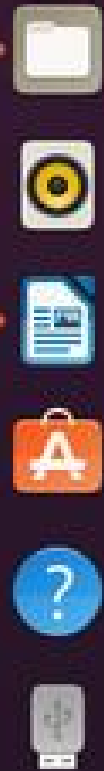
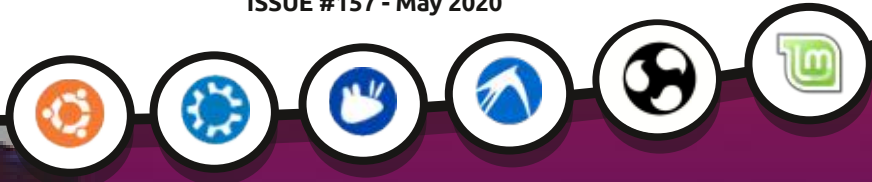




Full Circle

THE INDEPENDENT MAGAZINE FOR THE UBUNTU LINUX COMMUNITY

ISSUE #157 - May 2020




Install Ubuntu
20.04 LTS



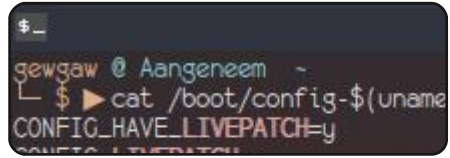
REVIEWS OF 20.04 UBUNTU, LUBUNTU & BUDGIE

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HowTo



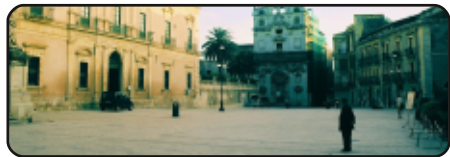
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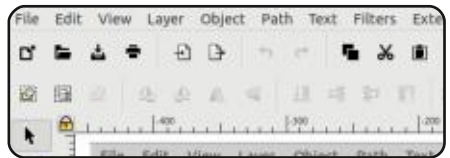
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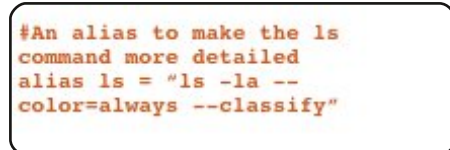
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Full Circle

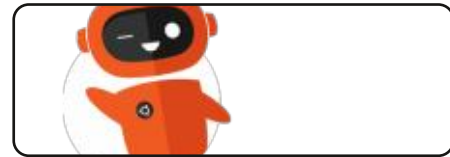
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WELCOME TO THE LATEST ISSUE OF FULL CIRCLE

As ever, we have the usual suspects; Python, Inkscape, Krita and more Rawtherapee. To complete the HowTo trilogy we have an article on the Ubuntu Livepatch feature. It's a bit too technical for a simpleton like me, so I'll let you read it. It's something to do with updates I'm told.

It's a bumper issue for reviews this month! We have a game review (as ever) but we have a review of Ubuntu 20.04, a review of Lubuntu 20.04 and a review of Ubuntu Budgie 20.04! If you're a fan of Xubuntu and Kubuntu then fear not. All going well, they will feature next month.

Back to this month, we have the release of Ubports Touch OTA-12 (Ubports Touch formerly known as Ubuntu Touch). I'll let you read up on the changes, but it does finally remove the (pretty useless to be honest) scopes.

One big thing I forgot last month was our 13th birthday! It really was an unlucky 13. But, yes, it was 13 years ago last month that Full Circle was unleashed upon the unsuspecting masses.

Don't forget that Leo is still producing the excellent Full Circle Weekly News. All the weeks Linux/FOSS news in ten minutes or less (or your money back!).

Stay safe and well!

All the best, and keep in touch!

Ronnie

ronnie@fullcirclemagazine.org



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NEW VERSION OF MEDIAGOBLIN 0.10:

05/04/2020

More than four years after the last release, a new version of the decentralized platform for sharing media files, MediaGoblin 0.10, designed to organize hosting and exchange of media content, including photos, videos, sound files, videos, three-dimensional models and PDF documents, was published. Unlike centralized services like Flickr and Picasa, the MediaGoblin platform is aimed at organizing content exchange without reference to a specific service, using a model similar to StatusNet and pump.io. The project code is written in Python and distributed under the AGPLv3 license.

<https://mediagoblin.readthedocs.io/en/v0.10.0/siteadmin/relnotes.html>

INTERFACE PROTOTYPE FOR TRANSFERRING IMAGES FROM THE REAL WORLD TO A GRAPHIC EDITOR:

05/04/2020

Cyril Diagne, French painter, designer, programmer and dabbler in the field of interface interaction with the user, published a prototype application ar-cutpaste. It uses augmented reality technology to transfer images from the real world into an editor. The program allows you to use a mobile phone to take a picture of any real object with the desired angle, thereafter the application will remove the background and leave only that object. Next, the user can focus the camera of a mobile phone on a computer screen with a running graphical editor, select a point and insert an object in this position.

The server side code is written in Python, and the mobile application for the Android platform is TypeScript using the React Native framework. To highlight the object in the picture and clear the background, the BASNet machine learning library is used with PyTorch and torchvision. <https://twitter.com/cyrildiagne/status/1256916982764646402>

ELEMENTARY OS 5.1.4 UPDATE:

05/04/2020

Elementary OS 5.1.4, positioned as a fast, open and privacy-conscious alternative to Windows and macOS has been updated. The main focus of the project is on high-quality design, aimed at creating an easy-to-use system that consumes minimal resources and ensures fast start-up speed. It loads their own desktop environment "Pantheon".

The original components of Elementary OS are developed using GTK3, Vala, and its own Granite framework. It is running on an Ubuntu base. At the package level and repository support, Elementary OS 5.1.x is compatible with Ubuntu 18.04.

<https://blog.elementary.io/hera-updates-for-april-2020/>

NEW ELBRUS-BASED MOTHERBOARDS INTRODUCED:

05/05/2020

These are quite fun if you can lay your hands on one. MCST introduced two new motherboards with integrated processors in Mini-ITX form factor. The older model E8C-mITX is built on the base of Elbrus-8C, manufactured at 28 nm. The board has two DDR3-1600 ECC slots (up to 32 GB) operating in dual channel mode, four USB 2.0 ports, two SATA 3.0 ports and one Gigabit Ethernet with the ability to mount a second interface in the form of an SFP module.

The module does not have an integrated video core - you need to install a discrete video card in the PCI Express 2.0 x16 slot; Also, the audio jack is not output, sound is produced via HDMI or USB. To cool the processor, a cooler 75 × 75 mm is provided. The cooling of the peripheral device controller is supposed to be mounted with thermal tape. Both coolers are 4-

pin. The cost of the board was 120 thousand rubles (about \$1615)
<http://www.mcst.ru/dostupny-k-zakazu-novye-materinskie-platy-na-processorakh-elbrus>

POPCORN DISTRIBUTED THREAD EXECUTION SYSTEM DEVELOPING FOR LINUX KERNEL: 05/04/2020

The University of Virginia proposed to the Linux kernel developers a set of patches with implementation of the distributed thread execution system Popcorn (Distributed Thread Execution), which allows organizing the execution of applications on several computers with the distribution and transparent migration of flows between hosts. Using Popcorn, applications can be launched on one host, after which they can be transferred to another host without interruption. In multi-threaded programs, migration to other hosts of individual threads is allowed.
<https://lkml.org/lkml/2020/4/29/1111>

FILM ASSOCIATION MOTION PICTURE ASSOCIATION GETS POPCORN TIME DCMA'D ON GITHUB: 05/05/2020

GitHub blocked the repository of the open project "Popcorn Time" after receiving a complaint from the Motion Picture Association, Inc. (MPA), which represents the interests of major US television studios and has exclusive rights to display many films and television shows. An allegation of a violation of the Digital Age Copyright Act (DMCA) in the United States was used for the dirty deed. The program Popcorn Time provides a convenient interface for searching and viewing video in streaming mode, located in various BitTorrent networks, without waiting for it to be fully downloaded to the computer (in fact, it is an open BitTorrent client with a built-in multimedia player).

The Association of Film Companies demanded closing popcorn-desktop and popcorn-api repositories, citing the fact that the development and use of the

software developed in these repositories leads to copyright infringement on films and television programs.
<https://github.com/popcorn-official/popcorn-desktop/issues>

PYTHON PROJECT INTENDS TO MOVE BUG TRACKING TO GITHUB: 05/05/2020

The Python Software Foundation, which oversees the development of the reference implementation of the Python programming language, has introduced a plan to migrate the CPython bug tracking infrastructure from "bugs.python.org" to GitHub. Code repositories were migrated to GitHub as the primary platform back in 2017. GitLab was also considered as an option, but the decision in favor of GitHub was motivated by the fact that this service is more familiar to main developers, beginners and third-party participants

The currently used bugs.python.org service, based on the Roundup platform, is outdated. It does not meet all the

requirements of the developers.
<https://pyfound.blogspot.com/2020/05/pythons-migration-to-github-request-for.html>

MILESTONE INKSCAPE 1.0 VECTOR EDITOR EDITION: 05/05/2020

Tim Jones let us know: "The team behind the popular vector graphics editor Inkscape is proud to announce its long awaited 1.0 release for Windows and Linux, and 1.0 preview for macOS. A vast number of new features and enhancements come with this release, including: HiDPI support, rotating canvas, pinch-to-zoom, variable fonts, new Live Path Effects, and much more. A native MacOS preview for Inkscape is available, thanks to diligent volunteers updating Inkscape's GTK+ support. Inkscape's new MacOS development team is working hard towards a stable release for Apple users. We're grateful for the dozens of volunteers and thousands of donors who have made 1.0 possible."
<https://inkscape.org/news/2020/05/04/introducing-inkscape-10/>

A LAYER FOR RUNNING MS OFFICE ON LINUX DEMONSTRATED

05/05/2020

On Twitter, a Canonical employee promoting Ubuntu on WSL and Hyper-V posted a video on Microsoft Word and Excel running on Ubuntu 20.04 without using Wine and WSL.

MS Word launch is described as "The program runs quite quickly on a system with an Intel Core i5 6300U processor with integrated graphics. This is not a launch through Wine, it is not a remote desktop / cloud or GNOME running in a WSL environment on Windows. It is something different, over what I'm working on. Next step: I plan to add working file associations." About MS Excel, the developer wrote "File associations are added. Work with the Windows environment / virtual machine goes through SSH."

<https://twitter.com/unixterminal/status/1255919797692440578>

TAILS 4.6 AND TOR BROWSER 9.0.10 DISTRIBUTION RELEASE:

05/06/2020

The release of the specialized Tails 4.6 distribution (The Amnesic Incognito Live System), based on the Debian package base and designed to provide anonymous access to the network, has been generated. An Anonymous exit to Tails is provided by the Tor system. All connections except traffic through the Tor network are blocked by default with a packet filter. Encryption is used to store user data in the "save user data mode" between starts. An iso image capable of working in live mode, 1 GB in size, is ready for download.

https://tails.boum.org/news/version_4.6/index.en.html

OPENINDIANA 2020.04 AND OMNIO S CE R151034 ARE AVAILABLE, CONTINUING THE DEVELOPMENT OF OPENSOLARIS:

05/06/2020

The release of OpenIndiana 2020.04, a free distribution, has replaced the binary distribution OpenSolaris, which was discontinued by Oracle. OpenIndiana provides the user with a working environment built on the basis of a fresh slice of the Illumos project code base. The development of OpenSolaris technology itself continues with the Illumos project, which develops the kernel, network stack, file systems and drivers, as well as a basic set of user system utilities and libraries. Three types of iso-images were generated for download: a server edition with console applications (725 Mb), a minimal build (377 Mb) and a build with the MATE graphical environment (1.5 GB).

<https://www.openindiana.org/2020/05/05/openindiana-hipster-2020-04-is-here/>

A FREE BOOK ABOUT WAYLAND PUBLISHED:

05/06/2020

Drew DeVault, the author of the Sway user environment built using the Wayland protocol, announced the unlimited access to his book, The Wayland Protocol,

which details Wayland protocol and its practical use. The book may be useful for understanding the concepts, architecture and implementation of Wayland, as well as a guide to writing your own client and server based on Wayland. Text is licensed under CC-BY-SA (Creative Commons Attribution-ShareAlike 4.0). The original version in Markdown format can be downloaded via Git.

<https://lists.freedesktop.org/archives/wayland-devel/2020-May/041446.html>

CLONEZILLA LIVE 2.6.6 DISTRIBUTION RELEASE:

05/06/2020

Clonezilla Live 2.6.6, designed for fast disk cloning (copying only the used blocks) is out. The tasks performed by the distribution are similar to the proprietary Norton Ghost product. The size of the iso image of the distribution is 277 MB (i686, amd64).

The distribution is based on Debian GNU / Linux and uses the code of projects such as DRBL, Partition Image, ntfsclone, partclone and udpcast in its release.

<https://sourceforge.net/p/clonezilla/news/2020/05/stable-clonezilla-live-266-15-released/>

MICROSOFT HAS PROMISED A SUM OF UP TO \$ 100,000 FOR IDENTIFYING VULNERABILITIES IN THE AZURE SPHERE LINUX PLATFORM: 05/07/2020

Microsoft has announced its readiness to pay a premium of up to one hundred thousand US dollars for identifying gaps in the Azure Sphere IoT platform, built on the Linux kernel and using sandbox isolation for basic services and applications. The prize is promised for demonstrating vulnerabilities in the Pluton subsystem (the root of trust implemented in the chip) or Secure World (sandbox).

The award is part of a three-month research program, which will last from June 1 to August 31, 2020. The initiative is aimed specifically at Azure Sphere OS and does not include cloud subsystems that are already included in a separate reward program.

<https://msrc-blog.microsoft.com/2020/05/05/azure-sphere-security-research-challenge>

UBUNTU DDE 20.04 DISTRIBUTION RELEASED: 05/07/2020

UbuntuDDE 20.04 distribution is published, based on the Ubuntu 20.04 LTS code base and delivered with the DDE (Deepin Desktop Environment) graphical environment. The project is still an unofficial edition of Ubuntu, but the developers are negotiating with Canonical to include UbuntuDDE in the official Ubuntu distributions. The size of the iso image is 2.2 GB.

UbuntuDDE offers the release of the Deepin 5.0 desktop and a set of specialized applications developed by the Deepin Linux project, including the Deepin File Manager, DMusic music player, DMovie video player, and DTalk messaging system.

<https://ubuntudde.com/blog/ubuntudde-20-04-lts-final-release-note/>

ORACLE LINUX 8.2 DISTRIBUTION AVAILABLE: 05/07/2020

Oracle has released the industrial Oracle Linux 8.2, created on the package base of Red Hat Enterprise Linux 8.2. You can download without restrictions, but after that you need to register. An installation iso-image of 6.6 GB in size is available, prepared for x86_64 and ARM64 architectures. Oracle Linux offers unlimited and free access to the yum repository with binary errata package updates and security issues.

<https://blogs.oracle.com/linux/announcing-the-release-of-oracle-linux-8-update-2>

RIOT 1.6 MATRIX CLIENT RELEASED WITH END-TO-END ENCRYPTION: 05/07/2020

Developers of the Matrix decentralized communications system have introduced new releases of the key client applications Riot Web 1.6, Riot Desktop 1.6, Riot iOS 0.11.1 and RiotX Android 0.19.

<https://matrix.org/blog/2020/05/06/cross-signing-and-end-to-end-encryption-by-default-is-here/>

UBUNTU STUDIO SWITCHES FROM XFCE TO KDE: 05/07/2020

The developers of Ubuntu Studio, optimized for processing and creating multimedia content, decided to switch to using KDE Plasma as the default desktop. Ubuntu Studio 20.04 will be the latest version that comes with the Xfce shell. According to the published explanation, the distribution of Ubuntu Studio, unlike other editions of Ubuntu, is not tied to its own desktop environment, but seeks to provide working conditions that are most convenient for its target audience. KDE, according to developers, in modern conditions is the best option.

<https://twitter.com/kdecommunity/status/1257700063289188353>

GCC 10 COMPILER SET

RELEASE:

05/07/2020

After a year of development, the release of the free set of compilers GCC 10.1 is published, the first significant release in the new branch of GCC 10.x. Long list of major changes, see the changelog!

<https://gcc.gnu.org/pipermail/gcc-announce/2020/000163.html>

THE FILM COMPANIES ASSOCIATION DEMANDED TO BLOCK BLAMO DEVELOPER KODI REPOSITORY ON GITHUB:

05/08/2020

Following the blocking of the Popcorn Time repository, the Motion Picture Association (MPA) and Amazon, based on the Digital Age Copyright Act (DMCA) in the United States, demanded that GitHub block the MrBlamo6969 user account that supports the Blamo repository "and the Chocolate Salty Balls add-on for Kodi Media Center. GitHub did not completely block the account, but

blocked the Blamo repository .

The Chocolate Salty Balls add-on allowed Kodi to watch comedy shows, and many popular add-ons were distributed through Blamo, including Neptune Rising and Placenta for watching movies and TV shows.

<https://github.com/MrBlamo6969/repo>

REBECCA BLACK LINUX LIVE DISTRIBUTION UPDATE WITH A SELECTION OF WAYLAND-BASED ENVIRONMENTS:

05/08/2020

A new release of the Rebecca Black Linux distribution is out, 2020-05-05, aimed at the latest developments in providing Wayland support in various desktop environments and applications. The distribution is built on the Debian package base and includes the latest release of Wayland libraries (a slice from the master branch), the Weston composite server and the KDE, GNOME, Enlightenment E21, Wayfire and Liri and Sway environments pre-configured to work on Wayland.

<https://sourceforge.net/projects/rebeccablackos/files/2020-05-05/>

NETWORKMANAGER 1.24.0 NETWORK CONFIGURATOR RELEASE:

05/08/2020

A new stable interface release has been published to simplify network settings - NetworkManager 1.24 . Plugins for supporting VPN, OpenConnect, PPTP, OpenVPN and OpenSWAN are developed as part of their own development cycle.

<https://cgit.freedesktop.org/NetworkManager/NetworkManager/tree/NEWS?h=nm-1-24>

DOSBOX STAGING 0.75 EMULATOR RELEASE:

05/08/2020

10 years after the last significant release of DOSBox, "DOSBox Staging 0.75" was published. The development was taken up by enthusiasts as part of a new project which collected numerous disparate patches in one place. DOSBox is a multi-platform MS-DOS emulator written using the

SDL library and developed to run old DOS games on Linux, Windows and macOS.

DOSBox Staging is developed by a separate team and is not associated with the original DOSBox, in which only minor changes have been noted in recent years.

<https://dosbox-staging.github.io/v0-75-0/#new-features>

LIBRESSL 3.1.1 CRYPTOGRAPHIC LIBRARY RELEASE:

05/09/2020

The developers of the OpenBSD project had presented the release of a portable version of the LibreSSL 3.1.1 package. This, within the framework of which the OpenSSL fork is being developed, aimed at providing a higher level of security. The LibreSSL project is focused on high-quality support for SSL / TLS protocols with the removal of unnecessary functionality, the addition of additional security features and the significant cleaning and processing of the code base. LibreSSL 3.1.1 is marked as the first stable release of branch 3.1, which

will be included in the release of OpenBSD 6.7, expected in the coming days.

<http://www.libressl.org/>

ZENTYAL 6.2 SERVER DISTRIBUTION RELEASED: 05/09/2020

A new release of the server-based Linux distribution Zentyal 6.2, built on Ubuntu 18.04 LTS and specializing in creating servers for serving the local network of small and medium businesses, is available. The distribution is positioned as an alternative to Windows Small Business Server and includes components to replace Microsoft Active Directory and Microsoft Exchange Server. The ISO image size is 1.1 GB. The commercial edition of the distribution is

separate, while packages with Zentyal components are available to Ubuntu users through the Universe repository.

All aspects of the distribution are managed through a web-based interface, which unites about 40 different modules for managing the network, network services, office server and enterprise infrastructure components.

<https://zentyal.com/news/zentyal-6-2-changelog/>

ZABBIX 5.0 LTS MONITORING SYSTEM RELEASED: 05/12/2020

A new version of the open source monitoring system Zabbix 5.0 LTS with a large number

of innovations was introduced. The release includes: significant security monitoring improvements, support for single sign-on, support for historical data compression using TimescaleDB, integration with message delivery systems and support services, and much more.

Zabbix consists of three basic components: a server for coordinating checks, generating test requests and collecting statistics; agents for performing checks on the side of external hosts; frontend for organizing system management. The code is licensed under GPLv2.

<https://www.zabbix.com/rn/rn5.0.0>

FULL CIRCLE WEEKLY NEWS



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



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DART 2.8 PROGRAMMING

LANGUAGE RELEASED:

05/10/2020

Dart 2.8 programming is out, in which the development of the radically redesigned Dart 2 branch is continued. Specially for development for Web and mobile systems and optimized for creating client-side components.

Dart 2 differs from the original version of the Dart language by the use of strong static typing (types can be deduced automatically, therefore type typing is not necessary, but dynamic typing is no longer used and the type computed initially is assigned to the variable and strict type checking is used in the future). A set of specific libraries are offered for developing Web applications, such as dart: html, as well as the Angular web framework.

<https://medium.com/dartlang/announcing-dart-2-8-7750918db0a>

FREERDP 2.1 UPDATE TO FIX 8 VULNERABILITIES:

05/10/2020

A new release of the FreeRDP

2.1 project has been published, offering a free implementation of the Remote Desktop Protocol, RDP, developed on Microsoft specifications. The project provides a library for integrating RDP support into third-party applications as well as a client that can be used to remotely connect to a Windows desktop. Project code is distributed under the Apache 2.0 license. This is a bugfix release only.

https://www.freerdp.com/2020/05/08/2_1_0-released

DEBIAN UPDATE 10.4:

05/09/2020

The fourth corrective update of the Debian 10 distribution has been published. This includes cumulative package updates and fixes in the installer. The release includes 108 stability fixes, updates and 53 vulnerability fixes.

Note upgrade to the latest stable versions of the packages postfix, clamav, dav4tbsync, dpdk, nvidia-graphics-drivers, tbsync, waagent. Removed packages include: getlive, gplaycli, kerneloops, lambda-align2, libmicrodns, libperlspeak-perl,

ugene and yahoo2mbox.

<https://www.debian.org/News/2020/20200509>

THORIZON EDA 1.1 ELECTRONIC INSTRUMENT DESIGN AUTOMATION SYSTEM AVAILABLE

05/10/2020

A system for automating the design of electronic devices, Horizon EDA 1.1 (EDA - Electronic Design Automation), optimized for creating electrical circuits and printed circuit boards has been released. The ideas laid down in the project have been in development since 2016, and the first experimental releases were proposed last fall. The reason for creating Horizon, was the desire to provide a closer connection to the library of elements and parts lists with interfaces for designing circuits and boards, including the possibility of sharing common sets of parts in different projects and binding by UUID.

<https://github.com/horizon-eda/horizon/releases>

CLAMAV 0.102.3 FREE

ANTIVIRUS UPDATED:

05/12/2020

The release of the free anti-virus package ClamAV 0.102.3 has been generated, in which two vulnerabilities (CVE-2020-3327, CVE-2020-3341) have been fixed, which lead to crash when parsing ARJ archives and PDF documents in a certain way due to reading conditions from the domain abroad of the allocated buffer. The new release also fixed several memory leaks. Libclamunrar library updated to UnRAR 5.9.2 code.

