preservation of HDR signals. The program is written in Python, uses the FFmpeg, MkvToolNix and MediaInfo utilities in its work, and is distributed under the GPLv3 license. There are packages for the main distributions: Ubuntu 20.04, Fedora 32, Arch Linux, Manjaro Linux.

<https://github.com/CineEncoder/cine-encoder>

## RELEASE OF UBUNTU \* PACK (OEMPACK) 20.04 DISTRIBUTION FROM UALINUX PROJECT:

09/10/2020

Available for free - download Ubuntu \* Pack 20.04, in the form of 13 independent systems with different interfaces, including Budgie, Cinnamon, GNOME, GNOME Classic, GNOME Flashback, KDE (Kubuntu), LXqt (Lubuntu), MATE, Unity and Xfce (Xubuntu), plus two new new interfaces: DDE (Deepin desktop) and Like Win

(Windows 10-style interface).

The distributions are based on the Ubuntu 20.04 LTS package base and are positioned as a self-contained solution with all the necessary software out of the box.

<https://ualinux.com/ru/news/reliz-distributiva-ubuntu-pack-oem-pack-20-04>

## OPENWRT 19.07.4 RELEASED:

09/10/2020

OpenWrt 19.07.4, which is intended for use in various network devices, such as routers and access points, is out. OpenWrt supports many different platforms and architectures and has a build system that allows you to easily and conveniently cross-compile, including various components in the assembly, which makes it easy to create a ready-made firmware or disk image adapted for specific tasks with the desired set of pre-installed packages. Binaries are generated for 37 target platforms.

<https://lists.infradead.org/pipermail/openwrt-devel/2020-September/031353.html>

## RELEASE OF THE DEEPIN 20:

09/11/2020

Deepin 20 distribution is based on the Debian, but develops its own Deepin Desktop Environment (DDE) and about 30 user applications, including the DMusic music player, DMovie video player, DTalk messaging system, and Deepin Software installer and installation center Center. The project was founded by a group of developers from China, but transformed into an international project. All developments are distributed under the GPLv3 license. The size of the bootable iso image is 2.6 GB (amd64).

<https://www.deepin.org/en/2020/09/11/deepin-20-innovation-is-ongoing/>

## WEBKITGTK 2.30.0 BROWSER ENGINE AND EPIPHANY 3.38 WEB BROWSER RELEASED:

12.09.2020

The release of the new stable branch of WebKitGTK 2.30.0, a port of the WebKit browser engine for the GTK platform, is out. WebKitGTK allows you to use all the features of WebKit through the GNOME-oriented programming interface based on GObject and can be used to integrate web content processing tools into any application, from using specialized HTML / CSS parsers to creating full-featured web browsers. Well-known projects using WebKitGTK include Midori and the standard GNOME browser (Epiphany).

<https://webkitgtk.org/2020/09/11/webkitgtk2.30.0-released.html>

## MANJARO LINUX 20.1 DISTRIBUTION RELEASE

09/12/2020

Manjaro Linux 20.1, built on Arch Linux and aimed at novice users, was released. The distribution kit is notable for the presence of a simplified and user-friendly installation process, support for automatic hardware detection and installation of the drivers necessary for its operation. Manjaro comes in live builds with KDE (2.9 GB), GNOME (2.6 GB) and Xfce (2.6 GB) graphical environments. Builds with Budgie, Cinnamon, Deepin, LXDE, LXQt, MATE and i3 are developed with community participation.

To manage repositories, Manjaro uses its own BoxIt toolkit, designed after the Git image. The repository is supported on a rolling basis, but new versions go through an additional stage of stabilization. In addition to its own repository, there is support for using the AUR (Arch User Repository) repository. The distribution is supplied with a graphical installer and a graphical interface for configuring the system.

<https://forum.manjaro.org/t/manjaro-20-1-mikah-got-released/24173>

## FREEBSD 12.2 BETA TESTING HAS BEGUN

09/13/2020

The first beta release of FreeBSD 12.2 has been released. FreeBSD 12.2-BETA1 is available for amd64, i386, powerpc, powerpc64, powerpcspe, sparc64 and armv6, armv7 and aarch64 architectures. Additionally, images were prepared for virtualization systems (QCOW2, VHD, VMDK, raw) and Amazon EC2 cloud environments. FreeBSD 12.2 is scheduled to be released on October 27th.

The changelog release notes are limited to an empty template for now, but new features previously slated for inclusion in FreeBSD 12.2 include the default W ^ X (write XOR execute) security technique. W ^ X means that memory pages cannot be simultaneously available for writing and execution. The W ^ X mode will allow loading the kernel using executable memory pages for which write is prohibited (earlier for memory pages with kernel data, the execution ban was already applied, but without binding to the write ability). DRM

drivers (Direct Rendering Manager) in the graphics subsystem are synchronized with the Linux 5.4 kernel.

<https://lists.freebsd.org/pipermail/freebsd-stable/2020-September/092680.html>

## NVIDIA ANNOUNCED ITS PURCHASE OF ARM:

09/14/2020

NVIDIA announced the conclusion of a deal to purchase Arm Limited from the Japanese holding Softbank. The deal is expected to be completed within 18 months after receiving regulatory approval from the UK, China, the EU and the United States. In 2016, the Softbank holding acquired ARM for \$ 32 billion.

The deal for the sale of ARM to NVIDIA is \$ 40 billion, of which \$ 12 billion will be paid in cash, 21.5 billion in NVIDIA shares, 1.5 billion in shares for ARM employees and 5 billion in stock or cash as a bonus when ARM reaches certain financial targets. The deal does not affect

Arm IoT Services Group, which will remain under Softbank's control.

NVIDIA will retain the independence of ARM - 90% of the shares will be owned by NVIDIA, and 10% will remain with Softbank.

<https://nvidianews.nvidia.com/news/nvidia-to-acquire-arm-for-40-billion-creating-worlds-premier-computing-company-for-the-age-of-ai>

## RELEASE OF QBS 1.17 ASSEMBLY TOOLKIT:

09/14/2020

This is the fourth release since the Qt Company left the project, produced by the community with an interest in continuing Qbs development. To build Qbs, Qt is required as a dependency, although Qbs itself is designed to organize the build of any projects. Qbs uses a simplified version of the QML language to define build scripts for the project, which allows you to define fairly flexible build rules in which external modules can be connected, JavaScript functions

can be used, and arbitrary build rules can be created.

The scripting language used in Qbs is adapted to automate the generation and parsing of build scripts by integrated development environments.

<https://www.qt.io/blog/qbs-1-17-released>

## FURYBSD 2020-Q3, A LIVE BUILD OF FREEBSD WITH KDE AND XFCE:

09/14/2020

The release of the Live-distribution FuryBSD 2020-Q3, built on FreeBSD and delivered with Xfce (1.8 GB) and KDE (2.2 GB) desktops, has been published. FuryBSD Continuous Builds are available separately, offering the Lumina, MATE and Xfce desktops.

The project is being developed by Joe Maloney of iXsystems, which oversees TrueOS and FreeNAS, but FuryBSD is marketed as a community-supported, independent, independent project from iXsystems.

<https://www.furybsd.org/furybsd-2020-q3-the-worlds-first-openzfs-based-live-image/>

## CISCO RELEASES CLAMAV 0.103 FREE ANTIVIRUS SUITE:

09/14/2020

Cisco has announced a significant new release of the free ClamAV 0.103.0 antivirus suite. The project passed into the hands of Cisco in 2013 after the purchase of Sourcefire, which develops ClamAV and Snort. The project code is distributed under the GPLv2 license.

<https://blog.clamav.net/2020/09/clamav-01030-released.html>

## VMWARE WORKSTATION PRO 16.0 RELEASE:

09/15/2020

The release of version 16 of VMWare Workstation Pro, a proprietary virtualization software suite for workstations, also available for Linux.

<https://docs.vmware.com/en/VMware-Workstation-Pro/16/rn/VMware-Workstation-16-Pro-Release-Notes.html>

## JAVA SE 15 RELEASE:

09/15/2020

After six months of development, Oracle has released a platform Java SE 15 (Java Platform, Standard Edition 15), as a reference implementation that uses an open source project OpenJDK. Java SE 15 maintains backward compatibility with previous releases of the Java platform, all previously written Java projects will work without changes when launched under the new version. Ready-to-install Java SE 15 binaries (JDK, JRE, and Server JRE) for Linux (x86\_64), Windows, and macOS can be downloaded. The Java 15 reference implementation developed by the OpenJDK project is completely open source under the GPLv2 license, with GNU ClassPath

## FULL CIRCLE WEEKLY NEWS



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# DistroWatch.com

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

exceptions allowing dynamic linking to commercial products.

<http://mail.openjdk.java.net/pipermail/announce/2020-September/000291.html>

## SOLARIS 11.4 SRU25 AVAILABLE:

09/15/2020

The Solaris 11.4 SRU 25 (Support Repository Update) operating system update has been released, which offers a series of regular fixes and improvements for the Solaris 11.4 branch. To install the fixes proposed in the update, simply run the 'pkg update' command.

<https://blogs.oracle.com/solaris/announcing-oracle-solaris-114-sru25>

## GENTOO BEGAN DISTRIBUTING GENERIC LINUX KERNEL BUILDS

09/16/2020

The Gentoo Linux developers have announced the availability of generic Linux kernel builds created by the Gentoo Distribution Kernel project to simplify the Linux kernel maintenance process in the distribution. The project provides the ability to both install ready-made binary assemblies with the kernel, and use a unified ebuild to build, configure and install the kernel using the package manager, by analogy with other packages.

The key differences between the proposed ready-made assemblies and manual kernel builds are the ability to automatically update when installing regular system updates by the package manager (emerge --update @world) and a predefined set of default options that guarantee performance after an update (when manually configuring, if the kernel does not load or failure, it is not clear if the problem is related to incorrect setting of parameters or to an error

in the kernel itself).

<https://www.gentoo.org/news/2020/09/15/distribution-kernel.html>

## RELEASE OF THE NEW STABLE TOR 0.4.4:

09/16/2020

Tor 0.4.4.5 toolkit, used to organize the work of the Tor anonymous network, is out. Tor 0.4.4.5 is considered the first stable release of the 0.4.4 branch, which has evolved over the last five months. Branch 0.4.4 will be maintained as part of a regular maintenance cycle - the release of updates will be discontinued after 9 months (in June 2021) or 3 months after the release of branch 0.4.5.x. LTS is provided for branch 0.3.5, updates will be released until February 1, 2022. Support for branches 0.4.0.x, 0.2.9.x and 0.4.2.x is discontinued. Support for the 0.4.1.x branch will be discontinued on May 20, and 0.4.3 on February 15, 2021.

<https://blog.torproject.org/node/1921>

## GNOME 3.38 USER ENVIRONMENT:

09/16/2020

Compared to the previous release, about 28 thousand changes were made, in which 901 developers took part. For a quick assessment of the capabilities of GNOME 3.38, specialized Live builds based on openSUSE and Ubuntu have been prepared. GNOME 3.38 is also included in the pre-builds of Fedora 33.

Beginning with the release of GNOME 3.38, the project began building its own installation image - produced by the GNOME OS initiative. The image is intended to be installed in virtual machines running GNOME Boxes 3.38 and is primarily aimed at testing and debugging developing features and applications, as well as experimenting with the user interface.

<https://www.gnome.org/news/2020/09/gnome-3-38-released/>

THE

# VIRTUALBOX NETWORKING PRIMER

Connecting and Configuring  
Virtual Machines



Robin Catling

## The VirtualBox Networking Primer

Connecting and Configuring Virtual Machines

*The VirtualBox Networking Primer is a no-nonsense guide for the VirtualBox user taking their next steps into virtual networks.*

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Author: **Robin Catling**

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Amazon UK link

[https://www.amazon.co.uk/VirtualBox-Networking-Primer-Connecting-Configuring/dp/1916119484/ref=sr\\_1\\_1?  
dchild=1&keywords=virtualbox+networking+primer&qid=1600253  
699&s=books&sr=1-1](https://www.amazon.co.uk/VirtualBox-Networking-Primer-Connecting-Configuring/dp/1916119484/ref=sr_1_1?dchild=1&keywords=virtualbox+networking+primer&qid=1600253699&s=books&sr=1-1)



Okay rustafarians, we head back to Rust development as @Daredevil14 and Ellin complained about where Lucas' rust blog went. It looks like you guys want more rust and less 'security nonsense'. Firstly, do not neglect to read the above book. If you are a complete beginner to rust or even to programming, we got you covered here at FCM. These articles are not to replace the book mentioned above, think of it more as helpers along the way.

Since we received no feedback on this – other than the initial complaint about Lucas's blog – we have decided to retire this one.

From next issue onward, we will try something different.

When you need several instructions performed one after another, we put them into a function. You have seen functions from the start, as main() is a function. Functions take the form of: fn name(arguments), and, to call said function, you use it without the fn part. So far, we have

used the main function only and no user-defined functions. Functions don't have to just print something on the screen, like we have been doing, but functions can take arguments and return values. However, unlike C, or other older programming languages, you do not have to specify FIRST what you expect back, but you use an arrow to tell it what the output should be. It should look something like this:

```
fn average(x: i32, y: i32, z: i32) -> i32
```

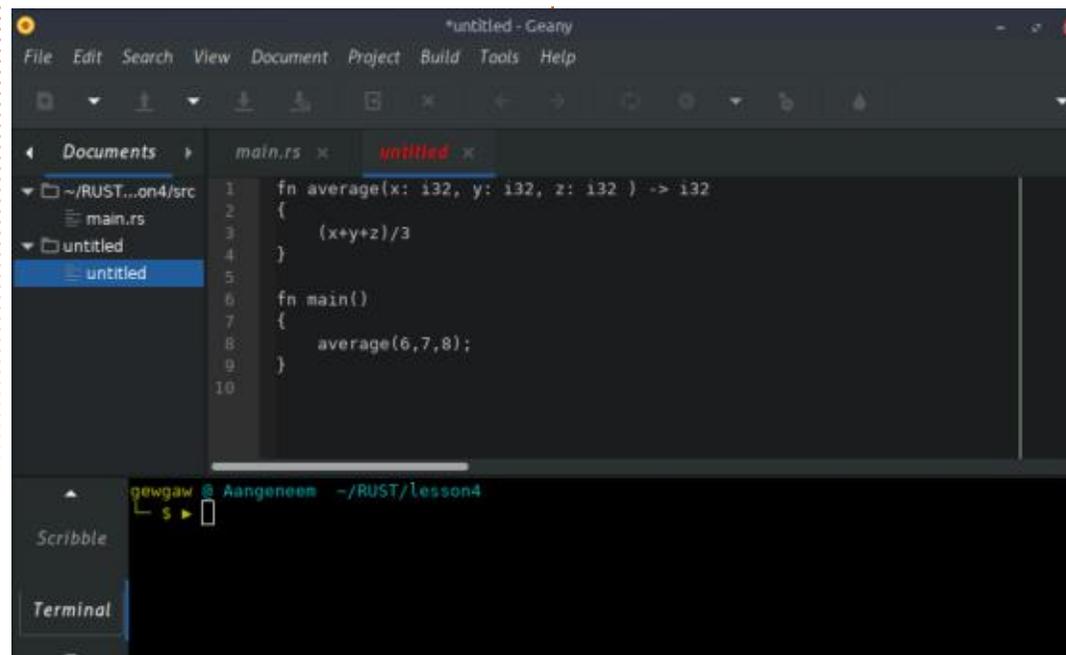
Note that the arrow is not '=>' like we used before. But that is also not where the odd things end; if you want to return a value, you do not end the statement with a semicolon.

Those trip me up, though if you think about it, makes perfect sense. I know we are hopping back to 3.3 in the book, but I thought it was important to point it out, as it is mentioned, but often overlooked. Now we can move on to part 7.

In the beginning, when crates were mentioned, I thought of them

as packages. But in Rust, we need to be clear: A package is one or more crates that provide a set of functionality. A package contains a 'cargo.toml' file that describes how to build those crates.

