



Full Circle

THE INDEPENDENT MAGAZINE FOR THE UBUNTU LINUX COMMUNITY

ISSUE #163 - November 2020



Notes are like whiteboards for you to put elements on. Open/create a note to insert text and other elements. This can be done using the sidebar on the right of the screen:

(Don't show me these again)

Help **2**
(Expand All | Focus | Collapse All)

+ Section

- About **2**
- General Use **2**
- Development **2**

Connect to µSync to have this notebook on all of your devices

µPad Controls

Clear old data

Click to make a section note

or press N

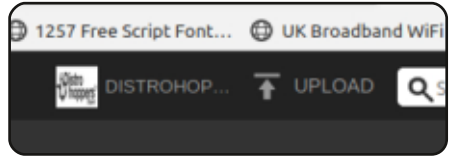


MICROPAD TAKE NOTE(S)

HowTo



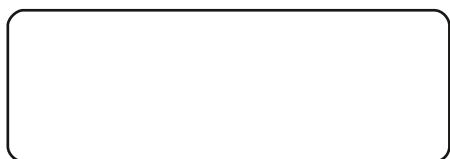
Python p.12



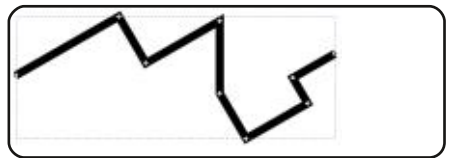
Podcast Production p.15



Micropad p.17



p.XX



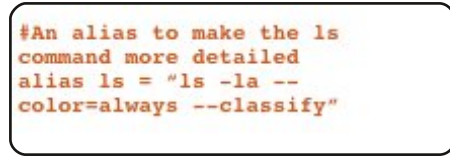
Inkscape p.21

Graphics

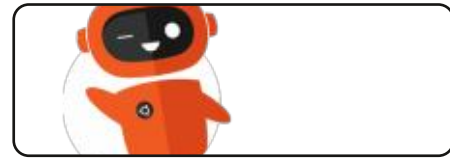


Full Circle

THE INDEPENDENT MAGAZINE FOR THE UBUNTU LINUX COMMUNITY



Command & Conquer p.10



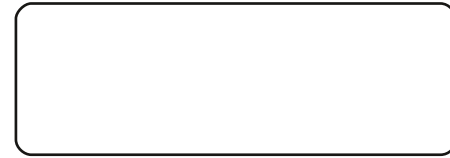
Ubuntu Devices p.29



My Story p.XX



Q&A p.42



Linux Loopback p.XX



The Daily Waddle p.31



Letters p.XX



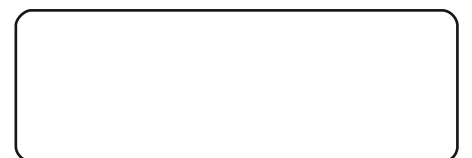
Review p.38



Linux News p.04



Everyday Ubuntu p.27



My Opinion p.32



Review p.35



Ubuntu Games p.45



The articles contained in this magazine are released under the Creative Commons Attribution-Share Alike 3.0 Unported license. This means you can adapt, copy, distribute and transmit the articles but only under the following conditions: you must attribute the work to the original author in some way (at least a name, email or URL) and to this magazine by name ('Full Circle Magazine') and the URL www.fullcirclemagazine.org (but not attribute the article(s) in any way that suggests that they endorse you or your use of the work). If you alter, transform, or build upon this work, you must distribute the resulting work under the same, similar or a compatible license.

Full Circle magazine is entirely independent of Canonical, the sponsor of the Ubuntu projects, and the views and opinions in the magazine should in no way be assumed to have Canonical endorsement.



WELCOME TO THE LATEST ISSUE OF FULL CIRCLE

This month, we have more Python, Podcast production, Inkscape, Rhythmbox and a great piece on Micropad. Do you need to make notes? Might be worth your while having a read at that article.

As I'm sure you're aware: **Ubuntu 20.10 is out!** Well, like earlier in the year, we'll have reviews from **Adam Hunt** on all those tasty flavors. Last month was said Ubuntu. This month we have Xubuntu 20.10. More from Adam next month. And the month after no doubt. While on the subject of reviews: I've provided a review of the brand new **Raspberry Pi 400** kit. The review is like me: very simple. It's basically showing you what's in the box and my first impressions of setting it up. I know little to nothing about programming Pi's so go easy on me.

In other news: Ubports Touch released OTA-14. As ever, on first look, it's like nothing's changed. But it's all under the hood stuff. It's coming along great. I do love hooking my BQ tablet to a monitor every now and then. Just for the kicks.

If you're in lockdown, bored, and need something to do: feel free to write articles. We're always in need of things to fill pages. Without the help from the 'usual suspects' this magazine wouldn't exist. So, please, **help us out with articles**.

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

All the best, and keep in touch!

Ronnie

ronnie@fullcirclemagazine.org



This magazine was created using :



Find Full Circle on:



facebook.com/fullcirclemagazine



twitter.com/#!/fullcirclemag



<http://issuu.com/fullcirclemagazine>



<https://mastodon.social/@fullcirclemagazine>

Weekly News:



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



<http://www.stitcher.com/s?fid=85347&refid=stpr>



<http://tunein.com/radio/Full-Circle-Weekly-News-p855064/>

FCM PATREON: <https://www.patreon.com/fullcirclemagazine>



TRINITY R14.0.9 DESKTOP ENVIRONMENT RELEASED, CONTINUING THE DEVELOPMENT OF KDE 3.5

11/01/2020

The Trinity R14.0.9 desktop environment has been released , which continues the development of the KDE 3.5.x and Qt 3 code base. Binary packages will soon be prepared for Ubuntu , Debian , RHEL / CentOS , Fedora , openSUSE and other distributions .

Among the features of Trinity, one can note its own tools for managing screen parameters, a udev-based layer for working with equipment, a new interface for configuring equipment, a transition to the Compton-TDE composite manager (a fork of Compton with TDE extensions), an improved network configurator and user authentication mechanisms. The Trinity environment can be installed and used concurrently with more current KDE releases, including the ability to use KDE applications already installed on

the system in Trinity. There are also tools for the correct display of the interface of GTK programs without breaking the uniform design style.

The new version introduces changes, mainly related to the elimination of errors and work to improve the stability of the code base.

<http://www.trinitydesktop.org/newsentry.php?entry=2020.11.01>

CUDATEXT CODE EDITOR UPDATE 1.117.0

02.11.2020

A new release of the cross-platform free code editor CudaText , written using Free Pascal and Lazarus, has been published. The editor supports Python extensions, and has several features borrowed from Sublime Text . There are some features of the IDE implemented as plugins. More than 200 syntactic lexers have been prepared for programmers. The code is

distributed under the MPL 2.0 license. Assemblies are available for Linux, Windows, macOS, FreeBSD, OpenBSD, NetBSD, DragonflyBSD and Solaris platforms.

<http://uvviewsoft.com/cudatext/download.html>

ARCHBANG LINUX DISTRIBUTION 0111 RELEASE

02.11.2020

The release of the lightweight Linux distribution ArchBang 0111 , based on the developments of Arch Linux and providing a user interface based on the i3 window manager, is presented . The distribution offers a continuous update cycle to ensure that you always work with the latest software from the Arch Linux repositories. The size of the iso image is 958 MB.

The key change in the new version is the change of the

window manager - instead of Openbox, the user environment is now based on i3wm. It is noted that there are some changes in hotkeys, and at first the i3-based environment may seem unusual, but you can quickly get used to it, after which there will be no desire to return to Openbox. The Firefox browser was also returned to the base composition, as the functionality of the lighter browsers was recognized as insufficient. Made minor changes to the installer.

<https://archbang.org/2020/11/01/november-release-i3-tiling-window-manager-based/>

MONADO 0.4 OPEN VIRTUAL REALITY PLATFORM RELEASE

03.11.2020

Collabora has released Monado 0.4 , an open source implementation of the OpenXR standard . The OpenXR standard was prepared by the Khronos consortium and defines a universal

API for creating virtual and augmented reality applications, as well as a set of interlayers for interacting with equipment that abstracts the features of specific devices. Monado provides a fully OpenXR-compliant runtime that can be used to run virtual and augmented reality on smartphones, tablets, PCs and any other device. The project code is written in C and is distributed under the free Boost Software License 1.0, compatible with the GPL.

<https://www.collabora.com/news-and-blog/news-and-events/monado-update-passing-conformance-android-support-and-more.html>

THE DAHLIAOS PROJECT DEVELOPS A DISTRIBUTION KIT BASED ON LINUX AND FUCHSIA TECHNOLOGIES

03.11.2020

The dahliaOS project aims to create a new operating system that combines technologies from GNU / Linux and Fuchsia OS . The developments of the project are

written in the Dart language and are distributed under the Apache 2.0 license. DahliaOS assemblies are formed in two versions - for systems with UEFI (158 MB) and old systems / virtual machines (115 MB). The base distribution dahliaOS going based on the Linux kernel and the GNU typical system environment. In parallel , assemblies based on the Zircon microkernel and the environment from the Fuchsia OS are developing, which are available for the Raspberry Pi 4 , msm8917 and some other devices.

<https://dahliaos.io/>

GITHUB AND GITHUB ENTERPRISE SOURCE CODE LEAKED (CONFIRMED)

11/04/2020

The GitHub.com and GitHub Enterprise sources have been uploaded to the github / dmca repository where DMCA violations are posted . The sources were published on November 4 at 3:51 UTC (6:51 MSK) with the following message: "felt cute, might put gh source code on dmca repo now idk". The data is published with

reference to the username nat , which overlaps with the account of Nat Friedman , the head of GitHub. The added changes have already been removed, but remained in the archive .

Probably the code was linked to the official github / dmca repository using a technique that allows any third-party change to be presented as a change already included in another project. GitHub keeps all objects from the main repository and forks together for optimization and elimination of duplicates, logically separating the ownership of the commits. Such storage allows you to view any commit from any fork in the main repository by explicitly specifying its hash in the URL. For example, a user can create a fork of the github / dmca repository and add any code to it, after which this code will be available via a direct hash link in the github / dmca repository.

https://web.archive.org/web/20201104050026if_/https://github.com/github/dmca/tree/565ece486c7c1652754d7b6d2b5ed9cb4097f9d5

RELEASE OF THE LXQT GRAPHICAL ENVIRONMENT 0.16.0

04.11.2020

The LXQt 0.16 (Qt Lightweight Desktop Environment) user environment has been released , developed by the joint development team of the LXDE and Razor-qt projects. The LXQt interface continues to follow the classic desktop organization, bringing a modern look and feel to enhance user experience. LXQt is positioned as a lightweight, modular, fast and convenient continuation of the development of the Razor-qt and LXDE desktops, incorporating the best features of both shells. The code is hosted on GitHub and licensed under GPL 2.0+ and LGPL 2.1+. Ready builds are expected for Ubuntu (LXQt is offered by default in Lubuntu), Arch Linux , Fedora , openSUSE , Mageia , FreeBSD , ROSA and ALT Linux.

<https://github.com/lxqt/lxqt/releases/tag/0.16.0>

UBUNTU TOUCH 14TH FIRMWARE UPDATE

11/05/2020

The UBports project, which took over the development of the Ubuntu Touch mobile platform after Canonical pulled away from it, published an OTA-14 (over-the-air) firmware update for all officially supported smartphones and tablets that were equipped with firmware based on Ubuntu. Update formed smartphone OnePlus One, Fairphone 2, Nexus 4, Nexus 5, Nexus July 2013, Meizu MX4 / PRO 5, VollaPhone, Bq Aquaris E5 / E4.5 / M10, Sony Xperia X / XZ OnePlus and 3 / 3T. Compared to the previous release, the formation of stable assemblies has begun for Xiaomi Redmi 4X, Huawei Nexus 6P and Sony Xperia Z4 Tablet devices.

The release is based on Ubuntu 16.04 (the OTA-3 build was based on Ubuntu 15.04, and starting with OTA-4, the transition to Ubuntu 16.04 was made). The next release (OTA-15) is expected to move from Qt 5.9 to 5.12, which will serve as a springboard for a future upgrade to Ubuntu 20.04 components. The project is also developing an

experimental port of the Unity 8 desktop, which has been renamed Lomiri.

<https://ubports.com/>

NITRUX 1.3.4 DISTRIBUTION WITH NX DESKTOP IS RELEASED

05.11.2020

The release of the NitruX 1.3.4 distribution, built on the Ubuntu package base, KDE technologies and the OpenRC init system. The distribution develops its own NX Desktop, which is an add-on over the user's KDE Plasma environment. The ApplImages self-contained package system and its own NX Software Center are being promoted to install additional applications. The boot image is 2.4 GB in size. The developments of the project are 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://nxos.org/changelog/changelog-nitruX-1-3-4/>

RELEASE OF OMNIOS CE R151036, ILLUMOS DISTRIBUTION

11/05/2020

The release of the OmniOS Community Edition r151036 distribution is available, based on the work of the Illumos project and providing full support for the bhyve and KVM hypervisors, the Crossbow virtual network stack, the ZFS file system and the launching tools for lightweight Linux containers. The distribution kit can be used both for building highly scalable web systems and for creating storage systems.

<https://omniosce.org/article/release-036.html>

FREE HEROES OF MIGHT AND MAGIC II 0.8.3 RELEASE

11/05/2020

A release of project fheroes2 0.8.3 is available, trying to recreate the game Heroes of Might and Magic II. The project code is written in C++ and is distributed under the GPLv2 license. To start the game, you need files with game resources, which can be obtained, for example, from the demo version of Heroes of Might and Magic II.

<https://github.com/iHhub/fheroes2/releases/tag/0.8.3>

A NEW VERSION OF THE VIDEO PROCESSING PROGRAM CINE ENCODER 3.0 HAS BEEN RELEASED

11/06/2020

After several months of work, a new version of the Cine Encoder program was released for processing video with preserving HDR signals. The program is written in C++, uses the FFmpeg, MkvToolNix and MediaInfo utilities in its work, and is distributed under the GPLv3 license. There are packages for the main distributions: Debian, Ubuntu

20.04, Fedora 32, CentOS 7.8, Arch Linux, Manjaro Linux.

In the new version, the program was completely rewritten in C++ (previously the code was written in Python). The interface has also been completely redesigned, batch conversion, two-pass encoding mode and work with presets have been added.

<https://github.com/CineEncoder/cine-encoder/releases/tag/3.0>

PORT OF RANSOMEXX RANSOMWARE FOR LINUX DETECTED

11/07/2020

Researchers at Kaspersky Lab have identified a Linux version of the RansomEXX ransomware malware. Initially, RansomEXX was distributed only on the Windows platform and became famous due to several major incidents with the defeat of systems of various government agencies and companies, including the Texas Department of Transportation and Konica Minolta.

RansomEXX encrypts data on

the disk and then requires a ransom to obtain the decryption key. Encryption is organized using the open library mbedtls. Once launched, the malware generates a 256-bit key and uses it to encrypt all available files using the AES block cipher in ECB mode. A new AES key is generated every second, i.e. different files are encrypted with different AES keys. Each AES key is encrypted using a public RSA-4096 key embedded in the malware code and is attached to each encrypted file.

<https://securelist.com/ransomexx-trojan-attacks-linux-systems/99279/>

GIMP 3.0 GRAPHICS EDITOR PREVIEW AVAILABLE

08.11.2020

The release of the graphics editor GIMP 2.99.2 is presented, in which the functionality of the future new stable branch of GIMP 3.0 is proposed for testing. In the new branch, the transition to GTK3 was made, standard support for Wayland and HiDPI was added, the codebase was significantly cleaned

up, a new API for plug-in development was proposed, rendering caching was implemented, support for selecting multiple layers (Multi-layer selection) was added and editing in the original color space was provided ... A package is available for installation in the flatpak format (org.gimp.GIMP in the flathub-beta repository) and builds for Windows.

