



Full Circle

THE INDEPENDENT MAGAZINE FOR THE UBUNTU LINUX COMMUNITY

ISSUE #148 - August 2019



Desktop
Configur...



```

STABLE
+o .-- /y: +.
yo`:. :o  +.
y/  -/  -o/
  -  ::/sy+:.
 /  - - /
 :  :
@ 2.00GHz
 /  /
t Integrated Graphics Controller
B

```

Shell No. 2

```

cws@BSD
OS: FreeBSD
Kernel: amd64 FreeBSD 12.0-

Uptime: 32m
Packages: 479
Shell: zsh 5.7.1
Resolution: 1280x800
DE: Lumina
WM: FluxBox
CPU: Intel Core2 Duo T5870

GPU: Mobile 4 Series Chipse
RAM: 1410354MiB / 4194306Mi

```

PROJECT TRIDENT BRIEF LOOK AND INTERVIEW



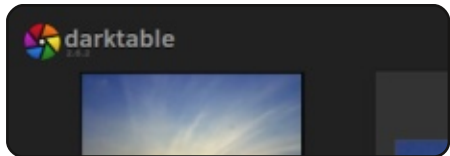
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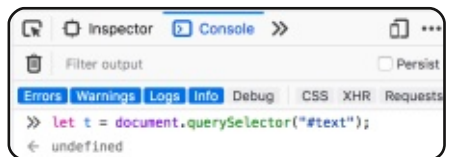
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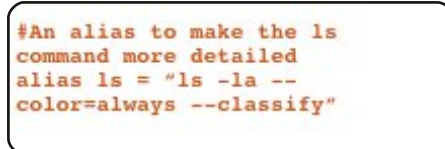


Graphics

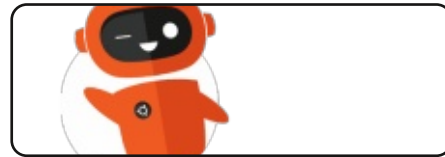


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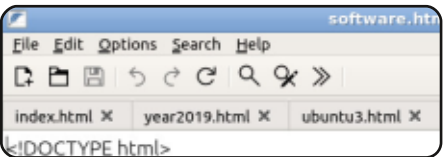
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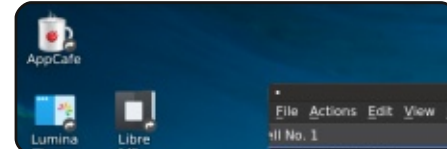
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WELCOME TO ANOTHER ISSUE OF FULL CIRCLE!

No Freeplane this month, but we still have Python, Darktable and Inkscape for you, and Erik continues with his Linux Certified series.

SJ returns with another chapter in his Linux Loopback series, and an interview. Both articles deal with **Project Trident**. A BSD variant. All going well he'll be writing more about it next month.

Elsewhere, we have a review of **KDE Neon**. I used to be a fan of KDE, so I keep an eye on it. I'd dearly love to be able to use it again. The longer Plasma continues, the less likely it looks like they'll ever implement proper GUI graphic tablet support. Such a shame when desktops such as GNOME have it by default.

It was delayed for a week, or two, but Ubports Touch OTA-10 is finally out. There are quite a few bug fixes and minor tweaks. It's coming along great. I really do hope that some day we'll have an Ubuntu variant on devices that can run desktop software (in some way, shape, or form). That with convergence (your device hooked up to a monitor) would be incredible. But I think that's still quite a way off.

All the best, and keep in touch!

Ronnie

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KDE PLASMA 5.17 LINUX DESKTOP TO MODERNIZE THE SETTINGS, ADD MANY UI CHANGES

One of the nicest changes to be implemented in the upcoming KDE Plasma 5.17 desktop environment is a totally revamped System Settings window, which now features a modern look and feel to make setting up various aspects of the KDE Plasma desktop a breeze for newcomers and advanced users alike. Apart from the modernized System Settings, KDE Plasma 5.17 will let users sort the order of image slideshow wallpapers, add a "Manual" mode to the Night Color feature so you can turn it on and off whenever you want, as well as support for syncing DPI and NumLock key status to the SDDM login screen. Other changes will include rewritten controls for widget positioning on the desktop to improve location of widgets and the ability for widget resize icons and handles to automatically increase their size on touchscreens

, as well as new icons to the Plasma Discover package manager. Last but not least, the KDE Plasma 5.17 desktop environment promises a more user-friendly Audio Volume widget, will let users choose which category they want to use for the new Unsplash Wallpapers Picture of the Day plugin, and warn users when apps need to be restarted for new fonts are being applied. The final release of the KDE Plasma 5.17 desktop environment is expected to hit the streets later this fall on October 15th. It will be available for public beta testing starting September 19th. Under the hood, KDE Plasma 5.17 will be using the Qt 5.12 and 5.13 libraries, along with the KDE Frameworks 5.63 and KDE Applications 19.08 software suites.

Source:

<https://news.softpedia.com/news/kde-plasma-5-17-linux-desktop-to-modernize-the-settings-add-many-ui-changes-526856.shtml>

DEBCONF20 CONFERENCE TAKES PLACE AUGUST 23-29 FOR DEBIAN GNU/LINUX 11 "BULLSEYE"

Next year, in 2020, the Debian Project will celebrate 12 years from the launch of the first DebConf Debian developer conference, and they selected Israel's Haifa instead of Portugal's Lisbon for DebConf20 despite Israel's political system. Now, they announced the official dates for DebConf20, which will take place between August 23rd and 29th. DebConf20 is for Debian GNU/Linux 11 "Bullseye," the next major release of the famous Debian GNU/Linux operating system coming after the recently announced Debian GNU/Linux 10 "Buster" series. Therefore, all the discussions and workshops will be to share ideas and knowledge that will ultimate lead to new features to be implemented in Debian GNU/Linux 11 "Bullseye." DebConf represents an important

experience for the Debian developer, but also for users, who can gather together to share their knowledge and laid down the plans for the next major release of the Debian GNU/Linux operating system. For more information about DebConf20, check out the official website at <https://wiki.debian.org/DebConf/20>. Work on the upcoming Debian GNU/Linux 11 "Bullseye" operating system series already started, as developers were recently invited to upload their packages to the Debian Testing repositories, where the development takes place. However, it will be a couple of years until Debian GNU/Linux 11 "Bullseye" will see the light of day, most probably in the summer of 2021.

Source:

<https://news.softpedia.com/news/debconf20-conference-takes-place-august-23-29-for-debian-gnu-linux-11-bullseye-526857.shtml>

LINUX LITE 4.6 ENTERS DEVELOPMENT BASED ON UBUNTU 18.04.2 LTS

Highlights of the Linux Lite 4.6 release include a new theme selector in the Lite Welcome tool to make it easier for newcomers to select between the Light and Dark themes, along with a new Keyboard and Num Lock sections. Moreover, the Lite Sources utility has been updated with comments only about the Linux Lite repositories. Another interesting addition to Linux Lite 4.6 is the CPU Performance mode plugin from the Xfce desktop environment (xfce4-cpufreq-plugin), which is now available as an option for the system tray. Users can select it and move it wherever they want by right-clicking on the Taskbar, then go to Panel > Add new items > CPU Frequency Monitor. Last but not least, Linux Lite 4.6 comes with a new Volume toggle tutorial in the Help Manual, and maybe a USB Persistence tutorial if the time permits, a plethora of new wallpapers, an updated Papirus icon theme, and support for a wide range of Linux kernel series from Linux 3.13 to the latest Linux 5.2

release. Based on Canonical's long-term supported Ubuntu 18.04.2 LTS (Bionic Beaver) operating system, Linux Lite 4.6 has entered development with various updated components from upstream, including the Linux 4.15.0-55 kernel, Mozilla Firefox 68.0.1 "Quantum" as default web browser, and LibreOffice 6.0.7 as default office suite. Also included are the Mozilla Thunderbird 60.8.0 email and news client, VLC 3.0.7 media player, and GIMP 2.10.12 image viewer and editor. The first Release Candidate (RC) of the Linux Lite 4.6 operating system is now available for public testing to allow the community to test it and send feedback to the developers.

Source:

<https://news.softpedia.com/news/linux-lite-4-6-enters-development-based-on-ubuntu-18-04-2-lts-here-s-what-s-new-526869.shtml>

CANONICAL RELEASES NEW LINUX KERNEL LIVE PATCH FOR UBUNTU 18.04 AND 16.04 LTS

Coming hot on the heels of the last Linux kernel security updates released by Canonical last week for all supported Ubuntu Linux releases, this new kernel live patch is now available for users of the Ubuntu 18.04 LTS (Bionic Beaver) and Ubuntu 16.04 LTS (Xenial Xerus) operating systems who use the Canonical Livepatch Service to apply rebootless kernel updates. It fixes five security issues, including a race condition (CVE-2019-11815), which could lead to a use-after-free, in Linux kernel's RDS (Reliable Datagram Sockets) protocol implementation that may allow a local attacker to crash the system or execute arbitrary code, as well as a flaw (CVE-2019-2054) affecting ARM CPUs, which lets local attackers to bypass seccomp restrictions. Also patched are two issues (CVE-2019-11833 and CVE-2019-11884) discovered in Linux kernel's EXT4 file system and Bluetooth Human Interface Device Protocol (HIDP) implementations, which could

allow a local attacker to expose sensitive information (kernel memory) as the Linux kernel failed to properly zero out memory or verify NULL terminated strings in certain situations. Additionally, the kernel live patch includes a fix for an eight-years-old exploit (CVE-2011-1079) discovered by Vasilij Kulikov in Linux kernel's Bluetooth stack, which could allow a local attacker to crash the system, which could lead to a denial of service or the leak of contents of kernel stack memory, putting the privacy of users at risk. All users of the Ubuntu 18.04 LTS (Bionic Beaver) and Ubuntu 16.04 LTS (Xenial Xerus) operating system series using the Canonical Livepatch Service can now apply the rebootless kernel live patch on their installations. The version of the kernel live patch that needs to be installed is 53.1 for both generic and lowlatency flavors.

Source:

<https://news.softpedia.com/news/canonical-releases-new-linux-kernel-live-patch-for-ubuntu-18-04-and-16-04-lts-526888.shtml>

CANONICAL ANNOUNCES AMAZON EC2 ON-DEMAND HIBERNATION FOR UBUNTU 18.04 LTS

As one can imagine, the Amazon EC2 On-Demand Hibernation functionality lets users start up Amazon EC2 instances, configure them to their needs, hibernate them, and then launch them again whenever they want with all the running apps in the last state before they were put to sleep. With Amazon EC2 On-Demand Hibernation there's no need to rebuild the memory footprint of your apps, and it also lets you maintain a fleet of pre-warmed Amazon EC2 instances that may increase your productivity without the need to modify any of your existing applications in the cloud. If you're using Ubuntu on AWS (Amazon Web Services), you can now benefit of Amazon EC2 On-Demand Hibernation in Ubuntu 18.04 LTS (Bionic Beaver). To enable it, you need to use the necessary software updates in the Ubuntu 18.04 LTS AWS Machine Images (AMIs) with a serial of 20190722.1 or later. Before using

Amazon EC2 On-Demand Hibernation, users should keep in mind of a known issues related to KASLR (Kernel Address Space Layout Randomisation), which may prevent KASLR-enabled machines to not resume completely after hibernation. As a workaround, Canonical recommends users disabling KASLR. According to Canonical, Amazon EC2 On-Demand Hibernation will soon be available for other supported Ubuntu releases on AWS (Amazon Web Services), such as Ubuntu 16.04 LTS (Xenial Xerus) or newer releases like Ubuntu 19.04 (Disco Dingo). However, the company did not said when these Ubuntu releases will be updated.

Source:

<https://news.softpedia.com/news/canonical-announces-amazon-ec2-on-demand-hibernation-for-ubuntu-18-04-lts-526893.shtml>

LINUX MINT 19.2 "TINA" IS NOW AVAILABLE FOR DOWNLOAD

Earlier this week, the leader of the Linux Mint project, Clement Lefebvre, revealed the

fact that the Linux Mint 19.2 "Tina" operating system will be officially released later in the week for all supported flavors, including Cinnamon, MATE, and Xfce.

Now, it looks like the final ISO images of Linux Mint 19.2 were pushed to the main download server, so you can grab them right now and install the operating system on your personal computer if you don't want to wait for the official announcement later this week.

Linux Mint 19.2 "Tina" also comes with a plethora of enhancements and updated in-house built apps and utilities to make your Linux Mint experience better and more enjoyable. An in-depth article with all the new features will be published when Linux Mint 19.2 "Tina" is officially announced.

Source:

<https://news.softpedia.com/news/linux-mint-19-2-tina-is-now-available-for-download-526906.shtml>

LINUX KERNEL 5.1 REACHED END OF LIFE, USERS URGED TO UPGRADE TO KERNEL 5.2

Announced in early May 2019, the Linux 5.1 kernel series brought the ability to use persistent memory as RAM, as well as support for booting to a device-mapper device without using initramfs, support for cumulative patches in live kernel patching, and more preparations for year 2038.

The Linux 5.1 kernel has now reached end of life with the 5.1.21 maintenance update released by Greg Kroah-Hartman earlier this week.

If you are still using the Linux 5.1 kernel on your favorite GNU/Linux distribution, you should either update it as soon as possible to the latest Linux kernel 5.1.21 point release, or upgrade it to the Linux 5.2 kernel series, the latest version of the moment of writing being Linux kernel 5.2.5.

Source:

<https://news.softpedia.com/news/linux-kernel-5-1-reached-end-of-life-users-urged-to-upgrade-to-linux-kernel-5-2-526905.shtml>

THE VR LINUX DESKTOP IS ON ITS WAY

Virtual reality (VR) is moving from games to work, but on the Linux desktop it's had a hard row to hoe. While many VR peripherals and head-mounted display (HMD) support Linux, some "supported" games have trouble running on Linux. VR gaming on Linux is getting better. But if you wanted to use a Linux desktop via VR, you were out of luck. Your luck may be turning now with the `xrdesktop`. `Xrdesktop` is an open-source project. It's designed to let you work with traditional desktop environments, such as GNOME and KDE, in VR. It does this by making window managers aware of VR. It then uses VR runtimes to render desktop windows in 3D space. Once there, you'll be able to work on the desktop using VR controllers in place of a mouse and keyboard. Want to give it a whirl? You can find installation instructions on `xrdesktop` Wiki. The program is available in packages for Arch Linux and Ubuntu Linux. You can also install it on other distributions, but you'll need to

install `xrdesktop` from source.

Source:

<https://www.zdnet.com/article/the-vr-linux-desktop-is-on-its-way/>

KDE AND GNOME ARE JOINING HANDS TO BUILD A NEW-AGE LINUX DESKTOP

There are many Linux users out there and despite that, Linux desktops have failed to break into the mainstream when compared to Microsoft's Windows. One of the main reasons behind it, as described by Linus Torvalds, is "the fragmentation of different [Linux] vendors." There are multiple Linux vendors, unlike the Windows ecosystem, which creates a lack of a unified approach.

However, now two of the most popular Linux desktop competitors – GNOME Foundation and KDE – are coming together to work on a Linux desktop. Both open-source biggies are set to sponsor the Linux App Summit (LAS) 2019 which is scheduled for November 12th and 15th, 2019.

The statements issued by

full circle magazine #148



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GNOME and KDE ahead of the event indicate that this time, we could see some concrete decisions regarding the future of Linux operating systems. By working together, they want to bring a unified approach to the Linux community and look past the variety of distros. The aim is to come up with a unified application system that is scalable.

Source:

<https://fossbytes.com/kde-gnome-joining-hands-build-linux-desktop/>

CANONICAL RELEASES LINUX 5.0 KERNEL (HWE) SECURITY UPDATE FOR UBUNTU 18.04.2 LTS

This Linux Hardware Enablement (HWE) kernel from Ubuntu 19.04 for Ubuntu 18.04.2 LTS includes the same fixes for four security flaws that Canonical added in the latest kernel for Ubuntu 19.04 last week, including an integer overflow (CVE-2019-11487) discovered in Linux kernel, which could lead to use-after-free issues as local attackers were able to use the exploit to execute

arbitrary code or cause a denial of service (system crash).

Additionally, the security patch addresses a race condition (CVE-2019-11599) discovered by Google Project Zero's Jann Horn in Linux kernel when performing core dumps, which could allow a local attacker to expose sensitive information or crash the system by causing a denial of service (DoS attack).

Also fixed are two issues (CVE-2019-11833 and CVE-2019-11884) discovered in Linux kernel's EXT4 file system implementation and Bluetooth Human Interface Device Protocol (HIDP) implementation, both of each could allow a local attacker to expose sensitive information (kernel memory).

Source:

<https://news.softpedia.com/news/canonical-releases-linux-5-0-kernel-hwe-security-update-for-ubuntu-18-04-2-lts-526921.shtml>



Last month, I wrote about pressing my Raspberry Pi into service to start hosting some always-on tools that I use internally, now that I've replaced my NUC with a Dell XPS 15 7590. This month, I wanted to give a small update on things I've noticed while using the RPi for over a month now.

CONCERNS

In my last article, I mentioned that while avahi-daemon was running, the local domain didn't always work (raspberrypi.local). Besides that, I also noticed the following issues:

- My fstab entry didn't work for the btrfs drive I was using.
- I needed to mount a portable hard drive in the same location as my desktop-bound hard drive, so that Plex could still load/read the media structure without me having to manage two libraries.
- Static IPs as configured on my RPi didn't seem to be working in my last article.