You will notice that the book refers us back to chapter 2, where we used the 'rand' crate, for random numbers. TL;DR we had to add a [dependencies] section and add rand. We also needed to build our file to reflect the changes with: 'cargo build'. We used the random generator with 'use rand::Rng'. However, as I understand it, it is better to add the crate right at the beginning. Simply add: 'extern crate rand;' before you use it as above. Now, obviously crates.io is not the be-all and end-all of crates, as you can roll your own. Noobs like me get tripped up on this one, as our [dependencies] section now needs to contain the path to our home-rolled crate. In Linux, we use ./ for the same directory and ../ for the directory above, so triple-check your paths before building! Because rust's error output is so nice and verbose, we should catch



this immediately, so build it without specifying the path, to see what the error looks like, and this will help you in the future when you are trying to figure out what went wrong. The great chess players do not only think about moves, but study patterns on the board, that is how they become great. You too will become a great programmer if you can spot an error and immediately recognise it and know how to remedy it.

Speaking of errors, do section 7.3, to catch that error. Now, when you head to section 7.4, you may be disgusted that they mention the 'use' keyword only now, after you have typed so many paths and double-colons you get nightmares about it. That is the reason I mention it now so you do not skip anything in section 7.4. On that note, the book does refer you to chapter 14, cargo workspaces. I suggest that if you are a noob, do not jump here, you need to have worked your way through at least chapter 12, before attempting chapter 14.

Let us quickly talk about ownership and borrowing. This is one of the legs that Rust stands on. Grasping this will help you a lot.

Lots of programming of non-trivial programs will have you getting data, manipulating that data in some way, then outputting the result. This book in your web browser is a nice example. When you click on the link to chapter 14, it figures out where that page is stored, grabs the data and displays it in your browser. The speed of data is usually connected to where it is stored. If your data is on the internet, like a web page, it is slow as it needs to be lifted from long-term memory (disk) to short-term memory (ram), and then sent over the network. If your data is local, it just needs to do the first two steps and if it is in memory, that is only one step. Reading from disk is slower than reading from memory. Speed is not the only consideration here, space is another. Google has millions of gigabytes to store data on. Your hard drive may have only thousands of gigabytes and your memory in the tens column. So, as the speed increases, it becomes necessary to manage the space as you do not have an infinite amount. We can look into the concepts of ownership and borrowing if there is interest, but this is a good topic for you to read up on in your favourite browser as it is covered in section 4, but I suggest adding another

source to get a different perspective.

That's it for now. Next issue we will look at other things.

As always, if you need to reach us: [misc@fullcirclemagazine.org](mailto:misc@fullcirclemagazine.org)



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



Alright, I admit it. I let things slide on my FCM duties this month (and other things as well, but that's another story for another time). Between the medical issues, and trying to write chapters for the book, it just never happened. Thankfully, my friend in Norway, Halvard, came to my rescue once again. A few weeks ago, he sent me a message about a neat visualization tool for Python called Folium. I thanked him and took a look. I was really impressed until I realized that all the examples that I was seeing were for Jupyter Notebook. I spent a little bit of time looking for examples that didn't use Jupyter Notebook, but since I didn't put much effort into it, I really couldn't find anything. Today, just before I needed to leave to go to a Doctor's appointment, I received Ronnie's monthly gentle nudge about the deadline for articles. Rolling my eyes like a 14 year-old girl, and sighing deeply, I sent myself a reminder that when I got back home, I REALLY needed to get to work on this.

So let me tell you about Folium. Directly from their website: *"folium makes it easy to visualize data that's been manipulated in Python on an interactive leaflet map. It enables both the binding of data to a map for choropleth visualizations as well as passing rich vector/raster/HTML visualizations as markers on the map."*

*The library has a number of built-in tilesets from OpenStreetMap, Mapbox, and Stamen, and supports custom tilesets with Mapbox or Cloudmade API keys. folium supports*

*both Image, Video, GeoJSON and TopoJSON overlays."*

When Halvard sent me the link, I reluctantly pulled up Jupyter and tried the sample code. I could see a number of things that I'd like to try to do with this really neat tool. But again, things got in my way, and I left it as a "to look at in the future". The biggest thing that kept me from digging any further at the time was the need for Jupyter Notebook. I don't know why I dislike it so very badly. I just do.

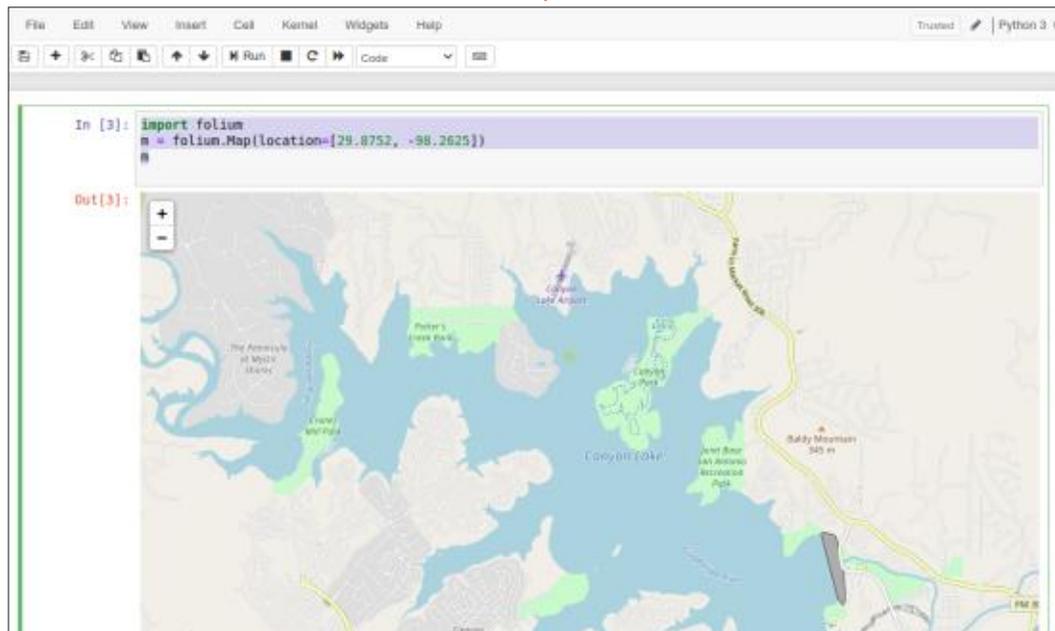
When I got back from the Doctor's office, I did a semi-intelligent web search for a way to use folium without needing to use JN. Sure enough, there were a number of links that gave me a starting point. So may I present my findings.

First of all, you have to install the Folium library (as if you didn't see that coming). The current version is 0.11.0. It's easy by using Pip:

```
$ pip install folium
```

You can also download the source code from the github repository at <https://github.com/python-visualization/folium>. The repository has a large number of examples that you can try out, but I'm guessing that they are all run under Notebook, since the extensions are all "ipynb". That's for another day.

The idea is to provide various types of maps via the leaflet.js library.



# HOWTO - PYTHON

Let's get started.

I lived in a small community called Canyon Lake, Texas for many years. It was a beautiful area and that time was a very happy one for myself and my family, so we will use that location for the first demonstration. Assuming that you want to do this directly from Jupyter Notebooks, it is really easy:

```
import folium
```

```
m = folium.Map(location=[29.8752, -98.2625])
```

```
m
```

Once you run this program, you should see something like the image on the previous page.

Of course, I zoomed in a little bit, but there it is.

The code is pretty self-explanatory. If you are a purist like me, you can run it in "normal" Python, that's pretty easy as well, once you know the trick. Top right is the revised code.

```
import folium
import webbrowser
```

```
# Canyon Lake, Tx
m = folium.Map(location=[29.8752, -98.2625])
output_file = "map2.html"
m.save(output_file)
webbrowser.open(output_file, new=2)
```

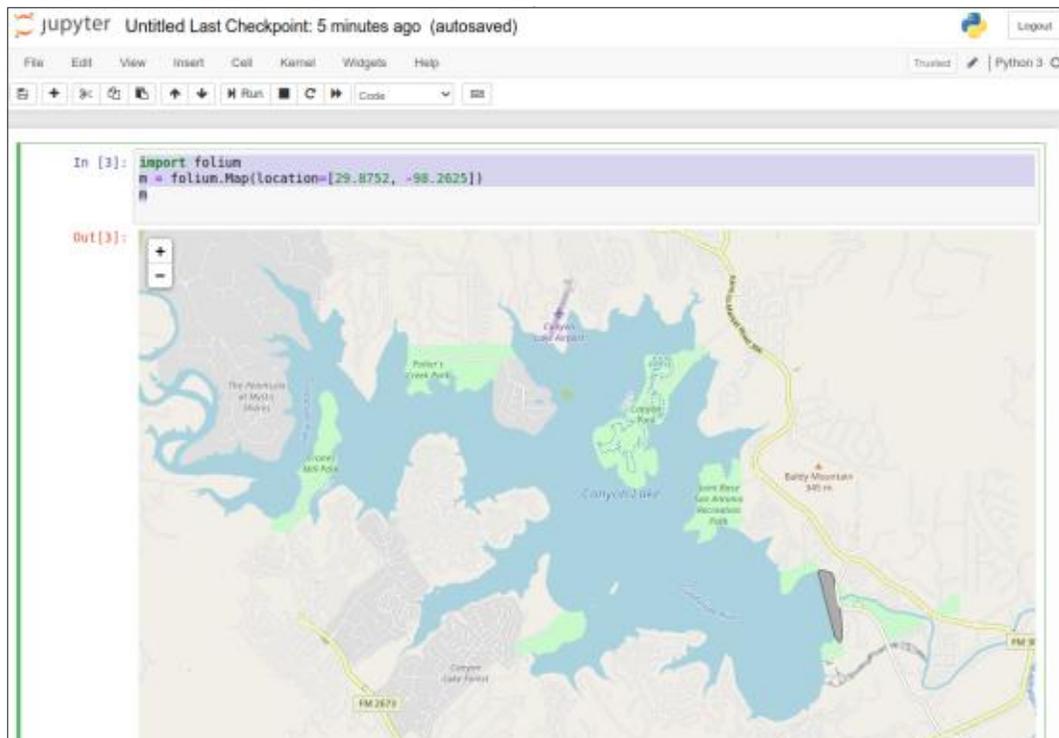
Again, the code is fairly clear and easy to understand, but I'll break it down a bit.

First, we import both folium and webbrowser libraries. Then we create an instance of the map by calling folium.Map with the Lat and Lon as a list. We then define the output filename and call the .save method. Finally, we use the webbrowser library to open the file in a new window.

The output is really nice, and the map is easy to zoom into and out of. But what if we want to have it already zoomed in for us. That's also easy. Just change the m = folium.Map... line to:

```
m = folium.Map(location=[29.8752, -98.2625], zoom_start=13)
```

And save and re-run the program. It should look something like this:



Again, super easy!

We can also define the type of tile maps that folium will use. It's a simple addition to the object initialization line. Change the `m = folium.Map` line to the following:

```
m = folium.Map(location=[29.8752, -98.2625], tiles='Stamen Terrain', zoom_start=13)
```

This will give you a somewhat nicer map in my opinion (below).

If you want to enhance the map, you can easily add markers at a specific latitude/longitude. Again, it's very easy. Just add the following lines before the line that

```
folium.Marker([29.8631, -98.2513], popup='<i>Comal Park</i>').add_to(m)
folium.Marker([29.8618, -98.1977], popup='<i>Canyon Overlook Park</i>').add_to(m)
folium.Marker([29.8480, -98.1756], popup='<i>Sattler, Tx</i>').add_to(m)
```

assigns the filename, but after you've created the folium map. In this case, I'm going to add three markers (top right)

Save and re-run the program and you'll see something like the image bottom right.

I've included just a small selection of the actual map output. If you click on one of the markers you will see something like that shown right.

As they say here in the U.S.,

this case) to click the mouse on the map anywhere and get a Latitude and Longitude in a pop-up? That's yet again, another easy addition. Simply add the following line, before the output filename assignment:

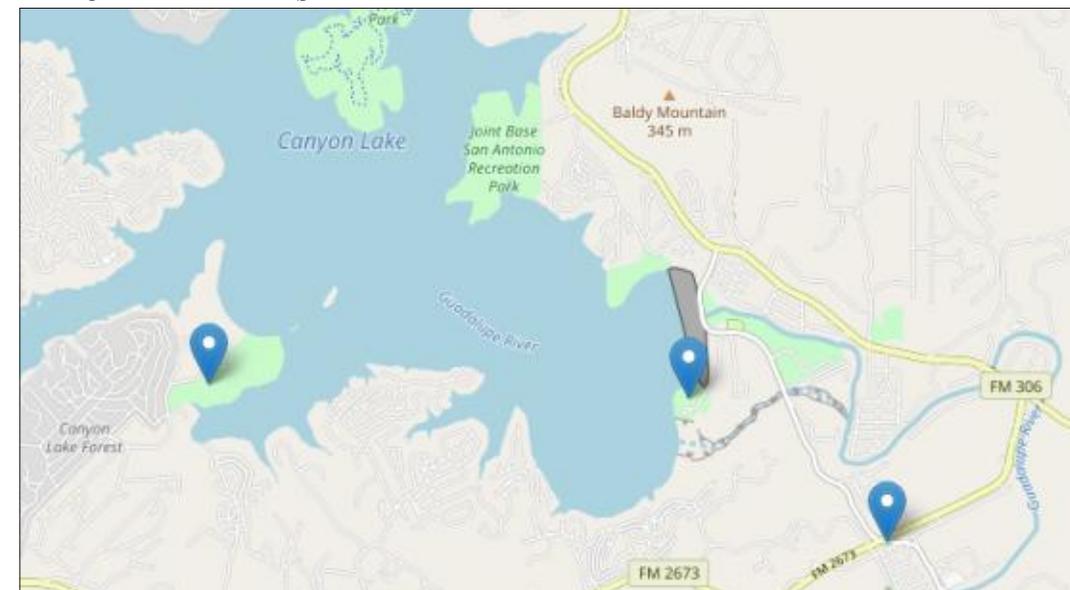
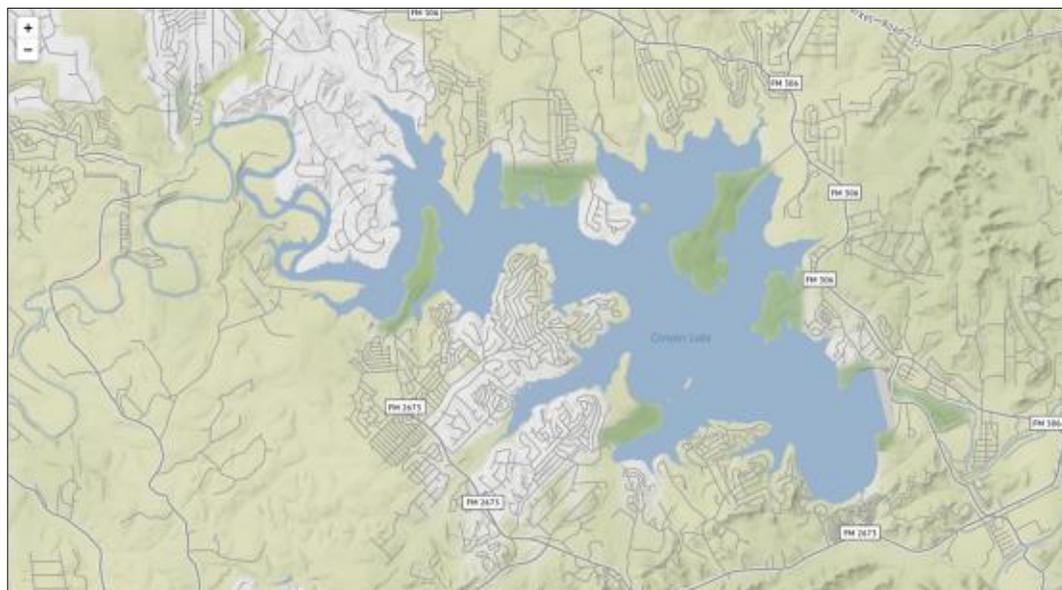
```
m.add_child(folium.LatLngPopup())
```

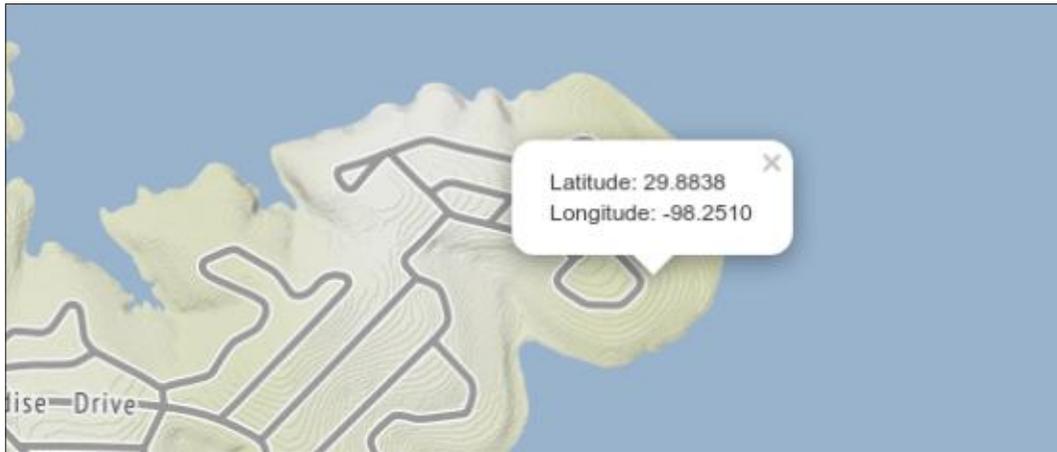
When you save and run the program again, you should get something like that shown on the next page, top left.