<https://blog.clamav.net/2020/05/clamav-01023-security-patch-released.html>

RELEASE OF PROXMOX VE 6.2, A DISTRIBUTION KIT FOR ORGANIZING VIRTUAL SERVERS

05/12/2020

The release of Proxmox Virtual Environment 6.2, a specialized Linux distribution based on Debian GNU / Linux, aimed at deploying

and maintaining virtual servers using LXC and KVM, and able to act as a replacement for products such as VMware vSphere, Microsoft Hyper-V and Citrix Hypervisor. The size of the installation iso-image is 900 MB.

Proxmox VE provides tools for deploying a fully finished system of industrial-grade virtual servers with web-based management designed to manage hundreds or even thousands of virtual machines. The distribution has built-in tools for organizing backups of virtual environments and clustering support available from the box, including the ability to migrate virtual environments from one node to another without stopping work. Among the features of the web-interface: support for secure VNC-console; access control to all available objects (VM, storage, nodes, etc.) based on roles; support of various authentication mechanisms (MS ADS, LDAP, Linux PAM, Proxmox VE authentication).

<https://www.proxmox.com/en/news/press-releases/proxmox-ve-6-2>

COREBOOT 4.12 RELEASED:

05/13/2020

The release of the CoreBoot 4.12 project has been published, within the framework of which a free alternative to proprietary firmware and BIOS is being developed. 190 developers took part in creating the new version and prepared 2692 changes. There are lots, but the biggest seems to be: Added support for 49 motherboards, most of which are used on devices with Chrome OS. Removed support for 51 motherboards. Removal mainly relates to the termination of support for obsolete boards and work to eliminate duplicates of similar board options. Many boards, which were previously presented as separate models, are combined into sets (variant), in which one module immediately covers the entire family of devices. Taking into account the cleaning of duplicates, despite the fact that formally the number of removed boards exceeds the number of added ones, the list of supported equipment has increased. The new release also made a large number of changes related to improving support for

devices that come with OEM firmware, including those based on Coreboot.

<https://blogs.coreboot.org/blog/2020/05/12/announcing-coreboot-4-12/>

CINNAMON 4.6 DESKTOP ENVIRONMENT RELEASE

05/13/2020

After six months of development, the Cinnamon 4.6 user environment release was formed, under which the Linux Mint distribution community develops a fork of the GNOME Shell, Nautilus file manager and Mutter window manager, aimed at providing the GNOME 2-style environment with support for successful interaction elements from the GNOME Shell. Cinnamon relies on GNOME components, but these components ship as a periodically synchronized fork that is not external related to GNOME. A new release of Cinnamon will be offered in the Linux Mint 20 distribution, which is scheduled to be released in June.

<https://github.com/linuxmint/Cinnamon/releases/tag/4.6.0>

HUAWEI PATCHES DRAMA:

05/13/2020

It seems there is some ongoing drama between GR Security and Huawei and the press. As this is ongoing at the time of writing, I urge you to read more here:

<https://grsecurity.net/huawei-hksp-introduces-trivially-exploitable-vulnerability>

SUDO 1.9.0 RELEASE

05/14/2020

Nine years after the 1.8.x branch, a new significant release of the utility sudo 1.9.0 was published, which is used to organize the execution of commands on behalf of other users. See the list of changes here:

<https://www.sudo.ws/stable.html#1.9.0>

ERLANG / OTP 23

RELEASED:

05/14/2020

The functional programming language Erlang 23 was released , aimed at developing distributed fault-tolerant applications that provide parallel processing of requests in real time. The language has spread in areas such as telecommunications, banking systems, e-commerce, computer telephony, and instant messaging. At the same time, the release of OTP 23 (Open Telecom Platform), an accompanying set of libraries and components for developing distributed systems in the Erlang language, was released.

<https://www.erlang.org/news/140>

TWELFTH UBUNTU TOUCH FIRMWARE UPDATE:

05/14/2020

The UBports project , which took over the development of the Ubuntu Touch mobile platform after Canonical pulled away from

it , published an OTA-12 (over-the-air) firmware update for all officially supported smartphones and tablets that were equipped with firmware based on Ubuntu. The update was generated for the smartphones OnePlus One, Fairphone 2, Nexus 4, Nexus 5, Nexus 7 2013, Meizu MX4 / PRO 5, Bq Aquaris E5 / E4.5 / M10. The release is based on Ubuntu 16.04 (OTA-3 build was based on Ubuntu 15.04, and starting from OTA-4, the transition to Ubuntu 16.04 was made). The project also develops an experimental Unity 8 desktop port, which has recently been renamed Lomiri.

<https://ubports.com/blog/ubports-blog-1/post/ubuntu-touch-ota-12-release-276>

THE NEW VERSION OF THE RUSSIAN DISTRIBUTION OF ASTRA LINUX COMMON EDITION 2.12.29

05/14/2020

rusBITech-Astra LLC has published the release of the Astra Linux Common Edition

2.12.29 distribution kit , built on the Debian GNU / Linux 9 "Stretch" package and delivered with its own proprietary Fly desktop (interactive demo) using the Qt library. Iso images are not yet available for download , but a binary repository and package sources are offered . The distribution is distributed under a license agreement that imposes a number of restrictions on users, in particular, commercial use, decompilation and disassembly of the product are prohibited.

<https://astralinux.ru/news/category-news/2020/obnovlenie-os-astra-linux-common-edition-2.12.29-%E2%80%94-bolshe-vozmozhnostej-i-komforta-dlya-polzovatelej/>

RELEASE OF FINNIX 120, A LIVE DISTRIBUTION FOR SYSTEM ADMINISTRATORS

05/14/2020

After five years of inactivity in honor of the 20th anniversary of the project , the preparation of new releases of the Finnix Live distribution , based on the Debian

10.4 package base and the Linux 5.4 kernel, has been resumed . The distribution only supports work in the console, but contains a good selection of utilities for the needs of the administrator. The structure includes 586 packages with various utilities. The size of the iso image is 477 MB.

The new release notes the complete processing of the distribution kit, which is now available only for the x86_64 architecture and supports working on systems with BIOS and UEFI (including support for UEFI Secure Boot). A large number of new packages with utilities have been added - the image size has been increased from 160 to 477 MB. The automatic configuration mode for partition layout on block devices has been removed, instead a udiskctl based configurator has been proposed.

<https://blog.finnix.org/2020/05/14/finnix-120-released/>

KALI LINUX 2020.2 SECURITY RESEARCH DISTRIBUTION RELEASE

05/15/2020

It took release distribution of Kali the Linux 2020.2 , designed to test systems for vulnerabilities, audit, analysis of residual data and to identify the consequences of malicious attacks. All original developments created as part of the distribution are distributed under the GPL and are available through the public Git repository . Several versions of iso-images are prepared for download , 425 MB, 2.8 GB and 3.6 GB in size. Builds are available for x86, x86_64, ARM architectures (armhf and armel, Raspberry Pi, Banana Pi, ARM Chromebook, Odroid). By default, the Xfce desktop is offered, but KDE, GNOME, MATE, LXDE, and Enlightenment e17 are optionally supported. Kali includes one of the most comprehensive selection of tools for computer security professionals: from tools for testing web applications and penetration into wireless networks to programs for reading data from RFID identification chips.

<https://www.kali.org/news/kali-linux-2020-2-release/>

Q4OS 3.11 DISTRIBUTION RELEASE

05/15/2020

The release of the Q4OS 3.11 distribution , based on the Debian package base and delivered with the KDE Plasma 5 and Trinity desktops, is available . The distribution is positioned as undemanding to hardware resources and offering a classic desktop design. The structure includes several applications of its own design, including the 'Desktop profiler' for quick installation of thematic software suites, the 'Setup utility' for installing third-party applications, the 'Welcome Screen' for simplifying the initial setup, scripts for installing alternative environments LXQT, Xfce and LXDE. The boot image size is 711 MB (x86_64, i386). The new release synchronized the package base with Debian 10.4. The list of programs recommended in the application installation center has been expanded. Improved settings for switching and selecting keyboard layouts. Added options

for quick installation of Firefox 76 and Palemoon.

<https://www.q4os.org/blog.html>

LAUNCH OF NEW STABLE BRANCH TOR 0.4.3

05/15/2020

The release of the Tor 0.4.3.5 toolkit used to organize the work of the anonymous Tor network is presented. Version Tor 0.4.3.5 is recognized as the first stable release of the 0.4.3 branch, which has been developing over the past five months. Branch 0.4.3 will be accompanied by a regular maintenance cycle - the release of updates will be discontinued 9 months or 3 months after the release of branch 0.4.4.x. A long support cycle (LTS) is provided for the 0.3.5 branch, updates for which will be released until February 1, 2022. Support for branches 0.4.0.x and 0.2.9.x has been discontinued. Support for the 0.4.1.x branch will end on May 20, and 0.4.2.x on September 15th.

<https://blog.torproject.org/node/1872>

SUPERTUX 0.6.2 FREE GAME RELEASE

05/15/2020

The release of the classic platform game SuperTux 0.6.2 , reminiscent of the style of Super Mario, has been prepared . The game is distributed under the GPLv3 license and is available in assemblies for Linux (AppImage), Windows and macOS.

The new issue offers a new world map "Revenge In Redmond", dedicated to the 20th anniversary of the project and includes new sprites and new enemies. Improvements have been made to many game levels in the worlds of Icy Island and Forest. Added new sprites (for example, new doors and characters) and wallpaper. Increased productivity at levels involving large volumes of lava. The problem in the Forest world has been resolved, leading to the non-display of some bridges. An on-count counter has been added to the on-screen indicator.

<https://www.supertux.org/news/2020/05/14/0.6.2>

VIRTUALBOX 6.1.8 RELEASE

05/16/2020

Oracle has released a virtualization release for VirtualBox 6.1.8 , which has 10 fixes .

See the changelog here:

<https://www.virtualbox.org/wiki/Changelog-6.1#v8>

AUDACITY 2.4 SOUND EDITOR RELEASE

05/16/2020

The release of the free audio editor Audacity 2.4.0 is available, which provides tools for editing sound files (Ogg Vorbis, FLAC, MP3 and WAV), recording and digitizing sound, changing the parameters of the sound file, overlaying tracks and applying effects (for example, suppressing noise, changing the tempo and tone). Audacity code is distributed under the GPL, binary assemblies are available for Linux , Windows and macOS. A new sound visualization mode has been added,

allowing you to simultaneously see both the sound wave parameters and the spectrogram (previously, the user could only switch between them). A new panel "Time" has been added, into which information on the recording / playback time is taken out of the band selection panel. The new panel can be moved to increase the size, which is useful, for example, when a person is far from the screen when recording his own performance of a composition on some musical instrument. Plus many more.

<https://www.audacityteam.org/audacity-2-4-0-released/>

HAXE 4.1 PROGRAMMING LANGUAGE RELEASE

05/17/2020

Haxe 4.1 toolkit release is available , including the eponymous multi - paradigmatic high-level programming language with strong typing, a cross-compiler and a standard library of functions. The project supports translation in C ++, HashLink / C, JavaScript, C #, Java, PHP, Python and Lua, as well as compilation into bytecode JVM, HashLink / JIT, Flash and Neko, with

access to the native capabilities of each target platform. The compiler code is distributed under the GPLv2 license, and the standard library and the HashLink and Neko virtual machines developed for Haxe under the MIT license.

<https://haxe.org/blog/haxe-4.1.0-release/>

PSI-NOTIFY 1.0.0 RESOURCE OUTAGE NOTIFIER RELEASE

05/17/2020

The release of the psi-notify 1.0 program has been published , which can warn you when there is competition for resources in the system (cpu, memory, I / O) in order to take action before the system slows down. The code is open under the MIT license. The application works at the unprivileged user level, and to assess the lack of resources throughout the system, it uses the PSI kernel subsystem (Pressure Stall Information), which allows you to analyze the information on the waiting time for various resources (CPU, memory, I / O) for specific tasks or sets processes in cgroup. Unlike MemAvailable, CPU graphs,

I / O usage graphs, and other indicators, Psi-notify makes it possible to identify malfunctioning applications on a computer before they seriously affect performance. To work, PSI kernel support is required (Linux 4.20 + with CONFIG_PSI = y setting). To send notifications to the desktop with a lack of resources, libnotify is used

<https://github.com/cdown/psi-notify/releases/tag/1.0.0>

ENLIGHTENMENT 0.24 USER ENVIRONMENT RELEASED:

05/18/2020

After nine months of development , the Enlightenment 0.24 user environment was released , which is based on the EFL (Enlightenment Foundation Library) and Elementary widgets. The release is available in source , packages for distributions have not yet been formed. To expand the functionality, it is proposed to use modules (gadgets), and for processing the appearance themes. In particular, modules are available for displaying on the desktop a

calendar-scheduler, weather forecasting, monitoring, volume control, battery estimation, etc. Components of Enlightenment are not rigidly attached to each other and can be used in other projects or to create specialized environments, such as shells for mobile devices.

<https://www.enlightenment.org/news/e24.0>

RELEASE OF BACKBOX LINUX 7 SECURITY TESTING DISTRIBUTION

05/18/2020

The release of the BackBox Linux 7 Linux distribution based on Ubuntu 20.04 and delivered with a collection of tools for checking system security, testing exploits, reverse engineering, analyzing network traffic and wireless networks, studying malware, stress testing, and revealing hidden or lost data is presented. The user environment is based on Xfce. The size of the iso image is 2.5 GB (x86_64).

The new version upgraded system components from Ubuntu

18.04 to branch 20.04. Build builds for i386 architecture stopped. The Linux kernel has been updated to release 5.4. Updated versions of the security testing tools and components of the desktop environment. The ISO image is assembled in a hybrid format and adapted for loading on systems with UEFI.

<https://blog.backbox.org/2020/05/15/backbox-linux-7-released/>

PASSWORD LEAK FROM ENCRYPTED PARTITIONS IN THE UBUNTU SERVER INSTALLER LOG

05/18/2020

Canonical has published the corrective release of the Subiquity 20.05.2 installer, which is used by default to install Ubuntu Server, starting with the 18.04 release when installing in live mode. The new release resolves a security issue (CVE-2020-11932) caused by storing in the log a password set by the user to access the encrypted LUKS partition created during installation.

Updates to iso-images with fixing the vulnerability have not yet been published, but a new version of Subiquity with a fix is available in the Snap Store directory, from which the installer can be updated when loading in Live mode, at the stage before the installation of the system.

The password for the encrypted partition is stored in clear text in the files autoinstall-user-data, curtin-install-cfg.yaml, curtin-install.log, installer-journal.txt and subiquity-curtin-install.conf, saved after installation in the / var / log / installer. In configurations where the / var partition is not encrypted, if the system falls into the wrong hands, the password for the encrypted partitions can be extracted from these files, which negates the use of encryption.

<https://github.com/CanonicalLtd/subiquity/releases/tag/20.05.2>

RELEASE OF THE FREE FLIGHT SIMULATOR FLIGHTGEAR 2020.1

05/18/2020

The release of the FlightGear 2020.1 project, which develops a realistic flight simulator distributed in the source code under the GPL license, is presented. The project was founded in 1997 by a group of aviation enthusiasts, dissatisfied with the lack of realism and extensibility of commercial flight simulators. FlightGear's main goal is to provide flexible extension tools that allow people to easily implement their ideas for improving the simulator. The simulator simulates more than 500 aircraft and offers a large collection of models of real landscapes and airports.

The new issue adds a new Compositor multi-pass rendering framework, improved support for aircraft carriers, improved aircraft dynamics models JSBSim and YASim, improved viewing options, implemented more efficient building generation OpenStreetMap, updated models of Boeing 777, Airbus A320, AN-24, F- aircraft 16, Piper J3Cub, Saab JA37 Viggen, Piper PA28 Cherokee, Bombardier Q-400, Space Shuttle.

<https://www.flightgear.org/news/flightgear-2020-1-released/>

MICROSOFT PRESIDENT ADMITS HE IS MISTAKEN ABOUT OPEN SOURCE

05/19/2020

Brad Smith, president and chief lawyer at Microsoft, at a meeting held at the Massachusetts Institute of Technology, admitted that his attitude to the movement for the development of open source software has changed dramatically in recent years. According to Smith, Microsoft was on the wrong side during the expansion of open source software at the turn of the century, and he shared that attitude, but the good news is that people can learn from mistakes and change. Today, Microsoft has become one of the largest participants in open source projects and relies on open source software, owning the leading platform for open source development _ GitHub.

https://www.theregister.co.uk/2020/05/15/microsoft_brad_smith_open_source/

OPENBSD 6.7 RELEASE

05/19/2020

The OpenBSD project was founded by Theo de Raadt in 1995 after a conflict with NetBSD developers, as a result of which Theo was denied access to the NetBSD CVS repository. After that, Theo de Raadt and a group of like-minded people created a new open operating system based on the NetBSD source tree, the main development goals of which were portability (12 hardware platforms are supported), standardization, correct operation, active security and integrated cryptographic tools. The size of the complete installation ISO image of the base OpenBSD 6.7 system is 470 MB.

In addition to the operating system itself, the OpenBSD project is known for its components, which have been distributed in other systems and have established themselves as one of the most secure and high-quality solutions.

<https://marc.info/?l=openbsd-announce&m=158989783626149&w=2>

RELEASE OF ELECTRON 9.0.0, A PLATFORM FOR CREATING APPLICATIONS BASED ON THE CHROMIUM ENGINE

05/20/2020

The release of the Electron 9.0.0 platform has been prepared , which provides a self-sufficient framework for developing multi-platform user applications, using Chromium, V8 and Node.js. components as a basis. A significant change in version number is associated with the upgrade to the Chromium 83 code base, Node.js 12.14 platform, and the V8 8.3 JavaScript engine.

On the Linux platform, window-related event processing has been improved

<https://www.electronjs.org/blog/electron-9-0>

MICROSOFT INTRODUCED THE MAUI FRAMEWORK, CREATING A NAME CONFLICT WITH THE MAUI AND MAUI

LINUX PROJECTS

05/20/2020

For the second time, Microsoft came across a name conflict when promoting its new open products without first checking for existing projects with the same names. If the last time the conflict was caused by the intersection of the GVFS (Git Virtual File System and GNOME Virtual File System) names, then this time problems arose around the MAUI name.

Microsoft introduced the new MAUI (Multi-platform App UI) framework for developing multi-platform user interfaces using the .NET platform. In fact, the new project was the result of renaming the Xamarin.Forms framework , which it was decided to develop under a new name. The project code is open under the MIT license.

A Microsoft spokesperson explained that the official name for the new project is the ".NET Multi-platform App UI," and MAUI is its acronym and code name. The name MAUI has been reviewed by the legal service and approved for use. The intersection was a surprise for

developers from Microsoft, who recognized that the seizure of someone else's name was unacceptable and called for work to resolve the conflict

<https://devblogs.microsoft.com/dotnet/introducing-net-multi-platform-app-ui/>

REMOTELY EXPLOITED VULNERABILITY IN QMAIL

05/20/2020

Qualys security researchers have shown the possibility of exploiting a vulnerability in the qmail mail server, known since 2005 (CVE-2005-1513), but remaining uncorrected, because qmail claimed that it was unrealistic to create a working exploit that could be used to attack systems in the default configuration. Qualys managed to prepare an exploit that refutes this assumption and allows initiating remote code execution on the server by sending a specially designed message.

The problem is caused by integer overflow in the `stralloc_readyplus()` function,

which can occur when processing a very large message. For operation, a 64-bit system with a virtual memory capacity of more than 4 GB was required. At the initial analysis of the vulnerability in 2005, Daniel Bernstein argued that the assumption in the code that the size of the allocated array always fits in a 32-bit value is based on the fact that no one provides gigabytes of memory to each process. Over the past 15 years, 64-bit systems on servers have replaced 32-bit ones, the amount of memory supplied and network bandwidth have dramatically increased.

<https://www.openwall.com/lists/oss-security/2020/05/19/8>

ELECTRONIC ARTS WILL OPEN THE CODE FOR THE NEW EDITION OF COMMAND & CONQUER: TIBERIAN DAWN AND RED ALERT

05/21/2020

Electronic Arts announced a decision to open the GPLv3 licensed source code for the `TiberianDawn.dll` and `RedAlert.dll` libraries that underlie the

`Command & Conquer: Tiberian Dawn` and `Red Alert` games from the updated Remastered Collection. The discovery of the code was a response to a community request for the opportunity to create modifications to `Command & Conquer` games. Electronic Arts went further and, to simplify the creation of modifications, decided to immediately open the code for the base libraries under a free license.

The code will be open simultaneously with the publication of the new edition of the Remastered Collection, in which these games will be expanded and adapted to work on modern systems. The graphics will be improved for 4K screens, new music will be added, the sidebar interface will be modernized, review and replay modes will be added, subtitles, autosave, map editor, camera zoom mode, more than a hundred missions, 250 maps will appear.

<https://www.ea.com/games/command-and-conquer/command-and-conquer-remastered/news/remaster-update-modding>

APACHE TOMCAT REMOTE CODE EXECUTION VULNERABILITY

05/21/2020

Published information about the vulnerability (CVE-2020-9484) in Apache Tomcat, an open implementation of the Java Servlet technology, JavaServer Pages, Java Expression Language and Java WebSocket. The problem allows you to achieve code execution on the server by sending a specially designed request. The vulnerability has been fixed in releases of Apache Tomcat 10.0.0-M5, 9.0.35, 8.5.55 and 7.0.104.

To successfully exploit the vulnerability, the attacker must be able to control the contents and file name on the server (for example, if the application has the ability to download documents or images). In addition, an attack is possible only on systems that use the `PersistenceManager` with `FileStore` storage, in the settings of which the parameter `sessionAttributeValueClassNameFilter` is set to "null" (by default, if the

SecurityManager is not used) or a weak filter is selected that allows object deserialization. The attacker must also know or guess the path to the file he controls, relative to the location of the FileStore.

<https://www.mail-archive.com/announce@tomcat.apache.org/msg00414.html>

DAV1D 0.7, AV1 DECODER FROM VIDEO LAN AND FFmpeg PROJECTS

05/21/2020

The VideoLAN and FFmpeg communities have published the release of the dav1d 0.7.0 library with the implementation of an alternative free decoder of the AV1 video encoding format. The project code is written in C (C99) with assembler inserts (NASM / GAS) and is distributed under the BSD license. Implemented support for the architectures x86, x86_64, ARMv7 and ARMv8, and the operating systems FreeBSD, Linux, Windows, macOS, Android and iOS.

The dav1d library supports all the features of AV1, including advanced types of downsampling

and all the color depth control parameters declared in the specification (8, 10 and 12 bits). The library was tested on a large collection of files in the AV1 format. A key feature of dav1d is its focus on achieving the highest possible decoding performance and ensuring high-quality multithreaded operation.

<https://github.com/videoLAN/dav1d/releases/tag/0.7.0>

OPENWRT RELEASE 07.19.3

05/22/2020

An update has been prepared for the OpenWrt distribution package on July 19, 3, aimed at using it in various network devices, such as routers and access points. OpenWrt supports many different platforms and architectures and has an assembly system that makes it easy and convenient to cross-compile, including various components in the assembly, which makes it easy to create ready-made firmware or disk image adapted for specific tasks with the desired set of pre-installed packages. Assemblies are formed for 37 target platforms.

<https://lists.infradead.org/pipermail/openwrt-devel/2020-May/023485.html>

TRANSMISSION 3.0 BITTORRENT CLIENT

05/23/2020

After a year of development, the release of Transmission 3.0 was published, which is relatively lightweight and resource-friendly BitTorrent-client, written in C language and supporting a variety of user interfaces: GTK, Qt, native Mac, Web-based interface, daemon, command-line.