FSTAB

Turns out the fstab entry I wrote (based off an ext4 entry) had some options I couldn't use for btrfs. The fix was fairly straightforward (looking up what options were supported by btrfs and removing any that weren't). The tricky part was figuring out what the issue was - I expected the drive to be mounted on boot, but it wasn't. Manually running `sudo mount -a` did yield error messages though (albeit not terribly detailed ones). A bit of googling later and I figured out an entry that works. As such, if anyone else needs to debug an fstab entry for a slightly less common filesystem, I recommend checking the options you're using before moving on to more complicated debugging.

MOUNT POINT USED FOR TWO DRIVES (NEVER SIMULTANEOUSLY)

Point here is that I have a 3TB WD MyBook that sits on my desk and runs off an AC adapter and is

connected via USB. Read/write speeds seem to be a bit faster for that drive compared to the 4TB portable drive I have (full size hard drive VS laptop size hard drive). However, it's not a device I can reasonably pack up and take on vacation with me (especially as the AC adapter is for Germany and would require an adapter in Canada). What I did instead was to copy over the data from the 3TB drive to the 4TB drive, and create a new entry in the fstab (with a `nofail` option) so that I can boot the Pi regardless of whether or not one of the drives are connected. After the first slower boot, I can then uncomment/comment the corresponding lines. Both drives have the same folder structure and can therefore act as drop-in replacements for Plex. As the media is the same on both as well, I don't need to rescan the library to adjust the selection.

I set this up at our cottage like I usually do (where the Pi acts as a print server for an old Brother printer and as a Plex server). I had no issues whatsoever once I had

mounted the drive properly.

Static IPs

I also noticed that the static IP I set up for my cottage network was working just fine when the device connected to the wireless. As for the issues I had back home, I think it was caused by a few factors:

- We have a Ubiquiti UniFi AC wireless access point that provides our wireless network. Turns out, the device had at some point taken the IP I originally assigned to the Pi for itself.
- I also connected the Pi to my wired LAN, whereas I realized my static IP was only set up for the wireless interface.

As such, I think it's safe to assume that the static IP configuration I'm using actually works, and that I simply need to adjust the IP for my other wireless network. I'm not yet sure if it makes sense to configure a static IP for the LAN interface, as it will cause issues the moment a router uses a different subset or the IP is taken.

AVAHI-DAEMON

I also believe the issues I had with the raspberrypi.local domain were coming from the fact that both the wireless and the LAN connection were active at the same time (and as such the interfaces weren't sure which should receive traffic on that domain). Since I've been at our cottage and the Pi has been running solely on wireless, I've had no issues with the local domain.

That being said - Android does not seem to handle mDNS at all, so you'll need to use IP addresses specifically when using an Android

tablet or phone. My iPad connects to the local domain without issues, so it does seem to be only an Android issue. I don't really mind this, so long as I have access to some device where I can use ping to discover the automatically assigned IP in those rare cases where the Pi is active somewhere I haven't configured a static IP.

Hopefully this article can help anyone who might be using a Raspberry Pi in a similar environment. If you have any other tips you want to share, or if you have any article ideas you want to pass along to me, you can reach me at lswest34+fc@gmail.com.



Lucas has learned all he knows from repeatedly breaking his system, then having no other option but to discover how to fix it. You can email Lucas at: lswest34@gmail.com.



DistroWatch.com

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Last month, I talked about Python 3.8.0b2 and I suggested that if you wanted to try it, you should consider a virtual environment. I then realized that I hadn't really discussed virtual environments before. So, I'm going to now.

WHAT IS A PYTHON VIRTUAL ENVIRONMENT?

Basically, it allows you to manage multiple versions of Python (and pip) easily, without messing up any of the packages or configurations that you already have. Why would you have multiple versions of Python? I know my environment is probably somewhat different from your needs, but I have multiple machines, and on each, my "main" version of Python is either 3.6 or 3.7 depending on what I'm doing. For example, I have one instance of Python 3.6 for machine learning programming, one Python 3.7 for "normal" work, one for testing of Python 3.8 beta, and I still have a version of Python 2.7 just-in-case.

While it's easy to deal with a version of Python 2.x and a version of 3.x on a single machine, sometimes library versions will conflict, and that can cause programs to stop working.

WHAT'S THE SOLUTION?

I found a project called pyenv that pretty much does everything you need without much pain. You can find it at <https://github.com/pyenv/pyenv>. I found a great installation guide at <https://realpython.com/intro-to-pyenv/>. It is this guide that I used to install pyenv on my laptop, and I'll try to distill it down to get you up and running in the least amount of time.

GETTING STARTED

I'll limit my instructions to those for a PC using Ubuntu/Linux Mint/Debian or some other similar Linux distribution. If you are on a MAC, or use some other Linux distribution, there are many pieces of helpful information on the two

above noted sites, and on others – with a simple web search.

There are two ways to install pyenv. There is an easy way and a hard way. I'm going to discuss the easy way. The reason for this is that the easy way not only installs pyenv, but also installs some other pyenv tools that will be helpful – like pyenv-virtualenv, pyenv-update, and more. While you can manually get these installed, this way is so much easier.

The first thing you need to do is install the dependencies. You probably have most of them, but run the install command below just to be safe. Open a terminal and enter...

```
sudo apt-get install -y make
build-essential libssl-dev
zlib1g-dev libbz2-dev \
```

```
libreadline-dev libsqlite3-
dev wget curl llvm
libncurses5-dev libncursesw5-
dev \
```

```
xz-utils tk-dev libffi-dev
liblzma-dev python-openssl
git
```

Now you need to make a decision on where you are going to install pyenv. I suggest you put it into the home directory. Change to whatever directory you choose, and enter:

```
$ curl https://pyenv.run |
bash
```

This runs the installer for pyenv. Close your terminal and reopen it. This loads any changes to the .bashrc file, or, alternatively, you can enter:

```
$ source ~/.bashrc
```

Next, we need to modify the .bashrc file. If you are using a different version, it might be .bash_profile. In your terminal, type:

```
$ gedit ~/.bashrc
```

and add the following lines (next page, top right) to the bottom of the file.

Make sure that the first line defining the PYENV_ROOT points to the correct directory.



HOWTO - PYTHON

Save your `.bashrc` file and reload it. As before, this can be done by either closing and re-opening the terminal, or by simply typing:

```
$ source ~/.bashrc
```

This will cause the `.bashrc` to reload. Now, just to be complete, run an update on `pyenv`.

```
$ pyenv update
```

Now we have to install a version of Python. Right now, let's do the latest version of 3.7, which is 3.7.4. Again in your terminal window, type:

```
$ pyenv install --list
```

This will list all of the available packages that you can install. It's a VERY long list, with the actual Python versions near the top. You'll also see versions of `jython`, `ironpython`, `anaconda` and `anaconda3`, `activepython`, and more. Right now, we can verify that the version text we need to use is "3.7.4". (In a little bit, we'll also add the latest available version of 3.8.0).

To install, type:

```
$ pyenv install 3.7.4
```

This takes about five minutes on my old laptop, so go get a cup of coffee or tea and come back.

Once the install is finished, type:

```
$ pyenv versions
```

You should see something like this...

```
$ pyenv versions
system
* 3.7.4 (set by
/home/greg/.python-version)
```

A couple of things here to note. First, you'll see `* 3.7.4` which lets you know which version is set as the current default version of Python when using `pyenv`. Next, there is a "system" version, which is your regular version before we started this process. You can always use this without using `pyenv`. To prove this, in your terminal, type:

```
$ python -V
```

You should see whichever version you normally use.

Now, you can always see what

```
export PYENV_ROOT="$HOME/pyenv"
export PATH="$PYENV_ROOT/bin:$PATH"
if command -v pyenv 1>/dev/null 2>&1; then
    eval "$(pyenv init -)"
fi
```

versions that `pyenv` has installed by doing a:

```
$ ls ~/pyenv/versions/
```

This is where all of the `pyenv` Python versions are located. If you ever want to delete one, simply type:

```
rm -rf
~/pyenv/versions/{version
number}
```

in a terminal window. For example, if I wanted to delete the 3.7.4 version, I'd do:

```
$ rm -rf
~/pyenv/versions/3.7.4
```

Or, you can do it with a `pyenv` command:

```
$ pyenv uninstall 3.7.4
```

But don't do that yet. Let's tell `pyenv` that we want to use the 3.7.4 version we just installed.

```
$ pyenv local 3.7.4
```

Now ask python what version it is...

```
$ python -V
```

What you should see is something like this...

```
Python 3.7.4
```

If not, try doing "exec \$SHELL" and try again.

Now just for sanity sake, go back to the system version.

```
$ pyenv local system
$ python -V
```

You should see your normal Python instance restored. Now, let's install the latest version of 3.8.0 in `pyenv` (which, at this writing, is 3.8.0b2).

```
$ pyenv install 3.8-dev
```

After about 5 minutes, everything will be installed. To verify, do the following:


```
$ pyenv versions
$ pyenv local 3.8-dev
$ python -V
```

Finally, let's make sure that we are using the correct pip – so we can install some libraries...

```
$ pyenv which pip
```

You should see something like:

```
/home/greg/pyenv/versions/3.8-dev/bin/pip
```

and to further prove it to ourselves...

```
$ pip --version
pip 19.0.3 from
/home/greg/pyenv/versions/3.8-dev/lib/python3.8/site-packages/pip (python 3.8)
```

So now we know that our version of Python is 3.8.0b2, and the pip that we are using is also from python 3.8. As normal, let's do a pip list to see what library packages are installed.

```
$ pip list
```

and you should see...

Package	Version
-----	-----
pip	19.0.3
setuptools	40.8.0

You might also get a notice to upgrade pip. Go ahead and do that if you want, then we'll set up a virtual environment.

Notice that we are using "pip" and not "pip3". It actually doesn't matter which you use when you are working with a pyenv install. They are all the same. (There is an issue that some are having where the wrong pip is being used when going by to the system version. As a safety check, when using system, do a "pip3 --version" after setting back to system version).

Now, we'll deal with the virtual environment. As I said earlier, this is so we can have various special libraries installed without causing issues with our "normal" environment. Since we chose the easy install option, the virtualenv plugin is already installed. We'll create a virtual environment for our 3.8-dev install. The basic syntax is "pyenv virtualenv <python version> <environment name>". So, for our example, we'll do...

```
$ pyenv virtualenv 3.8-dev 38beta
```

and the response should be

something like:

```
Looking in links:
/tmp/tmpby1g9af4
Requirement already
satisfied: setuptools in
/home/greg/pyenv/versions/3.8-dev/envs/38beta/lib/python3.8/site-packages (40.8.0)
Requirement already
satisfied: pip in
/home/greg/pyenv/versions/3.8-dev/envs/38beta/lib/python3.8/site-packages (19.0.3)
```

Now we want to activate our virtual environment

```
$ pyenv activate 38beta
```

You should see:

```
pyenv-virtualenv: prompt
changing will be removed from
future release. configure
`export
PYENV_VIRTUALENV_DISABLE_PROMPT=1' to simulate the
behavior.
(38beta) greg@greg-Latitude-E5500:~$
```

The first thing you should notice is the (38beta) that appears before your prompt. This lets you know that you are now in the virtual environment 38beta. Next, notice the warning notice above. This says that the prompt change will be going away in some future

version. Many users are trying to get the maintainers of pyenv to change their minds, since this can tell you what, if any, virtual environment you are using just at a glance.

Now, verify you are using the correct python version...

```
$ python -V
Python 3.8.0b2+
```

And verify the pip version points to the correct python installation...

```
(38beta) greg@greg-Latitude-E5500:~$ pip --version
pip 19.1.1 from
/home/greg/pyenv/versions/3.8-dev/envs/38beta/lib/python3.8/site-packages/pip (python 3.8)
```

To get out of the virtual environment, simply use...

```
$ pyenv deactivate
```

This should reset the prompt back to its "normal" environment.

At this point, you should now be able to move around using different Python versions pretty easily, activate and deactivate your virtual environments, and install

new versions of python.

I should say that whatever you do, don't use python 3.8.0 for any serious production work until the full release comes out sometime in October or November. The actual release is currently scheduled for October 21, 2019. Here is the schedule as of now...

3.8.0 beta 3: Monday, 2019-07-29

3.8.0 beta 4: Monday, 2019-08-26

3.8.0 candidate 1: Monday, 2019-09-30

3.8.0 candidate 2: Monday, 2019-10-07 (if necessary)

3.8.0 final: Monday, 2019-10-21

If you want to keep up with the latest beta and release candidates within your pyenv world, when a new version is released, give it a day or two before you try to install the new one. Get a list from pip of the library packages you have installed in your beta setup (`pip list > pippkgs38beta.txt`), and use this raw file to create a `requirements.txt` file that you can use to automate the re-installation process, and finally remove the old beta or release candidate (`rm -rf ~/pyenv/versions/3.8-dev`), then reinstall the new version. Just for your information, Python 3.9 development is already underway. The first alpha release is scheduled for 2019-09-13, the first beta is scheduled for 2020-01-20 and final release is scheduled for 2020-06-

08.



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



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Years ago, many screen-less devices did not usually have access to any kind of dedicated network. Ubiquitous WiFi was not yet a thing, nor was Bluetooth. Some of the more expensive printers did have Ethernet cards, as did servers, but in many cases, to set up the device or to regain control in the case of a crash, access was made through a serial connection.

Flash forward to modern times, and the serial port has disappeared altogether from most computers – though some servers and professional-grade routers still retain them as standard. The major use-case as of now is probably access to automobile onboard electronics, through the OBD (On-board Diagnostic) port found underneath the steering wheel in most cars. This can be seen as a variant of a serial connection. But, although some aspects of serial technology have changed over the years, it can still be a nice way to control a home server or an IoT (Internet of Things) device such a Raspberry Pi. As before, using a

serial connection means we can troubleshoot and repair our system without ever needing to plug in a screen and a keyboard which, depending on its physical location, may be something of an issue. The protocols concerned are relatively simple, software is ubiquitous (for GNU/Linux and BSD operating systems), and hardware is cheap. For this reason, serial access can become something akin to a spare tire: a technique that we do not really wish to use often, but

that we are very happy to have at our disposition when the need arises.

THE HARDWARE

I picked up the hardware required for this experiment online, and for a mere 10 euros obtained: two USB-to-serial dongles, and one 1.8 meter null-modem cable. One of the dongles will be needed to equip my (modern) computer with a serial

port, in this case with the DB-9 male connector. The other dongle will be used on a Raspberry Pi. Although this small board already has two possibilities as regards serial connections, the onboard electronic circuits work only with TTL (Transistor-transistor level) voltages of about 0 V (for a logic 0), and about +5 V (for a logic 1) which, incidentally, is also the case for the Arduino. The usual serial connection for computers, on the other hand, obeys the RS-232 norm and works with inverted voltages of about +12 V (for a logic 0), and -12 V (for a logic 1). Specific integrated circuits (such as the MAX 232) are available to do conversion; however, for the Raspberry Pi it is simpler and more convenient to use a standard USB to serial dongle.

The null-modem cable is a very simple cable to connect two serial devices, that in our case has a female DB-9 connector at each end. It performs two main functions. One is as an electrical bus, where Signal Ground on both devices are connected together,



HOWTO - SERIAL TERMINAL SERVER

and each device's TX (transmission) pin is connected to the other device's RX (reception) pin. The second function, which is implemented in most well-built null-modem cables, is to deactivate hardware control pins on both interfaces. Back in the day, these were used to control traffic between two modems, but this function is not really necessary for a short cable with no active electronics.

SETTING UP A SERIAL TERMINAL SERVICE



From the software point of view, it is fairly difficult to find up-to-date documentation on setting up a serial terminal server on a modern GNU/Linux distribution. The basic program—the getty utility—is usually already installed. But, most tutorials were written in a period when system services were configured using init or upstart, including community documentation found today at <https://help.ubuntu.com/community/SerialConsoleHowto>. Since that time, however, most distributions have moved over to systemd. It would seem that they have done so at a time when serial

connections are little-used, which is why they have been rather neglected by the manuals.

I will be following this note <https://ubuntuforums.org/showthread.php?t=2343595> by user paulstaf. Though short, it is clear and will set you on the right track for most distributions, for instance on Ubuntu and Linux Mint for a computer, or Raspbian for a Raspberry Pi. I will be using Linux Mint 19.1 on the client computer, and either the same on a server computer or Raspbian 9 on a Raspberry Pi, also as a server. Most instructions should be identical between recent versions of Ubuntu, Linux Mint and Debian.

The first thing we will need to do is verify our existing system on the server. Let us start by seeing if getty is actually installed – as, indeed, it should be, to give up access to that standard VT (Virtual Terminals) that usually are activated on GNU/Linux systems:

```
# getty --version  
getty from util-linux 2.29.2
```

This looks good. If getty is not installed on your system, get it using your package manager of

choice. Now, let us test the hardware. Plug the dongle into any available USB port, and check the kernel messages:

```
# dmesg | grep ttyUSB  
[ 2507.371545] usb 1-1.4:  
ch341-uart converter now  
attached to ttyUSB0
```

So far, so good: our USB dongle has been recognized by the kernel's USB subsystem, and configured as /dev/ttyUSB0. Most USB-to-serial hardware is rather standard, and should be detected and set up with no problems. However, if it is correctly connected and no /dev/ttyUSB* devices show up, that means we have a hardware problem and will probably need to try another physical dongle.