Again, I've zoomed in pretty



"BUT WAIT! There's More!". Wouldn't it be nice to add the ability for the user (you and me in





deeply. There are plenty of other types of maps like these that you can use. You can check the documentation at <https://python-visualization.github.io/folium/index.html>.

Now we start to explore one of the other types of maps that folium can produce, a Choropleth map. According to the Data Visualization Catalog website (<https://datavizcatalogue.com/methods/choropleth.html>):

*"Choropleth Maps display divided geographical areas or regions that are coloured, shaded or patterned in relation to a data variable. This provides a way to visualise values over a geographical area, which can show variation or patterns across the displayed location."*

Top right is an example image from that website.

Let's do it for ourselves with a demo from the folium website. First, we will need to import folium, webbrowser, and for this one, pandas:

```
import folium
import pandas as pd
import webbrowser
```

Now, we need to set a url address that points to the data, set a few other variables (shown below), and have pandas load it.

Next, we create the folium map as we did before:

```
url = 'https://raw.githubusercontent.com/python-visualization/folium/master/examples/data'
state_geo = f'{url}/us-states.json'
state_unemployment = f'{url}/US_Unemployment_Oct2012.csv'
state_data = pd.read_csv(state_unemployment)
```

## Choropleth Map



```
folium.Choropleth(geo_data=state_geo,
                  name='choropleth',
                  data=state_data,
                  columns=['State', 'Unemployment'],
                  key_on='feature.id',
                  fill_color='YlGn',
                  fill_opacity=0.7,
                  line_opacity=0.2,
                  legend_name='Unemployment Rate (%)').add_to(m)
```

```
m = folium.Map(location=[48,
                        -102], zoom_start=3)
```

Next, we have to define the parameters for the Choropleth portion of folium (shown above).

And add it to the map object:

```
folium.LayerControl().add_to(m)
```

As before, you simply assign the output filename and save the html file, then send it to webbrowser.

```
output_file = "map2.html"
```

```
m.save(output_file)
```

```
webbrowser.open(output_file,
                new=2)
```

When you run it, it will produce the image shown below.

Well, that's about it for this time. I strongly suggest that you try the examples from folium and others from the web to see how folium can help you in your own programming. There was a number of examples in a jupyter notebook gallery, but sometime between when I started and as I'm ending, many of them have disappeared,

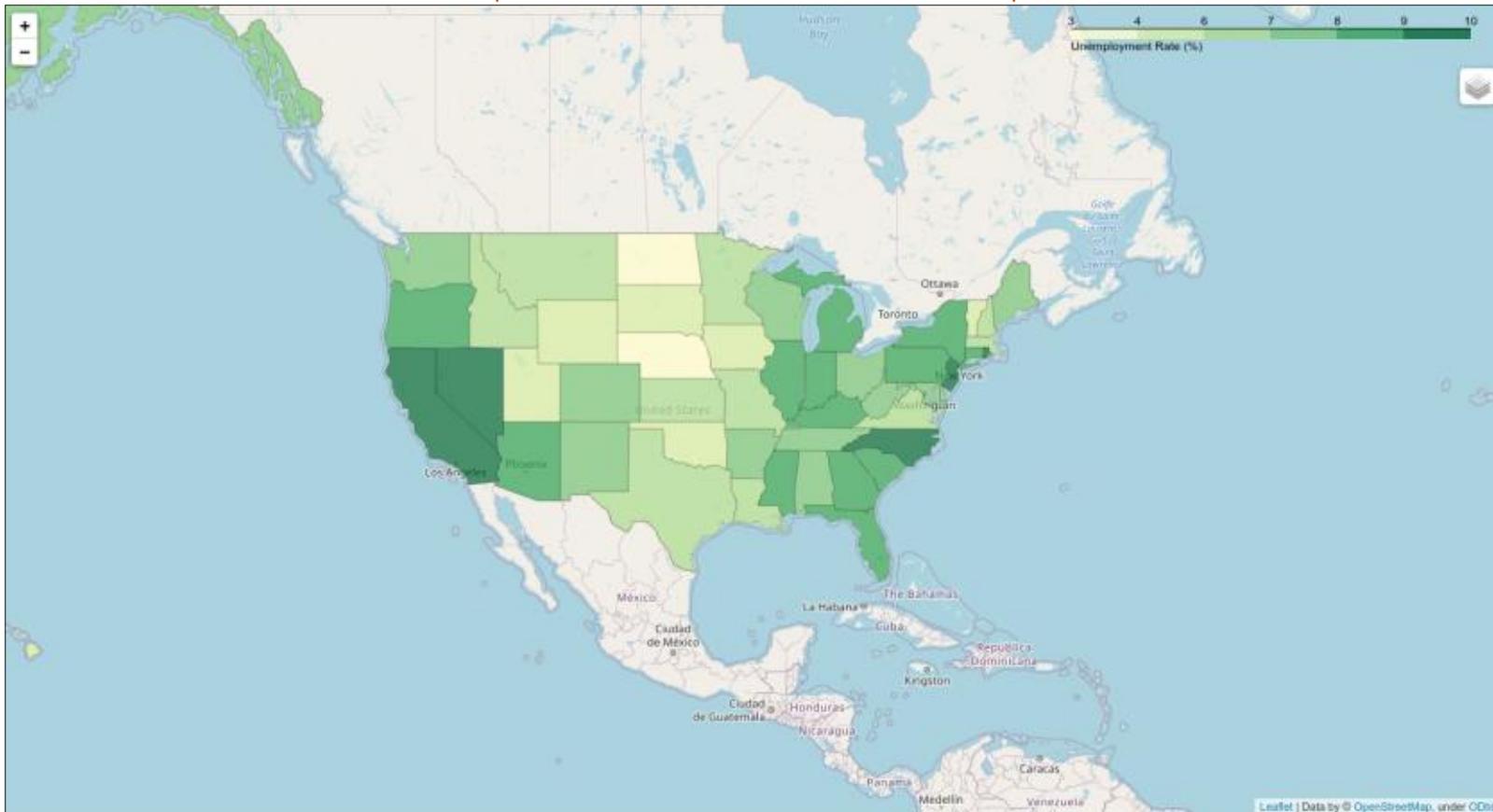
and, when checking the folium version on the gallery site, it shows a higher number than what's available on the repository, so expect a new version out soon.

I've put the source code for this month up on Pastebin. The links are:

<https://pastebin.com/Fv5jVy3G>

<https://pastebin.com/y1vE6z1A>

As always, until next time; stay safe, healthy, positive and creative!



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



So, the last two articles have looked at the hardware and software needed to get started in the podcast world. In this article, we look at your options for getting your audio out to the listening public, and how to go about this.

My first solo podcast was via Hacker Public Radio (HPR), and I would recommend that anyone dipping their toes into the world of podcasting to use this as the medium for getting their first shows out into the wild. The great thing about HPR is that the topic can be about virtually anything as long as it doesn't infringe anyone else's rights to the content. So, playing copyright music is not allowed but the playing of creative commons music is, as long as you credit the content as required by the licence. If you have recorded your content, it takes about 15 minutes:

- Request a slot on the upload page.
- Fill out the form on the submission page by answering several questions and composing a few show notes.

- They then request that you upload the audio as a high-quality .flac file.
- Press submit and let your audio upload.

If successful, you have just submitted your first podcast to HPR. More details on their requirements can be found on the Contribute page, and a HPR show on the whole process can be found at <http://hackerpublicradio.org/eps.php?id=2939>

Another quick way to get your audio out to an audience is via social media; Alan Pope of the Ubuntu Podcast has recently started to use the Telegram application on his mobile phone to post what he has titled a 'TeleCast with popey', and has about 500 followers of this channel. For Alan, this was a great way for him to be able to post short audio clips of his thoughts at a particular moment in time, and record and publish them directly via Telegram. It has to be said that Alan is already well known in the community, and has many followers through his podcasts and

multiple other social media outlets, so he already had an audience, but his experience of doing this has shown that it is possible to start a podcast of sorts with the Telegram and other similar applications that have this functionality.

OK, that has demonstrated that you can get your audio out onto the internet for others to listen to, and, in the case of HPR, this will be sent to people's pod-catches if they are subscribed to the HPR RSS feed, as, although they may not know of you yet, they subscribe to all the shows that HPR puts out each week. In this way, you are guaranteed that some will listen to your show. Other services exist – some of which offer a free or paid option to host your podcast. A new one I have just been made aware of is Anchor (<https://anchor.fm/>) – which aims to be the YouTube of podcasting, allowing podcasters to be both hosted for free and share in money made from advertising around their content. You will have to make your own mind up if this is a valid option for your podcasting endeavour.

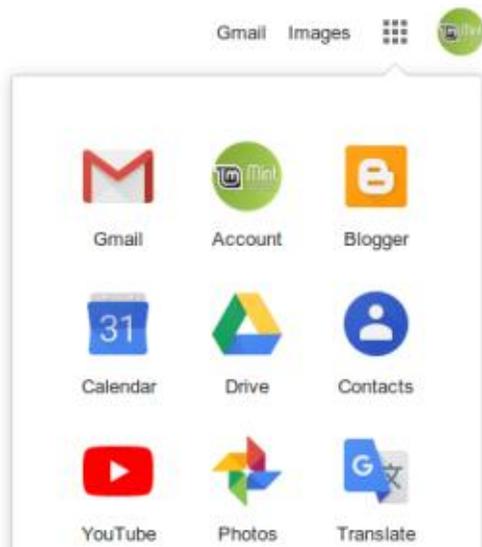
So now let's look at how you might create a custom site on the internet. With your own site, you can manage your own web presence, make it look the way you want, and host your audio (or a link to it) and RSS feed. There are many services that provide free hosting of a web/blog site. The most common two for a new user are 'WordPress' and the one that I use for the 'Distrohoppers Digest' site, 'Blogger', which, if you have a Google account, you already have access to. There are many tutorials on the net for creating a WordPress site, but, to keep it simple, I am going to talk about my personal experience of setting up a Blogger site, getting Feedburner to push the feed to pod-catchers and even displaying your logo along with the feed.

The first thing you need to think about is do you want to create a separate email account with the name of the Podcast, or are you happy to use an account you already hold? Personally, my suggestion would be a dedicated

# HOWTO - PODCAST PRODUCTION

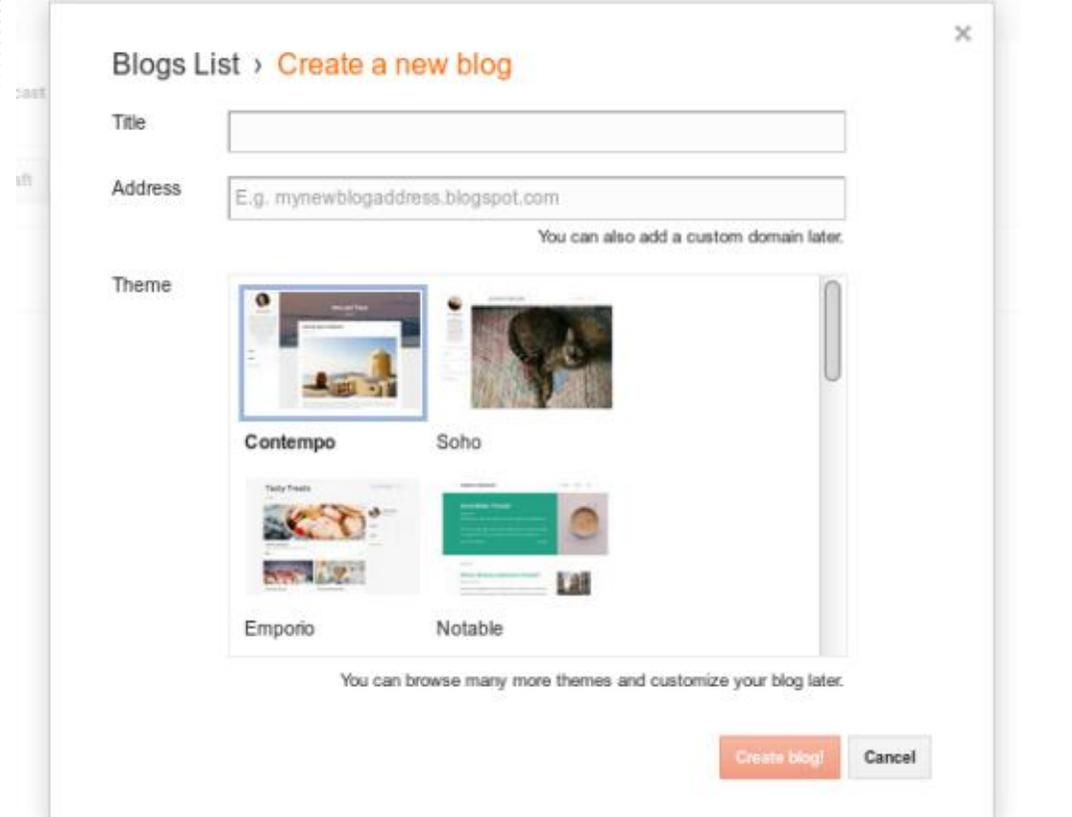
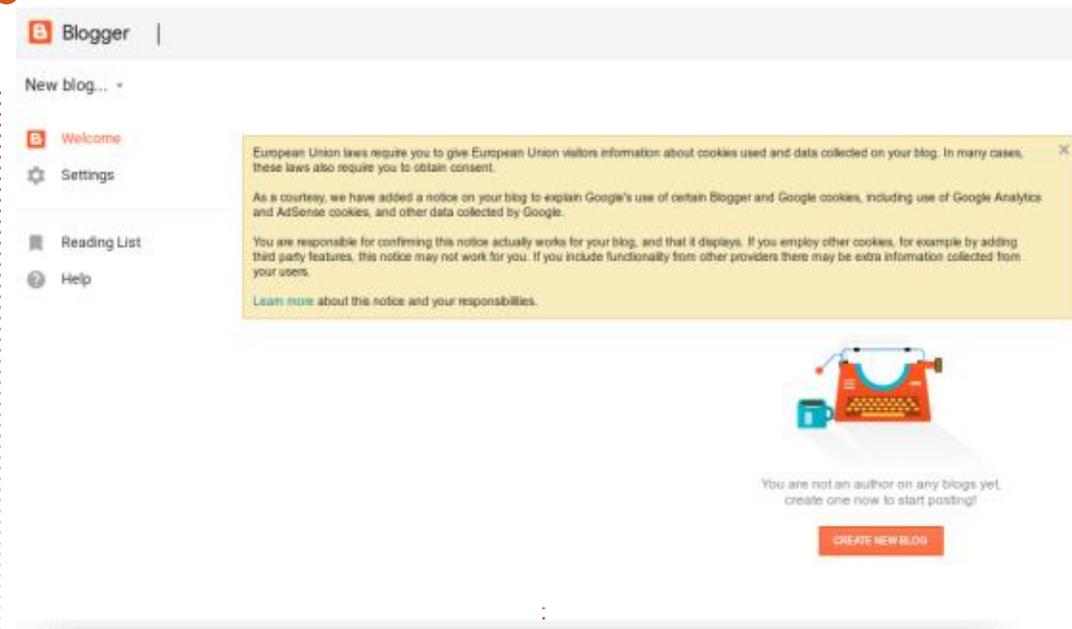
address and site; that way, if there are more than one of you involved in the show, you can share access to the account without compromising any personal information, although google may require a link account to verify your identity, anyone with access to the show account, will not have access to the account you used during the setup process. In my case, when I created the new account for my podcast, the email: [distrohoppersdigest@gmail.com](mailto:distrohoppersdigest@gmail.com) was available, and we created a new account using this address.