<https://www.gimp.org/news/2020/11/06/gimp-2-99-2-released/>

FULL CIRCLE WEEKLY NEWS



Join our new host Leo Chavez as he presents you with a short podcast (<10min) with just the news. No chit-chat. No time wasting. Just the latest FOSS/Linux/ Ubuntu news.

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





DistroWatch.com

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

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.

While Oracle VM VirtualBox is a great free tool, the real power of virtualisation comes when you start connecting virtual machines to each other and to the wider world. Software development, sales, education and training are just some of the areas in which network access to virtual machines offers endless opportunities. But the world of computer networks is filled with complex technical jargon.

Complete with principles, practice, examples and glossary, The VirtualBox Networking Primer takes the frustration and confusion out of connecting real-world projects.

Author: **Robin Catling**

Publisher: Proactivity Press

ISBN13 : 9781916119482

Amazon US link:

[https://www.amazon.com/dp/1916119484?
ref =pe 3052080 397514860](https://www.amazon.com/dp/1916119484?ref=pe_3052080_397514860)

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)

Kobo:

[https://www.kobo.com/us/en/ebook/the-virtualbox-networking-
primer](https://www.kobo.com/us/en/ebook/the-virtualbox-networking-primer)



Website: <https://nmap.org/book/man-host-discovery.html>

You may have noticed the website link above change, look this one up. *wink*

Welcome back to another educating experience, demystifying nmap. In this issue, we will be looking at using files with nmap. Last issue, I mentioned, in passing, that one can output your scan results to a file using the redirection operator. However, the 'correct' way to do it is using the -o switch. Like many other programs in Linux, -o is usually "output". This should be as easy to remember as -p is for port. Example:

```
nmap -oN classC.txt
192.168.1.0/24
```

Now you can open the written .txt-file with your favourite GUI editor and run regular expression searches on it. Speaking of regex, nmap actually has a grepable output version. Instead of using the "N" switch in our example, you use the "G" switch. This will drop the file in your current directory, so do a pwd first. Let's examine the differences (see the images below).

Try grep "open" router.txt on your machine. (Provided you saved your file as router.txt). Though if I am honest, I prefer the non-grep

layout, regardless of the situation; for you it may be different. Try both to see how you like it.

You may not want a .txt-file, so XML format is offered as a choice too. Here we follow the -o with a capital "X". Example:

```
nmap -oX myscan.xml
192.168.1.0/24
```

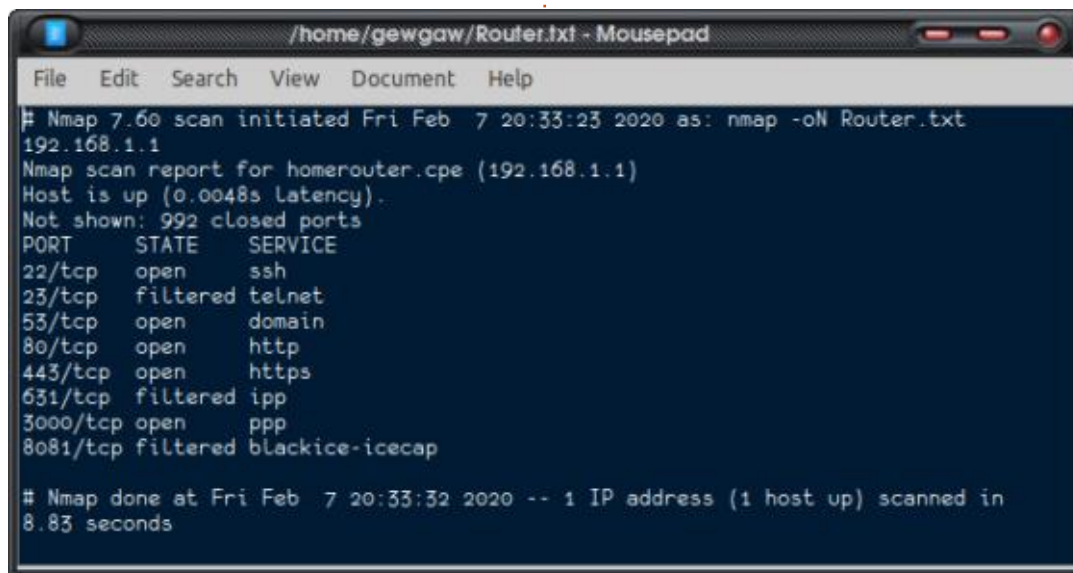
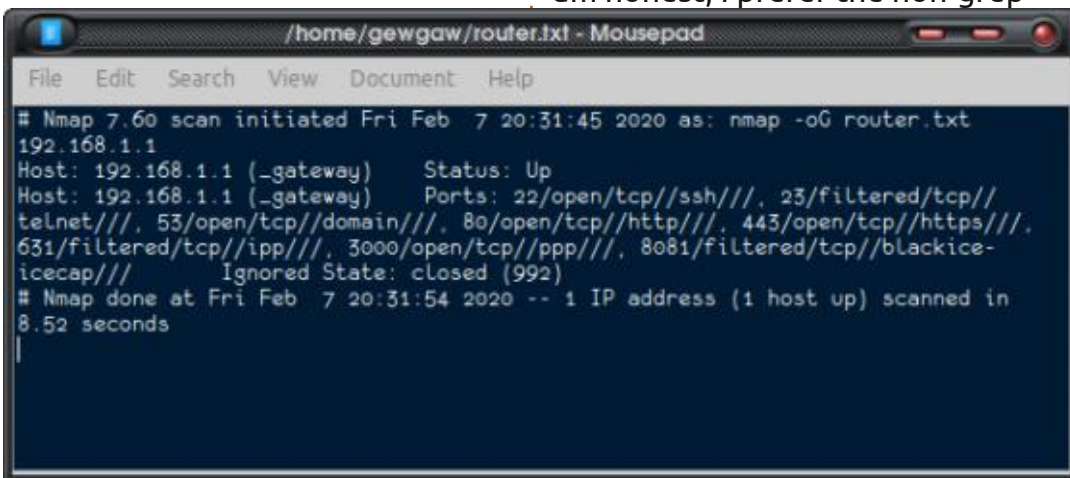
Other than output files, nmap can also take input files. It may be more of a convenience than actually taking major input, but it is there and I can teach you about it. An example use case is when you

have a bunch of subnets to scan and you want to check certain ranges, say 1-10 and 249-254 in each subnet (usually where people put servers and routers). This one is also easy to remember, a good mnemonic is "importing a list". Example:

```
nmap -iL myscan.txt
```

It will do the scan as if you typed it all in by hand.

Okay, back to the start, I may be old fashioned, or lazy, or both, but I just find it quicker and easier to use the redirection operator. Example:



```
nmap -p 22 192.168.1.1 >  
scan1.txt
```

In the Windows environment, there is Angry IP scanner, and they have a Linux version too, but it is horrible in comparison to the Windows version. Nmap can be used for this too. Basically Angry IP scanner scans for live hosts on the network. We achieve the same functionality in nmap with -sP. This is called a ping sweep, and should also be easy to remember. This action will fire off ICMP packets onto the network. I asked you to read up on the three-way handshake, to make you familiar with the syn-ack-syn flags. You see, nmap also fires off TCP packets, with that ack flag set. So now we have two ways of confirming there is a live host at a certain IP address. If the host is set to not reply to ICMP requests, it will still respond

to the packet with the ack flag set. The results here can then be saved to a text file again. The output of a ping sweep is different than that of the previous scans I have told you about. You simply get a "host is up" message for each IP address that is alive.

This is rather easy, no? The catch comes when we talk about scanning from outside of the network, like pentesters do, and you have a firewall in your way. Now you need to start getting creative and shape your queries. In the next issue, we will cover customising your requests. We will ramp up the difficulty a little bit more, but not so that you cannot follow along.

Let us build up a cheat sheet (below right) over the next few issues; that way, you can keep it until you don't need it anymore.

Hope you enjoyed this second demystifying nmap article and see you next issue.

As always, comments, compliments, complaints, all to: 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.

```
gewgaw @ Aangeneem ~  
└─$ grep "open" scan.txt  
22/tcp open ssh  
53/tcp open domain  
80/tcp open http  
443/tcp open https  
3000/tcp open ppp  
gewgaw @ Aangeneem ~  
└─$
```

HOSTS:

Scan a single IP:	nmap 192.168.1.1
Scan a host:	nmap www.myserver.net
Scan a range of IPs:	nmap 192.168.1.1-20
Scan a subnet:	nmap 192.168.1.0/24
Scan from a text file:	nmap -iL list_of_ips.txt

PORTS:

Scan a single Port:	nmap -p 22 192.168.1.1
Scan a range of ports:	nmap -p 1-100 192.168.1.1
Scan 100 most common ports:	nmap -F 192.168.1.1
Scan all (65535) ports:	nmap -p- 192.168.1.1



Way back in January 1969, an American rock band, Chicago (then called Chicago Transit Authority), asked the musical question “Does anybody really know what time it is?” While the meaning of the song doesn’t seem to have much to do with this month’s article, the title question of the song does lend itself to our subject this month.

Python has a tremendous built-in series of libraries that deal with date and time. Often, we, as programmers, use the datetime and time libraries without realizing how many features there really are. We will be looking at some of the capabilities of them in this article.

Fire up your Python interpreter in a terminal and let’s get started.

Many times, we simply use the datetime or time libraries to get the current time or date within our programs:

```
>>>import datetime
>>> import time
>>>
print(datetime.datetime.now())
```

```
)
2020-10-23 10:49:11.744798
>>>
print(datetime.datetime.today
())
2020-10-23 10:50:53.169120
```

Which is nice and easy. You can easily assign the date and time to a variable and break it out into single values...

```
>>> tday =
datetime.datetime.today()
>>> print(tday.month)
10
>>> print(tday.day)
23
>>> print(tday.year)
2020
>>>
```

You can easily print this information in “human” readable formats using the strftime function...

```
>>> td = tday.strftime('%m/%d/%Y')
>>> print(td)
10/23/2020
>>> td2 = tday.strftime('%H:
%M:%S')
>>> print(td2)
10:51:55
```

But we all know that; we’ve done it many many times before.

Why even bother? Beyond getting time and date into a program, what good is it?

It’s very easy to deal with datetime objects when doing time and date math.

Let’s say that we have issued an invoice today and it is due in 30 days. What date would that be?

```
>>> tday =
datetime.datetime.today()
>>> print(tday)
2020-10-28 03:53:45.551751
>>> due = tday +
datetime.timedelta(days=30)
>>> print(due)
2020-11-27 03:53:45.551751
```

When we deal with databases, we often need to put a time or date into the database as a “timestamp” to show when something happened. That’s super easy.

```
>>> ts = time.time()
>>> print(ts)
1603875671.3662472
```

You might be thinking, that doesn’t look like a time, date, or anything like it. But it is. It is a UNIX

timestamp. It’s actually the number of seconds since January 1, 1970 UTC. According to <https://www.unixtimestamp.com/>, one interesting thing: on January 19, 2038, the Unix timestamp will cease working. This is due to a 32-bit overflow. We survived Y2K, but can we survive this?

Anyway, back to the subject at hand.

ACCOUNTING

One of the wonderful things about the datetime manipulation capabilities is when you need to do calculations based on two (or more) times or dates. Let’s say that we have an employee who can bill out at a rate of £15 per hour (rounded up to the next hour). Let’s further assume that this employee works on a programming task from 8 am until 11.27 am. How many hours would that be and how much do you bill your customer.

While that looks fairly simple we do have some constraints on how we have to do the calculations.

HOWTO - PYTHON

First, we need to convert the start time and end time to values.

We take the start time and end time and convert them to datetime objects.

```
>>> starttime = "30.10.2020 08:00"
>>> endtime = "30.10.2020 11:27"
>>> print(f'Start time: {starttime} - End Time: {endtime}')
Start time: 30.10.2020 08:00
- End Time: 30.10.2020 11:27
```

At this point, the starttime and endtime variables are still strings. To convert them to a datetime object, we can use the parse function from dateutil.parser.

```
>>> from dateutil.parser import parse
>>> st = parse(starttime)
>>> et = parse(endtime)
```

We can verify that it worked by printing the type that Python sees one of the variables.

```
>>> print(type(st))
<class 'datetime.datetime'>
```

Next, we simply subtract the end time from the start time to get the total time.

```
>>> totaltime = et-st
```

```
>>> print(type(totaltime))
<class 'datetime.timedelta'>
>>> print(totaltime)
3:27:00
```

Now, here is the stumbling block. You would think that since we have a value that looks like Hours:Minutes:Seconds, that we could simply get the hours by saying:

```
Hours = totaltime.hours
```

But, I'll tell you now that doesn't work. If you try it, you will get:

```
>>> hours = totaltime.hours
Traceback (most recent call last):
  File "<stdin>", line 1, in <module>
AttributeError:
'datetime.timedelta' object
has no attribute 'hours'
```

Well, that's no help. The timedelta object type only has 3 attributes that can be used. They are

- days
- seconds
- microseconds

Let's look at the three possible values...

```
>>> da = totaltime.days
>>> sec = totaltime.seconds
>>> ms =
```

```
totaltime.microseconds
>>> print(da)
0
>>> print(sec)
12420
>>> print(ms)
0
```

We know that totaltime is 3 hours and 27 minutes, but we bill only whole hours, rounded up, so we should bill the customer 4 hours. How would we do that? We use the divmod method. It takes two numbers (the numerator and the denominator) and returns the quotient and remainder.

```
>>> min, sec = divmod(sec, 60)
>>> print(min) # This is the total time (in minutes)
207
>>> print(sec)
0
>>> hour, min = divmod(min, 60)
>>> print(hour)
3
>>> print(min)
27
```

Then we simply use a simple if statement:

```
>>> if min > 0:
...     hour += 1
...
>>> print(hour)
4
```

Now it is a simple case of multiplying the number of hours

(4) * the billing rate per hour (15):

```
>>> billperhour = 15
>>> billamount = billperhour * hour
>>> print(billamount)
60
```

So we can bill the client for £60. That wasn't as hard as expected.

TIME ZONES

I'll be brutally honest. Time Zones make my brain hurt. REALLY! Sometimes, when I communicate with our wonderful editor, Ronnie, I can remember that he lives in Scotland and that he is somewhere around 6 hours ahead of my time. Scotland is in the Greenwich Mean Time, or GMT, timezone. This is often confused with Coordinated Universal Time (UTC), but while they might be (incorrectly) used interchangeably, GMT is a timezone, UTC is not a timezone, but a time standard.

My friend Halvard lives in Norway and his time is somewhere around 7 hours ahead of mine. My friend Bruce, lives in Colorado and that is 1 hour behind my time.

When I was growing up (yes, back in the days where rainbows

HOWTO - PYTHON

were in black and white, and we had to watch TV by candlelight because there was no electricity), I wasn't aware of timezones at all outside of knowing that when I saw an advertisement for a television show and they said that it aired at 9pm Eastern, 8pm Central, that if I wanted to watch it, I should watch at 8pm, since I lived in the Central timezone. But that was long ago. I suppose that Albert Einstein would say that it is all relative. (That's supposed to be a geeky joke.)

The Python date/time library doesn't really handle timezones natively, but there is a third party package that you can install via pip. It's called pytz.

```
pip install pytz
```

So how do we use pytz? It's fairly easy. Let's take a look.