Next, become root (using the su or sudo commands), and navigate to the directory /lib/systemd/system. Here, we will need to create a new service file. It can have any name we choose, but it is best to use a name we will remember easily. For instance, let us call it ttyUSB0.service, and edit it with the following contents:

```
[Unit]  
Description=USB Serial dongle
```

HOWTO - SERIAL TERMINAL SERVER

```
console.service
[Service]
ExecStart=/sbin/getty -L
115200 ttyUSB0 vt102
Restart=always
[Install]
WantedBy=multi-user.target
```

The main line here is the one beginning with “ExecStart”. In this, we invoke getty with the correct device and line speed; we will thus need to get it right. Substitute your real device name here, it may or not be ttyUSB0, depending on your precise setup. As for line speed, most devices will run along happily at 115200 baud (bits / second). If yours does not, try lowering the speed to 28800 or even 9600 for testing purposes.

Once we are happy with our configuration, let us save the file and reload the daemon. This will force systemd to re-examine its configuration files, and hopefully detect the presence of the new file we just created.

```
# systemctl daemon-reload
```

Finally, we need to flag this service as enabled, so systemd will activate it each time the computer is booted:

```
# systemctl enable
ttyUSB0.service
```

```
Created symlink
/etc/systemd/system/multi-
user.target.wants/ttyUSB0.ser
vice ->
/lib/systemd/system/ttyUSB0.s
ervice.
```

In theory, we should now have a working setup on our server. The original authors of these instructions indicate they like to reboot the server computer to make sure the new configuration is in place, and, indeed, this can do no harm.

Once our getty service is up and running, let us turn to the client computer from which we intend to connect to the server. On a GNU/Linux system, there are very many serial terminal programs available. One that should already be installed is screen:

```
$ screen /dev/ttyUSB0 115200
```

Connect the two devices and the null-modem cable. You may need to hit the Enter key a couple of times on the client screen to activate the connection. You have also obtained some “strange characters” due to bit-rate errors, but they should disappear when the next login message comes up from the server. You can quit the

screen command with key combination Ctrl+A and then an uppercase letter K.

If this does not work, perhaps a better choice would be either of cu or minicom. Install either using the standard commands:

```
$ sudo apt install cu
$ sudo apt install minicom
```

Then connect, e.g. with cu:

```
$ cu -l /dev/ttyUSB0 -s
115200Connected.
Raspbian GNU/Linux 9
raspberrypi ttyUSB0
raspberrypi login: pi
Password:
Last login: Fri Jul 12
18:15:53 UTC 2019 on ttyUSB0
[...]
```

As before, a couple of Enter keys may be necessary to get to the login prompt. You can quit cu

using command “~.”

Similar connections should be rather easy to set up on clients with a Mac OS or a Microsoft operating system, using the appropriate tools in either case. Even a very old or low-spec computer should be well up to the task of working as a serial terminal – even one with a rather ancient Intel 80386 to Pentium IV processor. If you still have one lying around, it could even come with a serial port on the motherboard known in the BIOS or MS-DOS as COM1: or COM2:, and in Linux as /dev/ttyS0 or /dev/ttyS1. These can easily be found by examining the rear panel of the computer body for a 9-pin connector: see (a) in the following image. In such a case, you will not even need to acquire a USB dongle.

```
alan@alan-HP-Spectre-x360-Convertible:~$ cu -l /dev/ttyUSB0 -s 115200
Connected.
Linux Mint 19.1 Tessa alan-MacBookPro ttyUSB0
alan-MacBookPro login: alan
Contrasenya:
Darrera entrada: dv. de jul. 12 18:49:21 CEST 2019 des de a a ttyUSB0
alan@alan-MacBookPro:~$ ls
AppImage Documents Imatges PDF rsync_to_sony.sh
AppImages Dropbox minicom.log Plantilles script_wav_mp3.sh
Arduino Escriptori Música Públic sketchbook
Baixades gis OpenFOAM rsync_to_mac.sh Videos
alan@alan-MacBookPro:~$
```



HOW-TO

Written by Erik

Welcome back to another quick(-ish) insight into the very powerful and highly underrated Darktable. We are working with version 2.6 – NOT the version that ships with Ubuntu. There are features in 2.6 that you will not find in previous versions. These are features we are looking at. Darktable 2.6 (or higher) can be obtained via snap / flatpak / appimage or PPA. (If you are attempting this, you know how to install software on your Ubuntu system).

Today everything is digital, it makes economic sense. However there are people who prefer analogue. Like music, some people prefer vinyl to CDs. The same with taking pictures. Instead of us wasting money on film, then having to dispose of it in a landfill, how about we emulate what a film camera would have done in software? This is one of the new features Darktable brings to the... erm... table. This is why it is called 'filmic'. Today, however, we will be doing things slightly differently. This time the homework comes

first. Have a look at the filmic author's website here: <https://eng.aurelienpierre.com/2018/11/30/filmic-darktable-and-the-quest-of-the-hdr-tone-mapping>

Please pay attention to the "Place in workflow" section.

Before you even attempt the filmic module, you need to traverse these three mentioned bullet points in the workflow. Aurélien Pierre also recommends you turn off the base curve. Here: <https://discuss.pixls.us/t/introducing-the-filmic-module-in-darktable/9758>

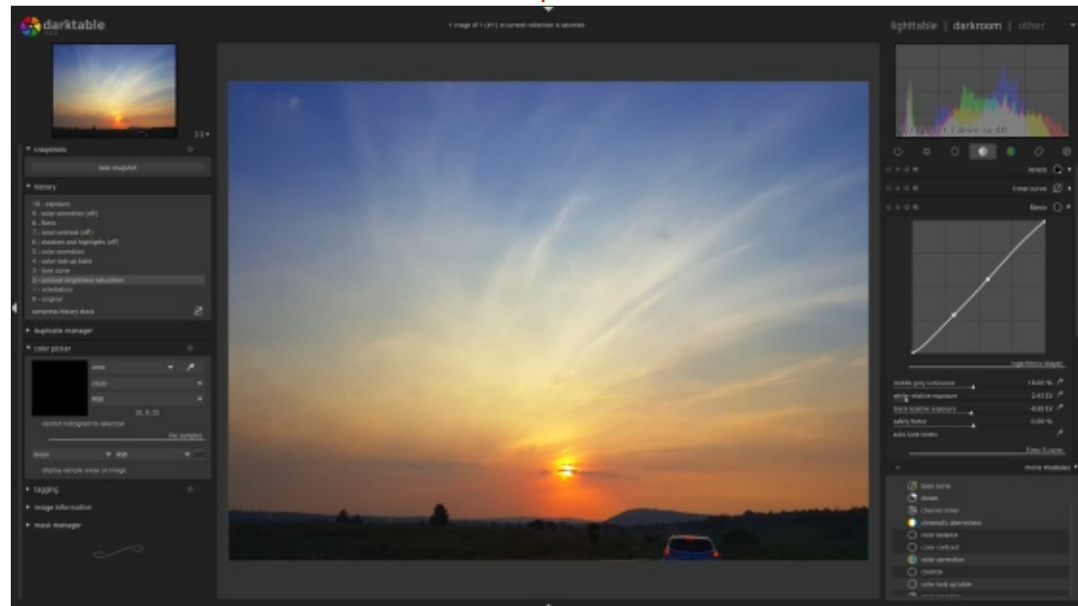
I need you to select a picture from your stash that you think could benefit from a bit of filmic treatment. If you have done your homework, and followed the three steps (bullet points) above, we can continue.

If you look at the filmic module, it may seem a bit confusing at first, unless you are a professional photographer. You may trust the auto-tune algorithm, but, in my

experience, it is horrible. Load up a photo and click the little "auto tune levels" eye dropper... (above the words "filmic S curve"). It should look like someone took a milky white paste and coated your photo with it. That obviously will not do! Undo!... That is where our tutorial starts. The filmic module tries to emulate film, in a way that it blends the outliers. Trimming the highs and lows, but leaving the mid tones alone. I will try to use music editing as a comparison, as I am not schooled in the terms for graphic editing. So, in music terms,

you put it through a high pass filter and a low pass filter. This gives us a softer image, like that of a film camera.

If you look at the sliders, the first will be "middle grey luminance" and I am sure there is a reason it is always at 18%, but we need to drop it. I suggest 9%-11% as this is usually good for most pictures taken indoors with a flash. (Only experience will let you recall values like that from the top of your head. So please play with it!). Try it on for size and see.



HOWTO - DARKTABLE

Remember, I am trying to guide you into understanding how Darktable's filmic module works, so none of the values are set in stone. A photo shot in harsh sunlight may actually require you to move it to 21%! I need you to get a feel for it. You can calibrate your eyes... YES! I said your eyes, by clicking the eye dropper and seeing where the algorithm sets the slider. Please, at any time, stop and smell the flowers... I mean read the tool tips.

The next slider is the "white relative exposure" - which has nothing to do with your flasher redneck uncle. When moving this slider, I need you to keep an eye on your histogram, as it can easily leave the square. Here too you can click the eye dropper to 'automagically' set it for you. I have to point out that the setting here depends on your setting of the previous slider. To understand this, set your "middle grey luminance" to 7% and click the eye dropper next to "white relative exposure", then change it to 21% and do the same. It is an algorithm, it takes the previous slider in to consideration, it does not see your photo. So try to keep yours close to where it would be if it were on

auto. (It does not have to match exactly).

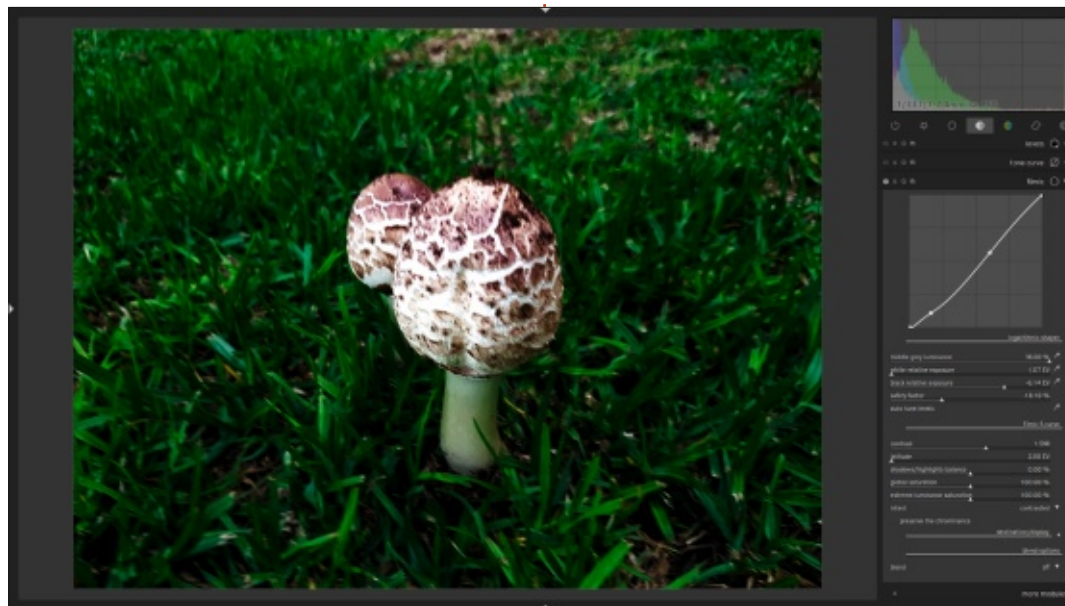
The next slider down is the "opposite" of the previous one, the "black relative exposure". As the tool tip says, it is between grey and pure black. Again, this depends on the first slider – should you choose the auto setting. Thus, if your grey was standard at 18%, the white would be below and the black above on a slider, or left and right, if you prefer, but it all hinges on that first slider. When you move the slider, pay attention to the histogram! Like music, you lose quality when their levels go out of bounds. (In music editing, it is called clipping; I am not sure what

to call it in graphic editing). You want your histogram to go to the left as far as possible without going out of bounds. This should deepen the shadows and bring up nice contrast. You have to decide the 'depth' of your photo here, I cannot tell you where it *should go. I can only tell you what to look out for. Just try not to be too far off the auto setting, lest your picture looks "shopped".

Right. Looking at the module, you should see a line and the words "filmic S curve". This is the second part of the module. Here you need to pay attention – like a drunken sailor.

Every slider we will now move, will affect the "s-curve", so keep your eye on that curve. At any time you can right-click a slider to bring up an alternative way to adjust it. Should you move the "contrast" slider, you will see that it moves the "core" piece of the s-curve between the two dots, clockwise or anti-clockwise. This slider is not as sensitive as the others, so feel free to slide it a bit. Just realise that the third slider will also move the core. This in turn will have an effect on the highs and lows of the "shadows/ highlights" in turn.

The second slider is "latitude". It is not a horizontal line but the distance between the two points on the "s-curve". This is the mid tones I was talking about in the beginning. The wider they are apart, the more of your "core" remains. All our editing, our so-called high pass and low pass filters, affect only what lies beyond these two points. It is like trimming the frayed ends of a string. The longer the frayed ends, the more you can trim, but the shorter the string will be. You cannot cut the string (core), only the frayed edges. I hope that makes sense to you. You will see the lowest the slider can go is 2EV.



HOWTO - DARKTABLE

The higher you move the slider, the wider the gap between the two points in the centre gets and the higher your histogram climbs, leaving you less space to make edits before it “clips”.

The next slider down is “shadows / highlights balance”. This moves the “core” part of the string itself. Unlike the first slider, this moves the “core” diagonally. Like in life, we need balance, so my advice is to try and keep it in the centre, unless you are making an artistic piece. Again, this is your photo, it has to look good to you and there will be situations where it will not be dead centre. (But usually aim for more-or-less centre).

Next up is “global saturation”. The name of the slider may be misleading as it effects the outliers and not the whole. If you slide it down from 100%, the changes are drastic. Colours give way to grey-scale. The changes that occur first are where the outliers are, and only at the lower end does it start affecting the mid tones. This slider again is algorithmically attached to the one above it. Thus it affects the shadows and highlights first.

The “extreme luminance saturation” is like a fine tune knob for me.

“Intent” is something I can not wrap my mind around... It ‘fixes’ boo-boo’s from what I understand. I have not used it or needed to use it yet. If your colors are faded or reversed through over saturation, this ‘fixes’ it. I use fix loosely – I have made things horrible, then used this tool and it did not seem to fix anything.

The checkbox “preserve chrominance” does nothing but keep the RGB ratios. Clicking this may cause Red / Blue over saturation. You can read more here:
<https://discuss.pixls.us/t/darktable-filmic-and-saturation/10622/10>

That brings us to “destination display”. This requires you to know something about the display you will be sending your image to. I suggest reading the full specifications and the range it can display. This helps fix that ‘but it works on MY computer’ nonsense. If the Gamma is out on a display, your image can look faded, for instance. This will help correct it before it is displayed, if the display

itself cannot.

The last one is blend mode. It is off for a reason. Feel free to go through all the options, but there is nothing “filmic” here.



So far in this series, we've used some JavaScript to change the fill or stroke color of an object in an SVG file when loaded in a web browser. But JavaScript in SVG is the same language, powered by the same engine, as JavaScript in HTML. That makes it a powerful tool for doing far more than just tweaking some colors.

First, a quick reminder of the structure of an XML tag, of the sort you might find in an SVG file:

```
<tagName id="uniqueID"
attributeName="attributeValue"
">textContent</tagName>
```

Let's look at each part of this individually:

- `tagName` – The name of the tag or element. In SVG, this might be a 'g' for a group, or 'rect' for a rectangle or square, for example.
- `id` – This is just an attribute that happens to be named 'id', but the rules of XML dictate that IDs must be unique within a document. That makes them handy for targeting with the `querySelector()` function.
- `attributeName` – Each tag may have zero or more attributes which contain additional data associated

with the element. In XML languages, these always take the form of `attributeName="attributeValue"`, whereas HTML (confusingly) allows for some attributes that have no value associated with them. Each `attributeName` must be unique within the element, but may appear many times across different elements. The `attributeValue` will vary depending on what the attribute is actually used for.

- `textContent` – This is not so common in XML. Usually, an element will contain zero or more child elements before the closing tag (the `</tagName>` in this example), but a few elements allow for plain text to be included. In SVG, the most common cases are `<text>` and `<tspan>` elements, where the plain text holds the text string that will be rendered.

There are also a couple of variations to be aware of. Self-closing tags take the form `<tagName ... />`. By definition these can have no children or text content. XML documents also

make use of namespaces, which are defined in the main tag for the document (e.g. the `<svg>` tag), and may then crop up appended to tags and attributes with a colon. You won't see these often: usually a default namespace is declared, in which case namespaces need to be added only to tags and attributes that are from 'foreign' XML languages.

The theory is fine, but let's see how these parts manifest themselves with yet another super-simplified SVG file:

```
<svg
xmlns="http://www.w3.org/2000
/svg" viewBox="0 0 100 100">
  <text id="text" x="50"
y="50" text-anchor="middle">
    This is <tspan
id="ts1">some</tspan> <tspan
id="ts2">SVG text</tspan>
  </text>
</svg>
```

Breaking this down, we have an `<svg>` tag containing a `<text>` tag with some further content. The `<svg>` tag has a couple of attributes. The first defines the default namespace, and is required so that the browser knows this is a

document conforming to the W3C's SVG spec, and not some other type of file that happens to have a tag name called 'svg'. The second attribute sets up the coordinate space we'll be using in this file – I usually stick with "0 0 100 100" for my hand-created files, as I can then treat my values as percentages within the image.