If you have created a Google account, then, in the top right of your google page, there is a grid of 9 squares next to the username; if you click this, several icons appear,



if one of these is the Blogger icon, you can use this to access your new blogger account; if the Blogger icon is not visible, click on the word 'more' at the bottom and it will be somewhere among the other icons. Although, in my experience, it is generally in the first set. So navigate to the Blogger page, and, if this is a new account, and you haven't yet created any posts, you will be presented with a menu of options on the left of the screen that is just titles, the top one being posts. Above that should be something that says your blogs or create a blog as, at the moment, you haven't got any blog's created. Note you can have multiple blogs associated with each Google account, so, if you are planning to start several different podcasts, you could in theory use the same email. If planning to do this from the start, before creating the email address, you will want something more generic that can be used for more than one show.

Although as you get 15GB of free drive storage for each email account it can be handy to have separate accounts for each podcast as you can use this for storing your audio archive – if only temporarily. So, you have created a Blogger



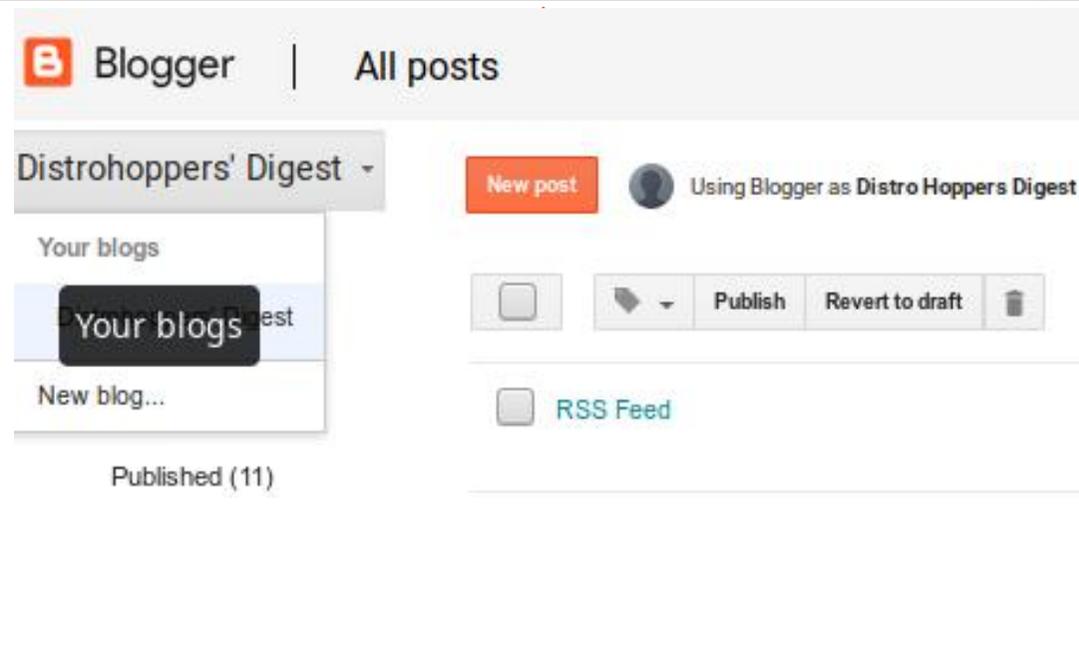
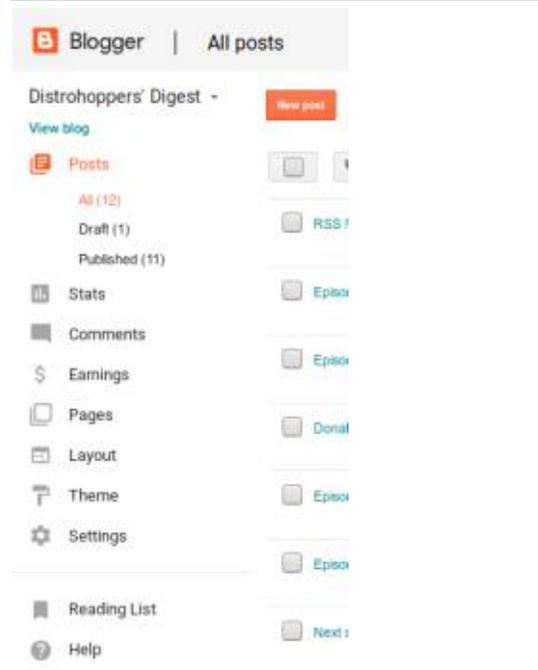
# HOWTO - PODCAST PRODUCTION

(Google) account; now you need to decide on the title for your new podcast and create your Blog for this.

On the Blogger home page, click the 'create new blog' box, and you will be presented with a setup screen. Give your Blog a title and choose a theme; don't worry if you change your mind later, you can change the blogs style in the settings menu on the left of the screen after you create your blog.

You now have a Blog and can create a post, and it will appear on your blog for all to see.

So this month we have covered posting your audio to both Telegram, HPR and Anchor. We have also started the process of setting up your own Blog site where you can create your own dedicated Podcast pages, with both your show notes, links to your audio for downloading, and, as we will look at in future articles, an RSS feed to push your audio directly to people's pod-catchers as you publish new content. See you next Month





# HOW-TO

Written by Erik

# Rawtherapee - Pt7

One of our readers, Shane Harvey, asked for more Rawtherapee, so we continue the series beyond the original six parts.

So I got asked on Telegram, why should one use Rawtherapee when you can buy something like Luminar4? This got me thinking about my choices. My first and most obvious answer is that Rawtherapee is cross-platform and does not shun LINUX. Secondly, price; Luminar may be \*only \$89 in your country, but it is \$1500 in mine.

One of the things that breaks my brain is the way people teach things. A friend has taken up first year accounting at university. The book actually states: "do not try to understand double-entry bookkeeping, just learn it."... One of Clark's laws state: "Any technology, no matter how primitive, is magic to those who don't understand it." So Luminar may seem magical if you have no idea what is going on in your photographs (...just sayin').

Let me give you a quick example

in the real world. We have all bought crumbed chicken, fish or schnitzel before. The box usually states pan-frying or oven-baking; microwave cooking is not recommended. When you ask yourself why, it is actually obvious, unless you do not know how a microwave works. (Let us assume you did not, for a second... Pan-frying or oven-baking applies heat from the outside. A microwave flips the water molecules inside your food and it cooks/steams from the inside, thus loosening the crumbing so steaming it soggy, as the heat/steam is coming from the inside). Armed with this knowledge, you will not need to be told that the microwave will ruin the crumbed perfection.

Let us focus on Rawtherapee and why it is a good choice to invest some of your time into. Now I am not saying Rawtherapee is the be-all and end-all of RAW image processing. All I am saying is that once you understand your tool and when to use it, you will not need to spend money on some tool that you do not know what it is doing in

the background.

Rawtherapee 5.8 supports the .cr3 format. Free and out-of-the-box! Here is a quick refresher if you did not know: <https://expertphotography.com/cr3-file>

Rawtherapee not only allows you to undo what you have done, but it keeps a history of what you have done. Unlike other image processing programs, it doesn't apply "accentuate" or "pop" or "smooth" and you have no idea what just happened. (Back to our microwave example: "hey, why is my crumbing soggy?").

I also have to mention that you can snapshot your work at any point in time and roll back to that snapshot in time, should you need to. For instance, making multiple edits of the same picture, like branching out from a point in time. (Multiple snapshots are allowed).

Rawtherapee allows you to quickly export your photograph to GIMP (if you have it installed) to further edit your pictures.



# HOWTO - RAWTHERAPEE

Rawtherapee's overall design is meant to be simple, and "when you see it" (like the meme), it is actually laid out in the way one works.

Not only does one have lens correction, but there is 'distortion correction' under the transform tab. This can turn a photograph you may not have considered into a winner. This is really handy for macro photography, where lens kits sometimes cause fisheye.

None of your transform tools are hidden from the user, all your sections and sliders are visible down the left. You do not need to turn on a module to see what settings it contains.

Rawtherapee is regularly updated, open source and free. Should you need masking, you can scale to ART. (Which is Rawtherapee with masking, don't you just love open source?).

Let's get to learning something, shall we? In Rawtherapee 5.8, you will find the section: "Detail" which contains sharpening options. However, there is a section named "RAW", that will be empty if you

loaded up another format picture, like a jpeg. Can you feel a 'but' coming on? I can. This section will be populated once you load a RAW image. This is where the 'but' comes in, this section also contains 'capture sharpening' options, right at the bottom. (You may need to scroll down). It may also not work with certain arb raw formats.

To understand this, you need to be zoomed in 1:1 or larger. Before you start playing with these sliders, I have to point out that this is quite processor intensive. Keep your eye on the ready indicator at the bottom of your screen. The defaults are usually fine, as they cover most scenarios. If you feel you need to adjust – you need to

start at the "corner radius boost" slider. Starting at the top – 'contrast threshold' may smooth over things that need to have grain.

Unlike other controls in Rawtherapee, you will see checkboxes next to the reset arrows of the first two settings. These are the 'automatic' settings for those sliders as determined by the built-in algorithm. The reason for this is that it is easy to introduce noise here if the setting is incorrect. That does not mean you cannot use the sliders, just be watchful when you do. The last thing you need is: artefacts when you are trying to sharpen some corners.

TIP: My rule-of-thumb here, is to set my corner radius boost to 0.33. I would say that it is the goldilocks zone for my camera. Find your camera's goldilocks zone and it will make things a lot easier.

A word on iterations. The more iterations, the longer it will take to render the image. You may, or may not, see any benefit here. Truth is that I cannot see the difference between 32 and 64 iterations on any of my images. (This may be due to my advanced age – You kids get off my lawn! - But I encourage you to try it yourself and see).

I hope you had fun if you followed along and I hope you learned something.

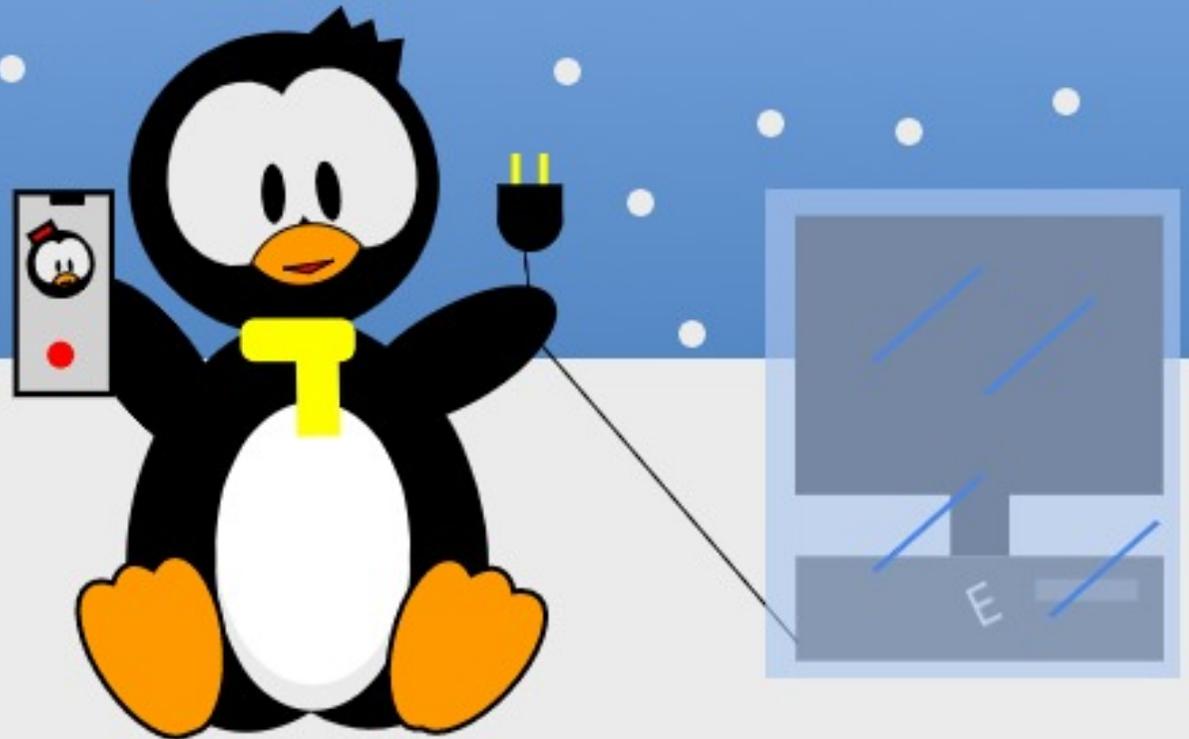
As always, if you have any questions or comments, send them to: [misc@fullcirclemagazine.org](mailto:misc@fullcirclemagazine.org)



# The Daily Waddle

**Oh, thats easy, just  
unplug it from the  
wall!**

**Nope, still  
frozen...**





# HOW-TO

Written by Mark Crutch

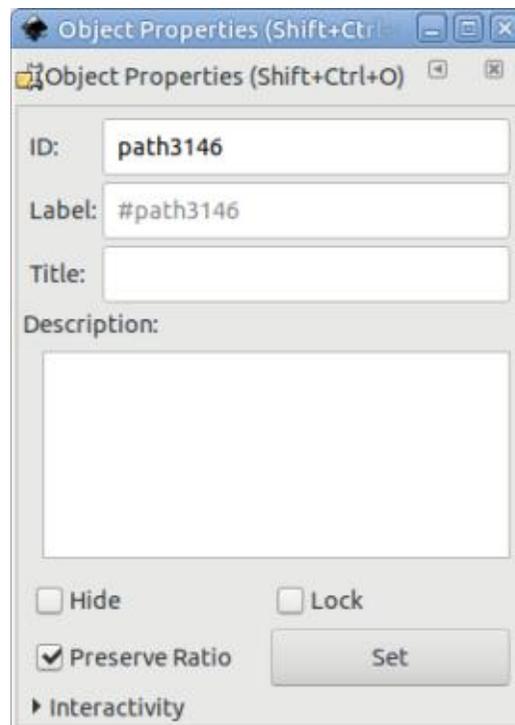
# Inkscape - Part 101

A recurring problem that new users face when starting to use Inkscape is the myriad ways of accidentally making something invisible. A few articles ago, I talked about this with regard to Outline View, and the new Visible Hairlines, Split View and XRay modes in version 1.0. But there's one way of making objects disappear even from those tools, and which used to cause a lot of confusion for new users, as their objects vanished into the ether with no obvious way to retrieve them. Version 0.91 made recovery easier, and, with 1.0, we now have several new options on the context menu that make this feature something that might actually be more of a help than a hindrance.

There is an "Object Properties" dialog in Inkscape, which is available from the right-click context menu, making it easy for new users to stumble upon. It allows you to set the ID, Label, Title and Description of your object, but, in practice, most of those items only have any real value when the SVG is loaded into a web browser

and manipulated with JavaScript. Small JavaScript snippets can be entered directly into this dialog, via the Interactivity section at the bottom (see part 82 of this series).