Noteworthy is: The use of the hash as the name for the .resume and .torrent files is returned (solves the problem with Linux outputting the "File name too long" error with a very long torrent name) and many more changes.

<https://github.com/transmission/transmission/releases/tag/3.00>

GDB 9.2 DEBUGGER RELEASE

05/24/2020

A new version of the GDB 9.2 debugger has been published, in which only bug fixes are proposed, relative to version 9.1. GDB supports source level debugging for a wide range of programming languages [...] on various hardware [...] and software platforms (GNU / Linux, * BSD, Unix, Windows, macOS).

Starting from branch 9.x, the GDB project has moved a new release numbering scheme that resembles the GCC approach. In accordance with this scheme, version 9.0 was used during the development process, after which the first stable release 9.1 was formed, in which functional improvements ready for end users were proposed. Subsequent releases in this branch (9.2, 9.3, etc.) will include only bug fixes, but a new set of innovations is developing in the 10.0 branch, which, when ready, will be proposed in the form of a stable release 10.1.

<https://lists.gnu.org/archive/html/info-gnu/2020-05/msg00008.html>



<https://doc.rust-lang.org/book/>

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

In this issue, we will quickly go over data types, as each programming language has its own way of dealing with things like booleans, etcetera.

Let's start with those while we are at it? Booleans in Rust are called 'bool'. As in other programming languages, it is used in things like loops. However, if you have been following Greg's excellent Python tutorial, you will know Python uses a capital T for True and a capital F for False. This

is not the case with rust. You simply refer to them as 'true' or 'false'. Characters are referenced by 'char'. A character is always in single quotes and strings are in double quotes. This is a common newbie error as "a" and 'a' are NOT the same type. For numbers you need to know integers and floats. I have no doubt that if you have been following Greg, that you know what they are. I must point out, as we learned in the first part, there are ways to refer to them. Obviously, we have signed and unsigned integers, to represent negative numbers. This affects the size of the number you can use, as they take up a certain amount of space in bytes. You refer to signed with an 'i' and unsigned with a 'u'. For example i32 or u64 as demonstrated in the last issue. For those of you not familiar with the terminology, signed (i) just means one of the bits is used for a sign. An easy way to remember which is which, is getting the Ace of Base song in your head. "I saw the sign..." or even "I store the sign..." (Yes, we use cheesy song references in our tutorials here at FCM, don't judge.)

The way the numbering works is for example, i8 refers to; one byte for the sign, plus seven (7) bytes for the number. 1,2,4,8,16,32,64 = 127 (If you have used binary before, you would know that a row of each of the previous numbers add up to the next one minus one. The next number is 128, so I know that the sequence adds up to 127) If you had 8 bits, like with a unsigned number, (u8), you would move to the next bit, which is 256... (minus one), thus 255. Why? Because we can now use that bit we used for the sign in the signed integer. By default, if you use an integer like we did in the last issue, Rust will make it i32, which is seen as a 'sane' default.

The same with floats or floating point numbers. It's 'sane' default is f64. Just keep it in mind when you are on a 32-bit machine, like a raspberry pi.

Now let us ramp it up one.

Why did the programmer quit his job? He didn't get arrays (a

raise - geddit?)

OK, I'll see myself out...

What is an array? This is a 'list' of things, that are all the same type, grouped together. What I mean by this, is that an array does not mix say, strings and numbers. You can not have an array with a key, sword, a shield and the number 250 that represents your gold. If you want to have your salad mixed, you use a tuple. (We will get to it now.) The format for an array in rust is:

```
let <variablename> = [item1, item2, item3];
```

To access an item in an array, the format is:

```
let <variablename> = <nameofthearray>[position];
```

This sort of tells us how we can edit an array also.

```
<nameofarray>[position] = newvalue;
```

NOTE: I use the word "position" here, but feel free to substitute it with "index" as newbies find it easier to make the connection that way.

A word on this, make sure of your position or index before changing it, as it overwrites the previous value.

To change an array, like the previous issue, we need the 'mut' keyword otherwise they are immutable. This 'mut' keyword may take some getting used to.

Like integers, arrays start with a fixed size when you declare them.

LET'S TRY IT ON FOR SIZE?

Navigate to your rust projects folder and open a terminal there.

Type:

```
cargo new --bin lesson2
```

Again, this will make what you need.

Remove the "hello world" and replace it with the code shown top right.

Type:

```
cargo build
```

What happened?

HOW NOW, BROWN COW?

Rust suggests we use a vec. With vec's we push and pop our elements. (More on this later.) By-the-way, at any time you want to know more about something, you can look it up by searching the phrase on doc.rustlang.org – try it: <https://doc.rust-lang.org/std/vec/struct.Vec.html>

During the quick once-over on arrays, I mentioned tuples. Again, if you have been following Greg's Python tutorial, you may know where this is going. A tuple is a collection of things, like an array, but they do not have to be of the same type. (Like an array, indexing starts at 0) The following code is valid:

```
let mytuple = (donkey, true, 99);
```

When referring to an item in a tuple, we use slightly different syntax to that of an array. The format is:

```
let <variablename> =  
tuplename.position;
```

In the case above, to get 99, you would say:

```
fn main()  
{  
    let mut myarray = [9,8,7];  
    myarray += 6;  
    println!("{:?}", myarray);  
}
```

```
let x = mytuple.2;
```

You can even grab the lot at once, simply by:

```
let (weapon, armour, gold) =  
mytuple;
```

Rust is smart enough to plug in donkey to weapon, true to armour and 99 to gold. Now you can keep your gold in your inventory with that extra shield and sword! (or donkey, *wink* it is your inventory after all)

Go ahead and try the guessing game in the book:

<https://doc.rust-lang.org/book/ch02-00-guessing-game-tutorial.html>

Yes, I know it's a boring example that sucks the marrow from your bones, but it teaches important concepts!

The reason I am using Geany as my IDE is it comes with Ubuntu and

we don't need to add things to it to make it work with Rust and it will gladly work with toml-files without complaint. It even sports it's own terminal! All nicely in one place.

If you have any questions or comments, e-mail us:

misc@fullcirclemagazine.org



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



HOW-TO

Written by Greg Walters

Python In The REAL World Pt.105

We are all experiencing a new world due to COVID-19. Stay at home orders, Work from home orders, businesses closed, lost jobs, long lines at the grocery stores, shortages when you get into the stores and social distancing. This is the new normal, at least for a while. Many “experts” are suggesting that we may never return to the “old” normal and even more are suggesting that this will last for a year or longer.

We are presented with the number of confirmed cases, number of deaths and number of hospitalizations due to COVID-19 on every TV news show, radio show and on the Internet. Where are these numbers coming from and how do we make sense of them?

Luckily, those of us who know Python with just a little work can do some of the data analysis for ourselves and with logic can see what the trends are really doing. The goal here is not to provide any answers, but to give you the ability to look at the data and see the trends for yourself. As the saying goes, “knowledge is power”.

Way back in December 2018 (FCM#140), I talked about Pandas and Python. This month, we will use Pandas and Python to look at some of these numbers and make the graphs for ourselves. If you don’t have Pandas installed, please re-visit Full Circle Magazine # 140 to see the installation steps.

To get started, we need some

data. I’m going to use a Comma Separated Variable data set available from <https://data.humdata.org/dataset/novel-coronavirus-2019-ncov-cases> . This data is compiled by the Johns Hopkins University Center for Systems Science and Engineering (JHU CCSE) and comes from many “trusted” sources. This site also has data for deaths and recovered as well.

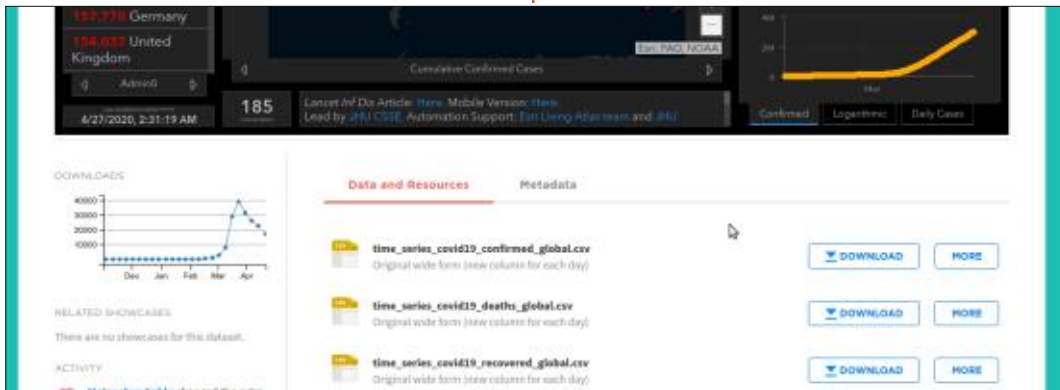
When you get to the page, scroll down below the chart and find the first download “button” that says “time_series_covid19_confirmed_global.csv” to the left of it. This will download the CSV file to your machine.

Now use LibreOffice Calc (or

some other spreadsheet viewer) to open the file. In theory, you should be able to simply double click on the downloaded file. Accept the import settings box.

PLEASE NOTE: I am using data that I downloaded on 5 May, 2020. Yours will be a little bit different, mainly in the fact that it will have more data, column wise as well as possibly more rows (since more regions can be added as new cases spread to more countries).

The important thing to do here is to verify that the Country or Region that you are interested in is somewhere in Column B. It might be partially in Column B and partially in Column A. For example, if you are interested in Scotland,



| Province/State | Country/Region | Lat | Long | 1/22/20 | 1/23/20 | 1/24/20 | 1/25/20 | 1/26/20 | 1/27/20 |
|----------------|------------------------------|----------|----------|---------|---------|---------|---------|---------|---------|
| 1 | Province/State | | | | | | | | |
| 2 | Alghanistan | 33 | 65 | 0 | 0 | 0 | 0 | 0 | 0 |
| 3 | Albania | 41.1533 | 20.1683 | 0 | 0 | 0 | 0 | 0 | 0 |
| 4 | Algeria | 28.0339 | 1.6596 | 0 | 0 | 0 | 0 | 0 | 0 |
| 5 | Andorra | 42.5063 | 1.5218 | 0 | 0 | 0 | 0 | 0 | 0 |
| 6 | Angola | -11.2027 | 17.8739 | 0 | 0 | 0 | 0 | 0 | 0 |
| 7 | Antigua and Barbuda | 17.0608 | -61.7964 | 0 | 0 | 0 | 0 | 0 | 0 |
| 8 | Argentina | -38.4161 | -63.6167 | 0 | 0 | 0 | 0 | 0 | 0 |
| 9 | Armenia | 40.0691 | 45.0382 | 0 | 0 | 0 | 0 | 0 | 0 |
| 10 | Australian Capital Territory | -35.4735 | 149.0124 | 0 | 0 | 0 | 0 | 0 | 0 |
| 11 | New South Wales | -33.8688 | 151.2093 | 0 | 0 | 0 | 0 | 3 | 4 |
| 12 | Northern Territory | -12.4634 | 130.8456 | 0 | 0 | 0 | 0 | 0 | 0 |
| 13 | Queensland | -28.0167 | 153.4 | 0 | 0 | 0 | 0 | 0 | 0 |
| 14 | South Australia | -34.9285 | 138.6007 | 0 | 0 | 0 | 0 | 0 | 0 |
| 15 | Tasmania | -41.4545 | 145.9707 | 0 | 0 | 0 | 0 | 0 | 0 |

```
$ python
Python 3.7.4 (default, Jul 24 2019, 05:20:45)
[GCC 7.4.0] on linux
Type "help", "copyright", "credits" or "license" for more information.
>>>
```

Now, we need to import two libraries, pandas and matplotlib.pyplot. Make sure that you alias them as shown...

```
>>> import pandas as pd
>>> import matplotlib.pyplot as plt
>>>
```

Now, let's set the filename of the .csv file into a variable...

```
>>> fname = 'time_series_covid19_confirmed_global.csv'
```

Next, have Pandas read the spreadsheet into a dataframe...

```
>>> data = pd.read_csv(fname)
>>> print(data)
```

| | Province/State | Country/Region | Lat | Long | ... | 5/1/20 | 5/2/20 | 5/3/20 | 5/4/20 |
|-----|----------------|-----------------------|------------|------------|-----|--------|--------|--------|--------|
| 0 | NaN | Afghanistan | 33.000000 | 65.000000 | ... | 2335 | 2469 | 2704 | 2894 |
| 1 | NaN | Albania | 41.153300 | 20.168300 | ... | 782 | 789 | 795 | 803 |
| 2 | NaN | Algeria | 28.033900 | 1.659600 | ... | 4154 | 4295 | 4474 | 4648 |
| 3 | NaN | Andorra | 42.506300 | 1.521800 | ... | 745 | 747 | 748 | 750 |
| 4 | NaN | Angola | -11.202700 | 17.873900 | ... | 30 | 35 | 35 | 35 |
| ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| 261 | NaN | Western Sahara | 24.215500 | -12.885800 | ... | 6 | 6 | 6 | 6 |
| 262 | NaN | Sao Tome and Principe | 0.186360 | 6.613081 | ... | 16 | 16 | 16 | 23 |
| 263 | NaN | Yemen | 15.552727 | 48.516388 | ... | 7 | 10 | 10 | 12 |
| 264 | NaN | Comoros | -11.645500 | 43.333300 | ... | 1 | 3 | 3 | 3 |
| 265 | NaN | Tajikistan | 38.861034 | 71.276093 | ... | 15 | 76 | 128 | 230 |

```
[266 rows x 108 columns]
>>>
```

you would use the row marked "United Kingdom", but if you want Greenland, you need to find "Denmark" in Column B then "Greenland" in Column A. For the purposes of this article, we'll use "US" which is around row 227 (at

least for now).

Create a convenient folder somewhere, copy the CSV file into the folder and open a terminal window in that folder. (I use "Open in Terminal" from the GUI

File manager.)

Now it's time to do some coding. We'll use the Python Interpreter for this example. See box above.

Look at the last line of the pandas head/tail dump. It says that there are 266 rows and 108 columns. We'll get some of that information in a few moments. For right now, we'll just grab the row that contains data for the US. If

```
>>> s1 = data.loc[data['Country/Region']=='US']
>>> print(s1)
Province/State Country/Region Lat Long 1/22/20 1/23/20 ... 4/29/20 4/30/20 5/1/20 5/2/20 5/3/20
5/4/20
225 NaN US 37.0902 -95.7129 1 1 ... 1039909 1069424 1103461 1132539 1158040
1180375

[1 rows x 108 columns]
>>>
```

you wanted to find “Greenland”, use ‘Province/State’ instead of ‘Country/Region’ in the line above.

Again, here we want to verify a few things. First, that the last data column is for the proper date (which is marked as “5/4/20”), the proper country and that there are (still) 108 columns. Secondly, the actual row data is shown here as 225. In the spreadsheet, however, it shows up as 227. That’s because there is a header row and (remember) Python is ZERO BASED.

Now we have some data that we can play with. BUT, we need to get a bit more information to make our programming easier.

```
>>> sh = data.shape
>>> print(sh)
(266, 108)
>>> lastcol = sh[1]
>>> print(lastcol)
108
>>>
```

Here we use `data.shape()` to get the number of rows and the number of columns in the dataframe. This comes back as a tuple, so we can assign a variable “lastcol” to the 108 (`sh[1]`) of the variable `sh`.

Now (top right) we will grab just the columns that contain the confirmed number of cases (Column E or 4 (again zero based)) through lastcol (108) for Row 255. We’ll use the `.iloc` method to grab the row, start column and last column from the dataframe and assign it to variable `s1a`.

So we now have data that we can use, but the data was extracted, it came back as a data series, not a data frame. So, we’ll convert it to a dataframe. See bottom right. See bottom right.

So now we’ve got data that we

```
>>> s1a = data.iloc[225,4:lastcol]
>>> s1a
1/22/20 1
1/23/20 1
1/24/20 2
1/25/20 2
1/26/20 5
...
4/30/20 1069424
5/1/20 1103461
5/2/20 1132539
5/3/20 1158040
5/4/20 1180375
Name: 225, Length: 104, dtype: object
>>>
```

```
>>> df = s1a.to_frame().reset_index()
>>> df
index 225
0 1/22/20 1
1 1/23/20 1
2 1/24/20 2
3 1/25/20 2
4 1/26/20 5
.. ..
99 4/30/20 1069424
100 5/1/20 1103461
101 5/2/20 1132539
102 5/3/20 1158040
103 5/4/20 1180375

[104 rows x 2 columns]
>>>
```

HOWTO - PYTHON

can almost play with. But first, let's assign the column headings to some proper, meaningful information. We'll change the "index" column header to "dtstring" and the 255 (numeric not text) column header to 'Cases'. See top right.

It's a very busy plot (bottom right), but you can definitely see the same kind of data you do from the news.

For the next part of our data examination, we need to calculate the number of new cases each day from the day before. This is SUPER easy with the .shift() method available in Pandas (below).

```
>>> df = df.rename(columns={'index':'dtstring', 255:'Cases'})
>>> df
   dtstring  Cases
0    1/22/20      1
1    1/23/20      1
2    1/24/20      2
3    1/25/20      2
4    1/26/20      5
..      ...
99   4/30/20 1069424
100  5/1/20  1103461
101  5/2/20  1132539
102  5/3/20  1158040
103  5/4/20  1180375

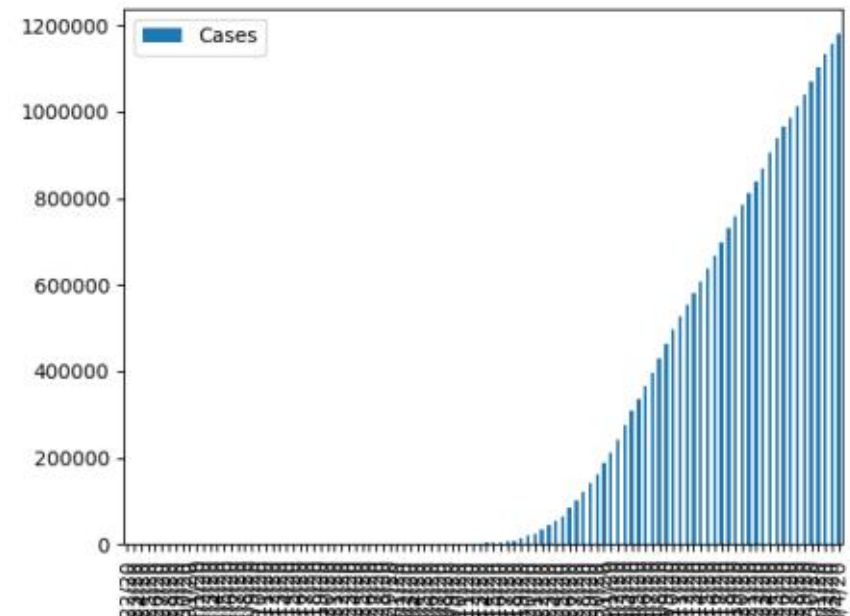
[104 rows x 2 columns]
>>>
```

Now we can plot the data. Remember, there are 104 data points, so the date information on the X axis will be pretty squished together.

```
df.plot(kind='bar', x='dtstring', y='Cases')
<matplotlib.axes._subplots.AxesSubplot object at 0x7f17063952d0>
>>> plt.show()
```

```
>>> df['diff'] = df['Cases'] - df['Cases'].shift(+1)
>>> df
   dtstring  Cases  diff
0    1/22/20      1  NaN
1    1/23/20      1    0
2    1/24/20      2    1
3    1/25/20      2    0
4    1/26/20      5    3
..      ...
99   4/30/20 1069424 29515
100  5/1/20  1103461 34037
101  5/2/20  1132539 29078
102  5/3/20  1158040 25501
103  5/4/20  1180375 22335

[104 rows x 3 columns]
>>>
```



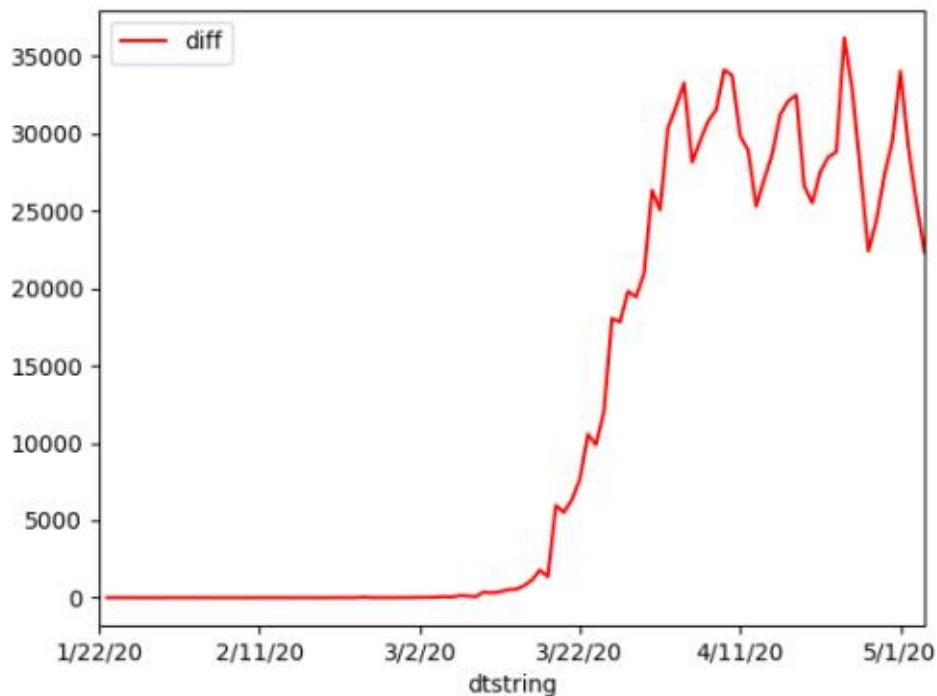
Now let's see the daily differences on a graph...

```
>>> df.plot(kind='line', x='dtstring', y='diff', color='red')
```

```
<matplotlib.axes._subplots.AxesSubplot object at 0x7f16e3ff3b90>
```

```
>>> plt.show()
```

Now that you have the basics of dealing with the basic data, you can go back to the beginning, where



we pulled the data for the US and change it to the country or region of your choice. For example, change the line...

```
s1 = data.loc[data['Country/Region']=='US']
```

To...

```
s1 = data.loc[data['Country/Region']=='Norway']
```

When you print the s1 data, you will see that the row for Norway is 175. So in the line that we got just the data columns for that row

(from column 4 to last column)...

```
s1a = data.iloc[225, 4:lastcol]
```

You would change it to...

```
s1a = data.iloc[175, 4:lastcol]
```

At this point, you would repeat all of the other steps again to create and modify the dataframe so you can plot it.

What exactly should we take away from this data? That's a very good question. The accuracy of this, is currently in somewhat of a (series) question. There are speculations that suggest that the number of confirmed cases are low due to the lack and quality of testing of the population of many of the areas. You can never be sure of the data, unless you gather it yourself. In cases like this, you have no choice but to believe, with a grain of salt, that the data was taken with the best level of care.

With a little bit of creative web searches, you can find a lot more information on Pandas, various datasets and types of plots and options that you can use to show your data.

Until next month; stay safe, healthy, positive and creative!



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



<https://ubuntu.com/livepatch>

Many of us have seen the Ubuntu livepatch option, but not many home users actually use it. Many are unsure of what it is, or just do not want snaps on their systems.