The `<text>` tag also has some attributes. The ID is self-explanatory. The others set the 'anchor point' for the text to the middle of the image (50, 50), and indicate that the anchor point should be in the middle of the text (i.e. the text is centered, not left- or right-aligned).

Finally the `<text>` tag contains a mixture of text content and a couple of `<tspan>` elements with IDs, which will allow us to specifically target those parts of the text via JavaScript.

Save the file and load it into a web browser – preferably Firefox or Chrome, as they have better developer tools than most others.



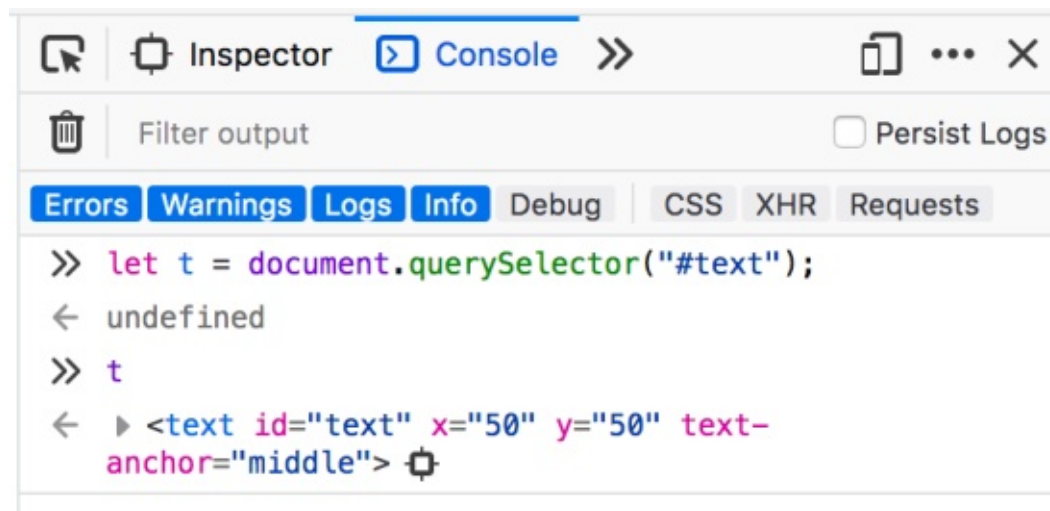
HOWTO - INKSCAPE

From the previous articles, you already know how to add JavaScript to your SVG file, either directly in Inkscape or by linking to an external JS file, but we won't be doing that today. For the rest of this article, we're going to rattle through a few ways you can affect your SVG, but we'll do so within the browser's developer tools. Any of these commands or techniques can be added to your own JavaScript if you want to create something less ephemeral.

Press F12 or use the menu to open your browser's developer tools. Somewhere along the top should be a row of tabs (though they're not always clearly styled as such). Make sure you have the "Console" tab selected. If the panel is already filled with text, find the button in the console's toolbar to clear it, for clarity. Click inside the console area to give it the focus, and type the following (followed by the Enter key):

```
var t =  
document.querySelector("#text  
");
```

The console will display the string "undefined" at this point. That's nothing to worry about, it



just indicates that the line you entered didn't return a value. But what it has done is find the element with an ID of "text" and assign it to the variable "t". You can confirm that by typing the letter "t" on its own, then pressing Enter. The console should show a representation of the <text> element, looking something like that shown above.

Let's use some JavaScript we already know to reduce the size of the font a little. Type this into the console:

```
t.style.fontSize = "10px";
```

The SVG content should react as soon as you press the Enter key. Type the letter "t" again and you'll see that the element now has a

"style" attribute with the font-size property set. Notice that we set "fontSize" in JS, but the CSS in the attribute shows "font-size". If you tried to use the latter in JavaScript, it would be interpreted as trying to subtract the "size" variable from the "font" variable, and would throw an error. As a general rule, any CSS property containing embedded hyphens is available as a JavaScript property by removing the hyphens and capitalising the first letter of all but the first word.

Breaking down the line above, you know that "t" is a JavaScript representation of our XML node. The browser exposes various properties and methods (functions tied to a specific object) on that node, including the "style" property. This property, in turn,

has a "fontSize" property, which we've set to a value of "10px". But the browser treats the "style" property a little differently to most JavaScript properties, and instead also applies any changes to the "style" attribute in the XML. In this instance, it doesn't matter whether you change the attribute or the property – but that's not usually the case.

To change most attributes, therefore, you can't just set a correspondingly named JavaScript property. Instead, you have to use the setAttribute() method that we've looked at previously. Here's how we might move the text up a little:

```
t.setAttribute("y", 20);
```

Type "t" again to see the XML, and you'll notice the "y" attribute now has a value of "20". We can also retrieve that value using the getAttribute() method:

```
t.getAttribute("y");  
// Returns "20"
```

Remembering that the y-axis in SVG runs from the top of the screen to the bottom, you might be inclined to try some code like

HOWTO - INKSCAPE

this to move the text down by 10 units:

```
var yPos =  
t.getAttribute("y");  
t.setAttribute("y", yPos +  
10);
```

Gah! Where did the text go!? Actually it's still there, but it's been positioned so far down in the image that it's dropped out of the 100x100 viewBox, so isn't visible. But why is that, when we just wanted to adjust the value from 20 to 30?

The problem is that XML is a text-based system, and doesn't really have a concept of different data types. All attributes are therefore text strings, regardless of the value you put in, so our call to `getAttribute()` returns the string "20", not the number 20. JavaScript then tries to be 'helpful' by determining that we're trying to 'add' the number 10 to the string "20". Since you can't add a number to a string, it automatically converts the number into a string ("10"), then concatenates the two, to give a result of "2010". That's the value we end up putting into the attribute in our `setAttribute()` call, so our text ends up being moved to a y-position of 2010

units!

We can fix this by converting the value returned from `getAttribute()` into a number. We only want an integer value, so the `parseInt()` function is the tool to use – but there is also a `parseFloat()` if you need to deal with decimal fractions. `parseInt()` has a second parameter for the number base that you should always provide (with a value of 10 for a decimal conversion) to avoid some rare-but-odd corner case bugs when converting certain strings. Entering the following lines into the console should get us the result we were looking for:

```
t.setAttribute("y", 20);  
var yPosNumeric = 0;  
yPos = t.getAttribute("y");  
yPosNumeric = parseInt(yPos,  
10);  
t.setAttribute("y",  
yPosNumeric + 10);
```

You can run the last three lines repeatedly to move your text down by 10 units each time.

Now we know how to get and set attributes, but you can also remove them entirely. This will get rid of the "style" attribute we indirectly created earlier, returning

This is *a bit of* SVG text

the text to its 'natural' size:

```
t.removeAttribute("style");
```

There's no equivalent `createAttribute()` call - setting the value of a non-existent attribute using `setAttribute()` will automatically create it. Let's get our style back by manipulating the attribute rather than the property:

```
t.setAttribute("style",  
"font-size: 10px;");
```

As well as working with attributes, you can also dynamically change the text content of an element. Let's type a few lines into the console to alter the first `<tspan>`:

```
var ts1 =  
document.querySelector("#ts1"  
);  
ts1.style.fill = "#ff0000";  
ts1.style.fontStyle =  
"italic";  
ts1.textContent = "a bit of";
```

[relevant image shown above]

Being able to change the text content via JavaScript opens up a world of possibilities, including images with descriptions that can be switched between different languages, or ones that populate with data requested from a server somewhere such as live graphs and stock tickers. That degree of sophistication is a little beyond this series, but here's a trivial example that prompts the user to enter their name, then updates the text on the page accordingly:

```
ts1.textContent =  
prompt("What is your name?")  
+ "s";
```

[relevant image shown below]

Modifying the properties, attributes and text content of existing elements is useful, but to have complete control over a document we also need to be able to add and remove elements using JavaScript. The removal part is trivial, provided you can get a

This is *Mark's* SVG text

reference to the element using `querySelector()` or some other mechanism. Let's delete our first `<tspan>` entirely:

```
ts1.remove();
```

Adding a new element to the page can be trivially easy, or it can be rather convoluted. Let's start with the easy method, by adding another `<tspan>` to the `<text>` element, which is still assigned to our `"t"` variable:

```
t.innerHTML += '<tspan  
id="ts3" style="fill:  
red;">!!!</tspan>';
```

Even though we're working on an SVG file, which is a form of XML document, we still have to use the `"innerHTML"` property. This returns all the descendants of the specified node as a string – basically a string of HTML (or XML in this case) much like the ones you type into a text editor. The `"+="` operator essentially retrieves a value, adds or concatenates something to it, and puts the result back into the same place. In our case it has the effect of appending a new `<tspan>` to the end of the existing content.

Let's do something similar, but

with a more complex approach...

```
var ns =  
"http://www.w3.org/2000/svg";  
var newTS =  
document.createElementNS(ns,  
"tspan");  
newTS.id = "ts4";  
newTS.setAttribute("style",  
"fill: blue");  
newTS.textContent = "!!!";  
t.appendChild(newTS);
```

That's a lot more lines to explain:

- We set up a variable, `"ns"`, that will hold our SVG namespace. Usually this is done once at the top of the JavaScript so you can use it in multiple places.
- We create a new `<tspan>` element. If you've ever done this in HTML, you might be familiar with `document.createElement()`, but, in the XML world, we need to use a namespace-aware equivalent, `createElementNS()`, and pass the namespace as the first parameter.
- We give the element an ID to make it easier to get hold of later. We could have used `setAttribute()` for this, but the browser has an implicit mapping between the property and attribute in this case, in the same manner as we saw earlier with the `'style'` property.
- Now we can set an attribute on the new element. We would need to repeat a line like this for each

This is SVG text !!!

attribute we wish to set.

- We've created a `<tspan>`, so we won't see much unless we also give it some text content.
- Finally, we append it as a child of the object referred to by the `"t"` variable – our `<text>` element.

Clearly that's a lot more typing than the `innerHTML` version, so why would you ever want to take this approach? Precisely because it's verbose, splitting the element, attributes and text content into separate lines, it lends itself to some types of looping or manipulation that can otherwise become unwieldy when using just a single chunk of text.

Consider trying to plot a graph using SVG. Each point on the graph might be represented by a `<circle>` requiring several attributes: `x`, `y`, `r` and `fill`, for example. These values will be determined by some data source, and may need to be manipulated to get them into the right format for SVG. All of that is a little easier to arrange, and can lead to clearer code, if you deal

with each attribute separately.

Certainly it can be done with the `"innerHTML"` approach, but as the code and SVG content become more complex, an approach that relies on building and manipulating strings can become harder to follow, and less robust.

Next time, we'll build on the techniques used in this instalment, to further investigate ways to manipulate the individual elements in an SVG document through JavaScript.



Mark uses Inkscape to create three webcomics, 'The Greys', 'Monsters, Inked' and 'Elvie', which can all be found at

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

Who needs soap opera's?

We have facebook, with an episode every five minutes!



THE DAILY WADDLE
by: ErikTheUnready





LINUX LOOPBACK

Written by S. J. Webb

I apologize for the lack of columns, sometimes life requires us to get involved. In my last submission, I uploaded Project Trident to an HP Notebook. My mysterious problem of Wifi Connectivity followed me on the HP hardware. So, after some thinking, I would try an older laptop to get Project Trident installed.

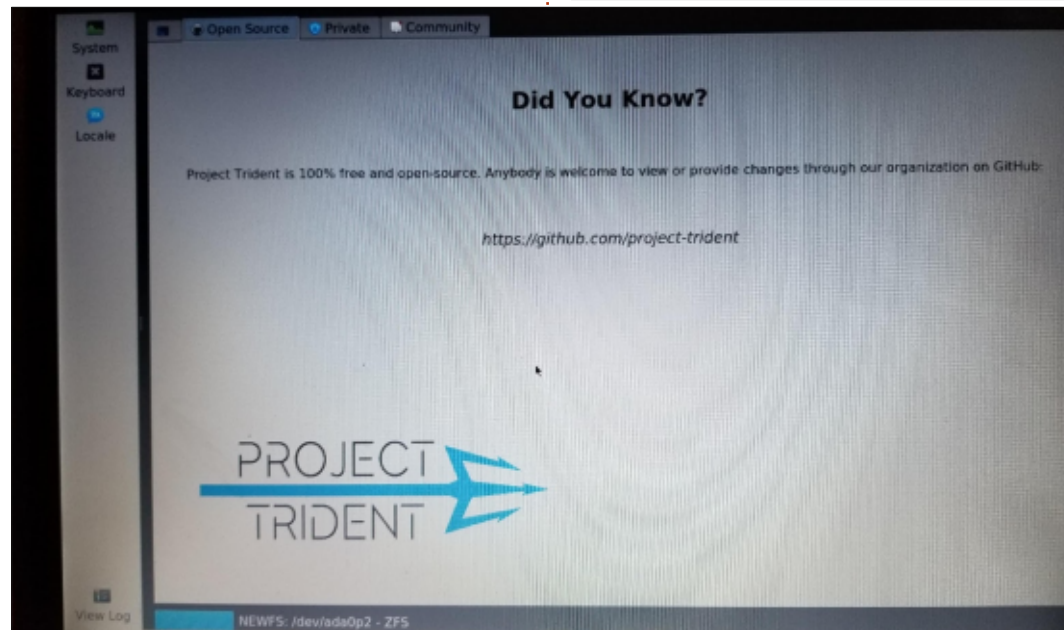
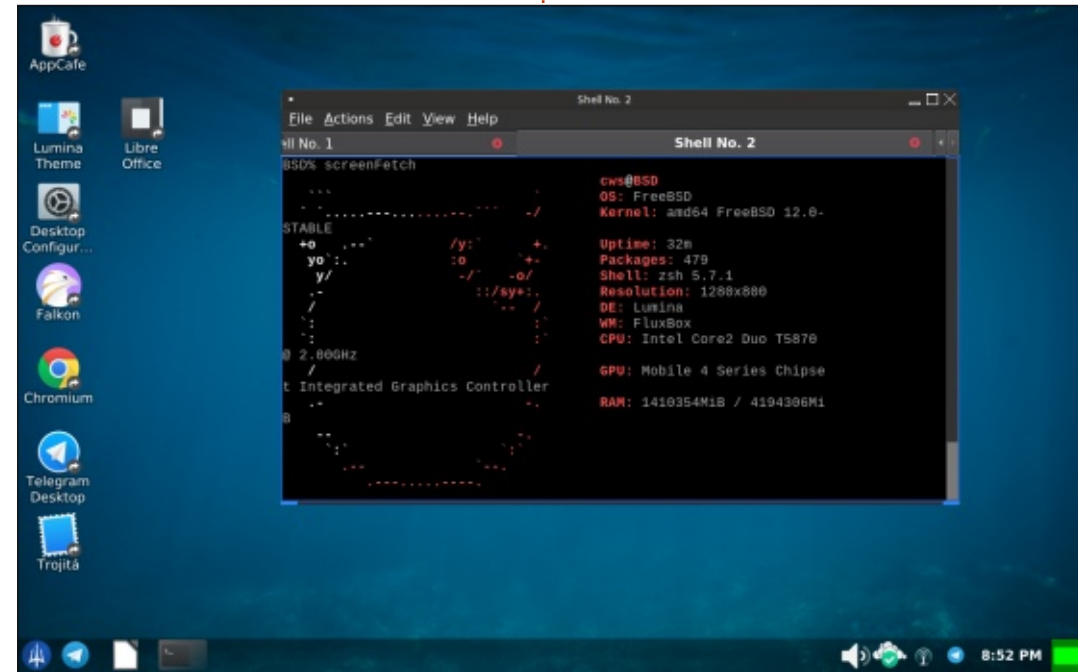
I grabbed an ancient but reliable Lenovo SL500. It has 4 GB RAM, Intel Centrino, and 250 GB storage. Using my Linux rig, I downloaded the most recent Project Trident iso and burned the image to a random 2.0 USB thumb drive using SUSE Writer. After spending 20 minutes finding out how to boot from the USB drive, I woke up the splash screen.

The installer did not offer a live environment. I was taken to the usual installer setup workflow. Then a choice of which packages to install. I did a blend of security and internet apps. The last segway allowed the user to set up root password and profile credentials.

The installation process was quick and painless

I booted the system and was greeted by the Lumina desktop environment. Immediately I attempted to connect to my WiFi. I found my router, entered my password, and I was using the Falkon browser for web surfing. The Lenovo is a mobile and not tethered to an ethernet cable, unlike the HP notebook.

I did the system upgrades, installed LibreOffice, and



screenfetch.

Next month I will give a quick overview of the Lumina DE.



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.



Q What is your background? How did you get started in this field? Any suggestions to others who want to follow your path?

A My background is actually in the physical sciences (Nuclear astrophysics, in particular), but found myself constantly doing computer programming as part of my day-to-day activities. When I was in graduate school, I took a part-time job working with the PC-BSD project to perform testing and fixing of their application bundles. This transitioned into a full-time position with iXsystems doing computer programming after I finished my graduate studies. This type of change is actually quite common, as computer programming does not "require" any specific background or training but rather is a field that anybody can get involved in at any phase of their life.

Q What led you to BSD? Why not another operating system platform?