There are also a couple of checkboxes in this dialog that can easily tempt an unwary user. The "Lock" option stops you interacting with the object at all. Initially the object remains selected, and can be affected by keyboard shortcuts, but, as soon as the selection is



removed – by clicking on the background or selecting another element – the object becomes completely inert. You can't select it, move it, resize it, or delete it. The "Hide" checkbox also makes your object inert – but, in addition, it makes it completely invisible, even to the prying eyes of Outline View and its friends.

Back in the days of v0.48 and earlier, these checkboxes were a real problem for new users. They would naively lock a bitmap they wished to manually trace over, only to find that the means to unlock it when they wanted to delete it was less than obvious. Similarly, a right-click on it would no longer present the Object Properties option – thereby concealing another unlock possibility. A hidden object fared even worse: the behaviour was the same, but you couldn't even see it to be sure you were right-clicking in the correct place!

The correct way to unlock or unhide your object was actually to unlock or unhide all the objects in your drawing, via options in the

Object menu. There was no UI (other than the XML editor) to let you unlock or unhide individual items, making these capabilities rather useless for managing the state of very specific parts of your drawing.

With 0.91 came a new Objects dialog (Object > Objects... described in part 63). This lists every element in the drawing – including the hidden ones – with handy toggle buttons to (un)lock and (un)hide them. It's a very familiar interface in other graphics software, and turns these properties into genuinely useful features. Personally, I think the checkboxes should have been removed from the Object Properties dialog to avoid further confusion, leaving them available only from the Objects dialog, but they still exist in the dialog to this day.

Inkscape v1.0 adds more UI niceties to work with these capabilities, by providing four new entries on the context menu: **Hide selected objects** and **Unhide objects below**

# HOWTO - INKSCAPE

Lock selected objects  
Unlock objects below

Create Clip Group  
Set Clip  
Release Clip  
Group  
Hide Selected Objects  
Unhide Objects Below  
Lock Selected Objects  
Unlock Objects Below

The Hide and Lock entries are pretty self-explanatory. The one caveat to be aware of is that they hide or lock the objects that are selected, which may not include the one you've right-clicked on. Make sure to select all the target objects before right-clicking.

The Unhide and Unlock options refer to "below" in their titles. In this case they mean "below the mouse pointer". Right-click on a locked object and select the Unlock option to unlock it. It doesn't get much simpler than that, right? But there is a caveat: this operation will unlock any object below the mouse pointer, regardless of what layer it's on, even if the layer itself is hidden and locked! And, as the plural in the menu title suggests, if you have multiple locked items

stacked on top of each other below the position where you right-click, they'll all be unlocked.

Unhiding follows the same rules, but it's obviously a little harder to find the correct spot to right-click on. As mentioned, none of the usual options for seeing invisible objects will work, so I hope you've kept track of where everything is in your drawing. To help with this treasure hunt just a little, the Unhide menu option will be enabled only if there is actually a hidden object below the mouse pointer, so you can be sure you're in the right place. If you can't find the object easily then a trip to the Objects dialog is probably a better use of your time than trying to play a hobbled version of Battleships against Inkscape.

The Unlock menu option also becomes enabled and disabled based on whether or not there's a locked item below the mouse pointer, but it gets confused by locked layers, becoming enabled when you right-click over any object in the locked layer, regardless of whether or not the object itself is locked.

Despite these minor issues,

adding the options to the context menu is a welcome change that surfaces these long-standing capabilities of the program in a way that makes them not only more discoverable, but also more usable. Small changes like this may not get the fanfare of the big new features, but, by making users' day-to-day workflows a little easier and more flexible, they're every bit as welcome.

Another small new feature is even more welcome, at least by me: inverse clipping. This is an omission from the SVG specs which has always frustrated me, not least because it solves common problems trivially, but is no harder for a browser or graphics program to implement than the standard clipping routines. For lack of an extra paragraph or two in the spec, users have been forced to spend time reinventing inverse clipping with their own complex paths time and time again.

I covered clipping all the way back in part 13 of this series. If you're a very long-term reader, you may recall that this series began with a few articles to help you get to grips with the basics of Inkscape by drawing a snowman. By part 13

it was time to adorn him with a scarf.

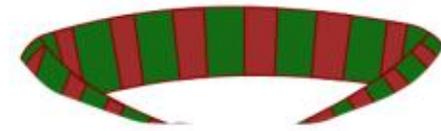
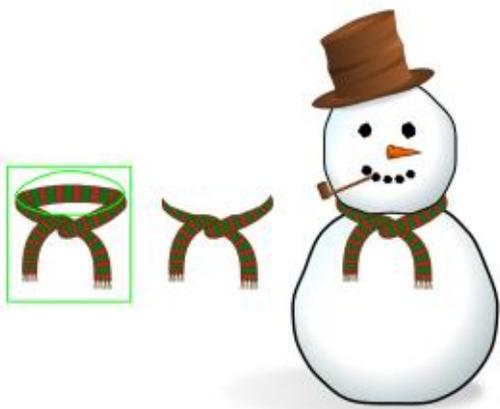


I began by drawing a scarf in its entirety, including the part that would normally be hidden behind the snowman's head ("neck" seems a little too generous a term in this case). I first demonstrated how a simple clipping path (in green) wouldn't do the job – it would leave the back of the scarf visible, whilst hiding the part you actually wanted to see.

It's a classic approach: first show the audience what doesn't work,



then follow up with a demonstration of what does work. In this case, it's an "inverse clipping mask", created by using Path > Difference to cut the desired shape out of a larger enclosing rectangle. The resultant complex path is then used for clipping, giving the desired result.



It works, but it's not really beginner friendly. When a new user just wants to cut the center out of a circle to make a donut, being forced to confront Boolean operations and bounding boxes makes Inkscape seem rather unfriendly. If the SVG Working Group had only added an "inverse" parameter to clipping paths all those years ago, Inkscape probably would have included this feature from the earliest versions. As it is, we've had to wait until now – and it's still included only as a user-friendly addition by the developers, not because of any change to the SVG specs itself (this option was proposed for SVG2, but didn't make the cut, much to my ongoing frustration).

So how does this new feature work in Inkscape? As with many "extensions" to the basic SVG capabilities, it's implemented as a Live Path Effect (LPE). But, like several other LPEs, it's available directly from the normal Inkscape UI, so you don't need to deal directly with the LPE to benefit from it. I'll cover the new "Power Clip" LPE that is behind it in a future instalment but, for now, let's just see how we might use it to work with our snowman's scarf.

There's no real trick to it, actually. You just create a path (or an object that can be converted to a path) that encloses the part of the image you want to clip away. Then select both the clipping path and the object or group to be clipped and you're ready to proceed. Whereas the option for a normal clip can be found on the context menu, it takes a trip to the Object > Clip > Set Inverse (LPE) option to trigger the inverse mode. And that's it. No complex paths or bounding boxes. Just a simple interface for what should be a simple task.

Internally, of course, complex paths and bounding boxes still come into play. You can see this by

switching to the Node tool (F2), where you'll see that Inkscape has automatically created a complex path consisting of your clipping path and another that hugs the bounding box of your selected object. As usual, you can edit the nodes and lines of these paths for an instant effect on the clipped object – ideal for fine-tuning the resultant shape to make sure your scarf provides a nice, snug fit.



There's also a new inverse mode for masks, though its behaviour is not so obvious. Masking was covered in part 14. It's basically similar to clipping, but uses the color of each pixel in the mask to determine the opacity of that part of the masked object. White parts remain visible, black or transparent parts are made transparent, and values in-between have their opacity set accordingly. Typically it's used where you want to fade the object, rather than produce the abrupt edge that clipping gives. Here's an example where I use a

## HOWTO - INKSCAPE

blurred white object as a mask to remove the outside of a colored rectangle.

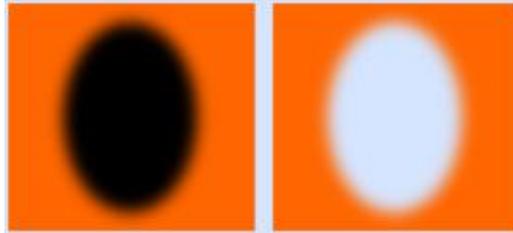
This particular result could obviously be produced simply by blurring a colored ellipse, but in a real example you might have a far more complex shape in your mask, or the object you're masking might be a group made up of lots of different elements.

Once again, the SVG spec offers no inverse version of a mask. But Inkscape provides such a feature in v1.0, so to cut a hole in the colored rectangle, surely just requires us to use the Object > Mask > Set Inverse (LPE) option, right? Of course not! That would be far too sensible. Instead the result is just a colored rectangle, as though no mask even existed.



What's happening here is a discussion for another article – probably once I get round to a further examination of the new

LPEs in version 1.0. Suffice to say that we can get the effect we're after by drawing the mask in black rather than white, then using the Set Inverse option.



The irony here is that we've had to manually invert the color of the mask in order to use the automatic feature for inverting the mask! There is some logic to this, but it's tied up to the way the LPE operates, and the default settings that get applied when you select this option. For now, I'll be sticking to creating inverse masks by hand, the old fashioned way, but I can definitely see a lot of inverse clipping paths in my future.

There's one final caveat to using these new features: because they're implemented as Live Path Effects, they won't work directly on bitmap images. Note the word "directly" – these LPEs can also be used on groups, even if the group contains only a single bitmap image. So, if you really want to

poke a hole through a treasured family photo, just put it into its own group, then get going with the inverse clip or mask. I usually advise putting a bitmap into a single-object group anyway, as it opens up some other creative possibilities I've covered in the past, so it's perhaps worth getting into the habit of always grouping a bitmap as soon as you place it in your drawing.



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



# HOW-TO

Written by Alan Ward

## Krita To Rework Old Photos Pt.11

This series is aimed at learning to make something of the old photos in my possession, and others in the public domain due to their age. You, the reader, are welcome to tag along and I hope you glean some small insight and perhaps an idea or two from time to time. No promises are made as to quality of the content, or potential errors and omissions. I am a computer scientist, not a true

artist or a professional of image restoration. So please take all this as a best effort, but with no firm guarantees — much as is the case of most open-source software.

In the previous part of this series, we worked on a scene in which a lot of reverberation overloaded early light sensors, giving light colors a totally washed-out look. Since much information

on details had not been retained within the image file, it was impossible or very difficult to put it back into the image through color-curve manipulation, and we finished by clearing up even more of the affected parts of the image, to center the viewer's focus on the main subject of the photo. In this part of the series, we will work on another early digital photo, in which the camera's optics and light-

sensitive chip lost some definition in an otherwise quite pleasing scene, due to their lack of resolution at the time. The constant progress in casual photographer's digital equipment — or even mobile phone cameras — has made images taken even a decade ago noticeable for their lack of resolution, as is the case here in a picture from the Dublin Quays.



A quick zoom immediately shows us what the problem is here: a general lack of resolution leading to blurring and loss of details in the bronze figures that are the center of interest of this scene. The buildings in the background also exhibit a loss of details that would, quite frankly, be unacceptable in today's world of mobile phone cameras with 12 million pixels or more, and rather more advanced physical optical systems than at the time.

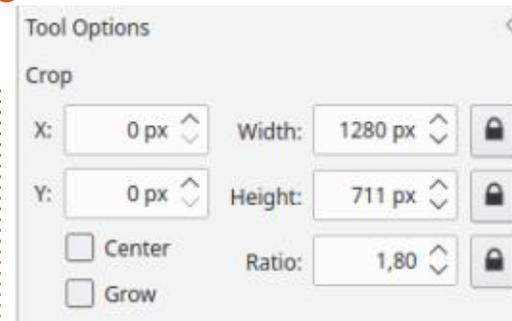
In fact, with this picture we are in a similar quandary as in the previous image of a tree in Cheung Chau: due to the technical performance of early digital cameras, some information is missing in the image file that would be needed to produce truly sharp photos to the same standard as those produced by modern material. So, when working on this type of old photo, we cannot compete on this level. To make our image somewhat attractive among the competing glut of digital photos, we need to center ourselves on other aspects.

In this case, the main aspects of the scene are the bronze figures,

what they represent, and the general lighting which makes them stand out. We can further enhance these effects with a few simple tricks.

The first would be to crop the image, centering the figures in the field. If we keep the same image width and cut a strip out of the bottom, we gain on two counts: we center our subjects within the field, and at the same time we move to a more modern width-to-height proportion. The 4:3 ratio seen in earlier digital photos such as this one was perfect for screens of the time (remember Cathode-Ray Tube monitors?), but modern viewing devices tend to go up to the panoramic 16:9 ratio, or even higher — and photo proportions have followed suit. In Krita, this is easy to do with the crop tool.

If you keep an eye on the tool options dialogue that opens when each tool is active, notice the proportion that is being calculated while placing the cropping rectangle on your image. A 16:9 proportion is about 1.78 to one; in this case I chose a slightly higher 1.8 to one proportion for an even wider effect for the scene.



To continue, let us make the bronze statues stand out from the surrounding elements. This will help us obviate the buildings in the background, but also separate our figures from elements such as the metal railings and lamp post that tend to mix themselves up with our subjects. To do this, a simple technique is to keep our figures colored, while moving the background to black and white. To the human eye, the color bits stand

out quite clearly and attention is drawn to them.

To do so, one possibility is to make a copy of our color layer, using the Layers docker copy (clone?) button. Now, click on the top layer, which will probably be labeled "Copy of Layer 1" if our base image was titled "Layer 1". Now, choose menu option Filter, Adjust and finally "Desaturate". Accept the changes, and we now have a black-and-white version of our scene in the new layer.

Now comes the manual work. Stay within the B/W copy layer, and choose the brush tool and one of the erasers. There are several eraser options, but the main one



“Eraser Circle” will be fine for our purposes. Slowly, using small touches and a fine size, erase the statues from the black and white layer... thus revealing the colored version beneath. Using soft touches and perhaps even reduced opacity for the eraser, the edge of the statues can be adhered to quite well, making each figure pop out quite nicely from a surrounding sea of black and white.

The eye can now distinguish more easily between the figures, and their background. To complete our image, the background – which is still in the top layer – can be made a touch lighter using the tool in Filter > Adjust > Color adjustment curves. In this case, I

raised luminosity slightly for all lighting levels, but made sure this effect was more evident on darker colors. Since the figures in this scene are rather dark-colored, making the background slightly lighter gives us even more contrast.

The technique described is often used in museum photo recreations, but can be of interest in other situations. Since the background is obviated, a low resolution is not as noticeable as when a full-color image is presented.

In the next (and final) part of this series on using Krita to rework old photos, we will stay with early digital images and work on color

density and enhancement. Until then, take care!



**Alan** holds a PhD. He teaches comp sci and eng at Escola Andorrana de Batxillerat. He has given GNU/Linux courses at the Uni of Andorra and taught GNU/Linux systems admin at the OU of Catalunya.



# The Daily Waddle

THE DAILY WADDLE

by: ErikTheUnready



**How's the love life?**

**The only dates  
I've been getting  
are updates...**





I am a 5 year Linux veteran. I started off with Ubuntu and Linux Mint. I then migrated to openSUSE and Fedora/Korora. After Korora was discontinued, I drifted over to Arch and back to Ubuntu MATE. I also dabbled in BSD variants too.

I drifted towards corporate sponsored distros like Canonical's Ubuntu, Red Hat's Fedora, and SUSE's openSUSE. I felt the corporate touch would lead to a better experience for me. And in many ways I was right. Redhat and SUSE command a large portion of the market for alternative operating systems, accordingly it



should be easy to use. Canonical should be no different.

However I always wondered what percentage of distros can be traced back to those three upstream projects, Debian, and Arch . There is no definite source of which OS is the most popular standing from a statistical perspective. Distrowatch can give a general trend for popularity of the

various developer projects downstream. For simplicity, I am only going to review Ubuntu, Debian, Fedora, openSUSE, and Arch Linux. I will be using some advanced searches on Distrowatch to get the final numbers. The numbers will reflect the current active, dormant, and inactive Linux forks.

After seeing the numbers, I am

surprised that Fedora and openSUSE are so low. However Distrowatch does not entail total number of users for that distro. I know Distrowatch is more of a referral or a suggestion in general trends for OS popularity. Yet I question my idea that corporate Linux would be a better experience. Additionally this points that Linux is a volunteer product that does a great job for a better operating system.