First the bad news. You need to sign up for an account, but you can use Donald Trump's name if you like. You also need snapd... It also works on only LTS releases... that are 64-bit... with a kernel greater than 4.4. Whew!

Now some good news. This enterprise tool is available to users like you and me for three computers absolutely free. It works on bare metal servers, VM's, and desktops. Live patches avoid configuration mistakes. Why is this good news? Because it is easy to make a simple mistake and kill your working server.

Livepatching is a thing. It all starts with kernel probes, or kprobes, basically a debugging

tool, that allows you to monitor events within a running system. You can find more info here: <https://lwn.net/Articles/132196/> - if I understand it correctly, it is an ftrace-based (function trace) mechanism and kernel interface for doing live patching of a kernel and kernel module functions. Livepatch is available for most x86-based CPUs, so not yet for your Raspberry Pi server. Also, it may not work on some Ubuntu "flavors". How do you check if livepatch is supported by your kernel, you may ask. Good question! Open a terminal and type:

```
cat /boot/config-$(uname -r) | grep LIVEPATCH
```

```
Terminal
$ _
gewgaw @ Aangeneem -
└─ $ ▶ cat /boot/config-$(uname -r) | grep LIVEPATCH
CONFIG_HAVE_LIVEPATCH=y
CONFIG_LIVEPATCH=y
gewgaw @ Aangeneem -
└─ $ ▶
```

Security is always a top priority, you need to keep your kernel up-to-date and you do not need the grey hairs. If you ever had to restart an Ubuntu server after patching, the one running your clients' websites... you had to cross your fingers and hope it went quick – and most importantly, unnoticed. Enter livepatch. It is simple to set up in your terminal if you have a server, or in a GUI if you have a desktop.

Why do you need an account? Well, security. As I understand it, there is a GPG key or private /

public key, attached to your Ubuntu One account. This makes sense. However, I hope they have tightened up security, as my Ubuntu One details are in the wild and I can never use that password again. If you do not have one, create it here:

<https://login.ubuntu.com>

If you have vanilla Ubuntu 18.04, you should be able to find it (livepatch) in the menu. On your LTS server, you will need to add it via the terminal with: `sudo canonical-livepatch enable` - if you do not see it, you need:

HOWTO - LIVEPATCH

```
sudo snap install canonical-livepatch
```

first. There is a video on the livepatch website that will run you through this.

TL;DR ... it's 2 commands:

```
sudo snap install canonical-livepatch
```

```
sudo canonical-livepatch enable <received token>
```

On your desktop, you can go to “software and updates” and click on the very last tab. You should see this:

This is a nice overview to see what you may need. Clicking “learn more” will just take you to the livepatch website and not actually help you by telling you what you need to do next.

The livepatch button will slide over if you have met all the

requirements mentioned above. If you are activating it on a desktop, you will also see an icon in your taskbar.

On a server, simply run:

```
ls -ld /sys/kernel/livepatch - at the command prompt.
```

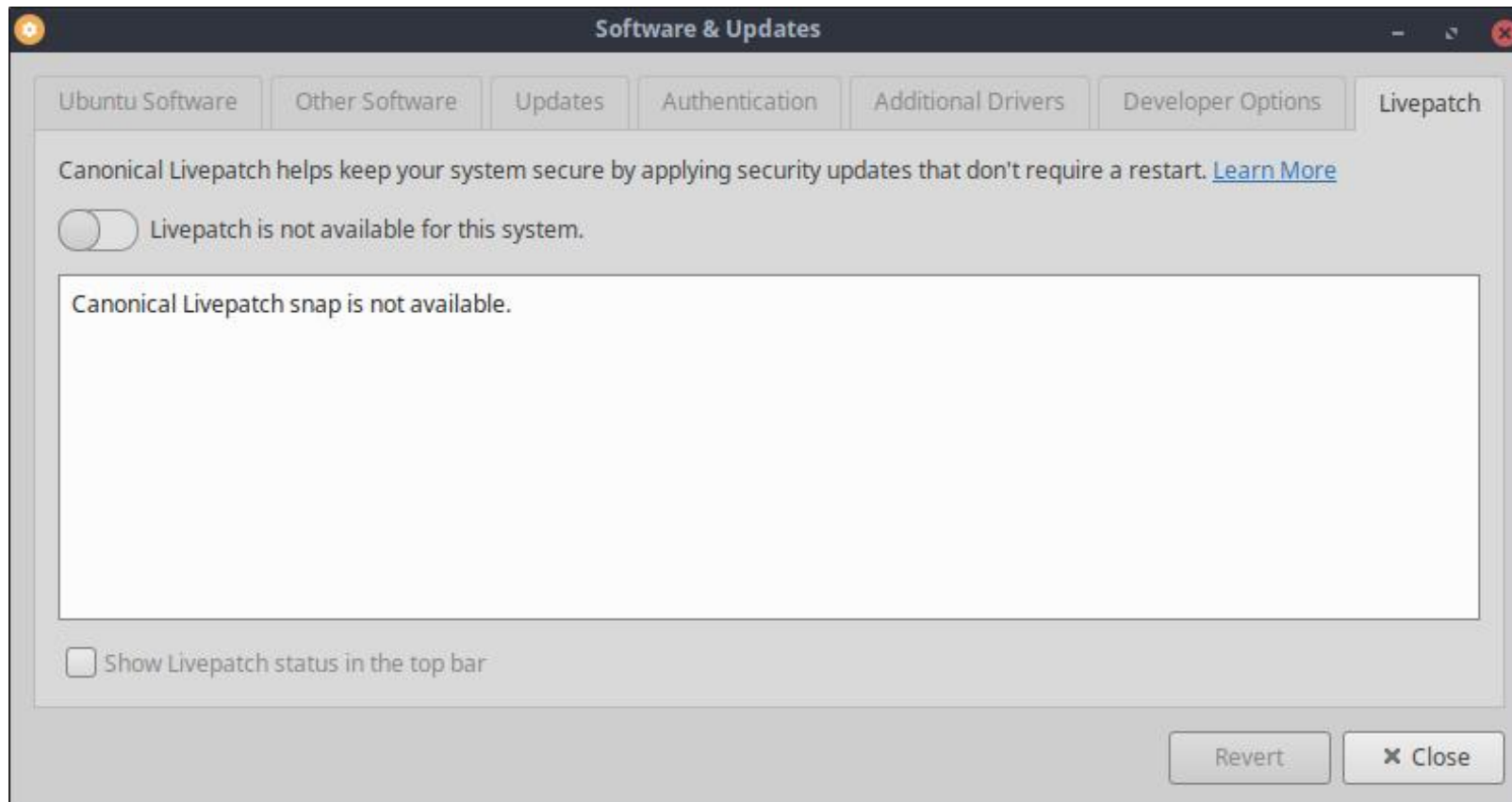
NB! Livepatch will not work on security hardened servers or workstations, as it needs to load a kernel module to actually do the patching.

Would you like to see more articles on things like these, or would you like to correct us on any incorrect information? (Everyone makes a mistake!). Please let us know on

misc@fullcirclemagazine.org

P.S. There is a nice tutorial at Linuxbabe:

<https://www.linuxbabe.com/ubuntu/canonical-livepatch-service-ubuntu-16-04-live-kernel-patching>



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



HOW-TO

Written by Erik



Rawtherapee - Pt3

Website: <https://rawtherapee.com/>

Version 5.6

Price: Free!

Before I continue this short series on Rawtherapee, know that editing large RAW photos requires a lot of memory. I recommend 8GB or more. This simple picture we have been playing with, is taking up 1.6GB of memory on my computer inside Rawtherapee.

I hope you kept the last picture we were working on as we will be continuing where we left off.

March 2020 it seems wesaturate.com has broke: the file is now hosted on the FCM servers here: <https://bit.ly/2WNVFPf>

Last time I had you oversaturate the picture and turn it into mobile phone wallpaper.

The reason I actually had you dramatize the picture was to draw your eye to the different light and dark sections of the photograph

that became very obvious when you did so. You can use these 'bands' as a guideline for where to put your edits, and at which angle they should go. Did you actually try the homework? Well, this is another dirty trick you can keep in your tool belt.

Like Darktable, Rawtherapee also supports L*a*b adjustments. Click on the first tab or press Alt+E and scroll down to L*a*b Adjustments. Now, don't confuse them with the lightness, contrast & saturation in exposure. This is not the same thing.

In the L*a*b adjustments, you will see that each channel has its own curve. You can choose a different curve, but they all start on linear. You can use the dropdown arrows on each of the three to change them. Directly below, you will see six more tabs that can be adjusted. 'LH', 'CH' and 'HH' each has a horizontal line in them; to activate, drop these down to equalize. What you now have is somewhat similar to a music equalizer, except in colors. LH is

luminance to hue, CH is chromaticity to hue, and HH is hue to hue. Phew!

You can adjust these individual colors by grabbing a point and dragging it up or down. Unlike a music equalizer, you can also define curves in between. You can even 'create' colors in between other colors and manipulate those. What makes it really powerful is the little color-picker tool. You can select an area in your picture you want to manipulate, by color! Should anything go wrong, there is a reset in the top right in the first row of tabs, named curves. The last row 'CC', 'LC' and 'CL', are curves again. These basically allow you to move your histogram and manipulate color intensity.

Now that you know what-is-what and where the buttons for each are, let us manipulate our picture.

Go to 'LH' and turn on the equalizer. BEFORE you adjust anything, make sure your mouse is on a flat surface and you are

holding it comfortably. The reason I say this, is that adjusting a color up or down, you will get lateral movement. Typically you try to avoid this unless it is intentional. You can also employ a ruler or box or other straight object, to rest the mouse against. Go easy on the adjustments, you can create artefacts by being heavy-handed. Hint: do not neglect green, even if there is no green in the image. Now if you have been playing, you would have realised this works in the opposite. If you want less yellow and the sky a little brighter, drag upwards. If you want more yellow, drag downwards. This is because you are actually playing with the brightness, so to speak, and not the saturation. As I pointed out, you can create artefacts, but generally, you will find that moving these sliders creates noise, and the compounding of this noise is what creates artefacts. So after making your adjustments, you need to go to the second tab, Alt+D and go to noise reduction. Make sure the color space is set to L*a*b. Now fix it here.

HOWTO - RAWTHERAPEE

We are lucky that our boat has a rainbow on the hull, keep your eye on this when you adjust the color space. As our picture is mostly blue, keep zooming in to 1:1 on the sky and look at what is happening there.

Now that you have played with the brightness (luminosity according to hue) , now move to color, or chromaticity according to hue. Now, in this one, the saturation works in the upward direction. As I mentioned before,

now you have the opportunity to adjust Cyan to adjust your blues. I want you to try to adjust Blue upwards. You will see how 'kitch' the picture becomes. However, if you drag Cyan, it enhances the overall blues in your picture. Remember to turn off the tool every few minutes, so you can visually track your changes. I say this, as sometimes it seems like you are not making a change, but turning the tool off reverts to the original image and your brain immediately catalogues the

changes!

Okay, now we move to HH. The adjustment in HH actually works sideways when you drag up and down. Dragging a point down moves the hue to the left, and dragging upwards moves the hue to the right.

And that is the secret of the confusing L*a*b adjustments. LH up is down, CH works like you would expect, and HH up is left and down is right. Now this is speaking in

terms of color and explaining by crayon. If you need to understand, re-read each section, for what it actually does. Also, practice to understand why each slider does what it does.

Tips: Remember to sit up straight and look at your monitor head on. A tilted monitor or skewed viewing angle can make a difference. Make sure your brightness and contrast settings are at levels that make things look natural. High brightness and low contrast have caught me out time-and-again working on someone else's display. Less is more, work in small increments, unless over-the-top is what you were aiming for.

Please send all comments and corrections to:
misc@fullcirclemagazine.org



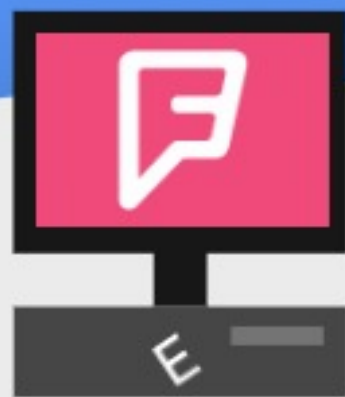
The Daily Waddle

The BBC is on the way

How do you know?

**They just checked
in on foursquare**

Quick act natural!





HOW-TO

Written by Mark Crutch

Inkscape - Part 97

There's some big news in the Inkscape world this month. Since the previous instalment, a couple of new Inkscape versions have become available: 0.92.5 and, after 17 years of development, version 1.0. The former mainly fixes some Windows issues, but does have a few general bug and crash fixes that will benefit Linux users. Perhaps the most significant change is that Inkscape extensions are now compatible with Python 3. Given that Python 2 formally reached its end-of-life at the start of this year, this is a welcome step forward along a path that many projects will need to take, as Linux distros begin to reduce their support for the legacy Python packages.

The full release notes for 0.92.5 can be found here:

<https://inkscape.org/release/inkscape-0.92.5/>

Of more interest to this column is version 1.0. As I've mentioned previously, it's my intention to cover the new features and

changes in this milestone release, starting this month. But the first feature I'm going to mention – as much to get it out of the way, as anything else – might seem a little odd for this Ubuntu-focused magazine: I'm going to talk about version 1.0 on MacOS, which represents one of the biggest changes in the history of the Inkscape project.

Although earlier releases of Inkscape had MacOS versions, they were essentially just recompilations of the Linux version. They behaved in exactly the same manner as the Linux program, right down to the keyboard shortcuts. Most importantly, they still required an X server for their graphical output. Since MacOS doesn't natively use X for its display, this meant installing another application, and understanding the relationship between operating system, X server, and Inkscape.

For several years, Apple were proud of the Unix underpinnings of OSX, and shipped their own X

server, perhaps as a way to bolster the number of applications available for their fledgling new OS. Over time, this became less of a selling point, and the X server saw little love and attention. Since 2012, Apple no longer maintains their own X server, but does contribute to the Open Source XQuartz project. For the past few years, therefore, it has been necessary to install XQuartz in order to use Inkscape on MacOS. Although this works reasonably well, this combination does have a few idiosyncrasies, particularly when used on a Mac with multiple monitors. So much so, in fact, that I ended up writing my own shell script to rescue me from the “disappearing dialog” issue that plagues this setup (<http://www.peppertop.com/blog/?p=1554>).

With 1.0, however, Inkscape will be a native MacOS application which doesn't require an X server. With this change also comes better support for the system clipboard, and keyboard shortcuts that more closely match the standards for the

OS. Perhaps most importantly, it's compiled as a 64-bit application, whereas earlier versions were 32-bit. Although this latter change doesn't really have much of a bearing on Inkscape itself, it's vital to note that the latest release of MacOS, “Catalina” (10.15), supports only 64-bit programs, so if you want to run Inkscape on that version of the OS, you have no choice but to use version 1.0. Note that it's currently described as a “Preview”, which suggests that there are probably a few issues to iron out still, but in my testing, it's proven to be pretty stable.

A native implementation makes Inkscape much easier for Mac users to install and use – which will hopefully boost its user base. As MacOS has a reputation as being an OS for “creatives”, Inkscape perhaps faces more competition on that platform than any other. Compared with most other vector graphics programs on OSX, it is Free Software, as well as free software. Whether that will be enough for it to carve out its own niche in the market remains to be

HOWTO - INKSCAPE

seen, but it's certainly a huge step forward by the developers that should be applauded.

If you're on OSX or Windows, you can download Inkscape 1.0 via links on this page: <https://inkscape.org/release/inkscape-1.0/>

You'll also find options for Linux downloads there, as an AppImage file or a Snap package. In practice, however, if you're using Ubuntu or a derivative, the easiest way to get the new version is probably using a Snap installed via the command-line. Just run the following command in a terminal:

```
sudo snap install inkscape
```

One advantage of this approach is that the Snap-based version will be installed alongside the deb package version from the Ubuntu repositories, so you can try out the new release without having to relinquish the 0.92.x version you might be using currently. You will end up with two Inkscape entries in your menu, but surely the developers would have ensured they're easy to distinguish from each other, wouldn't they? Here's what the entries on my menu look

like on Ubuntu Mate, together with a version blown up to double size so you can more clearly see the difference between the icons:



The first entry is the old 0.92.x version, and has a crisper icon with a slightly blue tinge on the right. The second is 1.0, which has a shadow around it, giving a softer look, and no blue on the image. If possible, I recommend renaming one of the menu entries for clarity. The exact way to do this will vary across distributions; on Ubuntu Mate you can run the 'mozo' utility to edit your menu structure (also available by a right-click on the top-level menu button in the panel).

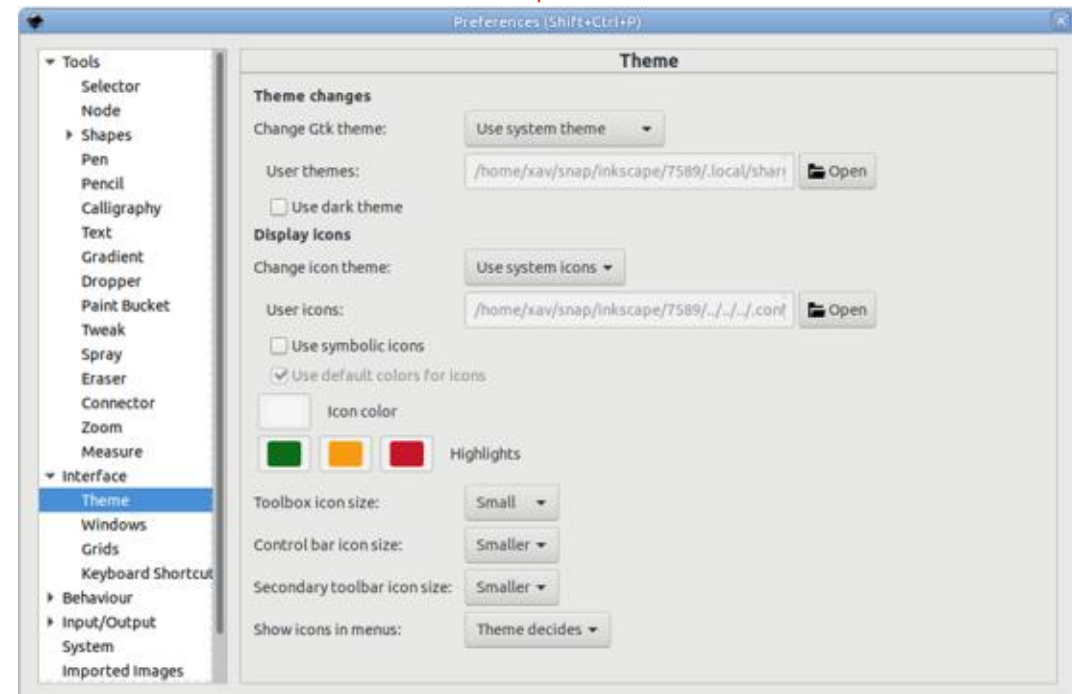
With the 1.0 release installed, it's time to begin playing with the new features. As you do so, please

do consider reporting any issues you encounter to the Inkscape bug tracker (<https://inkscape.org/report>). This is a significant release, and there are bound to be some issues in it. Reporting them will help to improve the quality of the subsequent point releases.

The new release updates the user interface toolkit to GTK3, which has resulted in a slightly different look and feel, but also in significant improvements for users of modern "retina" or "HiDPI" screens. It also brings greatly enhanced theme support, to the extent that there is a new,

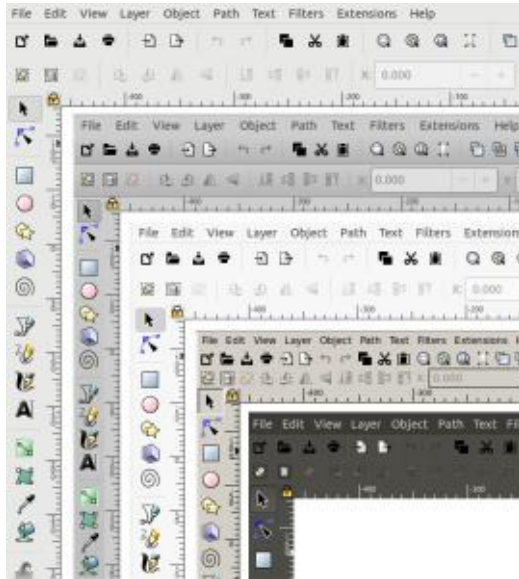
dedicated "Theme" panel in the "Interface" section of the Inkscape preferences dialog.

The first menu in this panel lets you select from whatever GTK3 themes are available on your machine. On my box, this was a reasonably extensive list which included a number of dark themes, if that's your thing. Selecting an option from this menu updates the Inkscape UI immediately, so it's easy to audition the various styles that are available. Leaving it set to "Use system theme" does what you might expect – although the UI doesn't immediately update if you



HOWTO - INKSCAPE

change the system theme via your OS, and will only fall in line after restarting Inkscape. Here's a representative sample of some of the available themes:



The "Use dark theme" checkbox in the dialog seems a little redundant to me. As far as I can tell, if you select a named entry from the popup, and there's a corresponding "-dark" theme, this checkbox lets you easily switch between the two. However, since all the different versions are listed in the popup, including the dark ones, there's no need for this checkbox anyway. Worse still, some themes have three different entries: in the case of the "Yaru" theme, for example, there is

"Yaru", "Yaru-light" (those two appear to be the same), and "Yaru-dark". This checkbox would make more sense if the suffixed versions were suppressed in the menu. You would then select a theme first (e.g. "Yaru") before using the checkbox to toggle between the "-light" and "-dark" variants.

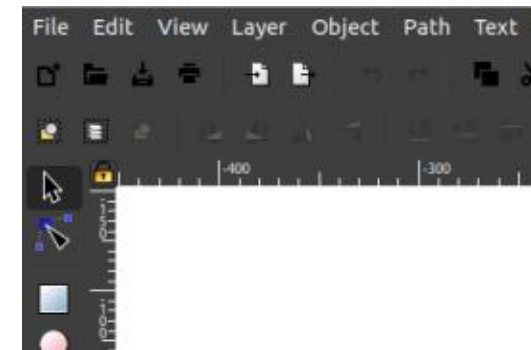
The GTK themes only affect the UI widgets – buttons, scrollbars, text entry boxes and so on – not the icons. The second section in the preferences panel deals with those. A popup lets you select the icon theme you want to use. In the case of my test installation there are four options: "hicolor", "multicolor", "Tango" and "Use system icons". I'm not sure why the first two aren't deserving of capital letters at the start, but that's a minor niggle. Of those choices, three of them result in the same appearance, with only "Tango" looking any different, at least in the default configuration.

There are actually two other icon styles available, though the UI for selecting them is not entirely straightforward. If you select either the "hicolor" or "multicolor" themes, you will then gain access to a checkbox labelled "Use

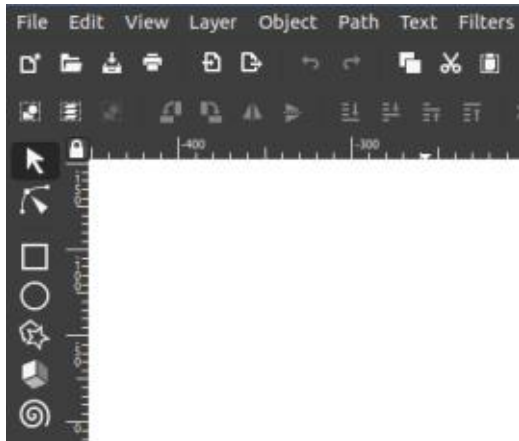
symbolic icons". With this checked, each theme renders flat icons with little or no shading, and either no additional color (ironically, this is the "hicolor" option), or specific highlight colors ("multicolor"). This screenshot shows all four options, from left to right: hicolor/multicolor (non-symbolic), Tango, hicolor symbolic, multicolor symbolic.