A I started using PC-BSD as my laptop operating system when I started graduate school because the Linux desktops that the school provided were an absolute mess. Not only did the desktops not work properly, but the system packages kept breaking, and basic functionality kept getting "lost" between updates, resulting in old systems which were not compatible with newer standards because the sysadmins were terrified of ever updating them. By using PC-BSD/FreeBSD, I had a system that was reliable, got updates, and allowed me to do my work without the hassle of maintaining the OS itself.

Q Whom do you see as a common user of BSD?

A Most of the users I interact with are what I classify as "tinkerers". These are people who don't just want to use a system: they want to take it apart, learn how it operates, or reconfigure it into something new. Are these the only users of BSD systems? Absolutely not! These are just the

vocal minority who get on the chat systems and talk to us. I think there is a large "quiet majority" of users who run BSD systems just to have a rock-solid and reliable system where they can get stuff done.

Q What are the best resources for a new BSD user?

A If the system "just works", then you really don't need to look up external resources. If you do have an issue with something, and need to look up information, then I typically send people to a few different places:

- If you are curious about what has changed between updates, Project Trident posts regular update changelogs to our website (<https://project-trident.org/>).
- For command-line tools, manual pages (`man <command>`) are the quickest and fastest way to look up how to use them.
- For port/package information, I recommend "freshports" (<https://www.freshports.org/>). That will let you search the FreeBSD ports collection really easily.

Q Editing configuration files is daunting for new users. Do you see this issue preventing new user adoption?

A Not for Project Trident. One of our primary goals is that a standard user should not need to even open up a system terminal - everything the user needs for day-to-day operation of the system has an easy-to-use graphical interface for changing configurations. If you start "tinkering" with the underlying OS, or try to reconfigure Project Trident (such as trying to switch to an alternate desktop environment), then that breaks down and you will have to manually change config files. I think that is an understood/acceptable responsibility for tinkerers though.

Q You created Project Trident. How difficult was it to develop the platform?

A Not too difficult. Since we are building off of the TrueOS

operating system with a fully-automated build framework, most of the build integrations are just a single JSON configuration file. We have developed our own graphical system-setup infrastructure, and graphical utilities as well, but those are things I have been developing in my years of using FreeBSD for day-to-day operations.

Q Where do you see Project Trident in the next 5 years? 10 years?

A In computing time-frames, 5-10 years is an eternity where things can change anytime. The goal of Project Trident – to provide a stable and reliable end-user experience – will not change however, even as technologies and even operating systems come and go in the next decade.

Q Why create the Lumina DE? Why did you use the QT toolkit? Where do you see Lumina in 5 and 10 years?

A Lumina was initially created to fill the need for a reliable desktop environment on FreeBSD, and has grown to be available on most BSD and Linux operating systems. The Qt toolkit was

something I was already using for various graphical utilities on PC-BSD at the time, and it is much more reliable and robust than a lot of the other options that were available when I started developing Lumina. There have been lots of developments within Lumina, specifically regarding cross-OS functionality and splitting out the various self-developed utilities into stand-alone packages with their own source repositories and version numbers. I see that trend continuing and the "desktop" component of Lumina splitting off from the rest of the companion utilities and developing independently.

Q What is the most common use for Project Trident? What hardware do you recommend for a simple install?

A I would say that Project Trident is mostly used for light-office or development work. By that I mean you typically use email, web browser(s), some office applications, text editors, virtual machines, and compilers. There are a whole lot of other types of development tools available (graphics editors, game development tools, etc), but, at the

present time, I am not seeing a lot of people coming to Project Trident specifically for that functionality. Regarding hardware, I always recommend UEFI boot systems, with an NVIDIA graphics card for desktop/workstation systems, and Intel graphics for laptops (not the dual Intel+NVIDIA "optimus" laptops). The AMD graphics support is getting better, but typically still requires a lot of manual tweaks and customizations to even get working.

Q Ken how can people help out Project Trident?

A 1) There are quite a few ways!

- Submit patches or file bug reports on our github repositories: <https://github.com/project-trident>
- Participate in our telegram community channel: <https://t.me/ProjectTrident>
- Write up documentation or guides on how to accomplish specific tasks: <https://github.com/project-trident/guides>
- Become a sponsor! <https://project-trident.org/sponsors/>

Ken Moore: General Manager of Project Trident - <https://project-trident.org>



We're back to continue our series on Linux Help this month, as previously promised.

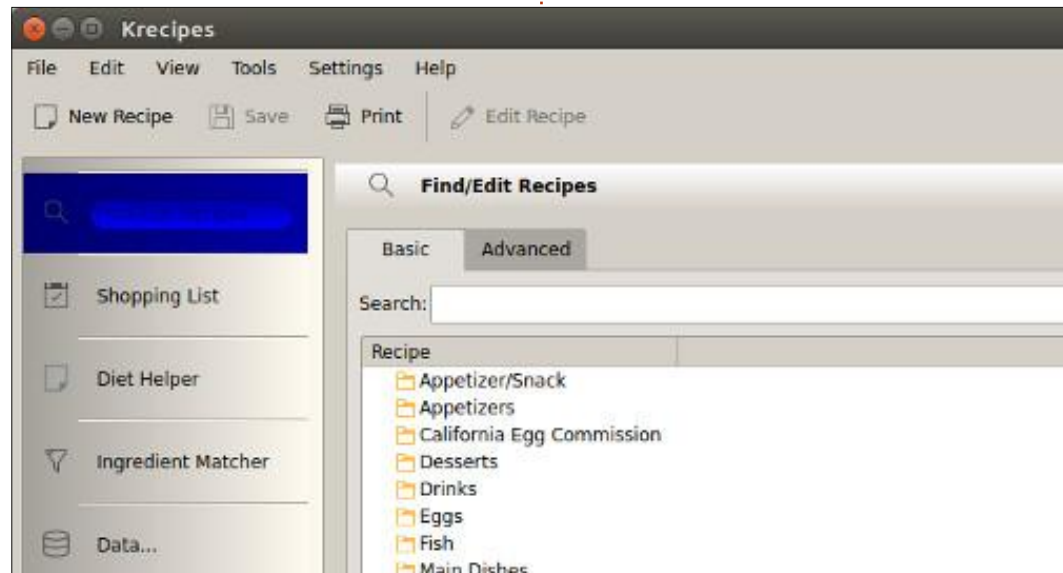
RECIPE MANAGEMENT IN LINUX

Hang in there, what we're discussing this month is relevant to Help, but it'll be a bit of a journey to get there. One of the things I use a computer for is recipe management. Linux has a recipe manager that is part of the K Desktop Environment, or KDE, the KRECIPES application. Don't worry, even though it's a KDE application,

you can still install and run it under the GNOME or Unity desktop environments. You can install krecipes using the Synaptic Package Manager or from a terminal command-line, using the command:

```
sudo apt-get install krecipes
```

For more on how to install software, refer back to the Everyday Ubuntu column in Full Circle Magazine #130, page 36. You also might want to install the krecipes-doc and krecipes-data packages while you're at it.



BUTTERMILK BISCUITS FOR Two

I wanted to add new recipes to the existing samples, so I decided to use a recipe I adapted from YouTube, that I found on Ken Click's channel. Ken has some great recipes for one or for two, something the world does not have enough of, if you ask me, and I really like his 'flaky biscuits for two' recipe. Check out Ken's YouTube channel at https://www.youtube.com/channel/UC4bqbP1BW74_DE8loU45i6Q. Ken also kindly granted permission to use not only the recipe in Everyday Ubuntu this month, but also to use his biscuit thumbnail picture. So, here is the adapted recipe (you can find Ken's original, that uses whole milk, on YouTube at https://www.youtube.com/watch?v=wy_dqphsakU):

Buttermilk Biscuits for Two

Ingredients:

- Just over 1 cup all purpose flour

- 1/2 teaspoon sugar
- 1 1/2 teaspoons baking powder
- 1/4 teaspoon salt
- 3 tablespoons cold salted butter
- A little under 1/2 cup buttermilk

Instructions:

- Mix all dry ingredients with a wire whisk.
- Cut 3 tbsp COLD butter into small pieces and incorporate into dry ingredients. This can be done by fingers, fork, or pastry cutter. Incorporate butter thoroughly until mixture is uniform, with a texture like wet sand.
- Make a well in the center and add a little less than a half cup of buttermilk. Slowly and gently start pulling flour into center with a wooden spoon or a spatula. Continue until all flour is incorporated.
- Turn onto a well-floured surface, dust dough ball with flour, and flatten out with hands or rolling pin.
- Fold over halfway, rotate a half-turn, and fold over again, re-flatten. Repeat about 4 or 5 times, but do not overwork the dough. That said, some folding is



necessary to make the biscuits come out flaky.

- Cut the rolled out dough into equal halves, roll each into a ball and flatten until about 1 to 1 ½ inches thick.
- Put into a pan sprayed with non-stick cooking spray and place in a preheated 400 degree oven for 10-12 minutes, until lightly browned.

Yield: Two biscuits



ADDING A NEW RECIPE

Okay, so now let's add our new 'buttermilk biscuits for two' recipe to krecipes. Invoke the Dash (top icon in the launcher, that looks like the Ubuntu wheel logo) and search for krecipes, then click it to launch. In krecipes, go to New Recipe in the top left. You'll get this screen:

Type in a recipe name, then click the + next to 'Authors'. Click the + sign in the Authors dialogue box and type in (or select) the name of the recipe's author, then click + again to add. Repeat if needed for multiple authors. Click OK when done.

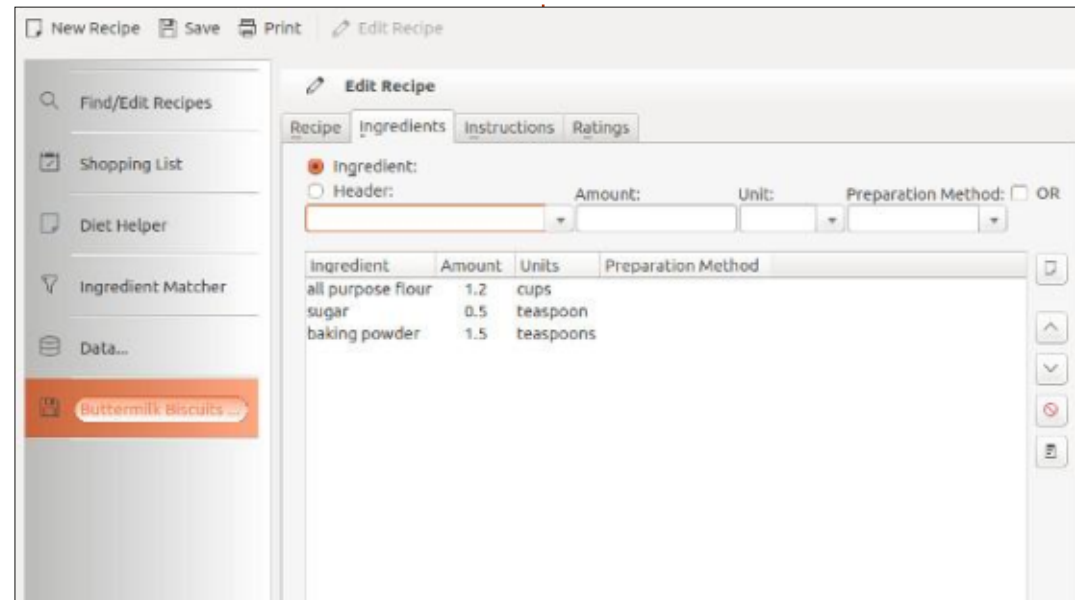
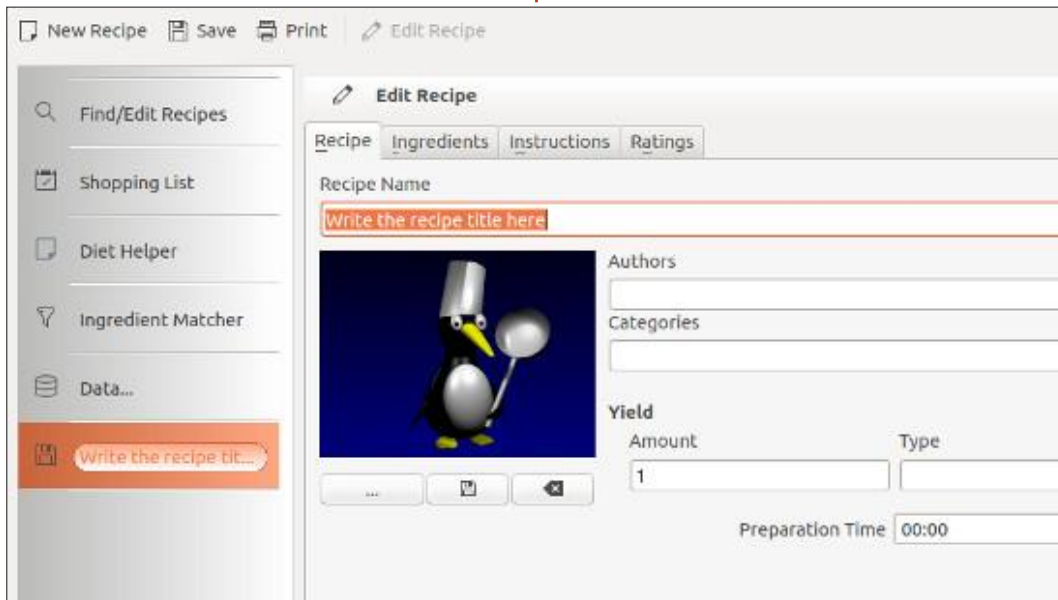
Back on the main New Recipe screen, click the + next to Category. We don't have a 'bread' category by default, and that would probably be a useful category, so let's add it by hitting +, in the dialogue box clicking + New Category, and typing in 'bread'. When done, click OK to return to the main New Recipe window and type in the yield amounts/measurements, then use the spinner control to adjust prep time. Prep time maxes out at 23:59. I initially took it to mean minutes:seconds, but it seems obvious now it means hours:minutes. Of course, preparing a proper pate de faisan en croute may take well over 24 hours, but how often do you make

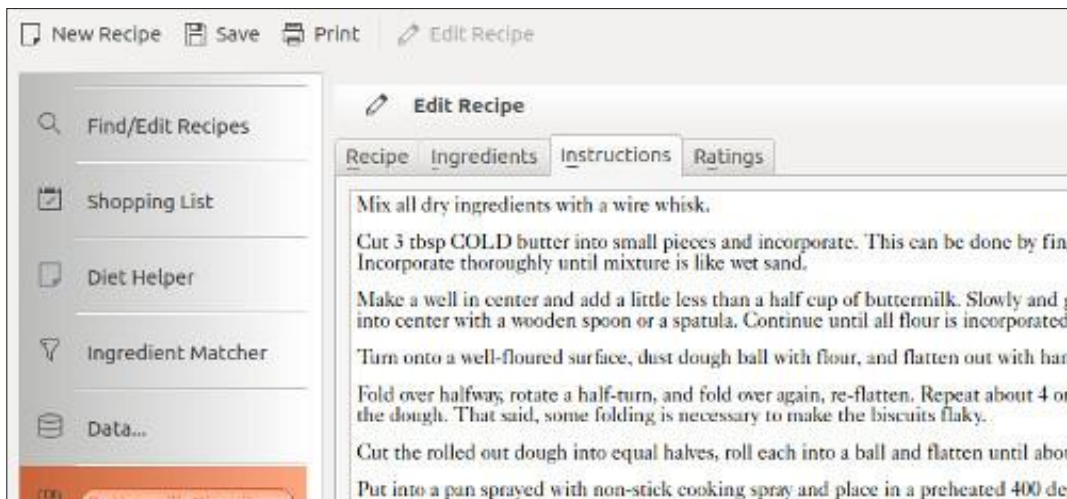
that?

Once that's done, click the Ingredients tab up top. Add the ingredient name, amount, unit of measurement, prep method (optional), then click the 'Add' button (top one on the right side, looks like a dog-eared page), repeat as necessary until all ingredients are added. Amounts have to be decimal (e.g., 1/2=.5), and standard abbreviations like 'tsp' will work fine for units of measurement:

Now click 'Instructions' at the top and enter the recipe directions.

All right, we're DONE! Well,



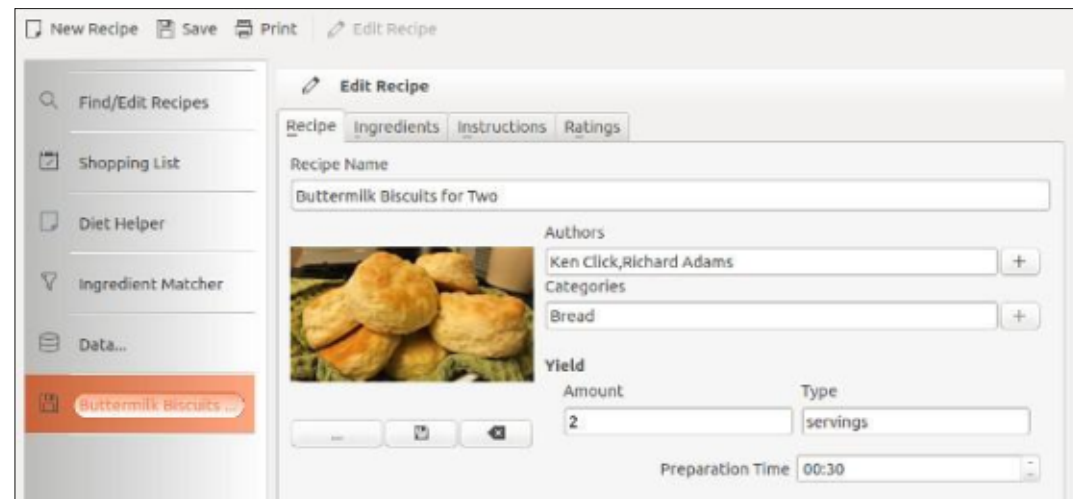


almost, and here's where we get to the Help portion of this month's column. Go back to the 'recipe' tab. See the (default) picture of Tux in a chef's hat (or 'toque blanche')? That's a placeholder for us to insert a picture of our dish. I downloaded the thumbnail of a plate of biscuits from Ken Click's site and tried to insert it by clicking the ellipsis button (...) underneath the Tux placeholder and navigating to the location where I saved the file (in jpeg format as 'biscuits.jpeg'), then inserted it. And everything looks fine:

Save the recipe ('Save' button at top), click 'Find/Edit Recipes', locate and reopen it, and ... the picture still looks like a toque'd Tux,

Additionally, our Instructions have vanished! What is going on here?