We'll make things a little easier by changing the import statement for this set of tests...

```
>>> from datetime import
datetime
>>> from pytz import timezone
```

Now we don't have to use datetime.datetime to get any information as we did earlier.

Now get the native Python datetime object.

```
>>> native =
datetime(2020,10,5,12,00)
>>> print(native)
2020-10-05 12:00:00
```

Next, we'll get a datetime object that is timezone aware:

```
>>>
aware=timezone('UTC').localiz
e(native)
>>> print(aware)
2020-10-05 12:00:00+00:00
```

So it says the datetime object is based on UTC (Coordinated Universal Time). So that's cool, but what time is it where I live, in the U.S. Central Time zone?

```
>>> aware2=timezone('America/
Chicago').localize(native)
>>> print(aware2)
2020-10-05 12:00:00-05:00
```

Wait a second. Why would it say that my time is 5 hours behind UTC? That's because of Daylight Saving Time. (October 10, 2020 was before the change over to Daylight Standard time).

So, let's do it again, this time using the .now() method...

```
>>> native = datetime.now()
>>> print(native)
2020-11-05 05:15:35.282475
>>> aware2 =
timezone('America/
Chicago').localize(native)
>>> print(aware2)
2020-11-05 05:15:35.282475-
06:00
```

Ahhh. That makes a bit more sense. So Ronnie is 6 hours ahead of me.

So, the musical question of the month, "Does anybody really know what time it is?" actually does seem to have a bit more relevance than it did when the article started, doesn't it? I'll leave you with that question hanging in your mind, and, hopefully, I didn't plant the song into your mind so that it keeps running again and again.

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.thedesignatedgeek.xyz.



HOW-TO

Written by Tony Hughes

Podcast Production in Linux - Pt.5

Last month, we looked at publishing your Blog with a Feed via feedburner that will push the audio to peoples pod catchers on their PCs and mobile devices. This month, we are going to look at hosting for your audio files – if you are not signed up to a podcasting service that provides hosting and you are not able to set up your own hosting either from a cloud based server provider or a self hosted server.

HPR, mintCast (of which I am a co-host), and Distrohoppers Digest (which I set up with Moss – another mintCast co-host) use the services of Archive.org – which is a not-for-profit foundation set up to save the history of the internet by

saving internet content so it can be used by future generations, a library of digital content.

As well as accessing the resources already hosted on their servers, you can create an account and upload your own content. For this article, I am referring to content to which you have legal entitlement – as either the creator and copyright holder, or content that has a community licence such as the ‘Creative Commons’ licence – so uploading the ‘Full Circle’ archive as it is produced under a CC licence, is perfectly legitimate as long as you adhere to the licence terms.

So, as we are not making any

financial gain from Distrohoppers, we were looking at sustainable ways of hosting the audio in a way that would still be available, if we, at some point in the future, lay the podcast down. Signing up for an account is very easy, you provide an email address and password and you are good to go.

So, once you have created your account login with your email and password, you are ready to start uploading audio to the site. If you look at the top right of the Archive.org screen between your

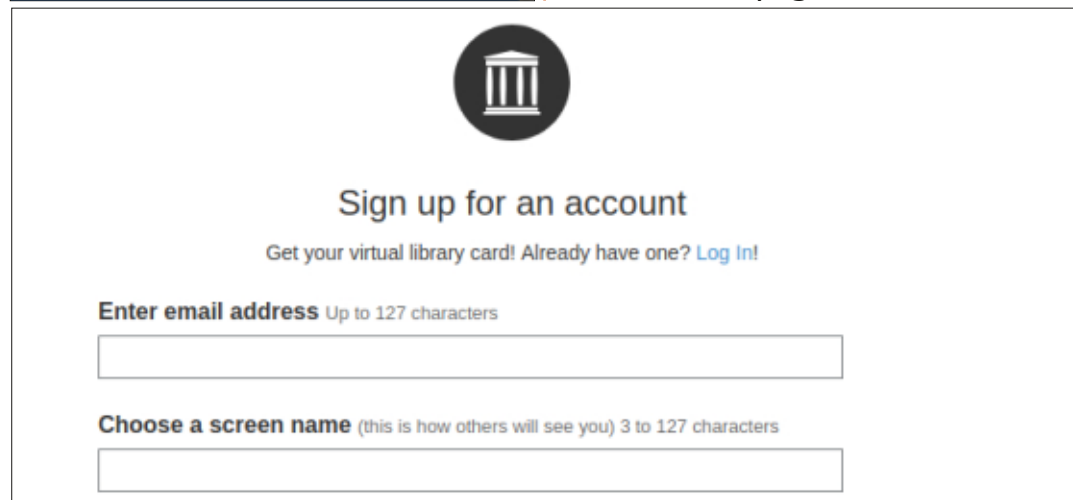
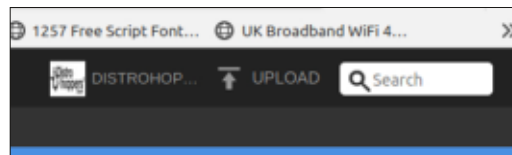
name and the search area it says upload.

Press this, and you will be redirected to the file upload page where you can drag and drop files, or search for them on your PC to upload.

Drag & Drop files here or

Choose files to upload

Once you select the files you wish to upload, you are shown a screen to assign a title to the upload and tag the file with information relating to the content. The page title will have



HOWTO - PODCAST PRODUCTION

the filename in it, but this can be changed; in my case I put the title of the show and episode number in this box. Further down you get to choose the licence for the content, we use Attribution-NonCommercial-NoDerivs 4.0 International, but other choices are available.

Click on any field below to edit it

Page Title *	DHDEp 009 TH	✓
Page URL *	https://archive.org/details/dhdep-009-th	✓
Description *	Add a description of the item page	✓
Subject Tags *	Add keywords, separated by commas	✓
Creator	Creator of the content	✓
Date	Date work was created/published	✓
Collection *	Community audio	✓
Test Item	No	✓
Language	Language of the work	✓
License	<p>Creative Commons Attribution-NonCommercial-NoDerivs</p> <p><input type="radio"/> Leave license blank</p> <p><input type="radio"/> CC0 — "No Rights Reserved"</p> <p><input checked="" type="radio"/> Creative Commons</p> <p><input type="checkbox"/> Allow Remixing</p> <p><input type="checkbox"/> Require Share-Alike</p> <p><input checked="" type="checkbox"/> Prohibit Commercial Use</p> <p><input type="radio"/> Public Domain</p>	✓

After you have completed this, then you can proceed to upload the files you have chosen. Depending on the size of the file(s), this can take some time, but once completed, a page for that content is created on the server showing all the files you have uploaded to the page.

Distrohoppers Digest Episode 16
by Distrohoppers Digest

Publication date: 2020-09-20
Usage: Attribution-NonCommercial-NoDerivs 4.0 International
Topics: Linux, Distrohopping, Ubuntu, Linux Mint, Sparkylinux, Solus Plasma, Gecko Linux
Language: English

0 Views

DOWNLOAD OPTIONS

24BIT FLAC	1.9h
ITEM TILE	1.9h
OGG VORBIS	1.9h
TORRENT	1.9h
VBR M3U	1.9h
VBR MP3	1.9h

Reviews

There are no reviews yet. Be the first one to write a review.

On the right-hand-side of this page is the list of files you have uploaded, and if you open the file you wish to share through your feed, and this is an audio file, there will be a player which starts to play the audio as soon as the audio loads. Stop this while you copy the URL from the address bar at the top of your browser.

This is the URL you need to put into your Blog post for the episode you are wishing to feed to people's podcatchers; without this link in

your blog, feedburner has nothing to link to on the page. On the page I create, I put the links in the text that says the name of the episode and either .mp3 or .OGG.

Picture 008 - Link audio to Blog.jpg

So this article has covered one way of hosting your podcast audio. As I said at the start, it is not the only way but it is one way that many in the podcast world have chosen to use. It does have its

This is the links to the episode audio

Download Episode 9 Ogg

<https://ia601406.us.archive.or...>

MONTHLY FOIBLES

...wherein we discuss what did and didn't work for us this month...

Moss So it's a new year. Hope yours is good. As for holiday goodies, an old friend sent me a box full of

downsides as you are reliant on the Archive.org servers being up and working, but, in the time I have been using the service, this has never been an issue. For Creative Commons content, this is a very good solution to how to host your content. I also upload a .flac file of the audio so that I always have a good quality backup of the show audio if my personal backups were to fail.

So far, we have looked at everything from the hardware and software needed to create your audio, how to create a Blog to publish the content and provide an RSS feed to get the audio to people's podcatchers, and how to host your audio content using the services of Archive.org. In the next couple of articles, I will look at the process we follow on mintCast and Distrohoppers to record the audio and what we do in post production editing when there are multiple audio tracks.

If you wish to contact me for more information, you can get me at:
distrohoppersdigest@gmail.com
or
th@mintcast.org



HOW-TO

Written by Dave Rowson

Whilst looking at note-taking applications, I have been pleasantly surprised by the sheer number of applications available on Linux and the variety of ways in which you can collect your thoughts or organize your life.

In the past, I've always stuck to using the same type of application but, this month, we'll take a look at something slightly different: MicroPad, an open-source electron application which doesn't tie you to organizing your notes in a hierarchical structure, but gives you an "infinite canvas" on which to capture your ideas.

DOWNLOAD AND INSTALLATION

MicroPad is not available in the default Ubuntu repositories, but you can download a deb file from <https://getmicropad.com/#download> to install the app on any Ubuntu, Debian, or derivative system; you can install the app via the Snap store or you can choose to download the application as an

AppImage, which is what I chose to do. You can download an RPM for use on Fedora or openSUSE, or install the app via the AUR if you use an Arch-based system. As MicroPad is cross-platform, downloads are available for Windows or Mac, and you even have the option to run MicroPad in the browser with your notes stored in your browser's persistent storage.

The application starts quickly and has a clean, modern and slightly quirky interface, which is designed to look like a whiteboard. The background shows you how to start taking notes, and a short, introductory video is displayed which you can choose to hide in the future. The sidebar on the right-hand side of the page displays a help notebook where you can find license information for the application (Mozilla Public License Version 2.0) and its dependencies.

See image right: 1. Notebooks menu – select or create notebooks, import, export and sync options; 2. Cog icon to move, rename, delete

Notetaking With Micropad

or export notebooks, sections or elements.

It's worth taking a few moments to browse the Help to familiarize yourself with the GitHub-flavored Markdown MicroPad uses and also the keyboard shortcuts available. As well as Markdown, you can include AsciiMath or LaTeX in your notes.

The application includes a few options for theming, including a theme called IanPad which is an eye-watering mix of bright greens!

USAGE

MicroPad doesn't use a

traditional hierarchical format for taking notes. Instead, notes are stored in a notebook which can have multiple sections and subsections – each containing multiple elements. Elements appear as cards on the note and can be moved around and resized as you see fit. The developer likens this to how you would take notes on a whiteboard. As well as textual notes written using Markdown, you can add images, drawings, embedded PDF documents, files, Jupyter notebooks, or even voice recordings made directly in the application.

Using the Notebooks menu at the top of the screen, let's add a



HOWTO - MICROPAD

party servers. Full details are available at <https://getmicropad.com/sync/> including full terms and conditions and privacy notices.

VIEWING AND SEARCHING NOTES

As previously mentioned, MicroPad displays elements as cards on a board. These can easily be moved around and even overlapped, as with my arrow, drawing attention to a specific part of an element. Keyboard shortcuts are available to zoom in or out of the note so you can see the bigger picture if you have a lot of elements on one note.

You can search by tag; clicking on a tag will show all notes that have the same tag. You can also carry out a text search, but only for the names of notes; this search doesn't include text in any elements .

EXPORTING

Through the notebooks menu, you have the option to export all your notebooks to a MicroPad zip archive or to a folder of Markdown

files. By clicking the cog icon beside a notebook, you can limit your export to one notebook; the cog icon beside a note's name only gives you the option to export the note as a PDF file. Whilst exporting my notebooks worked well, the images and drawings were embedded in the Markdown files in Base64 format rather than being exported as separate files, meaning that, even for my very small test notes, the files were very large and crashed Gedit when trying to open them. The embedded PDF wasn't exported at all; the Markdown file for it was 0 bytes long!

DATA STORAGE

The notes you create are saved in a database in `$(HOME)/.config/micropad` with any pictures, drawings or embedded PDFs easily accessible. MicroPad uses an open-

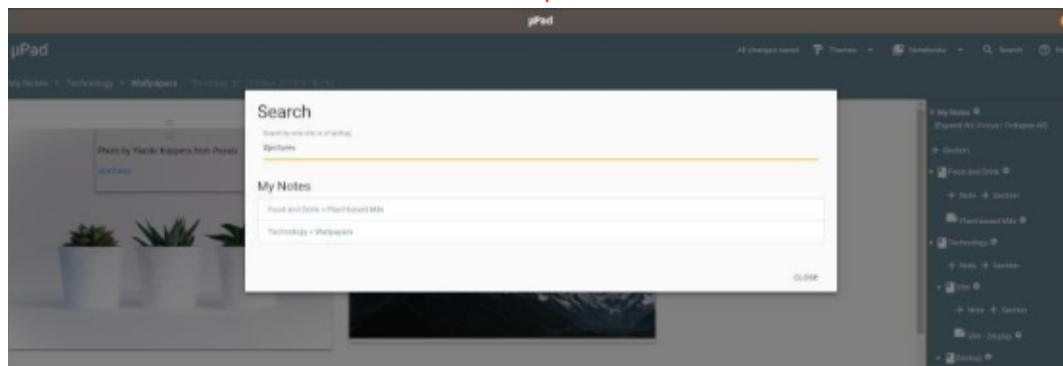
source file format which you can download from <https://github.com/MicroPad/Notebook-Library>, or you can access your data through PDF or Markdown exports as detailed above.

IN SUMMARY

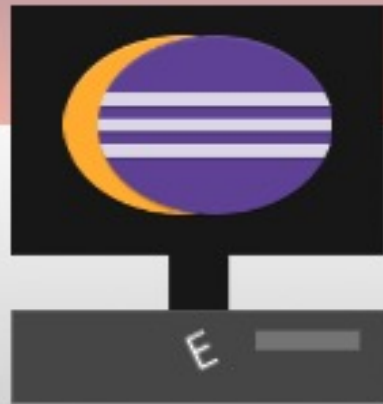
I was really excited about trying MicroPad and, yes, I do realize how sad that sounds! Now that I've used the application, I can't really see how I would use it to manage my notes on an ongoing basis as most of the notes I take are hierarchical in nature. Trying to organize these types of notes in MicroPad would, to me, feel messy. It would also take me quite a while to alter my existing notes so that they could easily be imported in MicroPad. However, that doesn't mean that MicroPad is not a useful and original application. If you take notes which combine pictures, text

and handwritten annotations, then MicroPad offers features which I've not seen in any other note-taking application. For example, planning a garden redesign, combining textual measurements, photos of plants, hand-drawn sketches of the layout, would be an ideal use for MicroPad. It may also feel more comfortable for existing users of Microsoft's OneNote application than other note-taking applications available on Linux.

My search for the perfect note-taking application will continue... but I won't be deleting the MicroPad AppImage just yet. It's an interesting application which, generally, works well and is pleasant to use. If the whiteboard-style interface appeals to you, then give it a go!