My personal preference is for a light theme with colorful icons. I'm of the view that icons with distinctive colors as well as shapes probably require a little less cognitive effort to recognise, leading to a UI that's easier, and therefore faster to navigate with less conscious thought required. As the work I do in Inkscape generally ends up being printed on white sheets of paper, I usually use a white background in the drawing window. A light theme therefore leads to a less jarring difference between the light color of the canvas and the UI around it. But I know that some people do love their dark themes, and it's for these users that I think the symbolic icons come into their own. Looking at the top-left corner of the Inkscape window with the default icons but a dark theme (Yaru-dark) shows the problem with using the default non-symbolic themes:

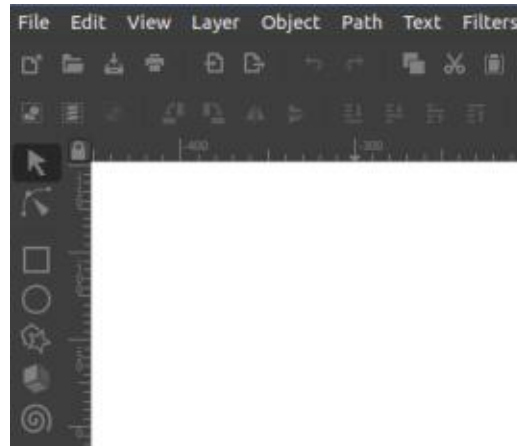


Notice how jarring the colored icons are against the darkness of the toolbars. Conversely, there are some symbolic icons visible even with this icon set, which are too dark and difficult to make out (I've reported this as an issue, and the feedback is that it appears to be a packaging problem with the Snap). Switching to a symbolic theme makes the icons a lot more consistent:



Although they're consistent, they're also a bit too bright. By un-ticking the "Use default colors for icons" checkbox, however, you can use the color buttons below to select the main icon color, as well as the highlight colors (for the multicolor theme). This makes it possible to knock the bright icons back to a darker grey – or even a

color tint, should you wish.



In the case of the multicolor theme, the three highlight colors are used in the toolbox icons as a means of grouping similar sets of tools together. Once again, this addition of color aids in reducing the cognitive effort required to identify an icon. What I'd really like is the ability to set each base color or highlight on a per-icon basis, so that I could make the tools I regularly use stand out more than those that see only occasional deployment. Perhaps in a future version.

That's enough for the stylistic changes in the UI. Next month, we'll start a deeper dive into the new features and additions that have taken place in the actual drawing tools. If you can't wait, and

want a quick preview of some of the highlights of this release, take a look at the highly professional release video the project has posted: <https://inkscape.org/release-video-1-0/>



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



HOW-TO

Written by Alan Ward

Krita To Rework Old Photos Pt.7

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

as a best effort, but with no firm guarantees — much as is the case of most open-source software.

In the previous part of this series, we worked on a photo that had been transformed to a digital format by simply photographing it using a modern mobile phone. In some cases, however, we do not have a paper copy of the original. For instance, in the latter days of chemical photography, many photo developing shops were delivering

```
$ identify -verbose f1010018.jpg
Image: f1010018.jpg
Format: JPEG (Joint Photographic Experts Group JFIF format)
Geometry: 1840x1232+0+0
Resolution: 72x72
Print size: 25.5556x17.1111
[...]
exif:Make: FUJI PHOTO FILM CO., LTD.
exif:Model: SP-1500
exif:Software: FDi V4.5 / FRONTIER350/370-7.0-0S-868
[...]
```

CD copies of your photos, already digitized. These also can have some drawbacks, which we will review today. Exhibit A is a typical holiday pic from the Sicilian city of Syracuse I took back in 2004, using a reflex 35 mm camera and standard photographic film of the time.

that the original negative film was scanned by the laboratory with resolution 1840x1232 (top right).

We can obtain most of this information even with the standard file utility, though the two programs are not quite in agreement as regards spatial resolution (bottom right).

The laboratory produced a CD with scans of each photo in JPEG file format. If we have Imagemagick installed, we can access EXIF information from the command line. In this case, we find

Anyhow, it is clear that modern digital photography has gone a long way to improve on what was standard technology 15 years back,



```
$ file f1010018.jpg
f1010018.jpg: JPEG image data, Exif standard: [TIFF image data, little-endian, direntries=10, manufacturer=FUJI PHOTO FILM CO., LTD., model=SP-1500, orientation=upper-left, xresolution=514, yresolution=522, resolutionunit=2, software=FDi V4.5 / FRONTIER350/370-7.0-0S-868, datetime=2004:11:11 10:04:42], baseline, precision 8, 1840x1232, components 3
```


HOWTO - KRITA

with typical mobile phone camera pixel counts more than 4 times greater. But, what about file quality? If we zoom in on the image in Krita, we find that there are some visible defects.

The sky is noticeably grainy. So are any other flat parts of the image, though it is slightly less noticeable on buildings or the ground. There are also the typical compression artifacts that the JPEG fractal algorithm produces, which are particularly marked along diagonal lines, and in the vicinity of curves. Unfortunately,

this is information that has been lost during compression, and is a fact we will need to accept. From here, we can either reduce the image resolution to try to “repair” these defects, or seek out a better original to work from, for example, making a digital photograph of the original paper copy if we still have it in good state.

If we suppose this digital scan is the only copy we have available, let us begin by reducing the resolution of our image. Bear in mind that the original resolution is 1840x1232, so a proportion of nearly (but not

exactly) 1.5:1 or 3:2. This proportion is close to that of many traditional photographic paper sizes, though it may seem slightly weird to younger readers who would be more accustomed to digital image proportions of 4:3 as on standard monitors, or 16:10 / 16:9 as on panoramic monitors and some mobile phones. In Krita, we can bring this resolution down by using the tool at menu option “Image”, “Scale image to new size”, and then put in our new resolution. If we have the “Constrain proportions” checkbox set, we should just need to enter one of

the dimensions, and the other will be calculated automatically. In this case, I entered 1200 pixels for the image width, and the program calculated the height as 803 pixels. Let us close in on the same area as before.

We observe that, just by reducing the pixel resolution, most of the artifacts present in the sky have been ironed out. Those introduced by compression on diagonal lines and curves are still there, though perhaps a tad less pronounced. The close-up above is at a zoom factor of about 200%; it



HOWTO - KRITA

is clear that this image may be useful on screen as a wallpaper or in a presentation. However, it simply lacks information to be reproduced as a good-quality paper print - and there is not much we can do about this. Even in Krita, scaling our image back up to a larger resolution will not get us back any of the information lost. Let us try with 4500 x 3000 pixels.

Image quality is not better at 4500 x 3000 than at 1200x800 pixels, but it is not worse either. We can see that Krita does a pretty

good job of scaling upwards by interpolating the colors of new pixels from those present at the lower resolution. But, obviously, it cannot introduce more information than is already present. Still, scaling downwards to a slightly lower resolution, and then back up, is a useful trick that can eliminate some of the artifacts introduced by excessive JPEG compression of the original.

Being Krita, there are also tools to do this job automatically. Starting once more from our

original image at 1840x1232 pixels, I selected the menu option "Filter", "Enhance", and the tool "Wavelet noise reducer" already used in a previous part of this series. This reduced the splotches in the sky, but did not affect the artifacts around lines and curves.

Once the image quality was as good as it was going to get, I went back to the image as a whole. The scene was more or less satisfactory, with a nice yellowish tinge from the sunset illuminating the building to the left. However, the sky lacked a bit of character for my taste. I set about remedying

that by adding a new layer, on top of the original image. Then, using the gradient tool, I drew a vertical gradient over the sky on the new layer. Krita's gradient tool, in its default settings, works by applying whatever brush color is active at the point where the gradient tool is applied, and then progressively working over to a completely transparent color at the point of release. Here, I applied the tool at the top of the image, and then released it halfway down to the bottom in a vertical line. However, I did not wish to superimpose the color on top of the original, but rather use the gradient as a way to



increase color saturation. So, this new layer was combined not in “Normal” mode, but as “Saturation”. Any color can be used for this trick; transparent parts of the gradient will have no effect on the color of the original, and pixels with color will increase the original’s saturation in proportion to their color density. The end result is a more vibrant sky, that brings out a more interesting cloud formation and gives extra character to the scaffolding on the church at the opposite end of the piazza.

Finally, I wished to increase the contrast between the darker street scene to the right, and the lighter buildings to the left. One way of doing this is to give the dark part a slightly colder color tinge, towards the green or blue. But, I did not

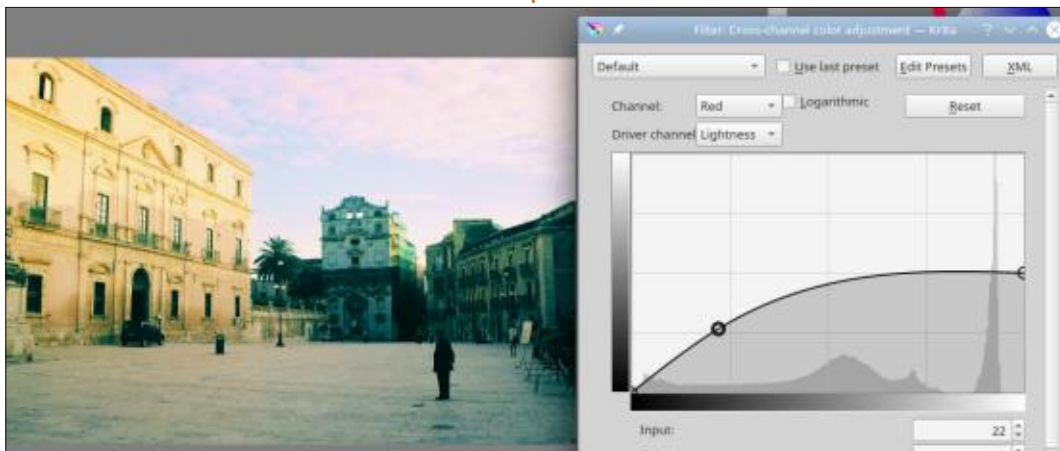
want to reduce the amount of red and yellow in the sky and lighter buildings. Luckily, Krita has a very powerful tool that allows us to work on one color channel, controlling it from another.

In the menu option “Filter”, “Adjust”, select “Cross-channel adjustment curves”. In this case, I wanted to alter the red channel. On the other hand, my control channel was to be “Lightness”. Then, I altered the curve to reduce the response to the left (darker side of the curve). In essence, what I was doing was to reduce the red component for all pixels with low lightness -- i.e., the dark bits of the image. Since these are mostly in the right lower corner of the photo, this is the part that got reduced redness, thus increased green and blue.



The end result may lack the resolution we would wish for in modern times, but at least there are less niggling artifacts in the sky and architectural details, and the colors are bit more bright and joyful than in the original CD file.

may be a solution. However, it does have its drawbacks, as we will see in the next episode. Until then, take care!



In this part of our series, we worked on a photograph that had been digitized professionally by the laboratory when our negative film was developed. At times, however, we no longer have access to this laboratory, or even to the paper prints. In such cases, using a flatbed scanner to digitize the negatives



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

The Daily Waddle

THE DAILY WADDLE

by: ErikTheUnready



Bears in the arctic are called POLAR bears, what are chickens in the arctic called?

Dunno?

LOST...





LINUX LOOPBACK

Written by S. J. Webb

BACK NEXT MONTH

ASSUMING BSD HASN'T DRIVEN
HIM INSANE



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.



PIM, THE FINAL CHAPTER

We left off last month with no definitive resolution to getting Google Provider, Lightning, and Thunderbird working to allow calendar access through mobile phone, tablet, or other devices. I'm still running Ubuntu 16.10 on an old laptop, and can't readily upgrade, so I can only run older versions of the PIM software. Fortunately, friend of Everyday Ubuntu and Full Circle Q&A columnist (amongst many other things) **Erik the Unready** did some testing on his own rig and confirms that the procedure laid out before should work fine as long as you aren't running a steam-powered version of Ubuntu like I am. Hat tip to Erik – thanks for the input and testing!

I do intend to upgrade to Ubuntu 20 soon at which point we'll probably revisit PIM usage. This month, let's shift gears to something fun, as we revisit console retrogaming in the context of a great console of the 90's, the Turbografx 16.



As we all contend with the global pandemic of Covid-19, there are small ripples in our lives in addition to all the major ones. One of those small ripples has to do with the delayed release of the Turbografx 16 mini console. Admittedly FAR less important than the many lost lives and losses of livelihood, this has been a minor disappointment to console gaming fans. The Turbografx 16 mini was originally scheduled to ship in April, but its US release has been pushed back to at least December. But what is the Turbografx 16? Glad you asked.

In the mid 1980's, the two major gaming consoles on the market

were the Sega Master System and the Nintendo Entertainment System. The Nintendo, or NES, was far and away the more successful of the two (partly due to unfair trade practices that they later lost a court case over), but the Sega, or SMS, certainly had its devotees, and some really nice games. The SMS had very little by way of third party support (mostly because of the aforementioned unfair trade practices of Nintendo), but Sega was a major manufacturer of arcade titles and ported several popular arcade games to the SMS, like Space Harrier, SubRoc 3D, Outrun, and Shinobi. Nintendo, of course, had Super Mario Brothers and an enormous portfolio of both arcade titles and original creations like Legend of Zelda.

The SMS and NES had some very high quality games, but they still operated with the limitation of having 8-bit processors at their hearts. Soon, the two companies would release the Genesis and Super Nintendo, respectively, ushering in the era of 16-bit gaming consoles. Games on those

two platforms would be a great deal more sophisticated than their earlier 8-bit brethren and would usher in a new era of home console gaming. You could play games at home that were the equal of many contemporary arcade games, and some that were actually better, especially when it came to more in-depth gaming genres like real time strategy or role-playing games that were not at all practical in the video arcades.

But there was a 'missing link' between the SMS/NES and Genesis/Super Nintendo consoles: the Turbografx 16. Released in the US in late 1989, the TG16 still had an 8-bit processor as its CPU, BUT it had a 16-bit graphics processor (hence the console's name). NEC, the manufacturer, somewhat disingenuously touted it as a 16-bit system, but what was not disingenuous was the game quality made possible by the more advanced graphics processor (a HuC6270, for the record). Sega, oddly, licensed several of their arcade titles to the TG16, despite the fact that it was a direct

competitor to Sega's own consoles. The TG16 never made much by way of inroads in the US market, having only 139 titles released, but it was FAR more popular in Japan, with 547 games coming out for it, in addition to the 139 American titles.

The quality of games on the TG16 was quite good, and a very noticeable step up from its 8-bit predecessors. I had one back in the day (still do, actually), and I thought it was fantastic. In addition, there was a handheld version called the TurboExpress, which I also have. In the case of Sega or Nintendo, their handheld versions used different physical cartridges. The Sega Game Gear did have an adapter add-on that could be used to play Sega Master System Games, but it did not play them out of the box. The Nintendo Game Boy didn't even have that (in addition to the original having only a monochrome LCD screen).

Unlike the SMS and NES, the TG16 used a card, not a cartridge. The HuCards, as they were called, were the size of a credit card, although a bit thicker. The Turbo Express handheld used the EXACT same HuCards, which also meant that you bought any specific game

only ONCE, to use on your home console and on your handheld. Pretty cool!

I would rate the TG16 as definitely quite competitive with the later Genesis and Super Nintendo consoles, and its game library is really impressive when you include the Japanese releases. So, as an old-school TG16 owner, I was looking forward to probably getting the mini console, even though I have the original. My original console is, unfortunately, not currently accessible, as it is in storage and highly inconvenient to try and get to. The mini comes with about 50 titles built in, including many Japanese titles that never saw an American release, and it works with modern TV's. To me, the titles I don't have, and the convenience, made it an appealing prospective purchase. But, again, the global pandemic has pushed back its release date from the original planned month of April to December. I can't wait that long to get my Alien Crush fix!

MEDNAFEN

But, never fear! Linux to the rescue yet again! There is an

emulator for the TG16 on the Linux platform, called mednafen. If you hark back to the retrogaming column in Everyday Ubuntu for Full Circle issue #141 (page 35), you'll see something similar for the Sega Genesis, an emulator called dgen. Dgen and mednafen are command-line programs, so they have no graphical interface. This is really a pretty minor issue, as command-line programs are perfectly simple to execute in Linux.

INSTALLATION

First, let's install mednafen. It's a pretty simple install that can be done most easily and conveniently via the command-line tool: apt-get. Apt-get is the command-line tool used by Debian-based Linux distributions (of which Ubuntu is one) for the installation and updates of software packages, and of Linux itself. To get to the command-line, click on the Dash, the Ubuntu symbol icon in the upper left of your screen on the Launcher control strip.

Type in 'term' (without the quotes), and that should be sufficient to bring up Terminal in your list of programs. Alternatively,

the Launcher will usually have a terminal icon already set up, in this case, just below the Dash's icon.

In the terminal, type:

```
sudo apt-get install mednafen
```

and hit <Enter>. The 'sudo' part of the command indicates to Linux that you want to run the ensuing command as an administrator, or super-user (sudo is short for 'super-user do'), a necessity for installing software on a Linux system. It's one of the reasons virus attacks are far less common on Linux than on Windows, as a virus can't really execute a sudo instruction. Respond to any prompts that the installation process generates, and you now have mednafen installed on your system. However, it has no graphical user interface and doesn't show up in the Dash, so how are we going to run it?

RUNNING MEDNAFEN FROM THE COMMAND-LINE

Well, in order to run anything on mednafen, we'll first need to have a ROM set. ROM sets are digitized 'dumps' of the contents of cartridges or CD-ROM's. Quick side

note – the TG16 was the very first home console to have a CD-ROM attachment, and there are some games for the TG16 that really make good use of that technology and the storage space it made available. I don't even remember which TG16 HuCards I had for sure, although I know I had the pack-in of 'Keith Courage in Alpha Zones', along with 'Alien Crush', which I played an awful lot.

'Alien Crush' was a fantastic video pinball game inspired by H. R. Giger's designs for the 'Alien' movie franchise. The targets are mostly animated alien creatures that you have to hit with the 'ball'. I'm going to go find a copy of the ROM file for that game, since I do own it and should therefore be able to legally play it in an emulator. This is, of course, only my non-law decreed opinion and should not be taken as professional legal advice. ROM's are pretty easy to find via a Google search, so I readily found a ZIP file with the ROM dump for Alien Crush. For simplicity's sake, I downloaded it to my local hard drive, changing the name to 'AlienCrush.zip' in the process. I've saved it to a 'ROMs' folder I created under the folder 'TG16' in my Home directory. Fortunately, mednafen

reads ZIP files, so there's no need to unzip them.

Now, in order to run Alien Crush, I'm going to once again launch a Terminal session. It should default to the Home directory, which you can see by the prompt displaying a ~ character before the \$ prompt. ~ is Linux shorthand for Home, which can come in very handy when navigating at a command-line. Type in

```
cd TG16/ROMs
```

then hit <Enter> always keeping in mind that folder structures and names are case-sensitive. This will change us to the TG16 ROMs folder. Type in

```
mednafen AlienCrush.zip
```

and hit <Enter> again, and we can now crush the invading aliens with our mad pinball skillz!



CONTROLS AND KEYMAPPING

Controls depend on the numeric keypad for the fire buttons (K and L), and use the A, W, S, and D keys for Left, Up, Down, and Right, respectively. Game start is <Enter>. A more full description of the key mapping can be found at <https://mednafen.github.io/documentation/>. For Alien Crush or its cousin Devil's Crush, <Enter> launches the ball, <A> is the left flipper, and <L> is the right flipper.



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.



UBPORTS DEVICES

Written by UBports Team

WHAT'S NEW? THE BETTER QUESTION IS, "WHAT ISN'T NEW?"

Like OTA-4 (our first release based on Ubuntu 16.04), this update involved taking many parts of the Ubuntu Touch stack down to their foundation and building them back up. This has given us a more solid understanding of the stack, and paved the way for more improvements in the future.

For this update, we merged 251 non-translation PRs in 203 days (there were 137 translation PRs, if you were wondering).

UNITY8 (LOMIRI) 8.20 AND MIR 1.2

The headline feature of this new release is our import of Canonical's final changes to Unity8. This is a transition that started in April of 2019 and has brought many new features.

As an Ubuntu Touch user, you'll be seeing the effects of the revision right away -- the Ubuntu

Touch "home screen", the Unity8 Dash, has now been replaced by a blank background, with the Drawer serving as the new app list.

The new version of Unity8 performs extensive self-tests, helping us to avoid introducing



new bugs or triggering old ones again.

Unity8 is now called Lomiri, though the code naming is only being updated slowly to reflect this.



Most importantly for us, we upgraded from Mir 0.24, released back in 2015, to Mir 1.2, released in 2019. This newer version of Mir features support for Wayland clients! This support is not currently available to our Android-based devices due to a missing implementation, but mainline devices such as the PinePhone and Raspberry Pi are already using Wayland. Best of all, upgrading from Mir 1.2 to 1.8 (released in April 2020) should be much easier than going from 0.24 to 1.2.

SURU 'STYLE POLICE'

Joan (Cibersheep) has been on a color-sleuthing marathon for the past six months, working toward making Ubuntu Touch apps more consistent and aesthetically pleasing. This involved making some changes to our default colors, adding some much-needed contrast to previously lacking areas.

The new colors contrast better between background and text,

bringing Ubuntu Touch into compliance with the W3's Web Content Accessibility Guidelines for text contrast. Simply put, everything is easier to see now.

Joan made (or recommended) changes to almost all of the default apps, making many dialogs clearer for the user.