Next month I hope to find the most popular desktop environment.

	Active	Dormant	Discontinued
Debian	122	32	240
Ubuntu	54	16	83
Arch	21	4	16
Fedora	13	4	77
openSUSE	3	1	7



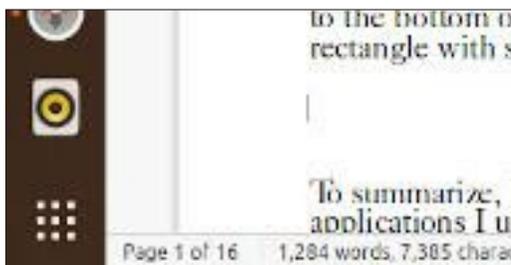
**SJ Webb** is a researcher coordinator. When he is not working, he enjoys time with his wife and kids. He thanks Mike Ferarri for his mentorship.



Seeing as how I'm ancient and used to ride a dinosaur to school (uphill both ways, in the snow), I can remember a time when management of a music collection definitely involved managing the physical media (CD's, cassette tapes, I even remember 8 tracks and vinyl records). Of course, digitalization of media makes the management of a music collection MUCH easier now, but it's not a seamless trade-off. MP3's sound pretty good, but they actually are inferior to CD quality, so it's still worthwhile to get music on physical media if you have a truly sensitive ear and want the best listening experience.

Somewhat in contrast to that reason for having analog music, my own main motivation for having CD media is that I simply already have it, as I have a lot of CDs that I've owned since before the MP3 era. Fortunately, Ubuntu comes with a default application for 'ripping' CDs to MP3 format, where your media is easier to manage. It's called Rhythmbox, and it does a LOT more than just ripping CDs.

Rhythmbox will usually show up by default on the Ubuntu Launcher, usually close to the bottom of the default applications that are there. Its icon appears like a rectangle with some concentric circles:



That's it, just above the 'Show Applications' drawer (the unmoving set of white squares at the bottom of the Favorites launcher):



Once you launch it by clicking the icon:



You'll see the screen shown right.

Note that there's a lot of music already here. That's because Rhythmbox automatically searches

# Managing Music In Rhythmbox

your hard drive on its first launch and indexes all the existing music it finds. Pretty snazzy!

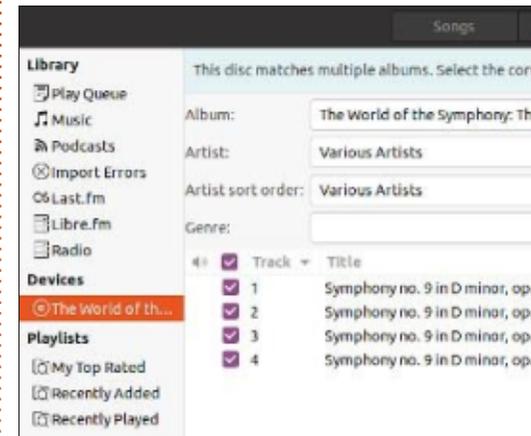
## RIPPING A CD

Now, let's insert a physical CD into the computer's optical drive. If Rhythmbox is already open, it will now show an Audio Disc on the left side:

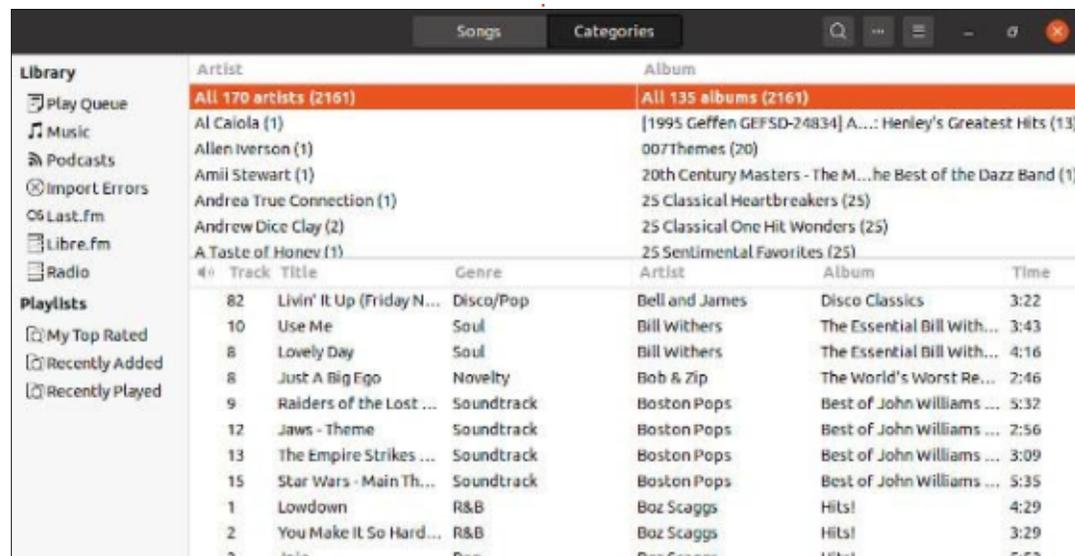


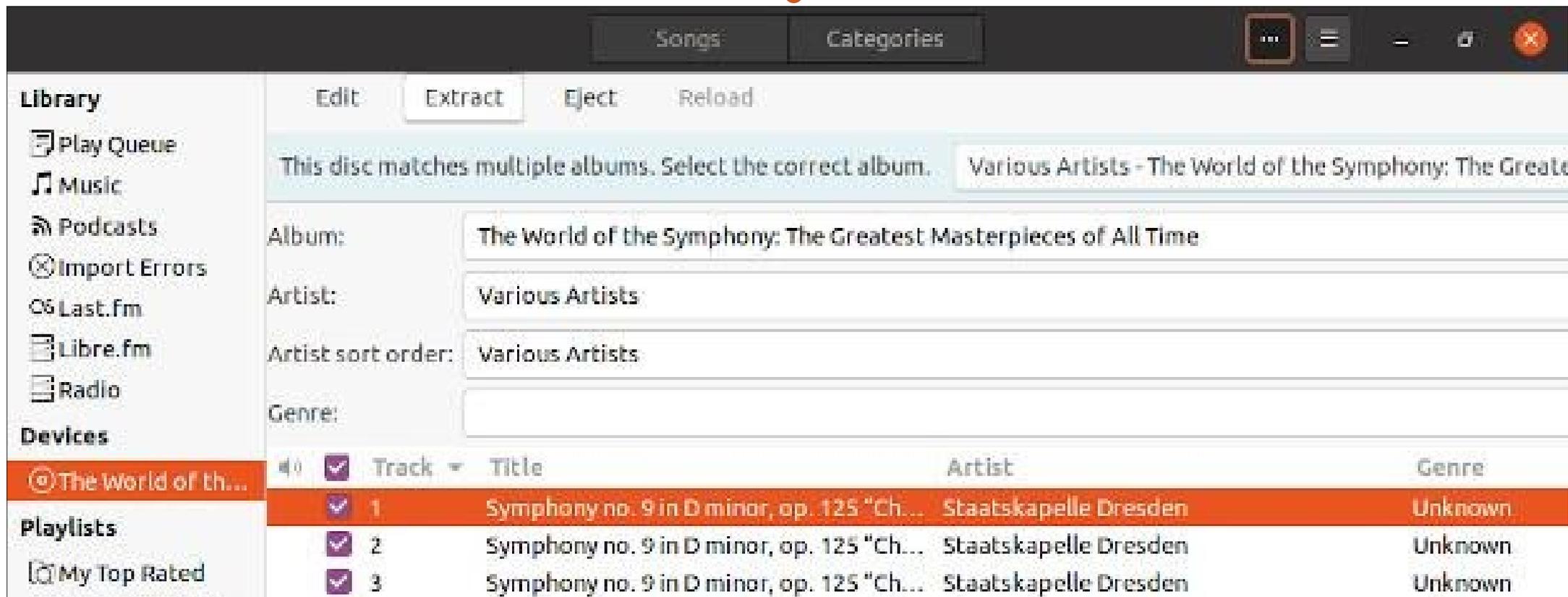
If you click on Audio Disc (and

you're online), you'll get this screen:



As you can see, Rhythmbox has seamlessly tapped into the Musicbrainz online database and found information on the audio CD,





and has already filled in track names and even selected every track by default to be ripped. Pretty nifty!

Now, click the icon with the three dots at the top of the screen to get the buttons seen here just below the main menu bar (shown above).

If you now click 'Extract', Rhythmbox will proceed to rip your

CD tracks to MP3 format on your hard drive. It will create a folder with the album name, located by default in your home folder's 'Music' subfolder. It would literally be extremely difficult to make the process any simpler or more straightforward.

You can also play your CD, or any digital music file you've selected, using the play controls at the bottom of the screen (shown

below)

From left to right, you have controls to Play Previous Track, Play Current Track, Play Next Track, a slider control to select a particular place on the track, a Repeat button, and a Play in Random Order icon. These controls work the same on digital files like MP3s, and on physical media like music CDs.

Next month: More music management (and probably less alliteration) using Rhythmbox.



**Richard 'Flash' Adams** spent about 20 years in corporate IT. He lives in rural northwest Georgia, USA, with his adopted 'son', a cockatiel named Baby who now has a little brother, a dusky-headed conure named Skittles.





# UBPORTS DEVICES

Written by UBports Team

Ubuntu Touch is the privacy and freedom respecting mobile operating system by UBports.

Today we are happy to announce the release of Ubuntu Touch OTA-13, our thirteenth stable update to the system! OTA-13 will be becoming available for the following supported Ubuntu Touch devices over the next week:

- \* LG Nexus 5
- \* OnePlus One
- \* FairPhone 2
- \* LG Nexus 4
- \* BQ E5 HD Ubuntu Edition
- \* BQ E4.5 Ubuntu Edition
- \* Meizu MX4 Ubuntu Edition
- \* Meizu Pro 5 Ubuntu Edition
- \* BQ M10 (F)HD Ubuntu Edition
- \* Nexus 7 '13 (Wi-Fi & LTE models)
- \* Sony Xperia X
- \* Sony Xperia X Performance
- \* Sony Xperia XZ
- \* OnePlus 3 and 3T

Overall, 140 non-translation PRs were merged during this cycle. These PRs address enhancements and issues all over the Ubuntu Touch system, and have many long-term benefits.

## NEW DEVICES THIS CYCLE!

With this update we have new devices officially joining the release cadence! This means that these devices will now have a "Stable" update channel available in System Settings -> Updates -> Update Settings -> Channels. You can install Ubuntu Touch on these devices using the UBports Installer:

- \* Sony Xperia X
- \* Sony Xperia X Performance
- \* Sony Xperia XZ
- \* OnePlus 3 and 3T

## QTWEBENGINE 5.14 IS HERE

The system QtWebEngine has now been updated to version 5.14.2 from 5.11. This brings a newer version of Chromium to our included Morph Browser and all webapps.

The browser is now 25% faster across all devices in the JetStream2 JavaScript and WebAssembly benchmarks,

demonstrating much faster webapp performance.

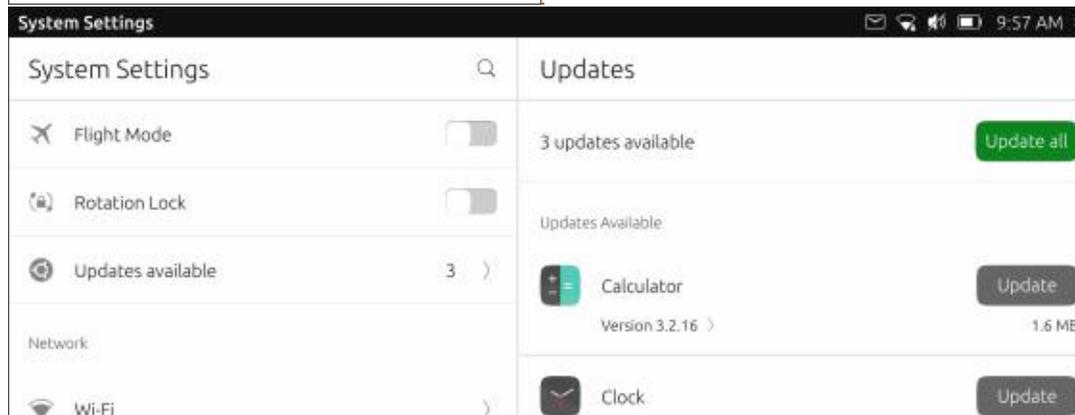
You are no longer limited to selecting a single word, or an entire line, or an entire paragraph of text to copy! Now you can use the touch handles provided to pick only the text you want.



It is now possible to open downloaded PDFs, MP3s, pictures, and text files in the browser via the "Open" button in the top-right corner of the "Open with" page. This UI will improve with future releases.

## WHAT WAS OLD IS NEW AGAIN

Mardy worked hard this cycle to bring back the previous icon-based System Settings main menu. This interface was removed by Canonical during the final months of the project presumably to make a double-column layout work more easily. Now, you will receive an icon-based layout when the window is too small to allow the

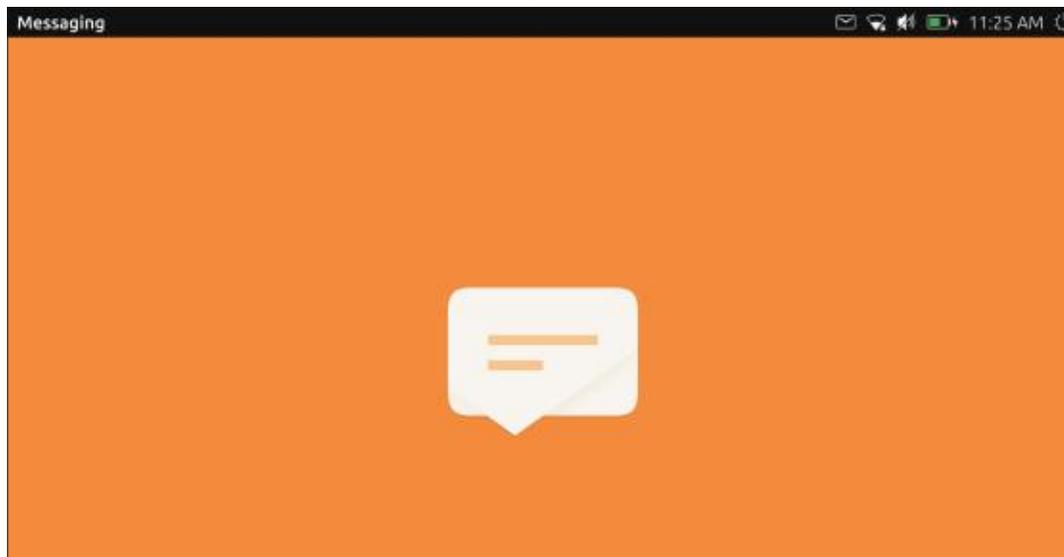


## UBPORTS DEVICES

list-based layout to work well and the switch will automatically occur when needed.

### UPGRADES, UPLIFTS, UPSTREAMS

Luca (of postmarketOS fame) has been working to build Ubuntu Touch components, such as Lomiri and its indicators, on postmarketOS, and therefore also on Alpine Linux. Building our components on Alpine means that we need to adapt to an entirely new stack: musl libc instead of GNU libc, newer compilers and build tools, and an overall different landscape. Luca's adaptations have brought our software closer to working on postmarketOS \*and\*



made it easier for us to move to Ubuntu 20.04 and beyond.