**HOPE: its what you have
when you press F5 after a
night of coding...**



The Daily Waddle



HOW-TO

Written by Mark Crutch

Inkscape - Part 103

We start this month with a small correction. Last time, I said that the recent minor revision of Inkscape, version 1.0.1, hadn't fixed any of the issues that I'd mentioned in recent articles. In fact it has addressed one problem that I described in part 100 of this series. In version 1.0, it was no longer possible to reverse a sub-path by selecting a single node and using Path > Reverse. Instead, you had to break the path apart, reverse the path in question, then combine all the paths again. Inkscape 1.0.1 reinstates the previous behaviour. In practice, this is a rarely used feature that really comes into its own only when dealing with fill-rules and self-intersecting paths, as I detailed in part 95, but it's nice to see it fixed nevertheless.

The remaining issues described in part 100 – problems with converting text to a path, and other issues with linked offsets – still remain in 1.0.1. As the workarounds to these can be a little tricky to follow, I've made a YouTube video that covers this topic in a more visual way. This is

my first Inkscape tutorial video, so please leave a comment if you want to see more.

<http://www.youtube.com/watch?v=lx5nRCu7AKk>

Now, back to the usual programming, with a look at some of the changes and additions to Inkscape's drawing tools that were introduced in version 1.0:

REORDERED TOOLBOX

Although no new tools have been added in 1.0, the existing tools have been reordered within the toolbox on the left of the screen, in order to group them more logically. Thin dividers are used between the groups, which has the effect of providing a little structure to what was previously just an undifferentiated list. In theory this should make it easier and faster to find the icon you're looking for, and that has certainly been my experience. The tools are grouped as follows:
 Edit tools – for editing existing objects: Select tool, Node tool
 Shape tools – for creating and

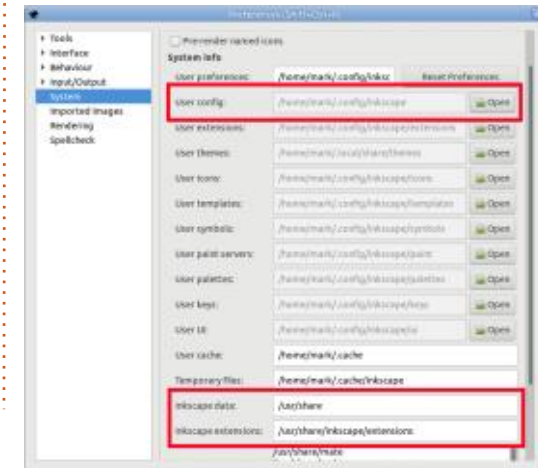
editing geometric shapes: Rectangle & Squares tool, Circles & Ellipses tool, Stars & Polygons tool, 3D Box tool, Spiral tool
 Primitive tools – for creating basic objects: Bézier Curve tool, Freehand (Pencil) tool, Calligraphy (Pen) tool, Text tool
 Color tools – for working with colors and gradients: Gradient tool, Mesh Gradient tool, Color Picker (Eye Dropper) tool, Fill tool (Bucket Fill)
 Other tools – miscellaneous tools not included in the other sections: Tweak tool, Spray tool, Eraser tool, Connectors tool
 Canvas tools – for manipulating the canvas view: Zoom tool, Measurement tool

These are my descriptions, which vary from the terms used in the official release notes, but which I think are more descriptive and consistent. It's easy to argue about the placement of some items, but generally I think the groupings mostly make sense, and do move the less commonly used icons towards the bottom of the bar. If you don't like the order,

however, Inkscape 1.0 introduces a mechanism for changing it... albeit one that isn't exactly user friendly.

REORDERING TOOLS

The order of the tools is now defined by an XML file that is read when Inkscape starts up. You can override this file by creating an edited copy in your user config directory. First you'll need to find the paths for the shared folder (where the original file lives) and your user config directory. You can find the latter, and hints to the location of the former, by opening the Inkscape preferences dialog (Edit > Preferences) and selecting the System panel.



Open a file manager, then navigate to the path shown in the “Inkscape data” field. That may well be a directory that’s shared with multiple programs, as is the case with the `/usr/share` value in my screenshot. Use the search facility in your file manager to find a file named “toolbar-tool.ui”, starting from this root directory. In practice that will probably search through far more files than you need to, so you can make the search more efficient by being slightly more targeted in your choice of starting directory. That’s why I’ve also highlighted the “Inkscape extensions” field in my screenshot: that’s not the directory you want, as it’s a little too specific, but it should give you a good hint as to where the common Inkscape files are stored. In my example, `/usr/share/inkscape` is a better starting point.

On my machine I found the “toolbar-tool.ui” file in `/usr/share/inkscape/ui`.

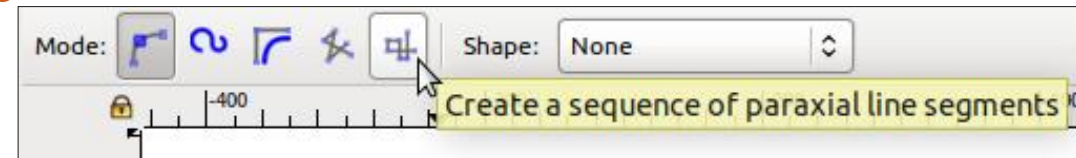
Once you’ve found the file, open a second file manager with the path from the “User config” field as its location. This should be pretty easy, as the Inkscape

developers have provided a handy “Open” button right next to the field.

Create a “ui” folder in your user config location, if one doesn’t already exist. Copy the “toolbar-tool.ui” file into it, making sure that you definitely copy rather than move the file.

Quit Inkscape if it’s still running, and open the newly copied file using a text editor. It’s a fairly flat XML file which should be pretty self-explanatory. To move tools between groups simply re-order the lines in the file; to hide a tool completely, wrap it in “<!--” and “-->” delimiters, similar to those used for comments in the file. Save your changes and launch Inkscape 1.0 to confirm that your new tool arrangement is working. If you have any problems and get completely stuck, you can quit Inkscape and delete the new file in order to return to the default arrangement.

This new capability may be particularly useful when using Inkscape on a machine with a smaller screen. If there’s insufficient height to draw all the tools in the toolbox, Inkscape moves any excess tools into a pop-



up menu at the bottom of the box. By moving the tools around in this configuration file, you can ensure that less useful ones end up in the pop-up while those you use commonly are always just one click away.

Here’s a quick bonus tip: there’s also a “toolbar-commands.ui” file in the same directory which can be used to re-order and hide entries in the main Inkscape toolbar.

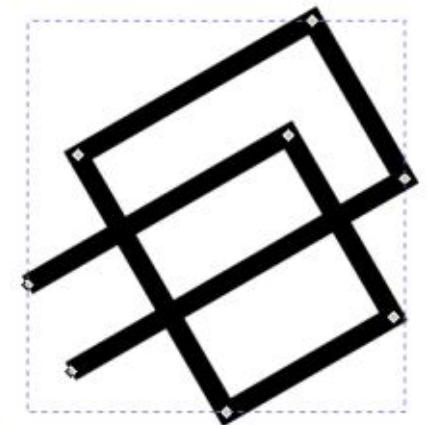
BÉZIER TOOL

The Bézier tool’s control bar (above) has a button with the confusing tooltip of “Create a sequence of paraxial line segments”.

In layman’s terms, this was the “draw only horizontal and vertical lines” mode. With this mode enabled, Inkscape would allow you to draw only an alternating sequence of horizontal and vertical lines. You could switch modes mid-path – if you wanted to switch to the “straight lines” mode to add a

single off-axis segment, for example – but any parts drawn under the influence of this control could be only horizontal or vertical.

With 1.0, the layman’s term for this button would now be the “draw perpendicular lines” mode. Now the segments are constrained by the first segment you draw: the second segment will be perpendicular to it (i.e. at a 90° angle to the first segment), the third segment will be perpendicular to the second (i.e. at the same angle as the first), and so on. The first path segment can be drawn at any angle, essentially turning this into a version of the previous paraxial mode, but with built-in rotation.

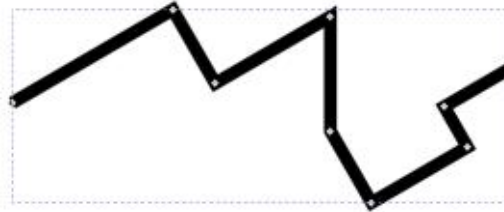


If you still require precise horizontal and vertical segments, make sure to hold the Ctrl key when drawing the first segment. That will constrain the initial line to one of a fixed series of angles, defined in the Behaviour > Steps section of Inkscape's preferences, and defaulting to every 15°. The previous image was drawn using this method to fix the initial segment at a 30° angle.

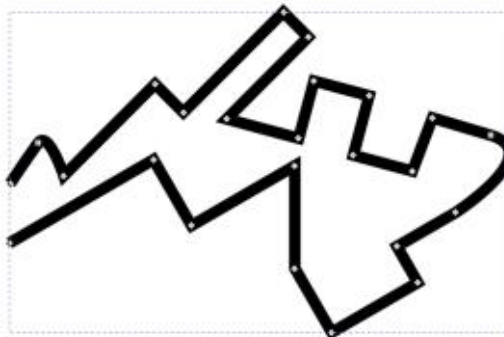
Once again, you can switch to other modes mid-way through drawing a sequence of path segments, but the behaviour might not quite be what you expect. Consider drawing a series of paraxial paths at, say, a 30° initial angle. If you require a series of horizontal and vertical paths to continue the sequence, you might think that you can switch to the "straight line" mode, hold Ctrl to create your initial horizontal or vertical line, then switch back to paraxial mode to continue with further horizontal and vertical line segments.

In practice, the paraxial mode remembers the initial path angle you used, not the most recent one. So, after switching back to paraxial

mode, you would end up with further lines at 30° and 120°, not at the 0° and 90° you wanted. You can see this effect in the following example where the fourth segment was drawn vertically, but the fifth and subsequent segments are still constrained by the angle set with the very first segment.



The workaround is to end your path, then start a new one. If the previous path is still selected, the Bézier tool lets you continue by starting your next line segment at the end node of the existing path. Each time you do this with paraxial mode enabled, the first segment you draw will be the reference segment for the remainder of that



path. You can repeat this as many times as required to produce complex lines with differently oriented paraxial sections, interspersed with curves or lines at arbitrary angles.

CALLIGRAPHY TOOL

There are two things that every sentence in this article has in common. Two basic rules of written English. They all start with a capital letter, and they all end with a punctuation character – usually a period (“full-stop” in British English), but often a question mark, exclamation mark, or colon. What all these characters have in common is that they require the ability to draw a dot. Given this fundamental requirement of written communication, it’s surprising to note that Inkscape’s calligraphy tool previously had no practical way to make a single dot.

You could kind of fake it by drawing a small circular shape with the tool, but make the circle too small and Inkscape would ignore it, while too big resulted in a large misshapen splodge. With 1.0, the developers have added the ability to directly create a dot – but in a

rather odd way that, in my opinion, doesn’t really address the underlying requirement.

To draw a dot, you just have to click with the primary mouse button, as opposed to click-drag when drawing a calligraphic stroke. As that mouse button usually also maps to pressing the tip of the stylus on a graphics tablet, anyone trying to write some calligraphy using such a setup just needs to press the stylus down and up to draw a dot. It’s as simple and intuitive as can be.

You can also hold down the Shift key while performing the same operation to create a larger dot. Larger, in this case, means exactly twice the diameter of a small dot.

The fact that I can easily tell you it’s exactly – not roughly – twice the diameter reveals the first problem with this new feature. Whereas calligraphic strokes are actually created as filled paths, these dots are created as circles. If you want to edit a stroke, double-clicking on it allows you to drag the individual nodes around. To do the same with a calligraphic dot, however, first requires a trip to the

Path > Object to Path function. Without that step you're limited to the changes that can be performed with the Circle tool.

By rendering a circle, your dot is a pure shape, with no lumps, bumps or character to it. It doesn't matter what your Calligraphy Tool settings are: you could be using the Wiggle or Splotchy preset, or have some custom values to create a frantically random stroke, but your dots will always be circular. Using the Dip Pen preset for a classic calligraphy style, with angled lines that would suit a diamond-shaped dot? Nope, you still get a circle.

A far larger – or rather, smaller – problem is the size of the dots. They're tiny! Even the large ones. Here are four examples: each is drawn using the Marker preset, with the width set to 25, 50, 75 and 100. In each case, I've drawn a single calligraphic stroke, followed by a standard dot, then a large dot.



As you might imagine, these don't make for great titles with your punctuation marks, should you be using the Calligraphy Tool for, you know, actual calligraphy. In an example about as far from classic calligraphy as you can get, here's some mouse-drawn text to demonstrate just how useless these dots would be for terminating a sentence.

Hello ..

It seems obvious to me that the dot sizes should be far closer to the width of the line. Perhaps 75% of the width for a small dot, and 150% for a large one. As it stands, this feature is mostly useless. You could scale the dots up after drawing, but they'll still be pure circles with none of the character of your selected pen. And quite honestly, if you have to manually scale the circles anyway, then you may as well just draw them using the circle tool after completing the rest of your lines.

CIRCLE TOOL

On the subject of the circle tool, there's been one small but welcome addition. As you probably know, you can move the round handles on a circle or ellipse to open the shape out, forming arcs (when the mouse is released inside the shape) and segments (when the mouse is released outside the shape). You can toggle between these, and a completely closed shape, from buttons in the tool control bar.

The new addition is the ability to create chords – arcs where the two ends are joined with a straight line. There doesn't appear to be an on-canvas method for doing this, but if you create an arc or segment, you can switch it to a chord using a new button on the tool control bar. It's a small addition, but good to have nevertheless.



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

The Daily Waddle

THE DAILY WADDLE

by: ErikTheUnready



Why do we have hardware?

Because you can't kick software?





LINUX LOOPBACK

Written by S. J. Webb

BACK NEXT MONTH

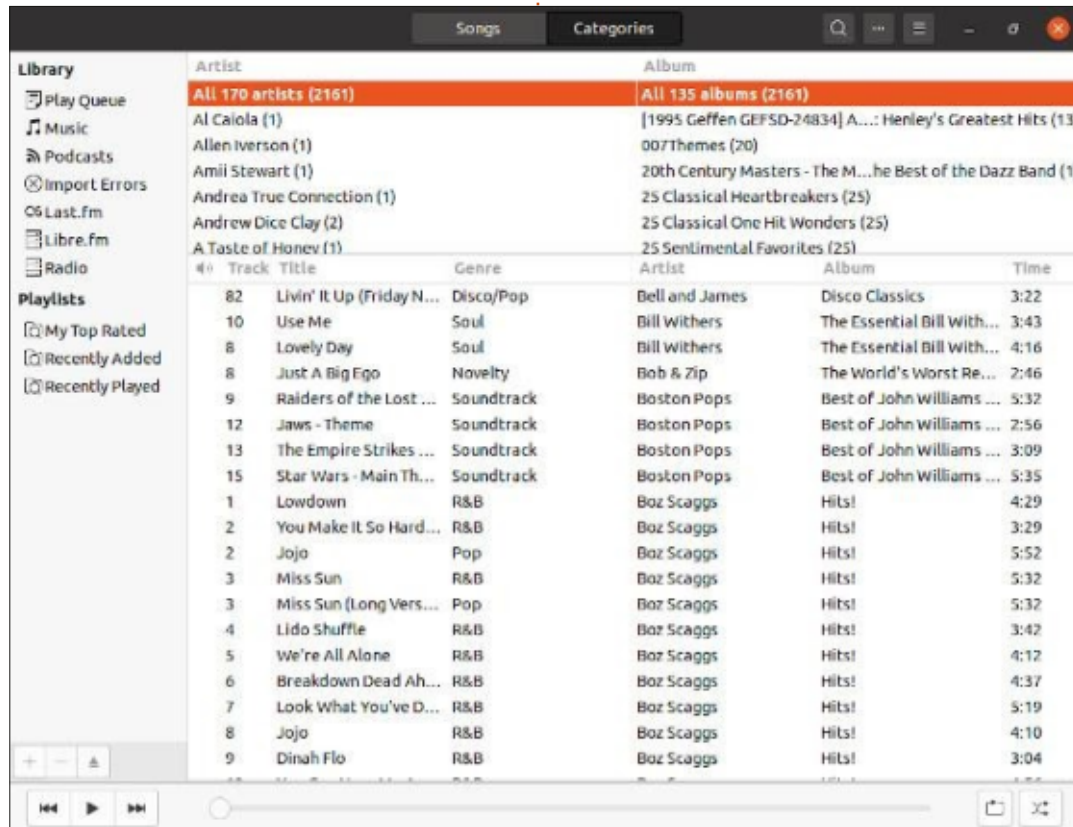


SJ Webb is a researcher coordinator. When he is not working, he enjoys time with his wife and kids. He thanks Mike Ferarri for his mentorship.