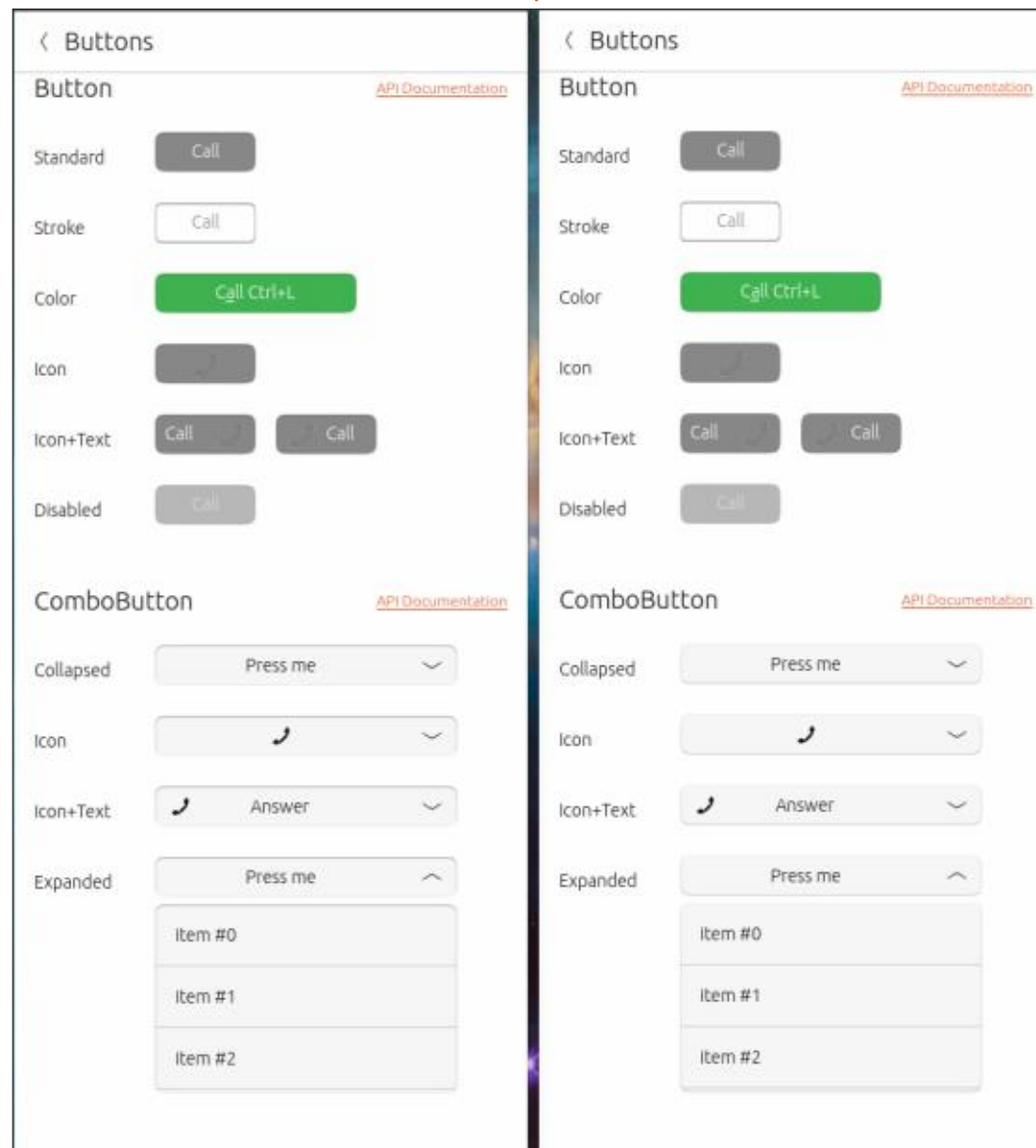
Michele changed the default aspect of some controls so they appear debossed rather than embossed, and vice versa. It really makes everything pop.

KEYBOARD IMPROVEMENTS

No Ubuntu Touch update is complete without improvements to our touch keyboard!

In this update, Kugi has added a bottom-swipe gesture to switch from the keyboard to the editing overlay. This means that all layouts can now access the editing overlay, where previously those which did not have a spacebar were excluded. Double-tapping in the blank area on the editing overlay now switches between selection and cursor mode, and the Done button exits from either mode.

Additionally, Michele fixed an important usability issue for almost all languages: typing a colon no longer capitalizes the next letter.



MORPH BROWSER IMPROVEMENTS

The default Ubuntu Touch web browser has also seen a number of fixes for this update.

Private browsing now deletes only the private browsing session upon leaving, rather than all browsing sessions. Additionally, a settings option has been added to allow deletion of cookies.

Apps created with the webapp container can now download files.

Dropdown elements are now handled more gracefully by the browser, opening a themed window with touchable options rather than tiny dropdown boxes. This also fixes crashing when opening dropdown boxes!

An automatic fit-to-width feature was added. When enabled, the browser will attempt to zoom a webpage automatically to avoid rendering issues.

Unfortunately, a QtWebEngine upgrade was not on the cards for OTA-12. However, Chris has already been testing QtWebEngine 5.14 personally for a while, and we believe it will be ready for OTA-13.

MISCELLANEOUS CHANGES

Devices with a multi-color LED

will now use it to indicate their charge status. The LED will flash orange when the battery is low, while it will be solid white during charging and solid green when full.

On the FairPhone 2, switching a SIM to 4G no longer requires manually switching the other slot to 2G. This switch is now done automatically.

Many indicators received a fix that allows them to create and load their translation files properly, so there will be far less English in the Indicators for people who have selected a different language.

The kernel driver required for Anbox has been added to default kernels for the Nexus 5, OnePlus One, and FairPhone 2. Users of these devices will no longer need to flash a different kernel in order to experiment with Anbox.

The OnePlus One now vibrates correctly on keypress.

We are now using our own Google OAUTH keys to enable Google Contacts and Calendar to sync. However, Google has started blocking browsers they deem "suspicious" and many users are

unable to use Google sign-in.

AND SO MUCH MORE

As mentioned earlier, this update has been in the works for over a year, so "250 Pull Requests" understates the changes. Many people have helped us get here, including the Mir team at Canonical and what was the Ubuntu Phone Team before the project was



dropped (talk about delayed gratification for them!), and our amazing and vibrant community.

Truly, thank you all for your work. We could not have done this without you.

WHAT'S NEXT?

Our work is cut out for us for the next few months, between the PinePhone, *other 'upcoming but unannounced hardware', and the 99 other pull requests filed but not merged between the start of the OTA-12 cycle and now. One thing for sure is that we will have no problem finding something to do! Most importantly, look forward to the inclusion of the new QtWebEngine release, which will make browsing the web much more delightful.

The Daily Waddle

Somehow this sign does not give me confidence...

You are here





This article covers my ongoing experience (so far) with Ubuntu 18.04.

A bit of background; in the past I have used Windows ending with Vista, when I thought 'why learn Windows 10 when one could use Linux?'. My first encounter was Ubuntu 14.04 but most of my experience has been as a user of Ubuntu 16.04.

After trying to review Ubuntu 18.04 from a USB stick as there was no DVD/CD device on my laptop, I could not automatically return to using 16.04 or upgrade to 18.04, but that is another story. So I waited until I could afford to purchase a new computer with Ubuntu 18.04 already installed.

Back to the new laptop and Ubuntu 18.04, the next round. See FCM#155 for round one.

After the new computer had installed Ubuntu 18.04 with new users, including one Standard user account, that I use on a day-to-day

basis without Administration Writes so that I could not inadvertently issue disastrous commands.

On my old machine I had a number of Desktop Shortcuts so that the side 'Dock' bar didn't get too crowded. To my surprise not all of the applications that I have used under 16.04 would work / attach to the Desktop of 18.04.

To get (copy) the application icons to the Desktop directory / folder I used the same process that I used with both 14.04 & 16.04. The first two times the process worked just like I had used in 16.04 but when I tried to copy other icons they failed to attach or work on the Desktop, so it was back to the web.

After a number of investigations I found a web page instructing one to first open GNOME-Tweaks and under the DeskTop heading switch on 'Show Icons'. After opening GNOME-Tweaks I found that 'Show Icons' was already set, so re-tried to set up the icons within the

Desktop. Some of them would copy to the Desktop directory / folder but could not be seen on the desktop itself, others wouldn't copy at all. So the short term work around was to reduce the 'Dock' pixel size so that more icons can be listed.

Trying to get LibreOffice-Startcenter on to the DeskTop I found another web page that worked through two ways of achieving what I wanted. One option was to find the path to the icon dot.png file and update the desktop dot.desktop file. After finding the path and checking the dot.desktop file all entries were to what was discussed on one web page; but it still didn't work. The other option I have yet to gain enough confidence in to try it out.

Another anomaly on the 'Top Bar' is with regards to the WiFi icon which is usually a quarter quadrant with a number of bars, more bars the stronger the signal. I found that sometimes there is a '?' shown instead of the quarter quadrant. The web informs us that the '?'

indicates that the computer is connected to the WiFi but the WiFi is not connected to the web; but I have been viewing, reading & downloading information from the web when the '?' is displayed.

The default Title bar Buttons are now placed on the top right of each window. I have tried to embrace the new layout, but after installing GMONE Tweaks I found that there is an option to transfer the buttons to the top left of the window, which is what I am used to.

During my introduction to 18.04 I have used the 'Software Updater' frequently and I think that Ubuntu has all the available updates. BUT I still get a number of 'System program problem detected' boxes being displayed and I always click on the [Report problem...] button, but I don't think that the reports were being sent.

Under the 'Setting' / 'Privacy' / 'Problem Reporting' option I have now changed it from Never to Manual, so I do hope that the

MY OPINION

reports will now be recorded and sent. After looking on the web I found that the reports are stored in /var/crash directory. After an unsuccessful trawl of the web to try and find what can open and display a .crash file, I did find a reference that stated that the .crash file has a 'dump of the kernel'.

Another observation is that the Software Updater application in 16.04 allows the GUI part of the process to be expanded but in 18.04 the GUI part allows the outside box to be increased in size but the display area does not change.

My laptop has a built in mouse pad so I do not have any Bluetooth devices to use with the laptop on a frequent basis, but Bluetooth is on from power up, so I had to switch it off every time I used the computer. Again after reviewing the web I found a number of recommendations, one being to edit the etc/bluetooth/main.conf file, but this did not work on my Dell machine. There are other options but again I have yet to gain confidence in trying these changes.

The above has taken a lot of time and effort and I have not yet installed all the applications that I use on my older Ubuntu 16.04 machine. I do hope that I get used to the new Ubuntu 18.04 or do I wait until Ubuntu 20.04 is available and use my old working Ubuntu 16.04 on a day to day basis.



Wil Lake is a retired mechanical engineer who retrained in IT when microprocessors entered mainstream. He has worked in IT for over 30yrs, lives in the Cotswolds (UK) and has spent years renovating a cowshed.



HOW-TO

Written by Ronnie Tucker

Write For Full Circle Magazine

GUIDELINES

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

RULES

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

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

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

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

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

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

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

When you are ready to submit your article please email it to: articles@fullcirclemagazine.org

TRANSLATIONS

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

REVIEWS

GAMES/APPLICATIONS

When reviewing games/applications please state clearly:

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

HARDWARE

When reviewing hardware please state clearly:

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

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



REVIEW

Written by Adam Hunt

Ubuntu 20.04

Ubuntu Long Term Support (LTS) releases always get attention because, for most users, these are the releases that they install and use. Ubuntu LTS releases come out in April of the even numbered years, like 2020. Each LTS is supported for five years, so users can run Ubuntu 20.04 LTS until April 2025, although many will upgrade to the next LTS, due out in two years.

This LTS has been eagerly anticipated, especially since the last “standard” release, Ubuntu 19.10, introduced some serious performance enhancements. 20.04 LTS retains that speed, making it quite zippy and responsive on the desktop.

This Ubuntu release is codenamed “Focal Fossa”, after the small cat-like carnivore from Madagascar.

BOOTING IT UP

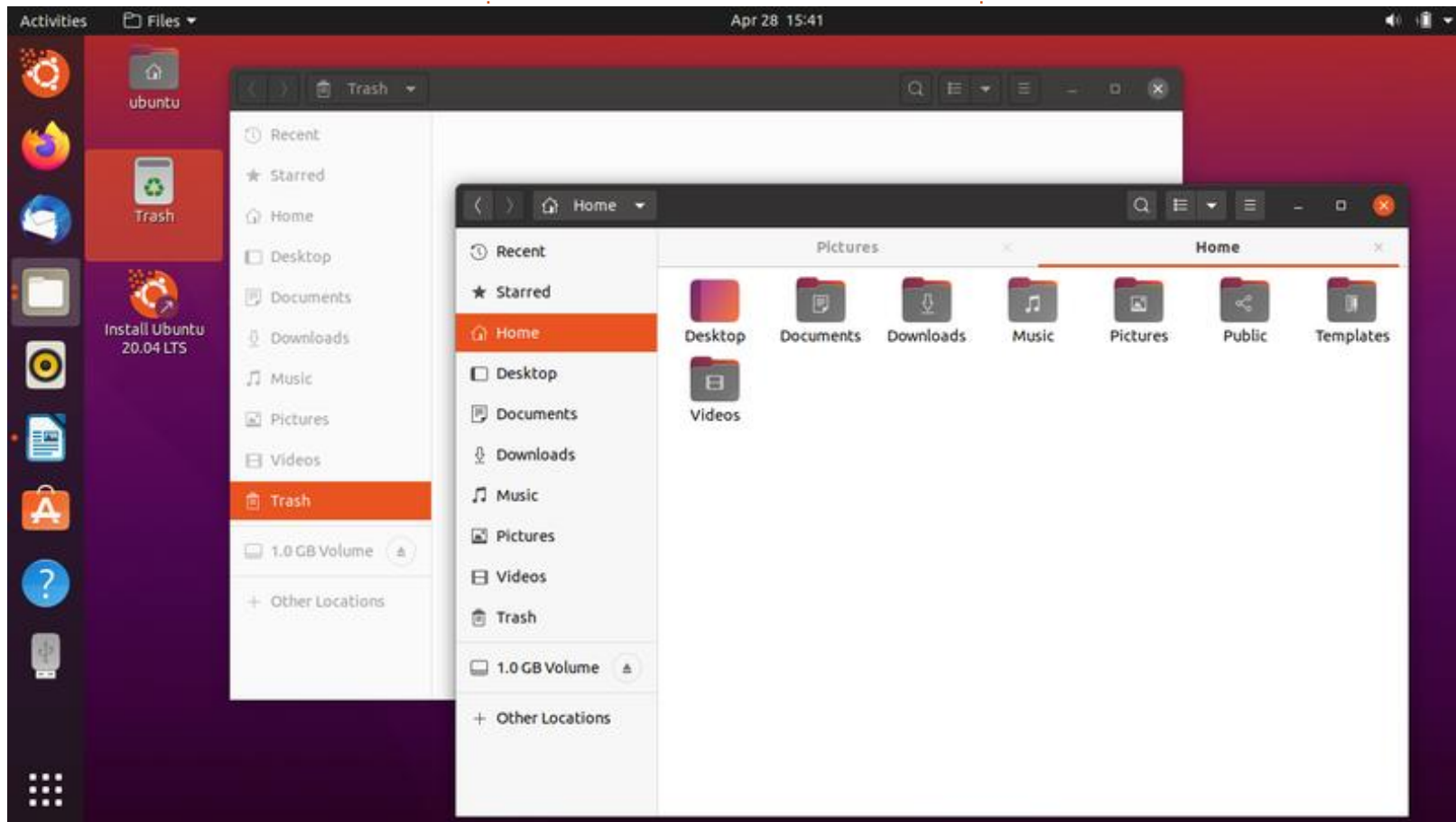
Users can upgrade to Ubuntu 20.04 LTS from 19.10 or from the last LTS, 18.04, or they can do a

fresh installation from a DVD or USB stick.

I made up an Ubuntu USB installer using the Startup Disk Creator. Booting it now results in an automatic file system check. Previously this test was available, but had to be manually selected.

Now it is started automatically, but can be manually terminated with Ctrl+c. The automatic check is actually a good thing, as it avoids faulty installations, so my advice is to let it run – at least for the first time with a fresh stick. It takes only a couple of minutes and provides some worthwhile insurance.

Once Ubuntu 20.04 LTS boots up, it presents a dark purple desktop wallpaper, with, predictably, an outline image of a fossa focusing. If this wallpaper is too cliché, then there are seven others provided, including a grey Focal Fossa rendition and the much



REVIEW

heralded return of the wallpaper from Ubuntu 8.04 Hardy Heron, considered by many Ubuntu fans to be the best Ubuntu wallpaper to date. It still looks nice today, some 12 years later. Of course you can always use your own wallpaper.

WHAT'S NEW

LTS releases tend to focus on stability rather than new features, but this one does bring some enhancements, including speed and power-saving improvements.

This release includes the Linux 5.4 kernel, which supports some new hardware including Intel's Comet Lake CPUs and initial

versions of the Tiger Lake platforms, Qualcomm's Snapdragon 835 and 855 SoCs, plus the AMD Navi 12 and 14 Graphic Processor Units, Arcturus and Renoir APUs, along with Navi 12+ Arcturus power features. It also newly supports the exFAT file system, as well as the open source WireGuard VPN. Livepatch updates mean that the kernel can be updated without a reboot, too. It even supports Raspberry Pi systems, versions 2 to 4.

This kernel version also supports Lockdown, a new Linux security module, although it is disabled by default for now. It is worth noting that Python 2 support and all 32-bit packages have been

removed from Ubuntu 20.04 LTS.

Ubuntu has a new boot-up splash screen that incorporates the hardware BIOS logo, as well as new Yaru themes and theme switching. What the desktop user sees is Gnome 3.36, which brings better performance, a new lock screen and system menus, and a suite of updated applications.

This release also provides support for the ZFS file system, with ZFS version 0.8.3.

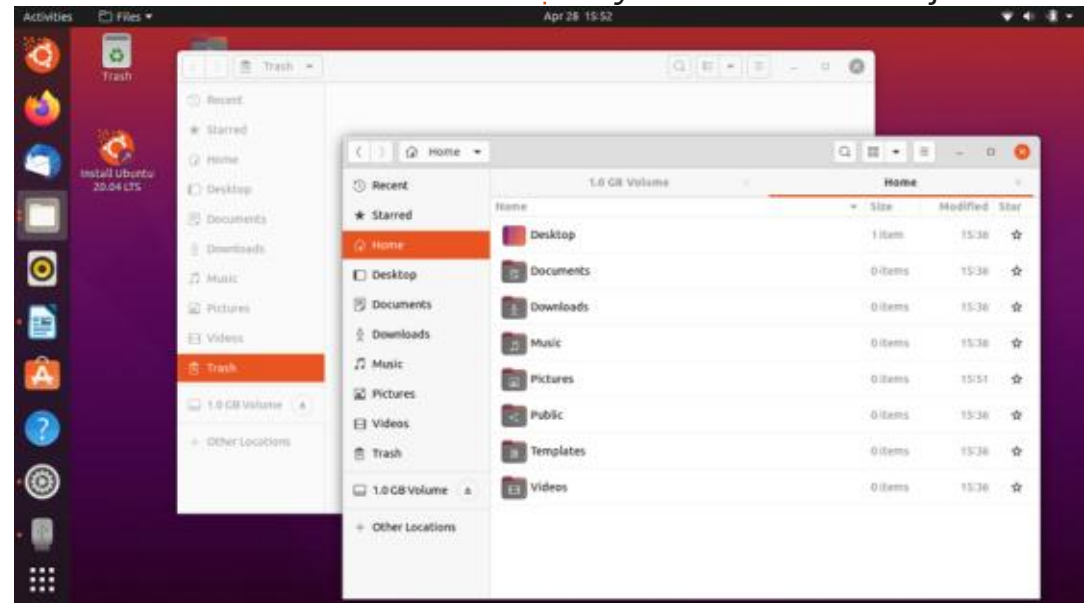
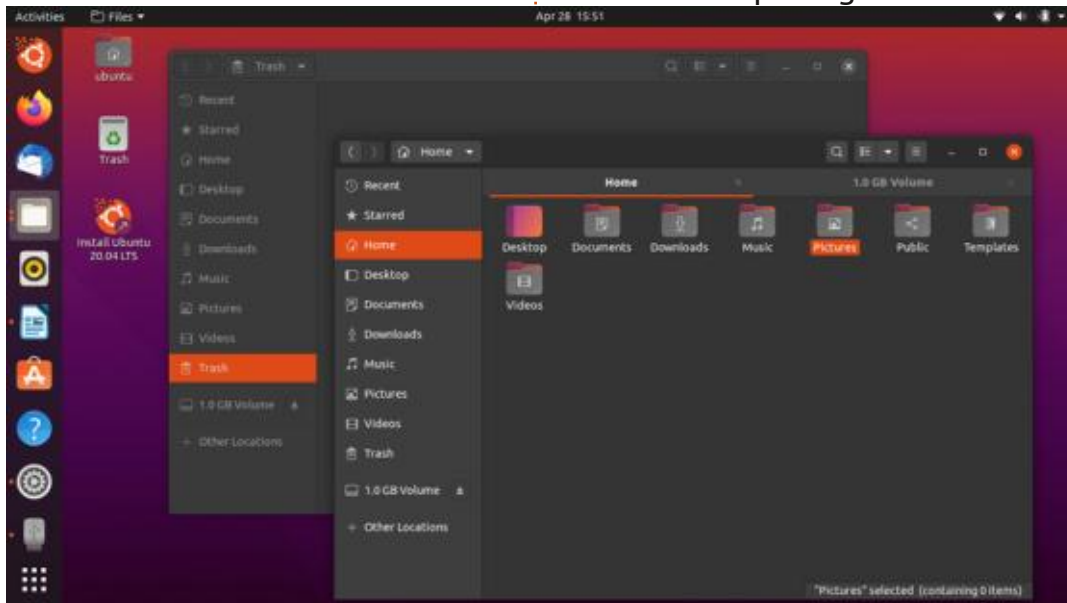
APPLICATIONS

With Gnome 3.36, Ubuntu 20.04 LTS includes the core Gnome

applications such as Gnome Terminal 3.36.1, Gnome Calendar 3.36.1, Document Viewer (Evince) 3.36.0, Document Scanner (Simple Scan) 3.36.0, Image Viewer (Eye of Gnome) 3.36.1, Gnome Disks 3.36.1, and Ubuntu Software (Gnome Software) 3.36.1.

The included Text Editor (Gedit) 3.36.1 works really well for coding, and includes seven syntax highlighting color schemes including three dark color schemes. It also has built-in spell-checking (Shift+F7), which is very useful in a text editor.

Files (Nautilus) 3.36.1 includes a native bulk file renamer which is easy and intuitive to use: just



highlight more than one file and hit F2 to start renaming files. The only thing it seems to lack, that other file browsers have, is an “up” button, to go up to higher levels in the file system. Users can still access system-level files, however, via “Other Locations – Computer” and then clicking down through the file system. There is no option to open a folder as root in Nautilus, but users can accomplish this by opening a terminal (Ctrl+Alt+t) and entering

```
$ sudo nautilus
```

which will open a root instance of the file browser.

It is interesting to note that



Ubuntu 20.04 LTS does not include a CD/DVD burning application by default. This actually makes sense in 2020, as neither laptops nor desktop computers have come equipped with optical drives for many years and CDs and DVDs are getting hard to find. It is notable that Ubuntu seems to be ahead of other flavors in omitting a CD/DVD burning application, as Lubuntu and Xubuntu 20.04 LTS still include one. A number of burning applications can be installed, if needed, such as Gnome’s Brasero, KDE’s K3B, or Xfburn from Xfce.

There are also some applications included from the Gnome 3.34 release, such as the webcam application Cheese 3.34

and the movie player Videos (Totem) 3.34.1. Other Gnome applications include the photo organizer, Shotwell 0.30.8, the Rhythmbox 3.4.4 music player, and Gparted 1.0.0 disk partition manager.

The rest of the default applications are from a variety of sources, like the Remmina 1.4.2. remote desktop client and Transmission 2.94 bittorrent client.

The LibreOffice 6.4.2.2 installation includes all elements except LibreOffice Math and LibreOffice Base, which are the least-used applications in the office suite. Unlike Lubuntu, spell-checking is included in LibreOffice by default, so Ubuntu doesn’t require a dictionary to be manually added.

Mozilla contributes the Thunderbird 69.7.0 email client and Firefox 75.0 web browser, to round out the software included by default.

Some users are not happy with the user interface changes introduced in Firefox 75.0, (like the “mega bar,” although it can be turned “off” in about:config), so I

tested out some alternative browsers. Chromium 81.0.4044.122 installed and worked very well. I tried out the native Gnome browser, Web (Epiphany) 3.34.4-1 and it worked fine except that opening the preferences menu crashed it every time, and opening a PDF crashed it, too. Falkon 3.1.0 installed but refused to open at all. Both of these seem to be “Snap” package dependency issues.