HELP! I NEED SOMEBODY....



Well, that will be our focus next month. How do we get help with this problem? And I'll be candid with you, we may not get a solution, but there is definitely still

value in going through the process as a learning experience. And, it's a good thing to have the resourcefulness to come up with new ways to achieve our end goal even if we find we have to tackle the problem from a new angle.

Next month: Getting Even More Help in Linux (or Even More Getting Help in Linux, I suppose). Fingers crossed in hopes of a solution....



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.



This release polishes up this stage of Ubuntu Touch development, and includes many small fixes that should please all users. It also contains some hardware compatibility improvements for the Nexus 5, Fairphone 2, and OnePlus One!

You can find a full changelog for this release in the changelog section below [<https://ubports.com/blog/ubports-blog-1/post/ubuntu-touch-ota-10-release-239#changelog>].

HARDWARE COMPATIBILITY

Thanks to Ratchanan, we have some excellent hardware updates.

To start, Fairphone 2 users will be happy to know that we've implemented proper checking for Android's reported camera orientation. This means that we are able to work with all of the Fairphone 2 camera revisions successfully. No more upside-down selfies!

During implementation, we found that some of our older devices had incorrect data presented by Android. Knowing this, we added a manual override system to the automatic checks. This was done in a modular way so that any porters who run into this issue in the future will be able to solve the problem.

These fixes also helped with the Nexus 5 and OnePlus One. Any problems with audio and video sync when recording videos have been fixed! Now any videos recorded with either camera on these devices will be in-sync.

We also fixed some issues with the Fairphone 2's audio routing. Prior to these fixes, the left and right audio channels were swapped in some configurations.

Location, down to the screws

SOMETIMES YOU NEED TO TEAR SOMETHING DOWN TO BUILD IT UP BETTER.

We have removed the "wolfpack" Wi-Fi based geolocation tool from this update. This module used the Geoclue service to gather approximate location data. That resulted in a very fast location lock in some cases, but a very inaccurate lock in others. Removing the module improves the reliability of the location service in almost all cases.

With this module removed, some users will experience a very long delay (20 minutes or more) in retrieving the first location fix on their device. This should only occur if the device is not connected to a mobile network and location services have not been used for a very long time. After this delay has passed, future attempts to retrieve a cold (first time each boot) location lock will take up to four minutes. To help users make the best use of Ubuntu Touch location services and to help avoid this problem, we have written a guide Using location services and have added it to our documentation pages.

AND MORE!

The default Messaging app, used for SMS and MMS messaging, now supports draft messages. Pasting of phone numbers in the "To:" field and an issue with the header randomly switching between your contact's name and phone number were fixed.

Libertine, the legacy application manager, now allows you to search for packages in the archive and select one to install from a list.

The PulseAudio modules enabling basic sound on Android 7.1 devices have been added. A mini SurfaceFlinger implementation has been added to enable the camera on some Android 7.1 devices.



**No, I was afraid it
may attract moths...**

**Have you set up that
LAMP server yet?**





Let's face it, Snaps, Appimages and Flatpaks are wonderful, if you live in a first world country with bucket-loads of bandwidth. However, downloading a 100MB file, when the source is 3MB, is an utter waste. (Most of the rest of the world is limited by bandwidth). New users are always afraid of the command-line. Why? Because Linux switches and options are confusing. Not most commands, mind you. [On Telegram, I often see kids install Kali. On the Gnu/Linux Telegram group it is a running joke, and a search for the phrase "Kali" brings up more results than any other. They cannot even comprehend the terminal, but "want to be hacker" - sic. The terminal sometimes seems like a magical language to them that will give them just illegal access – like in Mr. Robot].

Lots of professionals look down on building your own software. Yes it can be tedious and time consuming, but not everything is in the repositories, and even if it is, sometimes you need a later version. Ubuntu is by no stretch of

the imagination a "bleeding edge" distribution, being based on Debian. Sometimes packages are old, or just won't be updated any more. (Ubuntu 14.04 may have an old version of VLC and you would like to play HVEC movies). In this issue, we here at Full Circle would like to take your hand and take the first step with you of your thousand step Linux journey.

Nano is a terminal text editor. A really handy, basic editor. It can be extended with syntax highlighting, etc, but the version that ships with ubuntu is too old. If you are on 18.04 or 18.10, you are stuck with version 2.9 of Nano, and Disco Dingo with 3.2. Gnu Nano, however, has moved on to version 4.2 (April 2019) <https://www.nano-editor.org/>. Shall we make our version 4.2 too? Okay, don those coveralls, ready the spanners and we shall look at the terminal.

GETTING NANO

Yes, you can just click on the download link, but since we are in the terminal, (let's face it, a

browser may not always be available), we will stay there. Type the following:

```
wget https://www.nano-editor.org/dist/v4/nano-4.2.tar.gz
```

Or use curl if wget not available:

```
curl https://www.nano-editor.org/dist/v4/nano-4.2.tar.gz > nano-4.2.tar.gz
```

That code just fetches nano for you. No options, no switches. This should boost your confidence a bit if you are new.

To untar your .gz file is going to require some switches. (Should things have changed in the meantime, just correct the URL to reflect the latest version):

```
tar xvzf nano-4.2.tar.gz
```

Should you look at the tar manpage, I would like to draw your attention to the "option styles" section. Feel free to read the whole thing, just know it has more options and settings than Lee's in a

Chinese telephone directory. Your homework, should you choose to accept it, is to look up x, v, z, f options. Finding it yourself, instead of me telling you, is much more rewarding!

INSTALLATION

Right, now we have the latest version of Nano, but how do we install it? (Change into the unzipped folder first). Again, it is back to reading, so the lazy won't survive. Most software that you download from source has a 'readme' file attached. The file may have weird extensions, sometimes '.md', but look for the readme-file. In our case it's just README:

```
less README
```

Yes, that's it. Use a pager to read the file. You will see the instructions in clear text.

TIP: You may need to install build-essentials before attempting the next part. (Don't worry, you won't install it twice)

MY OPINION

```
sudo apt install build-essential
```

(This brings in everything you will need to build your program).

Now we build according to the README-file.

```
./configure
```

```
make
```

```
make install
```

If you open Nano now, You will see it still displays 2.9.3. This is not an error, you need to log out and back in again. You do not need to do this with every piece of software you build from source though. That's it, you are done. Nano is now the latest version... But wait, there's more...

THE NEXT STEP: (WE WON'T LEAVE YOU HANGING!).

Nano, like Conky, is configurable via an "rc-file". You can set it up for whatever you are doing. I am going to take the shotgun approach and get you going for 'most' use cases. (Syntax highlighting):

```
mkdir ~/.nano
```

```
cd .nano
```

```
git clone
```

```
https://github.com/scopatz/nanorc.git ~/.nano
```

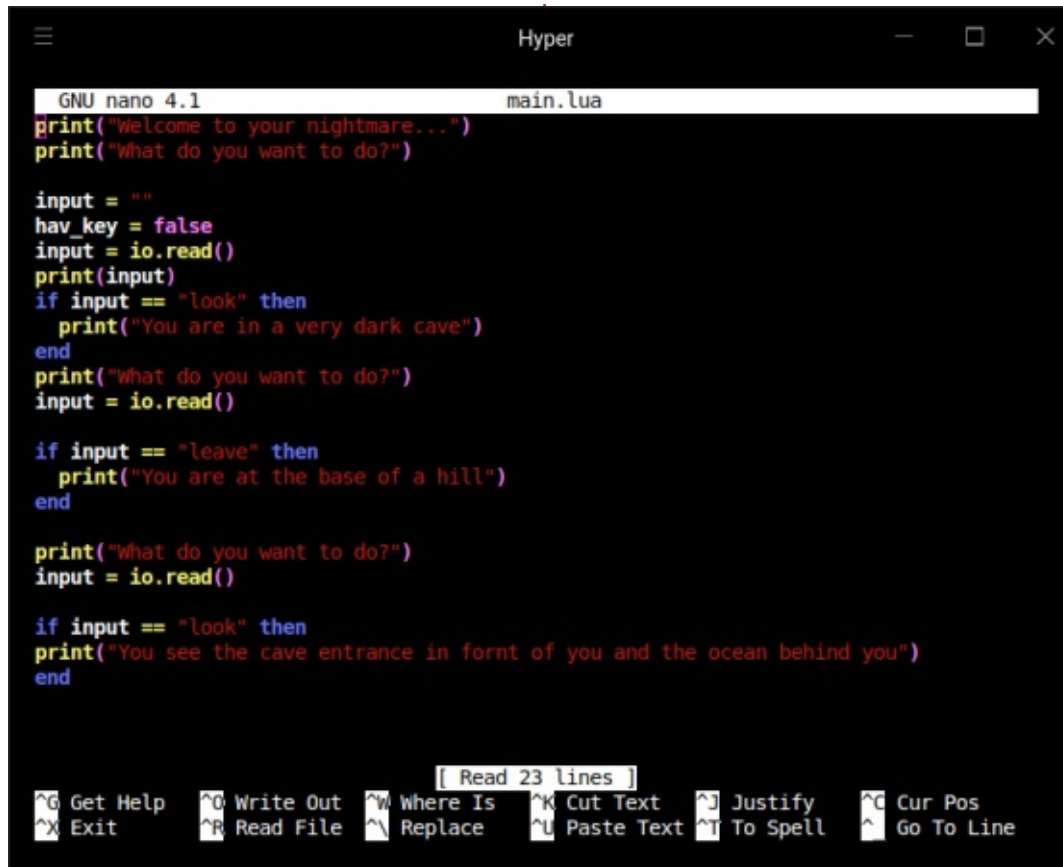
and you can set up the one you need. (You know how to run configure and make).

ALTERNATIVELY... (THE EASY WAY):

```
wget
```

```
https://raw.githubusercontent.com/scopatz/nanorc/master/install.sh -O- | sh
```

Now I do not have to tell you how dangerous it is to run a shell script with wget from a website. Luckily in our case we can actually have a look at the install script beforehand. Have a look yourself and calm down once you see it is harmless. Hooray for open source! Now look at my pretty!



```
GNU nano 4.1 main.lua
print("Welcome to your nightmare...")
print("what do you want to do?")

input = ""
hav_key = false
input = io.read()
print(input)
if input == "look" then
    print("You are in a very dark cave")
end
print("what do you want to do?")
input = io.read()

if input == "leave" then
    print("You are at the base of a hill")
end

print("what do you want to do?")
input = io.read()

if input == "look" then
    print("You see the cave entrance in fornt of you and the ocean behind you")
end

[ Read 23 lines ]
Get Help Write Out Where Is Cut Text Justify Cur Pos
Exit Read File Replace Paste Text To Spell Go To Line
```

REFERENCES AND FURTHER READING:

<https://github.com/scopatz/nanorc/>

<http://www.linuxfromscratch.org/blfs/view/svn/postlfs/nano.html>

https://linuxhint.com/configure_nano_text_editor_nanorc/

<https://medium.com/@005/the-gnu-nano-editor-for-serious-writers-36f6decf8fad>

<https://crashcourse.housegordon.org/nano.html>



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.



FeatherPad is a new text editor that was first introduced in the Lubuntu 18.10 release on 18 October, 2018.

In Lubuntu 18.04 LTS and earlier Lubuntu versions, the default text editor was Leafpad, a very simple and lightweight text editor. Leafpad remains a good text editor, simple and fast to open, but it lacks features that would be useful for users coding or writing websites.

With the release of 18.10, Lubuntu moved from the previous GTK-based LXDE desktop, with its emphasis on low resource requirements and older computer hardware, to the newly fielded LXQt desktop, which is based upon the Qt widget toolkit. Along with the new desktop came a revised focus, as Lubuntu Release Manager, Simon Quigley explained, “Lubuntu will leverage modern, Qt-based technologies and programs to give users a functional yet modular experience... Lubuntu will keep a light experience by default but enable users to utilize more

heavy and featureful components as desired”.

The desire to provide default applications that are Qt-based and which also offer more features to users, led to replacing Leafpad

with FeatherPad in Lubuntu 18.10. FeatherPad is free software released under the GNU General Public License v3.0.

FeatherPad has been available in the Ubuntu repositories since

![Beastie, the BSD Daemon](Software02.png "Beastie, the BSD Daemon")


18.04 LTS, when version 0.8 was introduced in March 2018, so it can be installed in any ‘buntu flavor from 18.04 and later.

FeatherPad is developed by a team led by Pedram Pourang, also known as Tsu Jan. The project is relatively new, with the first public release, as version 0.5.8, on 15 October 2016. So far there have been 11 releases, the most recent being 0.9.3 on 5 February, 2019.

FeatherPad uses less RAM than some other text editors like Gedit or jEdit, but more than simpler text editors like LeafPad.

FeatherPad has obviously been designed for software developers, but it is also a good text editor for any general user to write plain text documents or web pages on. It opens quickly and presents a very clean, simple, tabbed interface. It offers some useful features, like context-sensitive syntax highlighting that varies by the document type (by assigned file extension, like .html), a large number of keyboard shortcuts,

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 [contents ^](#)

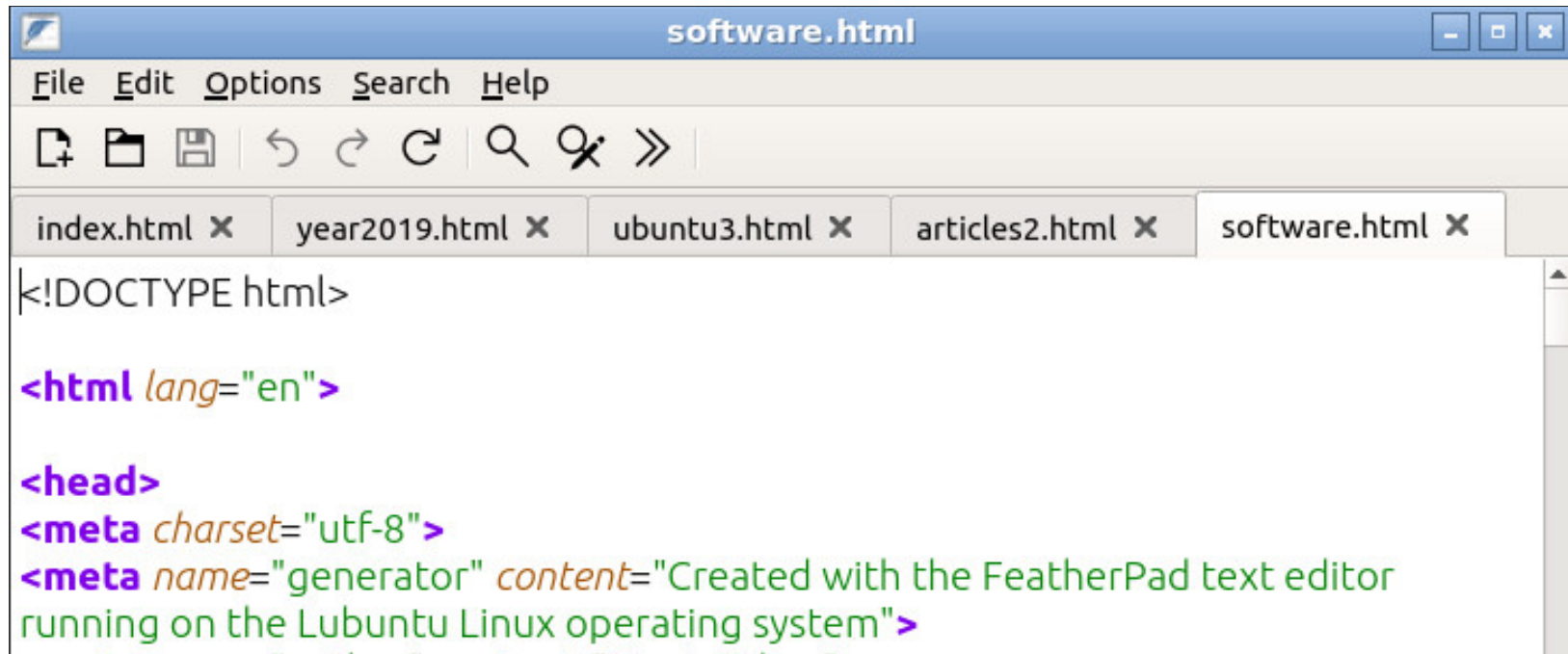
REVIEW

drag and drop, toggled side pane or tab navigation, search, replace, automatic page encoding detection, and a wide choice of fonts for composing.