Last month, we began discussing how to use Rhythmbox to manage your music collection. We'll wrap that up this month in the installment I have imaginatively labeled 'Managing Music With Rhythmbox – Part 3'.

Rhythmbox shows this main default screen:



As detailed last month, Rhythmbox creates the 'My Top Rated' playlist, seen on the left-hand side, as a default list. As you provide a rating for a given track in the track properties, any four- or five-star rated tracks get assigned to this playlist. But there's an easier way to do this than right-clicking each track individually and selecting the track's Properties, the

procedure explained in the last column.

RHYTHMBOX PREFERENCES

Refer back to our screenshot at the top of this article and look at the top of the screen. You'll see a 'button' that looks like three short, parallel, horizontal lines. This is a common icon in Linux applications and is often colloquially referred to as a 'hamburger menu':



Click the hamburger menu and select Preferences. The default pane that will come up is General:



Select the Rating box.. A Rating column will appear by default, where you can now easily add ratings for your tracks with a single mouse click:

Artist	Album	Time	Rating
Al Caiola (1)	[1995 Geffen GEFSD-24834] A...: Henley's Greatest Hits (13)	2:53	★☆☆☆☆
Allen Iverson (1)	Unknown	1:56	☆☆☆☆☆
Amil Stewart (1)	Disco Classics	3:52	★★★★★
Andrea True Connection (1)	Disco Classics	2:58	☆☆☆☆☆
Andrew Dice Clay (2)	Unknown	1:30	☆☆☆☆☆

You can click however many stars you want to give each track, out of a possible five. Once you've done this, the track will show up in the My Top Rated playlist, if you've given the track a four- or five-star rating:

Track	Title
1	Knock
2	Boog
3	Lido
4	Jive T

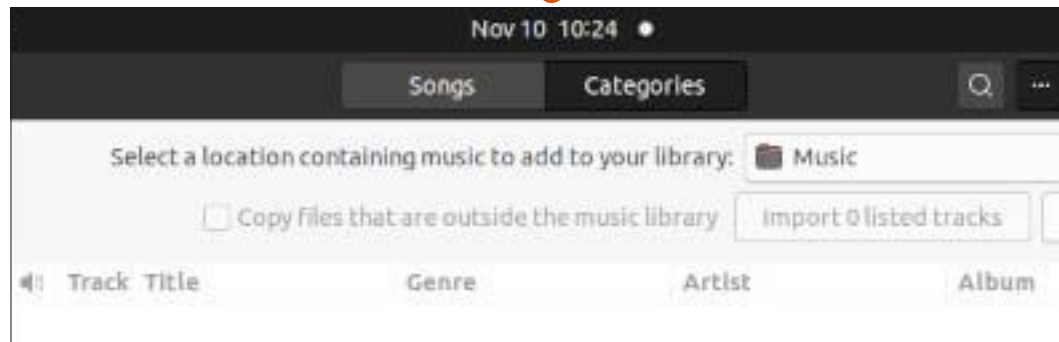
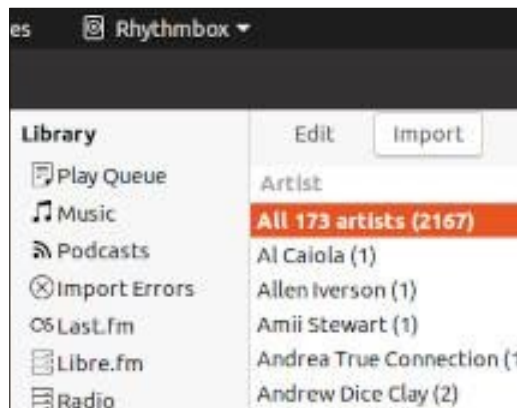
As we said last month, the music in that playlist will automatically sort by higher to lower rated. Your 5-star tunes will be at the top, 4-star music at the bottom.

ADDING NEW MUSIC

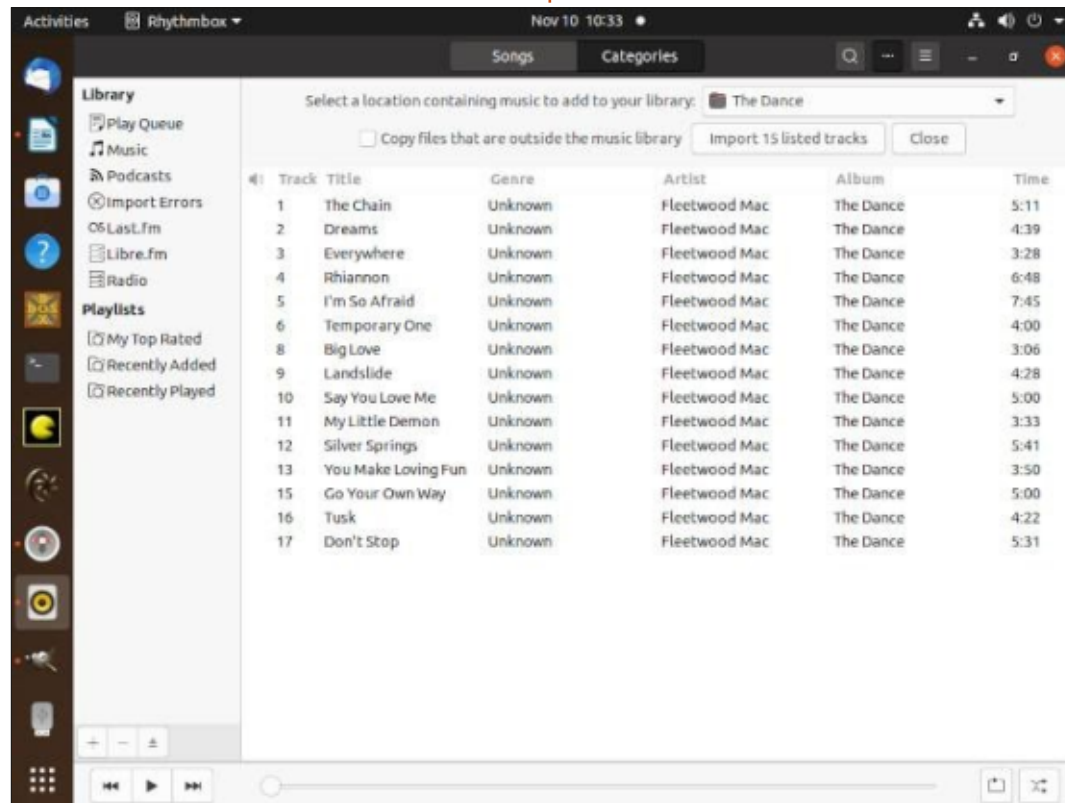
Once Rhythmbox has done its original scan of your local music, any new music you add will need to be manually imported. Refer back to the screenshot at the beginning of this month's column once more and you'll see an ellipsis button at the top, just to the left of the hamburger menu:



Click your Music library on the left side of the screen, then click the ellipsis button and you'll get a menu at the top that includes Import:



Select Import and choose 'Select a location containing music to add to your library', then navigate to the folder location of your new music to import it into your Music library (above).



If your new Music isn't in the Music folder or a subfolder within it, you'll need to pick 'Other', then navigate to where the new files are that you want to add. If you want Rhythmbox to copy the new files to

your Music folder location (set up by default in Linux under your userID's Home folder), click the checkbox for 'Copy files that are outside the Music library'.

Select the files you want to add to your library. Click the first one, then hold Shift and click the last desired file to select all the files in-between, or click any non-contiguous files individually by holding down the CTRL key on your keyboard while selecting. This is the default convention for selecting files in Linux dialogue boxes or the file manager. Drag the files to the Music library on the left to begin the process of adding them:

Click 'Close' to complete the process. The new files will also now show up in the Recently Added default playlist on the left-hand side. Boogie on!



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

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:

Xiaomi Redmi 4X (Maintained by Danct12)

Huawei Nexus 6P (Maintained by Florian Leeber)

Sony Xperia Z4 Tablet (Maintained by Guf)

If you're a device maintainer and your device is not on this list, this may be because it has not been added to the UBports Installer or it is an Android 9 device.

WHAT'S NEW?

At the beginning of each development cycle, we decide what our main focus for the cycle is going to be. For OTA-14, we chose to focus on Android 9 support. We believe this will help power the launch of our sponsor's Volla

Phone, delivering it as a daily driver into the hands of its new recipients.

This was largely a success: We were able to fix issues with swiping apps away to close them, Ratchanan did quite a number on camera support, and external display support with HardwareComposer2 now works.

Given the OTA-14 development cycle was only 34 days, we believe this was a huge success.

That's not all, though! Outside of our team's "new development" commitments, we also merged many changes and translations from our volunteer community.

Lionel(D) made a number of new changes to the Contacts and Messaging apps to make them easier to use.

Luca, of postmarketOS fame, contributed a number of fixes for compiling Ubuntu Touch software on newer distributions.

Joan made the splash screen for External Drives match most of the other default applications' style. Michele fixed dark theme support in Lomiri UI Toolkit Dialogs.

Kevin added a "Screenshot" button to the Lomiri power menu. This makes it possible to take a screenshot when you don't have a keyboard with a Print Screen key, or if your device's volume buttons can't be pressed at the same time (like on the PinePhone).

And most exciting for me, this release *finally* fixes routing media to your Bluetooth headset or car kit on its disconnection and reconnection. If you're playing a podcast in the car and leave to go to the shop, your device will reconnect and you can continue playing audio on the car system when you get back. Bluetooth calls were not remedied and are still broken on most devices. Car kit compatibility was not affected either way.

WHAT'S NEXT?

Goodbye, Oxide!

App developers please note: there are changes coming to Ubuntu Touch in OTA-16 that you must be aware of! OTA-16 will be the first release of Ubuntu Touch which does not include the old, outdated Oxide web rendering engine. If you are developing an app which uses Oxide, it will cease to function on users' devices in OTA-16.

Users of old apps beware: the removal of Oxide may affect you too. Many apps from the Canonical app store used Oxide directly. These include closed-source apps like Cut the Rope. If you're a user of one of these very old proprietary apps, now is the time to request that the app developer updates it. Otherwise, you may need to find another solution.

The removal of Oxide will be the end of an era, but a much-needed one: the engine hasn't seen an official update since 2017. It is unsafe to continue using the engine on the untrusted web, and

UBPORTS DEVICES

has only been kept around for those offline rendering applications such as Dekko 2 and the Notes app, which needed it. Most of these offline applications have moved away from Oxide, so it is time to say goodbye.

Given our 6-8 week release cycle, OTA-16 will appear between the final week of January and the final week of February 2021.

QT 5.12

If our work of the past few months finally comes to completion, OTA-15 will be the update where we upgrade from Qt 5.9 to 5.12. This will improve app startup times and memory use, make it easier to provide smaller and faster packages of apps and system software, and bring us in line with our next targeted Ubuntu release: Ubuntu 20.04. With our components matched like this, upgrading from our 16.04 base becomes much simpler.

MORE DEVICES!

Community development has led us to many advances in the past three and a half years. The most

significant of these may be the Android 9 effort. Between Volla's sponsorship and Erfan's creation of the Ubuntu Touch Generic System Image (or GSI), our community has been able to bring on new devices faster than ever before. Watch this space; more and more newer devices will have unofficial or official Ubuntu Touch builds available for them as time goes on.



The Daily Waddle

**This is your
workstation, reboots
and updates every
time you want to
compile..**





I was having a discussion with Gaza on Telegram and it just became too involved, plus I thought I should maybe share it with more people, as it is important. (One of our regular readers also sent me an email regarding this in a round-about way). Too long for Q&A, and too short for a tutorial.

Veracrypt is great software. Ever since I was introduced to TrueCrypt, I have been a fan. The discussion flowed from a question: What can we do to make Veracrypt more secure?

For those NOT in the know, VeraCrypt is encryption software that is a fork of the discontinued TrueCrypt encryption software. It can best be described as a continuation of TrueCrypt that supports all features that TrueCrypt supported, plus a set of improved or new features. We have covered Veracrypt in past issues – go grab it now if you have not read them: <https://fullcirclemagazine.org/downloads/>

When it comes to security, the hidden container is the best, but that eats up a lot of space. Usually the weakest link is the password. People like to have memorable passwords. The password length in the latest Veracrypt is 128 at the time of writing. So, if you do not have a password manager, how would you have a *strong password? (That you can copy / paste as needed?).

Before I start here, the reason I am making these suggestions is - so that you can copy / paste the password, with “minimal” hassles, and still be reasonably secure:

- Using PGP keys:
 - I suggest that you download any application of your choice, plus its corresponding public PGP key, not just* the PGP key, as that could stand out (unless you have lots!), if anyone were to analyse all your computer files.
 - Now, perhaps change (not insert/remove) a few recognisable characters inside the PGP key and save the file. (This is so that you easily remember where to start within the file, if your memory is

not 100%) - like having two plusses (++) where you should start. In the image, you will see we used line 20, for 2020, and started just after the plus - now I won't forget. If you change the PGP file, then, if possible, retain the original date on the revised file (in case someone goes forensic on your computer, an application from 2006 with a 2020 date on the PGP key would be suspect...).

— Now copy 128 characters from that position in the file, and use it as your password - don't use the first or last 128 characters, for obvious reasons! If you use a nice editor that shows you the number of characters, you can grab 128 from your predetermined point.

• Using PDFs: Another nice option is to open any document in your documents collection and copy a long sentence (of text) from it. (Thank you @Kal N).

• Using Steam: Though, using one of your long steam keys may seem like a good idea, logging into steam, finding the game, copying the details, etc, is a long process and relies on steam working. (Thank you for the suggestion mr.

A!).

• I have had suggestions of putting the PGP key inside a jpeg with steganography, but again, this defeats the “easy” part.

• Another option is to use an online ‘password generator’. If permitted, you should configure the generator to use A-Z, a-z, 0-9, and all printable symbols. As with all options here, you must conceal the chosen password securely within your own private files and within your backups. Perhaps check these:

— <https://www.grc.com/passwords.htm>. Steve Gibson's very highly recommended website. Use the middle of the three generators, save the 64-char password into your private file, hit Refresh to generate a second one, and append that to the first one - to get 128 chars in total.

— <https://www.strongpasswordgenerator.org/>. Tick all four options, set the length to 128, hit Generate, and copy the full generated password (not just the displayed bit!) to your private file.

— <https://www.msdservices.com/apg/index.php>. Set the Algo to

Random, tick all four symbol sets, set the min and max lengths to 128 and the count to 1, type a phrase into the Seed, hit Generate, and copy/paste the full password to your private file.