SETTINGS AND THEMES

Ubuntu has never had a really high degree of customization and 20.04 LTS’s window themes are offered in just three choices: light, standard and dark. Dark themes seem to be “in” these days, but both it and the standard theme make it hard to figure out which windows are active and which are inactive. The light theme does a better job, with active window tops rendered in a medium grey and inactive ones in a much lighter grey.

All the Ubuntu settings are controlled from one place: the Settings menu. It makes getting Ubuntu looking and working the way you like very simple and easy.

REVIEW

The Gnome Shell launcher can be set to hide when an application window touches it. By default it is on the left side of the screen, but can be moved to the bottom or the right side, if preferred, but not the top.

TESTING

In daily use, Ubuntu 20.04 LTS proved very snappy and quite noticeably fast. Applications open quickly and work without hesitation. The basic Gnome applications included, plus Firefox, Thunderbird, and LibreOffice, mean that most users will have everything they need to get to work right from first boot up. The only applications missing are a graphics editor and perhaps a video editor, either of which can be easily added from the Ubuntu repositories.

Adding applications to the launcher is as easy as “drag and drop” from the main menu. Items can be removed from the launcher with a right click selection.

I have found that the Gnome Shell (Gnome 3) desktop, and the

old Unity interface, have ended up converging in design over time so that, with the current Gnome Shell, I don't even miss Unity, good as it was, during its heyday of Ubuntu 11.04 to 17.04.

CONCLUSIONS

Ubuntu 20.04 LTS is a very solid and virtually flawless release. The whole desktop experience feels very slick and polished.

Given that this is the 32nd release of Ubuntu and the sixth release with the Gnome Shell, it really should feel like a mature Linux distribution – and it actually does – with no “rough edges” in

sight. Everything works right “out of the box” and provides a solid platform for getting work done, while allowing a reasonable degree of user customization.



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



The real “acid test” is here! It has been six years since the LXQt desktop project was started and we now have the first Lubuntu LXQt long-term-support release.

Released on 23 April, 2020, Lubuntu 20.04 LTS will be supported for three years, until April 2023. The next LTS will be Lubuntu 22.04, due out in April 2022.

Lubuntu 20.04 LTS is the fourth release with the new LXQt desktop and the 21st release since Lubuntu first appeared in April 2010, as version 10.04. This LTS version follows three “standard” Lubuntu releases, each used as development and testing platforms, progressively working towards this LTS version.

The first LXQt release, 18.10, came out in October 2018 and was a bit rough around the edges. The second one, 19.04, which I reviewed in Full Circle 146, was much improved. The third one, 19.10, reviewed in Full Circle 154, was better yet and raised hopes for a

virtually flawless LTS release.

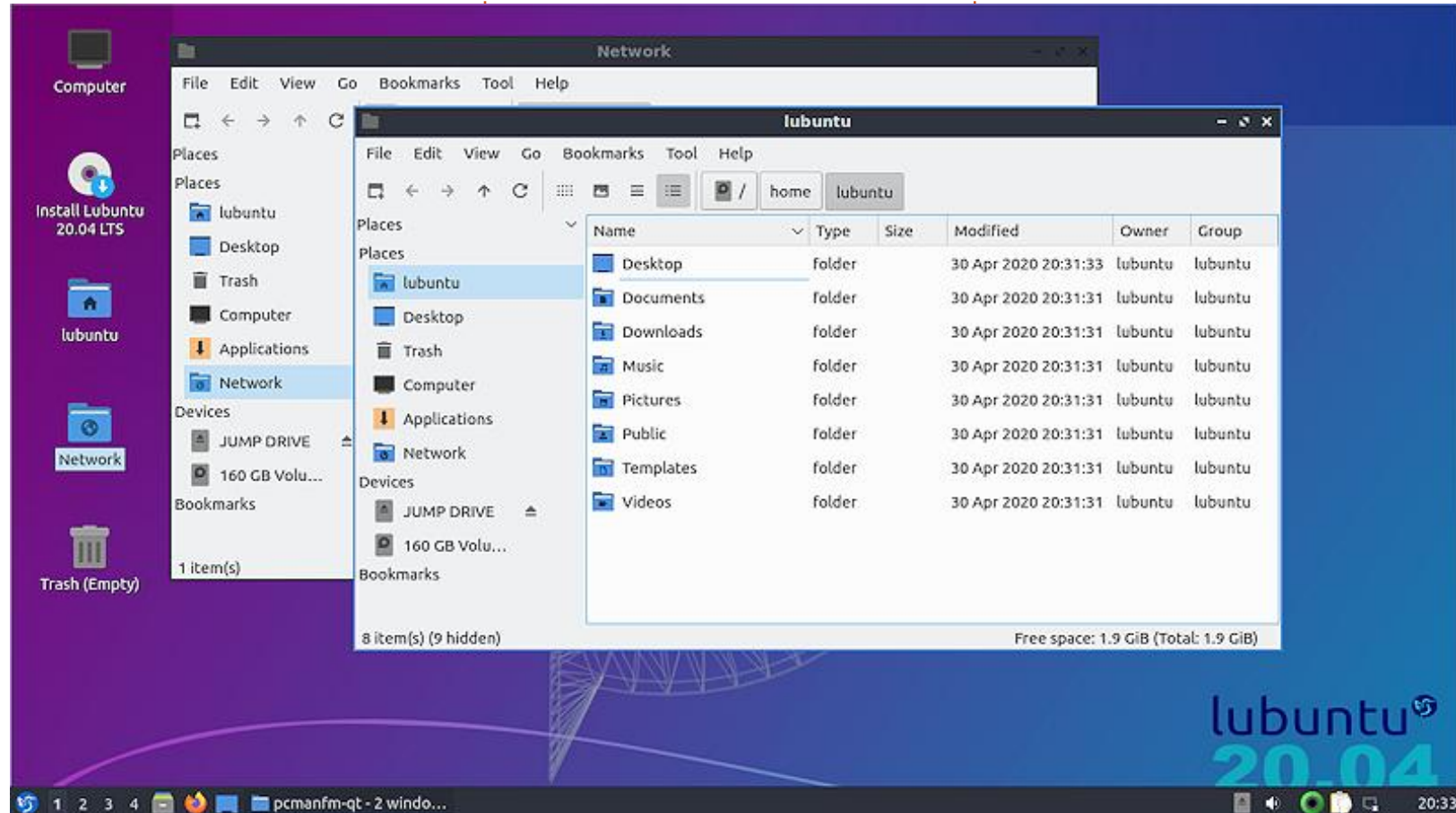
INSTALLATION

I did a fresh installation of Lubuntu 20.04 LTS, from a USB stick on both my desktop and laptop PCs.

The installations went very quickly, using the Calamares installer, with the laptop done in 14 minutes and the desktop in an amazing five minutes. Lubuntu is ready to get to work right out of the box, or you can add applications and employ all the customization tools to make it look

almost any way you like.

Boot times on the LXQt versions of Lubuntu have been slower than on the old LXDE versions, which were almost always under one minute. Since LXQt was introduced, boot times have been getting progressively slower, too. 20.04 LTS



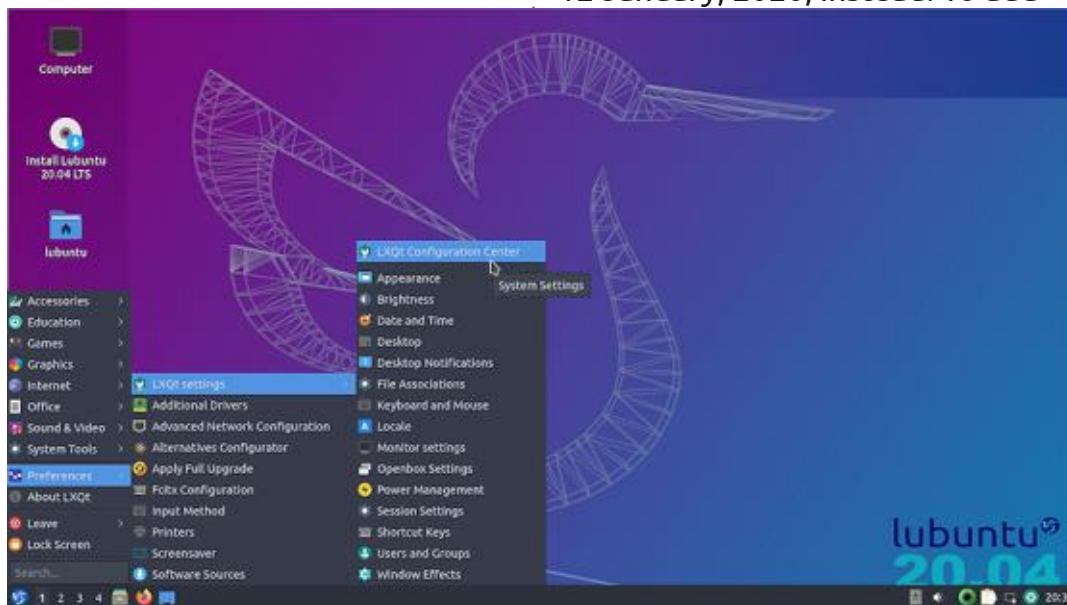
has boot times of 1:33 on my desktop and 1:45 on my laptop.

Idle RAM use after a reboot for 20.04 LTS on my laptop is 381 MB and my desktop is using 400 MB . Both are around the same amount that 19.10 used.

CHANGES

As would be expected, there isn't a lot new in this LTS release. LTS releases typically focus on stability and performance, rather than new and untested features. This release uses LXQt 0.14.1, based on the Qt 5.12.8 toolkit.

The system boots to a new



LXQt-themed wire-frame hummingbird wallpaper designed by Hudson Bomfim for the Lubuntu wallpaper contest for this release. The system file `/usr/share/lubuntu/wallpapers` has a nice selection of other new wallpaper to choose from, from the artwork competition. Of course you can always substitute your own favorite wallpaper.

The FeatherPad text editor now includes ampersand highlighting, and a "save all open files" feature. Unfortunately, this release did not include the current FeatherPad release, 0.13.1, which came out on 12 March, 2020, and offers an older release, 0.12.1, which dates from 12 January, 2020, instead. To add

spell checking, FeatherPad requires the Hunspell dictionary to be downloaded.

A new software update notification application, called Update Notifier (package name `lubuntu-update-notifier`), is also included. This was developed by Lubuntu member Hans Möller. It checks for updates and presents a dialogue box when there are any to install. Updates can be installed directly from the Update Notifier, or users can open Muon and do it that way, which gives the ability to examine the updates in detail. Adding the new Update Notifier is a good move, as it makes Lubuntu more user-friendly, especially for users who might not remember to manually open and check Muon on a regular basis for updates. The Update Notifier pops up automatically, but can also be found on the "Preferences" menu as "Apply Full Upgrade".

I found that, once again, LibreOffice does not include a dictionary for spellchecking, and one had to be added as an extension from <https://extensions.libreoffice.org/extensions/english-dictionaries> to get it working.

All applications now open faster than in 19.04, making it feel much more snappy, once the slow boot-up is done.

INCLUDED APPLICATIONS

Some of the applications included with Lubuntu 19.10 are:

- 2048-qt 0.1.6 simple lightweight game*
- Ark 19.12.3 archive manager
- Bluedevil 5.18.3 bluetooth connector
- Discover Software Center 5.18.3 package management system
- FeatherPad 0.12.1 text editor
- Firefox 75.0 web browser
- K3b 19.12.3 CD/DVD burner
- Kcalc 19.12.3 calculator
- KDE partition manager 4.1.0 partition manager
- LibreOffice 6.4.2 office suite, Qt interface version
- Lubuntu Update Notifier 0.1 software update notifier
- LXimage-Qt 0.14.1 image viewer and screenshot tool*
- Muon 5.8.0 package manager*
- MPV 0.32.0 video player
- Noblenote 1.2.0 note taker*
- PCManFM-Qt 0.14.1 file manager*
- Qlipper 5.1.2 clipboard manager*
- qPDFview 0.4.18 PDF viewer

REVIEW

- PulseAudio 13.99.1 audio controller
- Qtransmission 2.9.4-2 bit torrent client, Qt interface version*
- Quassel 0.13.1 IRC client*
- ScreenGrab 2.0.0 screenshot tool
- Skanlite 2.1.0.1 scanning*
- Startup Disk Creator 0.3.7 USB boot disk maker*
- Trojita 0.7 email client*
- VLC 3.0.9.2 media player*
- XScreenSaver 5.4.2 screensaver and screen locker*

* Indicates the same version as used in Ubuntu 19.10.

The large number of asterisks show that many application versions have not been changed, which contributes to potential stability, if not excitement.

A bit of an anachronism is the inclusion of K3B for CD and DVD burning. It seems odd to have it

included by default, since laptops and even desktop computers haven't come with optical drives for many years now. I tend to remove programs that I know I will not need, to reduce the requirement for updates and to declutter menus, as well as save hard drive space, so if your computer lacks an optical drive, K3B may be a candidate for your list for:

```
$ sudo apt remove
```

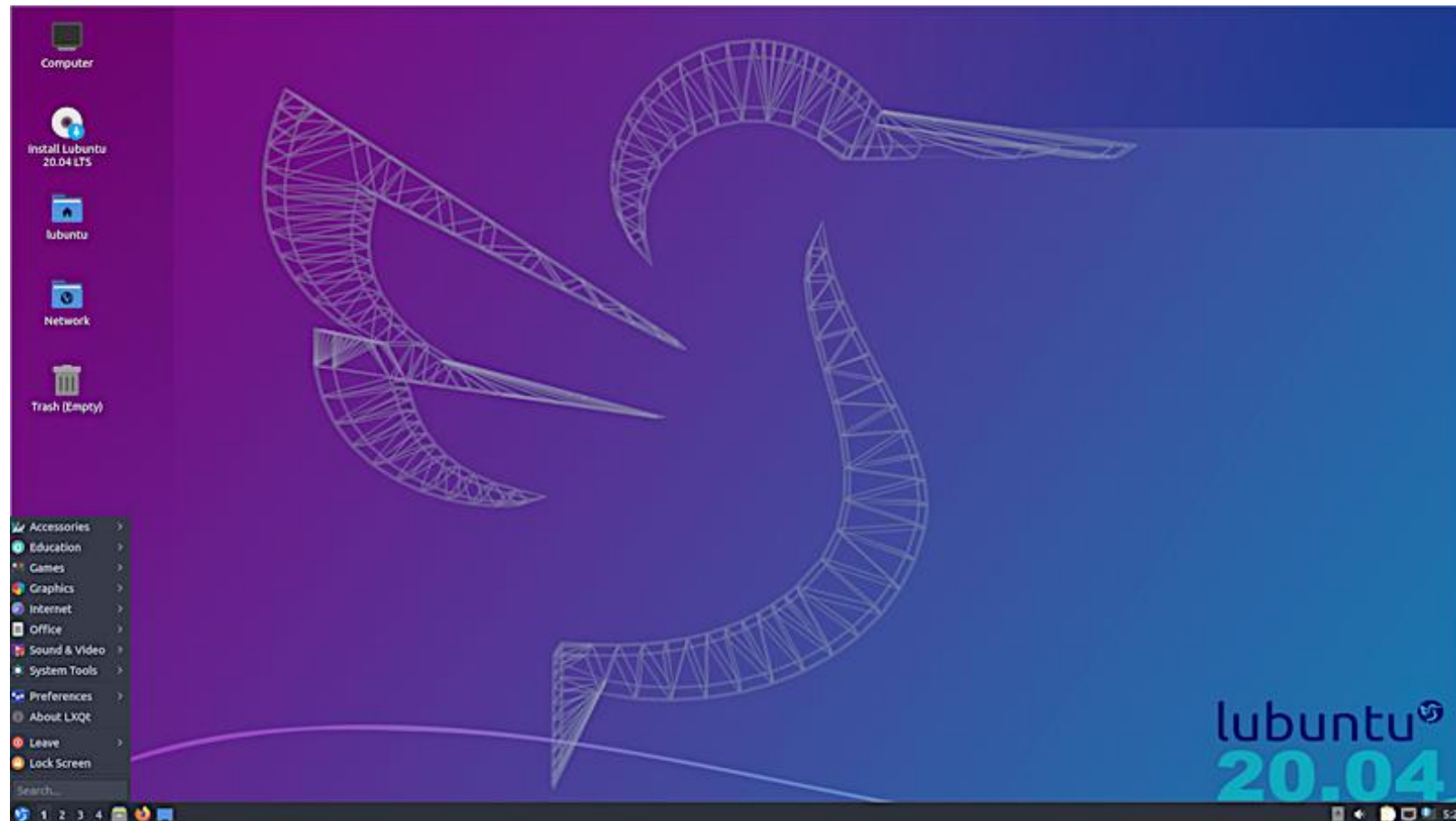
The screen saver and screen locker provided is XscreenSaver, a veteran application that works very well. In use, it has proven to be much more reliable than the previously employed LightLocker. XscreenSaver has an assortment of actual old time screensavers from the 1990s that look oddly out-of-date on a modern desktop. These are "on" by default, but easily can be turned off to display a black screen instead.

As in all the LXQt versions of Ubuntu, 20.04 LTS does not come with a webcam application. There are applications for this, like Cheese or Gvvcview, that can be installed from the repositories, if needed. Given worries about webcam hijacking, not having the software to run a camera by default is probably a good choice.

The LXQt versions of Ubuntu also do not come with photo editing or video editing software, although there are many choices for these in the repositories.

TESTING 20.04 LTS

Lubuntu, in its LXQt versions,



REVIEW

has always been a real breeze to customize. Everything is in the menu under “Preferences”, with most key items under the “LXQt Settings”.

Like all the LXQt releases so far, 20.04 LTS comes with the dark Lubuntu Arc theme as default, but it is quick and easy to change it in “LXQt settings”, “Openbox Settings” on the “Preferences” menu.

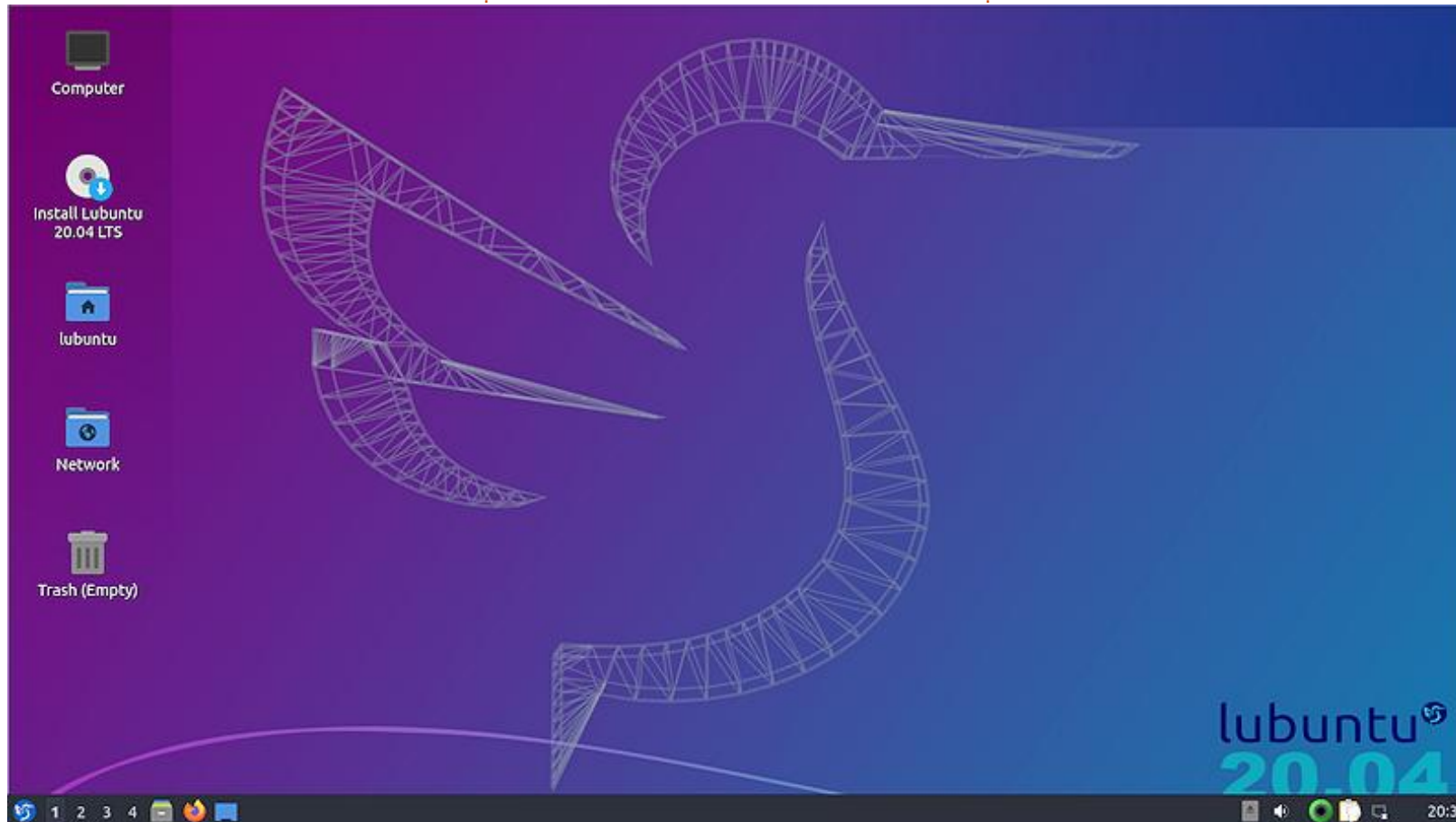
In daily service, Lubuntu 20.04 LTS has proven completely trouble-free. The workflows are easy and the software all just lets you get work done. It actually is that “flawless” LTS release that Lubuntu fans have been hoping for.

CONCLUSIONS

Lubuntu 20.04 LTS completes

the two-year development cycle, consisting of three standard releases leading to this LTS release. Overall this represents the culmination of a development project that commenced in 2014 to create a new Qt-based desktop for Lubuntu: LXQt. The process has taken much longer than was forecast six years ago, but was worth the wait. This first LTS release is stable, smooth, elegant, and a real joy to use. This is the

best Lubuntu release so far.



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



REVIEW

Written by Erik

Ubuntu Budgie 20.04

Ubuntu Budgie really shines this year with the Focal Fossa update. The install is effortless and completes in no time at all. Everything looks like it got some spit and polish.