Some of the keyboard shortcuts may take some getting used to, as they are non-standard. For instance Ctrl+W does not close the tab, instead it toggles word wrapping. Ctrl+Shift+Q closes the tab. Likewise Ctrl+Tab does not move between tabs, Alt+arrow does that. The keyboard shortcuts are all nicely explained in the menus, however, and, once learned, FeatherPad becomes very fast to use.

The find feature (Ctrl+F) and find-and-replace (Ctrl+R) both work very well. Hitting the keyboard shortcut opens the bottom “find bar” and a second use of the keyboard shortcut immediately hides it again, making it easy to keep the interface uncluttered without resorting to the mouse.

FeatherPad's syntax highlighting is fairly basic and certainly not as sophisticated as some other text editors. For instance jEdit picks up unencoded

A screenshot of the FeatherPad text editor window. The title bar reads "software.html". The menu bar includes "File", "Edit", "Options", "Search", and "Help". The toolbar contains icons for file operations (new, open, save, undo, redo, refresh), search, and navigation. The tab bar shows five tabs: "index.html", "year2019.html", "ubuntu3.html", "articles2.html", and "software.html". The main text area contains the following HTML code:

```
<!DOCTYPE html>

<html lang="en">

<head>
<meta charset="utf-8">
<meta name="generator" content="Created with the FeatherPad text editor
running on the Lubuntu Linux operating system">
```

ampersands, whereas FeatherPad does not. However FeatherPad is a lot easier to configure than jEdit; it works great right out of the box.

The only feature on my personal wish list that FeatherPad presently lacks is spell-checking. If that were included in a future version, it would be the perfect text editor for my own particular use, as a website writer. Because FeatherPad is under active development, new features should be added quickly and it will be interesting to see what each new version release brings. The application's website includes a

change log.

I rate FeatherPad as 4.5/5. It is an excellent text editor, lightweight, and with a well designed interface, good features and keyboard shortcuts, lacking only spell-checking.

Website:

<https://github.com/tsujan/FeatherPad>

Launchpad:

<https://launchpad.net/ubuntu/+source/featherpad>



For this review, I choose to check out KDE Neon. The first Linux DE I ever used was a KDE DE, in Knoppix Linux. That live CD included KDE 3.x, and it didn't really impress me. Within weeks, I jumped ship to Ubuntu [Dapper Drake, so you can do the math to figure out how long ago that was, lol] which ran Gnome 2.x at the time.

Because of the move, I have basically steered clear of KDE itself [not "KDE software" such as k3b, amarok and k-connect]. I must say, though, with this latest and greatest version of KDE Plasma [pretty sure that's what they call KDE 5.x], I am thoroughly impressed!

So ya know, my test laptop [it's my only laptop really] specs:

- Presario CQ56 Notebook PC 058D
- 64-bit AMD v140 CPU running at 2.3 GHz
- AMD/ATI Radeon HD 4225 [integrated] graphics
- 4 Gigs of RAM

Remember I ran this test by live

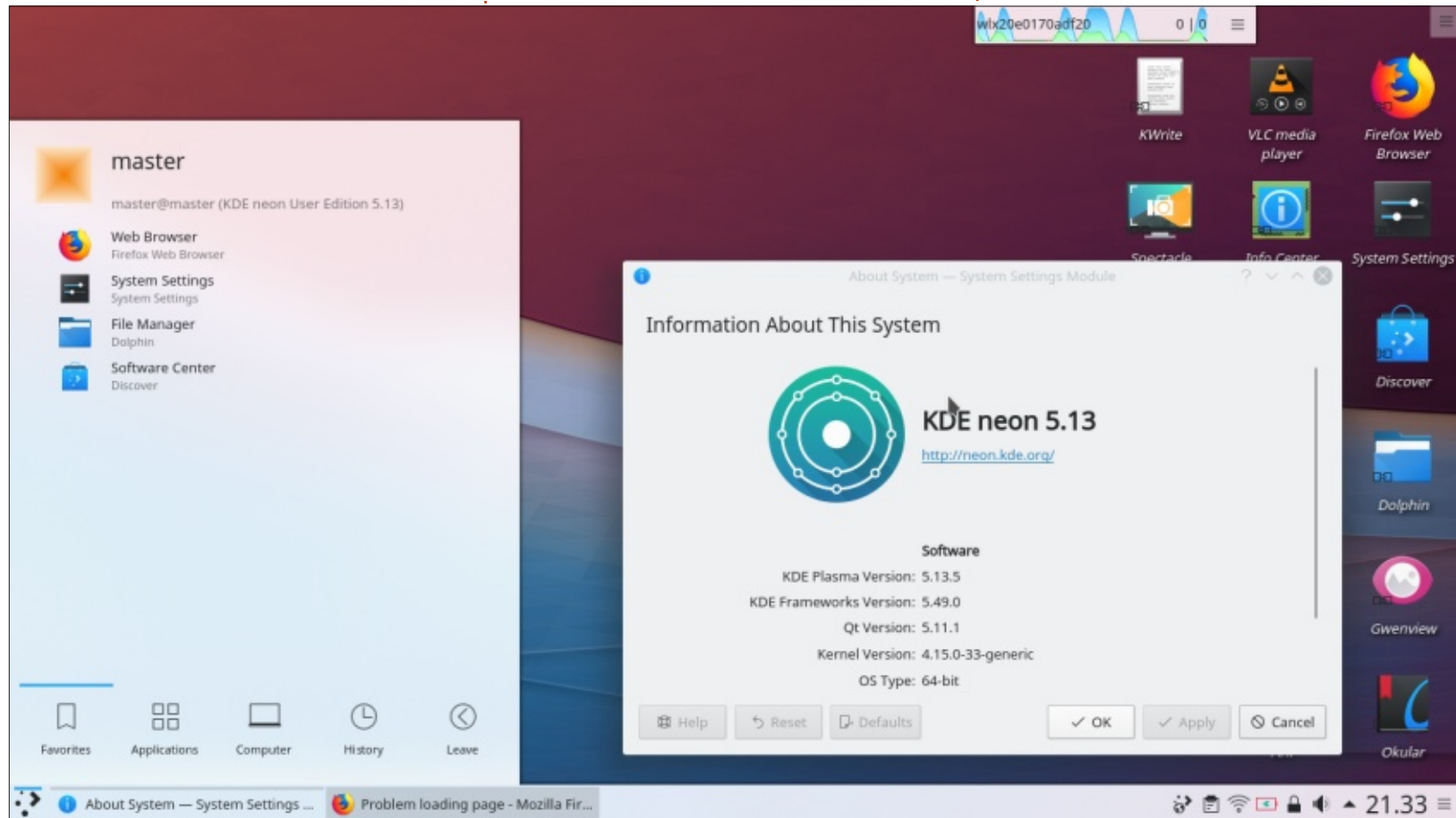
booting a usb flash drive, and not by doing a minimal or full install. Now saying all that, and my intro and my laptop specs, let's get to my review, shall we?

I was impressed, right off the bat, at the boot speed, even live booting from my flash drive. [But

then I saw the horrid default wallpaper which was quickly changed!]. Once fully booted, I opened the system monitor and in a terminal I ran `$: top`

I was impressed at the low low low cpu and ram usage. During my testing, I kept top open [less

resources than the gui system monitor] to keep an eye on things. Considering KDE has, in the past, had a rep of being "resource hungry", it seemed to be just the opposite to me. I know that when I tested pop_os, which runs Gnome-3 as its default DE, it used measurably more ram and cpu



cycles than KDE did. I can only imagine how snappy it would be if I had it installed, even with my measly 4 gigs of ram... So, no longer can I suggest steering clear of KDE if you have limited resources on your machine. Then again, I wouldn't go so far as to suggest it on "older" hardware, like stuff built to run Windows XP or earlier. [My laptop is a Windows 7 era machine].

While I know that having the ability to tweak everything may scare off some noobs, however, in my opinion, that ability is one reason Linux is so good! Windows and Apple/Mac severely restrict what can be changed, Linux on the other hand, in theory, encourages you to experiment. KDE excels at that idea.

The settings program is well laid out. The flow makes sense. The options are clearly stated. There are very few complaints from me on this front. One thing, though, I didn't care for the wallpaper changer. It honestly took me a few tries to figure out how to change the wallpaper properly – I didn't notice the watermark type icons for 'folder' and 'delete' over the preview of the selected

wallpaper. Maybe those options should be below the image, or brighter. I also didn't like the lack of choice for how to set the wallpaper. In many DE's, you can change aspect ratios of the image to match the screen IN the wallpaper choice. Granted you can open a photo editor, like GIMP, and do it; I feel there should be the capability built into the chooser. I also didn't like the lack of "explanation" of the difference[s] between "folder" and "desktop" choices in the same menu. 'Folder' seems to make an allowance to have, well, folders, on the desktop, whereas 'desktop' seems to not allow that... so that's what I used as I like a clean desktop!

Now let's look at the apps in the live setup. This is one area I didn't care for. There were so few apps in the live setup; if I didn't know better, I'd think that KDE Neon didn't support many apps. Now I know that it is a live edition, used to preview the OS, but, still, it seemed pretty anemic as far as apps go. I know that this is something we see in a lot of "live" OSes, but not in all. I don't understand why they didn't show off some of the KDE apps in the live, especially with so many solid

choices.

By default, it seemed to support the video and audio codecs most commonly used. Not just HTML-5 videos played. I couldn't test an mp3, but considering I had no issues with flash in Firefox, I am of the assumption mp3s would play just fine by default. If not by "default", then probably as an option in the install process.

In my review of pop_os, I mentioned the hotkey combo of "control" + "alt" + "T" not opening the terminal. I didn't know if it was pop_os related or Gnome-3 related. At any rate, I was glad to see that the key combo worked in KDE Neon by default. It was also nice that other hotkey/key combos worked. For switching virtual desktops, the "alt" + "tab" even had 3 or 4 options to change the look and feel of the app switcher! [Yeah, I like some fancy stuff. I switched to a "cover flow" look, actually I tried all the options!].

Throughout the testing, the OS felt stable, ran smoothly, and overall impressed me! The only time the CPU usage was high was when launching Firefox. That is, in

my opinion, probably Firefox related as opposed to OS related. So overall, it wasn't resource hungry! Speaking of resources, and hardware, I was also delighted to find an in-depth system info app in the live version! That's nice as, if something doesn't work, you can get the specific info on what the piece of hardware is.

Anyhow, if you want a nice, solid, configurable, and in some ways, fancy [or fancy capable] OS to try, consider KDE Neon! I was impressed, enough to tempt me to ditch Budgie and Cinnamon, well, almost!



Jason M is old millennial who's been an avid Linux user since Ubuntu Dapper Drake. He lives in Washington State, loves sports, and does plenty of geeky stuff like Ham Radio, web dev and these reviews!



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.

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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.

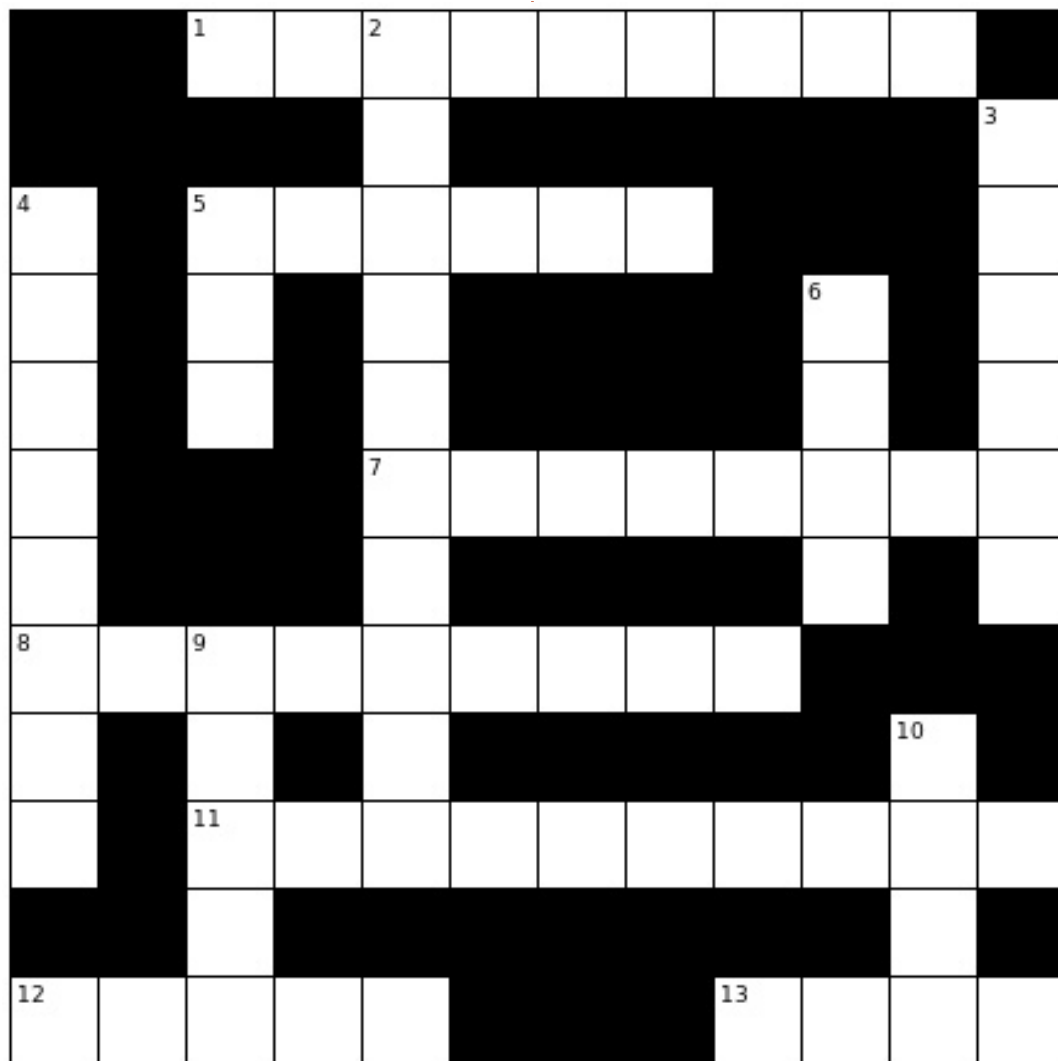
See the article **Writing for Full Circle** in this issue to read our basic guidelines.

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



DistroWatch.com

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



ACROSS

- 1A: Completely free distro with a KISS motto.
- 5A: Despite the name, it's from Norway, and serious about being secure.
- 7A: Based on Devuan, it's all about rescue and recovery.
- 8A: Just what your ChromeOS device needed.
- 11A: Extensible server from Italy based on CentOS.
- 12A: That Windoze experience, based on Mint.
- 13A: Japanese grapes...

DOWN

- 2D: Known for its Site Specific Browsers.
- 3D: This Firewall from Italy is now a UTM.
- 4D: This Firewall is all about the modules you have to buy.
- 6D: Don't worry, its users will tell you.
- 9D: Forked from sorcerer with its own package manager.
- 10D: It's all about the Plasma...

Compiled by Erik

Answers are elsewhere this issue.



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.

A long time ago, in a Galaxy far away, I used to work for an automotive supplier. We supplied tooling and manufacturing lines to the automotive plants. Computers were not really fast at that stage, or should I say windows NT was not that fast. I was only the network administrator, and I would sit down with the solutions architect and show him that doing whatever it was they were doing, was so much faster in Linux using n-curses and a minimal Linux server as a back-end. It would solve their problems in a jiffy. However doing things this way meant we did not make the same amount of

money selling the customer 3 servers instead of one, and Windows licenses and SQL licenses, etc. They just did not know how to "sell" a Linux solution for a start. Today, I see Linux everywhere, from positioning systems, to advertising systems, to IOT intermediate devices. It seems suppliers are happy to package and ship snap packages. Yet, there is no charge for the OS. Not even a support fee. We need to pay our Linux engineers too. It seems employers expect you to have windows certifications but support Linux for free too? Just because Microshaft charges up the wazoo, does not make it a better product, It just means we need to get pricing in place. That way we can buy things like support contracts from Canonical for the customers. Improve the support we offer for Linux. There are other ways to make your money, than just selling an OS...

Q: Thinkpad fanboy here, I have Ubuntu 18.04.2 on my Thinkpad and thinking of going to

19.04 due to the Thinkpad not coming out of sleep properly. I close the lid, and when I open it, the screen goes blank – flashes the desktop briefly. Now, I am not sure if it is Ubuntu's fault, or a kernel fault, or some Thinkpad feature. All I know is it used to work before in 16.04. I don't see failures in dmesg, so I don't think its hardware. I have tried the lid switch fixes on Google, but it doesn't work.

A: Just to tickle my curiosity, as we have had these questions before, what happens if you just type in your password as if LightDM was open and you needed to get back in?

**EDIT: That worked!!!! thank you, thank you!!!

Q: How do I use the nik collection in Linux. I have heard you can use it in Gimp. I don't really get how. Please show me.

A: Erm, you know more than me; as far as I know, it is not Linux compatible. Follow our Darktable tutorials - as Darktable is a post processing powerhouse.

Q: My HP zbook ships with windows on a hard drive with a 30GB SSD that gets used for caching. I want to do this in Ubuntu too, but I don't know how. Please help me as the cache is now unused and the drive is slow. I am using Disco Dingo BTW.