• None of these password idea's are set in stone, they are just "easy" ways that – should you forget / lose the key – you can go grab it again without the need to remember it. This way, the key is hiding in plain sight, but might as well not be there. Remember we want a "strong" password, that is "easy" to recover, without having to remember much (if you do not use password managers), and that you can copy & paste as needed. Whew. If you are scared that you might lose it, say in a disk failure, then burn your key/password to a DVD or put it on a thumb drive that you lock away as backup.

That takes care of a strong, long password.

Veracrypt also has a Personal Iterations Multiplier - PIM . (Yes, not a Personal Information manager, I too, at first , thought this was a short passkey to unlock your longer password, so I did not use it.) This field's value controls the number of iterations used by

the header key derivation function. If you value your security, you can see why changing this is a good idea. PIM is used by volumes even if the creator of the volume did not specify a value. It is an optional component that improves security, it adds another step to the authentication process similar to two-factor authentication. This is good... Napster bad... (Okay, I will see myself out).

However, the PIM is static. There is no auto-generated randomness here. This means that even if someone sees your password, they still need the PIM. In layman's terms, VeraCrypt's PIM defines the number of times your password is hashed before being used to decrypt the disk.

Mounir from IDRASSI states: "If the PIM value is small, iteration count is also small and this implies quicker mounting/booting but it brings a decrease in security. VeraCrypt implements validation checks on the PIM in order to ensure that the overall security is not inadvertently reduced by the user. Thus, when the password is less than 20 characters, PIM can't be smaller than 485 in order to maintain a minimal security level.

And when the password is 20 characters or more, PIM can be set to any value from 1 upwards."

When PIM is left empty or set to 0, VeraCrypt will use the default iterations which translate to the default PIM values. Defaults are never good, Shodan has taught us this.

The PIM however, does nothing for your password, it only makes brute forcing your password impractical / uneconomical, as you need to brute force the PIM first. You would be surprised how much of a deterrent this can be.

I would suggest using this for non-system volumes only, and if you need to keep things REALLY, REALLY secure, have another, say Zebracrypt or whatever, inside that fully encrypted disk. I don't have death star plans, but if I did, I would encrypt the volume with Veracrypt using both a strong password and a PIM, and have an encrypted folder inside that named "corrupted data backup" that used another strong encryption algorithm. You can go completely KGB if you want, but remember, all of this takes time, and you need to weigh up the security value against your time.

However, you can also now sell your disk once you have formatted it, and know, with confidence, that even IF someone manages to rescue some of it, it will be totally useless to them. This is a popular question with FCM readers as well as on our company Q&A.

Changing the PIM and the password is straight-forward; however, the drive must not be mounted if you wish to change the password or PIM. If you did not use a PIM before, when you go through the password change routine, simply click the "use PIM" checkbox and enter your PIM.

Do you disagree with me on any of this, or have an easier / faster method? Let me know at: 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.



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

TRANSLATIONS

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

REVIEWS

GAMES/APPLICATIONS

When reviewing games/applications please state clearly:

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

HARDWARE

When reviewing hardware please state clearly:

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

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



REVIEW

Written by Adam Hunt

Sometimes, operating system developers make it easy to be a software reviewer. They put out a nice set of “release notes” that detail all the changes since the last release. Then we can download the ISO file, boot it up, check all the things that are listed as “changed”, and write up a nice little review that describes what is good or bad, and give an outlook for future development based on the directions the developers are moving.

Then, at other times, developers make our job harder, like the Xubuntu Team has done this time around. Xubuntu 20.10 was released on 22 October, 2020 and is the 30th version of Xubuntu. Their release notes state that they spent most of the development time since 20.04 LTS migrating their project from Launchpad to GitHub, and otherwise didn’t make any changes. Yes, that GitHub, the one owned by Microsoft, with the reasoning for the move, that it would “make getting started easier for new contributors”.

This deja vu release still uses Xfce 4.14, the default application mix and themes are unchanged, and even the wallpaper remains the same. Being a standard release, it is supported for nine months, until July 2021.

Usually, in the Ubuntu world of three “standard” releases leading to the next long term support (LTS) release, the first standard release in the cycle is eagerly awaited because it sets the development direction for the next LTS. New ideas and software are trialed in the first release, polished in the

next two releases, and arrive in the LTS close to perfect, hopefully. In general, these days, most users stick to the LTS releases, but some standard releases offer enough new features or other advantages that users can be enticed away.

So, in this case, what does it mean to start off a new development cycle with “no changes”? It could mean that changes will show up in the next release, Xubuntu 21.04, due out in April 2021, or it could mean that, after 30 releases, Xubuntu really doesn’t need anything new as both

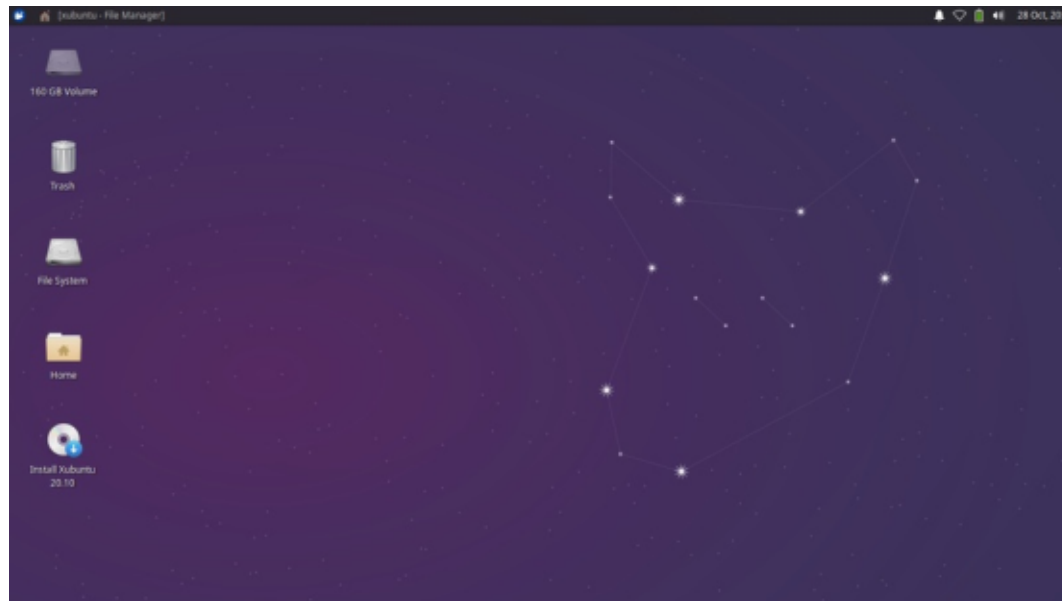
Xubuntu 20.10

the users and developers are happy and that this development cycle will not see many changes, basically an “if it ain’t broke, don’t fix it” model.

Certainly, in the past, some Linux project developers have taken software that worked well, that users loved and had reached a pinnacle of development, and decided to make large-scale changes that basically broke it, making users unhappy and starting a flurry of forks to restore it to its former glory. (Yes, I am thinking of what happened to Gnome 2.)

SYSTEM REQUIREMENTS

It is not entirely true that there is nothing new in Xubuntu 20.10. For one thing, the recommended minimum system requirements for Xubuntu 20.10 are higher than were specified for 20.04 LTS. They are now 2 GiB RAM (up from 1 GiB) and 8 GB of hard-drive space (up from 7.5). The RAM increase probably makes sense, as I am not sure 1 GiB cut it for recent



REVIEW

releases. Opening even a few tabs in Firefox alone will eat up 1 GiB these days.

BOOTING IT UP

I downloaded Xubuntu 20.10 from the Xubuntu website via bit torrent, ran a SHA256 checksum to make sure the download was good, and made up a USB installer using the Ubuntu Startup Disk Creator.

I ran Xubuntu 20.10 in several live sessions, a process that now starts off with an automatic file system check to make sure the USB stick is written correctly.

I can note that Xubuntu runs

very fast in a USB live session.

NEW

While none of the Xfce components have changed, this release does have a new Linux kernel which supports a range of new hardware. Linux 5.8 includes support for USB 4 (Thunderbolt 3), AMD Zen 3 CPUs, Intel Ice Lake and Tiger Lake graphics, and initial support for POWER10 processors. So, this might be one good reason to install Xubuntu 20.10, if you have new hardware that was not previously supported.

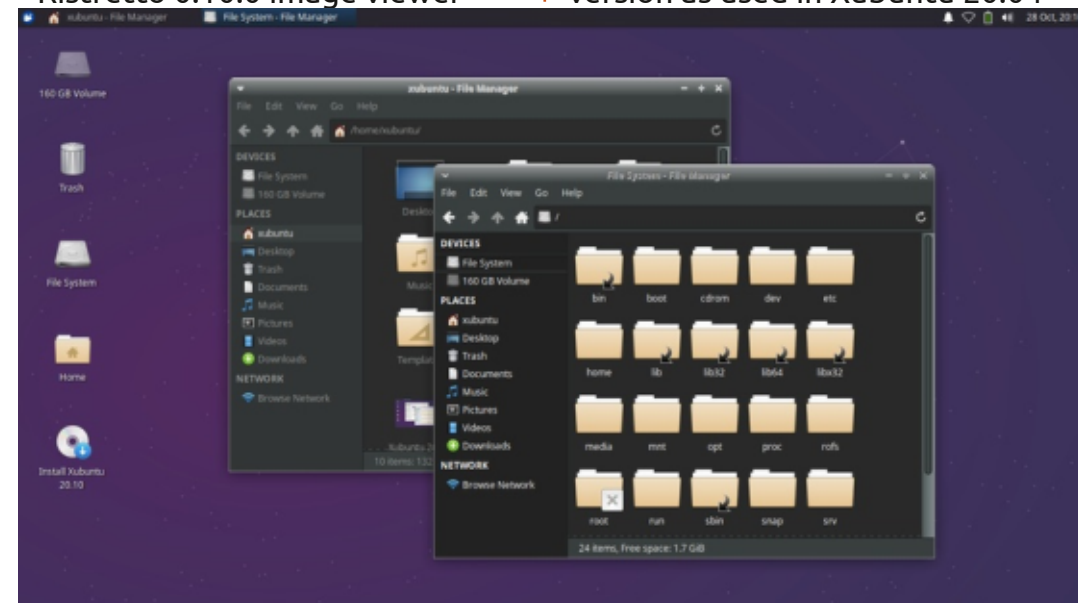
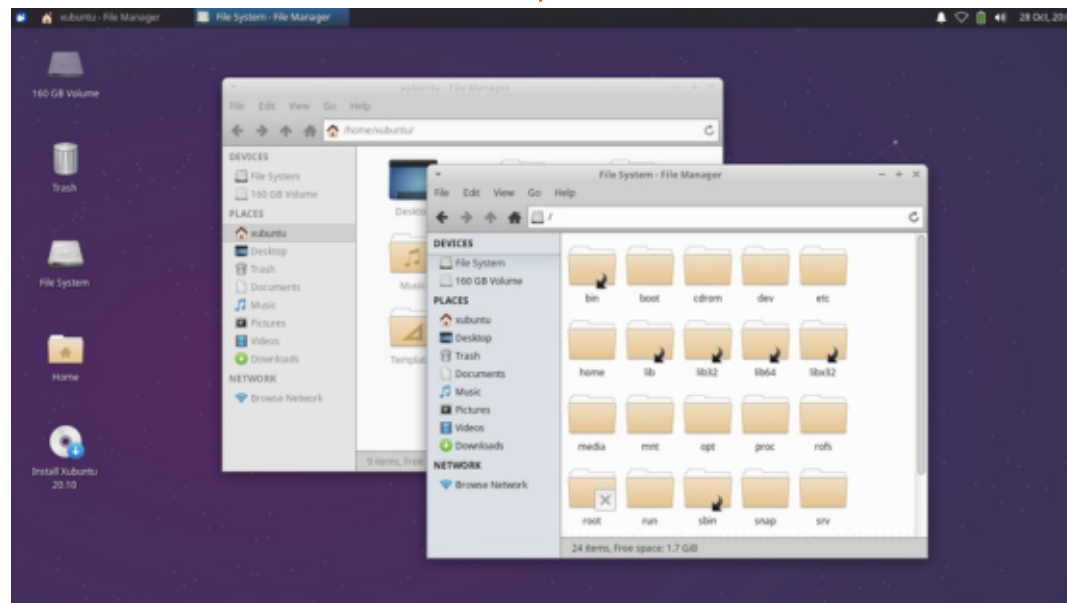
Applications

There are also new versions of some of the default core applications included with Xubuntu 20.10. Some of the applications that come with Xubuntu 20.10 are:

- Atril 1.24.0 PDF viewer*
- CUPS 2.3.3 printing system
- Catfish 1.4.13 desktop search*
- Firefox 82.0 web browser
- GIMP 2.10.18 graphics editor*
- Gnome Software 3.38.0 package management system
- Gparted 1.0.0 partition editor*
- LibreOffice 7.0.2 office suite
- Mousepad 0.4.2 text editor*
- Parole 1.0.5 media player*
- Pidgin 2.13.0 IRC client*
- PulseAudio 13.99.2 audio controller
- Ristretto 0.10.0 image viewer*

- Simple Scan 3.36.4 scanning utility (re-badged by Gnome as "Document Scanner")
- Software Updater 20.10.1 (update-manager) software update manager
- Startup Disk Creator 0.3.8 (usb-creator-gtk) USB ISO writer
- Thunar 1.8.15 file manager
- Thunderbird 78.3.2 email client
- Transmission 3.0.0 bittorrent client*
- Wget 1.20.3 command line webpage downloader*
- Xfburn 0.6.2 CD/DVD burner*
- Xfce4 Panel 4.14.4 desktop panel
- Xfce4 Power Manager 1.6.6 system power manager*

* indicates the same application version as used in Xubuntu 20.04



REVIEW

LTS.

Xubuntu 20.10, like other recent Xubuntu releases, does not include a webcam application or video editor, although a selection of these can be easily installed from the repositories.

As in past releases, the LibreOffice suite is complete, except for LibreOffice Base, the database application. Likely few users will need Base, but it can always be added from the repositories.

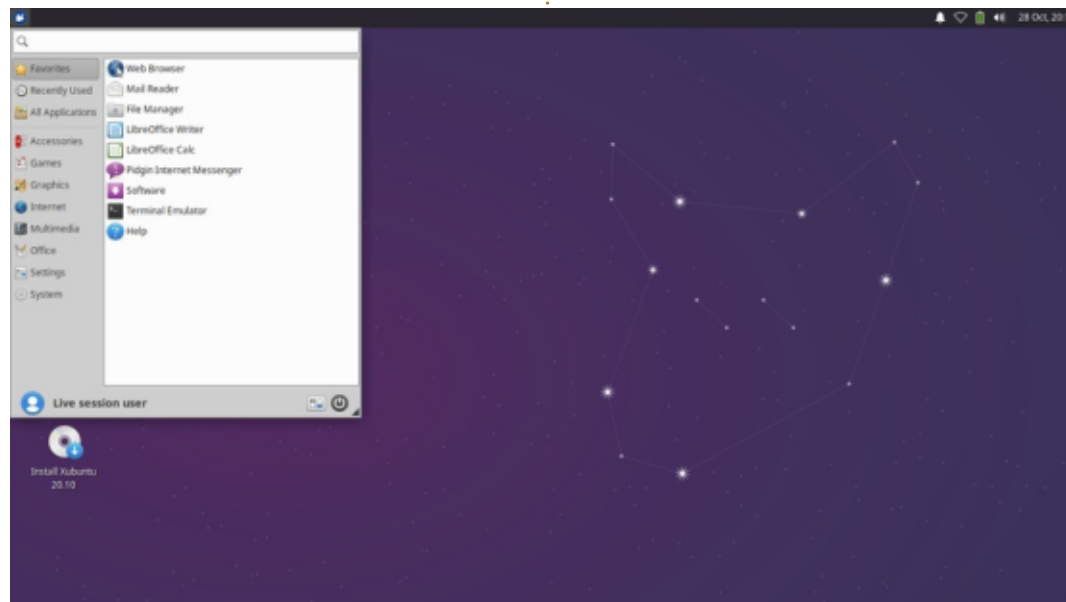
This release still includes a CD/DVD burning application, XfBurn. As I noted in my *Lubuntu 20.10* review, here in the 21st century this is starting to feel like a throwback to a distant era. New computers haven't come with optical drives for many years now and CDs and DVDs are basically relegated to the "dust-heap of the obsolete media of history" along with floppy discs and punch cards. I suspect we will see XfBurn omitted from the default installation in a near-future release.