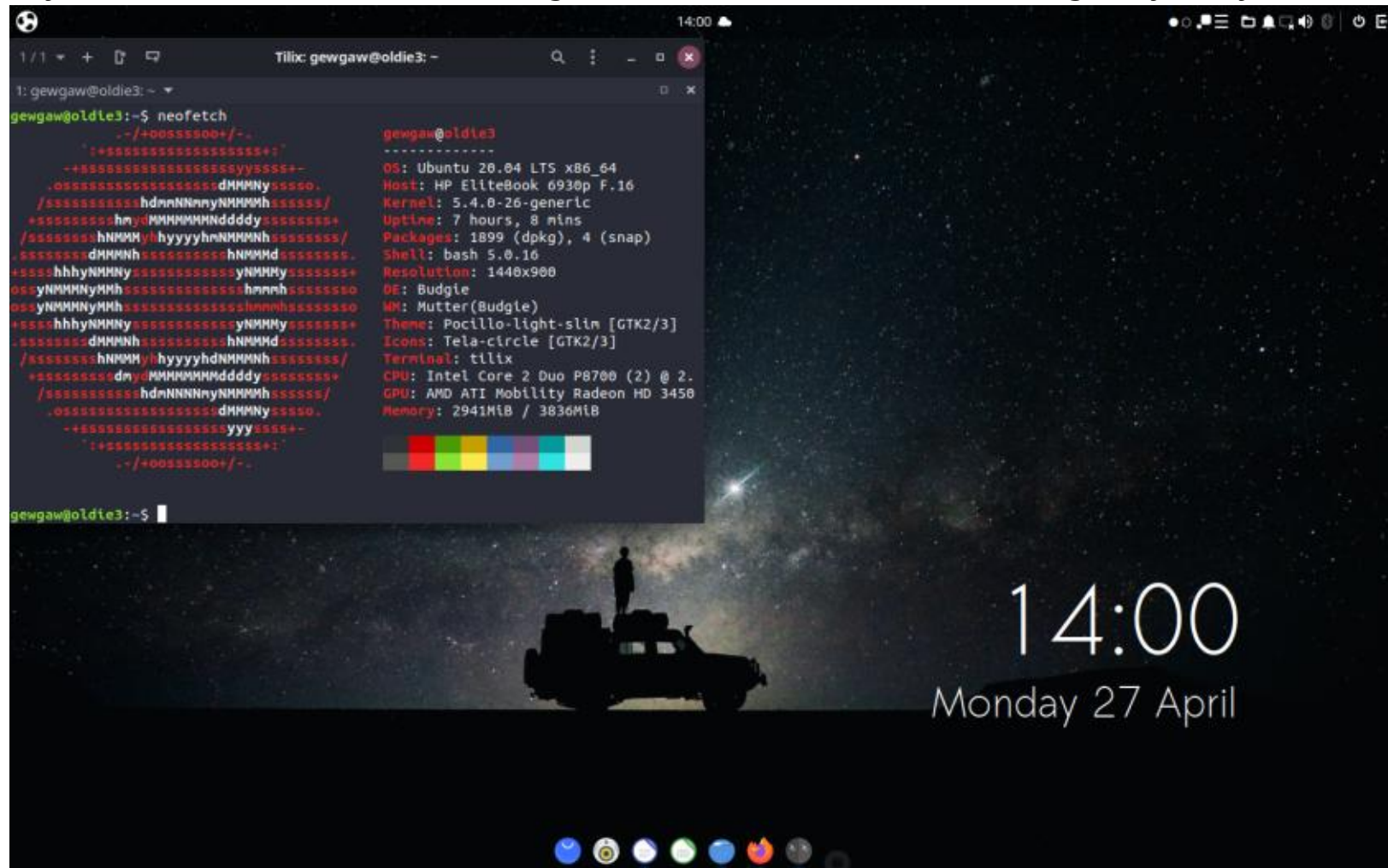
The flagship of Solus OS is the budgie desktop. There are lots of reasons to like Solus OS, but, in my opinion, it was the budgie desktop that made me like it. Let us not kid about how spoiled for choice we are, when it comes to desktop environments in Linux. Budgie is not “just another desktop”, no, people saw something in it, some potential, and here we have it in Ubuntu. Budgie keeps to the KISS principles with the default layouts and placings, but allows for some really awesome customizations. Why would one then choose Ubuntu Budgie over Solus budgie? Well, just the sheer amount of software, ready to go. In my youth, I would gladly have built everything I needed, but time is money, or so I have heard...

That is not to say Solus OS and Ubuntu budgie are the same, far

from it. The layout is different, Solus OS currently favouring a Windows XP look, with the main bar at the bottom and Ubuntu has theirs at the top. Yes, I know you can change it, but this is one of the ways Ubuntu differentiates itself.

The raven sidebar is smooth as ever, and by default it is minus the power strip at the bottom. That I am thankful for. Many times I have hit logout by mistake. Unlike Solus, Ubuntu budgie ships with plank, and again unlike Ubuntu MATE,

there is no default anchor on my plank. They say the devil is in the details, but there are so many little nice touches here. They are not visible at the onset (like youtube-dl installed by default), but once you start using the system, you realise



that it is not “just a clone”.

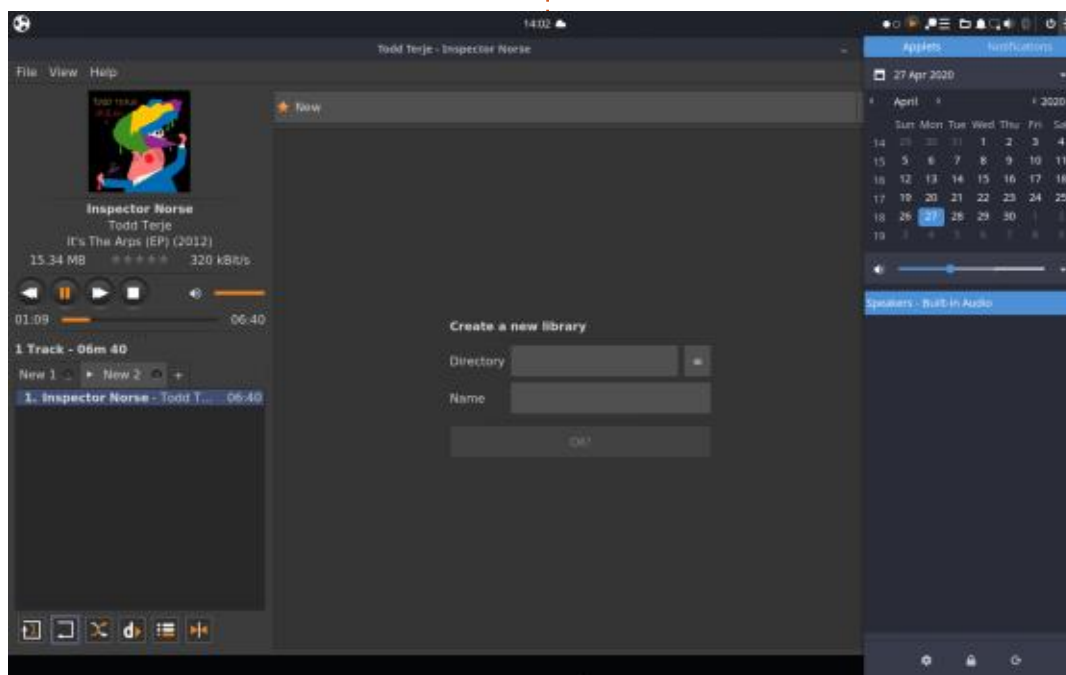
What I mean by this is that, when I wanted to start adding my fonts, the font manager was already there. I did not have to install the font manager first. You will see, once you actually use it. Using budgie is not difficult either. It is intuitive and simple. Even my hillbilly family is quite comfortable with it. Anyone that has operated a computer before should be able to pick it up and work.

The default application choice was also well thought out, aimed at those new to Linux or Ubuntu. The applications that require the least fuss, right down to a few casual games, are included. If that is not enough, the welcome greeter will help any new user get acquainted with the system and help them install their favourite applications.

Performance is amazing. (Amaze-balls, dahling!). I am writing this on an old dual-core laptop and I have had no issues. Twenty five seconds (not counting the five that the BIOS requires to get things going), and I am on the login screen. There is another maybe ten seconds worth of hard drive grinding once you log in, but the

welcome greeter is loading, which is fair. Ubuntu Budgie is the sweet spot between speed and pizazz.

I almost want to say Ubuntu Budgie is the best of both worlds, but it is not. It has something from almost all the other “flavours”. The nice crisp icons of KDE in the file manager, the layout switcher from Ubuntu MATE, etc, etc. What it does not have is a plethora of plugins like the default Gnome desktop, where half do not work. The add-ons are well curated and enhance your experience. If you are too lazy to “rice”, then the maintainers have even included a bunch of quick custom settings for your desktop.



There is ‘quick’ in a lot of things, like the menu, it has a button to allow you to switch between the all-in-one layout and a more structured approach, right there in the menu.

I cannot tell you how chuffed I am with this version of Ubuntu Budgie. The desktop is light enough to save this laptop from the garbage heap, and powerful enough for me to play games on. Yes, no fibs! I will attach a screenshot. I did have one gripe though; for some reason, the picture viewer defaulted to “drawing”. It was easy to fix , so I cannot complain.

Ubuntu Budgie was a great idea, and I congratulate the team on their success. I can recommend this to anyone who is not happy with Gnome3 default of the main Ubuntu distribution. Though a lot of work has gone into the Gnome3 version, and it does not feel laggy any more, do not think Ubuntu budgie is a second class citizen. What are you waiting for, head on over to ubuntubudgie.org and grab yourself a copy while it is hot!

My tip for those of you running Ubuntu Budgie is to install htop first and have a look at how light and responsive this “flavour” is.



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



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ubuntuforums.org/forumdisplay.php?f=270

How To Boot An ISO File From GRUB

Way back in issue #121 (May 2017), Alan Ward wrote an article on "Installing Ubuntu Without External Media". It involved using GRUB to boot from an ISO file stored on your hard disk, rather than burning it to a USB stick or to an optical disk. I used Alan's method a few times, but things have moved on since then. The following (top right) is my slightly updated method.

Download the iso file and save it in your / (root) folder. My home folder is encrypted, so for the purposes of this test, I cannot save it under there. It needs to be in an un-encrypted folder.

Next, as root, edit /etc/grub.d/40_custom and append the following to the end of the file. Kubuntu 19.10 is used as an example.

NOTES:
• To test another distro, just change the menuentry name (line 1) and

```
menuentry "Kubuntu 19.10" {
    insmod part_gpt
    insmod ext2
    set root=(hd0,gpt7)
    set isofile=/kubuntu-19.10-desktop-amd64.iso
    loopback loop (hd0,gpt7)$isofile
    linux (loop)/casper/vmlinuz boot=casper iso-scan/
filename=$isofile
    noprompt noeject
    initrd (loop)/casper/initrd
}
```

- the iso filename (line 5).
- Lines 2, 3 & 4 are not strictly necessary. They are there for completeness.
- Lines 4 & 6 assume GPT partitioning. If using old-style MBR partitioning, change "gpt" to "msdos". gpt7 refers to the root partition of the existing (host) distro, in my case /dev/sda7.
- Lines 7 & 8. Check the filenames in the test distro. They might be something like vmlinuz.efi and initrd.lz. In Kubuntu 19.10, these files do not have extensions.
- Line 9. Don't forget the closing curly brace.

Save file, then in Terminal, run:

```
sudo update-grub
```

Reboot. You should see an entry in the GRUB menu for the test distro, enabling you to try it out in a live environment. You can even install it from there, same as usual.

This is also a good way to store and use a "rescue" distro.

Paul Romano

FULL CIRCLE NEEDS YOU!



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

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

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



Q&A

Compiled by EriktheUnready

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

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

Back in the days when the west was wild and all, I worked for a shipping company. They had a warehouse that stored almost anything. They sent me on a course for Q&A (Not questions and answers, but a word processor/ database) to get their stores computerised. Truth be told, whomever told them this is what they need, was probably out to swindle them. Fresh faced out of this course, and bursting at the seams, I was posted to the warehouse to examine what they wanted. Turned out the main beef

was with big bags of plastic pellets for manufacturing. The forklift drivers would take the corners on two wheels (the steering wheel and the spare wheel!), and stab these bags open, spilling the pristine pellets all over the dirty floor. Now these pellets, when swept up, had grime in them and could not be added to the original bag. The original bag now also did not have the same dimensions or weight as the others. (However it sagged, it was duct taped up). The client refused to take broken bags too, but that is another story. Now imagine the look on my face when they told me that they needed the program to stack the stores in bags by size and weight, and group them by product, and take into account the bags with varying sizes and weights and work out an optimised stacking algorithm, taking in to account all the swept up pellets that may, or may not, be mixed. All this in a flat database, the crappy XT computers could not even display decent graphics, so how it was supposed to show them where and how to stack stock is beyond me. If they had sent me on a C

course, I could maybe have pulled something off, but a database course? Today, still, I think there are a lot of people with unrealistic expectations from IT. This goes all the way down. If your computer is old, don't blame Ubuntu; run Antix or look for an alternative.

Q : I downloaded the new Ubuntu 18.04.4 release and installed it. I copied my work across, but now every time I want to open my documents, I get an error that says the file is locked by me for editing. Open as read-only. I can assure you they are not. The only way I can continue is to copy & paste everything to a new document. Help me quickly? I have LibreOffice 6.3, but my old system had LibreOffice 6.1.

A : Go to the folder where the documents are stored. Press CTRL+H or turn on hidden files. Now simply delete the ~/.lock files. Your files should open normally now.

Q : I try to install server ubuntu 14.04 to ubuntu 19.10. Is not working. You please say what is wrong.

A : That upgrade will not work. Best you save your data and install a fresh copy of Ubuntu. If it is a server, as you say, I say wait for 20.04. Too many things have changed, and I mean like apt, etc, for that to work.

Q : Greetings from Ghana. I have Ubuntu 18.04.02, and I want to access a windows 2016 server. I am using Remmina. My screen is smaller than the server, my laptop is old. So my display is giving me many problems. I can't access. Remmina FAQ have no answers. Also Ubuntu is not allowing saving of the session. I have checked the permission. Thanks brother.

A : Let me address the first question, you can choose the display size in the settings, go down to resolution and change the size. BUT also change the color depth away from "GFX" options. Or

Q&A

else, it will not work and you will not be able to save the session. The second part of your question. Catch 22, Windows server 2016 needs 1024x768, minimum, or you will still need to scroll the screen.

Q: What means this? <image> (unable to correct problems, you have held broken packages. -E)

A: Just what it says. It's caused by broken dependencies, which are a side-effect from having packages installed that depend on other packages that aren't installed. When apt goes to install something, it notices that it can't find something that it needs and therefore can't continue the installation. Try to repair the broken package first.

Q: I installed Ubuntu 19.10 fresh. But I can not rename a file. F2 is not working any more, It just changes the volume. I'm new to Ubuntu from windows.

A: Your keyboard F-keys are set "wrong" in your BIOS. You should still be able to get the old functionality by using Fn+F2. You have a few more options, change it

in your BIOS, right-click the file and select rename, or open a terminal and use the mv command.

Q: Hey there. I have Ubuntu Budgie installed and when I go to settings, I can't find a way to change my mouse cursor. Is this possible in Budgie? <sorry for cutting this short, we only have so much space and the rest was not relevant -E>

A: Budgie desktop has a panel called "Raven". When you unhide it, you will see a gear icon. This will bring up the options for theming. Otherwise, look for "Budgie Desktop settings" in the menu.

Q: Howdee. My laptop is an older model Acer. I installed a Seagate 500GB SSD, but it's not any faster and will sometimes freeze when I have high disk usage. I feel I have wasted my money on this upgrade. I have Ubuntu 19.10 and I know it's only supported for 9 months, but it is supposed to be faster. But everything I do for speed seems to slow it down. WTH?

A: Firstly, for an SSD to actually make a big difference, your laptop should have AHCI set in the BIOS, not legacy or compatibility. Secondly, if your SATA supports only 1.5GB/s bus speed, like the older ones do, then you cannot expect 6GB/s speed of the new ones. Think of it as a pipe. The fatter the pipe, the more water it carries, regardless of reservoir size.

Q: How can I add a folder in a snap? I want to install plugins and I can't copy them in. It's GIMP 2.10 official snap.

A: Don't take this the wrong way, but use a snap only if you have to, at the moment. They still need to work out lots of kinks. Snaps are self contained modules, so folders do not line up, add-ons don't always work, as add-ons were written for non-snap versions, etcetera, even if your folder is inside the snap. Try the flatpak if the snap gives you any grief, or wait for the update to come. You can always build it yourself?

Q: I have a Lenovo laptop with Ubuntu 18.04. When I close the lid and open it again, I can't type in

Telegram. So what is it?

A: Sounds like a Telegram problem, no? You didn't give me much to go on, but luckily I have heard of it before. Close Telegram and re-open it and you will be fine. It is an issue with the application and not Ubuntu.

Q: OK, so I installed only Xubuntu on my laptop. The final switch. I installed a few programs and all seems well. When I run Geany I get an error, "Geany cannot load Failed to open file / share/geany/geany.glade:". I have a project for school I need to do and I don't know how to solve this error. Tx.

A: Uninstall the nasty snap and install Geany from the repo's. -OR- Once you have uninstalled the snap, run: sudo apt install geany from the terminal.

Q: Guys, I am new to Ubuntu and wanted to know what is the difference between sudo apt-get update and sudo apt-get upgrade? I want to update my Ubuntu not upgrade it?

A: You do not need to type apt-get any more, you can simply use apt. Okay, back to your question. When you type apt update, you are updating your repository information. Then you are upgrading your packages with apt upgrade. I know this sounds weird, but Linux is a collection of things, So when you want to “upgrade your Ubuntu”, you use dist-upgrade.

Q: I have heard that I can install Ubuntu on another machine and transfer the hard drive and it will work. Is this true coz I want to install Ubuntu on my brother’s PC and bring the hard drive to mine.

A: Actually, yes, in some cases it does work, but if your brother installs, say, a 64-bit version, and yours is 32-bit, it will not work. Also, hardware drivers and kernel modules matter, so take that into account.

Q: Can I install Gallium on my dual core machine? I have 4GB ram and 500GB drive.

A: Do you mean Gallium OS or Gallium 3d? If it is Gallium OS,

you will need to ask on their Forum. Gallium3d will depend on your video card.

Q: So I tried to upgrade from 18.04.2 to 19.10, but, when I rebooted the laptop, it doesn't go further than a black screen. I can't even access the recovery mode. Help me. Obi wan Kenobi. You're my only hope.

A: 19.10? These are not the droids you are looking for. Boot your PC into a live version of Ubuntu 19.10 and back up your data. Reinstall and copy data back for fastest results. Alternatively, create an empty file on your root partition and reboot like so: touch /forcefsck, and check that your boot partition is not full. Also check your grub entries.

Q: I upgraded to Xubuntu 19.10 and somehow my headers for my windows have gone from words to blocks. <image> Did something break during the upgrade? Should I reinstall?

A: That is a font issue, you need to either install those fonts or change them to fonts your system

has. Start by changing your system fonts to Ubuntu and see, then to whatever they were.

Try:
`sudo fc-cache -fv`

Q: Hello, new to the whole Ubuntu thing. What is glibc and why is my computer suddenly glib? I like seeing what is being updated, but I don't really know what I am looking at.

A: Rule of thumb, if it starts with 'g', think gnome, but, in this case, it is GNU, the lib part is short for library (an add-on type file) of the type 'C'. So in short it is the GNU C library. See: <https://www.gnu.org/software/libc/>

Q: When I look at htop, I see 14 entries for firefox, but I only have two tabs open. Explain that.

A: It is true Firefox opens each tab in its own session, but it does that for add-ons too, as well as checking for updates, etc. Because Linux caches your sessions, they may still be there even if you closed the tabs.

Q: How can I replace spotlight on my Mac in Ubuntu? I have set up a laptop for the wife, but I find the menus tedious. I want to zoom around my machine, not click, click, click.

A: Well, “Albert” should get you there, but if you need a bit more, give “Cerebro” a go.

Q: I just need some information. How can I make some MP4 books into MP3 in Audacity that doesn't take so long, that I can play on my MP3 player?

A: Don't use Audacity for that. Use sound converter, much quicker and easier, unless you want to do some editing, then it will have to be Audacity.

Q: One of my colleagues was helping me with some of my files, and the tutorial says to use umask 007. It sounded so James Bond-esque and I haven't come across it before. I was wondering if you could explain it?

Q&A

A : Sorry, it's a secret, if I tell you, I will have to kill your rabbit. Just kidding. It is too long for a Q&A, so I will point you to the web:

<https://www.cyberciti.biz/tips/understanding-linux-unix-umask-value-usage.html>

Q : Hey. I am new to linux and Quad boot Ubuntu with a few other distro's. How can I find the same package for all my distro's without having to manually search for them? Excuse my English.

A : Your English seems fine. However I am not 100% on what it is you want. Can I point you here:

<https://pkgs.org/>

You can type in the package you want and get a lot of versions at once. Other than that, you need to elaborate.

Q : I have a 1TB Western Digital 2.5" external drive. I connect it to my Lenovo laptop running Ubuntu mate 18.04. All SEEMS OK, then I open a movie and randomly the drive ejects itself as my movie crashes, and when I look, the drive

is not there. I was thinking it was a powersave feature, but sometimes it happens when I am browsing my movie folder. It's making me mad. Could you save my sanity please?

A : I suspect that it is not Ubuntu at all but your drive's header connection or your cable. Start by buying another cable (they are really cheap, like \$1). Then if it still happens, move the header. (the joint where the cable joins the drive). If it removes itself from your system during any of these, it is a hardware problem. If not, let me know.

Q : How can I shorten commands. I was watching a tutorial and the guy uses "ll" to type "ls -la" I am not even sure what you call it to google it myself.

A : That is not uncommon, but do not worry, FCM has you covered. It is 'alias' you are looking for. You use the alias command, the new word, and equal sign and the command. See:

<https://alvinalexander.com/blog/post/linux-unix/create-aliases>



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



Website:

<https://eagleislandgame.com/>

Price: \$13.99 (Steam)

Blurb: *"With its falconry-inspired gameplay & procedurally generated worlds, Eagle Island is set to a beautifully modernized pixel art aesthetic and provides a breath of fresh air to the character platforming genre."*

I stumbled across this platformer – whilst looking for something entirely different.

STORY:

It may just be me, but there is no real back story. You travel with your boat when the weather turns clement, and the boat spontaneously combusts. Congratulations, you are now a castaway.

Once on the island, the story develops a bit more when an eagle eats your second owl. I am not sure that this is the best imagery to give to kids, even if you did not get

attached to your owls yet. I like to be immersed in a game, so the fact that an eagle ate one of my owls I was not attached to, was really meh.

GAMEPLAY:

The controls seem standard,

however, when you reach the third screen, you will see diamonds at the bottom of a pool. Try as you might, you cannot reach it. (I even remapped my keys, in case it was my fault, and 'down' did not work). The door above it is locked and I can only assume you need the three diamonds to open it.

If you follow the instructions, once you have received your falconer's glove, you are told you can hang in the air indefinitely as long as your bird hits enemies. However, as soon as your bird hits the first enemy, you drop like a stone and die. Keys are nice and



UBUNTU GAMES - EAGLE ISLAND

responsive, otherwise. The door behind the NPC, who gives you the glove, is also locked, so I am unsure where you can go. This does not bode well.

GRAPHICS AND SOUND:

Let me start with the graphics – as you seem to have a choice here. You can choose between pixel art, straight up. Pixel art on an emulated CRT. Hard and soft

tones in the dungeons. The background music is peaceful and enjoyable. There was nothing I noticed that would grate your ears or last nerve.

Painted. Full screen, it looks terrible on a 1080p screen, that most people use these days. Playing in a window it looks good. The tilesets seem like some effort was put into it and this raises the aesthetics of the game.

The sound is good, switching between moods as you traverse different screens. You have seagulls on the beach, rushing water at the waterfall, gloomy

tones in the dungeons. The background music is peaceful and enjoyable. There was nothing I noticed that would grate your ears or last nerve.

CONCLUSION:

Not being able to dive when in the water (but tempting me with diamonds), not hanging in the air as promised, etc, made me file this away as a waste of time and space.

If I wanted to die over and over and over in the first three minutes, I would find a ZX Spectrum emulator and load up a game there. When playing a platformer, I want it to be challenging, but not keep dying on technicalities. It would be nice to know what you are doing and where you are going, unless it is an endless runner, like bit:trip.

I really wanted to like this game, but I can't.



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



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

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

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

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



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