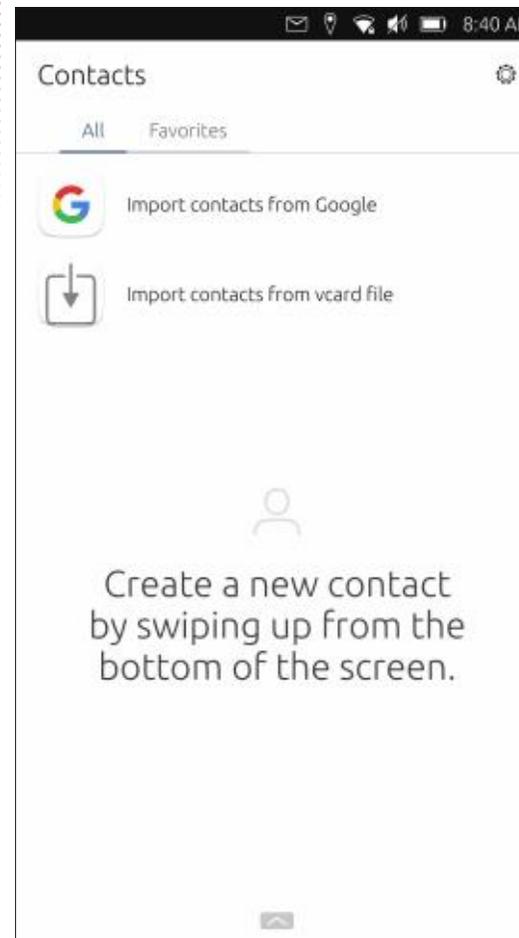
Joan has worked hard to give all of the core apps a first-impression design overhaul over the past five months. Almost all of the apps now use a simpler, cleaner, more eye-friendly design than our previous all-white splash screen of dark mode doom.

### MESSAGES, CONTACTS, AND DIALER REVAMPS

We'd be remiss to not mention Lionel's [duboeuf] work on some of the core apps and their backed services during this cycle -- he accounted for almost a quarter of our merged PRs after all!

You no longer need to worry about missing that special someone's special day -- the Contacts app now allows saving birthday dates. The Calendar loads these dates in a new "Contact birthdays" calendar automatically.

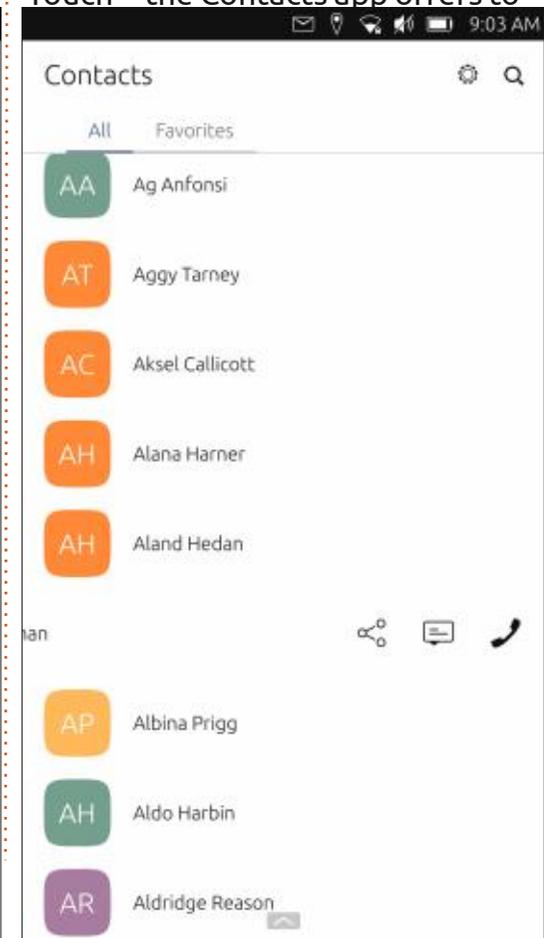
The contact editor view has been overhauled, making it much easier to input a contact without



the keyboard getting in the way and by finding the item you want in the combo-button interface when adding a field.

Contacts now has swipe actions available, allowing you to easily delete, call, or text a contact from the contacts list.

It is now easier than ever to import your contacts into Ubuntu Touch -- the Contacts app offers to



## UBPORTS DEVICES

import a VCF file on its first run. It was possible to do this before by "sharing" a VCF file to the Contacts app, but this new shortcut makes the feature far more discoverable.

Selecting the "Call" button from the contacts listing inside the Dialer now starts a call immediately instead of populating the number and waiting for confirmation from the user.

Lionel fixed a particularly sticky issue with SMS and MMS messages overflowing their message bubbles. Audio recording and sending of video messages has also been fixed.

### MORE THOUGHTFUL FIXES

We believe that we fixed Ubuntu Touch connecting to IPv6-only networks in `ubports/network-manager-packaging#3`, however we were unable to get any testing to confirm or deny this theory. The OnePlus One now correctly identifies the initial state of its proximity sensor. Its screen will now light when its charging cable is connected or disconnected and the screen will not blink when a phone call is started. `ubports/`

`repowerd#10`

Magnetic phone sleep covers will now cause some devices to sleep and wake. This has been confirmed to work on:

- \* Nexus 7 2013
- \* Xperia X
- \* OnePlus One

The torch switch in the Power indicator gained support for more devices, such as the Nexus 6P.

The `lomiri-ui-toolkit` now has better support for the QT Platform Theme and icon themes, making the icons used in Lomiri itself the same as those used in apps.

Newer devices, such as the Xperia X, no longer display in update settings "ghost channels" that cannot actually be installed on the device in Update Settings. `ubports/system-image#13` and `ubports/system-settings#242`

Resuming of busy applications is now faster thanks to Alfred's work to make the resume process asynchronous with the rest of Lomiri: `ubports/ubuntu-app-launch#16`

## HOW TO GET OTA-13

### EXISTING UBUNTU TOUCH USERS

Existing users of Ubuntu Touch in the 'Stable' channel (which is selected by default in the UBports Installer) will receive the OTA-13 upgrade through the Updates screen of System Settings. Devices will randomly receive the update starting today through September 28. This spread is to give us time to interrupt a bad update in the future (should that ever become necessary), \*not\* to accommodate any bandwidth restrictions.

If you would like to receive the update immediately, turn on ADB access and issue the following command over adb shell :

```
sudo system-image-cli -v -p 0  
-- progress dots
```

Your device should then download the update and install it. This process may take a while, depending on your download speed.

### NEW UBUNTU TOUCH USERS

You will find instructions for installing Ubuntu Touch on your device at [devices.ubuntu-touch.io](https://devices.ubuntu-touch.io).



# The Daily Waddle

**Why haven't you gone home yet??**

**The wife said she is not feeling standards compliant tonight...**





# MY OPINION

Written by Adam Hunt

Lubuntu traces its roots back to 2008, when the developers made the first Lubuntu LXDE packages available to be installed on Ubuntu. It grew from there to a full-fledged stand-alone distro in 2010 and then moved from LXDE to the current LXQt desktop in 2018. In that decade of development, Lubuntu transitioned from a pretty rough-edged project into an elegant, complete, and functioning operating system. But, until recently, there have been a few things you couldn't do in the Lubuntu world, and that included donating to support the project, or buying an official Lubuntu T-shirt.

In January 2019, the Lubuntu developers formed an official body to oversee the distribution, the Lubuntu Council. The establishment of that formal organization allows users to make donations to support the project and also allowed the developers to set up a shop to sell Lubuntu merchandise. The opening of donations and the shop was announced on 27 June, 2019 on

the Lubuntu blog.

Donations can be one-time or recurring, and via Patreon, Liberapay or PayPal, as listed on the official donations page. Merchandise, including T-shirts, hoodies, sweatshirts, pillows and coffee cups can be purchased through the Lubuntu shop on Teespring. All proceeds are donated to the Lubuntu Council.

Where will the money go? Lubuntu developer Simon Quigley wrote "We have observed with some other open source projects that accountability for purchases and transparency in general is lacking. When Lubuntu accepts donations, it is essential to us to publish exactly where money is flowing and how it is being used to help further the project. While the decision-making process is limited to the Lubuntu Council and official members of the Lubuntu project, we see no reason to hide where the community's money is going ... We plan on publishing updates to our donations process, reports on

# Lubuntu Donations & T-shirts

where the money is going, and all other pertinent information directly on the Donations page. Check there for regular updates."

Donations page:

<https://lubuntu.me/donate/>

Shop:

<https://teespring.com/stores/lubuntu>



**Adam Hunt** started using Ubuntu in 2007 and has used Lubuntu since 2010. He lives in Ottawa, Ontario, Canada, in a house with no Windows.





# HOW-TO

Written by Ronnie Tucker

# Write For Full Circle Magazine

## GUIDELINES

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

## RULES

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

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

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

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

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

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

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

When you are ready to submit your article please email it to: [articles@fullcirclemagazine.org](mailto:articles@fullcirclemagazine.org)

## TRANSLATIONS

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

## REVIEWS

### GAMES/APPLICATIONS

When reviewing games/applications please state clearly:

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

### HARDWARE

When reviewing hardware please state clearly:

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

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



# REVIEW

Written by Erik

# Netrunner

Version: 19.08

Website:

<https://www.netrunner.com/>

Price: Free!

Netrunner has always been an appealing project. It is a solid distribution that is stable, even in the rolling release. I am a metal man. By that I mean that I like installing on metal. However, this time I decided to fire up the distribution in Virtualbox. Just to be difficult, I booted off an ISO on a USB thumb drive. However, everything ran quite smoothly.

## INITIAL IMPRESSIONS

That said, the display was rather cramped. To fix this I inserted the guest add-ons disk and that was when I encountered my first issue. Just for the sake of ease, I tried to run Dolphin, as root. I got a message saying it was not possible, due to an unfixable error. No problem, I can fix that... So after installing the add-on, I opened the display settings. I was greeted with "virtual1" and nothing more. This

cannot be right, I thought, and started poking around. Just before resorting to `dpkg --reconfigure`, I touched the laptop's touchpad and a scrollbar appeared. Hallelujah. I will include a screenshot of that. Just in case you get stuck too.

## INSTALLATION

I am getting ahead of myself here. Let us rewind. The installer is simple and straightforward. No complaints or anything you need to watch out for. The installer finished in no time at all and, since I was running it from an ISO file on a USB thumb drive, I expected that the installation would be bare, but it is not. My virtual installation

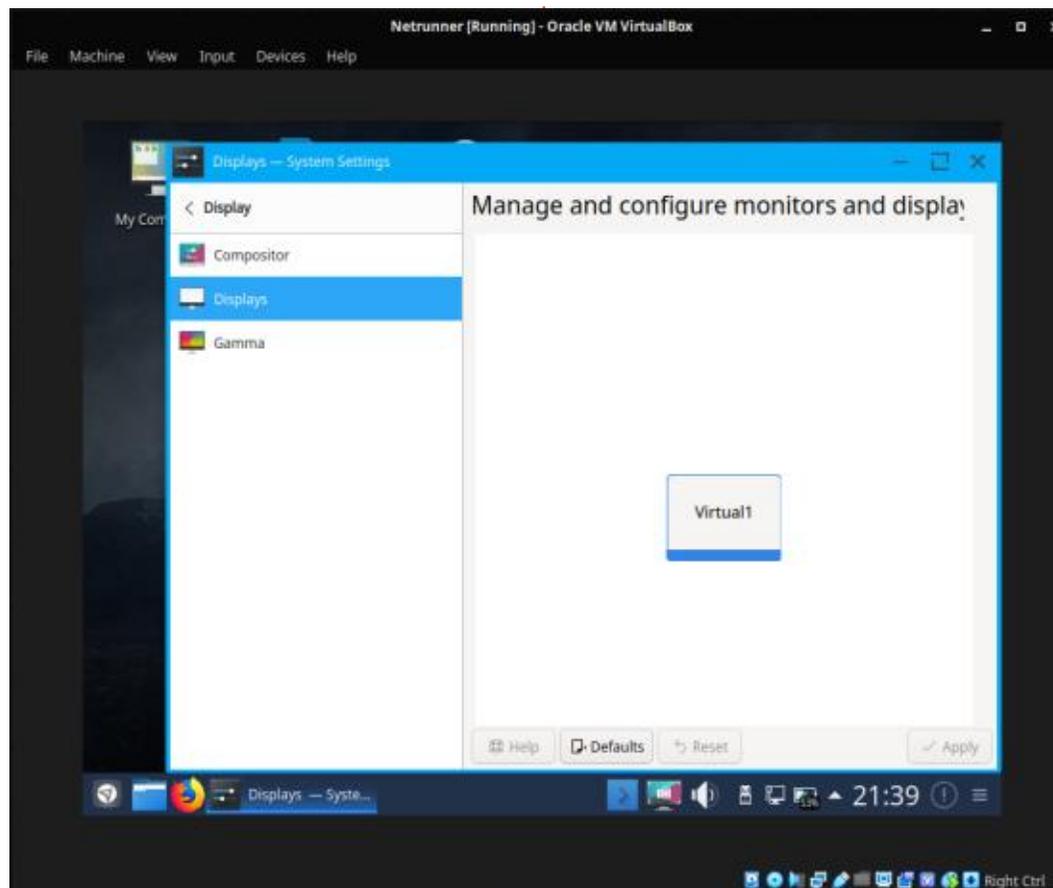
connected to the network automatically and I was set to go.

## DESKTOP ENVIRONMENT

As you may be aware, Netrunner 19.08 runs Plasma. At rest, it only takes up a respectable 550MB of your RAM. After fiddling with the displays a bit, and opening and closing programs, it climbed to 580MB, but it is low by today's standards. What did surprise me though, was the low CPU usage at rest, only 1.6%! The DE is pretty standard, with a start button in the bottom left and a taskbar along the bottom. This is very familiar and comforting, as well as editable. Kvantum manager will get you there. Plasma still has a bit of that disjointed feel, where right-clicking on the desktop and selecting 'Configure Desktop' takes you to a separate menu, rather than to a subset of the settings.

## INSTALLED APPLICATIONS

As I mentioned above, I thought



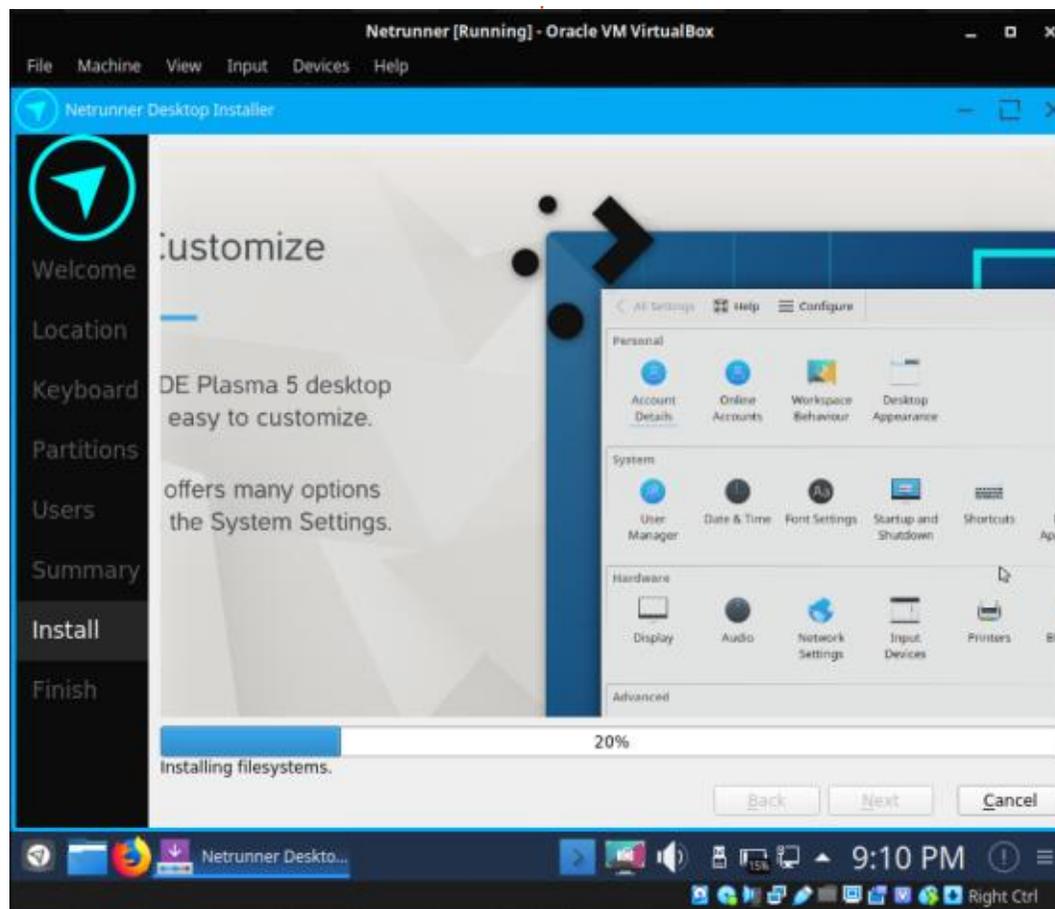
## REVIEW

the installation would be bare, but it has everything you need to just jump in and work. You can also jump in and play, if that is your preference, as the Steam client is pre-installed as well as a few open source games. Graphics-wise, we are given Inkscape, GIMP and Krita. Multimedia-wise, we have Yarock and SMPlayer, with Audacious as your editor. Interestingly enough, your internet tab is filled with Firefox ESR, not quantum, and Thunderbird next to Skype with Qtransmission and Pidgin. On the office side, it ships with only LibreOffice. Your terminal is Yakuake, with a convenient button on the taskbar. A nice touch was that WhatsApp and Telegram come pre-installed for you. The only “application” shortcut that I did not recognise was “hooktube”, but this turned out to be a short cut to a website named “hooktube”.