This release uses the same version of the Thunar file manager as 20.04 LTS. But, as always, it

deserves mention as a useful application and better than some other file managers, especially with its integration with the Ristretto image viewer and Catfish desktop search.

The Whisker menu is also unchanged in this release, but it remains one of the strengths of Xubuntu, with its high degree of customization and ability to be resized.

MousePad, the Xubuntu text editor, is still a great application with ten different highlight color schemes, including several dark themes. It lacks only spell-checking to be really a complete text editor.



SETTINGS

Being unchanged, this release still features the Greybird window theme as default along with five other themes including Greybird-dark, for all those fans of dark themes. As in the past, none of the included themes provide good differentiation of active and inactive windows, leaving users to live with it or look for better themes to install from sources like www.xfce-look.org.

CONCLUSIONS

Even though Xubuntu 20.10 is a solid release and works very well, it is difficult to recommend it to users

already running Xubuntu 20.04 LTS due to the lack of any changes. Unless the user needs support for new hardware from the new Linux kernel or has a hot, burning desire to use LibreOffice 7 instead of 6, there really is no compelling reason to upgrade from Xubuntu 20.04 LTS. Comparing the support periods of nine months (until July 2021) for 20.10 versus three years (to April 2023) for 20.04 LTS, again, there isn't much to entice users to switch.

Once the next release, Xubuntu 21.04, comes out in April 2021, we will see where the Xubuntu Team is going with this development cycle. Will they introduce any changes, even small tweaks, or just "stand pat" with the existing strengths of 20.04 LTS right through to the next LTS?



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.



REVIEW

Written by Ronnie Tucker

Raspberry Pi 400 Kit

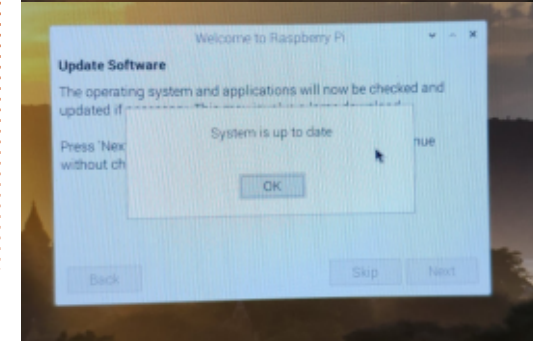
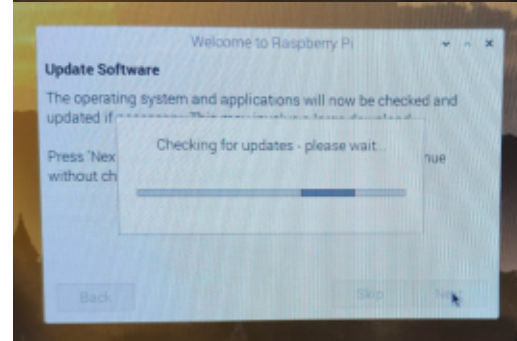
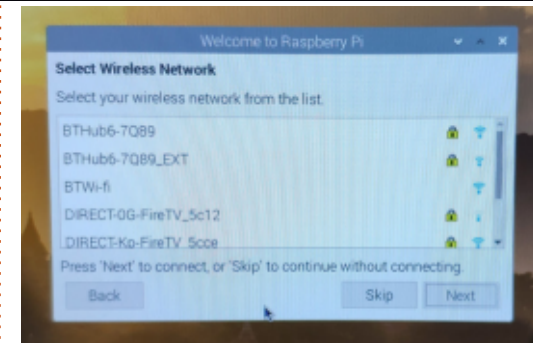
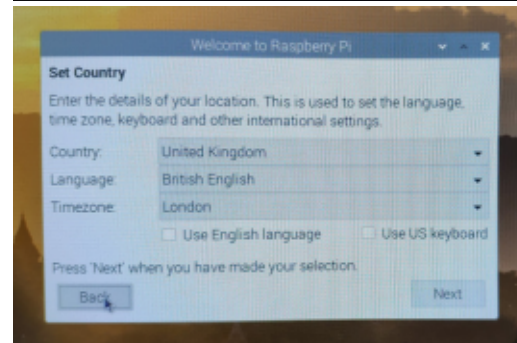
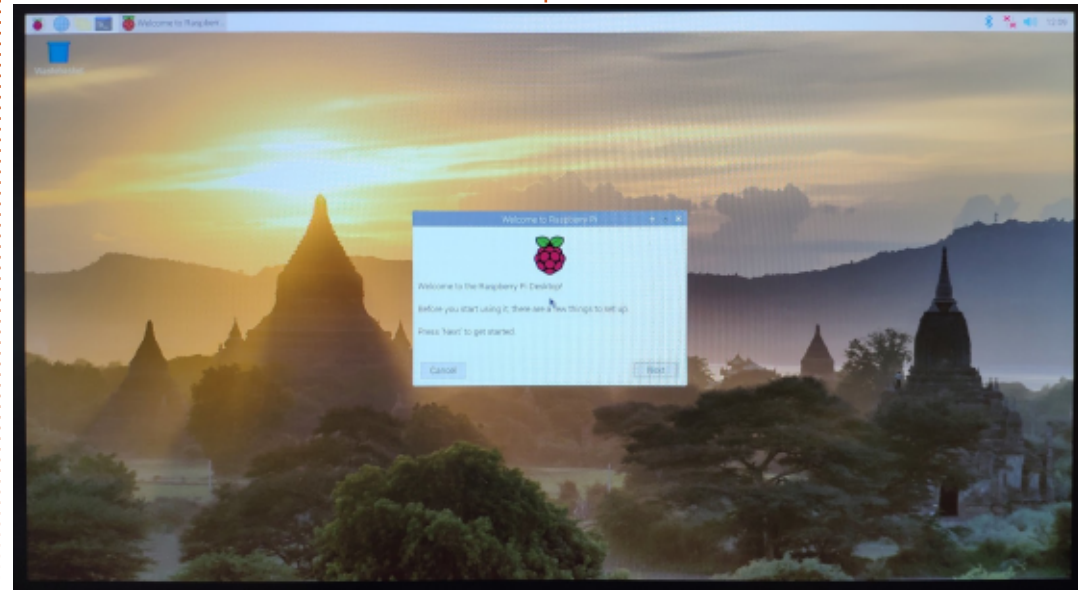
DISCLAIMER: I know nothing about Pi development so I'm reviewing this as a keyboard PC.

At the beginning of November 2020, it was announced that there would be a new Pi, the Raspberry Pi 400. Think of it as being a Raspberry Pi (or PC) built into a keyboard.

FEATURES

Processor: Broadcom BCM2711, quad-core 64-bit SoC (ARM Cortex-

A72 @ 1.8GHz).
RAM: 4GB LPDDR4-3200.
Connectivity: Dual-band wifi, Bluetooth 5.1, gigabit ethernet, 2 x USB 3, 1 x USB 2.
GPIO: horizontal 40-pin GPIO header.
Video & sound: 2 x micro HDMI ports.
Multimedia: H.265 (4Kp60), H.264 (1080p60 decode, 1080p30 encode), OpenGL ES 3.0 graphics.
SD card: MicroSD card slot for OS and data.
Keyboard: 79-key compact keyboard.
Power: 5V DC via USB-C connector.



KIT CONTENTS

While you can buy just the keyboard itself (£68), I went with the kit (£95). The kit contains:

- Raspberry Pi 400
- USB mouse
- Power-supply
- SD card
- HDMI cable
- Beginners guide book.

The kit is of great quality. The mouse and power-supply come in their own little boxes inside the main box. The book is in the bottom of the box and the keyboard itself is on the top. The keyboard is a nice weight. I hate keyboards that feel like they're empty, but since this has some meat inside it, it's got a good heavy feel to it.

STARTUP

The 400 has no on/off switch (which is a bit odd) so, as soon as you plug in the power-supply, it'll start. First boot walks you through setting up the language, choosing a new password, connecting to wifi, and updating the OS and pre-installed software.

The 400 comes with Raspberry Pi OS (formerly known as Raspbian) which, as you can probably guess from its old name, is based on Debian. The Raspberry Pi OS can be downloaded for the Pi, but can also be downloaded for desktop machines too: <https://www.raspberrypi.org/downloads/>. That same URL has links for other Pi compatible OSes such as Ubuntu Mate, regular Ubuntu, LibreELEC, etc.

Getting everything updated took about 15 or 20 minutes. The 400 then reboots and is ready for action



SOFTWARE

Pre-installed on the 400 is:

Programming:

- BlueJ Java IDE
- Geary Programmer's Editor
- Greenfoot Java IDE
- Mathematica
- Mu
- Node-RED
- Scratch
- Scratch 2
- Scratch 3
- Sense HAT Emulator
- Sonic Pi
- Thonny Python IDE
- Wolfram

Education:

SmartSim

Office:

LibreOffice Base, Calc, Draw, Impress, Math & Writer

Internet:

Chromium Browser
Claws Mail
VNC Viewer

Sound & Video:

VLC Media Player

Graphics:

Image Viewer

Games:

Boing
Bunner
Cavern
Minecraft Pi
Mynapod
Python Games
Soccer

Accessories:

Archiver
Calculator
File Manager
PDF Viewer
Raspberry Pi Diagnostics
SD Card Copier
Task Manager
Terminal
Text Editor

Help:

Bookshelf
Debian Reference
Get Started
Help
Projects

Preferences:

Add/Remove Software
Appearance Settings
Main Menu Editor
Mouse & Keyboard Settings
Raspberry Pi Configuration
Recommended Software
Screen Configuration

FIRST IMPRESSIONS

As I said at the start of this article, I'm no Pi programmer so I'm just looking at this from the point of it being a very small form PC. My first experiment though, was to try it with my USB battery-pack to see if it could be completely portable. The answer is: yes. Running it from the USB battery pack showed it using approximately 5V and using only about 0.7A. Yes, it would briefly jump to around 1A when several things were loading, but it would happily run several pieces of software and sit around the 0.6A or 0.7A mark. So it would certainly run

for a while on a decent USB pack.

Although, I'm told (by Erik, so it must be true) that it should really use a 2.5A USB port for peak performance. My USB pack uses 5V/3A. So, all good there.

Just for the laughs, I hooked the 400 kit and my USB powered 13" Labists monitor to my USB battery pack.

The USB battery pack is listed as 20,000mAh with two USB outputs. From a quick test (after an hour of

use), I reckon I can get a good 5hrs use from this setup. I think that's pretty impressive considering that's a PC and a 13" monitor running off USB. A laptop might get you only 2 hours and need mains power to recharge.

CONCLUSION

I've really only fired it up, updated it, installed a few bits and bobs, and clicked a few things here and there. But I like it. I managed to install Minetest and its associated game add-on; MineClone2. Worked

great and kept me amused for several hours. I did initially forget that it was a Pi and was erroneously trying to install AMD64 .deb files. Oops!

One 'quirk' I've noticed is when it's taken offline. I'm not sure if it's a bug or a feature, but when the 400 doesn't have Wi-Fi, it will have the wrong date and time. I can't find a way to manually set the date/time, only a location. Seems a bit odd that it can't hold the date/time...

LINKS:

<https://www.raspberrypi.org/products/raspberry-pi-400>

- has links to several resellers

<https://ubuntu.com/blog/ubuntu-20-10-on-raspberry-pi-delivers-the-full-linux-desktop-and-micro-clouds>

<https://ubuntu.com/raspberry-pi>

<https://www.raspberrypi.org/downloads/>





LETTERS

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

Join us on:



[facebook.com/
fullcirclemagazine](https://facebook.com/fullcirclemagazine)



twitter.com/#!/fullcirclemag



[linkedin.com/company/full-
circle-magazine](https://linkedin.com/company/full-circle-magazine)



[ubuntuforums.org/
forumdisplay.php?f=270](https://ubuntuforums.org/forumdisplay.php?f=270)

FULL CIRCLE NEEDS YOU!



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

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

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



Q&A

Compiled by EriktheUnready

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

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

The company I worked for as an FSE, they used to issue us with cans of compressed air, cans of compressed spray alcohol, and cans of "freeze" (a spray that cools components down to troubleshoot hardware/heat errors). This would be standard "tools" for the job. Arriving 'on prem' you would clean the customer computer as a courtesy, and you would use the compressed air to clean the fans and slits, and use the spray alcohol to clean hard-to-reach places. (This is one way you can distinguish a real FSE and one from a company

who employs the cheapest labour.) I had a customer that would always look over your shoulder when you did things. Oil used to come in a bottle with a needle point, and I would keep mine in two plastic bags as it would inevitably leak, and leave it in the car. It was about then, that oil started coming in spray bottles too. Usually it was branded the same as the car variant, like 'Spanjaard'. As it took only a few seconds to do, we would blow out a keyboard with the compressed air as well, as a sort of problem prevention. Now imagine my surprise, being called out to a site and finding the keyboard swimming in oil. It turns out, the 'shoulder fly' had decided that he could do what we did and save them money. (only there was no money to be saved as the client's company had a fixed service level agreement with my company). However, he had taken a can of compressed oil instead of air. On the plus side, that keyboard was the smoothest operator in the building. By all means, steal with our eyes, but when you do, pay attention!

Q: Spotify does not open on Ubuntu Studio 20.04. I just get a blank popup, and nothing else. What can I do? Can anybody help me?

A: You may need to raise this question on the Spotify forums. I don't use Spotify, but I can help you troubleshoot. Try installing Spotify using a SNAP/FLATPAK/APPIMAGE format, and see if you have the same issue. If not, you may just be missing something like Java. See what the dependencies are and install those.

Q: My friend Dave said I should choose one Desktop Environment and stick to it. What are your opinions on the matter? Does it even still matter?

A: Since you want my opinion, to me it matters, since I customize my DE. If you don't, there is still something to be said for sticking to one. When you customize themes, etc, KDE or QT

apps do not look the same / react the same to Gnome themes, and vice-versa. Also, some applications basically install all of KDE in the background in your Gnome / XFCE environment. Given these days with powerful processors and lots of disk space, it is not a huge problem, it still takes overhead. However, if these things do not matter to you, go right ahead.

Q: I have a new 4K TV that I connect my Ubuntu Laptop to. My issue is this. If I connect the TV via HDMI while the laptop and the TV are both on, I get no sound through the TV. This is not the case with my Windows laptop. If I restart the laptop or the TV, the sound comes through the TV speakers. Now I don't want to have to restart every time I want to output my class to the TV. Can't I set it to auto-like windows?

A: Linux is about choice. Instead of assuming you want sound through your TV, Linux lets you choose if you want it through your TV, or Soundbar, or surround

speakers. You do not need to restart, you simply open your sound settings and choose the output device.