A: My advice is to install Ubuntu on the 30GB SSD and map your home folder and swap file to the spinning rust. Should you be unfamiliar with mount points, read up here: <https://www.linuxnix.com/what-is-a-mount-point-in-linuxunix/> or https://www.linuxtopia.org/online_books/introduction_to_linux/linux_Mount_points.html

Q: I am trying to use Gparted's recovery feature to recover my music from my phone's SD card.



Q&A

I pick device, attempt data rescue, then nothing happens. It scans my partition and tells me it's FAT.

A: I do not want to come across wrong, but it is right there in the name, "attempt" - It is not a sure fire solution. Try photorec, it is not only for photos. (The SD card may also be beyond repair / recovery too).

Q: Hi, I have a brand new install of Ubuntu Budgie. I want to change my actions to single-click, but I can't find it in the settings. Should I install and run the tweak tool?

A: What you are looking for is not in user settings, but in the preferences menu of Files. Click on the icon in the top-left to get the drop-down list. In preferences, go to the behaviour tab.

Q: Hi. I have a LOT of photos on my phone. I want to transfer them to my computer, but it takes waaay too long to even start going. How can I transfer the files via the command-line so it can go faster? I have Googlified this and the askubuntu solution does not

work for me. In fact, I can't even change to that folder. If i try to do it as root, it fails completely! As in 'access denied'!

<https://askubuntu.com/questions/596441/how-to-access-my-android-phone-from-my-terminal>

A: Okay there are a LOT of answers coming: you need to look in run/user/1000/gvfs as per 'askubuntu', but here is the catch: every time you unplug and re-plug your phone, the name in that folder changes. Also, there is a way to access that folder that is not correct in the 'askubuntu' answer. The reason "root" does not work is because "root" on your Android device is held by Google, and you do not have privileges. Let me rather address the underlying problem. Transferring files with MTP is fine, but transferring a lot of pictures is not. On your Android phone, change the transfer mode from MTP to PTP *(The Picture Transfer Mode), and re-connect your Android device. You should now be able to transfer those pictures a hundred times faster.

Q: My question is not so much Ubuntu, but LibreOffice in Ubuntu. I have even updated to

6.2.4.2 – but my problem persists. Don't say google it as I have. My DE is budgie, so it could be that; however, it works fine in WPS office and notepad. I don't have this issue on my laptop as my laptop does not have a num-pad. The FULL STOP on the num-pad is detected as a COMMA. I have my keyboard set to English(US) and I can see it is a FULL STOP in the diagram, but when I type... it's a comma. Ubuntu Budgie 18.04 on a dell 7010 Optiplex with 8 gig of RAM.

A: Sometimes you have to think like a search engine guy. Try full stop/dot/period. Your answer is here:

<https://ask.libreoffice.org/en/question/92792/number-pad-dot-turns-into-a-comma/> - basically; Tools>Options-> Language settings and un-tick the comma.

Q: How to fix mypaint. Ubuntu 18.04.2.

A: I'm going to assume you mean MyPaint randomly hanging on you? This is because Ubuntu no longer supports Python 2.7. You are going to have to nicely ask the developers to port it to

Python 3.

Q: It's tax season and I need to set up a VM in virtualbox again to run all that proprietary adobe ***** spyware. I am having issues with USB and display settings. I run the install of the guest additions addon, but it fails every time like clockwork. I'm running the latest version of Virtualbox. My Ubuntu is Xubuntu 18.04, 8GB memory and built-in display. Should I use an older version because of this?

A: No. Download the guest additions ISO and add it manually.

Q: I share a computer with my two brothers. It is Ubuntu 16.04. How can I deny them access to my files if one of them uses root?

A: The short answer is you cannot. If you wish to keep your data private, you need to create encrypted containers within your folders and put your data in there. They will be able to see the encrypted containers, but not what is inside (assuming your encryption password is secure).

Q: I am just looking for some advice. I started a graphic design course, and we are learning about color theory. I use Ubuntu, not Windows, but it is okay as I use Inkscape. How do I get the precise RGB or CMYK of a color within a picture?

A: I am not sure if you can from within Inkscape, but there are great color picking tools available for Ubuntu. You can use 'color picker' from the software centre, or a third-party package.

Q: What is the best Ubuntu version to use that supports python 2.7? My son is learning python 2.7 in school, and the new Ubuntu does not support it any more. I don't want him messing with my Macbook. I'd rather downgrade his HP.

A: That would be Ubuntu 16.04, but can I rather suggest you load it in a Virtualbox VM for him.

Q: I have bought a sandisk mini USB3 thumb drive that does

not stick out of my laptop. I copy my music to it that I listen to at work. My problem is that it gets very hot. Is this my laptop's fault or is it something in Ubuntu I need to adjust?

A: This has to do with size and heat dissipation. The larger the stick the larger the area is that heat can dissipate to. Simply put, the heat that is generated (by copying to and from the stick) has nowhere to go. Do not touch the metal part when you remove the USB stick.

Q: I recently bought a wireless mini keyboard that I connected to my Ubuntu laptop as I work on an external screen and keep my laptop lid closed. Something weird is happening with keys like end, page up, page down. It just doesn't gel. I have looked at keyboard settings and nothing has changed.

A: That last piece may be the answer. I doubt the laptop keyboard and your mini keyboard has the same layout. If you cannot set it with the keyboard setting, you can try: `dpkg --reconfigure keyboard-configuration` from the terminal.

Q: I have recently switched from Microsoft Office to LibreOffice. My problem is artefacts. If I add a dash between two words, I get strikethrough, if I add a forward-slash before a directory, I get italics, etc, etc. It is driving me up the wall. Is there no setting to correct this behaviour? I am typing up a knowledge base and I need these characters. My Ubuntu version is 18.04 and my LibreOffice version is 6.2.5.2.

A: Let me start by saying that you can just press CTRL-Z at any time you get something like a strikethrough to remove it. That said, if you want a more "microsoft office" experience, you can look at Only Office or WPS Office. LibreOffice is MS Office compatible, but that means formats, not use.

Q: I have downloaded a bunch of files from uni and I want to bulk rename them, removing the first part that says 'property of...', so I can sort them properly. I then want to make changes and re-add the 'property o ...' to the front

when I am done. A friend suggested gprename, but I don't know how to use the regex at the bottom. -\{[

A: You do not need to. Count the number of letters and spaces you want to remove, then go to the "insert/delete" tab at the bottom and choose "delete between" and insert your count, like 1 to 11 or how many letters you wish to remove. You can then use "replace/remove" to add the string back in.

Q: My CMOS battery died and I replaced it; I was dual-booting Windows 10 and Ubuntu on my laptop. My problem is that I no longer get the purple boot screen where I can pick what OS to start. It just goes straight to Windows. I don't know how to fix grub as google suggests.

A: I suspect your BIOS has reset to defaults rather. Do not fiddle with grub then, make sure your BIOS does not just boot straight to Windows. Dollars to doughnuts that is where your issue lies. You may need to set "legacy boot" options.



Where we are:

<https://www.lpi.org/our-certifications/exam-201-objectives>

(Measure and troubleshoot resource usage).

Welcome back learners, and a nod to those “just interested”. We are continuing from last issue with the very first topic, capacity planning. We are still busy with resource availability and troubleshooting. Last issue, we covered ps & pstree, and how you can use it to troubleshoot. This time, let us look at network & bandwidth measuring and troubleshooting.

Now, LPIC objectives say netstat - and netstat is something you can write a book about. Luckily, they do not expect you to remember every switch, etc. off the top of your head. (Have a look here: <https://www.tecmint.com/20-netstat-commands-for-linux-network-management/>). The man page is rather overwhelming for newbies, but feel free to peruse it. Though dstat has replaced it in

some distributions, you still have it on a vast variety of systems, so let us look at what we need to know.

When one troubleshoots a network connection, usually we run the “ping” command or “traceroute” command. When things look off, we run “netstat -r” to see the routing table. This is handy when you have multiple networks on multiple subnets, or multiple network cards on your server. Open a terminal and type netstat -s please. Look at the output. Scroll up and down if you have to. One of the nice features of netstat is that it will reversely resolve hostnames for you, so if you are connected to www.somedomain.com, it will pop back and give you the IP, say, 41.42.43.44, but this can take time. When you are on your home PC or laptop, this is usually very quick and you do not wait. Now, imagine a server with thousands of open ports, connected to thousands of clients. As sysadmin, you run a netstat -l and the ‘Foreign Address’ field needs to be populated for each one... This is where the -n

option comes into play. At the night school where I used to teach, we had a lecturer who used to get his students to memorise “netstat -tuna”. Funny and handy. I would recommend that you make rhymes or funny words to remember the options you want to use, say “netstat -cult -n”.

Let us deconstruct that last one:

- To see listening ports, -l
- To see TCP ports, -t
- To see UDP ports, -u
- To have no foreign address resolution, -n
- To have it constantly updated, -c

Remember , “-tuna” and “-t -u -n -a” is the same. Can you come up with a catchy phrase?

TRY THEM OUT!

Let us do what we did with the previous commands and try to link it up.

When you add the -p option, you will see the PID / Program name added at the end of the

output. Again this is very handy to see what is hogging your resources, which is what we want to do in “measuring” and “troubleshooting”. So don’t break your head over all the options now; for the exam, know how to “measure” and “troubleshoot”.

SOME QUESTIONS

Which of the following commands will list the IPv4 neighbours of the current system? This includes IP and MAC addresses (choose TWO correct answers):

- A. arp
- B. ifconfig -lv eth0
- C. netstat -al
- D. ip neigh show

If you said C ... SHAME on you! Just because we were learning about netstat doesn’t mean the answer will automatically be netstat!

Give us your answer/explanation at misc@fullcirclemagazine.org

If you would like to jump ahead, or test your skills at an LPI exam, do a test paper here:

<https://www.itexams.com/exam/117-201> These were once valid LPI questions and will ease you into the format:

- The new exam number is 201-400, 117-201 was the old one.
- The site does require signing up, but sign up with temporary email – not your real email.
- DO NOT learn these questions parrot fashion, as they are probably not real exam questions.

Let us know how you did, good or bad, it does not matter. Good means you are ready to write and confident in your skills. Bad means you will be learning new stuff!! Yay! There is no down side here. If you do not know why an answer is the way it is, contact us.



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.

Crossword answers:

		H	Y	P	E	R	B	O	L	A		
				E						E		
U		A	L	P	I	N	E			N		
N		L		P					A		D	
T		T		E					R		I	
A				R	E	F	R	A	C	T	A	
N				M					H		N	
G	A	L	L	I	U	M	O	S				
L		U		N						N		
E		N	E	T	H	S	E	R	V	E	R	
		A								O		
F	E	R	E	N					V	I	N	E



Website:

<https://hempuli.itch.io/baba-is-you>

Price: \$7.99 on Steam

I had heard about 'Baba Is You' when catching up on the game jams, so I decided to give it a go.

The game was made in Multimedia Fusion, so initially it was Windows only. Thanks to the people over at Valve, you can experience it on Linux. To describe the game, I would have to put Sokoban into your brain for the moment, as the game is clever puzzles based on this genre. The twist is in the rules. You have to change the rules to make your way through the hand-drawn levels. Baba (I assume it's a sheep) is your character that has to reach a flag to finish the level. Sometimes the rules are outside the playing field and sometimes they are within. The rules, like objects on the playing field, can be changed by moving them. So for all you rule breakers out there, this is your game.

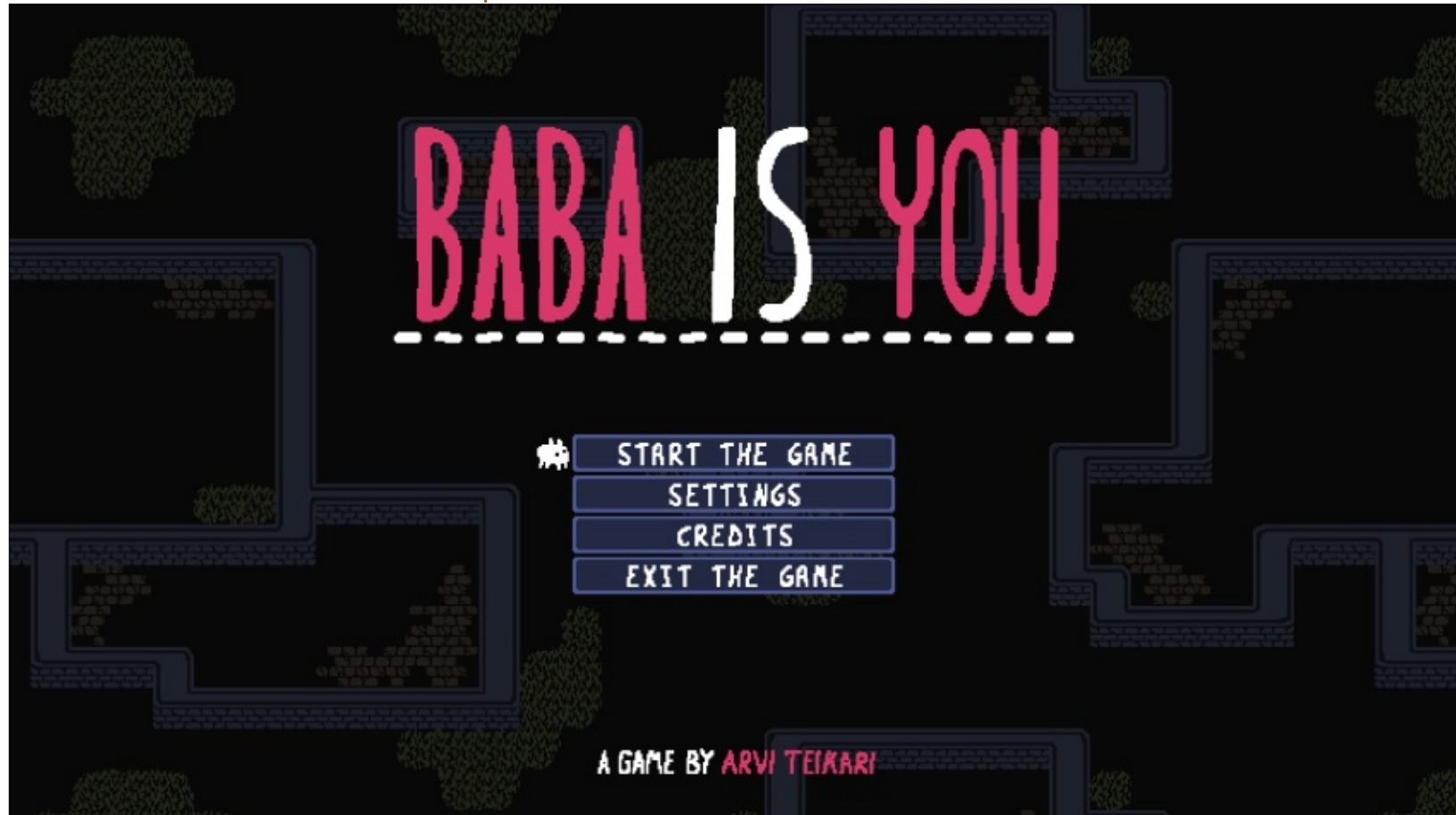
Since everything is changeable, you do not need to be Baba. Changing the "is you", say, on to the flag, you become the flag. Instead of reaching the flag to win, you can bend the rules and make the rock or wall as the winning target, and just touch that. Sounds easy, eh? Do not be fooled by this.

The levels are designed in a very crafty manner and are no pushover. This alone gives it that 'just one more go feeling'.

THE SOUND AND GRAPHICS

Well, it's ugly. It's ugly in a way that you will soon love. It is very

minimal. The game would be perfectly happy in EGA graphics or on your old ZX Spectrum. What you see in these screenshots is what you get. No fancy 4 x anti-aliasing or light blooms, very basic. Once the puzzles have you, however, you will forget about the graphics.



UBUNTU GAMES - BABA IS YOU

The sound is minimal as well, which is good in a game like this where you have to concentrate. It's not bad, mind you, but, as I said, minimal, meaning not a lot of instruments or fancy effects. I actually liked it. It goes with the overall minimalist theme of the game.

THE GAMEPLAY

The gameplay is smooth, even on an embedded Intel-discrete graphics. There is not much to say here as everyone is familiar with Sokoban. The Puzzles, oh the puzzles, will have you scratching your head very soon! 'Baba Is You' is best when observing someone else play. That level you were stuck on and quit – will open before your eyes as you watch someone else fail at it. Yes, just like chess, it has its aha-moments when you are not

playing. The game has hundreds of puzzles, so do not think that you will finish this game all in one go. The game has quite an effect on one as there are many memorable levels. The game also features a Mario-esque type of overworld map where you do not have to do things in sequence (non-linear, but linear... if that makes any sense).

Though the game is released as "final", the developer is still

actively working on it, according to his blog. He is a Finnish student, named Arvi Teikari (known professionally as Hempuli).

AWARDS

'Baba is You' won first place at the 2017 Nordic Game Jam. It also won the award for "Best Student Game" and "Excellence In Design" at the 2018 IGF Awards.

The overall game is fun and addictive, and deserves some of your time. The whole game screams clever. I really hate the saying 'thinking outside of the box', but this game fits that description.



This ugly duckling gets four stars, as the price dropped and the developer is actively making it better.





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

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

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



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FCM#149

Deadline:
Sunday 08th Sept. 2019.
Release:
Friday 27th Sept. 2019.



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

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