## USE

My virtual machine was configured with 2GB of memory and 2 CPU's. Buttery smooth operation throughout. Even when editing a 100MB sound file in Audacity, then launching FireFox, SMPlayer, and Frozen Bubble - did

not even tickle the CPU, though I started to use swap space. I must say, even while using swap space, my system stayed responsive. KDE Marble is awesome, and even randomly zooming in-and-out of places, the CPU needle almost did not move. The default icons on the desktop were “My Computer”, “Network” and “Readme”. The first opens a system info rather than a file browser, and the last opens a Debian 10 help file on the internet.



With all the applications mentioned above, I was able to work with almost anything whilst being offline. If you are connected though, I suggest browsing KDE Discover or getting what you need with Synaptic. My media keys worked out of the box, and those that did not were easy to fix. My USB printer worked one-time-no-smoke, but I did not have a Bluetooth device to test that. Plugging in Genius, Logitech,

Microsoft and Rapoo wireless mice, all detected and worked well together, filling my USB ports. My USB headphones were immediately recognized, but I had to switch over manually. My wireless card was not detected, but that was expected.

## CONCLUSION

I preferred the look of ‘blackbird’ earlier this year, but the blue, sorry – indigo – did not offend my eyes. I would have liked to see some cloud service integration somewhere like a dropbox or similar. Not enabled by default, but an easy option to get you sorted. Though I usually frown upon pre-installation of proprietary software like Skype, I also understand it. It would also have been nice to include an alternative theme by default. I write mainly at night, so I would have appreciated something like Redshift installed, just to ease my tired eyes.

Tired of windows 10 endless forced updates and constant “telemetry”? Get your Penguin on and try Netrunner today!



# LETTERS

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

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

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



# Q&A

Compiled by EriktheUnready

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

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

When it comes to making articles for FCM, I often make screenshots, but never any whilst an/the installation is taking place. This is a lesson I learned long ago. Whilst working as a field support engineer, I was asked by my boss to help the receptionist to make a document about the upgrades we were rolling out. The program was n-curses based and the screenshots mostly covered which options to choose and buttons to press. The screenshots were actually captured by film camera and the negatives were printed. (You can imagine the

rigmarole with getting a rig set up under a sheet). Once done, the user needed to set up their own user profile. The upgrade was scheduled to take place during a lunch hour. It was tested thoroughly beforehand and we repeated the steps so many times that I could do it in my sleep. Even if you dragged your heels, you should be done in half an hour. We were to be onsite to assist with any problems that may arise. By the end of the lunch hour, I had one guy who was not done. I went over to his workstation to see what was the holdup. He had opened the \*image of the installation screen, that had a progress bar across it and he was waiting for the installation to finish...

Before we start this month's Q&A, I have to mention, I try to leave your questions as-is. I cut some fluff to keep them short (which has no relevance), so please do not send us messages being upset that the whole thing was not used verbatim. I do not fix your spelling mistakes either. To give you an idea, this first question was

distilled down from 1181 characters in 20 lines. I have to give space to everyone.

**Q** : How can I securely delete my hard drives before selling them? I have replaced all mine with ssd's and want to sell my big old drives on gumtree. I don't want some guy forensically stealing my bank account info, I am not saying they will, I am just being cautious.

**A** : There are a couple of ways. One, DBAN (Darik's boot and nuke). Two, use an encryption program like Veracrypt to format the drive into an encrypted container. Three, write zeros to the disk, then write the contents of dev/random to the disk. Personally I would just encrypt the volume before formatting it to another filesystem.

**Q** : I am dual booting my new Ryzen 5 machine with Ubuntu and Windows. In Windows, it boots off the m2 SSD in 5 seconds, but Ubuntu takes 2 minutes! What

could be the problem? Dmesg shows no activity for like a minute.

**A** : Nine times out of ten, it is a BIOS that needs to be upgraded to run Linux properly. Check on your manufacturer's website, and check often. Also check for firmware for other components, like your SSD. Might also be because you are dual booting and not dual-booting ;) En garde!

**Q** : Nanii3, [14.05.20 18:09] ...I enjoy cooking while at home, but KRecipies doesn't want to work for me. I know there are many recipe websites, but they are all diseased with ads and trackers and I would rather prefer my own thing...

**A** : Sorry for cutting the message so short, but the rest was not really relevant. KRecipes is dead. You have Gourmet and Gnome Recipes left. This is a 'glaring' hole in Linux software. Anyone want to be a Super Star? This is your chance to shine.

**Q**: Explain to me why Windows breaks when one uninstalls Ubuntu after dual-boot hey? I wanted to install Kubuntu instead, but now Windows 10 won't boot. I can get to a boot shell → salpreet @ singh but no more.

**A**: The reason is the way Windows boots and how Linux boots. When dual-booting, you need to have Windows installed first, this allows GRUB to create a pointer to Windows and become the boot manager. When you uninstall Linux, Windows boot manager is no longer the 'active' boot manager. However, go ahead and boot Kubuntu, Ubuntu is smart enough to look for other operating systems and create a boot pointer to them.

**Q**: Zebulon, [17.06.20 18:32] How can I see if my brother has been using my PC and what he has been doing?

**A**: There is a command called "last" which will tell you when last someone logged on to the machine. You can use the "history" command to see what commands

he typed. Applications and browsers have their own history that you can check, like VLC's "open recent files".

**Q**: I have an idea for an app that I want to write where you scan something on Ubuntu and it interfaces with a server to retrieve or store info. How can I get more information on how to do this? I think I will use jquery, but I also need to learn all the frameworks I will need. Where should I start?

**A**: The journey of a thousand miles begins with one step. Start at the beginning. Write down and plan. As to how you do it, it is up to you. Ubuntu has no fancy anything. What is it you want to scan? QR codes? Bar codes? Think about this some more and break it down into small chunks. As for frameworks, whatever works for you.

**Q**: I want to encrypt some of my documents, but not everything. Just so prying eyes don't accidentally stumble across them. Not the whole home folder encryption, as I don't want to give my password out. I thought about

an encrypted folder, but then some stuff will be out of sight and out of mind and it's important that I remember. There are no national secrets, but some things are just private.

**A**: OK? It seems you have thought about this a lot. Ubuntu is a multi-user OS, just putting it out there. How about you zip the documents and password protect them that way. It is one step up from document / pdf password protection. That way it doesn't matter what the formats of the files are. For example:

```
zip -P 12345 files.zip file1
file2 file3
```

Most GUI 'zippers', allow passwords. That way, "wages.zip", or whatever you need to see, will be there, but inaccessible.

**Q**: So what we want to do is make files of a specific size and see how long they take to transfer across different networks. Instead of carrying a thumb drive, I heard Linux can make files to any size. Just to sort of test if, for example, CAT6 cables are really transferring at CAT6 speeds and so forth.

**A**: Yes there are a few ways you can do this; if xfsprogs is installed, then xfs\_mkfile 10M testfile.txt; otherwise, truncate -s 10M testfile - and Bob's your uncle. Let us know how you guys test, it may be interesting.

**Q**: How do I install Rust on Ubuntu the right way?

**A**: Hit up FCM#156 and take a gander at the "command and conquer" section.

**Q**: Is there usable speech-to-text, not text-to-speech apps, for Ubuntu?

**A**: Yes, you can look at Simon or Deep speech from Mozilla:

<https://github.com/mozilla/DeepSpeech>

<https://simon.kde.org/>

**Q**: I wanted to download SK1, <https://sk1project.net/sk1/> download, but they have Mint, Ubuntu and Debian deb file downloads. What is the difference?

## Q&A

Shouldn't they all just work on each other? And by 'they', I mean the deb files?

**A**: Actually, no; Ubuntu is more forgiving, but you can break a Debian system when you try Ubuntu 'deb's'. As for Mint, I am not sure, but remember Mint has both Debian and Ubuntu editions. So I suspect it has to do with that.

**Q**: Is it worth learning bash and shell scripting in 2020? Or should I rather learn something more modern?

**A**: Check out neofetch and it's source code on Github. It is just bash – fast, efficient, simple. That is what Windows users don't understand; I often get: "but pc's have lots of RAM and hard drive space". That is not the point. Do you eat all the food in your fridge at once, just because it is there?

**Q**: Something is bugging me. I installed Tauon from the snap store, but it can't do all that it can in Manjaro. Things like addons just don't work, but the player itself works.

**A**: This is because of snap sandboxing. I suggest trying the flatpak version or see if you can find a PPA for it. Alternatively, build it yourself?

**Q**: I started taking an online class and the IDE they suggest we use is Eclipse. But Eclipse is clunky and ugly. Is there something that is the same but different?

**A**: The same but different...mmmm... You don't \*have to use Eclipse, but it is usually a good idea to stick to whatever you are taught with, as it eliminates confusion. That said, there are many IDE's for Ubuntu, like bluefish, code::blocks, eric, or geany; you just need to name your poison (language).

**Q**: Hey. I run windows10 in virtualbox inside ubuntu 19.10. I need to upgrade to 20.04. Windows 10 is constantly in an update loop and the uninstall updates takes 49 minutes. So rather than wait 49 minutes, I roll back to a previous state in virtualbox. Can you confirm this problem is fixed in 20.04?

**A**: No, the problem is Windows 10, not Ubuntu. Yikes!

**Q**: I seem to have a problem when sending email, the primary use for my computer. It is still a 2GHz core2-duo with 2GB of memory and Ubuntu 16.04. It takes ages to send, sometimes failing outright. I have a direct cable connection to a Huawei router, but I see that the LED on the PC only shows orange lately and the green LED is off. I think my grandkids may have done something. Any ideas? <image removed> <image removed>

**A**: 99% of the time it is a port issue, the other 1% it is a cable issue. Don't go scolding the grandchildren yet. Replace the cable, It could be shoddy workmanship or one of the stands broke, If that does not work, get a new network card. See here for an explanation: <https://forum.peplink.com/t/please-explain-meaning-of-the-ethernet-port-led-lights/5303>

**Q**: I am new to all this Ubuntu server stuff, but I have to learn as my new job is almost all

regarding it. I am a self-taught programmer, not a boffin like you guys. What is the best way to upgrade my RAID partition with more drives? (This is my home server which I practice on).

**A**: Boffins? Where? Best - is by making a backup first and testing that it can restore. Now you can make mistakes and learn from them.

**Q**: What is the best way to avoid conflicting files and versions when installing & testing software?

**A**: Roll them into a SNAP / FLATPAK / APPIMAGE and deploy them that way.



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



Website:

<https://www.fatesofort.com/>

Price: \$15 US @ GOG or itch.io

Blurb: "*Fates of Ort is a retro inspired fantasy RPG with a focus on strategic action and a story driven by your decisions. It is a tale of sacrifice and difficult choices, in a world under threat of annihilation by the avaricious force of Consumption magic.*"

Before we begin, I need to warn you that you will be reading a lot. This is not a pick up and jam five minutes, game, you need to invest time.

The game labels itself as a "retro fantasy RPG". Since it is isometric, it immediately conjures up images of "Shadowlands" or "The immortal" from 30 years ago. In my humble opinion, 'fates of ort' is lacking in the graphics and sound, but makes up for it in gameplay (a slight twist on the mechanics) and story. However, it is different and interesting enough to keep you playing. It is real-time and it is not. Something which confused

me at first. Time stops when you do, so holding down the mouse button will make you move, but releasing it freezes everything. Is it worth blowing your hard earned cash on? Let's find out.

### STORY

This is a game that tells a story, there are no two ways about it. It seems some Duke, a relative of the king, has rediscovered "consumption". A kind of wasting-away magic. (A quick primer for our younger readers, "consumption" is what TB [pulmonary tuberculosis]

used to be named, which is a truly horrible disease). You are a novice to "the academy", and, on your first day, you get offered a 'gift' by the Duke. What I liked is that the game does not hold your hand here. You can choose to receive the gift or reject it, and both choices offer you a chance to change your mind. The Academy is wiped out, and you and your sister die. Yep. The duke kills you, 900 damage with one shot. Luckily you met with the fates, erm, sisters, first. From what I understand, the game is non-linear, but also not totally open world. You still have your main story /

quest, and side-quests sort of flow into it. There are also side stories, which seem to have no bearing on the main story at all. At first, the story feels static, but as the game progresses, the pieces of the puzzle slide into place and the world becomes richer. The dialogue between your character and NPC's is listed above and your options listed below (see image). This formula makes for simple, clear gameplay, a la SNES. Though there is sword fighting and spell casting, the heavy lifting is in the dialogue.

### SOUND AND GRAPHICS.

I understand the reason for the pseudo-8-bit graphics and style, but I feel it could be better. I am a fan of pixel graphics, just not a fan of this faceless type. Also, I feel there is a discrepancy between the pseudo-8-bit of the game and the pseudo-16-bit of the interface, like the little hand cursor. The isometric view, I love, or should I say I love the way it fools my brain into thinking it is 3D in 2D. Everything other than the characters feels detailed and would have blown



people out of the water in 1989.

The soundtrack gets an A, it is awesome, but it is no earworm. It does get out of your way and enhances the game (Immersion). The in-game sounds are fitting, and the only one that seemed a bit loud was the walking. The variety of sounds also makes you not get annoyed in the first half-hour of the game.

## GAMEPLAY

The main game loop is getting into scraps, collecting loot and advancing our character, but it is how it is implemented that makes it shine. The idea of time being frozen until you move, and stopping when you do, allows for a very tactical game. Though you are armed with a sword, you get to cast magic as well. The magic system also has a twist. Instead of having pre-set spells, you combine elements and shapes to get an effect... and that may be subject to change as well. Magic is powerful in this game, but, like everything in life, it comes at a cost. This prevents the game from being soulless, like Microsoft's dungeons,

which is just running and button mashing. I would choose this over dungeons 1, 2 or 3, any day. You are a lot more human, where enemy hits actually do a lot of damage, and you will get penalised if you don't let time stop to plan your next move. Time is on your side. Healing potions are not.

Though the isometric levels can be big, they are not too big, so you forget which way you came in. The game may not be open world and endless, but you get to explore as much as you like, within reason. When you reach an exit point on the edge of a map, the game loads the next level and you can continue adventuring. There are strange icons that sometimes appear on

the edges of the screen, but I assume these are other exits or points of interest. Now let's get back to the reading. The text is not full of filler, it is down to the point, which I appreciated. There are oodles of quests and side-quests for you to do. If you do not read properly, you may bungle your quest. The game does not prevent you from bungling quests. This puts another twist on the genre.

All-in-all, it is an interesting game and it works great on Linux. As there is no local pricing, I would not shell out the equivalent of \$15 for it. It is one of those I will wait to go on sale, before considering buying it.



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



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The Patreon page is to help pay the domain and hosting fees. The yearly target was quickly reached thanks to those listed on this page. The money also helps with the new mailing list that I set up.

Several people have asked for a PayPal (single donation) option, so I've added a button to the right side of the website

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## FCM#162

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