Q: My laptop is a hand me down from my uncle. I installed Ubuntu Budgie on it as it only has 4MB of memory. The screen is also old technology, going up to 1366 x 768 only. Problem is that the window header is outside my screen area and I can't get to it to resize my window and I can't get to cancel and OK buttons at the bottom as they are out of the screen too.

A: I will assume that you meant 4GB of memory. To move a window that is larger than your viewing port, simply hold down the 'ALT' key and drag it up or down with your mouse.

Q: How can I get a nice sidebar like Ubuntu Gnome in Voyager which is based on Ubuntu? Excuse for my bad English.

A: There are multiple ways. You could install a dock, like plank, and move it to the side. If you are using the Gnome version of

Voyager, you could try the dash-to-dock extension. If you are using the XFCE version, you can simply add a panel; type "panel" into your start menu.

Q: I started a new job. Must learn Ubuntu. How can I learn Ubuntu in 48 hours?

A: If you have a Linux background, I suppose it is possible. But do not be fooled by these courses that can teach you Ubuntu in 48 hrs. Bank on 48 days rather.

Q: What is a good reverse proxy for Ubuntu? It is for a school with limited internet. We are semi-Rural and need to save on bandwidth. We have a lot of disk space at the moment going unused. I am only a standard teacher 'volunteered' by my HOD into the IT role.

A: Well, I am ancient, I only came in by boat with Noah. Thus I have only used SQUID. But, I hear good things about NGINX and Varnish. You can head on over to howtoforge.com and they should give you step-by-step instructions

on how to set it up. Also see: <https://varnish-cache.org/intro/index.html#intro>. Remember to make a virtual machine and practise in there first, before deploying to a live server.

Q: Hey buddy, other than df in the terminal, how can I get info on all my drives in the gui?

A: You can try the built-in disks application or Gparted.

Q: Is there a version of anti-boss key for Linux? Thanks in advance.

A: Not that I know of, there is a similar addon for Firefox. You could just create your own. Open another TTY and run something like hollywood terminal in it. When the Boss pops in, press ctrl+alt+fx where xx is the TTY you are running hollywood terminal in.

Q: Oso040, [11.10.20 04:28] Help me. Ubuntu Focal taking so long to start up. Much slower than 18.04.

A: Open a terminal and type 'systemd-analyse blame' to see what is up. Then try `systemd-analyze critical-chain` to see how it connects. Things like boot managers or fancy plymouth, etc, can cause delays when you upgrade.

Q: I have recently moved to Ubuntu after almost all my life on Windows. I have a lot of wmv videos I need to convert to newer mp4. They are mostly small training videos that I can't lose more detail on. Also my music won't play in Ubuntu, not a big deal as I still have all my CD's. What do I do in this case?

A: The ".wmv" videos are easy, they can convert with handbrake, a nice GUI program, just be sure to use "lossless" compression. Or you could dive in with FFmpeg - `ffmpeg -i inputfile.wmv outputfile.mp4` - The music is another kettle of fish. Windows media player would encrypt all the music you ripped to work on only that machine in media player. Scummy, I know, but that's Windows for you. Luckily for you the Linux ripper is very fast.

Q: Good day. I have a Logitech multimedia keyboard and the multimedia keys don't work in Xubuntu 20.04. I have no idea how to set them. Can you assist me?

A: I can; go to keyboard, application settings, click add, then add your keys in this format: `exo-open --launch MailReader` and name it appropriately, XF86Mail. The same with the rest. XF86WWW would be: `exo-open --launch WebBrowser`, and so on for XF86Music, etc.

Q: What would be your advice when planning an upgrade from 18.04 to 20.04?

A: Backup! Make a backup you can restore to your hard drive in case anything goes wrong.

Q: Greyb3ar, [17.09.20 10:13] [In reply to EriktheUnready] I have gotten used to netbeans, but it is not FOSS software. Sometimes there is no way around it, or do you know a way?

A: There is OpenBeans....

Q: When I am at home, I can SSH into my server without an issue. I tried from work, but I cannot. I tried from the Mug n Bean, and I cannot from there either. What am I doing wrong?

A: You have given me very little to go on, but I would start by checking your port-forwarding settings on your router. Are you sure the port is open?

Q: All these chrome updates and issues are just not worth it anymore. It overheats my system, eats all the memory, etc. Now I use Firefox, but I prefer Chrome. Just point me in the right direction china?

A: Give Slimjet a try?

Q: How to move my firefox bookmarks n stuff to my new 'puter? Caveat – I don't want to upload my data to firefox sync or any of the online services. I want to export it to a USB drive instead.

A: When you copy the mozilla folder you do – but your passwords will be encrypted, so you need to open the passwords and take pictures with your cell phone or screenshot tool. It may not be the best way, but it avoids anyone else having your data.

Q: My problem on Xubuntu on my Lenovo laptop is that Fn + PgDn (SysReq) brings up the screenshot tool, like I pressed PrtSc. How do I fix this?

A: I would think it was a keyboard setting, but you gave me very little information. I am stumped, maybe one of our readers can help? Answers to: misc@fullcirclemagazine.org

Q: How can I record a video of my desktop on Ubuntu 18.04 that I can talk over and upload it to youtube so that I can show someone something I did? None of the programs I used on Windows have Ubuntu versions. What would you recommend for someone like me?

A: OBS (or OBS studio). Grab it from your software centre and record. It is so easy even children use it. If you feel lost, spend 30 min playing with the options and you should be golden.



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.



Webpage: https://www.freeorion.org/index.php/Main_Page

Webpage: <https://rayfowler.itch.io/remnants-of-the-precursors>

Price: Free!

Blurb: *"FreeOrion is a free, open source, turn-based, space empire and galactic conquest (4X) computer game being designed and built by the FreeOrion project. FreeOrion is inspired by the tradition of the Master of Orion games, but is not a clone or remake of that series or any other game."*

INSTALLATION

FreeOrion is available via PPA:

```
sudo add-apt-repository
ppa:o01eg/freeorion
```

You need to install "freeorion" and "freeorion-data"

Also now available as a FLATPAK or SNAP Package.

The version in the software centre is from 2017, so do not use that one.

"So why now?" you may ask? Well, the reboot seems to be newsworthy, with actors like Mark Hamil doing the voice-overs. You can read more about that here: <https://www.tweaktown.com/news/50508/master-orion-reboot-gets-huge-star-studded-voice-cast/index.html>

If science fiction, conquest, diplomacy, spying and colonization is your bag, look no further than FreeOrion.

The original game is a 1993 vintage, and I must admit, at the time, I spent my time on other titles. It was not until 1995 with Ascendancy, that the 4X genre bug bit me. I have to mention that you do NOT need the original master of orion to play the game, as with

many others like freeablo, etc. It is a self-contained application – with its own graphics and music. This is almost a re-imagining of that game.

For contrast, here is a picture of the original 1993 Masters of Orion:

Let's start with the graphics. They are gorgeous. This is another poster child for FLOSS. There is not too much graphics at this stage, but what there is, is great. Do not expect too much though, either, as the main game loop is supposed to keep your brain occupied, not your eyes. You can zoom in and out in your galaxy, and it is flawless. There are tool tips for everything, and it is all surprisingly legible, even on my potato laptop. The icons are unique enough that you can get used to them in an hour, and know your way around the game. Although it seems like information overload when you start, it is all relevant information. The music is also right on the money, but I did not find a "Credits" section, probably as the game has not reached version 1.0



UBUNTU GAMES - FREEORION

yet. So, I don't know who to credit for either the graphics or the sound. Sometimes I can just let the tune run and not play the game. There are a few clicks to be heard in the menus, but it does not overdo it.

Switching to game-play, you need to know that you are the ruler of an empire. One that needs to expand into an ever-increasing hostile galaxy, where your opponents are doing the same. They, however, are not the only threats out there (I will let you find those on your own). There is some micro management, but, as I said, the game is about empires, and you do not get bogged down with micro management. In the original

game, the tech-tree was amazing, and here, it is too. Like any good strategy game, research plays a big role. I do not want to diminish any of the other roles, but I find the research tree fun. This, coupled with the random seed you can choose, can make for some pretty interesting game-play. This increases the longevity of the game by many factors. Instead of gratuitous space battles, battles are resolved by 'stats' and a roll of the dice (for now, at least, but don't be surprised when this game starts hitting the 1.0 status). That said, the ships are not vanilla cookie-cutter ships either, you get the option to make them the way you like them. Now the combat also does not feel like playing a game of

battleship.

I have often heard that FreeOrion is for "hard-core strategy gamers", but believe me it is not. You just need to spend some time in the configuration menu before the game starts, and it can be a pleasant experience for the most casual gamer. The thing is, if you have no inkling as to how 4X games work, I suggest you either read the manual or watch a how-to-play on YouTube. The number one hate crime against this game is rage-quitting, because you have no idea what is going on. As the game is on pre-alpha, there are, obviously, no built-in tutorials, and boomers may

think they are all the cat's whiskers when it comes to gaming. Trust me, read the manual: https://www.reddit.com/r/FreeOrion/comments/fo4o1g/first_impressions_are_you_kidding_me_here/. Development is ongoing and github activity is all green. Speaking of Github, there are currently 60 contributors to this game, so it is moving along quite nicely.

I did not run into issues playing the game, which says a lot about the developers. If any of you read this, I take my hat off to you.



Now to remnants of the Precursors:

Blurb: *"For those new to the project, this game is intended as a strict feature clone of the original Master of Orion game from 1993. Remnants of the Precursors is feature-complete and fully playable! The Explorminate gaming site has listed Remnants of the Precursors as one of the most anticipated 4X games for 2020!"*

Remnants of the Precursors is a remake of the original 1993 Master of Orion, with updated artwork and interfaces, and beautiful they are. The game requires java, so you need to get that first, before running the game. The high resolution artwork also has an impact on game size, it is almost 900MB (compared to FreeOrion at about 150MB). That said, the game is VAST. You can have hundreds of star systems and lots of races / players / bots.

Installation is as simple as running the .jar file. Be advised, there are still bugs in the Alpha version (okay, Beta version, four months later. I did not finish this review and send it in).

As with FreeOrion, the graphics are gorgeous. Since the game is further along than FreeOrion, we get not only new art, but new interfaces, new dialogue, stories and music. The main interface is more-or-less the same as the original, but now there are even more screens with better interfaces. What is surprising is that even for ... Java, it is very responsive. (If you don't get that joke, it's fine). The characters are not the only thing that catches the eye, but the backdrops are all amazing too. The main interface has a familiar layout (if you have ever played Master of Orion). Originally, the screen was made smaller, and the interface bigger, to get more performance out of the CPU's of the time, but now, with our high resolutions and beefy CPU's, it does not feel like it is in the way, as with the 1993 version. The music is also amazing, and I cannot wait to see the album on Bandicamp. Credits are given as Petar Penev as the illustrator, Kaitlin lindsay as graphic designer, and Remi Agullo as the sound designer. Seriously, I need both these games to release an OST. I will be first in line for them.

Game-play is a lot closer to the

original 1993 version, but it has also had a bit of an overhaul. The Darloks, which were pretty useless in the 1993 version, are now almost the most fun. Ray Fowler has said that when they spawn now, you will see another race, as they are shape changers. Think of the facedancers in Dune. "Planned Change - Darloks will actually be, you know, shapechangers. This means that you will not know which of the AI races, if any, are Darloks. When the Darloks spawn, they will assume the visuals, dialogue, home world name and ship graphics of some other race that is not playing.

This means that you may unwittingly trust and form an alliance with the Alkari, only for them to betray and backstab you at the end, revealing themselves to actually be the shape-changing Darloks. This should increase your paranoia of the Darlok presence in subsequent games, which is the whole point of them being a spy race."

The extra UI design changes are amazing too. As promised, the source code is up on Github, and all you budding Java programmers can go have a look.

Instead of me raving about these two games, Why don't you install them and play them? (I may be biased when it comes to 4X?).

If you think we were unfair to any of these games, tell us: 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.



PATRONS

MONTHLY PATRONS

Alex Crabtree
 Alex Popescu
 Andy Garay
 Bill Berninghausen
 Brian Bogdan
 CBinMV
 Darren
 Dennis Mack
 Devin McPherson
 Doug Bruce
 Elizabeth K. Joseph
 Eric Meddleton
 Gary Campbell
 George Smith
 Henry D Mills
 Hugo Sutherland
 Jack
 Joao Cantinho Lopes
 John Andrews
 John Malon
 John Prigge
 Jonathan Pienaar
 JT
 Kevin O'Brien
 Lee Allen
 Leo Paesen
 Linda P
 Mark Shuttleworth
 Norman Phillips
 Oscar Rivera

Paul Anderson
 Paul Readovin
 Rino Ragucci
 Rob Fitzgerald
 Roy Milner
 Scott Mack
 Sony Varghese
 Taylor Conroy
 Tom Bell
 Tony
 Vincent Jobard
 Volker Bradley
 William von Hagen

SINGLE DONATIONS

2020:
 alex moro
 Ronald Eike
 ALEXANDRU POPESCU
 Linda Prinsen
 Glenn Heaton
 Jon Loveless
 Frank Dinger
 Raymond Mccarthy
 Daniel Rojo
 Frits van Leeuwen
 Peter Swentzel
 Anthony Cooper
 Dale Reisfield
 Gavin Thompson

Brian Kelly
 Ronald Eike
 Michael Grugel
 Glenn Nelson
 David Dignall
 Lee Whitehead

The current site was created thanks to **Lucas Westermann** (ex-Command & Conquer) who took on the task of completely rebuilding the site, and scripts, from scratch, in his own time.

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

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

A big thank you to all those who've used Patreon and the PayPal button. It's a HUGE help.



<https://www.patreon.com/fullcirclemagazine>



<https://paypal.me/ronnietucker>



<https://donorbox.org/recurring-monthly-donation>



HOW TO CONTRIBUTE

FULL CIRCLE NEEDS YOU!

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

We are always looking for new articles to include in Full Circle. For help and advice please see the **Official Full Circle Style Guide**: <http://bit.ly/fcmwriting>

Send your **comments** or Linux experiences to: letters@fullcirclemagazine.org
Hardware/software **reviews** should be sent to: reviews@fullcirclemagazine.org
Questions for Q&A should go to: questions@fullcirclemagazine.org
Desktop screens should be emailed to: misc@fullcirclemagazine.org
... or you can visit our **site** via: fullcirclemagazine.org



FCM#164

Deadline:

Sunday 13th Dec. 2020.

Release:

Friday 25th Dec. 2020.



Full Circle Team



Editor - Ronnie Tucker

ronnie@fullcirclemagazine.org

Webmaster -

admin@fullcirclemagazine.org

Editing & Proofreading

Mike Kennedy, Gord Campbell, Robert Orsino, Josh Hertel, Bert Jerred, Jim Dyer and Emily Gonyer

Our thanks go to Canonical, the many translation teams around the world and **Thorsten Wilms** for the FCM logo.

Getting Full Circle Magazine:

For the Full Circle Weekly News:



You can keep up to date with the Weekly News using the RSS feed: <http://fullcirclemagazine.org/feed/podcast>



Or, if you're out and about, you can get the Weekly News via Stitcher Radio (Android/iOS/web):
<http://www.stitcher.com/s?fid=85347&refid=stpr>



and via TuneIn at: <http://tunein.com/radio/Full-Circle-Weekly-News-p855064/>



EPUB Format - Most editions have a link to the epub file on that issue's download page. If you have any problems with the epub file, email: mobile@fullcirclemagazine.org



Issuu - You can read Full Circle online via Issuu: <http://issuu.com/fullcirclemagazine>. Please share and rate FCM as it helps to spread the word about FCM and Ubuntu.

FCM PATREON: <https://www.patreon.com/fullcirclemagazine>